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July 27, 2019

Energy Facilities Siting Council
c/o Kellen Tardaewether, Siting Senior Analyst
Oregon Department of Energy
550 Capitol St. N.E.
Salem, OR 97301

Via EMAIL: B2H.DPOComments@Oregon.gov

Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018;
Draft Proposed Order.

Dear Chair Beyeler and Members of the Council:

I am an Eastern Oregonian and have traveled and recreated in the vicinity of Hilgard State Park for many years. I have concerns about the steep slopes, soils hazards, landslide risks, and erosion impacts that the construction of the Boardman to Hemingway Transmission line will pose in an already dangerous canyon.

Re: Soil Protection - Drill site 95/3 and 95/4 on unstable and steep slopes
345-022-0020

(c) ...*The applicant, through appropriate site-specific study, has adequately characterized the potential geological and soil hazards of the site and its vicinity that could, in the absence of a seismic event, adversely affect, or be aggravated by, the construction and operation of the proposed facility...*

Permanent Administrative Order EFSC 2-2017 Chapter 345 Department of Energy; Energy Facility Siting Council;
effective date 10/18/2017; agency approved date 09/22/2017.

Geological Hazards and Soil Stability; Exhibit H. Attachment H-1, Engineering Geology and Seismic Hazards Supplement to Exhibit H Boardman to Hemingway 500 kV Transmission Line Project Boardman, Oregon to Hemingway, Idaho January 25, 2018; Shannon & Wilson, Inc. 3990 Collins Way, Suite 100, Lake Oswego, Oregon. 97035.

Drill sites 95/3 and 95/4 are shown on the following tables and maps and analysis by Shannon & Wilson, Inc.:

Soils; Map page 18 of 44:

Table B3: Soil Descriptions, described as:

5776CN; erosion hazard; severe, percent of slope Low; 30: High; 60. (sheet 3 of 4)

Table C1: Summary of Proposed Borings; Map Sheet 36

95/3 – Angle change along alignment; Slope stability/landslide; Geo-Seismic Hazard; Road and railroad crossing

95/4 - Angle change along alignment; Road and railroad crossing

Appendix E: Landslide Inventory, E.2.3; PLS-002 Sheet 5, 6

“PLS-002 is an approximately 460-acre potential landslide that was identified in available LiDAR data. PLS-002 has not been verified in the field and should not be considered a landslide based solely on interpretation of LiDAR data. The IPC Proposed Route passes above this potential landslide between towers 93/5 and 95/3, potentially affecting the stability of these proposed towers and associated work areas. A field reconnaissance along this portion of the alignment should be performed as part of the geotechnical exploration program.”

Idaho Power Corporation, in Exhibit H 2.2.4 states “*The soils (in Union County) vary from a few inches to a few feet thick over weathered bedrock, are generally well-drained, and are typically characterized as having a severe erosion hazard.*” Idaho Power Corporation admits in ASC page B-12 that “*The mountainous area such as the Blue Mountains present very challenging topography with many areas of steep slopes in excess of 35 percent and other areas of unstable slopes*

presenting design and construction challenges.” IPCs stated original intention to the EFSC was the following: “Using topographic maps the corridors were adjusted to avoid or minimize distance across very steep slopes and other physical features less desirable for construction and operation of a transmission line.

Hazard Analysis Union County Emergency Operations Plan Updated 6/30/16 lists Winter weather as the highest weighted risk item before Seismic, Fire, Hazmat-Transportation, and Drought. Most of the area receives a large percentage of the annual moisture as snowfall and both the winter storms and the spring melt can be precipitous and unpredictable.

The area surrounding the drill site 95/3 and 95/4 is within a mile of the Hilgard Junction State Park and Recreation area and the heavily traveled I84 transportation/utility corridor.

Conclusion and Requested Relief:

Drill site 95/3 and 95/4, and its vicinity, represent a significant risk of several possible adverse effects. This area encompassed by the lands shown in PLS-002 should be removed for consideration as a site for a transmission “facility.” While Idaho Power Corporation attempts to mitigate problems of unstable soil with structure and footing modifications, this should not be considered an acceptable risk when the entire area is unstable.

I appreciate your consideration and your attention to this matter.

Sincerely,



Rebecca Flick

Signature

Printed Name:

Mailing Address: 8 Pine Crest Dr
La Grande OR
97850

References

Burns, W. J., Mickelson, K. A., Saint-Pierre, E. C., 2011 SLIDO-2, Statewide Landslide Information Database for Oregon, Release 2; Oregon Department of Geology and Mineral Industries.

Idaho Power Corporation, 2017, *Exhibit H of the Application for the Boardman to Hemingway Transmission Line Project*: Report Prepared by Idaho Power Corporation, Boise, Idaho.

Geological Hazards and Soil Stability; Exhibit H. Attachment H-1, Engineering Geology and Seismic Hazards Supplement to Exhibit H Boardman to Hemingway 500kV Transmission Line Project Boardman, Oregon to Hemingway, Idaho January 25, 2018; Shannon & Wilson, Inc. 3990 Collins Way, Suite 100, Lake Oswego, Oregon. 97035.

Permanent Administrative Order EFSC 2-2017 Chapter 345 Department of Energy; Energy Facility Siting Council; effective date 10/18/2017; agency approved date 09/22/2017.

Oregon Department of Energy; Energy Facility Siting Council – Chapter 345, Division 22 General Standards for Siting Facilities; OAR Amend: 345-022-0022; Soil Protection

Idaho Power Corporation, 2017, *Exhibit H of the Application for the Boardman to Hemingway Transmission Line Project*: Report Prepared by Idaho Power Corporation, Boise, Idaho.

Geological Hazards and Soil Stability; Exhibit H. Attachment H-1, Engineering Geology and Seismic Hazards Supplement to Exhibit H Boardman to Hemingway 500kV Transmission Line Project Boardman, Oregon to Hemingway, Idaho January 25, 2018; Shannon & Wilson, Inc. 3990 Collins Way, Suite 100, Lake Oswego, Oregon. 97035, page 28 and elsewhere.

Union County, Oregon, Union County Emergency Operations Plan – Hazard Analysis. Updated – 6/30/2016.

August 5, 2019

Energy Facilities Siting Council
c/o Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol St. NE
Salem, Oregon 97301

RECEIVED

AUG 12 2019

DEPARTMENT OF ENERGY

Via EMAIL: B2H.DPOComments@Oregon.gov

Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018; Draft Proposed Order.

Dear Chair Beyeler and Members of the Council:

APPLICANT FAILED TO INCLUDE ALL REQUIRED SOURCES OF NOISE IN THEIR MODELING OF NOISE IMPACTS OF DEVELOPMENT

Idaho Power did not include any of the items listed in OAR 340-035-0035(l)(b)(B)(ii), which are only exempt from the noise measurement when the development occurs on a previously used site. When establishing ambient noise level for a new development on a site not previously used, it states: "Sources exempt from the requirements of section (l) of this rule, which are identified in subsections (5)(b) - (f), (j), and (k) of this rule, shall not be excluded from this ambient measurement."

The applicant's noise modeling only includes the noise generated from the transmission line itself. Noise modeling must be corrected to include (b) Warning Devices, (c) sounds created by road vehicles, (d) Sounds from the operation of any equipment or facility of a surface carrier engaged in interstate commerce by railroad to the extent that such equipment or facility is regulated by pre-emptive federal regulations as set forth in Part 201 of Title 40 of the Code of Federal Regulations, promulgated pursuant to Section 17 of the Noise Control Act of 1972, 86 Stat. 1248, Public Law 92-576 ; (e) bells, chimes, or carillons; (f) aircraft subject to pre-emptive federal regulations and (k) sounds created by the operation of road vehicle auxiliary equipment.

The application is incomplete. Without having the information regarding these additional noise sources, the department and the siting council lack the information regarding how many noise sensitive properties are impacted and by how much.

A proposed order cannot be issued until the developer submits all the information regarding the noise impacts of this development. This information must be available to decide if the standard is met or if it can be met with additional site conditions.

Sincerely,


Signature

Printed Name:

Mailing Address:

Rebecca Flick
8 Pine Crest drive
LaGrande, OR
97850

TARDAEWETHER Kellen * ODOE

From: Teresa Flynn <tflynn70@gmail.com>
Sent: Thursday, August 15, 2019 3:34 PM
To: B2H DPOComments * ODOE
Subject: Site Certificate

Concerning the subject of Idaho Power application for a Site Certificate for the Boardman to Hemingway Transmission Project. We are not in favor , and oppose this project. Idaho cannot comply with the State Standards. Therefore EFSC must deny the site certificate. We have spent the majority of our lives in Oregon. Now we have retired in Washington State. Teresa Flynn 610 Taylor Rd. # 1813 Kalama, Wa. 98625 -tflynn70@gmail.com- 360-6733646

JOHN & TERESA FLYNN
PO BOX 1813
KALAMA, WASHINGTON
98625

PORTLAND OR 972

17 AUG 2019 PM 3:1



RECEIVED

AUG 19 2019

DEPARTMENT OF ENERGY

Energy Facilities Siting Council
410 Keller Tardavallther, Designing Analyst
Oregon Dept of Energy
350 Capital Bldg, 3rd
Salem, Oregon 97301-3744

37301-374439



08/15/2019

Dear Chair Beyler and members
of the Council:

Concerning the subject of Idaho
Power application for a Site Certificate
for the Boardman to Hemingway
Transmission Project. We are not
~~in~~ favor, and oppose this pro-
posed project. Idaho power
cannot comply with the state
standards. Therefore EFSC
must deny the site certificate.
We have spent the majority of our
lives in Oregon. Now have retired
in Washington state

Teresa Flynn
Teresa Flynn #1813
610 Taylor Road, #1813
Kalama, Wa. 98625
tflynn70@gmail.com
360-673-3646



Oregon Department of Energy and the Energy Facility Siting Council

Public Hearing on the Draft Proposed Order
for the Boardman to Hemingway Transmission Line
June 18-20 and June 26-27, 2019, 4:30-8 p.m.
Public Written or Oral Testimony Registration

Name (mandatory) Jim Foss (Kaye)

Mailing Address (mandatory) 774 Pheasant Rd
Adrian Or 97961

Phone Number (optional) (208) 739-3976 Email Address (optional) on the hoof 1@gmail.com

Today's Date: 6-18-2019

Do you wish to make oral public testimony at this Hearing: Yes ☒ No ☐

Written comments can also be submitted today.

All written comments must be received by the deadline, July 23, 2019, 5 p.m. PDT to:

Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol Street NE
Salem, OR 97301
Fax: 503-378-6457
Email: B2H.DPOComments@oregon.gov

Note: by submitting written or oral testimony, you will receive a notice from the Oregon Department of Energy at a future date of the opportunity to request party status in a contested case hearing on the proposed facility.

Written Testimony

(Please print legibly – Use the back for additional space if needed. Additional written comments may be attached to this card.)

<p style="text-align: right;">Page 38</p> <p>1 because you don't get to respond to the decisions of the 2 Council directly. And the Department of Energy has made 3 it increasingly difficult for the public to access the 4 Energy Facility Siting Council members. 5 So you add to that the fact that there's no 6 reasonable time to review these proposed orders, and 7 you're talking about 600 pages in the draft proposed 8 order. These issues, and it's not the complete list, 9 came from 25 pages. I guess it was actually 24 pages of 10 that draft proposed order. So go figure. 11 Do I have any more time left? 12 HEARING OFFICER WEBSTER: You have 23 seconds. 13 MS. IRENE GILBERT: I was going to add a bunch 14 of other things. The developer has ignored things like 15 protected lands. There are three federal mitigation 16 sites at Ladd Marsh; they choose not to even mention 17 them. They ignore federal threatened and endangered 18 species protections. They will not provide any 19 protection of them. They don't honor the tribes and the 20 treaty agreements. 21 You've approved things as far as where the 22 views amount to someone floating on Wild and Scenic 23 River and looking up to energy development that's a mile 24 away, and seeing a bunch of turbines while you're on the 25 Wild and Scenic River.</p>	<p style="text-align: right;">Page 40</p> <p>1 District. The Joint Committee manages the Owyhee Dam on 2 the Owyhee River along with two hydroelectric power 3 plants. One of the power plants is located at the base 4 of the Owyhee Dam and the other plant is located at the 5 head of the irrigation tunnel near the Owyhee Dam. 6 The Joint Committee operates and maintains a 7 69-kV transmission line which transmits power from the 8 Owyhee hydroelectric facilities to Idaho Power's power 9 grid system. The hydroelectric power plants were 10 partially funded by loans through the Department of 11 Energy. The 69-kV transmission line will be crossed by 12 the proposed 500-kV line somewhere to the east of 13 proposed milepost 256. 14 The Joint Committee requests additional 15 language be added to the draft proposed order to require 16 Department of Energy staff and irrigation districts' 17 staff be consulted on tower and line placements near the 18 intersections of the power lines and canals, tunnels, 19 and access roads. 20 The Joint Committee members share the same 21 concerns expressed tonight, that you've heard tonight on 22 the proposed placement on EFU lands. 23 Thank you. 24 HEARING OFFICER WEBSTER: Thank you. 25 Following Mr. Jordan we will have Jim Foss.</p>
<p style="text-align: right;">Page 39</p> <p>1 As far as the placement of these, in Union 2 County, we have 80 percent on private land, we have 3 55 percent, federal land. So I could go on. I will go 4 on but not in this format. 5 So thank you for the time. You will get all 6 of the statutory references. 7 HEARING OFFICER WEBSTER: Thank you, 8 Ms. Gilbert. 9 MS. IRENE GILBERT: Thank you. 10 HEARING OFFICER WEBSTER: Before we hear from 11 Mr. Horton, the next one is Frank Jordan. 12 SECRETARY CORNETT: For the record, Council 13 Member Betty Roppe joined, so we do have a quorum at 14 this point in time. 15 HEARING OFFICER WEBSTER: Thank you. 16 Mr. Horton, if you want to start with your 17 name and address. 18 MR. MICHAEL HORTON: I'm Michael W. Horton. 19 My address is 106 Main Street, P.O. Box 1565, Nyssa, 20 Oregon 97913. I want to welcome Council to eastern 21 Oregon. 22 I'm secretary of the Joint Committee of the 23 Owyhee Project. The Joint Committee consists of 24 representatives from Owyhee Irrigation District, 25 Ridgeview Irrigation District, and Gem Irrigation</p>	<p style="text-align: right;">Page 41</p> <p>1 Mr. Jordan, if you'd state your name and 2 address, please. 3 MR. FRANK JORDAN: My name is Frank Jordan. I 4 live at 3370 Old Stage Road in Westfall. 5 I own property west of Vale that the power 6 line will be crossing. And my main concern is the power 7 line is basically using our driveways as their access 8 roads. We have a home within one-eighth of a mile of 9 the power line. We have fields that it's crossing. An 10 irrigation pond within feet of where they propose to 11 cross. 12 And I have not been contacted at all by Idaho 13 Power to come out and look at where they are putting the 14 line. No one from Idaho Power has come out. No one 15 from Oregon Department of Energy has been on my property 16 to look where the line is going. I find this kind of 17 disturbing that Idaho Power or the Oregon Department of 18 Energy would basically put a line somewhere without 19 actually going out and talking to the landowners and 20 seeing exactly where the line is proposed. That's my 21 only comment. 22 Thank you. 23 HEARING OFFICER WEBSTER: Thank you. 24 After we hear from Mr. Foss, will be followed 25 by Arnold Tropf.</p>

<p style="text-align: right;">Page 42</p> <p>1 Mr. Foss, your name and address, please.</p> <p>2 MR. JIM FOSS: My name is Jim Foss. My</p> <p>3 residence is at 774 Pheasant Road, Adrian, Oregon. Is</p> <p>4 that it?</p> <p>5 HEARING OFFICER WEBSTER: You're good to go.</p> <p>6 MR. JIM FOSS: Good afternoon, ladies and</p> <p>7 gentlemen.</p> <p>8 The place in question isn't my home place. We</p> <p>9 have another -- we have other property just off the</p> <p>10 Owyhee River, off of Owyhee Avenue and Rock Springs</p> <p>11 Road. And the power, the transmission line started out</p> <p>12 above us, and then they changed it to come directly</p> <p>13 across us, and put a tower in the middle of our center</p> <p>14 pivot irrigation system. And they finally came out and</p> <p>15 realized the irrigation system went around there and</p> <p>16 they couldn't put the tower.</p> <p>17 We've been told they were not going to put the</p> <p>18 tower there, that's just verbal, and that they would put</p> <p>19 a tower above us on private ground. And in talking to</p> <p>20 the neighbors, they put another tower across the Owyhee</p> <p>21 Avenue Road and stretched the lines down across our</p> <p>22 irrigation system of our property. And the irrigation</p> <p>23 system is a T-L Grand irrigation system, GPS-navigated,</p> <p>24 state-of-the-art -- we run it with our phones or can --</p> <p>25 system. And it has a rover arm on it that will go out</p>	<p style="text-align: right;">Page 44</p> <p>1 Guidelines For the Installation and Operation of</p> <p>2 Irrigation Systems Near High Voltage Transmission Lines,</p> <p>3 Bonneville Power Administration, Transmission</p> <p>4 Maintenance & Electrical Effects, February 15, 2002. Of</p> <p>5 course, I won't read it all to you; we'd be here all</p> <p>6 night.</p> <p>7 Safe Working Practices. If the pivot point of</p> <p>8 a circular irrigation system is near or under a</p> <p>9 transmission line, the irrigation system could acquire</p> <p>10 an electrostatic charge during operation. To prevent</p> <p>11 this electrostatic charge buildup, the pivot point</p> <p>12 should provide a good electrical ground" -- which we</p> <p>13 have -- "for the sprinkler system. This will eliminate</p> <p>14 electrostatic shock nuisances during operation.</p> <p>15 "This electrical ground, however, does not</p> <p>16 eliminate hazards due to inductive coupling between the</p> <p>17 transmission line and the sprinkler pipe. With the</p> <p>18 irrigation system near or under the transmission lines,</p> <p>19 the pipe could rotate to two locations parallel or</p> <p>20 nearly parallel to the transmission line." Similar with</p> <p>21 wheel lines, they talk about wheel lines in here, too.</p> <p>22 "It is recommended that personnel not touch</p> <p>23 the sprinkler pipe or its supporting structures when the</p> <p>24 system is operating under or parallel to...the</p> <p>25 transmission line."</p>
<p style="text-align: right;">Page 43</p> <p>1 and catch the corners and then come back in. Again,</p> <p>2 it's GPS navigated.</p> <p>3 So the concern is that the pivot, the</p> <p>4 irrigation system crosses in two places underneath this</p> <p>5 transmission line. And I have documentation from T-L</p> <p>6 engineers, and I'll read part of the statement, that</p> <p>7 they're concerned about losing the RTK fix, which is</p> <p>8 they have to have a fix to navigate the system, and it's</p> <p>9 self-steering. Again, it's off of GPS.</p> <p>10 And so they state that if the pivot system has</p> <p>11 unshielded span cable, which is typical for T-L</p> <p>12 Irrigation pivot control such as point control or</p> <p>13 precision point control, which is what we have, the</p> <p>14 magnetic field-induced voltage on the span cable could</p> <p>15 interfere with control signals, especially the end tower</p> <p>16 speed center signal or Garmin GPS serial lines. This</p> <p>17 would be true especially if the pivot spans are parallel</p> <p>18 to overhead lines directly above the pivot. That goes</p> <p>19 on to unshielded buried cable, which we do not have.</p> <p>20 So it will virtually stop the pivot, it will</p> <p>21 veer off track. And then its safety shuts off and it</p> <p>22 will stop the irrigation system. I'm talking this one</p> <p>23 pivot that the line is going over. So that's a big</p> <p>24 concern of mine.</p> <p>25 I'd like to touch on this one page, it's</p>	<p style="text-align: right;">Page 45</p> <p>1 Okay. "With the sprinkler pipe parallel and</p> <p>2 close or under the transmission line, the inductive</p> <p>3 coupling between the transmission line and the sprinkler</p> <p>4 boom can result in hazardous shock currents if a person</p> <p>5 touches the system while the boom is connected to the</p> <p>6 pivot point."</p> <p>7 So when we put the system in, we were by law</p> <p>8 mandated to have a licensed electrician do this, and</p> <p>9 then we were inspected so that this would not be</p> <p>10 happening, my understanding of it. And now, they're</p> <p>11 wanting to drape this transmission line over the top of</p> <p>12 it and tell me that I can't -- now, the pivot may, it's</p> <p>13 vulnerable to be stuck, whether water runs to one spot</p> <p>14 and it gets stuck. So if it does get stuck under the</p> <p>15 transmission line, I can't touch the pivot, I can't</p> <p>16 touch the machine. It virtually puts me out of</p> <p>17 business. And that's my concern.</p> <p>18 I've had a concern about the EFU but we've</p> <p>19 pretty well beat that up, and I believe everybody --</p> <p>20 there is an alternative route; they just chose to come</p> <p>21 back over onto the landowners. If this goes across,</p> <p>22 it's assuming that they're able to get tower sites on</p> <p>23 private landowners above me and below me. Because, of</p> <p>24 course, they can't span clear across the valley.</p> <p>25 And as far as wild and scenic, they're</p>

<p style="text-align: right;">Page 46</p> <p>1 crossing the Owyhee River going through me. The Owyhee 2 River, in my eyes and pretty much anybody that lives 3 around there in that area, is wild and scenic, ladies 4 and gentlemen. We have deer and we have turkeys, wild 5 turkeys and pheasants, quail, all of that, just like 6 they do up the river. But we have people making their 7 livings and taking care of their -- pay their taxes and 8 things as well. 9 And so that's my concern of crossing over our 10 ground on the Owyhee. 11 VICE CHAIRMAN JENKINS: Ms. Webster, may I ask 12 a question of Mr. Foss? 13 HEARING OFFICER WEBSTER: You may. 14 VICE CHAIRMAN JENKINS: The first three 15 speakers that we had, Roger Findley, Gary Pearson, and 16 Jay Chamberlin, talked about crossing agricultural land 17 in the Adrian area. Is this your land that they were 18 referring to? 19 MR. JIM FOSS: This is a Nyssa address, but it 20 is, I'm assuming -- and that's all I can do -- I believe 21 it's coming across over the hill, and we live on the 22 Idaho side of the Snake River but we're in Oregon. So 23 it's not there in Adrian; it's a Nyssa address. It's 24 Rock Springs Road and Owyhee Avenue, which goes to the 25 dam, right up the Owyhee River.</p>	<p style="text-align: right;">Page 48</p> <p>1 today, and I've heard quite a bit about it, and there's 2 been quite of bit of friction about it. 3 And looking at this map where the line is 4 supposedly going to cross, it looks to me like on 5 Cline's Hill, around Cline's Hill there east of Harper; 6 am I right? Am I correct? 7 HEARING OFFICER WEBSTER: I can't answer the 8 question. 9 MR. ARNOLD TROPF: Well, anyway, where it 10 crosses 20/26 there between Vale and Harper. 11 I've been wondering why they can't just 12 completely eliminate going into farm ground. Going 13 south with the line, going pretty close to the mouth of 14 the Owyhee Canyon, cross the canyon, go over toward, 15 what, Blackjack Mountain and go over and hit that Glen 16 Bridger transmission line and use the right of way right 17 there and follow that transmission line right toward 18 Murphy, and then drop down into Murphy. Why can't they 19 do that rather than even to come close to this farm 20 ground? 21 And I heard that they had restrictions there. 22 They've got restrictions for ATVs and stuff. What's 23 more important? We've got to get what's most important 24 here figured out. 25 And it looks to me like they can bring that</p>
<p style="text-align: right;">Page 47</p> <p>1 VICE CHAIRMAN JENKINS: But where this pivot 2 is? 3 MR. JIM FOSS: Where the pivot is, yes. It's 4 crossing quite a bit of private ground or different 5 private ground owners there, two, maybe three. I'm not 6 real sure. I'm one of them where they've dog-legged the 7 thing down in here and then come across this versus the 8 alternate route that they have to go stay out on the 9 BLM. If I'm understanding the maps right. 10 VICE CHAIRMAN JENKINS: Thank you. 11 HEARING OFFICER WEBSTER: Thank you. 12 MR. JIM FOSS: You're welcome. 13 HEARING OFFICER WEBSTER: Just a reminder, if 14 there's anybody who hasn't filled out a green form that 15 does want to give public comment tonight, please fill it 16 out. 17 Following Mr. Tropf we will hear from Timothy, 18 I think is it Froesch or Froesch? 19 MR. TIMOTHY FROESCH: Yes. 20 HEARING OFFICER WEBSTER: Mr. Tropf, if you 21 could, provide your name and address, please. 22 MR. ARNOLD TROPF: Yes. I'm Arnold Tropf. I 23 live at 404 Main Street, Adrian, Oregon. 24 I would like to thank you for including me in 25 this oral discussion. I just heard about this meeting</p>	<p style="text-align: right;">Page 49</p> <p>1 line down through there west of Mitchell Butte and Chalk 2 Butte and go across the mouth of the canyon there where 3 the siphon goes across and go south and hit the Glen 4 Bridger transmission line, follow that Glen Bridger line 5 right over into Idaho and drop right down into Murphy. 6 Now, it sounds to me like that's a no-brainer. 7 So I think we better get our maps out and 8 study things because this doesn't make sense to even 9 have to come into farm ground and have a problem with 10 litigation. 11 HEARING OFFICER WEBSTER: And I will just 12 refer us back to what Ms. Tardaewether said at the 13 outset, which is that the EFSC is not talking about 14 reconfiguring at this point; it was the application came 15 forward with the sites for the transmission lines. And 16 the EFSC's job is pretty much a thumbs up/thumbs down on 17 the route that has been provided. 18 MR. ARNOLD TROPF: So it's all cut and dried 19 then on where you're going to put this line? 20 HEARING OFFICER WEBSTER: There is a proposal 21 for a line that the EFSC will either approve or not 22 approve. 23 MR. ARNOLD TROPF: So that's all I got to say, 24 but it sounds to me like they done the figuring wrong 25 when they lined this thing out.</p>

AUGUST 19,2019

ENERGY FACILITIES SITING COUNCIL

%KELLEN TARDAEWETHER, SENIOR SITING ANALYST

OREGON DEPT OF ENERGY

550 CAPTIOL ST. N.E.

SALEM,OR 97301

Subject: Idaho power application for a site certificate for the Boardman to Hemingway Transmission project 9/28/2018:Draft Proposed Order 5/23/2019

Dear Chair Beyeler and Members of the Council:

We are writing this letter to challenge the proposed route by Idaho power that crosses EFU ground on/near the Owyhee River. We own 150 Acres there of EFU that we have farmed since 2001: We both work full time jobs, farm two places and run cattle. Point; we have given a lot of ourselves to make it all happen, and are distressed to see the loss to our neighbors and selves in the potential income of our investments.

The BLM HAS ALREADY SPENT TAXPAYER MONEY ESTABLISHING A UTILITIES CORRIDOR WHICH WAS TO PROTECT OUR ENVIRONMENT AND PUBLIC LANDS BY MINIMIZING FUTURE ENCROACHMENT ON OTHER PUBLIC GROUND. We met with Idaho power and were told the BLM WOULDN'T LET THEM USE OTHER SITES. IDAHO POWER DID NOT DO DUE DILIGENCE IN RESEARCHING, PURSUING OTHER POSSIBILITIES. (ORS 215.275, d. availability of existing rights of way) THE BLM OFFICE RELAYED TO US,THAT THE LISTING STATUS OF THE "SUITABLE FOR WILD AND SCENIC RIVER " STATUS COULD BE AMENDED.IDAHO POWER SHOULD HAVE LOOKED INTO THIS,NOT A BUNCH OF FARMERS TRYING TO FIGURE IT OUT.

We are concerned for the future capabilities of our pivots to run with GPS.WE PUT IN 2 PIVOTS IN 2015 PAID FOR THEM OURSELVES. THE ENGINEERS FROM T-L PIVOTS FEEL IT WOULD BE CONTRAINDICATED TO HAVE POWER LINES OVER THE TOP OF THEM. THIS IS ALSO SUPPORTED BY A PAPER FROM BONNEVILLE POWER ADMINISTRATION FEB 2002.(BPA TRANSMISSION MAINTENANCE AND ELECTRICAL EFFECTS TNLD)

WE FEEL THE EFSC SHOULD DENY THE SITE CERTICIATE APPLICATION TO MOVE ROUTE ON EFU GROUND, TO THE ESTABLISHED UTILITIES CORRIDOR.

SINCERELY,

*Kaye Bishop For
Jim Foss*

KAYE BISHOP FOSS

JIM FOSS

774 PHEASANT RD.

ADRIAN, OR 97901

*AFFECTED PROPERTY, 2181 ROCK SPRINGS RD, NYSSA,OR 97913

ESTERSON Sarah * ODOE

From: Suzanne Fouty <suzannefouty2004@gmail.com>
Sent: Tuesday, August 20, 2019 10:04 PM
To: B2H DPOComments * ODOE; Suzanne Fouty
Subject: Comments related to B2H
Attachments: Fouty_B2H comments_08202019.docx

Please accept the attached comments from Suzanne Fouty into the B2H record.

Thank you.

Suzanne Fouty

August 20, 2019

Energy Facilities Siting Council
c/o Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol St N.E.
Salem, OR. 97301

Via EMAIL: B2H.DPOComments@Oregon.gov

Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018; Draft Proposed Order 5/23/2019.

Dear Chair Beyeler and Members of the Council:

I have lived in Baker County for the last 17 years and I am a recently retired Forest Service hydrologist/soils specialist. My comments will focus on concerns related to soil productivity, existing and future above and below ground carbon sequestration, carbon dioxide emissions, climate change, monitoring of effects and reclamation efforts.

To summarize, the project is in direct opposition to the State of Oregon's efforts to proactively do its part for addressing climate change (OGWC 2018a, 2018b) and should not be approved.

A review of Exhibits I, K and Y make clear that this project will have a negative, long-term impact on climate by reducing soil productivity, removing existing above ground stored carbon, accelerating the decomposition of below ground carbon, and generating carbon dioxide emissions during the construction process and as a result of construction activities. We have ample past evidence (super fund sites, Forest Service roads left unmaintained, old mine shafts, hydroelectric dams without promised fish passage etc.) to know that what IPC promises will happen, will not actually happen. Money dries up, priorities change, funds are not sufficient for the work needed, staff are not allowed time to monitor, staff changes and historical knowledge of monitoring and reclamation commitments end up on a shelf gathering dust and forgotten or in court with people attempting to get commitments fulfilled. Therefore, rather than travel the same tired road, using up valuable energy, time and resources, the EFSC should not approve the project and stop it before destructive construction begins.

Specific concerns related to project are described below.

1. Carbon dioxide emissions and OAR 345-021-0010 (1)(y)

In Exhibit Y (Section 3.1, p.Y-1), IPC states that OAR 345-021-0010 (1)(y) regarding carbon dioxide emissions does not apply to the Project because "*the Project does not include a base load gas plant, does not include a non-base load power plant, and will not emit carbon dioxide.*" However, IPC should not be exempt from complying with OAR 345-021-0010 (1)(y) because the construction of the transmission line will result in large amounts of carbon dioxide emissions.

Actions in the project that will generate carbon dioxide emissions are found in Exhibit K, Attachment K-2. In this Attachment, IPC states that they will harvest timber and burn or masticate the slash along the ROW depending on the fuel loads (p. 12-15). The timber harvest, as well as any vegetation removal along ROW and for roads and buildings, will speed up below ground plant decomposition and further contribute to carbon dioxide emission. Given that soil carbon has been identified as representing a substantial portion of the carbon found in terrestrial ecosystems (Ontl and Schulte 2012), actions that release it back into the atmosphere are of concern and will contribute to climate change. IPC also plans to build roads and structures which will result in carbon dioxide emissions. All of these activities are directly tied to the project and necessary for the project to be completed (connected actions). Therefore, the project should be held accountable to OAR 345-021-0010 (1)(y) and the existing application is incomplete and should not be approved.

2. The project is not in alignment with Oregon's climate goals.

The project is not in alignment with Oregon's climate goals because it will have a cumulative negative effect on climate. The Oregon Global Warming Commission's 2018 Forest Carbon Accounting Report (OGWC 2018a) directly addresses forest harvest and fire as carbon sources and has identified the importance of intact forests as carbon sinks. Under ORS 468A.250(i), an accurate forest carbon accounting is required to meet the directive to the Oregon Global Warming Commission (OGWC) to *"track and evaluate the carbon sequestration potential of Oregon's forests, alternative methods of forest management that can increase carbon sequestration and reduce the loss of carbon sequestration to wildfire, changes in the mortality and distribution of tree and other plant species and the extent to which carbon is stored in tree-based building materials."*

Because the project effects are in opposition to Oregon's climate goals, the project should not be approved.

3. IPC has not addressed or quantified the amount of existing and potential future carbon sequestered above and below ground lost as a result of this project.

The project will release an unknown amount of carbon back into the atmosphere and decrease soil productivity in the disturbed areas. The loss of soil productivity will limit future carbon sequestration potential. Carbon sequestration in plants and in the soil is an important strategy for helping to address climate change (Ontl and Schulte 2012) and so needs to be maximized as a climate change strategy. Consequently, the project is counter to Oregon's climate goals as described in the Oregon Global Warming Commission's 2018 Biennial Report (OGWC 2018b). Because the application is incomplete (no carbon storage and loss analysis) and in opposition to Oregon's climate goals, the project should not be approved.

4. Restoring soil productivity

The information and language is deliberately vague. Absent in the application is any discussion of what soil factors will be quantified to determine pre and post disturbance productivity. Absent also is any discussion of who determines if the soil restoration is sufficient or how close is close

enough. Will compensation be a one-time payment or ongoing to account for lost future potential?

IPC understands that restoring soil productivity to its prior condition after disturbance is not economically feasible. This understanding is evident in the language they use in Exhibit K/Attachment K-1 (see examples below), language that puts limits on what they are obligated to do to restore productivity. Phrases such as “as nearly as possible” and “reasonably restore” allow IPC to be in full compliance with what they said they would do (i.e. as nearly as possible; reasonably restore). Their frequent references to compensation suggests that this will be their chosen approach since restoration of soil productivity is costly, time consuming and difficult, if not impossible in some cases (e.g. loss of top soil due to erosion). Yet what does “reasonably restore” mean? Reasonable to whom and for what?

Attachment K-1, Section 7.0: Efforts to minimize impacts to agricultural lands

P. 28: Land used during construction of the transmission line will be restored, as nearly as possible, to former productivity (p. 28).

p. 36: IPC together with the landowner..., will strive to schedule activities to minimize impacts and identify reasonable measures to restore agricultural land to its original productivity.

Attachment K-1, Section 7.3: Mitigation Actions

P. 37: IPC will reasonably restore the land to its former condition or compensate each landowner, as appropriate, for damages and/or impacts to agricultural operations caused as a result of Project constructions (Attachment K-1, p. 37).

In Exhibit I, tables I-5 and I-9 identify 4347.6 acres of “temporary” disturbances and 756.9 acres of permanent disturbance for a total of 5704.5 acres. As the table below shows, the soils in the proposed disturbance area have a high erosion potential. A permanent loss of soil productivity can be expected with its corresponding loss of carbon sequestration potential. This is in addition to the permanent compaction impacts as a result of both permanent and temporary roads, despite restoration efforts of the temporary use roads.

Erosion Factors (from Tables I-5, I-9 in Exhibit I)	Total acres (temporary and permanent disturbance)	% of total area disturbed
Highly Wind Erodible	1265.5	22%
High K Factor (easily detached soil particles)	2918.6	51%
Low T Factor (soil loss tolerance)	2708	47%

Soil loss or reduced productivity is a long-term impact with financial and ecological costs. These long-term financial impacts include loss of the opportunity to benefit from any carbon sequestration program, loss of agricultural productivity, and an increase in soil and plant sensitivity to climate conditions such as drought. The loss of below ground organic matter due to the project will lead to a decrease in the water-holding capacity of the soil (important feature given climate change) and in nutrients. These losses in turn contribute to decreased soil productivity, plant growth, and the ability of disturbed areas to sequester carbon. While

separating out topsoil from subsurface soil may prevent mixing, topsoil key soil structure and organic matter will be lost in the process of removing and piling it. Soil permeability and porosity and organic matter are factors that influence the movement of water and nutrients needed for plant recovery. Therefore, the productivity of the top soil will have decreased considerably from its pre-disturbance condition.

During my 16 years plus years with the Forest Service I looked at a number of roads that the agency defined as temporary. These roads were temporary only in the context of access and use, not in terms of its footprint and impact on the landscape. Years after “temporary” roads were closed with some attempted mitigation, many remain drivable in a personal vehicle. Therefore, use of the word “temporary” in reference to roads or other construction related activities is incorrect. All of the soil mitigations proposed by IPC are used by the Forest Service (e.g. mulching, seeding, scarifying, ripping of roads) with very limited success at restoring the soil’s productivity and vegetation. The impacts have lasted.

Finally, while erosion and sediment control measures may meet local, county, state, and federal guidelines, what is important is their effectiveness. Top soil lost to erosion cannot be replaced and represents a permanent impact with long-term community impacts. As I repeatedly saw while working for the Forest Service, you can meet a “standard or guideline” but still not effectively protect soil productivity and vegetation. Given the limitations of what is possible in terms of restoring soil productivity, the importance of protecting existing soils and the expected impacts of the project, the project should not be approved.

5. Carbon sequestration is a land use.

The application lacks an analysis of carbon sequestration as an important land use. It is not mentioned in either Exhibit K (Land Use) or Exhibit I (Soil Protection). Yet it has large economic benefits related to maintaining and improving agricultural yields and ecological benefits related to helping mitigate climate change impacts. Efforts to mitigate climate change means that there will be increased value in altering land use practices to improve the amount of above and below ground carbon stored. As such it represents an up and coming land use. The project will negatively impact over 4000 acres of potential carbon sequestration area and therefore should not be approved.

6. The Economic Impacts to Agricultural Operations (Attachment K-1, Section 6.0).

IPC undervalues the economic impacts and future losses to agricultural operations because the economic analysis is based only on current use types, not future use types. It ignores the lost future economic benefits of carbon sequestration to agricultural operations where the potential to become quality trade areas in Carbon cap and trade efforts is high. The value of sequestering carbon is expected to become a priority as Oregon works to meet its climate change goals. Therefore, the economic analysis is incomplete and the project should not be approved.

7. IPC has incorrectly limits the analysis area to the 20,750.5 acres and ignores the project’s cumulative effect on climate change.

The analysis area is too small for the project's impact on climate change and must be expanded to an appropriate scale for a proper cumulative effects analysis to occur. The expansion of scale is required because the impacts of lost existing and future above and below ground carbon sequestration, lost soil and soil productivity, and carbon dioxide emissions have a cumulative effect when added to other existing actions influencing greenhouse gas emissions and carbon sequestration potential (i.e. deforestation, loss of wetlands).

IPC has expanded the analysis area in other places and should do so related to the project's impacts and contribution to climate change. For example, when assessing the significance of impacting high value soils in the project area, they expanded their comparison area from the site boundary to the County-scale to make the point that only 0.05% of high value County soils would be impacted due to construction (Exhibit I, table 1-7). However, while the overall value may be small when compared at the County or State scale, it ignores the cumulative effects of the loss of high value farm land from other actions within the state and worldwide. It incorrectly treats these impacts as separate, unconnected activities and incorrectly infers that the project has no cumulative effect on soil productivity, agricultural yields, and carbon sequestration potential.

They need to take a similar scale increase approach when presenting the permanent (or foreseeable future) loss of forest and its carbon sequestration and cooling properties. While the amount of forest lost due to the project is small when assessed at the County or State scale, the loss is additive to the other ongoing effects of forest loss. There are already die offs of trees occurring due to climate change which increase in scale with each passing year. These die offs will release additional carbon into the atmosphere, exacerbate the tendency towards larger, more frequent and higher intensity wildfires, and increase the potential for soil erosion and loss of soil productivity. The impacts of increased tree mortality are already being seen due to insects and disease which thrive in hotter temperatures and longer growing seasons.

In summary, IPC has inadequately analyzed the effects of their project because they have too narrowly defined the area and nature of the impacts and their cumulative effect. Any cumulative effects analysis must include the impacts of decreased existing carbon sequestration and future potential carbon sequestration, because the effects of decreased soil productivity and carbon sequestration related to the project overlap in time and space with the impacts of other human land uses changes and interact synergistically with them.

8. Mitigation Measures (Exhibit I, Section 3.6) and Soil Monitoring (Exhibit I, Section 3.7)

As a retired Forest hydrologist/soils specialist, I have seen firsthand that promises made in project decision documents are rarely met regarding monitoring of effects and reclamation or restoration efforts. As stated in the beginning, money dries up, priorities change, funds are not sufficient to the work needed, staff are not allowed time to monitor, staff changes and historical knowledge of monitoring and reclamation commitments end up on a shelf gathering dust and forgotten. The Forest Service knows that monitoring of project effects and use of that information to direct future projects or do adaptive management will not happen. In some cases they include monitoring in their Decision documents with the best of intentions. However, in many cases it is simply a box they must check with the unspoken intent to mislead the public and legal system.

While IPC may have the best intentions now, we can expect a pattern similar to that observed during my time with the Forest Service. As power demands and power generation technologies change, the transmission line, already an obsolete approach, will only become more so. As a result, IPC can expect its revenue to change, likely decreasing, and with that reduction or change in priorities, reclamation and monitoring of the project will decrease or be dropped. The result will be impacts that exceed what they predict for the project.

Conclusion

Climate change makes the project's centralized power grid approach and old outdated technology vulnerable to climate and human disruptions with regional economic and ecological consequences. IPC has ignored emerging issues and new science related to climate change and the importance of carbon sequestration. They are overly optimistic about their ability to restore lost soil productivity and maintain a monitoring and rapid response effort over the long-term. They have minimized the difficulty of restoring soil productivity once organic matter has decomposed and soil structure lost, and ignored the carbon dioxide emissions related to the project.

Once again, one has only to look at the Forest Service for examples of what is really going to happen if this project goes forth. In the case of the Forest Service, roads that are supposed to be maintained become rutted and impassable and livestock range monitoring becomes every 5, 10, or 50 years despite documents saying there will be annual monitoring with appropriate management changes. Prescribed burns targets designed to decrease wildfire intensity and spread are not met because of weather, budget or wildfires that take the needed personnel away to fight wildfires. IPC and this project will be no different. It is time for Oregon to move forward and address its energy needs and climate change concerns in a more proactive, ecologically and economically sound way. Denying the Site Certificate is an essential step. If Oregon is to meet its climate change goals, then the **Energy Facilities Siting Council Must Deny the Site Certificate.**

Sincerely,

Suzanne Fouty
2518 Valley Avenue
Baker City, OR 97814

References:

OGWC (2018a). Forest Carbon Accounting Project Report

OGWC (2018b). 2018 Biennial Report to the Legislature for the 2019 legislative session.

Ontl, T. A. and Schulte, L. A. (2012) Soil Carbon Storage. Nature Education Knowledge 3 (10):35 <https://www.nature.com/scitable/knowledge/library/soil-carbon-storage-84223790/>

July 27, 2019

Energy Facilities Siting Council
c/o Kellen Tardaewether, Siting Senior Analyst
Oregon Department of Energy
550 Capitol St. N.E.
Salem, OR 97301

Via EMAIL: B2H.DPOComments@Oregon.gov

Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018;
Draft Proposed Order.

Dear Chair Beyeler and Members of the Council:

I am an Eastern Oregonian and have traveled and recreated in the vicinity of Hilgard State Park for many years. I have concerns about the steep slopes, soils hazards, landslide risks, and erosion impacts that the construction of the Boardman to Hemingway Transmission line will pose in an already dangerous canyon.

Re: Soil Protection - **Drill site 95/3 and 95/4 on unstable and steep slopes**
345-022-0020

(c) ...*The applicant, through appropriate site-specific study, has adequately characterized the potential geological and soil hazards of the site and its vicinity that could, in the absence of a seismic event, adversely affect, or be aggravated by, the construction and operation of the proposed facility...*

Permanent Administrative Order EFSC 2-2017 Chapter 345 Department of Energy; Energy Facility Siting Council;
effective date 10/18/2017; agency approved date 09/22/2017.

Geological Hazards and Soil Stability; Exhibit H. Attachment H-1, Engineering Geology and Seismic Hazards Supplement to Exhibit H Boardman to Hemingway 500 kV Transmission Line Project Boardman, Oregon to Hemingway, Idaho January 25, 2018; Shannon & Wilson, Inc. 3990 Collins Way, Suite 100, Lake Oswego, Oregon. 97035.

Drill sites 95/3 and 95/4 are shown on the following tables and maps and analysis by Shannon & Wilson, Inc.:

Soils; Map page 18 of 44:

Table B3: Soil Descriptions, described as:

5776CN; erosion hazard; severe, percent of slope Low; 30: High; 60. (sheet 3 of 4)

Table C1: Summary of Proposed Borings; Map Sheet 36

95/3 – Angle change along alignment; Slope stability/landslide; Geo-Seismic Hazard; Road and railroad crossing

95/4 - Angle change along alignment; Road and railroad crossing

Appendix E: Landslide Inventory, E.2.3; PLS-002 Sheet 5, 6

“PLS-002 is an approximately 460-acre potential landslide that was identified in available LiDAR data. PLS-002 has not been verified in the field and should not be considered a landslide based solely on interpretation of LiDAR data. The IPC Proposed Route passes above this potential landslide between towers 93/5 and 95/3, potentially affecting the stability of these proposed towers and associated work areas. A field reconnaissance along this portion of the alignment should be performed as part of the geotechnical exploration program.”

Idaho Power Corporation, in Exhibit H 2.2.4 states “*The soils (in Union County) vary from a few inches to a few feet thick over weathered bedrock, are generally well-drained, and are typically characterized as having a severe erosion hazard.*” Idaho Power Corporation admits in ASC page B-12 that “*The mountainous area such as the Blue Mountains present very challenging topography with many areas of steep slopes in excess of 35 percent and other areas of unstable slopes*

presenting design and construction challenges.” IPCs stated original intention to the EFSC was the following: “Using topographic maps the corridors were adjusted to avoid or minimize distance across very steep slopes and other physical features less desirable for construction and operation of a transmission line.

Hazard Analysis Union County Emergency Operations Plan Updated 6/30/16 lists Winter weather as the highest weighted risk item before Seismic, Fire, Hazmat-Transportation, and Drought. Most of the area receives a large percentage of the annual moisture as snowfall and both the winter storms and the spring melt can be precipitous and unpredictable.


The area surrounding the drill site **95/3 and 95/4** is within a mile of the Hilgard Junction State Park and Recreation area and the heavily traveled I84 transportation/utility corridor.

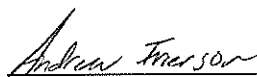
Conclusion and Requested Relief:

Drill site 95/3 and 95/4, and its vicinity, represent a significant risk of several possible adverse effects. This area encompassed by the lands shown in PLS-002 should be removed for consideration as a site for a transmission “facility.” While Idaho Power Corporation attempts to mitigate problems of unstable soil with structure and footing modifications, this should not be considered an acceptable risk when the entire area is unstable.

I appreciate your consideration and your attention to this matter.

Sincerely,


Signature


Printed Name:

Andrew Fransen

Mailing Address: ~~804~~ Washington Avenue
La Grande, Oregon 97850

References

Burns, W. J., Mickelson, K. A., Saint-Pierre, E. C., 2011 SLIDO-2, Statewide Landslide Information Database for Oregon, Release 2; Oregon Department of Geology and Mineral Industries.

Idaho Power Corporation, 2017, *Exhibit H of the Application for the Boardman to Hemingway Transmission Line Project*: Report Prepared by Idaho Power Corporation, Boise, Idaho.

Geological Hazards and Soil Stability; Exhibit H. Attachment H-1, Engineering Geology and Seismic Hazards Supplement to Exhibit H Boardman to Hemingway 500kV Transmission Line Project Boardman, Oregon to Hemingway, Idaho January 25, 2018; Shannon & Wilson, Inc. 3990 Collins Way, Suite 100, lake Oswego, Oregon. 97035.

Permanent Administrative Order EFSC 2-2017 Chapter 345 Department of Energy; Energy Facility Siting Council; effective date 10/18/2017; agency approved date 09/22/2017.

Oregon Department of Energy; Energy Facility Siting Council – Chapter 345, Division 22 General Standards for Siting Facilities; OAR Amend: 345-022-0022; Soil Protection

Idaho Power Corporation, 2017, *Exhibit H of the Application for the Boardman to Hemingway Transmission Line Project*: Report Prepared by Idaho Power Corporation, Boise, Idaho.

Geological Hazards and Soil Stability; Exhibit H. Attachment H-1, Engineering Geology and Seismic Hazards Supplement to Exhibit H Boardman to Hemingway 500kV Transmission Line Project Boardman, Oregon to Hemingway, Idaho January 25, 2018; Shannon & Wilson, Inc. 3990 Collins Way, Suite 100, lake Oswego, Oregon. 97035, page 28 and elsewhere.

August 5, 2019

Energy Facilities Siting Council
c/o Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol St. NE
Salem, Oregon 97301

Via EMAIL: B2H.DPOComments@Oregon.gov

Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018; Draft Proposed Order.

Dear Chair Beyeler and Members of the Council:

COMMENT REGARDING THE BOARDMAN TO HEMINGWAY TRANSMISSION LINE DRAFT PROPOSED ORDER

The application is incomplete as Section X must include information regarding all receptors within ½ mile of site and include all noise sources required to be included in establishing the noise level generated directly or indirectly by the development. Idaho Power has not provided information adequate to determine if they are able to meet the noise standard, even with site certificate conditions.

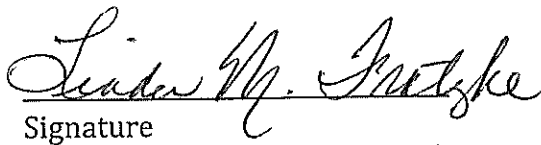
IDAHO POWER FAILED TO COMPLY WITH OAR 345-021-0010(1)(x) which states that Exhibit X must include information about noise generated by construction and operation of the Project within ½ mile of the site boundary. The site boundary means "the perimeter of the site of a proposed energy facility, it's related or supporting facilities, all temporary laydown and staging areas and all corridors and micrositing corridors proposed by the applicant" (OAR 345-001-0010(55)).

1. The applicant lists the areas which are included in the site boundary in Exhibit F, Page F-2, however, they failed to include noise modeling or include all the receptors within the ½ mile area beyond the entire site perimeter.
2. The applicant failed to do noise modeling for all noise sensitive property as they did not include churches, schools, libraries, or hospitals as is required by the definition in OAR 340-035-0015(38).
3. The applicant also failed to include the noise identified in OAR 340-035-0035(1)(b)(B)(ii) as not being exempt from the ambient statistical noise level indirectly caused by or attributable to that source including all its related activities. This section states, "Sources exempted from the requirements of section (1) of this rule, which are identified in subsections (5)(b) - (f), (j), and (k) of this rule, shall not be excluded from this ambient measurement." The application is not complete prior to the applicant finishing Exhibit X to include all sources required by this rule as

well as all receptors within ½ mile of the entire site boundary. No decisions can be made absent an accurate accounting of the predicted noise impacts which has not occurred.

No Proposed Order can be issued until the developer has shown that they meet the requirements at the time a site certificate is issued. OAR 345-015-0190(5) allows the Department to find the application is complete when the applicant has submitted information adequate for the Council to make findings or impose conditions on all applicable Council standards. While not all information required by OAR 345-021-0000 and 0010 must be submitted, there must be information adequate to show they meet the requirements or will meet them by implementing the conditions contained in the site certificate. The draft site certificate does not assure that the noise standard will not be exceeded, and the developer has not provided noise modeling or included modeling for all required sources of noise to establish the ambient statistical noise level of the development for all NSR's. Missing information includes: 1. Identification of all noise sensitive receptors within ½ mile of the entire site boundary; 2. Identification and notice to the owners of all noise sensitive properties; and 3. Modeling which includes Items (5)(b) - (f), (j), and (k) which cannot be excluded from the ambient noise measurement.

Sincerely,


Signature

Printed Name: Linda M. Fratzke

Mailing Address: 2104 Linda Lane
La Grande, OR
97850

August 5, 2019

Energy Facilities Siting Council
c/o Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol St. NE
Salem, OR 97301

B2H.DPOComments@Oregon.gov

Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018; Draft Proposal Order May 23, 2019.

Chair Beyeler and Members of the Council:

I am very concerned about the Boardman to Hemingway Transmission Project as it is proposed. My concerns are for the safety of myself and all of the citizens of La Grande if this line is permitted. My primary concerns are slope instability and wildfire hazard.

The proposed route sited to the west of La Grande is placed on a ridge noted to have instability and high risk for slides. The geologic study provided by Idaho Power references several studies (below).

Table H-2. USGS Quaternary Faults within 5 Miles of Project by County on page H-12 clearly shows that the project is placed right on an active fault in the West Grande Ronde Valley Fault Zone. In addition, in exhibit H, Geological Hazards and Soil Stability, Table B3: Soils Descriptions, Union County, much of the erosion hazard is rated "severe." Below is part of the report:

5.2 La Grande Area Slope Instability

As part of our study, we reviewed DOGAMI's open file report: Engineering Geology of the La Grande Area, Union County, Oregon, by Schlicker and Deacon (1971). The study identified several landslides in the areas west and south of La Grande. The majority of the landslide features mapped by Schlicker and Deacon (1971) were similarly mapped as landslides or alluvial fans in Ferns and others (2010). The current SLIDO database uses the feature locations mapped in Ferns and others (2010). While the two map sets generally agree, there are differences in the mapped limits of some landslide and alluvial fan areas, and there is one landslide area in Schlicker and Deacon (1971), near towers 106/3 and 106/4, which is not included in SLIDO or Ferns and others (2010). The Landslide Inventory in Appendix E includes mapped landslide and alluvial fan limits from both SLIDO and Schlicker and Deacon (1971).

This slope instability is not inconsequential to a project like this. Recall in 2014, Oso, Washington, was the site of a catastrophic mudslide as the result of logging disturbance of the soil upslope from the town combined with significant rainfall. This resulted in 43 fatalities. We must learn from previous mistakes in not heeding the geologists' warnings. The area down slope from the proposed B2H line lies the Grande Ronde Hospital and Clinics, which employs hundreds of people and is the critical access hospital for this region. La Grande High School and Central Elementary School are also positioned down slope from the proposed towers. At least 100 homes are positioned down slope of the proposed towers. According to "Engineering Geology of the La Grande Area, Union County, Oregon" maps published by Schlicker, and Deacon (1971), the ENTIRE area of the hillside is deemed a "landslide area" in the La Grande SE quadrangle. This is not a safe place for a transmission line.

The next significant hazard to our community is wildfire. Oregon is ranked 8th Most Wildfire Prone state in the United States according to Verisk Wildfire Risk analysis. La Grande is ranked in the top 50 communities in Oregon with the greatest cumulative housing-unit exposure to wildfire as referenced in "Exposure of human communities to wildfire in the Pacific Northwest," by Joe H. Scott, Julie Gilbertson-Day and Richard D. Stratton (available at http://pyrologix.com/ftp/Public/Reports/RiskToCommunities_OR-WA_BriefingPaper.pdf). Finally the proposed route is in the vicinity of Morgan lake, the highest risk area (#1) in Union County in terms of wildland-urban interface, according to the County's Community Wildfire Protection Plan, August 10, 2005.

Cal Fire cites Pacific Gas and Electric equipment and power lines as the cause of numerous wildfires in the state in the last 2 years. This includes the Camp Fire in Butte County (2018), Tubbs Fire in Napa/Sonoma Counties (2017), Witch Fire in San Diego (2007), Valley Fire in Lake/Napa/Sonoma Counties (2015), Nuns Fire in Sonoma County (2017), which were all attributed to transmission.

The Boardman To Hemingway Transmission Line Project proposal places lines about 2000 feet or less than half a mile from the La Grande city limits, including medium density housing within the city as well as Grande Ronde Hospital. If a line from this proposed route were to spark a fire, La Grande residents would have little time to react. According to National Geographic, wildfires can move as fast as 6.7 mph in forests and 14 mph in grasslands. A fast-moving fire starting at the B2H lines could move to residential areas of La Grande and HOSPITAL in 10 minutes. This is frightening and an unacceptable risk for our citizens.

The current proposal for a Boardman to Hemingway transmission line does not adequately address the issue of landslides, basically by stating it will be mitigated somehow when the time comes to build. The proposal offers no analysis of wildfire risk, which is an unacceptable omission. All of the routes proposed are unsafe and create an unacceptable risk to the citizens of La Grande.

The Council should DENY the request for a site certificate.

Sincerely,

A handwritten signature in cursive script that reads "Linda M. Fratzke". The signature is written in dark ink and is positioned above a horizontal line.

Name: Linda M. Fratzke

Address: 2104 Linda Lane
La Grande, OR. 97850

August 2, 2019

Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol St. NE
Salem, Oregon 97301
email: B2H.DPOComments@Oregon.gov

**THE APPLICANT SIGNIFICANTLY UNDERSTATES THE IMPACTS TO EMPLOYMENT AND FOREST LANDS
AS A RESULT OF THE PROPOSED B2H TRANSMISSION LINE**

Exhibit K, Attachment K-2, Pages 19 and 20, Section 7.0

The applicant claims that removal of forestland by clearing of trees for a period of over 50 years will have little economic impact to forest sector jobs in Umatilla and Union County. They value the loss of 245.6 acres of forestland in Umatilla County at \$488.60 per acre. However, they value the removal of 530.1 acres lost to the transmission line in Union County at \$182.98 per acre. The applicant provides no justification or documentation to support the difference in value per acre between Umatilla and Union Counties.

Some forest facts related to this section:

According to US Forest Service Tech. Rept. PNW-GTR-578 Rev. 2004 entitled "Forests of Eastern Oregon: an Overview", Eastern Oregon Forests produce an average of 20 cubic feet per acre of timber each year. That would mean that an acre of land would produce approximately 240 board feet of lumber per year per acre during the life of the transmission line. According to Scott Hartell, Planning Director, Union County, forest land in Union County is classified as either 20 cubic feet per acre per year, or 50 cubic feet per acre per year, so the value amounts could be significantly higher. The "Forest Facts Oregon's Forests: Some Facts and Figures" published in 2009 by the Oregon Department of Forestry states that economists estimate that for every billion board feet that is harvested in Oregon 11 forest sector jobs are created or retained.

Idaho Power's stated timber values are unrealistically low according to individuals owning forest land in both counties. No one would be using land for trees which precludes other uses if the economic benefits were as the developer is stating.

The applicant's identification of the acres of forest land impacted is incorrect due not only to the failure to use soil types to identify forest lands, but also, the fact that they are requesting a 300 foot right of way and they need to include the value of any additional trees they will be removing in the 100 foot area on each side of the right of way.

The applicant claims that the value of the land in the right of way will not be significantly reduced due to the owner's opportunity to use the land for agricultural or range land after the transmission line is constructed. This is completely unfounded. The lineal nature of a transmission line precludes any productive use of land taken for the transmission line. The right of way is too narrow to make it available for production of crops, and the costs associated with purchasing equipment for agricultural operations would be prohibitive.

It would be unusual for a forest operator to already own equipment for a crop operation. In order to use the right of way as grazing land, it would have to be fenced. According to "Estimated Livestock Fencing Costs for the Small-Farm Owner" by Derek L. Barber, the average cost of materials for ¼ mile (1,320 ft.)

of field fence is \$1,108.53 plus the cost of building it. The Iowa State University Extension identified 2011 costs for constructing ¼ mile of fencing to be \$1,947.75 installed. Enclosing a square acre requires 820 feet of fence. In other words, the cost of fencing an acre of lost forest land would exceed the value the applicant claims the land would add to the local economy per acre for the 50 years the transmission line is predicted to be in place.

The applicant also claims that the transmission line right of way through forest lands will not cause a substantial change in accepted forest practices or cause a significant increase in the cost of accepted forest practices on lands to be directly impacted by the Project or on surrounding lands. Removing trees from land currently being used to grow them certainly will create a substantial change in accepted forest practices. It also will substantially increase the costs of growing and harvesting trees on the surrounding lands. Soil compacted by heavy equipment used to access the line will discourage regrowth.

The transmission line will make it impossible to use aerial equipment to harvest trees on steep hillsides adjacent to the line; it will increase costs of harvest due to the need to avoid equipment contact with the transmission lines, avoid trees falling on the transmission lines, require new access and egress from the forested lands that avoid having log trucks and equipment moving below the transmission line, It will decrease the harvest along the transmission line due to tree loss along the corridor from wind and weather conditions impacting weakened root infrastructure once the transmission corridor is cleared.

Removing forested land along the transmission line will result in nearly a total loss of the economic value of the land removed from production of trees, and will impact the landowners and county economy not only by the loss of the production of trees and taxes, fees, employment and other benefits coming from that activity, but there will be related losses to the productivity of adjacent land, increased costs of harvesting along the transmission line, introduction of noxious weeds, increased risk of wildfire, potential increase in the number of trespassers, interference with wildlife activities including displacement of wildlife to what may be less desirable habitat, opening the area up to increased predation on the multiple non-raptor species utilizing the forested areas, decreased value of land if it is sold, long-term reduction in assessed value of the land, etc. The conclusions stated by the applicant in section 8.0 are false, absolutely without merit.

In addition, the applicant has failed to provide documentation to support their conclusions. The only reference the applicant cites that relates at all to this issue is the publication from the Oregon Forest Resources Institute.

In summary:

The applicant has failed to document that they will comply with Land Use Goal 4 OAR 660-006-000 through OAR 660-006-0010; There is no documentation provided that would indicate they are in compliance with OAR 345-022-0030 and they have not documented, nor are they able to meet the requirement contained in OAR 345-022-0030(4) to allow an exception.

Therefore, the Council should DENY the application for site certificate.


Signature

Linda M. Fratzke
Printed Name

Mailing Address:

2104 Linda Lane
La Grande, OR
97850

Kellen Tardaaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol Street N.E.
Salem, OR. 97301

August 5, 2019

B2H.DPOComments@Oregon.gov

Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018; Draft Proposal Order May 23, 2019.

To: Chairman Beyeler and Members of the Council

I am very concerned about the risks to our communities during construction of the proposed transmission line. I take particular exception to the Exhibit G Materials Analysis, Attachment G-5 FRAMEWORK BLASTING PLAN. The document states; "This plan framework serves as baseline document to guide development of the complete Blasting Plan developed with the Plan of Development **before** issuance of the site certificate and commencement of construction."

On page 7, at 3.4, Design Feature 32 states; "Watering facilities (tanks, natural springs and/or developed springs, water lines, wells, etc.) will be repaired or replaced if they are damaged or destroyed by construction and/or maintenance activities to their pre-disturbed condition as required by the landowner or land-management agency. Should construction and/or maintenance activities prevent use of a watering facility while livestock are grazing in that area, then the Applicant will provide alternate sources of water and/or alternate sources of forage where water is available."

The stated purpose of blasting is to "crack" rocks to facilitate geotechnical drilling. Introducing new or expanded fissures/cracks into rock may alter the flow direction or amount of water to existing natural springs or wells.

Since there is no indication that Idaho Power will determine "predisturbed" water flow from wells or springs, how will the landowner prove that flow has been reduced? Without an agreed upon baseline, negotiation or legal action will be required. In the case of private landowners, that will mean legal expenses that may not be available.

Prior to the issuance of a Site Certificate, EFSC should require the additional condition:

ADDED CONDITION TO BLASTING PLAN, DESIGN FEATURES:

Idaho Power will determine baseline flow of natural springs or wells within ¼ mile of blasting site.

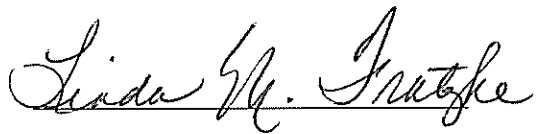
Exhibit G Materials Analysis, Attachment G-5 FRAMEWORK BLASTING PLAN on page 5 at 3.3 Safety Procedures, 3.3.3 Fire Safety: Posting fire suppression personnel at the blast site during high-fire danger periods and prohibiting blasting during extreme fire danger periods is not sufficient to minimize fire risk.

Idaho Power has written terminology, "high-fire danger periods" and "extreme fire danger periods" without definition or concurrence with Oregon Department of Forestry. Fire Suppression Personnel have been previously identified in the Fire Suppression and Prevention Plan as a "watchman." This is inadequate!

ADDED CONDITION TO BLASTING PLAN, FIRE SAFETY:

During blasting Idaho Power will provide a water tender staffed by a crew of at least two personnel.

Sincerely,

A handwritten signature in cursive script that reads "Linda M. Fratzke".

Name: Linda M. Fratzke

Address: 2104 Linda Lane
La Grande, OR
97850

August 5, 2019

Energy Facilities Siting Council
c/o Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol St. NE
Salem, Oregon 97301

Via EMAIL: B2H.DPOComments@Oregon.gov

Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018; Draft Proposed Order.

Dear Chair Beyeler and Members of the Council:

APPLICANT FAILED TO INCLUDE ALL REQUIRED SOURCES OF NOISE IN THEIR MODELING OF NOISE IMPACTS OF DEVELOPMENT

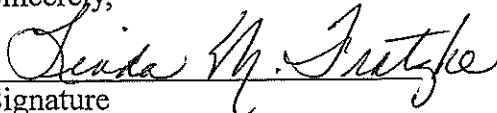
Idaho Power did not include any of the items listed in OAR 340-035-0035(l)(b)(B)(ii), which are only exempt from the noise measurement when the development occurs on a previously used site. When establishing ambient noise level for a new development on a site not previously used, it states: "Sources exempt from the requirements of section (l) of this rule, which are identified in subsections (5)(b) - (f), (j), and (k) of this rule, shall not be excluded from this ambient measurement."

The applicant's noise modeling only includes the noise generated from the transmission line itself. Noise modeling must be corrected to include (b) Warning Devices, (c) sounds created by road vehicles, (d) Sounds from the operation of any equipment or facility of a surface carrier engaged in interstate commerce by railroad to the extent that such equipment or facility is regulated by pre-emptive federal regulations as set forth in Part 201 of Title 40 of the Code of Federal Regulations, promulgated pursuant to Section 17 of the Noise Control Act of 1972, 86 Stat. 1248, Public Law 92-576 ; (e) bells, chimes, or carillons; (f) aircraft subject to pre-emptive federal regulations and (k) sounds created by the operation of road vehicle auxiliary equipment.

The application is incomplete. Without having the information regarding these additional noise sources, the department and the siting council lack the information regarding how many noise sensitive properties are impacted and by how much.

A proposed order cannot be issued until the developer submits all the information regarding the noise impacts of this development. This information must be available to decide if the standard is met or if it can be met with additional site conditions.

Sincerely,


Signature

Printed Name: Linda M. Fratzke
Mailing Address: 2104 Linda Lane
La Grande, OR 97850

July 27, 2019

Energy Facilities Siting Council
c/o Kellen Tardaewether, Siting Senior Analyst
Oregon Department of Energy
550 Capitol St. N.E.
Salem, OR 97301

Via EMAIL: B2H.DPOComments@Oregon.gov

Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018;
Draft Proposed Order.

Dear Chair Beyeler and Members of the Council:

I am an Eastern Oregonian and have traveled and recreated in the vicinity of Hilgard State Park for many years. I have concerns about the steep slopes, soils hazards, landslide risks, and erosion impacts that the construction of the Boardman to Hemingway Transmission line will pose in an already dangerous canyon.

Re: Soil Protection - **Drill site 95/3 and 95/4 on unstable and steep slopes**
345-022-0020

(c) ...The applicant, through appropriate site-specific study, has adequately characterized the potential geological and soil hazards of the site and its vicinity that could, in the absence of a seismic event, adversely affect, or be aggravated by, the construction and operation of the proposed facility...

Permanent Administrative Order EFSC 2-2017 Chapter 345 Department of Energy; Energy Facility Siting Council;
effective date 10/18/2017; agency approved date 09/22/2017.

Geological Hazards and Soil Stability; Exhibit H. Attachment H-1, Engineering Geology and Seismic Hazards Supplement to Exhibit H Boardman to Hemingway 500 kV Transmission Line Project Boardman, Oregon to Hemingway, Idaho January 25, 2018; Shannon & Wilson, Inc. 3990 Collins Way, Suite 100, Lake Oswego, Oregon. 97035.

Drill sites 95/3 and 95/4 are shown on the following tables and maps and analysis by Shannon & Wilson, Inc.:

Soils; Map page 18 of 44:

Table B3: Soil Descriptions, described as:

5776CN; erosion hazard; severe, percent of slope Low; 30: High; 60. (sheet 3 of 4)

Table C1: Summary of Proposed Borings; Map Sheet 36

95/3 – Angle change along alignment; Slope stability/landslide; Geo-Seismic Hazard; Road and railroad crossing

95/4 - Angle change along alignment; Road and railroad crossing

Appendix E: Landslide Inventory, E.2.3; PLS-002 Sheet 5, 6

“PLS-002 is an approximately 460-acre potential landslide that was identified in available LiDAR data. PLS-002 has not been verified in the field and should not be considered a landslide based solely on interpretation of LiDAR data. The IPC Proposed Route passes above this potential landslide between towers 93/5 and 95/3, potentially affecting the stability of these proposed towers and associated work areas. A field reconnaissance along this portion of the alignment should be performed as part of the geotechnical exploration program.”

Idaho Power Corporation, in Exhibit H 2.2.4 states “*The soils (in Union County) vary from a few inches to a few feet thick over weathered bedrock, are generally well-drained, and are typically characterized as having a severe erosion hazard.*” Idaho Power Corporation admits in ASC page B-12 that “*The mountainous area such as the Blue Mountains present very challenging topography with many areas of steep slopes in excess of 35 percent and other areas of unstable slopes*

presenting design and construction challenges.” IPCs stated original intention to the EFSC was the following: “Using topographic maps the corridors were adjusted to avoid or minimize distance across very steep slopes and other physical features less desirable for construction and operation of a transmission line.

Hazard Analysis Union County Emergency Operations Plan Updated 6/30/16 lists Winter weather as the highest weighted risk item before Seismic, Fire, Hazmat-Transportation, and Drought. Most of the area receives a large percentage of the annual moisture as snowfall and both the winter storms and the spring melt can be precipitous and unpredictable.

The area surrounding the drill site **95/3 and 95/4** is within a mile of the Hilgard Junction State Park and Recreation area and the heavily traveled I84 transportation/utility corridor.

Conclusion and Requested Relief:

Drill site 95/3 and 95/4, and its vicinity, represent a significant risk of several possible adverse effects. This area encompassed by the lands shown in PLS-002 should be removed for consideration as a site for a transmission “facility.” While Idaho Power Corporation attempts to mitigate problems of unstable soil with structure and footing modifications, this should not be considered an acceptable risk when the entire area is unstable.

I appreciate your consideration and your attention to this matter.

Sincerely,

 Linda M. Fratzke
Signature Printed Name:

Mailing Address: 2104 Linda Lane
La Grande, OR 97850

References

Burns, W. J., Mickelson, K. A., Saint-Pierre, E. C., 2011 SLIDO-2, Statewide Landslide Information Database for Oregon, Release 2; Oregon Department of Geology and Mineral Industries.

Idaho Power Corporation, 2017, *Exhibit H of the Application for the Boardman to Hemingway Transmission Line Project*: Report Prepared by Idaho Power Corporation, Boise, Idaho.

Geological Hazards and Soil Stability; Exhibit H. Attachment H-1, Engineering Geology and Seismic Hazards Supplement to Exhibit H Boardman to Hemingway 500kV Transmission Line Project Boardman, Oregon to Hemingway, Idaho January 25, 2018; Shannon & Wilson, Inc. 3990 Collins Way, Suite 100, Lake Oswego, Oregon. 97035.

Permanent Administrative Order EFSC 2-2017 Chapter 345 Department of Energy; Energy Facility Siting Council; effective date 10/18/2017; agency approved date 09/22/2017.

Oregon Department of Energy; Energy Facility Siting Council – Chapter 345, Division 22 General Standards for Siting Facilities; OAR Amend: 345-022-0022; Soil Protection

Idaho Power Corporation, 2017, *Exhibit H of the Application for the Boardman to Hemingway Transmission Line Project*: Report Prepared by Idaho Power Corporation, Boise, Idaho.

Geological Hazards and Soil Stability; Exhibit H. Attachment H-1, Engineering Geology and Seismic Hazards Supplement to Exhibit H Boardman to Hemingway 500kV Transmission Line Project Boardman, Oregon to Hemingway, Idaho January 25, 2018; Shannon & Wilson, Inc. 3990 Collins Way, Suite 100, Lake Oswego, Oregon. 97035, page 28 and elsewhere.

Union County, Oregon, Union County Emergency Operations Plan – Hazard Analysis. Updated – 6/30/2016.

August 18, 2019

Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol St. NE
Salem, Oregon 97301
email: B2H.DPOComments@Oregon.gov

EFSC B2H Exhibit K Goal 4, Land Use Decisions regarding forest lands are incorrect.

The applicant and the department failed to follow the state statutes or ODOE rules in the identification of and analysis of Goal 4 forest lands and the impacts the B2H Transmission line will have on this critical local resource as required by OAR 345-022-0030.

There is no statute or rule that allows forest land impacts to be based upon information taken from the Union County Zoning, Partition, and Subdivision Ordinance (UCZPSO).

The action conflicts with ORS 469.504, Facility compliance with statewide planning goals. ORS 469.504(5) addresses the actions that the Oregon Department of Energy is to use if no applicable substantive criteria is provided regarding the counties state plan. It states, "If the advisory group does not recommend applicable substantive criteria within the time established in the department's request, the council may either determine and apply the applicable substantive criteria under subsection (l)(b) of this section or determine compliance with the statewide planning goals under subsection (l)(b)(B) or (C) of this section."

There is no basis for applying the evaluation to a County's Administrative Rules as a substitute for applying State Land Use Rules. No site certificate can be issued prior to having the applicant correct the inaccurate information and providing the public and reviewing agencies opportunity to consider the changed impacts on wildlife, economic, social and environmental determinations which will result. The Oregon Department of Energy and Energy Facility Siting Council are required to determine eligibility for a site certificate based upon correct and current information. The developer has not provided that and a site certificate cannot be issued absent the required information and analysis.

Corrections in the application must include a determination that the development will comply with the state statutes and rules. Union County procedures cannot be used to replace the required evaluation of compliance with statewide land use laws as stated in OAR 345-022-0030.

The Union County Land Use rules fail to reflect the legislative changes made in 2008 and 2011 relating to the determination of what land is considered "forest land".

The distinction is important due to the fact that forest land is treated differently than agricultural land in the siting process. The application must rely directly on the Oregon Statute which has been incorporated in OAR 660-006-0010. The criteria to be used identified in the statute and rules are: USDA Natural Resources Conservation Service soil survey information, USDA Forest Service plant association guides, Oregon Department of Revenue site class maps, or other information determined by the State Forester to be of comparable quality. Predominant use was replaced by the decision criteria above and no longer is an appropriate method of making a determination regarding what is "forest"

land. The applicant has grossly understated the impacts to Union County forest lands and resulting impacts to the economic, social, wildlife and resources of the county.

A site certificate cannot be issued absent information regarding the actual impacts that will occur to this critical local resource.

Sincerely,

Linda M. Fratzke

Address: Linda M. Fratzke
2104 Linda Lane
We Grande, OR
97850

915 ECKHORN DR
BAKER CITY OR. 97814

PORTLAND OR 972

19 AUG 2019 PM 5 L



Energy Facilities Siting Council
c/o Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol Street N.E.
Salem, OR. 97301

RECEIVED

AUG 21 2019

Department of Energy

97301-374299



August 18, 2019

Energy Facilities Siting Council
c/o Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol Street N.E.
Salem, OR. 97301

Via E-MAIL: B2H.DPOComments@Oregon.gov

Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project
9/28/2018; Draft Proposed Order 5/23/2019

To: Chairmen Beyeler and Members of the Council

I appreciate the opportunity to comment on the Draft Project Order for the Boardman to Hemingway Transmission Project. I am very supportive of the Oregon California Trails Association (OCTA) and the work that they have done to protect the Oregon Trail, especially here in Oregon. OCTA is mentioned numerous times in **Exhibit S** and the **Historic Properties Management Plan and Programmatic Agreement**. OCTA does NOT believe that Exhibit S Historic Properties Management Plan is complete in 7.2.3 Field Crew, and offers this additional condition.

ADDITIONAL CONDITION #1 OCTA recommends that the Council add an Oregon Trail expert to the Cultural Resource Team. This Oregon Trail individual will have qualifications similar to Field crew members. For example, they will have an undergraduate degree in anthropology, archaeology, or in a field such as geology, engineering or history. It will not be necessary to have attended a field school. This individual will be recommended by the National OCTA President and agreed to by the Field Director.

The field surveys, even with SHPO and NPS data, have missed and/or mislabeled some sections of the emigrant trail. OCTA wants the public to know where the Trails are and I do too! OCTA over the years has marked the trail location with wooden signs, small triangles attached to trees, and more recently, carbonite posts and steel rails. Most private property owners are proud of the trail on their property, and after obtaining permission allow the public to walk and hike on the trail.

Idaho Power and their consultants have not acknowledged trail crossings shown on submitted Maps and do not acknowledge visual intrusion of the line for 10 miles per standards, and only upon ODOE's RAI's, put into documents some trail protections. This has been consistent from the BLM process to current day.

Considering the points above, Idaho Power does not comply with the state standards for cultural resources OAR 354-022-0090, or 345-022-0080, Scenic resources. **EFSC Must Deny the Site Certificate!**



Signature

Printed name: Sharon Ann Freeman

Mailing address: 915 Elkhorn Drive, Baker City, OR 97815-2951

Email address: sfreeman441@msn.com

phone number: (optional) 541 786 3022

TARDAEWETHER Kellen * ODOE

From: Dale Mammen <dmammen@eoni.com>
Sent: Thursday, August 15, 2019 5:53 PM
To: B2H DPOComments * ODOE
Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018; Draft Proposed Order 5/23/2019
Attachments: Scan 2019-8-15 17.38.19.pdf

To: Chairman Beyeler and Members of the Council

Find attached a letter signed by me and 54 other residents of La Grande expressing our concerns regarding the B2H Project and we request that EFSC deny the Site Certificate.

I have also sent a bound copy of this material by the US Postal Service.

Sincerely,

Virginia L. Mammen
405 Balsa
La Grande, Oregon 97850

August 10, 2019

Energy Facilities Siting Council
c/o Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol St. N.E.
Salem, OR. 97301

Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018:Draft Proposed Order.

Dear Chair Beyeler and Members of the Council:

My comment is about the usage of the "Local Streets" ¹ specifically the Modelaire-Hawthorne Loop) ², hereafter referred to as the "loop", of La Grande to access the site entrance. This residential "loop" was constructed without sidewalks for a new development around the early 1960s.

According to OAR 345-022-0110, Public Services (pg. 5. April 2017) "The applicant...must address all permanent and temporary impacts of the facility on housing, traffic, safety, police and fire protection, health care and schools." ³

My impression from reviewing the application Page 17 ⁴ is that the applicant has not fully examined the final portion of the intended route nor does it fully recognize or address the need for traffic mitigation. This "loop" is the only access to/from thirty-six houses to the rest of the city. The area to the north of the "loop" is occupied by the Grande Ronde Hospital and Medical Clinic. Two blocks to the east is located the local high school and a grade school. ²

In June of 2016, the Grande Ronde Hospital petitioned the City to have a conditional use for a parking lot expansion project next to Hawthorne. The Conditional Use Permit was approved subject to the Condition of Approval that "No driveway access to GRH parking lot areas shall be permitted onto Hawthorn Drive as such street is developed to residential standards and is not designed to support commercial traffic." ⁵

The La Grande Director of Public Works, Kyle Carpenter, provided information regarding the widths for the streets in question. The two streets range from 33 feet to 37 feet in width with no sidewalks. I personally measured the area where the unpaved stem of Hawthorne leaves the "loop" to go up the hill. At the junction it measures 32 feet curb cut to curb cut and narrows to 18-21 feet in width as it goes around the corner up the hill. 6 The Public Works Director also provided pictures of the mapping system showing the existing utilities located in the "loop". 7-8. It should also be noted that from the entrance to the "loop" at Sunset Drive to the entrance of the site the road has a 16% grade.

Attachment U2 9 from the application shows an "Aerial Lift Crane to be Used During Construction" and the Transportation and Traffic Plan on page 19 10 lists a number of other vehicles anticipated to be used. Article 6.6 — Public Street Standards for the City of La Grande Section 6.6.002 states that "Collector Streets are designed to withstand normal trucks of an HS20 loading. Larger trucks are to utilize Arterial Streets where at all possible." 11 The majority of vehicles listed on page 19 exceed that limit and would be using a Local Street in addition to Arterial and Collector Streets. According to the Public Works Director the two streets in the "loop" were designed as Local Streets for residential use, able to accept the pressures of HS20 for the purpose of an occasional need such as a weekly garbage truck or an emergency vehicle but for no more than 5% of the time. The paving construction of these over 50 year old streets in the "loop" was not designed for repetitive use by vehicles heavier than a normal car. These streets in the "loop" have not been repaved, only patched when necessary, since they were first constructed.

The application does not address the "loop" specifically, but 3.1.2 (pg. 19) 10 and Table 6 (pg. 17) 12 of the Transportation and Traffic Plan indicate there would be numerous vehicles using this route. Not knowing exactly just which vehicles would be on the "loop" daily but making a conservative estimate of 50 round trips (100 single) it would be a constant parade with one truck every 7.2 minutes. This is unacceptable for numerous reasons including constant excessive noise.

Not only would weight of the vehicles be a problem but the narrowness of the "loop" streets and the ninety degree blind curves that would have to be executed would be either impossible or extremely dangerous considering the turning radius for many of these large vehicles. The

already dangerous situation for a number of driveways that exit onto these "loop" streets at blind curves would be exacerbated. 13-14

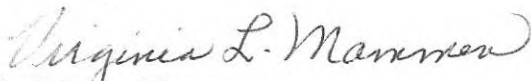
When considering only the traffic and safety issues listed above, the use of the "loop" as a part of the route for Idaho Power seems to be not only dangerous for the residents but unconscionable and irresponsible for Idaho Power to use such streets that are currently primarily for the neighborhood for walking (children to school, all ages for physical training), driving, or biking. I fear there are standards that are either not being considered or they are intentionally being ignored. There should be some common sense, courtesy and respect for the impact this project would impose on any neighborhood.

Finally, La Grande Ordinance Number 3077, which adopted Oregon State Traffic Laws by reference, states in Section 17 page 8 "It shall be unlawful for any person, firm or corporation to use, drive or operate any vehicle or combination of vehicles with a gross weight of 26,000, pounds or more upon any street of the City of La Grande, Oregon, except upon posted truck routes." Neither Modelaire/Hawthorne Loop nor Sunset Drive are posted as truck routes. 15-16

A site review and traffic plan must be completed prior to the cite certificate being issued and not 90 days prior to construction as stated.

For the above reasons I oppose the usage of the proposed route for the construction of the B2H transmission line.

Sincerely,


Virginia L. Mammen
405 Balsa
La Grande, Oregon. 97850

gmammen@eoni.com

**TABLE 1
 STREET STANDARDS**

Functional Classification	ADT Volume	Speed (mph)	# of Travel Lanes	Travel Lane Width	Turn Lane or Median Width	Bike Lanes	Min. Bike Lane Width	On-Street parking
Downtown Arterial	10,000	20	2-3	11'	11'			both sides
Arterial	10,000	40-55	2-5	12'	4-14'	optional ⁴	5'	none
Major Collector	2,000 - 10,000	25-45	2-3	11'	12'	required	5'	one or both sides
Minor Collector	1,000 - 2,000	25-35	2	11'	none	Optional ⁵	5'	one or both sides
Local Street	0 - 1,000	15-25	2	10'	none	none	none	one or both sides

Functional Classification	Sidewalks	Min. Sidewalk Width	Planting Strip Width ¹	Total Paved Width ²	Total ROW Width ³	Private Access Spacing
Downtown Arterial	required	12'	3'6" ⁶	49'	80'	200'
Arterial	required	5'	8'	36'-72'	80'-102'	200' - 400'
Major Collector	required	5'	8'	52'-60'	62'-90'	150' - 300'
Minor Collector	required	5'	8'	30'-48'	60'-78'	75' - 150'
Local Street	required	5'	8'	28'-36'	40'-66'	Each Lot

¹A portion of the required planting strip width may be used instead as additional sidewalk width or reduced right of way, as appropriate.

²The minimum of the paved width was calculated with the following assumptions:

Arterials: Two (2) travel lanes, four foot (4') median divider, no center turn lane, no bike lanes.

Major Collectors: Two (2) travel lanes, two (2) bike lanes, no center turn lane, parking on one (1) side.

Minor Collectors: Two (2) travel lanes, parking on one (1) side of street, no bike lanes.

Local Streets: Two (2) travel lanes, parking on one (1) side of street.

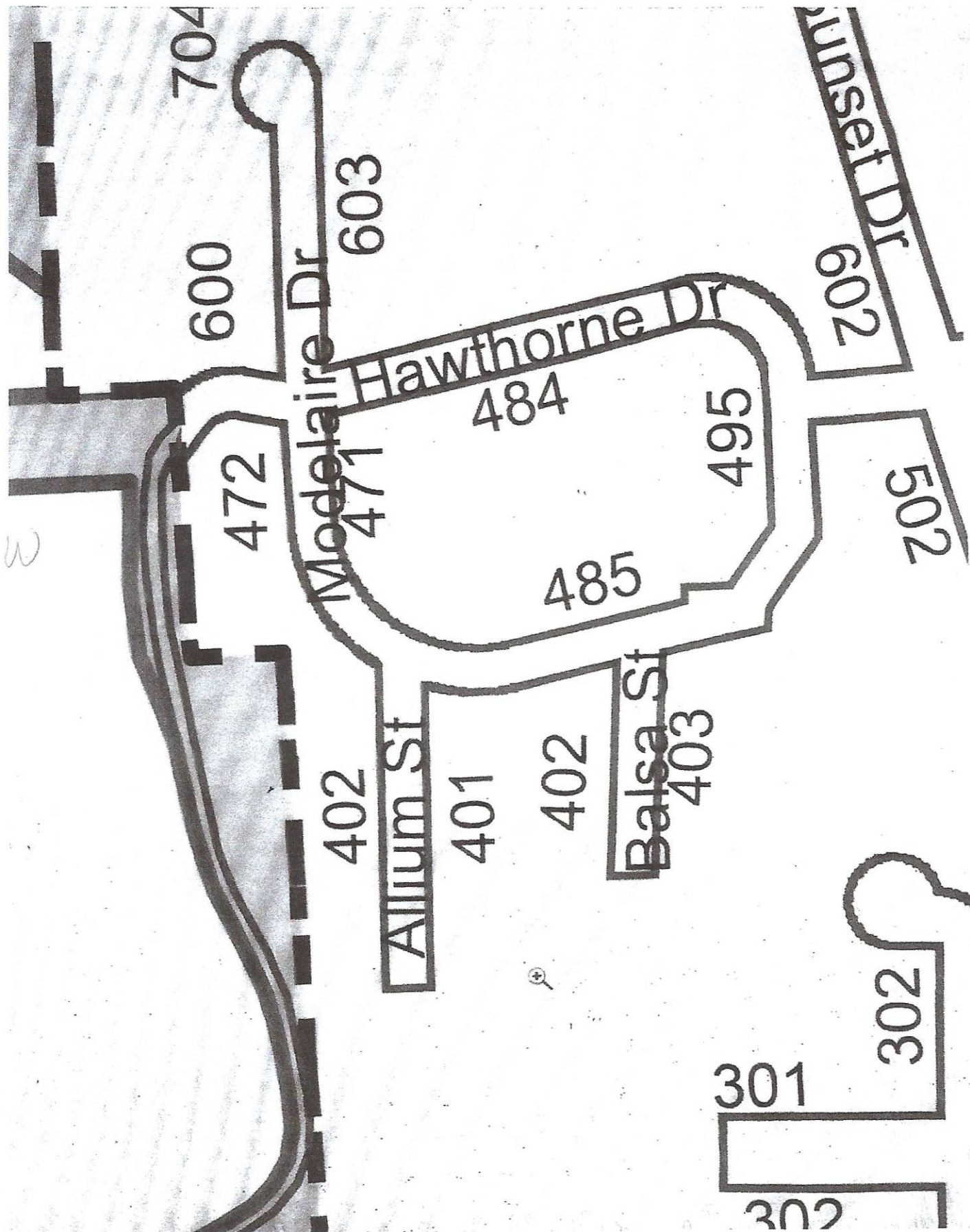
The maximum paved width for each street was calculated assuming the inclusion of all required and optional facilities. Minimum paved widths for each street are as required in Section 6.2.005 of this Code.

³These right-of-way width ranges are for new streets.

⁴Bike lanes should be provided on Arterials unless more desirable parallel facilities are designated and designed to accommodate bicycles.

⁵ Bike lanes should be provided on Minor Collectors where traffic volumes or other factors warrant. Otherwise, Minor Collectors should be designed and designated as shared roadway facilities with wide outside travel lanes of 14' on important bike routes.

N



5

Public Services

OAR 345-022-0110

This standard ensures that the proposed facility will not affect the ability of service providers in local communities to provide public services, such as fire protection or education. The applicant must assess the proposed facility's need for water and for disposal of wastewater, storm water and solid waste. The applicant must also evaluate the expected population increases in local communities resulting from construction and operation of the facility; and must address all permanent and temporary impacts of the facility on housing, traffic safety, police and fire protection, health care and schools. The Council must determine whether the applicant has identified potential adverse impacts to service providers and proposed adequate mitigation to ensure that there will be no significant adverse effect on the ability of a service provider to provide services. In considering the impacts, the Council solicits comments from affected local governments, fire or police departments, school districts and health care agencies.

Waste Minimization

OAR 345-022-0120

This standard requires the Council to evaluate the applicant's proposal to minimize solid waste and wastewater generated by construction and operation of the proposed facility. The standard requires recycling of wastes, if feasible, or proper waste disposal if recycling is not feasible.

The applicant must evaluate the types of waste products that would be produced during construction and operation of the proposed facility and estimate the amounts or volume of waste products. The applicant must propose appropriate methods to handle the waste through collection, storage and disposal. Compliance with the standard assures that the applicant will reduce the amount of waste generated and dispose of waste in a responsible manner.

Need for a Facility

OAR 345-023-0005

This standard requires the applicant for non-generating energy facilities (such as electric transmission lines) to demonstrate the need for the proposed facility. The Council's rules allow an applicant to demonstrate need for a non-generating facility through one of several methods, including the "Least-Cost Plan Rule" (OAR 345-023-0020) or the "System Reliability Rule for Electric Transmission Lines" (OAR 345-023-0030). Under the Least-Cost Plan Rule, the applicant meets this standard if the proposed transmission line was included in an Integrated Resource Plan that has been acknowledged by the Oregon Public Utilities Commission (OPUC). More information about the OPUC and the Integrated Resource Plan acknowledgement process can be found at www.puc.state.or.us.

Specific Standards for Wind Facilities

OAR 345-024-0010 and 345-024-0015

This standard requires the Council to evaluate applications for wind energy facilities to ensure that applicants can design, construct and operate the facility so that that the public is not endangered by moving turbine blades or electrical equipment, and that the applicant can design, construct and operate wind turbines to prevent structural failure that could endanger public safety. Siting standards for wind facilities also require the applicant to reduce cumulative adverse environmental effects in the vicinity by using existing roads, if possible, placing collection lines underground, designing the facility to avoid impacts to vulnerable wildlife in the area (especially birds and bats), and designing the facility to minimize adverse visual features, including using the minimum amount of lighting necessary to meet the requirements of the Federal Aviation Administration for protecting aircraft.

Specific Standards for Transmission Lines

OAR 345-024-0090

This standard requires that the Council evaluate transmission lines under Council jurisdiction to ensure they are designed, constructed and operated to limit the strength of electromagnetic fields in areas where those lines are accessible to the public.



Idaho Power Responses to Comments and Requests for Additional Information on the B2H APASC
from the City of La Grande
Compiled by ODOE. RAI's from the City of La Grande and Responses from IPC

U	U- Public Services include utilities such as road systems, water, sanitation services, power, and other amenities necessary for the construction.	Ordinance #2912, Series 1997 gives the City jurisdiction and control on all City street rights-of-way and Ordinance #3077, Series 2009, establishes the process and requirements for permits and licenses for uses of the streets that are not normal uses and may result in damages.	proposed heliport is a necessary supporting facility.	<p>The project construction has two major road systems through La Grande that are proposed for this project – Morgan Lake Road via Gekeler Lane, 'C' Avenue, Walnut Street, and on up Morgan Lake Road. Roads along these routes are used by the ambulance service for accessing the hospital, the public transit system on its normal daily route, citizens to access locations within and outside this area and also for the school bus system for transporting kids to the La Grande Middle School, La Grande High School and Central Elementary School. In addition to the vehicular modes of travel, those routes are heavily used by bicyclists and pedestrians. The other route that would be utilized is the same route with the exception of turning onto Sunset Drive and up Hawthorne Street to a private gravel road that heads up the area above Deal Canyon. Two other routes that are not addressed but that would be obvious access routes for construction would be South 12th Street and South 20th Street. As a general rule, City streets are built with ninety degree angles, which may restrict some</p> <p>To address the City's concerns regarding traffic and road use within the city's limits, Idaho Power has added the following proposed conditions to Exhibit K:</p> <p><u>Land Use Condition 9: Prior to construction in Union County, the site certificate holder shall complete the following to address traffic impacts in the county:</u></p> <p><u>a. The site certificate holder shall finalize, and submit to the department for its approval, a final county-specific transportation and traffic plan. The protective measures described in the draft Transportation and Traffic Plan in ASG Exhibit U, Attachment U-2, shall be included and implemented as part of the final county-specific plan, unless otherwise approved by the department;</u></p> <p><u>b. The site certificate holder shall work with the Union County Road Department and the City of La Grande Public Works Department to identify concerns related to Project construction traffic; and</u></p> <p><u>c. The site certificate holder shall develop traffic control measures to mitigate the effects of Project construction traffic;</u></p> <p><u>Land Use Condition 26: During construction in Union County, the site certificate holder shall conduct all work in compliance with the Union County-specific</u></p>
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IV. CONCLUSIONS

Based on the Findings of Fact above, the Planning Commission concludes that the application meets the requirements established in LDC Articles 8.5 and other applicable codes and Ordinances.

V. ORDER AND CONDITIONS OF APPROVAL

Based on the conclusions above, the Planning Commission approves the Conditional Use Permit as requested, subject to the following Conditions of Approval:

1. No driveway access to GRH parking lot areas shall be permitted onto Hawthorn Drive as such street is developed to a residential standards and is not designed to support commercial traffic.
2. Any existing driveway curb cuts along Hawthorn Drive bordering GRH's property, that are not used for residential purposes, shall be removed and replaced with City standard improvements that exists adjacent to such areas.
3. There is a storm sewer line extending through the project area that shall to be protected. Any improvements that may affect the storm sewer line shall be reviewed and approved by the Public Works Director.

VI. STANDARD CONDITIONS OF APPROVAL FOR LAND USE APPLICATIONS

1. **Revisions to a Valid Conditional Use Permit:** Any variations, alterations, or changes in a valid Conditional Use Permit requested by the deed holder shall be considered in accordance with the procedures of the Land Development Code as though a new Conditional Use Permit were being applied for.
2. **Public Works Standards:** Where a development involves work within the public right-of-way, a Right-of-Way Permit shall be obtained from the Public Works Department in advance of commencing with any work in the right-of-way. All improvements within the public right-of-way shall be in conformance with the most recent adopted City of La Grande *"Engineering Standard Drawings and Specifications for Construction Manual."*
3. **Building Permits:** The City of La Grande Building Department shall be contacted early in the process and in advance of development to coordinate and obtain required building, plumbing, electrical and/or mechanical permits. All required permits shall be acquired in advance of construction.

VI. OTHER PERMITS AND RESTRICTIONS

The applicant and property owner is herein advised that the use of the property involved in this application may require additional permits from the City of La Grande or other local, State or Federal Agencies.

The City of La Grande land use review, approval process and any decision issued does not take the place of, or relieve the applicant of responsibility for acquiring such other permits, or satisfy any restrictions or conditions thereon. The land use decision herein does not remove, alter, or impair in any way the covenants or restrictions imposed on this property by deed or other instrument.

The land use approvals granted by this decision shall be effective only when the rights granted herein have been exercised and commenced within one (1) year of the effective date of the decision. In case such right has not been exercised and commenced or an extension obtained, the approvals granted by this decision shall become null and void. A written request for an extension of time shall be filed with the Planning Department at least thirty (30) days prior to the expiration date of the approval.



Virginia Mammen <4gmammen@gmail.com>

Modelaire Roadway Specifications

3 messages

Kyle Carpenter <KCarpenter@cityoflagrande.org>
To: "gmammen@eoni.com" <gmammen@eoni.com>

Fri, Jul 12, 2019 at 1:51 PM

I have attached a couple pictures of our mapping system that will give you a sense of where existing utilities are in Modelaire and Hawthorne. As for the widths of the roadways, I took measurements in multiple places, and found the following:

- Modelaire Drive (F Avenue) between Sunset Blvd and Hawthorne Drive is approximately 33 feet wide with a grade of about 5 Percent.
- Hawthorne Drive is approximately 32 feet wide at the bottom near the intersection of Modelaire/F Avenue and widens to about 34 feet where it intersects Modelaire at the top of the hill. The grade heading up hill is approximately 15.5 Percent.
- Modelaire Drive is generally 36 feet wide with some minor variability generally less than a foot (35' to 37'). On the southernmost segment of the roadway where the majority of the elevation gain is observed the grade is approximately 16 Percent.

Let me know if there are any other specifications of these roadways that you are interested in that I have missed. Have a great weekend and thanks for the treats, the guys were very appreciative.

Kyle Carpenter, PE

Public Works Director

City of La Grande

Public Works

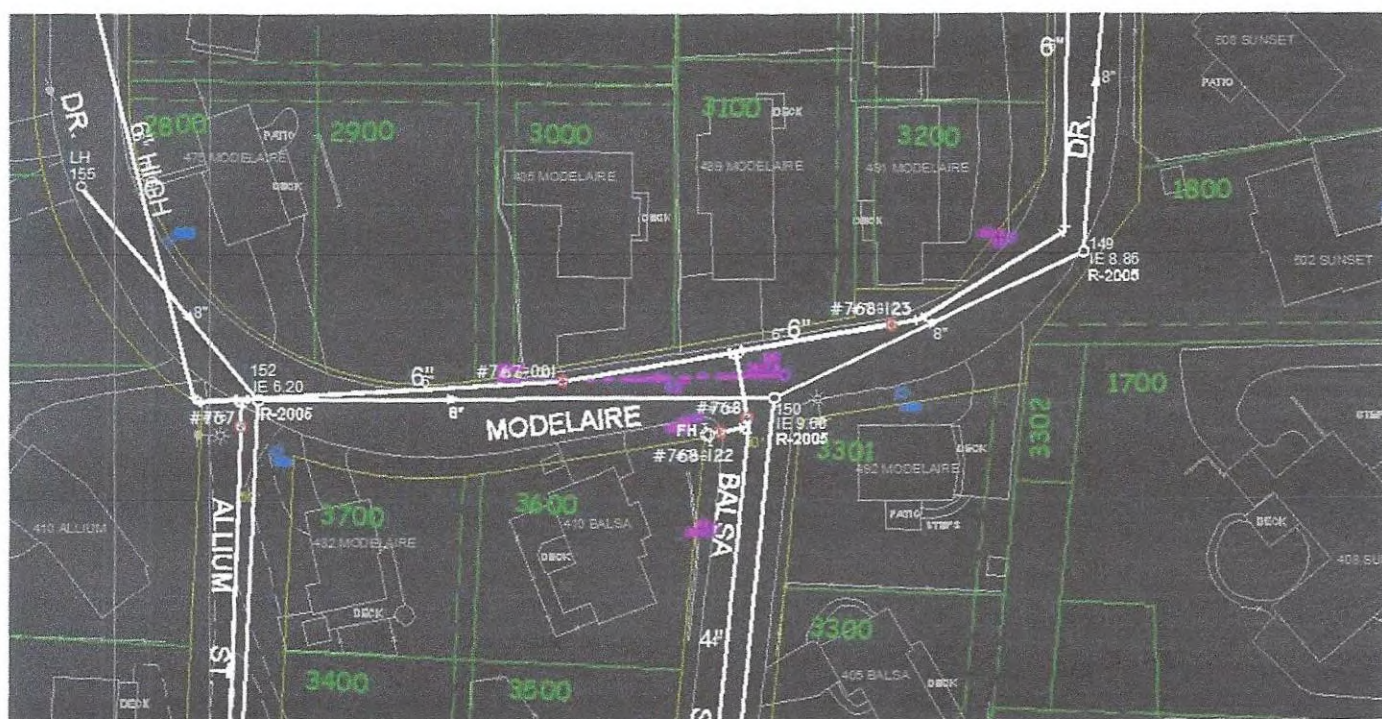
Ph: (541) 962-1325

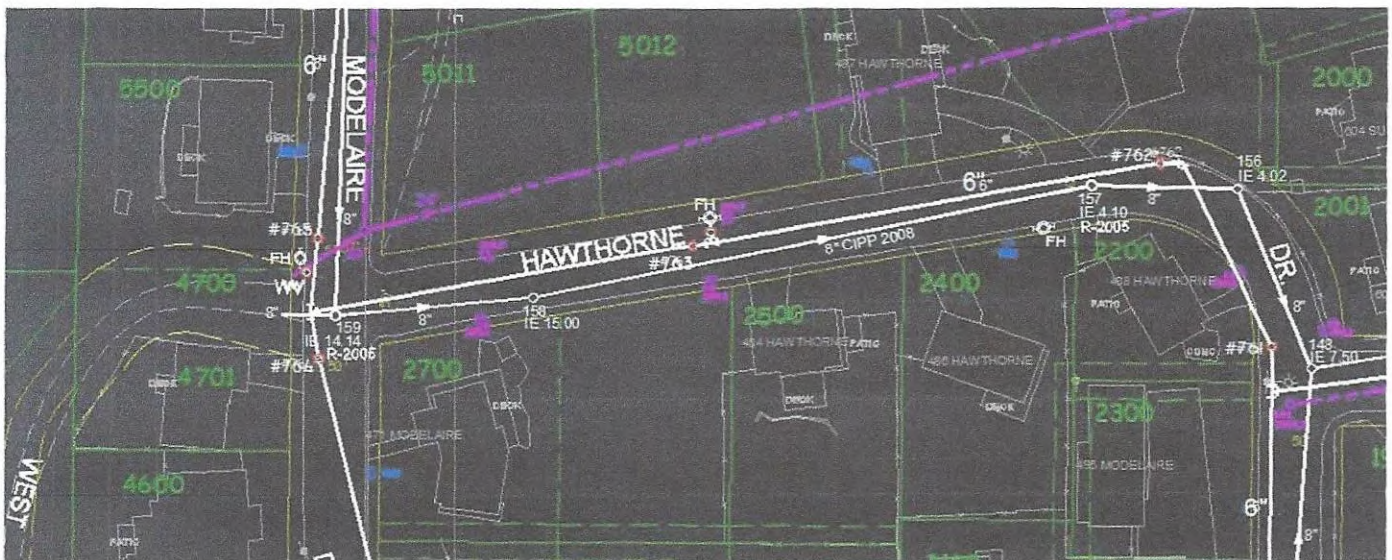
Fax: (541) 963-4844

2 attachments

Hawthorne.jpg
150K

Modelaire.jpg
120K





attachment U2

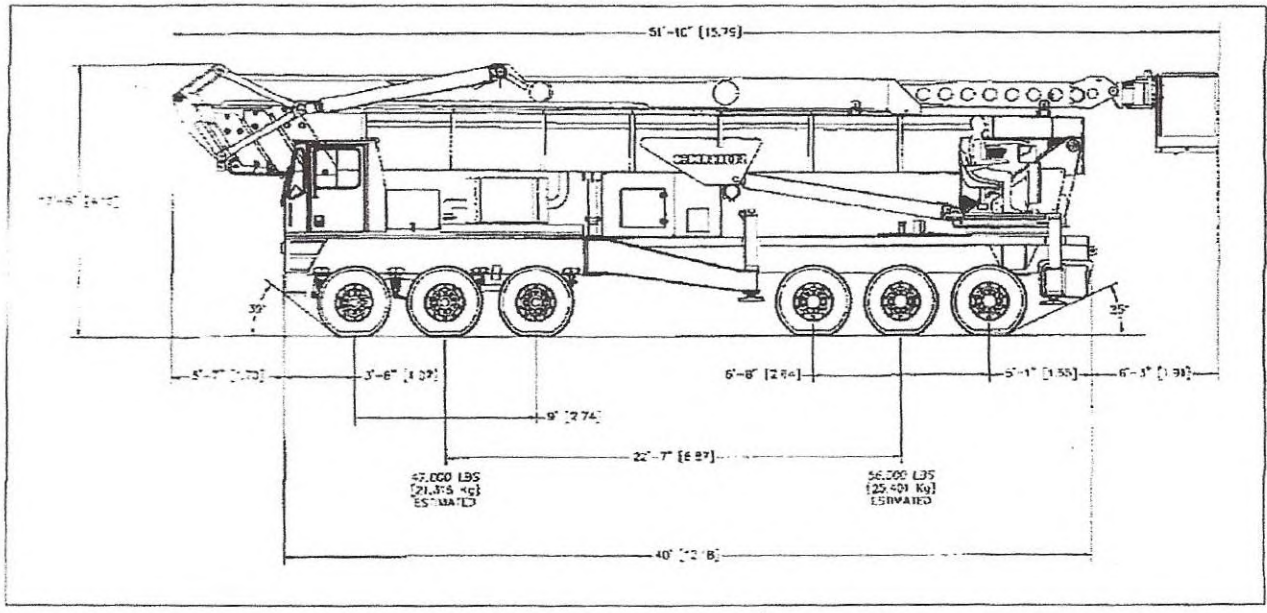


Figure 2. Example Aerial Lift Crane to be Used During Construction (Roadable Length 52 Feet; Width 8 Feet 6 Inches)

The following is a summary of anticipated equipment to be used for each transmission-line construction activity.

- Survey work: pickup trucks or ATVs.
- Timber removal: pickup trucks, feller bunchers, dump trucks, wood chippers.
- Road construction: pickup trucks, bulldozers, motor graders, and water trucks.
- Hole digging, installation of directly embedded structures, or foundation installation: pickup trucks, 2-ton trucks, digger derrick trucks, hole diggers, bulldozers, concrete trucks, water trucks, cranes, hydro cranes, wagon rock drills, dump trucks, and front-end loaders.
- Hauling lattice steel members, tubular poles, braces, and hardware to the structure sites: steel haul trucks, carry alls, cranes, and forklifts.
- Assembly and erection of structures: pickup trucks, 2-ton trucks, carry alls, cranes, and a heavy lift helicopter.
- Wire installation: pickups, wire reel trailers, diesel tractors, cranes, 5-ton boom trucks, splicing trucks, three drum pullers, single drum pullers, tensioner, sagging dozers, carry-alls, static wire reel trailers, bucket trucks, and a light duty helicopter.
- Final cleanup, reclamation, and restoration: pickup trucks, 2-ton trucks, bulldozers, motor graders, dump trucks, front-end loaders, hydro-seed truck, and water trucks.

The highest level of traffic will be when the wire stringing operations begin while several other operations are occurring at the same time, which will likely include ROW clearing, installing foundations, hauling steel, and assembling and erecting structures. For the station work, the highest level of traffic will be during site grading and foundation installation. For the communication station sites, the highest level of traffic will be during grading and site preparation.

Detailed estimates of trips generated by transporting Project construction equipment will be provided by the construction contractor prior to construction.

3.1.3 Traffic Related to Timber Removal

In forested areas, the Project will require removal of timber from the Project ROW and for construction and improvement of access roads. Specific timber harvest plans have not been finalized. Logs from timber clearing may be transported to nearby sawmills. Decisions regarding transportation routes for harvested timber will be made following completion of a timber harvest plan, and the number of log truck trips will be estimated when the timber harvest plan has been finalized. Logging slash will remain onsite if possible. For additional discussion regarding removal of timber in forested areas, see Exhibit K, Attachment K-2, ROW Clearing Assessment.

3.1.4 Impacts to V/C Ratios

Based on the estimated trip generation numbers in Tables 4 and 6, a maximum of approximately 1,294 daily one-way vehicle trips are expected within any one construction spread. To facilitate traffic and other analyses, the two construction spreads are divided into smaller sections based on similar construction windows and seasonal weather restrictions. Not all construction sections will have the same number of concurrent construction activities, depending on how the construction contractor sequences and executes the Project. Some sections will have fewer daily vehicle trips. For the purposes of the traffic analysis, the spreads are divided into five sections with multi-use areas that could have additive traffic impacts. The sections are assumed to have approximately equal levels of activity. The 1,294 daily one-way trips per spread divided over five sections of more concentrated traffic results in 259 daily one-

ARTICLE 6.6 – PUBLIC STREET STANDARDS

SECTION 6.6.001 - PURPOSE

Upon the request of the La Grande City Council, a variety of street design standards have been reviewed and are now incorporated in the Land Development Code.

SECTION 6.6.002 - CLASS I IMPROVEMENT STANDARDS

This classification will cover those streets that are designed to meet the standards for an expected life of twenty (20) years or more. The attached drawings shall be the minimum standard for those streets in this classification. All streets designated as Federal Aid Urban Streets (F.A.U.) shall be constructed under these design standards. Streets in this designation shall be constructed with sidewalks when at all possible in an effort to increase pedestrian safety. Collector streets are designed to withstand normal trucks of an HS 20 loading. Larger trucks are to utilize Arterial streets where at all possible. This level of development shall be the ultimate goal for all streets within the City of La Grande.

Possible means of financing available for this Class shall be methods A, B, C, D, E, F, G, and H in Section 6.6.006.

A. Advantages

1. The construction life is extended to a period above other City standards.
2. The visible aesthetics in relationship to having curbs and a blacktop surface with landscaping or concrete driveways and a sidewalk is generally appealing to the public.
3. Easy maintenance for the Public Works Department for cleaning and minor repair.
4. Storm sewer drainage is confined within the bounds of the curbs during minor flooding periods.
5. Parking is restricted to a solid barrier, that being the curb; this restricts parking in the area on the back side of the curb and confines travel to the street surface.
6. Defined areas for possible cross walks, signs, power poles, and other utilities that are restricted to the outside areas behind the curbs.
7. It allows for a wide range of financing methods and is to City standards for a ten (10) year Bancroft bonding.
8. Provides a dust free surface.

B. Disadvantages

1. The extreme high level of cost that is incurred with this type of development.

SECTION 6.6.003 - CLASS II IMPROVEMENT LEVEL

Streets constructed in this classification shall be constructed to the same standards as Class I Streets with the exception of the form of drainage system. These streets shall meet the standards as shown on the attached drawing. This level of construction shall be only utilized in substitution for Class I Streets when it is determined by the City Council at the recommendation of the City Engineer or Engineering Superintendent, that an adequate drainage system cannot be installed for a Class I Street.

Table 6. Construction Vehicle Trips per Day per Construction Spread

Construction Crew Type	Construction Vehicles					
	Light Construction Vehicles			Heavy Construction Vehicles		
	Number of Pickups/ Mechanic Trucks (per day)	Number of One-way Trips on Public Roads (per day)	Total One-way Trips (per day)	Number of Other Vehicles	Number of One-way Trips on Public Roads (per day)	Total One-way Trips (per day)
Substation Construction	20	2	40	5	2	10
ROW Clearing	9	4	36	5	4	20
Roads/ Pad Grading	9	4	36	9	2	18
Foundations	9	2	18	5	8	40
Tower Lacing (assembly)	27	2	54	0	0	0
Tower Setting (erection)	20	2	40	0	0	0
Wire Stringing	9	4	36	9	4	36
Restoration	3	2	6	0	0	0
Blasting	5	4	20	0	0	0
Material Delivery	20	8	160	12	2	24
Mechanic and Equipment Mgmt.	5	6	30	0	0	0
Refueling	0	0	0	5	4	20
Dust Control	0	0	0	5	4	20
Construction Inspection	5	8	40	0	0	0
Concrete Testing	5	4	20	0	0	0
Environmental Compliance	9	6	54	0	0	0
Surveyors	5	3	30	0	0	0
Totals	—	—	620	—	—	188

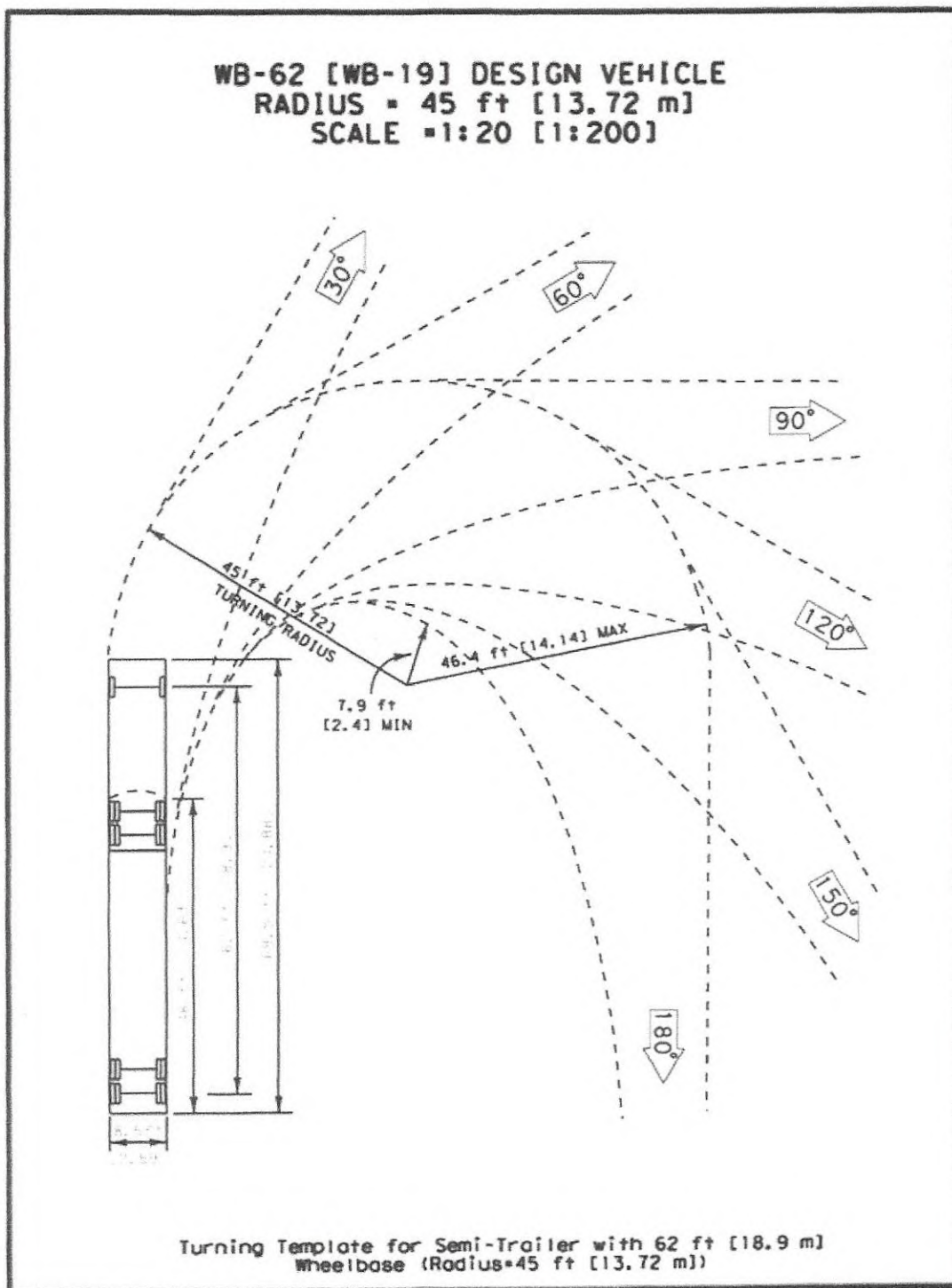
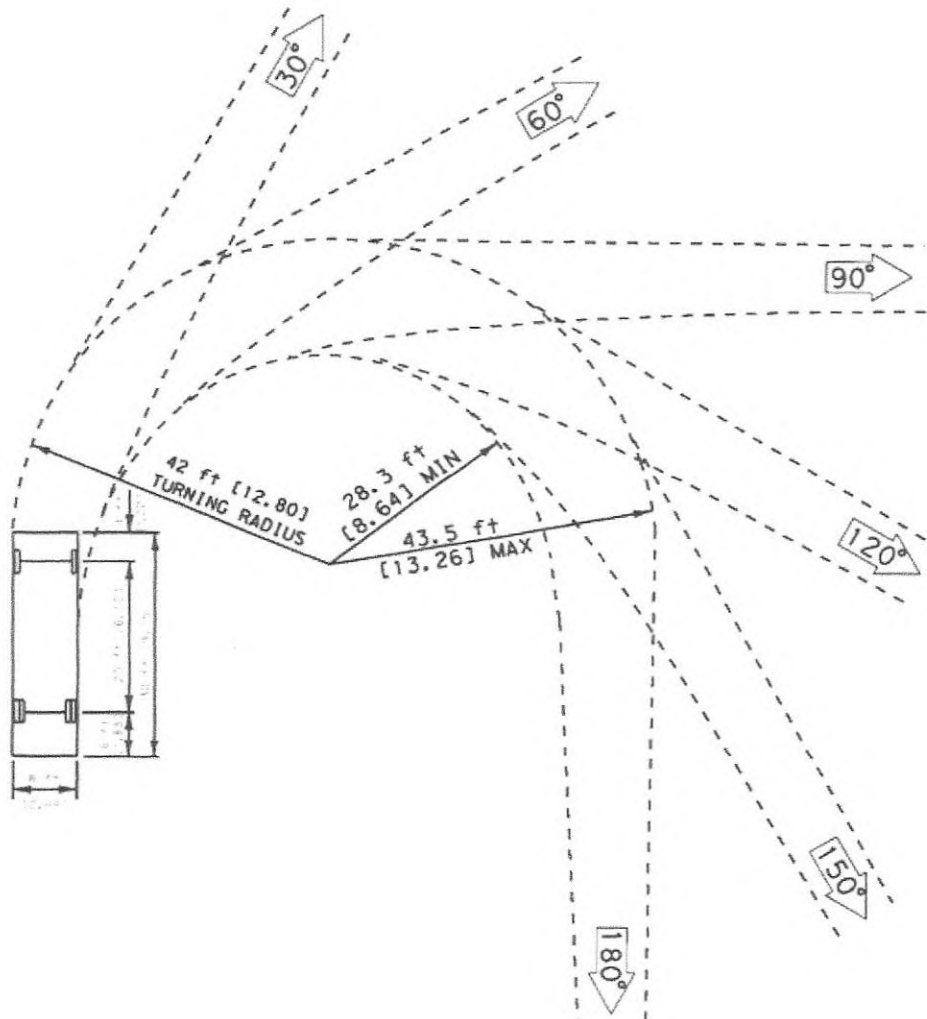


Figure 7-4. Turning Template for Semi-Trailer with 62 ft [18.9 m] Wheelbase, (not to scale). Click [here](#) to see a PDF of the image.

SINGLE UNIT (SU) TRUCK DESIGN VEHICLE
TURNING RADIUS = 42 ft [12.80 m]
SCALE = 1:20 [1:200]



Turning Template for Single Unit Trucks or Buses

Exhibit 15

**CITY OF LA GRANDE
ORDINANCE NUMBER 3077
SERIES 2009**

**AN ORDINANCE CONTROLLING VEHICULAR AND PEDESTRIAN TRAFFIC, PARADES
AND PROCESSIONS AND ISSUANCE OF PERMITS; PROVIDING PENALTIES; AND
REPEALING ORDINANCE NUMBER 2845, SERIES 1993; ALL AMENDING ORDINANCES
AND ALL OTHER ORDINANCES OR PARTS OF ORDINANCES IN CONFLICT HERewith;
AND DECLARING AN EFFECTIVE DATE**

THE CITY OF LA GRANDE ORDAINS AS FOLLOWS:

Section 1. This Ordinance may be cited as the City of La Grande Uniform Traffic Ordinance.

Section 2. APPLICABILITY OF STATE TRAFFIC LAWS.

Oregon Revised Statutes, Chapter 153, and the Oregon Vehicle Code, ORS Chapter 801 and 822, as now constituted, are adopted by reference. Violation of an adopted provision of those chapters is an offense against the City.

Section 3. DEFINITIONS

In addition to those definitions contained in the Oregon state Motor Vehicle Code, the following words or phrases, except where the context clearly indicates a different meaning, shall mean:

a. Alley

A street or highway primarily intended to provide access to the rear or side of lots or buildings in urban areas and not intended for through vehicular traffic.

b. Bicycle

A bicycle is a vehicle that:

1. Is designed to be operated on the ground on wheels;
2. has a seat or saddle for use of the rider;
3. is designed to travel with not more than three (3) wheels in contact with the ground;
4. is propelled exclusively by human power; and,
5. has every wheel more than fourteen inches (14") in diameter or two (2) tandem wheels, either of which is more than fourteen inches (14") in diameter.

c. Bicycle Lane

That part of the highway, adjacent to the roadway, designated by official signs or markings for use by persons riding bicycles, except as otherwise specifically provided by law.

d. Bicycle Path

A public way, not part of a highway, which is designated by official signs or markings for use by persons riding bicycles, except as otherwise specifically provided by law.

e. Block

The part of one side of a street lying between the two (2) nearest cross streets.

f. Central Business District

a. City Regulation of Special Movement of Oversized Load

The applicant shall submit an application to the City Manager or designee, showing the terminal points of the purported movement; the proposed route; the nature of the movement requested, including the weight and dimensions of the vehicle, load, machine, building, or structure to be moved; the time, date and duration of the proposed movement.

b. Special Movement Permit

A permit shall be required to move any vehicle, structure, or load on, or to access a street when, after preparation for movement, the vehicle, structure or load exceeds fourteen feet (14') in height, requires the use of guy wires, or could result in the blockage of a street. An approved application may serve as a permit, and a copy of the approved application shall be provided to the applicant.

Section 17. TRUCK ROUTES

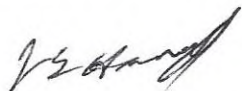
- a. It shall be unlawful for any person, firm, or corporation to use, drive or operate any vehicle or combination of vehicles with a gross weight of 26,000, pounds or more upon any street of the City of La Grande, Oregon, except upon posted truck routes.
- b. Any vehicle with a gross weight over 26,000, pounds specifically picking up deliveries or making deliveries to any business or residence located on a street that is not a truck route will be exempted if the vehicle is driven from the truck route to the destination in the shortest, most direct, and safest route.
- c. The use of Jacob brakes shall not be allowed within the city limits of La Grande, Oregon.
- d. Truck routes will be posted as follows:
 1. Walnut street north from the city limits to C Avenue;
 2. C Avenue east from Walnut Street to Gekeler Avenue;
 3. Gekeler Avenue east to the city limits;
 4. 12th street south from Gekeler Avenue to the city limits;
 5. 2nd Street south from the city limits to Adams Avenue;
 6. Monroe Avenue east from Spruce Street to Highway 82;
 7. Jackson Avenue east from Spruce Street, and
 8. Spruce Street south from the city limits to Monroe.

Section 18. IMPOUNDMENT AND DETENTION OF VEHICLES

- a. Whenever a vehicle is placed in a manner or location that constitutes an obstruction to traffic or a hazard to public safety, a police officer or enforcement officer shall order the owner or operator of the vehicle to remove said vehicle. If the vehicle is unattended, the officer or enforcement officer may cause the vehicle to be towed and stored at the owner's expense. The owner shall be liable for the costs of towing and storing, notwithstanding that the vehicle was parked by another or that the vehicle was initially parked in a safe manner but subsequently became an obstruction or hazard.

I have read the attached letter regarding the use of the Modelaire/Hawthorne Loop and it expresses my concerns and my request to abandon the plan to use this residential loop for the project. As one of the undersigned I strongly oppose our community being used as a primary access point to build this transmission line. Furthermore, I oppose the current proposed preferred route close to the city limits of La Grande because it impacts in various other ways the daily lives of many residents of our community.

SIGNATURE

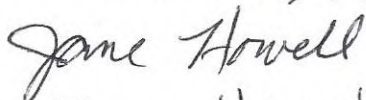


PRINTED NAME James E. Howell II

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SIGNATURE



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EMAIL d.janehowell@gmail.com

SIGNATURE

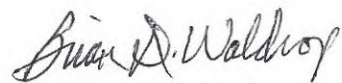


PRINTED NAME Lisa Waldrop

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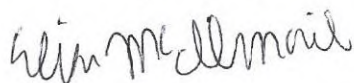


PRINTED NAME BRIAN D. WALDROP

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EMAIL bdwaldrop58@gmail.com

SIGNATURE



PRINTED NAME EUSE MCILMAIL

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EMAIL mcilmail154@hotmail.com


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SIGNATURE

PRINTED NAME

ADDRESS

EMAIL

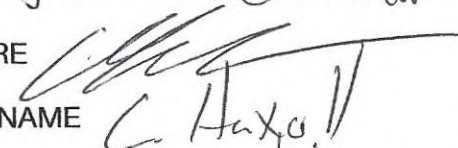

Jessie Huxell
472 Modelaire Dr. LaGrande OR 97850

SIGNATURE

PRINTED NAME

ADDRESS

EMAIL

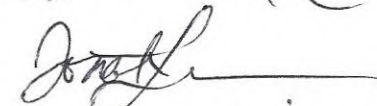

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SIGNATURE

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John Barutz


ADDRESS


484 Hawthorne LG, OR 97850


EMAIL


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SIGNATURE 
PRINTED NAME Andrea Gulzow
ADDRESS 486 Hawthorne DR, LA Grande
EMAIL foreverfamily33@aol.com

SIGNATURE 
PRINTED NAME Frances E. Lillard
ADDRESS 471 Modelaire Dr. L.G.
EMAIL

SIGNATURE 
PRINTED NAME Brent H. Smith
ADDRESS 410 Allium St
EMAIL smithbrent@gmail.com

SIGNATURE 
PRINTED NAME M. Jeannette Smith
ADDRESS 410 Allium Street
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SIGNATURE 
PRINTED NAME KIMBERLEY HEITSTUMAN
ADDRESS 2409 CENTURY LP, LA GRANDE, OR 97850
EMAIL kimheitstuman@hotmail.com

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SIGNATURE: 

PRINTED NAME Shawn K. Mangum

ADDRESS 2905 E. M. Ave,

EMAIL Hoyanaw95@ME.com

SIGNATURE

PRINTED NAME

ADDRESS

EMAIL

SIGNATURE

PRINTED NAME

ADDRESS

EMAIL

SIGNATURE

PRINTED NAME

ADDRESS

EMAIL

SIGNATURE

PRINTED NAME

ADDRESS

EMAIL

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SIGNATURE

Jonathan D. White

PRINTED NAME

Jonathan D. White

ADDRESS

485 Modelaire Dr

EMAIL

jondwhite418@gmail.com

SIGNATURE

Robin Stedfeld

PRINTED NAME

Robin Stedfeld

ADDRESS

485 Modelaine Dr. La Grande

EMAIL

rstedfeld@yahoo.com

SIGNATURE

Rita Allen

PRINTED NAME

Rita Allen

ADDRESS

410 Balsa St. La Grande Or.

EMAIL

SIGNATURE

Ruth Schumacher Yeates

PRINTED NAME

Ruth Schumacher Yeates

ADDRESS

408 Sunset Drive La Grande, OR 97850

EMAIL

ruthschumacheryeates@gmail.com

SIGNATURE

John Yeates

PRINTED NAME

JOHN YEATES

ADDRESS

408 SUNSET DR. LA GRANDE, OR 97850

EMAIL

jyeates52@gmail.com

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SIGNATURE

Lois Barry

PRINTED NAME

LOIS BARRY

ADDRESS

P.O. Box 566, La Grande, OR 97850

EMAIL

loisbarry31@gmail.com

SIGNATURE

Cathy Webb

PRINTED NAME

CATHY WEBB

ADDRESS

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EMAIL

thunkski@gmail.com

SIGNATURE

Jack L. Martin

PRINTED NAME

Jack L. Martin

ADDRESS

1412 Gilcrest Dr. LaGrande

EMAIL

Buff Martin 27 @GMail .com

SIGNATURE

Geraldine Braseth-Palmer

PRINTED NAME

GERALDINE BRASETH-PALMER

ADDRESS

1602 Goldenest Drive LA GRANDE, Ore 97850

EMAIL

[Signature]

SIGNATURE

Jean Rapp

PRINTED NAME

Jean RAPP


ADDRESS


1509 MADISON AVE LaGrande, OR 97850

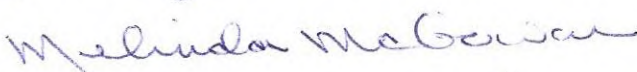
EMAIL


Jrapp19@gmail.com


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SIGNATURE 
PRINTED NAME Damon Sexton
ADDRESS 401 Balsa St La Grande, OR 97850
EMAIL Sexton.damon@gmail.com

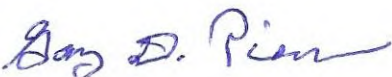
SIGNATURE 
PRINTED NAME Cory Sexton
ADDRESS 401 Balsa Street La Grande OR 97850
EMAIL Corytrix@gmail.com

SIGNATURE 
PRINTED NAME Melinda McGowan
ADDRESS 602 Sunset Dr.
EMAIL melindamegowan@gmail.com

SIGNATURE 
PRINTED NAME Keith D. Hudson
ADDRESS 605 F Ave, La Grande OR 97850
EMAIL Keithdhudson@gmail.com

SIGNATURE 
PRINTED NAME Laura Elly Hudson
ADDRESS 605 F Ave, La Grande OR 97850
EMAIL ellyhudson@gmail.com

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SIGNATURE 

PRINTED NAME Gary D. Pierson

ADDRESS 489 Modelaire Drive, La Grande OR 97850

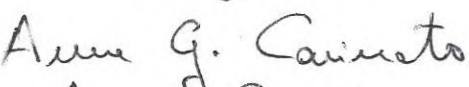
EMAIL —

SIGNATURE 

PRINTED NAME LYNN WHEELER DUNCAN

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EMAIL rlwd1910@gmail.com

SIGNATURE 

PRINTED NAME Anne G. Cavinato

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EMAIL acavinat@ecu.edu

SIGNATURE 

PRINTED NAME JOE HORST

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EMAIL joehorst@comi.com

SIGNATURE 

PRINTED NAME ANGELA Sherer

ADDRESS 91 W. Hawthorne Dr. LaGrande, OR 97850

EMAIL asherer@frontier.com

I have read the attached letter regarding the use of the Modelaire/Hawthorne Loop and it expresses my concerns and my request to abandon the plan to use this residential loop for the project. As one of the undersigned I strongly oppose our community being used as a primary access point to build this transmission line. Furthermore, I oppose the current proposed preferred route close to the city limits of La Grande because it impacts in various other ways the daily lives of many residents of our community.

SIGNATURE

Robert J. Sherer

PRINTED NAME

Robert J. Sherer

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SIGNATURE

Heather M. Null

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Bert R. Frewing

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Bert R. Frewing

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Lindsey McCullough

PRINTED NAME

Lindsey McCullough

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406 Balsa St., La Grande, OR 97850

EMAIL

lindz_mm91@hotmail.com

SIGNATURE

PRINTED NAME

ADDRESS

EMAIL

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SIGNATURE *Merle E. Comfort*
PRINTED NAME MERLE E. COMFORT
ADDRESS 209 SCORPIO DRIVE LA GRANDE OR 97850
EMAIL merlecomfort@gmail.com

SIGNATURE *Robin L. Maille*
PRINTED NAME Robin Maille
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SIGNATURE *Bruce C Kevan*
PRINTED NAME Bruce C Kevan
ADDRESS 1511 W Ave LG
EMAIL bruce.kevan@lagrandesd.org

SIGNATURE *Carol S. Summers*
PRINTED NAME CAROL S. SUMMERS
ADDRESS 2811 Bekeler Ln - La Grande, OR
EMAIL carolsummers1938@gmail.com

SIGNATURE *Caroline Kaye Juniper*
PRINTED NAME Caroline Kaye Juniper
ADDRESS 406 NTH ST. LaGrande - OR 97850
EMAIL

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SIGNATURE *Gerald D. Juniper*
PRINTED NAME *Gerald Darwin Juniper*
ADDRESS *406 4th St. LaGrande, OR. 97850*
EMAIL

SIGNATURE
PRINTED NAME
ADDRESS
EMAIL

SIGNATURE
PRINTED NAME
ADDRESS
EMAIL

SIGNATURE
PRINTED NAME
ADDRESS
EMAIL

SIGNATURE
PRINTED NAME
ADDRESS
EMAIL

TARDAEWETHER Kellen * ODOE

From: Dale Mammen <dmammen@eoni.com>
Sent: Thursday, August 15, 2019 5:28 PM
To: B2H DPOComments * ODOE
Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018; Draft Proposal Order 5/23/2019
Attachments: Scan 2019-8-15 17.14.06.pdf

To: Chairman Beyeler and Members of the Council

Find attached a letter sign by me and 46 other residents of La Grande expressing our concerns regarding the B2H Project and requesting that EFSC Deny the Site Certificate.

I have also sent a bound copy of this material by US Postal Service.

Virginia L. Mammen
405 Balsa
La Grande, Oregon 97850

August 10, 2019

Energy Facilities Siting Council
c/o Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol St. N.E.
Salem, Oregon. 97301

Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018:Draft Proposed Order.

Dear Chair Beyeler and Members of the Council:

My comment is about the predicted noise levels resulting from construction and operation of the proposed Boardman to Hemingway Transmission Line Project. I would like to address the noise coming from the blasting and rock breaking specifically above the area at the top of Modelaire Drive 1 both to the north and the south of that area and also the construction traffic noise that that will impact the west hills and the area below.

In Exhibit X page X-9 3.3.1.1 2 blasting and rock breaking is mentioned saying that "Modern blasting techniques include the electronically controlled ignition of multiple small explosive charges in an area of rock that are delayed fractions of second, resulting in a total event that is generally less than a second. Impulse (instantaneous) noise from blasts could reach up to 140dBA at the blast location or over 90 dBA within 500 feet." This sounds oh so "don't worry about it, it will be OK just over in a split second." Living in this area off Modelaire Drive, I don't find this at all comforting. And the fact that this will be overseen by properly licensed personnel and all of the necessary authorizations doesn't help anything either.

The area in question, which for such inordinate construction is extremely close to many residents, has been my home for over 50 years and during

related medical problems and exhibit various reactions to loud noises.¹⁰
These children also live in the neighborhoods to be affected by the noise so they would be impacted coming and going to school, at home and also while at school. To impose the constant possibility of loud noises is cruel, disrespectful and totally unacceptable. ¹¹

For a project like this involving blasting and heavy machinery noise so close to homes, schools, and medical facilities impacting hundreds of peoples' daily lives, the day to day agitation, wondering what is coming next, fear and being on constant alert are not just addressed by some type of mitigation but must be addressed by a route that is much less impactful to peoples' safety, sanity, and health.

Sincerely,

A handwritten signature in cursive script that reads "Virginia L. Mammen".

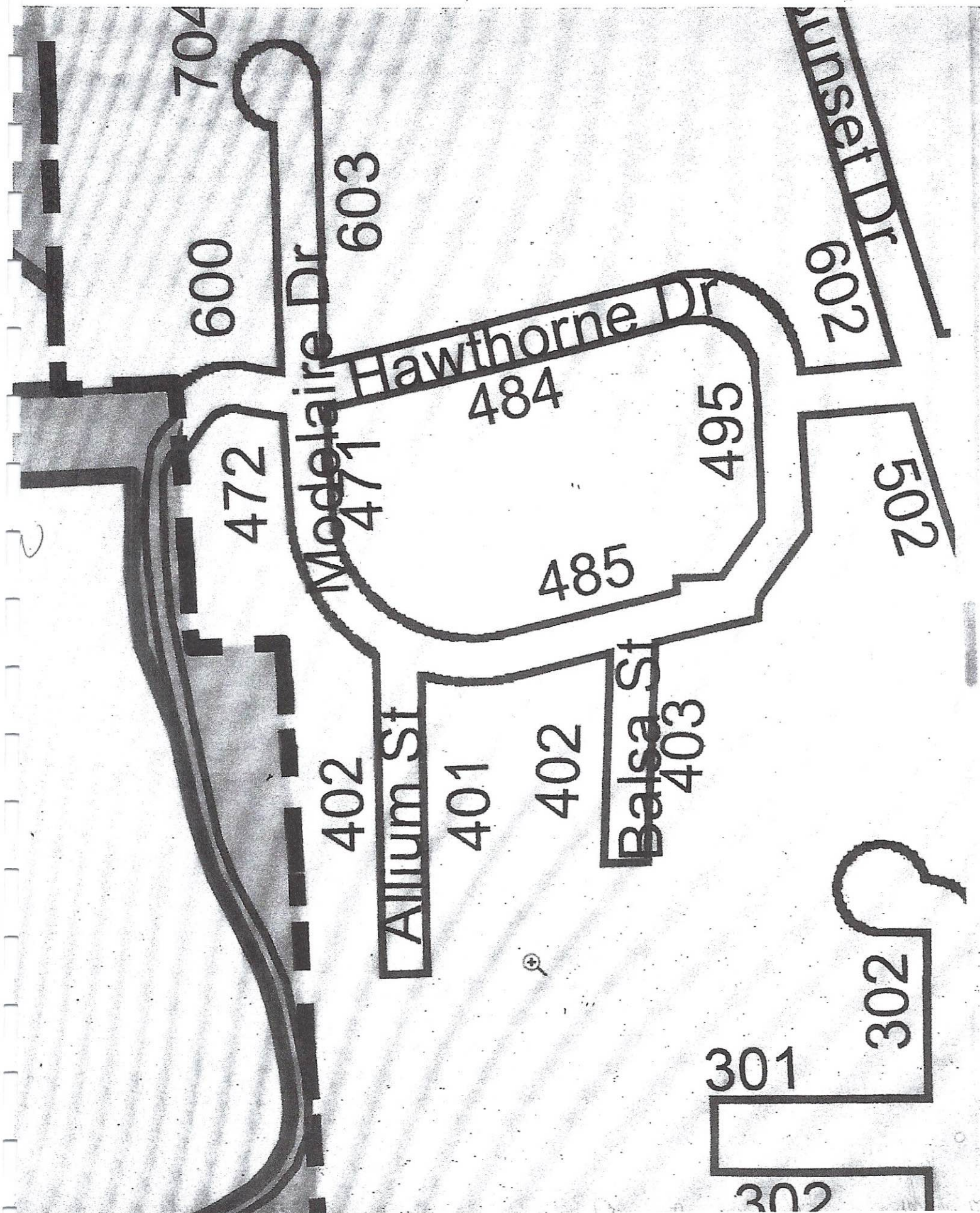
Virginia L. Mammen

405 Balsa

La Grande, Oregon 97850

gmammen@eoni.com

N



3.3 Predicted Noise Levels

OAR 345-021-0010(1)(x)(A): Predicted noise levels resulting from construction and operation of the proposed facility.

3.3.1 Construction Noise

3.3.1.1 Predicted Construction Noise Levels

Project construction will occur sequentially, moving along the length of the Project route, or in other areas such as near access roads, structure sites, conductor pulling sites, and staging and maintenance areas. Overhead transmission line construction is typically completed in the following stages, but various construction activities may overlap, with multiple construction crews operating simultaneously:

- Site access and preparation
- Installation of structure foundations
- Erecting of support structures
- Stringing of conductors, shield wire, and fiber-optic ground wire

The following subsections discuss certain construction activities that will periodically generate audible noise, including blasting and rock breaking, implosive devices used during conductor stringing, helicopter operations, and vehicle traffic.

Blasting and Rock Breaking

Blasting is a short-duration event as compared to rock removal methods, such as using track rig drills, rock breakers, jackhammers, rotary percussion drills, core barrels, or rotary rock drills. Modern blasting techniques include the electronically controlled ignition of multiple small-explosive charges in an area of rock that are delayed fractions of second, resulting in a total event duration that is generally less than a second. Impulse (instantaneous) noise from blasts could reach up to 140 dBA at the blast location or over 90 dBA within 500 feet.

Lattice tower foundations for the Project typically will be installed using drilled shafts or piers; however, if hard rock is encountered within the planned drilling depth, blasting may be required to loosen or fracture the rock to reach the required depth to install the structure foundations. Final blasting locations will not be identified until an investigative geotechnical survey of the analysis area is conducted during the detailed design.

The contracted blasting specialist will prepare a blasting plan that demonstrate compliance with applicable state and local blasting regulations, including the use of properly licensed personnel and the acquisition of necessary authorizations. The Framework Blasting Plan is set forth in Exhibit G, Attachment G-5.

Implosive Devices

An implosive conductor splice consists of a split-second detonation with sound and flash. Implosive splicing activities are anticipated to be limited to daytime hours. A blasting plan will be developed by an individual certified and licensed to perform the work. The plan will communicate all safety and technical requirements including, but not limited to, delineation of the controlled access zone and distance away from residences.

Public Services

OAR 345-022-0110

This standard ensures that the proposed facility will not affect the ability of service providers in local communities to provide public services, such as fire protection or education. The applicant must assess the proposed facility's need for water and for disposal of wastewater, storm water and solid waste. The applicant must also evaluate the expected population increases in local communities resulting from construction and operation of the facility; and must address all permanent and temporary impacts of the facility on housing, traffic safety, police and fire protection, health care and schools. The Council must determine whether the applicant has identified potential adverse impacts to service providers and proposed adequate mitigation to ensure that there will be no significant adverse effect on the ability of a service provider to provide services. In considering the impacts, the Council solicits comments from affected local governments, fire or police departments, school districts and health care agencies.

Waste Minimization

OAR 345-022-0120

This standard requires the Council to evaluate the applicant's proposal to minimize solid waste and wastewater generated by construction and operation of the proposed facility. The standard requires recycling of wastes, if feasible, or proper waste disposal if recycling is not feasible.

The applicant must evaluate the types of waste products that would be produced during construction and operation of the proposed facility and estimate the amounts or volume of waste products. The applicant must propose appropriate methods to handle the waste through collection, storage and disposal. Compliance with the standard assures that the applicant will reduce the amount of waste generated and dispose of waste in a responsible manner.

Need for a Facility

OAR 345-023-0005

This standard requires the applicant for non-generating energy facilities (such as electric transmission lines) to demonstrate the need for the proposed facility. The Council's rules allow an applicant to demonstrate need for a non-generating facility through one of several methods, including the "Least-Cost Plan Rule" (OAR 345-023-0020) or the "System Reliability Rule for Electric Transmission Lines" (OAR 345-023-0030). Under the Least-Cost Plan Rule, the applicant meets this standard if the proposed transmission line was included in an Integrated Resource Plan that has been acknowledged by the Oregon Public Utilities Commission (OPUC). More information about the OPUC and the Integrated Resource Plan acknowledgement process can be found at www.puc.state.or.us.

Specific Standards for Wind Facilities

OAR 345-024-0010 and 345-024-0015

This standard requires the Council to evaluate applications for wind energy facilities to ensure that applicants can design, construct and operate the facility so that the public is not endangered by moving turbine blades or electrical equipment, and that the applicant can design, construct and operate wind turbines to prevent structural failure that could endanger public safety. Siting standards for wind facilities also require the applicant to reduce cumulative adverse environmental effects in the vicinity by using existing roads, if possible, placing collection lines underground, designing the facility to avoid impacts to vulnerable wildlife in the area (especially birds and bats), and designing the facility to minimize adverse visual features, including using the minimum amount of lighting necessary to meet the requirements of the Federal Aviation Administration for protecting aircraft.

Specific Standards for Transmission Lines

OAR 345-024-0090

This standard requires that the Council evaluate transmission lines under Council jurisdiction to ensure they are designed, constructed and operated to limit the strength of electromagnetic fields in areas where those lines are accessible to the public.



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Department of Environmental Quality

Chapter 340

Division 35

NOISE CONTROL REGULATIONS

340-035-0035**Noise Control Regulations for Industry and Commerce****(1) Standards and Regulations:**

(a) **Existing Noise Sources.** No person owning or controlling an existing industrial or commercial noise source shall cause or permit the operation of that noise source if the statistical noise levels generated by that source and measured at an appropriate measurement point, specified in subsection (3)(b) of this rule, exceed the levels specified in Table 7, except as otherwise provided in these rules. [Table not included. See ED. NOTE.]

(b) New Noise Sources:

(A) **New Sources Located on Previously Used Sites.** No person owning or controlling a new industrial or commercial noise source located on a previously used industrial or commercial site shall cause or permit the operation of that noise source if the statistical noise levels generated by that new source and measured at an appropriate measurement point, specified in subsection (3)(b) of this rule, exceed the levels specified in Table 8, except as otherwise provided in these rules. For noise levels generated by a wind energy facility including wind turbines of any size and any associated equipment or machinery, subparagraph (1)(b)(B)(iii) applies. [Table not included. See ED. NOTE.]

(B) New Sources Located on Previously Unused Site:

(i) No person owning or controlling a new industrial or commercial noise source located on a previously unused industrial or commercial site shall cause or permit the operation of that noise source if the noise levels generated or indirectly caused by that noise source increase the ambient statistical noise levels, L10 or L50, by more than 10 dBA in any one hour, or exceed the levels specified in Table 8, as measured at an appropriate measurement point, as specified in subsection (3)(b) of this rule, except as specified in subparagraph (1)(b)(B)(iii).

(ii) The ambient statistical noise level of a new industrial or commercial noise source on a previously unused industrial or commercial site shall include all noises generated or indirectly caused by or attributable to that source including all of its related activities. Sources exempted from the requirements of section (1) of this rule, which are identified in subsections (5)(b)-(f), (j), and (k) of this rule, shall not be excluded from this ambient measurement.

(iii) For noise levels generated or caused by a wind energy facility:

(I) The increase in ambient statistical noise levels is based on an assumed background L50 ambient noise level of 26 dBA or the actual ambient background level. The person owning the wind energy facility may conduct measurements to determine the actual ambient L10 and L50 background level.

(II) The "actual ambient background level" is the measured noise level at the appropriate measurement point as specified in subsection (3)(b) of this rule using generally accepted noise engineering measurement practices. Background noise measurements shall be obtained at the appropriate measurement point, synchronized with wind speed measurements of hub height conditions at the nearest wind turbine location. "Actual ambient background level" does not include noise generated or caused by the wind energy facility.

(III) The noise levels from a wind energy facility may increase the ambient statistical noise levels L10 and L50 by more than 10 dBA (but not above the limits specified in Table 8), if the person who owns the noise sensitive property executes a legally effective easement or real covenant that benefits the property on which the wind energy facility is located. The easement or covenant must authorize the wind energy facility to increase the ambient statistical noise levels, L10 or L50 on the sensitive property by more than 10 dBA at the appropriate measurement point.

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(2) Compliance. Upon written notification from the Director, the owner or controller of an industrial or commercial noise source operating in violation of the adopted rules shall submit a compliance schedule acceptable to the Department. The schedule will set forth the dates, terms, and conditions by which the person responsible for the noise source shall comply with the adopted rules.

(3) Measurement:

(a) Sound measurements procedures shall conform to those procedures which are adopted by the Commission and set forth in Sound Measurement Procedures Manual (NPCS-1), or to such other procedures as are approved in writing by the Department;

(b) Unless otherwise specified, the appropriate measurement point shall be that point on the noise sensitive property, described below, which is further from the noise source:

(A) 25 feet (7.6 meters) toward the noise source from that point on the noise sensitive building nearest the noise source;

(B) That point on the noise sensitive property line nearest the noise source.

(4) Monitoring and Reporting:

(a) Upon written notification from the Department, persons owning or controlling an industrial or commercial noise source shall monitor and record the statistical noise levels and operating times of equipment, facilities, operations, and activities, and shall submit such data to the Department in the form and on the schedule requested by the Department. Procedures for such measurements shall conform to those procedures which are adopted by the Commission and set forth in Sound Measurement Procedures Manual (NPCS-1);

(b) Nothing in this rule shall preclude the Department from conducting separate or additional noise tests and measurements. Therefore, when requested by the Department, the owner or operator of an industrial or commercial noise source shall provide the following:

(A) Access to the site;

(B) Reasonable facilities, where available, including but not limited to, electric power and ladders adequate to perform the testing;

(C) Cooperation in the reasonable operation, manipulation, or shutdown of various equipment or operations as needed to ascertain the source of sound and measure its emission.

(5) Exemptions: Except as otherwise provided in subparagraph (1)(b)(B)(ii) of this rule, the rules in section (1) of this rule shall not apply to:

(a) Emergency equipment not operated on a regular or scheduled basis;

(b) Warning devices not operating continuously for more than 5 minutes;

(c) Sounds created by the tires or motor used to propel any road vehicle complying with the noise standards for road vehicles;

(d) Sounds resulting from the operation of any equipment or facility of a surface carrier engaged in interstate commerce by railroad only to the extent that such equipment or facility is regulated by pre-emptive federal regulations as set forth in Part 201 of Title 40 of the Code of Federal Regulations, promulgated pursuant to Section 17 of the Noise Control Act of 1972, 86 Stat. 1248, Public Law 92-576; but this exemption does not apply to any standard, control, license, regulation, or restriction necessitated by special local conditions which is approved by the Administrator of the EPA after consultation with the Secretary of Transportation pursuant to procedures set forth in Section 17(c)(2) of the Act;

(e) Sounds created by bells, chimes, or carillons;

(f) Sounds not electronically amplified which are created by or generated at sporting, amusement, and entertainment events, except those sounds which are regulated under other noise standards. An event is a noteworthy happening and does not include informal, frequent, or ongoing activities such as, but not limited to, those which normally occur at bowling alleys or amusement parks operating in one location for a significant period of time;

(g) Sounds that originate on construction sites.

(h) Sounds created in construction or maintenance of capital equipment;

(i) Sounds created by lawn care maintenance and snow removal equipment;

(j) Sounds generated by the operation of aircraft and subject to pre-emptive federal regulation. This exception does not apply to aircraft engine testing, activity conducted at the airport that is not directly related to flight operations, and any other activity not pre-emptively regulated by the federal government or controlled under OAR 340-035-0045;

Controlling the Adverse Effects of Blasting

This module addresses the control of offsite impacts that result from blasting, namely:

- vibrations,
- airblast, and
- flyrock.

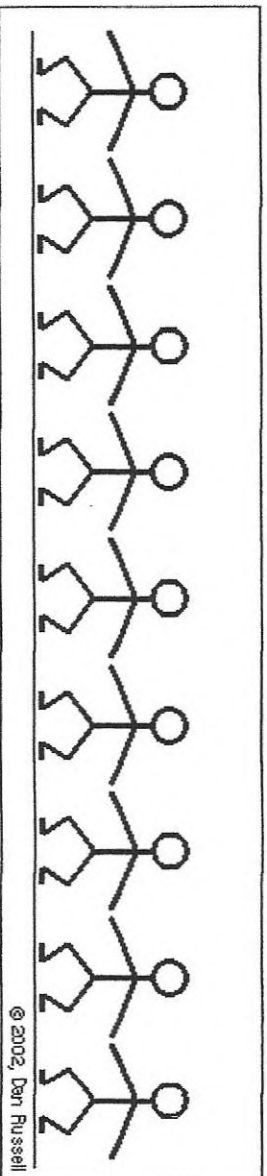
Much of the information in the module is derived from the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The performance standards apply to all surface coal mines. Similar standards have been adopted on some State and local levels and applied to non-coal blasting operations such as quarrying and construction.



Part I: Ground Vibrations, Airblast, and Flyrock

Exhibit 5b

Explosive energy is used to break rock. However, the use of this energy is not 100-percent efficient. Some of the energy escapes into the atmosphere to generate **airblast or air vibrations**. Some of the energy also leaves the blast site through the surface soil and bedrock in the form of **ground vibrations**.



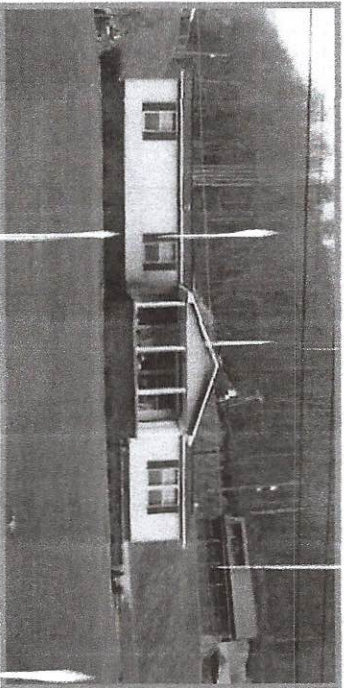
Both air and ground vibrations create waves that disturb the material in which they travel. When these waves encounter a structure, they cause it to shake. Ground vibrations enter the house through the basement and airblast enters the house through the walls and roof.

Airblast may be audible (noise) or in-audible (concussion). When outside a house the blast may be heard because of the noise, however noise has little impact on the structure. The concussion wave causes the structure to shake and rattles objects hanging on walls or sitting on shelves. This "interior noise" will alarm and startle people living in the house.

Flyrock is debris ejected from the blast site that is traveling through the air or along the ground. Flyrock the single most dangerous adverse effect that can cause property damage and personal injury or death.

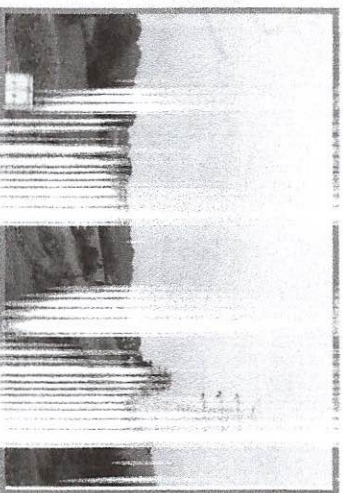
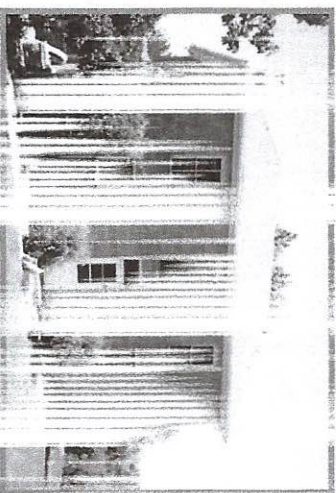
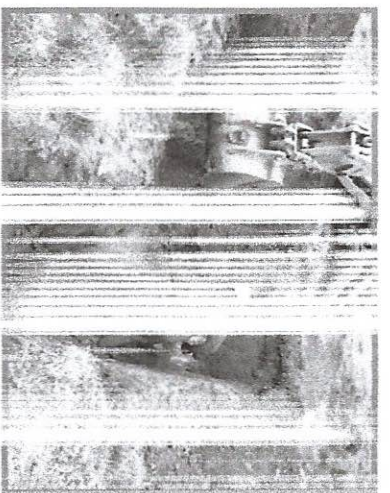
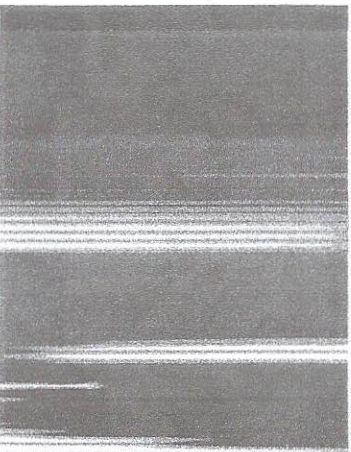
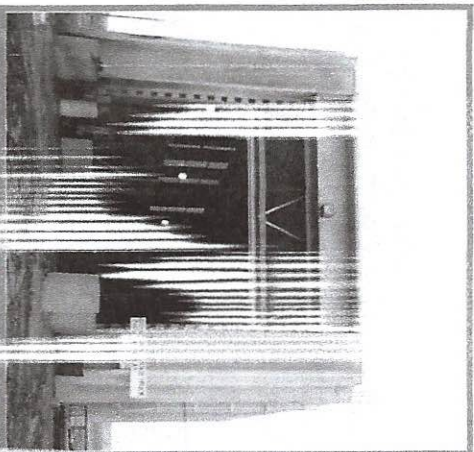
Blasting Impacts on Structures

Both above-ground and below-ground structures are susceptible to vibration impacts. Structures can include onsite mine offices and buildings, as well as offsite residences, schools, churches, power-transmission lines, and buried pipelines. Some of these structures may include historic or cultural features sensitive to even low levels of vibrations.



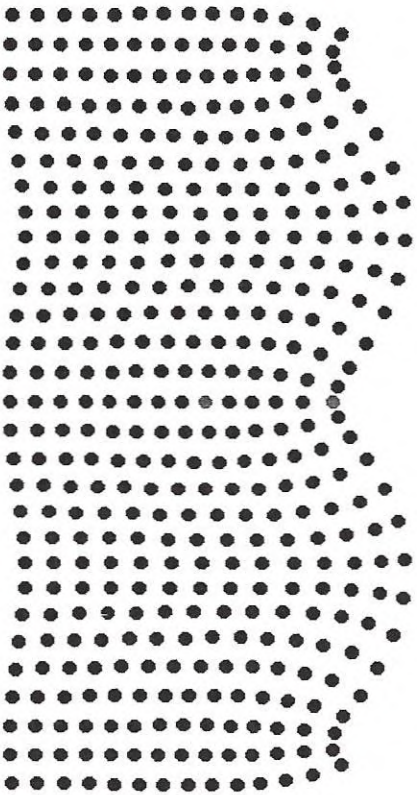
It is important to understand:

1. the causes of ground vibrations and airblast, and
2. what practices can be followed to control and minimize the adverse effects



Ground Vibrations

Ground vibrations propagate away from a blast site as Rayleigh (or surface) waves. These waves form a disturbance in the ground that displaces particles of soil or rock as they pass by. Particle motions are quite complicated. At the ground surface (free boundary), measured particle motions have the greatest displacements, and displacements decrease with depth (see the illustration below). At a depth of between 20 to 50 feet below ground surface, particle displacements are barely detectable. Structures that are well coupled to the ground tend to move with this motion; structures buried in the ground are less affected by surface motions.



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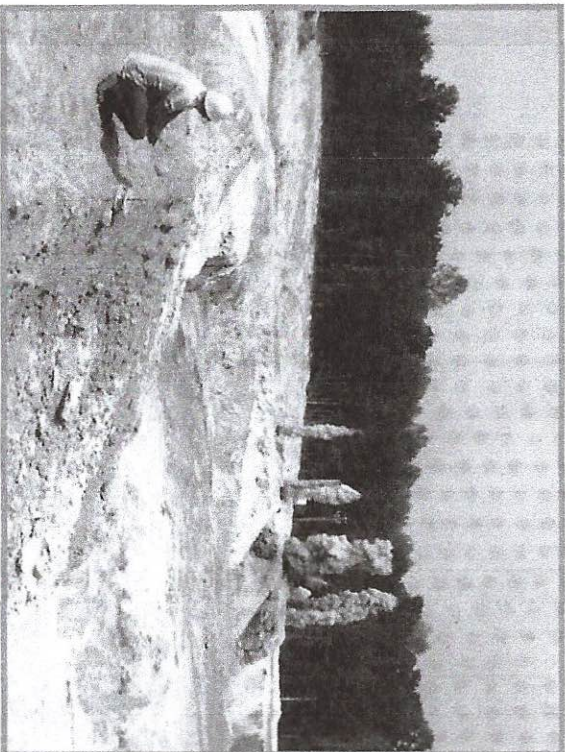
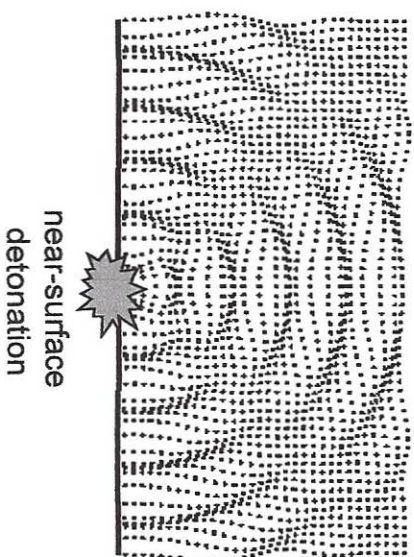
Ground vibrations are measured in terms of **particle velocity** and are reported in inches per second (ips) or the speed at which a particle of soil or rock moves.

At typical blasting distances from residential structures, the ground only moves with displacements equal to the thickness of a piece of writing paper. In terms of displacement, this equates to hundredths of an inch; visually, such movement cannot be detected.

Airblast

2 Airblast is measured as a pressure in pounds per square
5 inch (psi) and is often reported in terms of **decibels (dB)**.

Airblast is a pressure wave that that may be audible or in-audible. Elevated airblast levels are generated when explosive energy in the form gases escape from the detonating blast holes. Energy escapes either through the top stemming or through fractures in the rock along the face or at the ground surface.



Airblast radiates outward from the blast site in all directions and can travel long distances. Sound waves travel much slower (1,100 ft/s) than ground vibrations (about 5,000 – 20,000 ft/s). Hence, airblast arrives at offsite structures later than do ground vibrations.

Both ground vibrations and airblast cause structures to shake structures. Occupants in structures that are located far from a blast may experience shaking from vibration and airblast as two separate, closely spaced events. This can be particularly bothersome, as it prolongs the duration of structure shaking and leads the property owner to think that two separate blasts occurred.

Structure Response

Exhibit 5f

As ground and air vibrations reach a structure, each will cause it to shake. Structure response is dependant on the vibration characteristics (frequency and amplitude) and structure type.

Ground Vibrations enter the house through the basement. This is like shaking the bottom of a flag pole. Movement at the top of the pole depends on how (frequency) and how hard (amplitude) the bottom of the pole is shaken. If shaken at just the right pace, or at the pole's natural frequency, the top will move significantly compared to the bottom. Motion at the top is amplified from the bottom motion.

All blast damage studies have measured incoming ground vibrations at the ground surface. The observed structure amplifications were typically between 1 to 4 times the ground vibration. Structure response below ground level is the same or less than the incoming vibrations

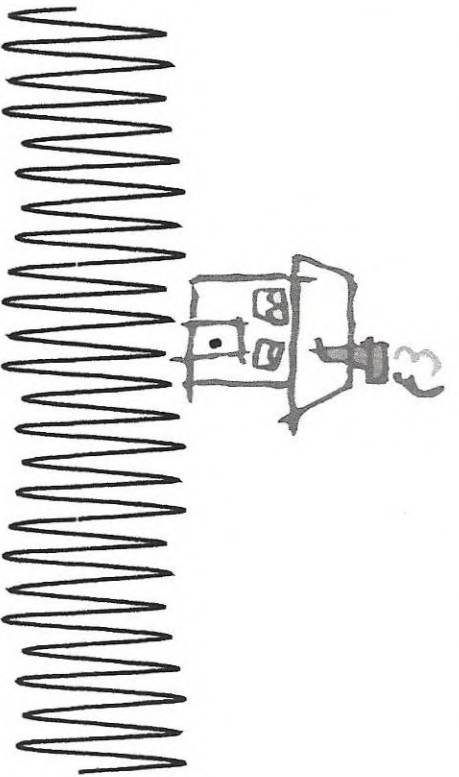
Airblast enters the house through the roof and walls. Like ground vibrations, the frequency and amplitude of the vibrations affect structure response. However the low frequency events (concussion) that most strongly affect structures is normally only a one or two cycle event.

Due to the different arrival times of ground and air vibrations, occupants may feel two distinct impacts on the house.



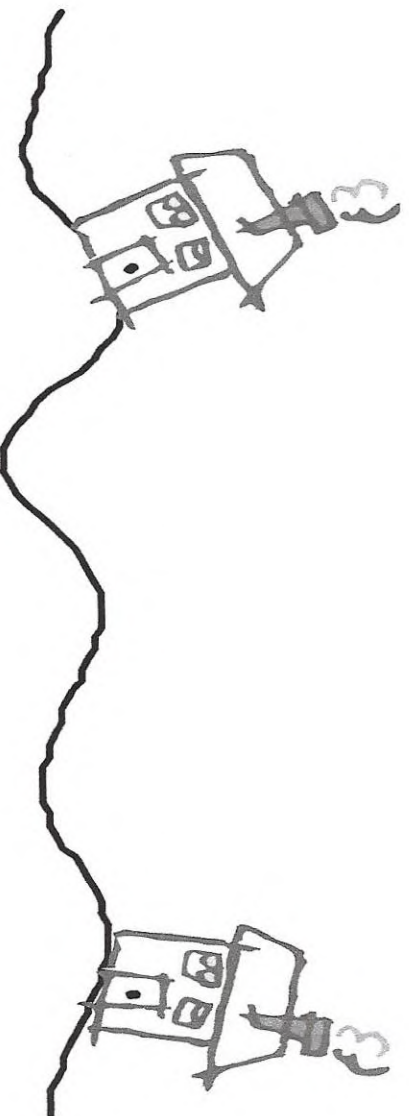
Ground Vibration Structure Response

Exhibit 59



High frequencies do not promote structure shaking. The length of a single high-frequency wave cycle is short as compared with the dimension of a structure. A structure does not significantly respond to high frequencies.

On the other hand, low-frequency wave cycles are long as compared with the dimensions of structures. Accordingly, low frequencies tend to efficiently couple energy into structures and to promote higher-amplitude, long-duration shaking.



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A noisy problem

People often become more sensitive to noise as they age, which can affect their mental and physical health.

Published: March, 2019

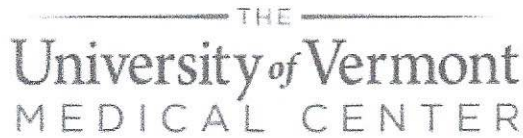


Image: © Juanmonino/Getty Images

Are you more sensitive to noises than you used to be? Do certain sounds now feel too loud and jarring? Don't worry; it's actually quite normal.

Age-related hearing loss is common among older adults and affects about two-thirds of men in their 70s and 85% of men ages 80 and older. Although it's not clear why, this can also make people hypersensitive to sounds that they used to tolerate easily, which in turn can affect their well-being.

"Exposure to noises from crowds, traffic, and other everyday sounds can become harder to tolerate and increase stress levels, leading to anxiety and a reduction in overall quality of life," says Dr. Stephanie Tompkins, an audiologist with Harvard-affiliated Massachusetts Eye and Ear. "As your sensitivity to noises increases, this can lead to greater isolation, too, as you may try to avoid potentially noisy places and situations."



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Quiet in the Hospital: How Noise...

Quiet in the Hospital: How Noise Reduction Helps Patients Heal

on June 7, 2018 (<https://medcenterblog.uvmhealth.org/innovations/hospital-noise-reduction/>) in Innovation
(<https://medcenterblog.uvmhealth.org/category/innovations/>) by UVM Medical Center
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Noise. It is present in almost every aspect of our lives. From the traffic in the streets, to the fan that provides us white noise in the background to sleep, noise exists. Unfortunately, like stress, too much of it can have a negative impact on a person's health and rest. Some sounds we do like to hear, such as birds chirping, signaling spring in Vermont, but what about sounds in a hospital?

Many of us get admitted to hospitals when we are too sick to take care of ourselves at home. We expect exceptional care from physicians and nurses and, of course, to rest in order to help our bodies heal. We understand that some noises in a hospital are necessary for care; however, others simply aren't.

The Sounds of a Hospital

Many organizations, including the UVM Medical Center, have high tech equipment, which greatly assists in the delivery of care to our patients, but can also be noisy. Sometimes, healthcare providers are the source of the noise as we interact and communicate with our patients and other health team members.

Another factor is visits from families and friends during visiting hours. It is difficult when one's roommate is trying to rest in the opposite bed. Yet, we need to be cognizant of noise in patient care areas as sounds can be magnified and misinterpreted, increasing agitation and even confusion for some patients.

We become accustomed to the noise; our patients are not.

The Research on Noise, Quiet, and Healing

Research has shown that noise plays a negative role in healing and that decreasing noise in patient care areas aids in healing processes and helps facilitate speedier recoveries for patients. Patients are able to heal, sleep better and recover more quickly when able to rest. A quieter environment can also help decrease burnout for hospital staff.

Studies show that patients are more likely to develop negative side effects from a noisy hospital, such as sleep disturbances, elevated blood pressure and heart rate, and increased use of pain medications.

Noise can also increase annoyance levels for staff. One study indicated noise, such as talking inside and outside patient rooms, is the most common source of noise as well as visitors' voices, TVs, and behaviors of other patients.

Research concluded that best practices to eliminate noise from talking included staff education about noise reduction, public indicators such as sound monitors, a quiet time protocol, and lower cost environmental fixes, such as fixing noisy doors and squeaky wheels. Lastly, by introducing scripting with routine monitoring, patients' perception of quietness increased and the perception of noise decreased.

How We Address Noise at the UVM Medical Center

We introduced the "Culture of Quiet" Organizational initiative. The Nursing Professional Governance Patient and Family Experience Global council continued this work. After convening a small task force of nurses and assessing current quiet strategies, we introduced the following tactics:

- Many hospital units have designated 'quiet hours' with automatically dimming of lights at quiet hour intervals.
- Signage is visible in most patient care areas to help keep patients, family, and visitors aware. Throughout the hospital, you will see signs with a relaxing pair of Adirondack chairs and the sun setting with details on when a unit has quiet hours.
- Many semi-private rooms have windows in doors, so doors can be closed allowing for patient rest.
- We offer headphones for TVs and earplugs to help minimize sounds.
- In-patient kits contain a sleeping mask and other comfort items that can be provided at time of admission. Each kit contains a card and explains, 'the best healing occurs in a quiet environment.'
- New education material is available for staff, patients and visitors-just ask to review the next time visiting.
- Some units offer white noise machines, others have this built in.
- Noisy equipment such as wheels and doors can be tagged and replaced.
- Our facility and distribution staff have changed their cleaning and supply delivery schedules to accommodate patient care.
- Healthcare teams within the hospital are focusing efforts to cluster patient care to minimize interruptions to provide restful moments.

How you can help us.

We ask patients and visitors to hold us accountable when sounds are too loud. We want our community to alert us when noise levels are high and we will do what we can to minimize sound. In turn, we ask that all members of the healthcare team, patients, family, and friends be aware to keep voices soft, cell phones on vibrate, and hold each other accountable for these are the times of the day when our patients take pause to rest and positively impact their healing.

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Dangerous Decibels: Hospital Noise More Than a Nuisance

By Diane Sparacino, Staff Writer

Imagine a world where hospitals have become so noisy that the annoyance has topped hospital complaints, even more than for the tasteless, Jell-O-laden hospital food (Deardorff, 2011). If you're a nurse, you know that we're already there – with noise levels reaching nearly that of a chainsaw (Garcia, 2012). In fact, for more than five decades, hospital noise has seen a steady rise (ScienceDaily, 2005).

But it wasn't always that way. At one time, hospitals were virtually noise-free like libraries – respected spaces, preserved as quiet zones. The culture was such that a loud visitor might be silenced by a nurse's purposeful glare or sharply delivered "Shhh!" As early as 1859, the importance of maintaining a quiet environment for patients was a topic for discussion. In Florence Nightingale's book, "Notes on Nursing," she described needless noise as "the most cruel absence of care" (Deardorff, 2011).

Fast forward to 1995, when the World Health Organization (WHO) outlined its hospital noise guidelines, suggesting that patient room sound levels not exceed 35 decibels (dB). Yet since 1960, the average daytime hospital noise levels around the world have steadily risen to more than double the



acceptable level (from 57 to 72 dB), with nighttime levels increasing from 42 to 60 dB. WHO found that the issue was not only pervasive, but high noise levels remained fairly consistent across the board, despite the type of hospital (ScienceDaily, 2005).

Researchers at Johns Hopkins University began to look into the noise problem in 2003. They maintained that excessive noise not only hindered the ability for patients to rest, but raised the risk for medical errors. Other studies blamed hospital noise for a possible increase in healing time and a contributing factor in stress-related burnout among healthcare workers (ScienceDaily, 2005).

Technology is, of course, partly to blame. State-of-the-art machines, banks of useful alarms, respirators, generators, powerful ventilation systems and intercoms all add up to a lot of unwanted racket. When human voices are added to the mix, (i.e., staff members being forced to speak loudly over the steady din of medical equipment), it's anything but a restful environment. For the recovering patient in need of sleep, that can be a real issue (Deardorff, 2011).

Contributing to the problem, experts say, are the materials used in hospitals. Because they must be easily sanitized, surfaces cannot be porous where they could harbor disease-causing organisms. Rather than using noise-muffling materials like carpet, acoustic tiles and other soft surfaces, hospitals have traditionally been outfitted using smooth, hard surfaces – especially in patient rooms. Good for cleanliness – not so great for dampening sounds, which tend to bounce around the typical hospital (Deardorff, 2011).

Which brings us to the most recent research, published January 2012 in the *Archives of Internal Medicine*. In the report, Jordan Yoder, BSE, from the Pritzker School of Medicine, University of Chicago, and his colleagues associated elevated noise levels with “clinically significant sleep loss among hospitalized patients,” perhaps causing a delay in their recovery time (Garcia, 2012). During the 155-day study period, researchers examined hospital sound levels. The numbers far exceeded (WHO) recommendations for average hospital-room noise levels, with the peak noise at an average 80.3 dB – nearly as loud as a chainsaw or electric sander (85 dB), and well over the recommended maximum of 40 dB. And while nights tended to be quieter, they were still noisier than recommended allowances, with “a mean maximum sound level of 69.7 dB” (Garcia, 2012).

Perhaps most interestingly, the researchers broke down the sources of noise into categories: “Staff conversation (65%), roommates (54%), alarms (42%), intercoms (39%), and pagers (38%) were the most common sources of noise disruption reported by patients” (Garcia, 2012). “Despite the importance of sleep for recovery, hospital noise may put patients at risk for sleep loss and its associated negative effects,” they wrote. In addition, researchers found that the intensive care and surgical wards had some work to do in dampening noise levels, with ICU peaking at 67 dB and 42 dB for surgical areas. Both far exceeded WHO’s 30 dB patient room recommendation (Garcia, 2012).

Besides patient sleep deprivation, which itself can lead to a multitude of health problems including high blood sugar, high blood pressure and fatigue, studies have reported that elevated noise levels can increase heart and respiratory rates, blood pressure and cortisol levels. Recovery room noise causes patients to request more pain medication, and preterm infants “are at increased risk for hearing loss, abnormal brain and sensory development, and speech and language problems when exposed to prolonged and excessive noise” (Deardorff, 2011).

There is still more research to be done, of course, but Yoder and his colleagues had good news, as well; much of the hospital noise they identified is modifiable, suggesting that hospitals can take steps to successfully create a quieter environment for both patients and healthcare providers (Garcia, 2012).

Around the country, "quiet campaigns" have been launched by hospitals in an attempt to dampen nighttime noise. Besides dimming lights and asking staff to keep their voices down at night, they are working to eliminate overhead paging systems, replace wall and/or floor coverings – even the clang of metal trashcans. Northwestern's Prentice Women's Hospital in Chicago was built with noise reduction in mind, replacing the idea of centralized nursing stations with the advent of smaller, multiple stations (Deardorff, 2011)

Billed as "one of the nation's largest hospital construction projects," Palomar Medical Center in North San Diego County is a state-of-the-art facility that has been designed "to encourage quietness," according to Tina Pope, Palomar Health Service Excellence Manager. Slated to open its doors this August, the hospital will feature a new nursing call system to route calls directly to staff and help eliminate the need for overhead paging, de-centralized nursing stations and clear sig lines, allowing staff to check on patients without having to leave unit doors open. With measures already in place including "Quiet Hospital" badges on staff and posters at the entrance of every unit, a "Quiet at Night" campaign (9 p.m. – 6 a.m.), and a "Quiet Champions" program that encourages staff to report noise problems, Palomar is one of a growing number of hospitals working toward a new era of quiet.

References:

Deardorff, J. (2011). Chicago Tribune.com. Chicago Tribune, Health. Hospitals drowning in noise. Retrieved from http://articles.chicagotribune.com/2011-04-24/health/ct-met-hospital-noise-20110424_1_hospitals-neonatal-intensive-care-unit-noise

Garcia, J. (2012). Medscape.com. Medscape Today, News. Hospital Noise Results in Significant Patient Sleep Loss. Retrieved from <http://www.medscape.com/viewarticle/756575>

Sciencedaily.com. (2005). Rise In Hospital Noise Poses Problems For Patients And Staff. Retrieved from <http://www.sciencedaily.com/releases/2005/11/051121101949.htm>

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Noises Are Truly Horrible For People Who Have PTSD

20 Mar '2018 [Sound](#)

Noise is a really big issue for PTSD survivors: people who have mental health problems because of their traumas. How are they connected?

Almost everybody has experienced a trauma. But some traumas are more scarring than others and can even result in long-lasting mental disorders like **PTSD**, which can have an extreme impact on someone's life. It's a disorder that can develop in the brain after a horrifying experience, like war or a car crash.

Symptoms

The symptoms of PTSD are, to say the least, not pleasant. They range from nightmares about the traumatic events, disturbing thoughts and feelings, anxiety, trying to avoid anything that has something to do with the traumatic event, and an increase in the fight-or-flight response.

Around ten percent of the population suffers from PTSD, according to data from **NCBI**, a part of the US National Library of Medicine. And, remarkably enough, that percentage is the same for people who suffer from tinnitus (the sound of a constant beep in your ears). The NCBI clearly sees a link between the two.

PTSD survivors also suffer from the Exaggerated Startle Syndrome, with anxiety and actions in an extreme and irrational way too loud noises and bangs. And then there are the sounds that remind them of the sounds during the traumatic events, which can trigger memories of the



Fear

PTSD can also cause a general fear of sounds: phonophobia, or a fear of some specific sounds: misophonia. Survivors of the disorder also are generally much more sensitive to sounds and perceive them as much louder than other people would.

All of this makes the life of people with PTSD very hard. If you think you are suffering from this, consult your doctor. Really, please do it. For yourself, and for the ones you love.

Do you have PTSD and would you like to tell your experiences to us? We are always very open and interested to hear what you have to say. And again: if you haven't done it yet, visit your doctor, please. Thank you!

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Does noise affect learning? A short review on noise effects on cognitive performance in children

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Abstract

The present paper provides an overview of research concerning both acute and chronic effects of exposure to noise on children's cognitive performance. Experimental studies addressing the impact of acute exposure showed negative effects on speech perception and listening comprehension. These effects are more pronounced in children as compared to adults. Children with language or attention disorders and second-language learners are still more impaired than age-matched controls. Noise-induced disruption was also found for non-auditory tasks, i.e., serial recall of visually presented lists and reading. The impact of chronic exposure to noise was examined in quasi-experimental studies. Indoor noise and reverberation in classroom settings were found to be associated with poorer performance of the children in verbal tasks. Regarding chronic exposure to aircraft noise, studies consistently found that high exposure is associated with lower reading performance. Even though the reported effects are usually small in magnitude, and confounding variables were not always sufficiently controlled, policy makers responsible for noise abatement should be aware of the potential impact of environmental noise on children's development.

Keywords: noise, cognitive performance, cognitive development, children, speech perception, listening comprehension, irrelevant sound effect, classroom acoustics

In everyday life, cognitive tasks are often performed in the presence of task-irrelevant environmental noise. Accordingly, numerous studies on noise effects on performance have been conducted since the middle of the 20th century (for reviews see Hellbrück and Liebl, 2007; Szalma and Hancock, 2011), showing that—depending on characteristics of sounds and tasks—noise of low to moderate intensity may in fact evoke substantial impairments in performance.

Most of these studies were conducted with adults. The present review, however, will focus on studies including children. Children are especially vulnerable to harmful effects of environmental noise, as cognitive functions are less automatized and thus more prone to disruption. We will report findings concerning effects of acute noise on performance in concurrent auditory and non-auditory tasks, as well as effects of chronic noise on children's cognitive development.

Effects of acute noise on children's performance in auditory tasks

Psychoacoustic studies have consistently shown that children's speech perception is more impaired than adults' by unfavorable listening conditions. The ability to recognize speech under conditions of noise or noise combined with reverberation improves until the teenage years (Johnson, 2000; Wightman and Kistler, 2005; Talarico et al., 2007; Neuman et al., 2010). With stationary noise makers, signal-to-noise ratios (SNRs) have to be 5–7 dB higher for young children when compared to adults in order to achieve comparable levels of identification of speech or nonspeech signals, with adult-like performance reached at about 6 years of age (Schneider et al., 1989; Fallon et al., 2000; Werner, 2007). However, with maskers that vary over time, i.e., with trial-by-trial variation of the maskers' spectral composition (Oh et al., 2001; Hall et al., 2005; Leibold and Neff, 2007) or with fluctuating maskers such as single-talker speech (Wightman and Kistler, 2005), adult-like performance is usually not reached before the age of 10 years. Furthermore, children are less able than adults to make use of spectro-temporal and spatial cues for separation of signal and noise (Wightman et al., 2003; Hall et al., 2005). These findings demonstrate that children are especially prone to *informational* masking, i.e., masking that goes beyond energetic masking predicted by filter models of the auditory periphery.

Studies identified a range of linguistic and cognitive factors to be responsible for children's difficulties with speech perception in noise: concerning the former, children are less able than adults to use stored phonological knowledge to reconstruct degraded speech input. This holds for the level of individual phonemes, as children's phoneme categories are less well specified than adults' (Hazan and Barrett, 2000), but also for the lexical level since children's phonological word representations are more holistic and less segmented into phoneme units. Therefore the probability of successfully matching incomplete speech input with stored long-term representations is reduced (Nittrouer, 1996; Metsala, 1997; Mayo et al., 2003). In addition, young children are less able than older children and adults to make use of contextual cues to reconstruct noise-masked words presented in sentential context (Elliott, 1979). Concerning attention, children's immature auditory selective attention skills contribute to their difficulties with speech-in-noise perception. Children's susceptibility to informational masking has been attributed to deficits in focusing attention on auditory channels centered on signal frequencies, while ignoring nonsignal channels (Wightman and Kistler, 2005). Behavioral and ERP measures from dichotic listening paradigms provide evidence that auditory selective attention improves throughout entire childhood (Doyle, 1973; Pearson and Lane, 1991; Coch et al., 2005; Wightman et al., 2010; Gomes et al., 2012).

Owing to the mediating role of linguistic competence and selective attention, children with language or attention disorders are still more impaired than normally developing children by noise in speech perception tasks (Geffner et al., 1996; Ziegler et al., 2005, 2009). A stronger noise effect is also evident for children tested in their second language when compared to native children (Crandell and Smaldino,

Autism & Anxiety: Parents seek help for extreme reaction to loud noise

September 5, 2018

Our 12-year-old son has autism, mild intellectual disability and anxiety attacks so severe that we end up in the emergency room. Loud noises are the worst – for example the school fire alarm, thunderstorms, a balloon popping, fireworks. Any help would be greatly appreciated.



This week's "Got Questions?" answer is by Judy Reaven, a clinical psychologist and associate professor of psychiatry and pediatrics at the University of Colorado School of Medicine and Children's Hospital Colorado, in Denver. Dr. Reaven's conducted research on the effectiveness of cognitive-behavioral therapy for anxiety in adolescents with autism, with the support of an [Autism Speaks research grant](#).

Editor's note: The following information is not meant to diagnose or treat and should not take the place of personal consultation, as appropriate, with a qualified healthcare professional and/or behavioral therapist.

Thanks for the great question. It certainly sounds like your family is experiencing a very difficult situation. Anxiety symptoms and reactions are very common in individuals with autism spectrum disorder (ASD). They can interfere with functioning across home, community and school settings.

Although your son's reaction sounds more severe than most, many people with autism struggle with a range of fears, phobias and worries. These can range from a debilitating fear of, say, spiders or the dark to chronic anxiety about making mistakes or being late.

Fortunately, recent research suggests that anxiety in children and adults who have autism is quite treatable. Often, these individuals are helped by the same or similar strategies that work well in treating anxiety in the general population.

These approaches include cognitive behavior therapy, or CBT. Cognitive-behavioral approaches are well-established, evidenced-based treatments that have become the gold standard of psychosocial treatments for anxiety. [My own research](#) and that of my colleagues has demonstrated the helpfulness of modifying cognitive-behavioral approaches to address the special needs of those who have autism.

Where to begin?

You describe a number of fears that may be related to sensory sensitivities. I recommend that you begin by consulting an occupational therapist who can assess whether your son's extreme sensitivities to noises are part of a broader sensory processing disorder. If this is the case, and if your son's fears are exclusively triggered by sensory stimuli, then his symptoms may be best addressed by a sensory-focused intervention. Many occupational therapists who specialize in autism receive special training in this area.

It's common for children with ASD and anxiety to become extremely frightened in response to sensory stimuli. Perhaps – like many individuals with autism – your son also has difficulty telling you what's scaring him. Instead, he may show his fear with extreme avoidance of a situation.

For example, he might refuse to go to school after a fire drill. He might become fearful of birthday parties after being frightened by a balloon that popped unexpectedly. Other signs of extreme distress can include yelling, crying, clinging and general agitation. Because your son may have difficulty communicating, it's important to observe his behavior for these signs of distress. This can help you determine what's triggering his fears.

Avoidance versus learning to cope

Many parents go to great pains to protect their children by avoiding agitating situations. This approach is sometimes appropriate and even necessary. However, it denies individuals the opportunity to learn how to manage anxiety-provoking situations on their own.

By helping your son learn to manage his fear, you can prepare him for an unpredictable world so that he can participate in it to the maximum extent possible.

Given the severity of your son's anxiety symptoms, I suggest that you seek professional support in addition to the strategies offered here. Families whose children have milder symptoms of anxiety can try these strategies on their own – seeking professional help if symptoms worsen.

Tackling one fear at a time

I suggest making a list of your child's major fears and worries. Try to rank order them from mild to severe. To encourage success, I'd start with a mild-to-moderate fear before taking on his extreme reaction to loud noises.

Key components of a cognitive behavioral approach include introducing coping strategies such as deep breathing and "helpful thoughts" that can help a person manage fearful reactions.

For example, you can teach your son to take deep slow breaths to help manage his body's physical anxiety reactions.

"Helpful thoughts" are statements that your son can say to himself when faced with a situation that makes him anxious. For example, you can coach to your son to say, "This is a loud noise. I don't like it, but I can handle it."

To help your son to learn these strategies, I suggest you model taking deep breaths while repeating a "helpful thought" out loud.

Graded exposure

The most important step is to help your son face his fears a little at a time. We call this "graded exposure." For example, explain to your son that the two of you are going to listen to a recording of thunder. The first time, you might play the recording at a soft volume, then gradually increase the volume over time as he demonstrates increased comfort with the sounds.

Or you might try watching a video of a balloon pop – perhaps with the volume off the first time. Then he can watch a real balloon pop while standing some distance away. Over time, he can move closer and closer to the balloon.

After such exercises, you can present him with small rewards for being brave and "facing fears." Remember that even a small act of bravery – such as listening to a recording of thunder for 10 seconds – represents an important step toward handling fears. It deserves to be acknowledged.

Although graded exposure may seem counterintuitive, [research](#) indicates that this strategy is the single most effective strategy for getting over a particular fear.

I wish you and your son the very best. Please let us know how you're doing with an email to GotQuestions@autismspeaks.org.

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I have read the attached letter regarding noise and it expresses my concerns and my request to abandon the use of the proposed route for the Boardman to Hemingway Transmission Project and that it be rerouted to an area that is much less impactful to the residents of La Grande and to the surrounding area.

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I have read the attached letter regarding noise and it expresses my concerns and my request to abandon the use of the proposed route for the Boardman to Hemingway Transmission Project and that it be rerouted to an area that is much less impactful to the residents of La Grande and to the surrounding area.

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smithbrent@gmail.com

SIGNATURE

PRINTED NAME

M. Jeannette Smith

ADDRESS

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EMAIL

jeannettesmith@gmail.com

SIGNATURE

PRINTED NAME

Kimberley Hetstuman

ADDRESS

2409 CENTURY LP, LA GRANDE, OR 97850

EMAIL

kimheitstuman@hotmail.com

SIGNATURE

PRINTED NAME

Shawn K. Mangum

ADDRESS

2409 E. M. Ave.

EMAIL

Hoya/mw95@me.com

I have read the attached letter regarding noise and it expresses my concerns and my request to abandon the use of the proposed route for the Boardman to Hemingway Transmission Project and that it be rerouted to an area that is much less impactful to the residents of La Grande and to the surrounding area.

SIGNATURE

Jonathan D. White

PRINTED NAME

Jonathan D. White

ADDRESS

485 Madelaine Dr

EMAIL

jondwhite418@gmail.com

SIGNATURE

Robin Stedfeld

PRINTED NAME

Robin Stedfeld

ADDRESS

485 Madelaine Dr. LaGrande

EMAIL

rstedfeld@yahoo.com

SIGNATURE

Ronnie L. Allen

PRINTED NAME

Ronnie L. Allen 541-963-7720

ADDRESS

410 Balsa Street LA GRANDE, OREGON 97850

EMAIL

N/A NONE:

SIGNATURE

Rita Allen

PRINTED NAME

Rita Allen

ADDRESS

410 Balsa St. LaGrande Or.

EMAIL

SIGNATURE

Linda M. Snyder

PRINTED NAME

Linda M. Snyder

ADDRESS

491 17704241R

EMAIL

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SIGNATURE *Robin J. Ostermann*

PRINTED NAME Robin J. Ostermann

ADDRESS 495 Modelaire Dr La Grande, OR 97850

EMAIL

SIGNATURE *Robert J. Ostermann*
Robert J. Ostermann

PRINTED NAME

ADDRESS 495 Modelaire Dr. La Grande, OR 97850

EMAIL

SIGNATURE *John Yeates*

PRINTED NAME JOHN YEATES

ADDRESS 408 SUNSET DRIVE LA GRANDE, OR 97850

EMAIL jyeates52@gmail.com

SIGNATURE *Ruth Schumacher Yeates*

PRINTED NAME Ruth Schumacher Yeates

ADDRESS 408 Sunset Dr, La Grande

EMAIL ruthschumacheryeates@gmail.com

SIGNATURE *D. Dale Mammen*

PRINTED NAME D. Dale Mammen

ADDRESS 405 Balsa. La Grande, Or

EMAIL dmammen@comi.com

I have read the attached letter regarding noise and it expresses my concerns and my request to abandon the use of the proposed route for the Boardman to Hemingway Transmission Project and that it be rerouted to an area that is much less impactful to the residents of La Grande and to the surrounding area.

SIGNATURE

PRINTED NAME

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SIGNATURE *Damon Sexton*
PRINTED NAME *Damon Sexton*
ADDRESS *401 Balsa St La Grande, OR 97850*
EMAIL *sexton.damon@gmail.com*

SIGNATURE *Coy Sexton*
PRINTED NAME *Coy Sexton*
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SIGNATURE *Melinda McGowan*
PRINTED NAME *Melinda McGowan*
ADDRESS *602 Sunset Dr.*
EMAIL *melindamegowan@gmail.com*

SIGNATURE
PRINTED NAME
ADDRESS
EMAIL

SIGNATURE
PRINTED NAME
ADDRESS
EMAIL

I have read the attached letter regarding noise and it expresses my concerns and my request to abandon the use of the proposed route for the Boardman to Hemingway Transmission Project and that it be rerouted to an area that is much less impactful to the residents of La Grande and to the surrounding area.

SIGNATURE *Lois Barry*
PRINTED NAME LOIS BARRY
ADDRESS P.O. BOX 566, LA GRANDE, OR 97850
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SIGNATURE *Cathy Webb*
PRINTED NAME CATHY WEBB
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SIGNATURE *JoAnn Marlette*
PRINTED NAME JOANN MARLETTE
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SIGNATURE *Keith D. Hudson*
PRINTED NAME Keith D. Hudson
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EMAIL Keithdhudson@gmail.com

SIGNATURE *Laura Elly Hudson*
PRINTED NAME Laura Elly Hudson
ADDRESS 605 F Ave, La Grande OR 97850
EMAIL ellyhudson@gmail.com

I have read the attached letter regarding noise and it expresses my concerns and my request to abandon the use of the proposed route for the Boardman to Hemingway Transmission Project and that it be rerouted to an area that is much less impactful to the residents of La Grande and to the surrounding area.

SIGNATURE *Lynn Wheeler Duncan*
PRINTED NAME LYNN WHEELER DUNCAN
ADDRESS 489 Modelaire Drive, LaGrande OR 97850
EMAIL rlwd1910@gmail.com

SIGNATURE *Gary D. Pierson*
PRINTED NAME Gary D. Pierson
ADDRESS 489 Modelaire Drive, La Grande OR 97850
EMAIL -

SIGNATURE *Anna G. Carinato*
PRINTED NAME Anna G. Carinato
ADDRESS 86 Hawthorne Dr. La Grande OR 97850
EMAIL acavinat@ecu.edu

SIGNATURE *Joe Horst*
PRINTED NAME JOE HORST
ADDRESS 86 HAWTHORNE DR. LA GRANDE OR 97850
EMAIL joehorst@con.com

SIGNATURE *Angela Sherer*
PRINTED NAME Angela Sherer
ADDRESS 91 W. Hawthorne Dr La Grande, OR 97850
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I have read the attached letter regarding noise and it expresses my concerns and my request to abandon the use of the proposed route for the Boardman to Hemingway Transmission Project and that it be rerouted to an area that is much less impactful to the residents of La Grande and to the surrounding area.

SIGNATURE

Merle E Comfort

PRINTED NAME

MERLE E COMFORT

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209 SWANPO LA GRANDE OR 97850

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Robin Maille

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Carol S. Summers

PRINTED NAME

CAROL S. SUMMERS

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2811 Bekelen Lane La Grande, OR.

EMAIL

carolsummers1938@gmail.com

SIGNATURE

Caroline Kaye Juniper

PRINTED NAME

Caroline Kaye Juniper

ADDRESS

406 4th Street - LaGrande - OR 97850

EMAIL

SIGNATURE

Gerald D. Juniper

PRINTED NAME

Gerald Darwin Juniper

ADDRESS

406 4th St. LaGrande, OR. 97850

EMAIL

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SIGNATURE *Robert J. Sherer*
PRINTED NAME Robert J. Sherer
ADDRESS 970 Hawthorne Dr, La Grande, OR 97850
EMAIL asherer@frontier.com.

SIGNATURE *Heather M. Null*
PRINTED NAME Heather M. Null
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SIGNATURE *Bert R. Freewing*
PRINTED NAME Bert R. Freewing
ADDRESS 709 South 12th Street La Grande, OR 97850
EMAIL jeantfreewing@gmail.com

SIGNATURE
PRINTED NAME
ADDRESS
EMAIL

SIGNATURE
PRINTED NAME
ADDRESS
EMAIL

TARDAEWETHER Kellen * ODOE

From: S GM <garlick2@yahoo.com>
Sent: Tuesday, August 6, 2019 10:09 AM
To: B2H DPOComments * ODOE
Subject: Boardman to ID power lines

I attended a meeting on this subject in Pendleton earlier this year and brought up a concern about fire fighting capability in the area southeast section path through Oregon. There was not a good answer.

I worked as an education specialist assigned to schools including Boardman all the way to Vale, so I am very familiar with the transmission route. I also own property in Santa Rosa, CA that was within striking distance, but for a wind change, of the devastating fire in 2017. It has been ruled that the cause of that fire was PGE power lines.

The route has little rain, spread out habitation, and, as was attested to at the meeting, limited or no firefighting infrastructure. I witnessed a fire along I84 that was burning with no oversight or attention. I pulled into the nearest rest stop, but had no idea where to call to report.

We as a nation and planet need to change how we supply ourselves with energy. The gorge has wind farms and a large solar panel array was installed outside Pendleton last year. If this area has a need for additional power, why are we selling to a neighboring state? And frankly, why have they spent years putting this deal together rather than developing their own local clean energy?

The Boardman power plant is dangerous and is finally closing down. I worked with children born into a family with three healthy older siblings born elsewhere. My students were born in Boardman with extensive birth defects.

However, now "PGE is buying extra hydropower to make up for the coal-plant closure for the first five years." OPB Jan. 7, 2019 Oregon is obviously not overflowing with excess power. Do not continue this massive disruptive and potentially dangerous power transfer.

S Garlick

Sent from my iPhone

TARDAEWETHER Kellen * ODOE

From: Dale Mammen <dmammen@eoni.com>
Sent: Thursday, August 15, 2019 5:53 PM
To: B2H DPOComments * ODOE
Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018; Draft Proposed Order 5/23/2019
Attachments: Scan 2019-8-15 17.38.19.pdf

To: Chairman Beyeler and Members of the Council

Find attached a letter signed by me and 54 other residents of La Grande expressing our concerns regarding the B2H Project and we request that EFSC deny the Site Certificate.

I have also sent a bound copy of this material by the US Postal Service.

Sincerely,

Virginia L. Mammen
405 Balsa
La Grande, Oregon 97850

August 10, 2019

Energy Facilities Siting Council
c/o Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol St. N.E.
Salem, OR. 97301

Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018:Draft Proposed Order.

Dear Chair Beyeler and Members of the Council:

My comment is about the usage of the "Local Streets" ¹ specifically the Modelaire-Hawthorne Loop) ², hereafter referred to as the "loop", of La Grande to access the site entrance. This residential "loop" was constructed without sidewalks for a new development around the early 1960s.

According to OAR 345-022-0110, Public Services (pg. 5. April 2017) "The applicant...must address all permanent and temporary impacts of the facility on housing, traffic, safety, police and fire protection, health care and schools." ³

My impression from reviewing the application Page 17 ⁴ is that the applicant has not fully examined the final portion of the intended route nor does it fully recognize or address the need for traffic mitigation. This "loop" is the only access to/from thirty-six houses to the rest of the city. The area to the north of the "loop" is occupied by the Grande Ronde Hospital and Medical Clinic. Two blocks to the east is located the local high school and a grade school. ²

In June of 2016, the Grande Ronde Hospital petitioned the City to have a conditional use for a parking lot expansion project next to Hawthorne. The Conditional Use Permit was approved subject to the Condition of Approval that "No driveway access to GRH parking lot areas shall be permitted onto Hawthorn Drive as such street is developed to residential standards and is not designed to support commercial traffic." ⁵

The La Grande Director of Public Works, Kyle Carpenter, provided information regarding the widths for the streets in question. The two streets range from 33 feet to 37 feet in width with no sidewalks. I personally measured the area where the unpaved stem of Hawthorne leaves the "loop" to go up the hill. At the junction it measures 32 feet curb cut to curb cut and narrows to 18-21 feet in width as it goes around the corner up the hill. 6 The Public Works Director also provided pictures of the mapping system showing the existing utilities located in the "loop". 7-8. It should also be noted that from the entrance to the "loop" at Sunset Drive to the entrance of the site the road has a 16% grade.

Attachment U2 9 from the application shows an "Aerial Lift Crane to be Used During Construction" and the Transportation and Traffic Plan on page 19 10 lists a number of other vehicles anticipated to be used. Article 6.6 — Public Street Standards for the City of La Grande Section 6.6.002 states that "Collector Streets are designed to withstand normal trucks of an HS20 loading. Larger trucks are to utilize Arterial Streets where at all possible." 11 The majority of vehicles listed on page 19 exceed that limit and would be using a Local Street in addition to Arterial and Collector Streets. According to the Public Works Director the two streets in the "loop" were designed as Local Streets for residential use, able to accept the pressures of HS20 for the purpose of an occasional need such as a weekly garbage truck or an emergency vehicle but for no more than 5% of the time. The paving construction of these over 50 year old streets in the "loop" was not designed for repetitive use by vehicles heavier than a normal car. These streets in the "loop" have not been repaved, only patched when necessary, since they were first constructed.

The application does not address the "loop" specifically, but 3.1.2 (pg. 19) 10 and Table 6 (pg.17) 12 of the Transportation and Traffic Plan indicate there would be numerous vehicles using this route. Not knowing exactly just which vehicles would be on the "loop" daily but making a conservative estimate of 50 round trips (100 single) it would be a constant parade with one truck every 7.2 minutes. This is unacceptable for numerous reasons including constant excessive noise.

Not only would weight of the vehicles be a problem but the narrowness of the "loop" streets and the ninety degree blind curves that would have to be executed would be either impossible or extremely dangerous considering the turning radius for many of these large vehicles. The

already dangerous situation for a number of driveways that exit onto these "loop" streets at blind curves would be exacerbated. 13-14

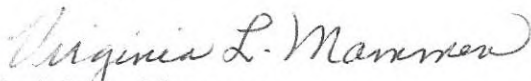
When considering only the traffic and safety issues listed above, the use of the "loop" as a part of the route for Idaho Power seems to be not only dangerous for the residents but unconscionable and irresponsible for Idaho Power to use such streets that are currently primarily for the neighborhood for walking (children to school, all ages for physical training), driving, or biking. I fear there are standards that are either not being considered or they are intentionally being ignored. There should be some common sense, courtesy and respect for the impact this project would impose on any neighborhood.

Finally, La Grande Ordinance Number 3077, which adopted Oregon State Traffic Laws by reference, states in Section 17 page 8 "It shall be unlawful for any person, firm or corporation to use, drive or operate any vehicle or combination of vehicles with a gross weight of 26,000, pounds or more upon any street of the City of La Grande, Oregon, except upon posted truck routes." Neither Modelaire/Hawthorne Loop nor Sunset Drive are posted as truck routes. 15-16

A site review and traffic plan must be completed prior to the cite certificate being issued and not 90 days prior to construction as stated.

For the above reasons I oppose the usage of the proposed route for the construction of the B2H transmission line.

Sincerely,


Virginia L. Mammen
405 Balsa
La Grande, Oregon. 97850

gmammen@eoni.com

**TABLE 1
 STREET STANDARDS**

Functional Classification	ADT Volume	Speed (mph)	# of Travel Lanes	Travel Lane Width	Turn Lane or Median Width	Bike Lanes	Min. Bike Lane Width	On-Street parking
Downtown Arterial	10,000	20	2-3	11'	11'			both sides
Arterial	10,000	40-55	2-5	12'	4-14'	optional ⁴	5'	none
Major Collector	2,000 - 10,000	25-45	2-3	11'	12'	required	5'	one or both sides
Minor Collector	1,000 - 2,000	25-35	2	11'	none	Optional ⁵	5'	one or both sides
Local Street	0 - 1,000	15-25	2	10'	none	none	none	one or both sides

Functional Classification	Sidewalks	Min. Sidewalk Width	Planting Strip Width ¹	Total Paved Width ²	Total ROW Width ³	Private Access Spacing
Downtown Arterial	required	12'	3'6" ⁶	49'	80'	200'
Arterial	required	5'	8'	36'-72'	80'-102'	200' - 400'
Major Collector	required	5'	8'	52'-60'	62'-90'	150' - 300'
Minor Collector	required	5'	8'	30'-48'	60'-78'	75' - 150'
Local Street	required	5'	8'	28'-36'	40'-66'	Each Lot

¹A portion of the required planting strip width may be used instead as additional sidewalk width or reduced right of way, as appropriate.

²The minimum of the paved width was calculated with the following assumptions:

Arterials: Two (2) travel lanes, four foot (4') median divider, no center turn lane, no bike lanes.

Major Collectors: Two (2) travel lanes, two (2) bike lanes, no center turn lane, parking on one (1) side.

Minor Collectors: Two (2) travel lanes, parking on one (1) side of street, no bike lanes.

Local Streets: Two (2) travel lanes, parking on one (1) side of street.

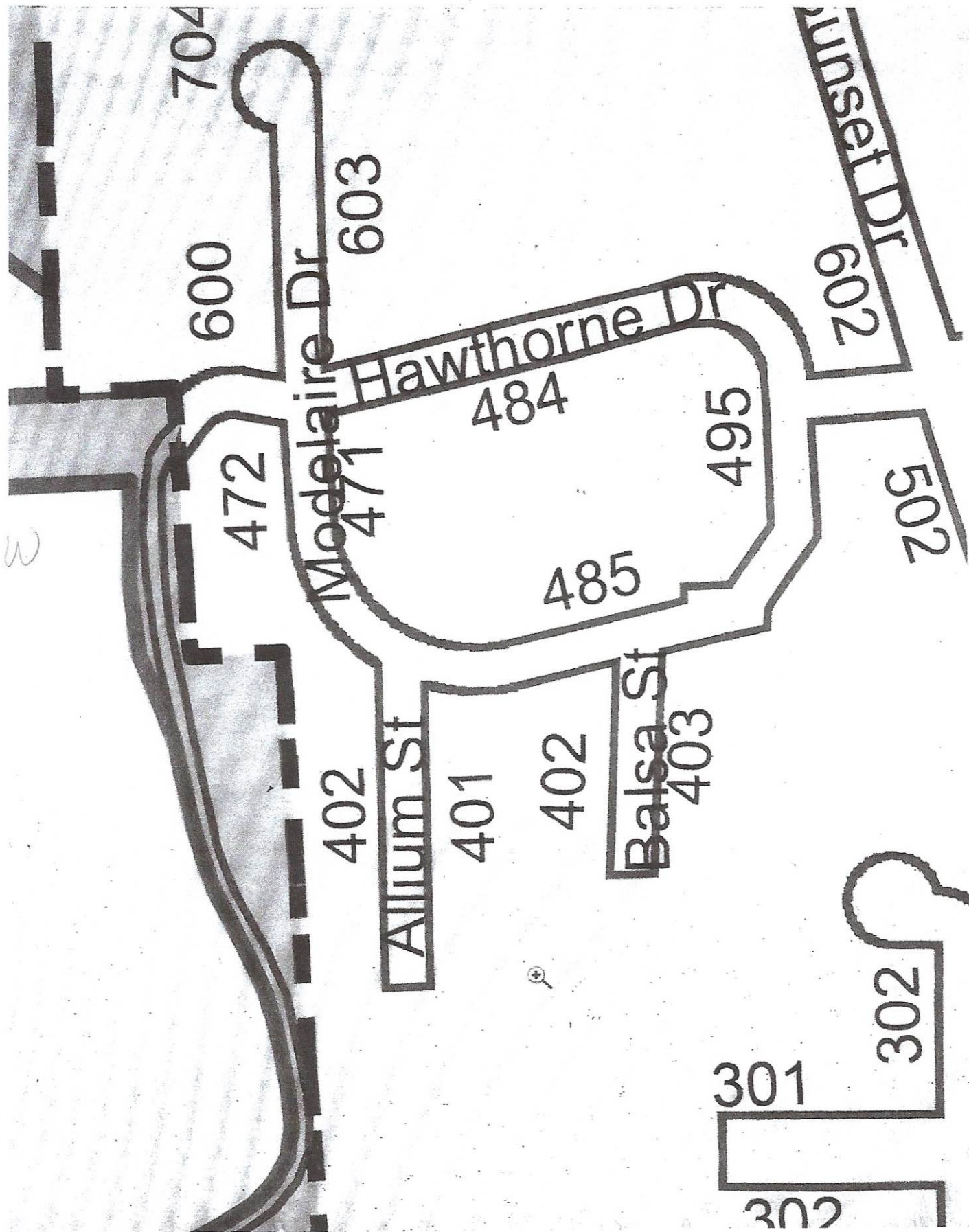
The maximum paved width for each street was calculated assuming the inclusion of all required and optional facilities. Minimum paved widths for each street are as required in Section 6.2.005 of this Code.

³These right-of-way width ranges are for new streets.

⁴Bike lanes should be provided on Arterials unless more desirable parallel facilities are designated and designed to accommodate bicycles.

⁵ Bike lanes should be provided on Minor Collectors where traffic volumes or other factors warrant. Otherwise, Minor Collectors should be designed and designated as shared roadway facilities with wide outside travel lanes of 14' on important bike routes.

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Public Services

OAR 345-022-0110

This standard ensures that the proposed facility will not affect the ability of service providers in local communities to provide public services, such as fire protection or education. The applicant must assess the proposed facility's need for water and for disposal of wastewater, storm water and solid waste. The applicant must also evaluate the expected population increases in local communities resulting from construction and operation of the facility; and must address all permanent and temporary impacts of the facility on housing, traffic safety, police and fire protection, health care and schools. The Council must determine whether the applicant has identified potential adverse impacts to service providers and proposed adequate mitigation to ensure that there will be no significant adverse effect on the ability of a service provider to provide services. In considering the impacts, the Council solicits comments from affected local governments, fire or police departments, school districts and health care agencies.

Waste Minimization

OAR 345-022-0120

This standard requires the Council to evaluate the applicant's proposal to minimize solid waste and wastewater generated by construction and operation of the proposed facility. The standard requires recycling of wastes, if feasible, or proper waste disposal if recycling is not feasible.

The applicant must evaluate the types of waste products that would be produced during construction and operation of the proposed facility and estimate the amounts or volume of waste products. The applicant must propose appropriate methods to handle the waste through collection, storage and disposal. Compliance with the standard assures that the applicant will reduce the amount of waste generated and dispose of waste in a responsible manner.

Need for a Facility

OAR 345-023-0005

This standard requires the applicant for non-generating energy facilities (such as electric transmission lines) to demonstrate the need for the proposed facility. The Council's rules allow an applicant to demonstrate need for a non-generating facility through one of several methods, including the "Least-Cost Plan Rule" (OAR 345-023-0020) or the "System Reliability Rule for Electric Transmission Lines" (OAR 345-023-0030). Under the Least-Cost Plan Rule, the applicant meets this standard if the proposed transmission line was included in an Integrated Resource Plan that has been acknowledged by the Oregon Public Utilities Commission (OPUC). More information about the OPUC and the Integrated Resource Plan acknowledgement process can be found at www.puc.state.or.us.

Specific Standards for Wind Facilities

OAR 345-024-0010 and 345-024-0015

This standard requires the Council to evaluate applications for wind energy facilities to ensure that applicants can design, construct and operate the facility so that the public is not endangered by moving turbine blades or electrical equipment, and that the applicant can design, construct and operate wind turbines to prevent structural failure that could endanger public safety. Siting standards for wind facilities also require the applicant to reduce cumulative adverse environmental effects in the vicinity by using existing roads, if possible, placing collection lines underground, designing the facility to avoid impacts to vulnerable wildlife in the area (especially birds and bats), and designing the facility to minimize adverse visual features, including using the minimum amount of lighting necessary to meet the requirements of the Federal Aviation Administration for protecting aircraft.

Specific Standards for Transmission Lines

OAR 345-024-0090

This standard requires that the Council evaluate transmission lines under Council jurisdiction to ensure they are designed, constructed and operated to limit the strength of electromagnetic fields in areas where those lines are accessible to the public.



Idaho Power Responses to Comments and Requests for Additional Information on the B2H APASC
from the City of La Grande
Compiled by ODOE. RAI's from the City of La Grande and Responses from IPC

U	U- Public Services include utilities such as road systems, water, sanitation services, power, and other amenities necessary for the construction.	Ordinance #2912, Series 1997 gives the City jurisdiction and control on all City street rights-of-way and Ordinance #3077, Series 2009, establishes the process and requirements for permits and licenses for uses of the streets that are not normal uses and may result in damages.	proposed helipad is a necessary supporting facility.	<p>To address the City's concerns regarding traffic and road use within the city's limits, Idaho Power has added the following proposed conditions to Exhibit K:</p> <p><i>Land Use Condition 9: Prior to construction in Union County, the site certificate holder shall complete the following to address traffic impacts in the county:</i></p> <p><i>a. The site certificate holder shall finalize, and submit to the department for its approval, a final county-specific transportation and traffic plan. The protective measures described in the draft Transportation and Traffic Plan in ASG Exhibit U, Attachment U-2, shall be included and implemented as part of the final county-specific plan, unless otherwise approved by the department;</i></p> <p><i>b. The site certificate holder shall work with the Union County Road Department and the City of La Grande Public Works Department to identify concerns related to Project construction traffic; and</i></p> <p><i>c. The site certificate holder shall develop traffic control measures to mitigate the effects of Project construction traffic.</i></p> <p><i>Land Use Condition 26: During construction in Union County, the site certificate holder shall conduct all work in compliance with the Union County-specific</i></p>
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IV. CONCLUSIONS

Based on the Findings of Fact above, the Planning Commission concludes that the application meets the requirements established in LDC Articles 8.5 and other applicable codes and Ordinances.

V. ORDER AND CONDITIONS OF APPROVAL

Based on the conclusions above, the Planning Commission approves the Conditional Use Permit as requested, subject to the following Conditions of Approval:

1. No driveway access to GRH parking lot areas shall be permitted onto Hawthorn Drive as such street is developed to a residential standards and is not designed to support commercial traffic.
2. Any existing driveway curb cuts along Hawthorn Drive bordering GRH's property, that are not used for residential purposes, shall be removed and replaced with City standard improvements that exists adjacent to such areas.
3. There is a storm sewer line extending through the project area that shall to be protected. Any improvements that may affect the storm sewer line shall be reviewed and approved by the Public Works Director.

VI. STANDARD CONDITIONS OF APPROVAL FOR LAND USE APPLICATIONS

1. **Revisions to a Valid Conditional Use Permit:** Any variations, alterations, or changes in a valid Conditional Use Permit requested by the deed holder shall be considered in accordance with the procedures of the Land Development Code as though a new Conditional Use Permit were being applied for.
2. **Public Works Standards:** Where a development involves work within the public right-of-way, a Right-of-Way Permit shall be obtained from the Public Works Department in advance of commencing with any work in the right-of-way. All improvements within the public right-of-way shall be in conformance with the most recent adopted City of La Grande *"Engineering Standard Drawings and Specifications for Construction Manual."*
3. **Building Permits:** The City of La Grande Building Department shall be contacted early in the process and in advance of development to coordinate and obtain required building, plumbing, electrical and/or mechanical permits. All required permits shall be acquired in advance of construction.

VI. OTHER PERMITS AND RESTRICTIONS

The applicant and property owner is herein advised that the use of the property involved in this application may require additional permits from the City of La Grande or other local, State or Federal Agencies.

The City of La Grande land use review, approval process and any decision issued does not take the place of, or relieve the applicant of responsibility for acquiring such other permits, or satisfy any restrictions or conditions thereon. The land use decision herein does not remove, alter, or impair in any way the covenants or restrictions imposed on this property by deed or other instrument.

The land use approvals granted by this decision shall be effective only when the rights granted herein have been exercised and commenced within one (1) year of the effective date of the decision. In case such right has not been exercised and commenced or an extension obtained, the approvals granted by this decision shall become null and void. A written request for an extension of time shall be filed with the Planning Department at least thirty (30) days prior to the expiration date of the approval.



Virginia Mammen <4gmammen@gmail.com>

Modelaire Roadway Specifications

3 messages

Kyle Carpenter <KCarpenter@cityoflagrande.org>
To: "gmammen@eoni.com" <gmammen@eoni.com>

Fri, Jul 12, 2019 at 1:51 PM

I have attached a couple pictures of our mapping system that will give you a sense of where existing utilities are in Modelaire and Hawthorne. As for the widths of the roadways, I took measurements in multiple places, and found the following:

- Modelaire Drive (F Avenue) between Sunset Blvd and Hawthorne Drive is approximately 33 feet wide with a grade of about 5 Percent.
- Hawthorne Drive is approximately 32 feet wide at the bottom near the intersection of Modelaire/F Avenue and widens to about 34 feet where it intersects Modelaire at the top of the hill. The grade heading up hill is approximately 15.5 Percent.
- Modelaire Drive is generally 36 feet wide with some minor variability generally less than a foot (35' to 37'). On the southernmost segment of the roadway where the majority of the elevation gain is observed the grade is approximately 16 Percent.

Let me know if there are any other specifications of these roadways that you are interested in that I have missed. Have a great weekend and thanks for the treats, the guys were very appreciative.

Kyle Carpenter, PE

Public Works Director

City of La Grande

Public Works

Ph: (541) 962-1325

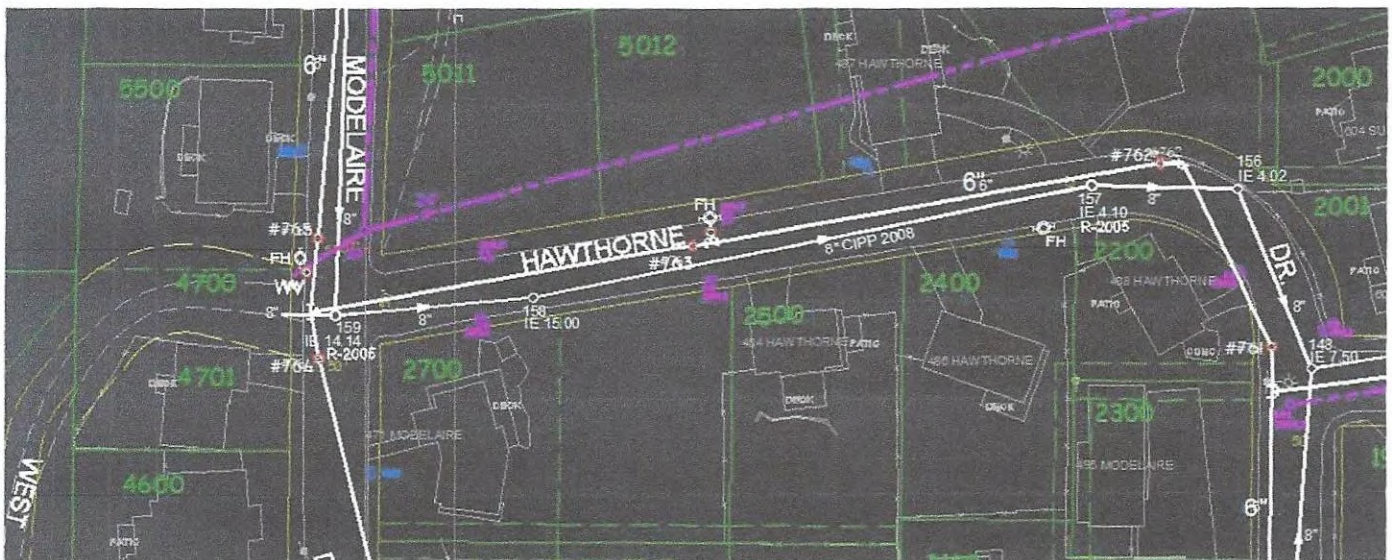
Fax: (541) 963-4844

2 attachments

Hawthorne.jpg
150K

Modelaire.jpg
120K





attachment U2

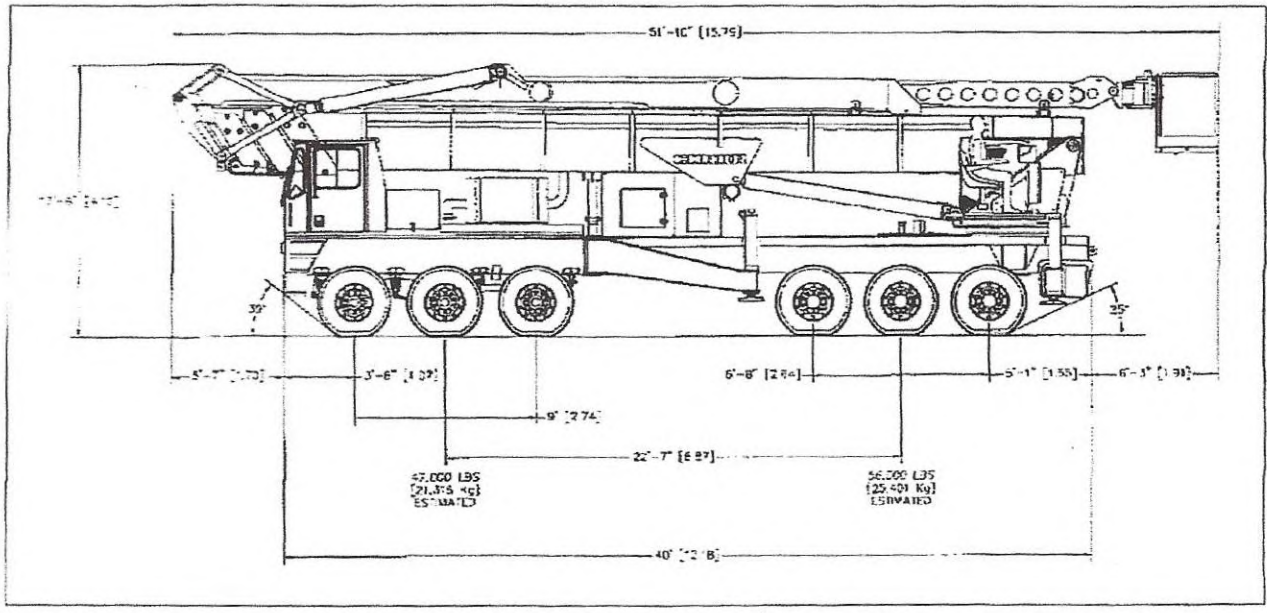


Figure 2. Example Aerial Lift Crane to be Used During Construction (Roadable Length 52 Feet; Width 8 Feet 6 Inches)

The following is a summary of anticipated equipment to be used for each transmission-line construction activity.

- Survey work: pickup trucks or ATVs.
- Timber removal: pickup trucks, feller bunchers, dump trucks, wood chippers.
- Road construction: pickup trucks, bulldozers, motor graders, and water trucks.
- Hole digging, installation of directly embedded structures, or foundation installation: pickup trucks, 2-ton trucks, digger derrick trucks, hole diggers, bulldozers, concrete trucks, water trucks, cranes, hydro cranes, wagon rock drills, dump trucks, and front-end loaders.
- Hauling lattice steel members, tubular poles, braces, and hardware to the structure sites: steel haul trucks, carry alls, cranes, and forklifts.
- Assembly and erection of structures: pickup trucks, 2-ton trucks, carry alls, cranes, and a heavy lift helicopter.
- Wire installation: pickups, wire reel trailers, diesel tractors, cranes, 5-ton boom trucks, splicing trucks, three drum pullers, single drum pullers, tensioner, sagging dozers, carry-alls, static wire reel trailers, bucket trucks, and a light duty helicopter.
- Final cleanup, reclamation, and restoration: pickup trucks, 2-ton trucks, bulldozers, motor graders, dump trucks, front-end loaders, hydro-seed truck, and water trucks.

The highest level of traffic will be when the wire stringing operations begin while several other operations are occurring at the same time, which will likely include ROW clearing, installing foundations, hauling steel, and assembling and erecting structures. For the station work, the highest level of traffic will be during site grading and foundation installation. For the communication station sites, the highest level of traffic will be during grading and site preparation.

Detailed estimates of trips generated by transporting Project construction equipment will be provided by the construction contractor prior to construction.

3.1.3 Traffic Related to Timber Removal

In forested areas, the Project will require removal of timber from the Project ROW and for construction and improvement of access roads. Specific timber harvest plans have not been finalized. Logs from timber clearing may be transported to nearby sawmills. Decisions regarding transportation routes for harvested timber will be made following completion of a timber harvest plan, and the number of log truck trips will be estimated when the timber harvest plan has been finalized. Logging slash will remain onsite if possible. For additional discussion regarding removal of timber in forested areas, see Exhibit K, Attachment K-2, ROW Clearing Assessment.

3.1.4 Impacts to V/C Ratios

Based on the estimated trip generation numbers in Tables 4 and 6, a maximum of approximately 1,294 daily one-way vehicle trips are expected within any one construction spread. To facilitate traffic and other analyses, the two construction spreads are divided into smaller sections based on similar construction windows and seasonal weather restrictions. Not all construction sections will have the same number of concurrent construction activities, depending on how the construction contractor sequences and executes the Project. Some sections will have fewer daily vehicle trips. For the purposes of the traffic analysis, the spreads are divided into five sections with multi-use areas that could have additive traffic impacts. The sections are assumed to have approximately equal levels of activity. The 1,294 daily one-way trips per spread divided over five sections of more concentrated traffic results in 259 daily one-

ARTICLE 6.6 – PUBLIC STREET STANDARDS

SECTION 6.6.001 - PURPOSE

Upon the request of the La Grande City Council, a variety of street design standards have been reviewed and are now incorporated in the Land Development Code.

SECTION 6.6.002 - CLASS I IMPROVEMENT STANDARDS

This classification will cover those streets that are designed to meet the standards for an expected life of twenty (20) years or more. The attached drawings shall be the minimum standard for those streets in this classification. All streets designated as Federal Aid Urban Streets (F.A.U.) shall be constructed under these design standards. Streets in this designation shall be constructed with sidewalks when at all possible in an effort to increase pedestrian safety. Collector streets are designed to withstand normal trucks of an HS 20 loading. Larger trucks are to utilize Arterial streets where at all possible. This level of development shall be the ultimate goal for all streets within the City of La Grande.

Possible means of financing available for this Class shall be methods A, B, C, D, E, F, G, and H in Section 6.6.006.

A. Advantages

1. The construction life is extended to a period above other City standards.
2. The visible aesthetics in relationship to having curbs and a blacktop surface with landscaping or concrete driveways and a sidewalk is generally appealing to the public.
3. Easy maintenance for the Public Works Department for cleaning and minor repair.
4. Storm sewer drainage is confined within the bounds of the curbs during minor flooding periods.
5. Parking is restricted to a solid barrier, that being the curb; this restricts parking in the area on the back side of the curb and confines travel to the street surface.
6. Defined areas for possible cross walks, signs, power poles, and other utilities that are restricted to the outside areas behind the curbs.
7. It allows for a wide range of financing methods and is to City standards for a ten (10) year Bancroft bonding.
8. Provides a dust free surface.

B. Disadvantages

1. The extreme high level of cost that is incurred with this type of development.

SECTION 6.6.003 - CLASS II IMPROVEMENT LEVEL

Streets constructed in this classification shall be constructed to the same standards as Class I Streets with the exception of the form of drainage system. These streets shall meet the standards as shown on the attached drawing. This level of construction shall be only utilized in substitution for Class I Streets when it is determined by the City Council at the recommendation of the City Engineer or Engineering Superintendent, that an adequate drainage system cannot be installed for a Class I Street.

Table 6. Construction Vehicle Trips per Day per Construction Spread

Construction Crew Type	Construction Vehicles					
	Light Construction Vehicles			Heavy Construction Vehicles		
	Number of Pickups/ Mechanic Trucks (per day)	Number of One-way Trips on Public Roads (per day)	Total One-way Trips (per day)	Number of Other Vehicles	Number of One-way Trips on Public Roads (per day)	Total One-way Trips (per day)
Substation Construction	20	2	40	5	2	10
ROW Clearing	9	4	36	5	4	20
Roads/ Pad Grading	9	4	36	9	2	18
Foundations	9	2	18	5	8	40
Tower Lacing (assembly)	27	2	54	0	0	0
Tower Setting (erection)	20	2	40	0	0	0
Wire Stringing	9	4	36	9	4	36
Restoration	3	2	6	0	0	0
Blasting	5	4	20	0	0	0
Material Delivery	20	8	160	12	2	24
Mechanic and Equipment Mgmt.	5	6	30	0	0	0
Refueling	0	0	0	5	4	20
Dust Control	0	0	0	5	4	20
Construction Inspection	5	8	40	0	0	0
Concrete Testing	5	4	20	0	0	0
Environmental Compliance	9	6	54	0	0	0
Surveyors	5	3	30	0	0	0
Totals	—	—	620	—	—	188

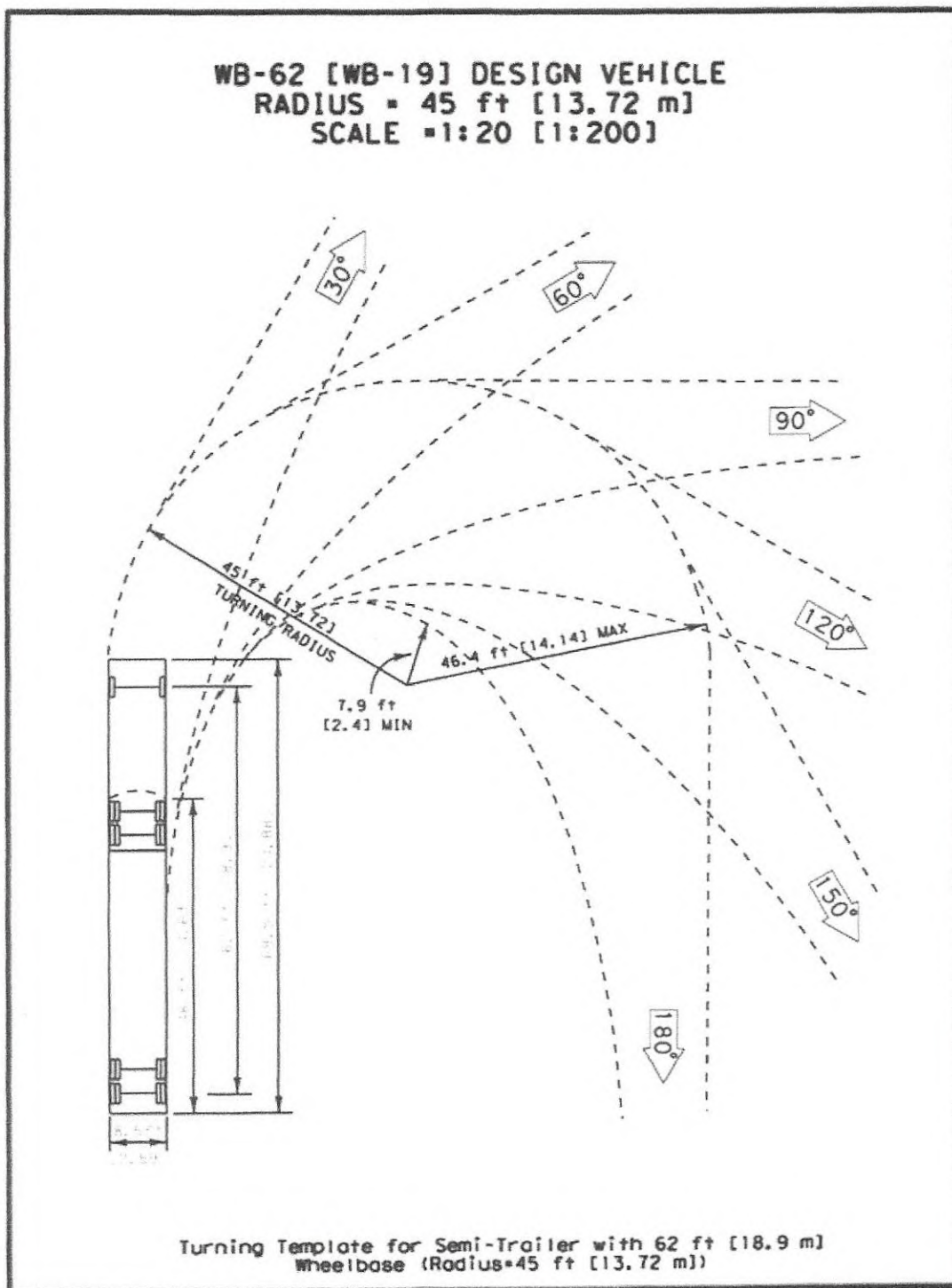
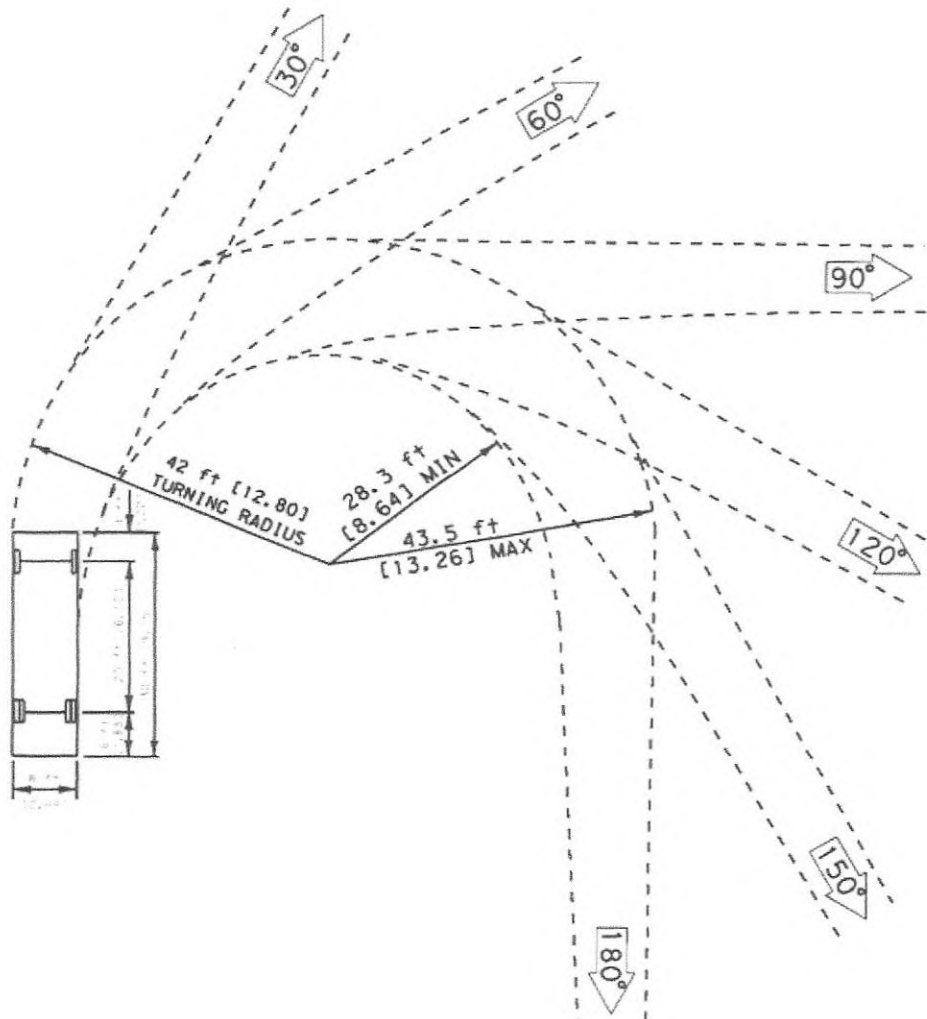


Figure 7-4. Turning Template for Semi-Trailer with 62 ft [18.9 m] Wheelbase, (not to scale). Click [here](#) to see a PDF of the image.

SINGLE UNIT (SU) TRUCK DESIGN VEHICLE
TURNING RADIUS = 42 ft [12.80 m]
SCALE = 1:20 [1:200]



Turning Template for Single Unit Trucks or Buses

Exhibit 15

**CITY OF LA GRANDE
ORDINANCE NUMBER 3077
SERIES 2009**

**AN ORDINANCE CONTROLLING VEHICULAR AND PEDESTRIAN TRAFFIC, PARADES
AND PROCESSIONS AND ISSUANCE OF PERMITS; PROVIDING PENALTIES; AND
REPEALING ORDINANCE NUMBER 2845, SERIES 1993; ALL AMENDING ORDINANCES
AND ALL OTHER ORDINANCES OR PARTS OF ORDINANCES IN CONFLICT HEREWITH;
AND DECLARING AN EFFECTIVE DATE**

THE CITY OF LA GRANDE ORDAINS AS FOLLOWS:

Section 1. This Ordinance may be cited as the City of La Grande Uniform Traffic Ordinance.

Section 2. APPLICABILITY OF STATE TRAFFIC LAWS.

Oregon Revised Statutes, Chapter 153, and the Oregon Vehicle Code, ORS Chapter 801 and 822, as now constituted, are adopted by reference. Violation of an adopted provision of those chapters is an offense against the City.

Section 3. DEFINITIONS

In addition to those definitions contained in the Oregon state Motor Vehicle Code, the following words or phrases, except where the context clearly indicates a different meaning, shall mean:

a. Alley

A street or highway primarily intended to provide access to the rear or side of lots or buildings in urban areas and not intended for through vehicular traffic.

b. Bicycle

A bicycle is a vehicle that:

1. Is designed to be operated on the ground on wheels;
2. has a seat or saddle for use of the rider;
3. is designed to travel with not more than three (3) wheels in contact with the ground;
4. is propelled exclusively by human power; and,
5. has every wheel more than fourteen inches (14") in diameter or two (2) tandem wheels, either of which is more than fourteen inches (14") in diameter.

c. Bicycle Lane

That part of the highway, adjacent to the roadway, designated by official signs or markings for use by persons riding bicycles, except as otherwise specifically provided by law.

d. Bicycle Path

A public way, not part of a highway, which is designated by official signs or markings for use by persons riding bicycles, except as otherwise specifically provided by law.

e. Block

The part of one side of a street lying between the two (2) nearest cross streets.

f. Central Business District

a. City Regulation of Special Movement of Oversized Load

The applicant shall submit an application to the City Manager or designee, showing the terminal points of the purported movement; the proposed route; the nature of the movement requested, including the weight and dimensions of the vehicle, load, machine, building, or structure to be moved; the time, date and duration of the proposed movement.

b. Special Movement Permit

A permit shall be required to move any vehicle, structure, or load on, or to access a street when, after preparation for movement, the vehicle, structure or load exceeds fourteen feet (14') in height, requires the use of guy wires, or could result in the blockage of a street. An approved application may serve as a permit, and a copy of the approved application shall be provided to the applicant.

Section 17. TRUCK ROUTES

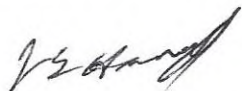
- a. It shall be unlawful for any person, firm, or corporation to use, drive or operate any vehicle or combination of vehicles with a gross weight of 26,000, pounds or more upon any street of the City of La Grande, Oregon, except upon posted truck routes.
- b. Any vehicle with a gross weight over 26,000, pounds specifically picking up deliveries or making deliveries to any business or residence located on a street that is not a truck route will be exempted if the vehicle is driven from the truck route to the destination in the shortest, most direct, and safest route.
- c. The use of Jacob brakes shall not be allowed within the city limits of La Grande, Oregon.
- d. Truck routes will be posted as follows:
 1. Walnut street north from the city limits to C Avenue;
 2. C Avenue east from Walnut Street to Gekeler Avenue;
 3. Gekeler Avenue east to the city limits;
 4. 12th street south from Gekeler Avenue to the city limits;
 5. 2nd Street south from the city limits to Adams Avenue;
 6. Monroe Avenue east from Spruce Street to Highway 82;
 7. Jackson Avenue east from Spruce Street, and
 8. Spruce Street south from the city limits to Monroe.

Section 18. IMPOUNDMENT AND DETENTION OF VEHICLES

- a. Whenever a vehicle is placed in a manner or location that constitutes an obstruction to traffic or a hazard to public safety, a police officer or enforcement officer shall order the owner or operator of the vehicle to remove said vehicle. If the vehicle is unattended, the officer or enforcement officer may cause the vehicle to be towed and stored at the owner's expense. The owner shall be liable for the costs of towing and storing, notwithstanding that the vehicle was parked by another or that the vehicle was initially parked in a safe manner but subsequently became an obstruction or hazard.

I have read the attached letter regarding the use of the Modelaire/Hawthorne Loop and it expresses my concerns and my request to abandon the plan to use this residential loop for the project. As one of the undersigned I strongly oppose our community being used as a primary access point to build this transmission line. Furthermore, I oppose the current proposed preferred route close to the city limits of La Grande because it impacts in various other ways the daily lives of many residents of our community.

SIGNATURE

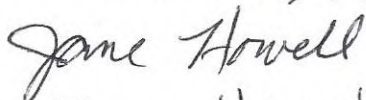


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PRINTED NAME Jane Howell

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SIGNATURE

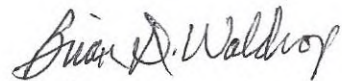


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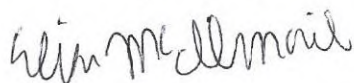


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SIGNATURE

PRINTED NAME

ADDRESS

EMAIL

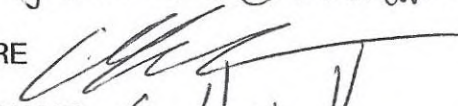

Jessie Huxell
472 Modelaire Dr. LaGrande OR 97850

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PRINTED NAME

ADDRESS

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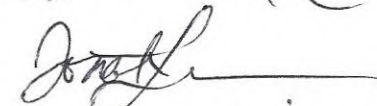

C. Huxell
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I have read the attached letter regarding the use of the Modelaire/Hawthorne Loop and it expresses my concerns and my request to abandon the plan to use this residential loop for the project. As one of the undersigned I strongly oppose our community being used as a primary access point to build this transmission line. Furthermore, I oppose the current proposed preferred route close to the city limits of La Grande because it impacts in various other ways the daily lives of many residents of our community.

SIGNATURE

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John Barlitz

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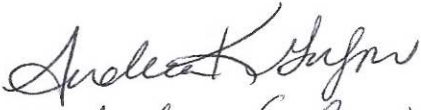
John Barlitz


ADDRESS


484 Hawthorne LG, OR 97850


EMAIL


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I have read the attached letter regarding the use of the Modelaire/Hawthorne Loop and it expresses my concerns and my request to abandon the plan to use this residential loop for the project. As one of the undersigned I strongly oppose our community being used as a primary access point to build this transmission line. Furthermore, I oppose the current proposed preferred route close to the city limits of La Grande because it impacts in various other ways the daily lives of many residents of our community.

SIGNATURE: 

PRINTED NAME Shawn K. Mangum

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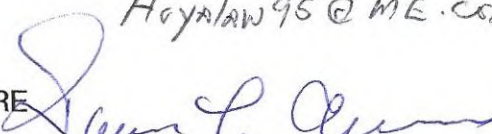
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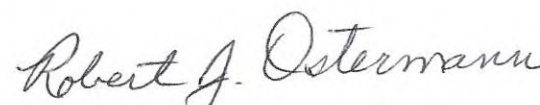

Linda Snyder
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Robert J. Ostermann
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PRINTED NAME

ADDRESS

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Robin J. Ostermann
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I have read the attached letter regarding the use of the Modelaire/Hawthorne Loop and it expresses my concerns and my request to abandon the plan to use this residential loop for the project. As one of the undersigned I strongly oppose our community being used as a primary access point to build this transmission line. Furthermore, I oppose the current proposed preferred route close to the city limits of La Grande because it impacts in various other ways the daily lives of many residents of our community.

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PRINTED NAME Jean BAPH

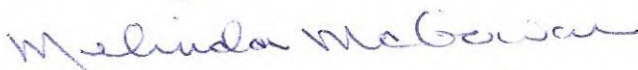
ADDRESS 1509 MADISON AVE LaGrande, OR 97850


EMAIL Jbaph19@gmail.com


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SIGNATURE 
PRINTED NAME Damon Sexton
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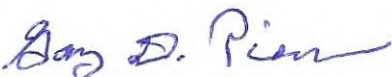
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SIGNATURE 

PRINTED NAME Gary D. Pierson

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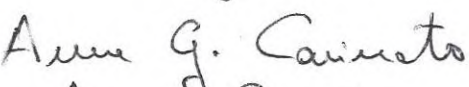
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SIGNATURE *Robert J. Sherer*
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SIGNATURE *Heather M. Null*
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SIGNATURE *Bert R. Frewing*
PRINTED NAME Bert R. Frewing
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SIGNATURE *Lindsey McCullough*
PRINTED NAME Lindsey McCullough
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EMAIL lindz_mm91@hotmail.com

SIGNATURE
PRINTED NAME
ADDRESS
EMAIL

I have read the attached letter regarding the use of the Modelaire/Hawthorne Loop and it expresses my concerns and my request to abandon the plan to use this residential loop for the project. As one of the undersigned I strongly oppose our community being used as a primary access point to build this transmission line. Furthermore, I oppose the current proposed preferred route close to the city limits of La Grande because it impacts in various other ways the daily lives of many residents of our community.

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Robin Maille

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Bruce C Kevan

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Carol S. Summers

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CAROL S. SUMMERS

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SIGNATURE

Caroline Kaye Juniper

PRINTED NAME

Caroline Kaye Juniper

ADDRESS

406 4th St. LaGrande - OR 97850

EMAIL

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SIGNATURE *Gerald D. Juniper*
PRINTED NAME *Gerald Darwin Juniper*
ADDRESS *406 4th St. LaGrande, OR. 97850*
EMAIL

SIGNATURE
PRINTED NAME
ADDRESS
EMAIL

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PRINTED NAME
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EMAIL

TARDAEWETHER Kellen * ODOE

From: Dale Mammen <dmammen@eoni.com>
Sent: Thursday, August 15, 2019 5:28 PM
To: B2H DPOComments * ODOE
Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018; Draft Proposal Order 5/23/2019
Attachments: Scan 2019-8-15 17.14.06.pdf

To: Chairman Beyeler and Members of the Council

Find attached a letter sign by me and 46 other residents of La Grande expressing our concerns regarding the B2H Project and requesting that EFSC Deny the Site Certificate.

I have also sent a bound copy of this material by US Postal Service.

Virginia L. Mammen
405 Balsa
La Grande, Oregon 97850

August 10, 2019

Energy Facilities Siting Council
c/o Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol St. N.E.
Salem, Oregon. 97301

Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018:Draft Proposed Order.

Dear Chair Beyeler and Members of the Council:

My comment is about the predicted noise levels resulting from construction and operation of the proposed Boardman to Hemingway Transmission Line Project. I would like to address the noise coming from the blasting and rock breaking specifically above the area at the top of Modelaire Drive 1 both to the north and the south of that area and also the construction traffic noise that that will impact the west hills and the area below.

In Exhibit X page X-9 3.3.1.1 2 blasting and rock breaking is mentioned saying that "Modern blasting techniques include the electronically controlled ignition of multiple small explosive charges in an area of rock that are delayed fractions of second, resulting in a total event that is generally less than a second. Impulse (instantaneous) noise from blasts could reach up to 140dBA at the blast location or over 90 dBA within 500 feet." This sounds oh so "don't worry about it, it will be OK just over in a split second." Living in this area off Modelaire Drive, I don't find this at all comforting. And the fact that this will be overseen by properly licensed personnel and all of the necessary authorizations doesn't help anything either.

The area in question, which for such inordinate construction is extremely close to many residents, has been my home for over 50 years and during

related medical problems and exhibit various reactions to loud noises.¹⁰
These children also live in the neighborhoods to be affected by the noise so they would be impacted coming and going to school, at home and also while at school. To impose the constant possibility of loud noises is cruel, disrespectful and totally unacceptable. ¹¹

For a project like this involving blasting and heavy machinery noise so close to homes, schools, and medical facilities impacting hundreds of peoples' daily lives, the day to day agitation, wondering what is coming next, fear and being on constant alert are not just addressed by some type of mitigation but must be addressed by a route that is much less impactful to peoples' safety, sanity, and health.

Sincerely,

A handwritten signature in cursive script that reads "Virginia L. Mammen".

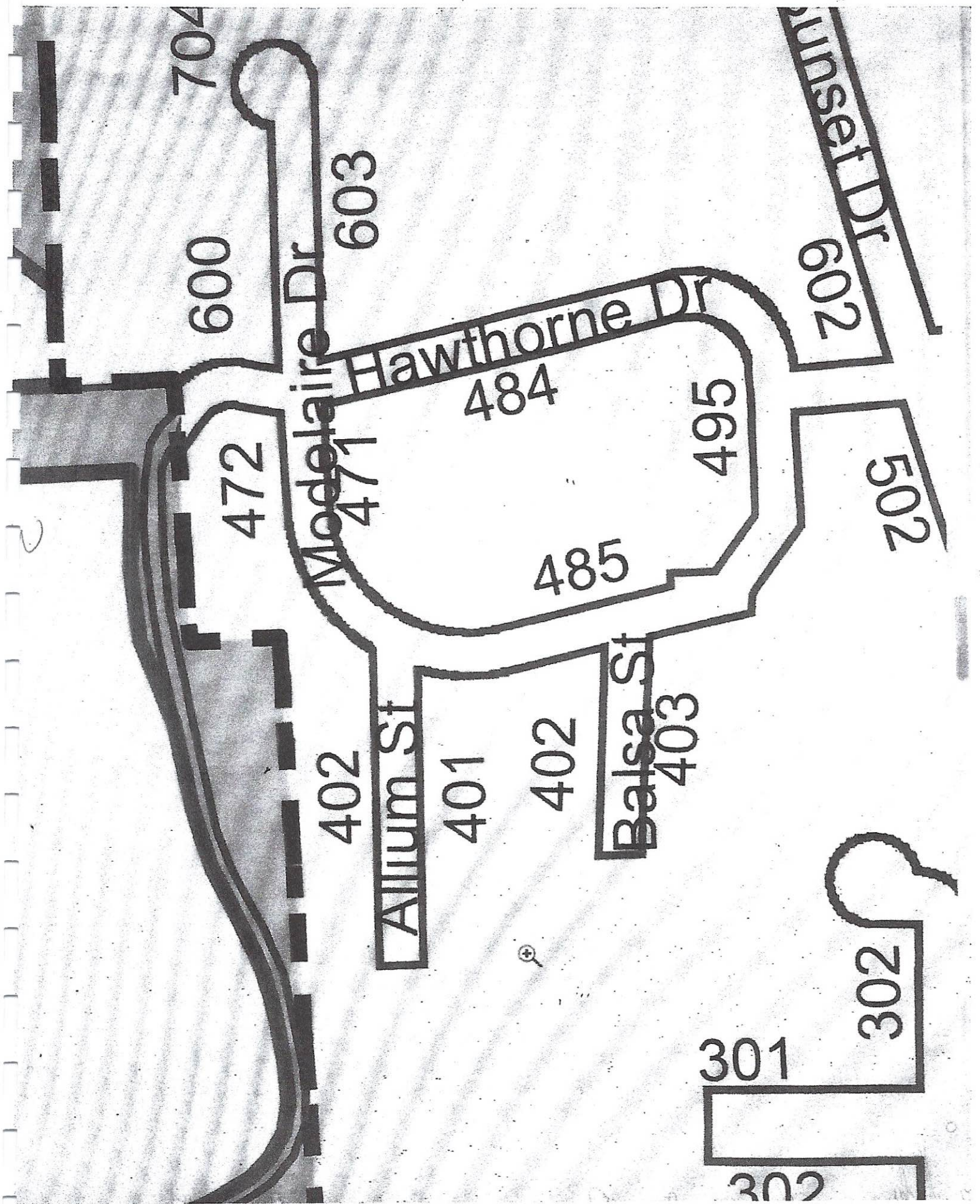
Virginia L. Mammen

405 Balsa

La Grande, Oregon 97850

gmammen@eoni.com

N



3.3 Predicted Noise Levels

OAR 345-021-0010(1)(x)(A): Predicted noise levels resulting from construction and operation of the proposed facility.

3.3.1 Construction Noise

3.3.1.1 Predicted Construction Noise Levels

Project construction will occur sequentially, moving along the length of the Project route, or in other areas such as near access roads, structure sites, conductor pulling sites, and staging and maintenance areas. Overhead transmission line construction is typically completed in the following stages, but various construction activities may overlap, with multiple construction crews operating simultaneously:

- Site access and preparation
- Installation of structure foundations
- Erecting of support structures
- Stringing of conductors, shield wire, and fiber-optic ground wire

The following subsections discuss certain construction activities that will periodically generate audible noise, including blasting and rock breaking, implosive devices used during conductor stringing, helicopter operations, and vehicle traffic.

Blasting and Rock Breaking

Blasting is a short-duration event as compared to rock removal methods, such as using track rig drills, rock breakers, jackhammers, rotary percussion drills, core barrels, or rotary rock drills. Modern blasting techniques include the electronically controlled ignition of multiple small-explosive charges in an area of rock that are delayed fractions of second, resulting in a total event duration that is generally less than a second. Impulse (instantaneous) noise from blasts could reach up to 140 dBA at the blast location or over 90 dBA within 500 feet.

Lattice tower foundations for the Project typically will be installed using drilled shafts or piers; however, if hard rock is encountered within the planned drilling depth, blasting may be required to loosen or fracture the rock to reach the required depth to install the structure foundations. Final blasting locations will not be identified until an investigative geotechnical survey of the analysis area is conducted during the detailed design.

The contracted blasting specialist will prepare a blasting plan that demonstrate compliance with applicable state and local blasting regulations, including the use of properly licensed personnel and the acquisition of necessary authorizations. The Framework Blasting Plan is set forth in Exhibit G, Attachment G-5.

Implosive Devices

An implosive conductor splice consists of a split-second detonation with sound and flash. Implosive splicing activities are anticipated to be limited to daytime hours. A blasting plan will be developed by an individual certified and licensed to perform the work. The plan will communicate all safety and technical requirements including, but not limited to, delineation of the controlled access zone and distance away from residences.

Public Services

OAR 345-022-0110

This standard ensures that the proposed facility will not affect the ability of service providers in local communities to provide public services, such as fire protection or education. The applicant must assess the proposed facility's need for water and for disposal of wastewater, storm water and solid waste. The applicant must also evaluate the expected population increases in local communities resulting from construction and operation of the facility; and must address all permanent and temporary impacts of the facility on housing, traffic safety, police and fire protection, health care and schools. The Council must determine whether the applicant has identified potential adverse impacts to service providers and proposed adequate mitigation to ensure that there will be no significant adverse effect on the ability of a service provider to provide services. In considering the impacts, the Council solicits comments from affected local governments, fire or police departments, school districts and health care agencies.

Waste Minimization

OAR 345-022-0120

This standard requires the Council to evaluate the applicant's proposal to minimize solid waste and wastewater generated by construction and operation of the proposed facility. The standard requires recycling of wastes, if feasible, or proper waste disposal if recycling is not feasible.

The applicant must evaluate the types of waste products that would be produced during construction and operation of the proposed facility and estimate the amounts or volume of waste products. The applicant must propose appropriate methods to handle the waste through collection, storage and disposal. Compliance with the standard assures that the applicant will reduce the amount of waste generated and dispose of waste in a responsible manner.

Need for a Facility

OAR 345-023-0005

This standard requires the applicant for non-generating energy facilities (such as electric transmission lines) to demonstrate the need for the proposed facility. The Council's rules allow an applicant to demonstrate need for a non-generating facility through one of several methods, including the "Least-Cost Plan Rule" (OAR 345-023-0020) or the "System Reliability Rule for Electric Transmission Lines" (OAR 345-023-0030). Under the Least-Cost Plan Rule, the applicant meets this standard if the proposed transmission line was included in an Integrated Resource Plan that has been acknowledged by the Oregon Public Utilities Commission (OPUC). More information about the OPUC and the Integrated Resource Plan acknowledgement process can be found at www.puc.state.or.us.

Specific Standards for Wind Facilities

OAR 345-024-0010 and 345-024-0015

This standard requires the Council to evaluate applications for wind energy facilities to ensure that applicants can design, construct and operate the facility so that the public is not endangered by moving turbine blades or electrical equipment, and that the applicant can design, construct and operate wind turbines to prevent structural failure that could endanger public safety. Siting standards for wind facilities also require the applicant to reduce cumulative adverse environmental effects in the vicinity by using existing roads, if possible, placing collection lines underground, designing the facility to avoid impacts to vulnerable wildlife in the area (especially birds and bats), and designing the facility to minimize adverse visual features, including using the minimum amount of lighting necessary to meet the requirements of the Federal Aviation Administration for protecting aircraft.

Specific Standards for Transmission Lines

OAR 345-024-0090

This standard requires that the Council evaluate transmission lines under Council jurisdiction to ensure they are designed, constructed and operated to limit the strength of electromagnetic fields in areas where those lines are accessible to the public.



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Department of Environmental Quality

Chapter 340

Division 35

NOISE CONTROL REGULATIONS

340-035-0035**Noise Control Regulations for Industry and Commerce****(1) Standards and Regulations:**

(a) **Existing Noise Sources.** No person owning or controlling an existing industrial or commercial noise source shall cause or permit the operation of that noise source if the statistical noise levels generated by that source and measured at an appropriate measurement point, specified in subsection (3)(b) of this rule, exceed the levels specified in Table 7, except as otherwise provided in these rules. [Table not included. See ED. NOTE.]

(b) New Noise Sources:

(A) **New Sources Located on Previously Used Sites.** No person owning or controlling a new industrial or commercial noise source located on a previously used industrial or commercial site shall cause or permit the operation of that noise source if the statistical noise levels generated by that new source and measured at an appropriate measurement point, specified in subsection (3)(b) of this rule, exceed the levels specified in Table 8, except as otherwise provided in these rules. For noise levels generated by a wind energy facility including wind turbines of any size and any associated equipment or machinery, subparagraph (1)(b)(B)(iii) applies. [Table not included. See ED. NOTE.]

(B) New Sources Located on Previously Unused Site:

(i) No person owning or controlling a new industrial or commercial noise source located on a previously unused industrial or commercial site shall cause or permit the operation of that noise source if the noise levels generated or indirectly caused by that noise source increase the ambient statistical noise levels, L10 or L50, by more than 10 dBA in any one hour, or exceed the levels specified in Table 8, as measured at an appropriate measurement point, as specified in subsection (3)(b) of this rule, except as specified in subparagraph (1)(b)(B)(iii).

(ii) The ambient statistical noise level of a new industrial or commercial noise source on a previously unused industrial or commercial site shall include all noises generated or indirectly caused by or attributable to that source including all of its related activities. Sources exempted from the requirements of section (1) of this rule, which are identified in subsections (5)(b)-(f), (j), and (k) of this rule, shall not be excluded from this ambient measurement.

(iii) For noise levels generated or caused by a wind energy facility:

(I) The increase in ambient statistical noise levels is based on an assumed background L50 ambient noise level of 26 dBA or the actual ambient background level. The person owning the wind energy facility may conduct measurements to determine the actual ambient L10 and L50 background level.

(II) The "actual ambient background level" is the measured noise level at the appropriate measurement point as specified in subsection (3)(b) of this rule using generally accepted noise engineering measurement practices. Background noise measurements shall be obtained at the appropriate measurement point, synchronized with wind speed measurements of hub height conditions at the nearest wind turbine location. "Actual ambient background level" does not include noise generated or caused by the wind energy facility.

(III) The noise levels from a wind energy facility may increase the ambient statistical noise levels L10 and L50 by more than 10 dBA (but not above the limits specified in Table 8), if the person who owns the noise sensitive property executes a legally effective easement or real covenant that benefits the property on which the wind energy facility is located. The easement or covenant must authorize the wind energy facility to increase the ambient statistical noise levels, L10 or L50 on the sensitive property by more than 10 dBA at the appropriate measurement point.

(2) Compliance. Upon written notification from the Director, the owner or controller of an industrial or commercial noise source operating in violation of the adopted rules shall submit a compliance schedule acceptable to the Department. The schedule will set forth the dates, terms, and conditions by which the person responsible for the noise source shall comply with the adopted rules.

(3) Measurement:

(a) Sound measurements procedures shall conform to those procedures which are adopted by the Commission and set forth in Sound Measurement Procedures Manual (NPCS-1), or to such other procedures as are approved in writing by the Department;

(b) Unless otherwise specified, the appropriate measurement point shall be that point on the noise sensitive property, described below, which is further from the noise source:

(A) 25 feet (7.6 meters) toward the noise source from that point on the noise sensitive building nearest the noise source;

(B) That point on the noise sensitive property line nearest the noise source.

(4) Monitoring and Reporting:

(a) Upon written notification from the Department, persons owning or controlling an industrial or commercial noise source shall monitor and record the statistical noise levels and operating times of equipment, facilities, operations, and activities, and shall submit such data to the Department in the form and on the schedule requested by the Department. Procedures for such measurements shall conform to those procedures which are adopted by the Commission and set forth in Sound Measurement Procedures Manual (NPCS-1);

(b) Nothing in this rule shall preclude the Department from conducting separate or additional noise tests and measurements. Therefore, when requested by the Department, the owner or operator of an industrial or commercial noise source shall provide the following:

(A) Access to the site;

(B) Reasonable facilities, where available, including but not limited to, electric power and ladders adequate to perform the testing;

(C) Cooperation in the reasonable operation, manipulation, or shutdown of various equipment or operations as needed to ascertain the source of sound and measure its emission.

(5) Exemptions: Except as otherwise provided in subparagraph (1)(b)(B)(ii) of this rule, the rules in section (1) of this rule shall not apply to:

(a) Emergency equipment not operated on a regular or scheduled basis;

(b) Warning devices not operating continuously for more than 5 minutes;

(c) Sounds created by the tires or motor used to propel any road vehicle complying with the noise standards for road vehicles;

(d) Sounds resulting from the operation of any equipment or facility of a surface carrier engaged in interstate commerce by railroad only to the extent that such equipment or facility is regulated by pre-emptive federal regulations as set forth in Part 201 of Title 40 of the Code of Federal Regulations, promulgated pursuant to Section 17 of the Noise Control Act of 1972, 86 Stat. 1248, Public Law 92-576; but this exemption does not apply to any standard, control, license, regulation, or restriction necessitated by special local conditions which is approved by the Administrator of the EPA after consultation with the Secretary of Transportation pursuant to procedures set forth in Section 17(c)(2) of the Act;

(e) Sounds created by bells, chimes, or carillons;

(f) Sounds not electronically amplified which are created by or generated at sporting, amusement, and entertainment events, except those sounds which are regulated under other noise standards. An event is a noteworthy happening and does not include informal, frequent, or ongoing activities such as, but not limited to, those which normally occur at bowling alleys or amusement parks operating in one location for a significant period of time;

(g) Sounds that originate on construction sites.

(h) Sounds created in construction or maintenance of capital equipment;

(i) Sounds created by lawn care maintenance and snow removal equipment;

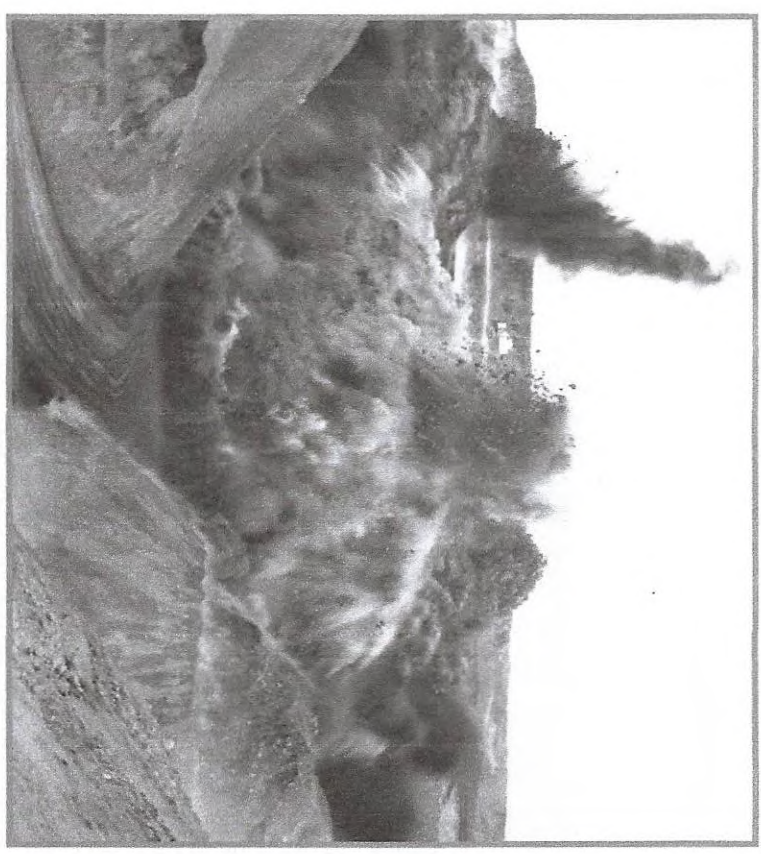
(j) Sounds generated by the operation of aircraft and subject to pre-emptive federal regulation. This exception does not apply to aircraft engine testing, activity conducted at the airport that is not directly related to flight operations, and any other activity not pre-emptively regulated by the federal government or controlled under OAR 340-035-0045;

Controlling the Adverse Effects of Blasting

This module addresses the control of offsite impacts that result from blasting, namely:

- vibrations,
- airblast, and
- flyrock.

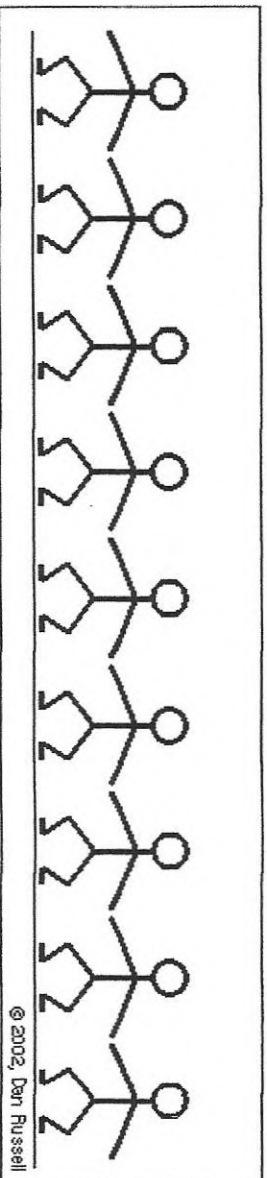
Much of the information in the module is derived from the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The performance standards apply to all surface coal mines. Similar standards have been adopted on some State and local levels and applied to non-coal blasting operations such as quarrying and construction.



Part I: Ground Vibrations, Airblast, and Flyrock

Exhibit 5b

Explosive energy is used to break rock. However, the use of this energy is not 100-percent efficient. Some of the energy escapes into the atmosphere to generate **airblast or air vibrations**. Some of the energy also leaves the blast site through the surface soil and bedrock in the form of **ground vibrations**.



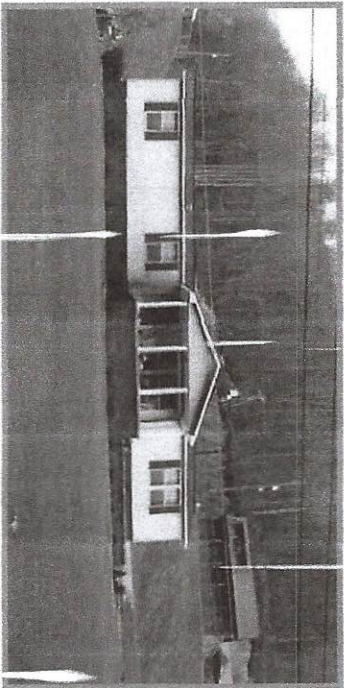
Both air and ground vibrations create waves that disturb the material in which they travel. When these waves encounter a structure, they cause it to shake. Ground vibrations enter the house through the basement and airblast enters the house through the walls and roof.

Airblast may be audible (noise) or in-audible (concussion). When outside a house the blast may be heard because of the noise, however noise has little impact on the structure. The concussion wave causes the structure to shake and rattles objects hanging on walls or sitting on shelves. This "interior noise" will alarm and startle people living in the house.

Flyrock is debris ejected from the blast site that is traveling through the air or along the ground. Flyrock the single most dangerous adverse effect that can cause property damage and personal injury or death.

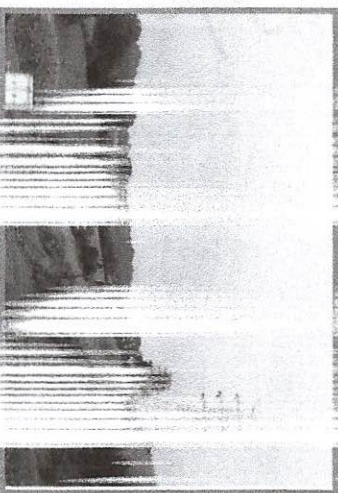
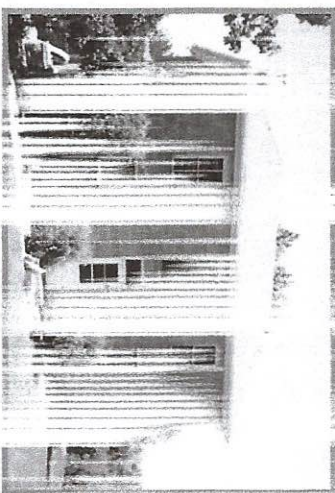
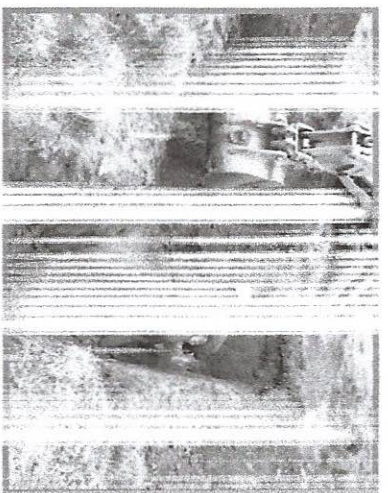
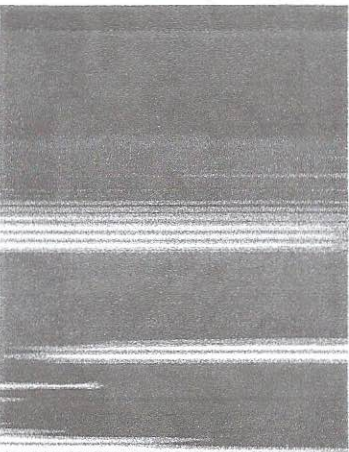
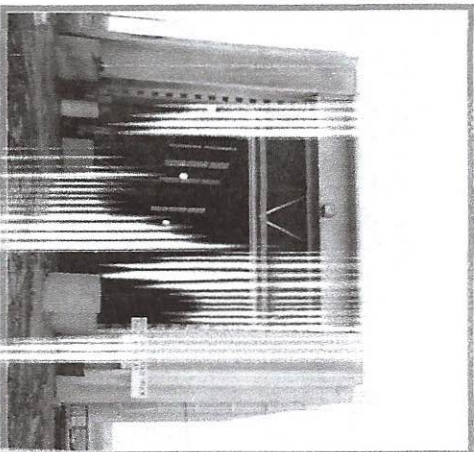
Blasting Impacts on Structures

Both above-ground and below-ground structures are susceptible to vibration impacts. Structures can include onsite mine offices and buildings, as well as offsite residences, schools, churches, power-transmission lines, and buried pipelines. Some of these structures may include historic or cultural features sensitive to even low levels of vibrations.



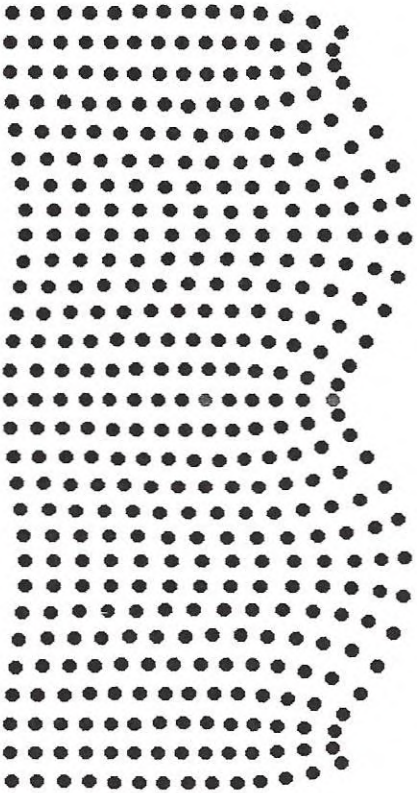
It is important to understand:

1. the causes of ground vibrations and airblast, and
2. what practices can be followed to control and minimize the adverse effects



Ground Vibrations

Ground vibrations propagate away from a blast site as Rayleigh (or surface) waves. These waves form a disturbance in the ground that displaces particles of soil or rock as they pass by. Particle motions are quite complicated. At the ground surface (free boundary), measured particle motions have the greatest displacements, and displacements decrease with depth (see the illustration below). At a depth of between 20 to 50 feet below ground surface, particle displacements are barely detectable. Structures that are well coupled to the ground tend to move with this motion; structures buried in the ground are less affected by surface motions.



©1999, Daniel A. Russell

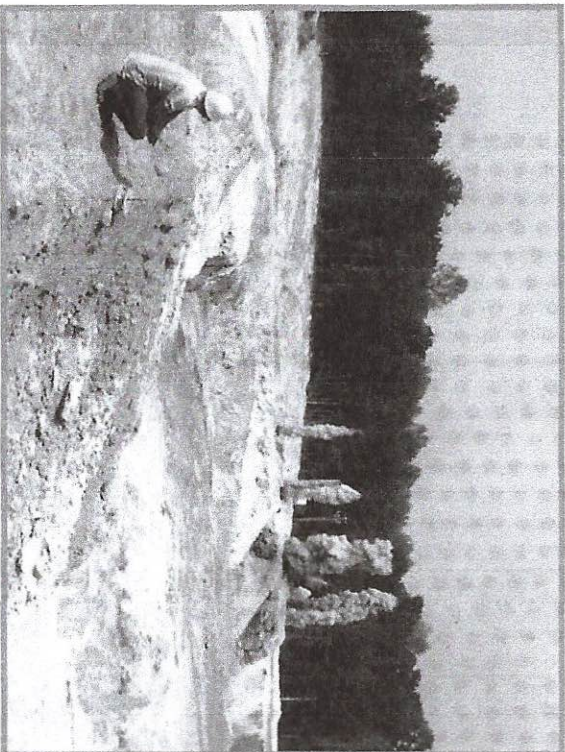
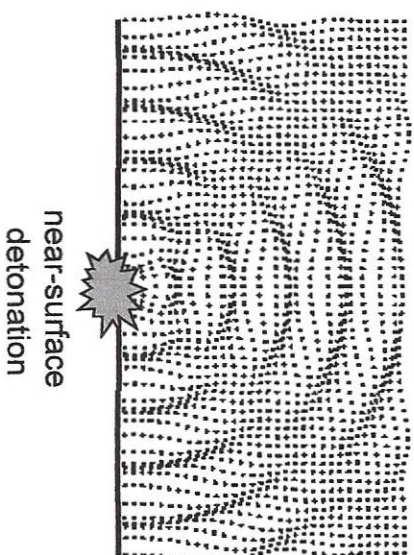
Ground vibrations are measured in terms of **particle velocity** and are reported in inches per second (ips) or the speed at which a particle of soil or rock moves.

At typical blasting distances from residential structures, the ground only moves with displacements equal to the thickness of a piece of writing paper. In terms of displacement, this equates to hundredths of an inch; visually, such movement cannot be detected.

Airblast

2 Airblast is measured as a pressure in pounds per square
5 inch (psi) and is often reported in terms of **decibels (dB)**.

Airblast is a pressure wave that that may be audible or in-audible. Elevated airblast levels are generated when explosive energy in the form gases escape from the detonating blast holes. Energy escapes either through the top stemming or through fractures in the rock along the face or at the ground surface.



Airblast radiates outward from the blast site in all directions and can travel long distances. Sound waves travel much slower (1,100 ft/s) than ground vibrations (about 5,000 – 20,000 ft/s). Hence, airblast arrives at offsite structures later than do ground vibrations.

Both ground vibrations and airblast cause structures to shake structures. Occupants in structures that are located far from a blast may experience shaking from vibration and airblast as two separate, closely spaced events. This can be particularly bothersome, as it prolongs the duration of structure shaking and leads the property owner to think that two separate blasts occurred.

Structure Response

Exhibit 5f

As ground and air vibrations reach a structure, each will cause it to shake. Structure response is dependant on the vibration characteristics (frequency and amplitude) and structure type.

Ground Vibrations enter the house through the basement. This is like shaking the bottom of a flag pole. Movement at the top of the pole depends on how (frequency) and how hard (amplitude) the bottom of the pole is shaken. If shaken at just the right pace, or at the pole's natural frequency, the top will move significantly compared to the bottom. Motion at the top is amplified from the bottom motion.

All blast damage studies have measured incoming ground vibrations at the ground surface. The observed structure amplifications were typically between 1 to 4 times the ground vibration. Structure response below ground level is the same or less than the incoming vibrations

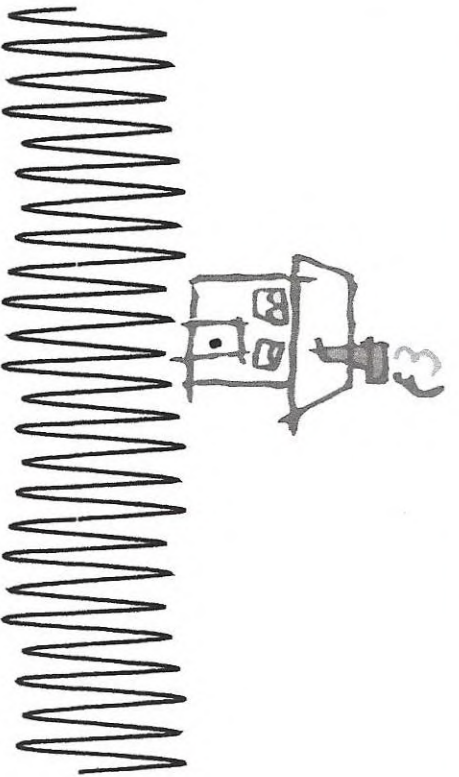
Airblast enters the house through the roof and walls. Like ground vibrations, the frequency and amplitude of the vibrations affect structure response. However the low frequency events (concussion) that most strongly affect structures is normally only a one or two cycle event.

Due to the different arrival times of ground and air vibrations, occupants may feel two distinct impacts on the house.



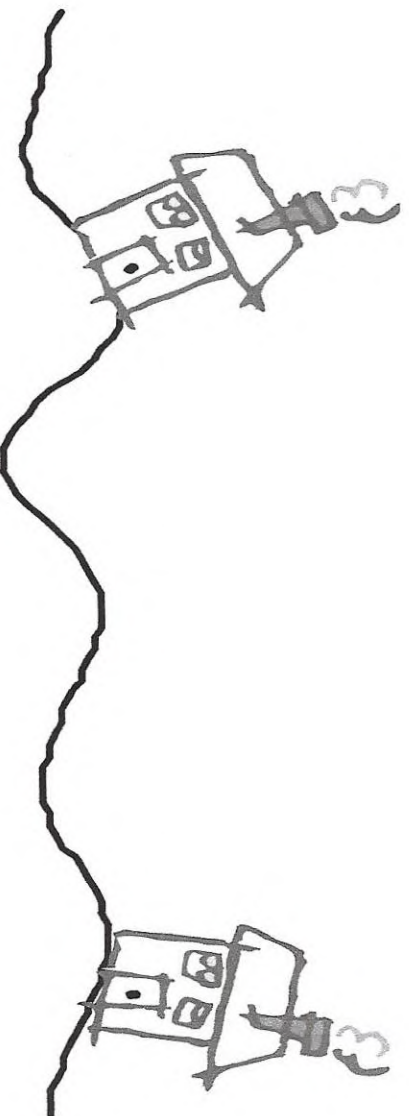
Ground Vibration Structure Response

Exhibit 59



High frequencies do not promote structure shaking. The length of a single high-frequency wave cycle is short as compared with the dimension of a structure. A structure does not significantly respond to high frequencies.

On the other hand, low-frequency wave cycles are long as compared with the dimensions of structures. Accordingly, low frequencies tend to efficiently couple energy into structures and to promote higher-amplitude, long-duration shaking.



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LICENSING

Harvard Men's Health Watch

A noisy problem

People often become more sensitive to noise as they age, which can affect their mental and physical health.

Published: March, 2019



Image: © Juanmonino/Getty Images

Are you more sensitive to noises than you used to be? Do certain sounds now feel too loud and jarring? Don't worry; it's actually quite normal.

Age-related hearing loss is common among older adults and affects about two-thirds of men in their 70s and 85% of men ages 80 and older. Although it's not clear why, this can also make people hypersensitive to sounds that they used to tolerate easily, which in turn can affect their well-being.

"Exposure to noises from crowds, traffic, and other everyday sounds can become harder to tolerate and increase stress levels, leading to anxiety and a reduction in overall quality of life," says Dr. Stephanie Tompkins, an audiologist with Harvard-affiliated Massachusetts Eye and Ear. "As your sensitivity to noises increases, this can lead to greater isolation, too, as you may try to avoid potentially noisy places and situations."



(<https://medcenterblog.uvmhealth.org/>)

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Quiet in the Hospital: How Noise...

Quiet in the Hospital: How Noise Reduction Helps Patients Heal

on June 7, 2018 (<https://medcenterblog.uvmhealth.org/innovations/hospital-noise-reduction/>) in Innovation
(<https://medcenterblog.uvmhealth.org/category/innovations/>) by UVM Medical Center
(<https://medcenterblog.uvmhealth.org/author/uvmmedcenter/>)

Noise. It is present in almost every aspect of our lives. From the traffic in the streets, to the fan that provides us white noise in the background to sleep, noise exists. Unfortunately, like stress, too much of it can have a negative impact on a person's health and rest. Some sounds we do like to hear, such as birds chirping, signaling spring in Vermont, but what about sounds in a hospital?

Many of us get admitted to hospitals when we are too sick to take care of ourselves at home. We expect exceptional care from physicians and nurses and, of course, to rest in order to help our bodies heal. We understand that some noises in a hospital are necessary for care; however, others simply aren't.

The Sounds of a Hospital

Many organizations, including the UVM Medical Center, have high tech equipment, which greatly assists in the delivery of care to our patients, but can also be noisy. Sometimes, healthcare providers are the source of the noise as we interact and communicate with our patients and other health team members.

Another factor is visits from families and friends during visiting hours. It is difficult when one's roommate is trying to rest in the opposite bed. Yet, we need to be cognizant of noise in patient care areas as sounds can be magnified and misinterpreted, increasing agitation and even confusion for some patients.

We become accustomed to the noise; our patients are not.

The Research on Noise, Quiet, and Healing

Research has shown that noise plays a negative role in healing and that decreasing noise in patient care areas aids in healing processes and helps facilitate speedier recoveries for patients. Patients are able to heal, sleep better and recover more quickly when able to rest. A quieter environment can also help decrease burnout for hospital staff.

Studies show that patients are more likely to develop negative side effects from a noisy hospital, such as sleep disturbances, elevated blood pressure and heart rate, and increased use of pain medications.

Noise can also increase annoyance levels for staff. One study indicated noise, such as talking inside and outside patient rooms, is the most common source of noise as well as visitors' voices, TVs, and behaviors of other patients.

Research concluded that best practices to eliminate noise from talking included staff education about noise reduction, public indicators such as sound monitors, a quiet time protocol, and lower cost environmental fixes, such as fixing noisy doors and squeaky wheels. Lastly, by introducing scripting with routine monitoring, patients' perception of quietness increased and the perception of noise decreased.

How We Address Noise at the UVM Medical Center

We introduced the "Culture of Quiet" Organizational initiative. The Nursing Professional Governance Patient and Family Experience Global council continued this work. After convening a small task force of nurses and assessing current quiet strategies, we introduced the following tactics:

- Many hospital units have designated 'quiet hours' with automatically dimming of lights at quiet hour intervals.
- Signage is visible in most patient care areas to help keep patients, family, and visitors aware. Throughout the hospital, you will see signs with a relaxing pair of Adirondack chairs and the sun setting with details on when a unit has quiet hours.
- Many semi-private rooms have windows in doors, so doors can be closed allowing for patient rest.
- We offer headphones for TVs and earplugs to help minimize sounds.
- In-patient kits contain a sleeping mask and other comfort items that can be provided at time of admission. Each kit contains a card and explains, 'the best healing occurs in a quiet environment.'
- New education material is available for staff, patients and visitors-just ask to review the next time visiting.
- Some units offer white noise machines, others have this built in.
- Noisy equipment such as wheels and doors can be tagged and replaced.
- Our facility and distribution staff have changed their cleaning and supply delivery schedules to accommodate patient care.
- Healthcare teams within the hospital are focusing efforts to cluster patient care to minimize interruptions to provide restful moments.

How you can help us.

We ask patients and visitors to hold us accountable when sounds are too loud. We want our community to alert us when noise levels are high and we will do what we can to minimize sound. In turn, we ask that all members of the healthcare team, patients, family, and friends be aware to keep voices soft, cell phones on vibrate, and hold each other accountable for these are the times of the day when our patients take pause to rest and positively impact their healing.

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Dangerous Decibels: Hospital Noise More Than a Nuisance

By Diane Sparacino, Staff Writer

Imagine a world where hospitals have become so noisy that the annoyance has topped hospital complaints, even more than for the tasteless, Jell-O-laden hospital food (Deardorff, 2011). If you're a nurse, you know that we're already there – with noise levels reaching nearly that of a chainsaw (Garcia, 2012). In fact, for more than five decades, hospital noise has seen a steady rise (ScienceDaily, 2005).

But it wasn't always that way. At one time, hospitals were virtually noise-free like libraries – respected spaces, preserved as quiet zones. The culture was such that a loud visitor might be silenced by a nurse's purposeful glare or sharply delivered "Shhh!" As early as 1859, the importance of maintaining a quiet environment for patients was a topic for discussion. In Florence Nightingale's book, "Notes on Nursing," she described needless noise as "the most cruel absence of care" (Deardorff, 2011).

Fast forward to 1995, when the World Health Organization (WHO) outlined its hospital noise guidelines, suggesting that patient room sound levels not exceed 35 decibels (dB). Yet since 1960, the average daytime hospital noise levels around the world have steadily risen to more than double the



acceptable level (from 57 to 72 dB), with nighttime levels increasing from 42 to 60 dB. WHO found that the issue was not only pervasive, but high noise levels remained fairly consistent across the board, despite the type of hospital (ScienceDaily, 2005).

Researchers at Johns Hopkins University began to look into the noise problem in 2003. They maintained that excessive noise not only hindered the ability for patients to rest, but raised the risk for medical errors. Other studies blamed hospital noise for a possible increase in healing time and a contributing factor in stress-related burnout among healthcare workers (ScienceDaily, 2005).

Technology is, of course, partly to blame. State-of-the-art machines, banks of useful alarms, respirators, generators, powerful ventilation systems and intercoms all add up to a lot of unwanted racket. When human voices are added to the mix, (i.e., staff members being forced to speak loudly over the steady din of medical equipment), it's anything but a restful environment. For the recovering patient in need of sleep, that can be a real issue (Deardorff, 2011).

Contributing to the problem, experts say, are the materials used in hospitals. Because they must be easily sanitized, surfaces cannot be porous where they could harbor disease-causing organisms. Rather than using noise-muffling materials like carpet, acoustic tiles and other soft surfaces, hospitals have traditionally been outfitted using smooth, hard surfaces – especially in patient rooms. Good for cleanliness – not so great for dampening sounds, which tend to bounce around the typical hospital (Deardorff, 2011).

Which brings us to the most recent research, published January 2012 in the *Archives of Internal Medicine*. In the report, Jordan Yoder, BSE, from the Pritzker School of Medicine, University of Chicago, and his colleagues associated elevated noise levels with “clinically significant sleep loss among hospitalized patients,” perhaps causing a delay in their recovery time (Garcia, 2012). During the 155-day study period, researchers examined hospital sound levels. The numbers far exceeded (WHO) recommendations for average hospital-room noise levels, with the peak noise at an average 80.3 dB – nearly as loud as a chainsaw or electric sander (85 dB), and well over the recommended maximum of 40 dB. And while nights tended to be quieter, they were still noisier than recommended allowances, with “a mean maximum sound level of 69.7 dB” (Garcia, 2012).

Perhaps most interestingly, the researchers broke down the sources of noise into categories: “Staff conversation (65%), roommates (54%), alarms (42%), intercoms (39%), and pagers (38%) were the most common sources of noise disruption reported by patients” (Garcia, 2012). “Despite the importance of sleep for recovery, hospital noise may put patients at risk for sleep loss and its associated negative effects,” they wrote. In addition, researchers found that the intensive care and surgical wards had some work to do in dampening noise levels, with ICU peaking at 67 dB and 42 dB for surgical areas. Both far exceeded WHO’s 30 dB patient room recommendation (Garcia, 2012).

Besides patient sleep deprivation, which itself can lead to a multitude of health problems including high blood sugar, high blood pressure and fatigue, studies have reported that elevated noise levels can increase heart and respiratory rates, blood pressure and cortisol levels. Recovery room noise causes patients to request more pain medication, and preterm infants “are at increased risk for hearing loss, abnormal brain and sensory development, and speech and language problems when exposed to prolonged and excessive noise” (Deardorff, 2011).

There is still more research to be done, of course, but Yoder and his colleagues had good news, as well; much of the hospital noise they identified is modifiable, suggesting that hospitals can take steps to successfully create a quieter environment for both patients and healthcare providers (Garcia, 2012).

Around the country, "quiet campaigns" have been launched by hospitals in an attempt to dampen nighttime noise. Besides dimming lights and asking staff to keep their voices down at night, they are working to eliminate overhead paging systems, replace wall and/or floor coverings – even the clang of metal trashcans. Northwestern's Prentice Women's Hospital in Chicago was built with noise reduction in mind, replacing the idea of centralized nursing stations with the advent of smaller, multiple stations (Deardorff, 2011)

Billed as "one of the nation's largest hospital construction projects," Palomar Medical Center in North San Diego County is a state-of-the-art facility that has been designed "to encourage quietness," according to Tina Pope, Palomar Health Service Excellence Manager. Slated to open its doors this August, the hospital will feature a new nursing call system to route calls directly to staff and help eliminate the need for overhead paging, de-centralized nursing stations and clear sig lines, allowing staff to check on patients without having to leave unit doors open. With measures already in place including "Quiet Hospital" badges on staff and posters at the entrance of every unit, a "Quiet at Night" campaign (9 p.m. – 6 a.m.), and a "Quiet Champions" program that encourages staff to report noise problems, Palomar is one of a growing number of hospitals working toward a new era of quiet.

References:

Deardorff, J. (2011). Chicago Tribune.com. Chicago Tribune, Health. Hospitals drowning in noise. Retrieved from http://articles.chicagotribune.com/2011-04-24/health/ct-met-hospital-noise-20110424_1_hospitals-neonatal-intensive-care-unit-noise

Garcia, J. (2012). Medscape.com. Medscape Today, News. Hospital Noise Results in Significant Patient Sleep Loss. Retrieved from <http://www.medscape.com/viewarticle/756575>

Sciencedaily.com. (2005). Rise In Hospital Noise Poses Problems For Patients And Staff. Retrieved from <http://www.sciencedaily.com/releases/2005/11/051121101949.htm>

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Noises Are Truly Horrible For People Who Have PTSD

20 Mar '2018 [Sound](#)

Noise is a really big issue for PTSD survivors: people who have mental health problems because of their traumas. How are they connected?

Almost everybody has experienced a trauma. But some traumas are more scarring than others and can even result in long-lasting mental disorders like **PTSD**, which can have an extreme impact on someone's life. It's a disorder that can develop in the brain after a horrifying experience, like war or a car crash.

Symptoms

The symptoms of PTSD are, to say the least, not pleasant. They range from nightmares about the traumatic events, disturbing thoughts and feelings, anxiety, trying to avoid anything that has something to do with the traumatic event, and an increase in the fight-or-flight response.

Around ten percent of the population suffers from PTSD, according to data from **NCBI**, a part of the US National Library of Medicine. And, remarkably enough, that percentage is the same for people who suffer from tinnitus (the sound of a constant beep in your ears). The NCBI clearly sees a link between the two.

PTSD survivors also suffer from the Exaggerated Startle Syndrome, with anxiety and actions in an extreme and irrational way too loud noises and bangs. And then there are the sounds that remind them of the sounds during the traumatic events, which can trigger memories of the



Fear

PTSD can also cause a general fear of sounds: phonophobia, or a fear of some specific sounds: misophonia. Survivors of the disorder also are generally much more sensitive to sounds and perceive them as much louder than other people would.

All of this makes the life of people with PTSD very hard. If you think you are suffering from this, consult your doctor. Really, please do it. For yourself, and for the ones you love.

Do you have PTSD and would you like to tell your experiences to us? We are always very open and interested to hear what you have to say. And again: if you haven't done it yet, visit your doctor, please. Thank you!

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Does noise affect learning? A short review on noise effects on cognitive performance in children

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Abstract

The present paper provides an overview of research concerning both acute and chronic effects of exposure to noise on children's cognitive performance. Experimental studies addressing the impact of acute exposure showed negative effects on speech perception and listening comprehension. These effects are more pronounced in children as compared to adults. Children with language or attention disorders and second-language learners are still more impaired than age-matched controls. Noise-induced disruption was also found for non-auditory tasks, i.e., serial recall of visually presented lists and reading. The impact of chronic exposure to noise was examined in quasi-experimental studies. Indoor noise and reverberation in classroom settings were found to be associated with poorer performance of the children in verbal tasks. Regarding chronic exposure to aircraft noise, studies consistently found that high exposure is associated with lower reading performance. Even though the reported effects are usually small in magnitude, and confounding variables were not always sufficiently controlled, policy makers responsible for noise abatement should be aware of the potential impact of environmental noise on children's development.

Keywords: noise, cognitive performance, cognitive development, children, speech perception, listening comprehension, irrelevant sound effect, classroom acoustics

In everyday life, cognitive tasks are often performed in the presence of task-irrelevant environmental noise. Accordingly, numerous studies on noise effects on performance have been conducted since the middle of the 20th century (for reviews see Hellbrück and Liebl, 2007; Szalma and Hancock, 2011), showing that—depending on characteristics of sounds and tasks—noise of low to moderate intensity may in fact evoke substantial impairments in performance.

Most of these studies were conducted with adults. The present review, however, will focus on studies including children. Children are especially vulnerable to harmful effects of environmental noise, as cognitive functions are less automatized and thus more prone to disruption. We will report findings concerning effects of acute noise on performance in concurrent auditory and non-auditory tasks, as well as effects of chronic noise on children's cognitive development.

Effects of acute noise on children's performance in auditory tasks

Psychoacoustic studies have consistently shown that children's speech perception is more impaired than adults' by unfavorable listening conditions. The ability to recognize speech under conditions of noise or noise combined with reverberation improves until the teenage years (Johnson, 2000; Wightman and Kistler, 2005; Talarico et al., 2007; Neuman et al., 2010). With stationary noise makers, signal-to-noise ratios (SNRs) have to be 5–7 dB higher for young children when compared to adults in order to achieve comparable levels of identification of speech or nonspeech signals, with adult-like performance reached at about 6 years of age (Schneider et al., 1989; Fallon et al., 2000; Werner, 2007). However, with maskers that vary over time, i.e., with trial-by-trial variation of the maskers' spectral composition (Oh et al., 2001; Hall et al., 2005; Leibold and Neff, 2007) or with fluctuating maskers such as single-talker speech (Wightman and Kistler, 2005), adult-like performance is usually not reached before the age of 10 years. Furthermore, children are less able than adults to make use of spectro-temporal and spatial cues for separation of signal and noise (Wightman et al., 2003; Hall et al., 2005). These findings demonstrate that children are especially prone to *informational* masking, i.e., masking that goes beyond energetic masking predicted by filter models of the auditory periphery.

Studies identified a range of linguistic and cognitive factors to be responsible for children's difficulties with speech perception in noise: concerning the former, children are less able than adults to use stored phonological knowledge to reconstruct degraded speech input. This holds for the level of individual phonemes, as children's phoneme categories are less well specified than adults' (Hazan and Barrett, 2000), but also for the lexical level since children's phonological word representations are more holistic and less segmented into phoneme units. Therefore the probability of successfully matching incomplete speech input with stored long-term representations is reduced (Nittrouer, 1996; Metsala, 1997; Mayo et al., 2003). In addition, young children are less able than older children and adults to make use of contextual cues to reconstruct noise-masked words presented in sentential context (Elliott, 1979). Concerning attention, children's immature auditory selective attention skills contribute to their difficulties with speech-in-noise perception. Children's susceptibility to informational masking has been attributed to deficits in focusing attention on auditory channels centered on signal frequencies, while ignoring nonsignal channels (Wightman and Kistler, 2005). Behavioral and ERP measures from dichotic listening paradigms provide evidence that auditory selective attention improves throughout entire childhood (Doyle, 1973; Pearson and Lane, 1991; Coch et al., 2005; Wightman et al., 2010; Gomes et al., 2012).

Owing to the mediating role of linguistic competence and selective attention, children with language or attention disorders are still more impaired than normally developing children by noise in speech perception tasks (Geffner et al., 1996; Ziegler et al., 2005, 2009). A stronger noise effect is also evident for children tested in their second language when compared to native children (Crandell and Smaldino,

Autism & Anxiety: Parents seek help for extreme reaction to loud noise

September 5, 2018

Our 12-year-old son has autism, mild intellectual disability and anxiety attacks so severe that we end up in the emergency room. Loud noises are the worst – for example the school fire alarm, thunderstorms, a balloon popping, fireworks. Any help would be greatly appreciated.



This week's "Got Questions?" answer is by Judy Reaven, a clinical psychologist and associate professor of psychiatry and pediatrics at the University of Colorado School of Medicine and Children's Hospital Colorado, in Denver. Dr. Reaven's conducted research on the effectiveness of cognitive-behavioral therapy for anxiety in adolescents with autism, with the support of an [Autism Speaks research grant](#).

Editor's note: The following information is not meant to diagnose or treat and should not take the place of personal consultation, as appropriate, with a qualified healthcare professional and/or behavioral therapist.

Thanks for the great question. It certainly sounds like your family is experiencing a very difficult situation. Anxiety symptoms and reactions are very common in individuals with autism spectrum disorder (ASD). They can interfere with functioning across home, community and school settings.

Although your son's reaction sounds more severe than most, many people with autism struggle with a range of fears, phobias and worries. These can range from a debilitating fear of, say, spiders or the dark to chronic anxiety about making mistakes or being late.

Fortunately, recent research suggests that anxiety in children and adults who have autism is quite treatable. Often, these individuals are helped by the same or similar strategies that work well in treating anxiety in the general population.

These approaches include cognitive behavior therapy, or CBT. Cognitive-behavioral approaches are well-established, evidenced-based treatments that have become the gold standard of psychosocial treatments for anxiety. [My own research](#) and that of my colleagues has demonstrated the helpfulness of modifying cognitive-behavioral approaches to address the special needs of those who have autism.

Where to begin?

You describe a number of fears that may be related to sensory sensitivities. I recommend that you begin by consulting an occupational therapist who can assess whether your son's extreme sensitivities to noises are part of a broader sensory processing disorder. If this is the case, and if your son's fears are exclusively triggered by sensory stimuli, then his symptoms may be best addressed by a sensory-focused intervention. Many occupational therapists who specialize in autism receive special training in this area.

It's common for children with ASD and anxiety to become extremely frightened in response to sensory stimuli. Perhaps – like many individuals with autism – your son also has difficulty telling you what's scaring him. Instead, he may show his fear with extreme avoidance of a situation.

For example, he might refuse to go to school after a fire drill. He might become fearful of birthday parties after being frightened by a balloon that popped unexpectedly. Other signs of extreme distress can include yelling, crying, clinging and general agitation. Because your son may have difficulty communicating, it's important to observe his behavior for these signs of distress. This can help you determine what's triggering his fears.

Avoidance versus learning to cope

Many parents go to great pains to protect their children by avoiding agitating situations. This approach is sometimes appropriate and even necessary. However, it denies individuals the opportunity to learn how to manage anxiety-provoking situations on their own.

By helping your son learn to manage his fear, you can prepare him for an unpredictable world so that he can participate in it to the maximum extent possible.

Given the severity of your son's anxiety symptoms, I suggest that you seek professional support in addition to the strategies offered here. Families whose children have milder symptoms of anxiety can try these strategies on their own – seeking professional help if symptoms worsen.

Tackling one fear at a time

I suggest making a list of your child's major fears and worries. Try to rank order them from mild to severe. To encourage success, I'd start with a mild-to-moderate fear before taking on his extreme reaction to loud noises.

Key components of a cognitive behavioral approach include introducing coping strategies such as deep breathing and "helpful thoughts" that can help a person manage fearful reactions.

For example, you can teach your son to take deep slow breaths to help manage his body's physical anxiety reactions.

"Helpful thoughts" are statements that your son can say to himself when faced with a situation that makes him anxious. For example, you can coach to your son to say, "This is a loud noise. I don't like it, but I can handle it."

To help your son to learn these strategies, I suggest you model taking deep breaths while repeating a "helpful thought" out loud.

Graded exposure

The most important step is to help your son face his fears a little at a time. We call this "graded exposure." For example, explain to your son that the two of you are going to listen to a recording of thunder. The first time, you might play the recording at a soft volume, then gradually increase the volume over time as he demonstrates increased comfort with the sounds.

Or you might try watching a video of a balloon pop – perhaps with the volume off the first time. Then he can watch a real balloon pop while standing some distance away. Over time, he can move closer and closer to the balloon.

After such exercises, you can present him with small rewards for being brave and "facing fears." Remember that even a small act of bravery – such as listening to a recording of thunder for 10 seconds – represents an important step toward handling fears. It deserves to be acknowledged.

Although graded exposure may seem counterintuitive, research indicates that this strategy is the single most effective strategy for getting over a particular fear.

I wish you and your son the very best. Please let us know how you're doing with an email to GotQuestions@autismspeaks.org.

60
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Additional Resources & Tools

EXPERT OPINION

[Help for Child with Autism & Recurring Behavioral Crises: Part 2](#)

EXPERT OPINION

[Parents Seek Help for Son with Autism and Recurring Behavioral Crises](#)





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I have read the attached letter regarding noise and it expresses my concerns and my request to abandon the use of the proposed route for the Boardman to Hemingway Transmission Project and that it be rerouted to an area that is much less impactful to the residents of La Grande and to the surrounding area.

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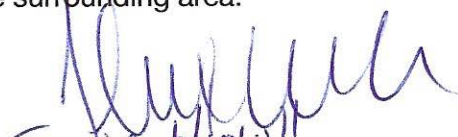
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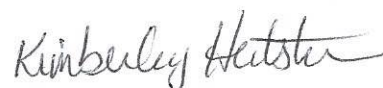
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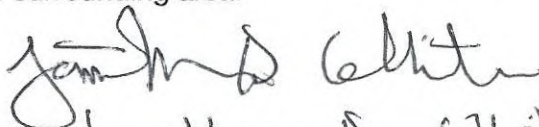
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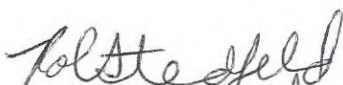
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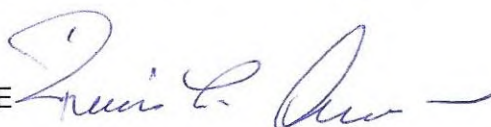
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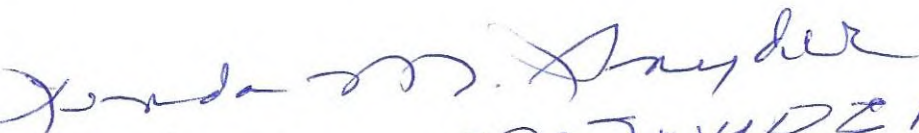
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B2H EFSC LACK OF DOCUMENTATION FOR GREAT GRAY OWL AND FLAMMULATED OWL

The surveys provided for these two species are too old to be a reliable indicator of the presence or impacts to these bird species. They were done in 2011 and 2012, seven years ago. On Page P1-9, Table P1-1 the applicant proposes doing updated surveys only on areas not previously surveyed and submitting them to only ODOE. This type of secretive procedure where the public is completely removed from any opportunity to comment or review the decisions being made by ODOE is the basis for a great deal of public dissatisfaction with the process currently being supported by ODOE and EFSC.

There is no current information in the application to base any decision regarding what the impacts will be to these birds as a result of the Boardman to Hemingway Transmission Line. A site certificate cannot be issued determining compliance with OAR 345-022-0060 without knowing what the use of the area is by wildlife. In addition, since habitat category must include the use of the habitat by species, the habitat categories cannot be determined until the developer provides the necessary current information. Given that the area of the Ladd Marsh Wildlife area is not only protected, but also contains both federal and state mitigation areas, it is not possible to determine whether or not the development will have unacceptable impacts to these mitigation sites absent information regarding the use of the adjacent habitat by wildlife utilizing the mitigation sites and whether or not the habitat will be compromised making it unsuitable for use of the species due to impacts of the development. Considering the lack of information near Ladd Marsh Wildlife area, one must question why.

Ladd Marsh is an important Migratory Bird Flyway according to the Oregon Department of Fish and Wildlife (ODFW 2008.) The Audubon Society lists it as an Important Bird Area. The number of bird species using this area has expanded in the last several years, however, in 2008 over 230 species of birds had been recorded on LMWA and over 120 species nest in the area and yet the developer appears to be ignoring the importance of not only the wildlife area, but also the habitat surrounding the wildlife area which is critical to the survival of birds moving in and out of the mitigation sites.

Signature/Name

 Shannon Garrison

Address:

488 Hawthorne Dr
LaGrande, OR

August 5, 2019

Energy Facilities Siting Council
c/o Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol St. NE
Salem, OR 97301

B2H.DPOComments@Oregon.gov

Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018; Draft Proposal Order May 23, 2019.

Chair Beyeler and Members of the Council:

I am very concerned about the Boardman to Hemingway Transmission Project as it is proposed. My concerns are for the safety of myself and all of the citizens of La Grande if this line is permitted. My primary concerns are slope instability and wildfire hazard.

The proposed route sited to the west of La Grande is placed on a ridge noted to have instability and high risk for slides. The geologic study provided by Idaho Power references several studies (below).

Table H-2. USGS Quaternary Faults within 5 Miles of Project by County on page H-12 clearly shows that the project is placed right on an active fault in the West Grande Ronde Valley Fault Zone. In addition, in exhibit H, Geological Hazards and Soil Stability, Table B3: Soils Descriptions, Union County, much of the erosion hazard is rated "severe." Below is part of the report:

5.2 La Grande Area Slope Instability

As part of our study, we reviewed DOGAMI's open file report: Engineering Geology of the La Grande Area, Union County, Oregon, by Schlicker and Deacon (1971). The study identified several landslides in the areas west and south of La Grande. The majority of the landslide features mapped by Schlicker and Deacon (1971) were similarly mapped as landslides or alluvial fans in Ferns and others (2010). The current SLIDO database uses the feature locations mapped in Ferns and others (2010). While the two map sets generally agree, there are differences in the mapped limits of some landslide and alluvial fan areas, and there is one landslide area in Schlicker and Deacon (1971), near towers 106/3 and 106/4, which is not included in SLIDO or Ferns and others (2010). The Landslide Inventory in Appendix E includes mapped landslide and alluvial fan limits from both SLIDO and Schlicker and Deacon (1971).

This slope instability is not inconsequential to a project like this. Recall in 2014, Oso, Washington, was the site of a catastrophic mudslide as the result of logging disturbance of the soil upslope from the town combined with significant rainfall. This resulted in 43 fatalities. We must learn from previous mistakes in not heeding the geologists' warnings. The area down slope from the proposed B2H line lies the Grande Ronde Hospital and Clinics, which employs hundreds of people and is the critical access hospital for this region. La Grande High School and Central Elementary School are also positioned down slope from the proposed towers. At least 100 homes are positioned down slope of the proposed towers. According to "Engineering Geology of the La Grande Area, Union County, Oregon" maps published by Schlicker, and Deacon (1971), the ENTIRE area of the hillside is deemed a "landslide area" in the La Grande SE quadrangle. This is not a safe place for a transmission line.

The next significant hazard to our community is wildfire. Oregon is ranked 8th Most Wildfire Prone state in the United States according to Verisk Wildfire Risk analysis. La Grande is ranked in the top 50 communities in Oregon with the greatest cumulative housing-unit exposure to wildfire as referenced in "Exposure of human communities to wildfire in the Pacific Northwest," by Joe H. Scott, Julie Gilbertson-Day and Richard D. Stratton (available at http://pyrologix.com/ftp/Public/Reports/RiskToCommunities_OR-WA_BriefingPaper.pdf). Finally the proposed route is in the vicinity of Morgan lake, the highest risk area (#1) in Union County in terms of wildland-urban interface, according to the County's Community Wildfire Protection Plan, August 10, 2005.

Cal Fire cites Pacific Gas and Electric equipment and power lines as the cause of numerous wildfires in the state in the last 2 years. This includes the Camp Fire in Butte County (2018), Tubbs Fire in Napa/Sonoma Counties (2017), Witch Fire in San Diego (2007), Valley Fire in Lake/Napa/Sonoma Counties (2015), Nuns Fire in Sonoma County (2017), which were all attributed to transmission.

The Boardman To Hemingway Transmission Line Project proposal places lines about 2000 feet or less than half a mile from the La Grande city limits, including medium density housing within the city as well as Grande Ronde Hospital. If a line from this proposed route were to spark a fire, La Grande residents would have little time to react. According to National Geographic, wildfires can move as fast as 6.7 mph in forests and 14 mph in grasslands. A fast-moving fire starting at the B2H lines could move to residential areas of La Grande and HOSPITAL in 10 minutes. This is frightening and an unacceptable risk for our citizens.

The current proposal for a Boardman to Hemingway transmission line does not adequately address the issue of landslides, basically by stating it will be mitigated somehow when the time comes to build. The proposal offers no analysis of wildfire risk, which is an unacceptable omission. All of the routes proposed are unsafe and create an unacceptable risk to the citizens of La Grande.

The Council should DENY the request for a site certificate.

Sincerely,



Name:

Shanna Garrison

Address:

488 Hawthorne Dr. La Grande, OR
La Grande, OR. 97850

TARDAEWETHER Kellen * ODOE

From: Marie Gaylord <marie.gaylord@gmail.com>
Sent: Saturday, June 22, 2019 12:34 PM
To: B2H DPOComments * ODOE
Subject: Stop B2H Transmission Line

Hello,

I am writing out of concern for both the projected routes of this transmission line and it being built at all. There are three proposed routes that go near where I live in La Grande, OR. The blue line goes through a black bear den sight that has successfully raised cubs for the last two years. This is also a haven for deer and elk to birth their fawns and calves as the attached pictures show. All three lines will affect elk and deer migration which would have to pass directly under all of the proposed routes to get from Ladd Marsh and the Grande Ronde Valley to their summer grounds high in the mountains. The elk and deer come to these mountainous areas to not only give birth, but raise their young, and breed. There are few scientific studies that have been done to definitively say how this transmission line will affect elk migration, but they do show that elk calving is negatively effected by the presence of transmission lines.

Furthermore, I have personally seen wolves on Glasshill Rd numerous times starting in 2017. If wolves are now denning in this area, then they should be considered in the construction and route of this transmission line. The predator prey relationship is just reestablishing itself after years of overhunting and mismanagement, and adding a this line into the mix will set back this recovering ecosystem.

Other animals to take into consideration is the Columbia Spotted Frog which I have seen in the both the headwaters of Sheep Creek and in Morgan Lake which is close to the blue route. These are sensitive species that require wetland habitat especially for developing egg masses and juveniles. Most adults live in running water or permanent wetlands which are becoming more and more fragmented and destroyed. Their numbers have seen a significant decrease in the last 50 years and will be negatively impacted by not just the building of the transmission line but the warm temperatures associated with clear cutting near streams and other bodies of water. Because Sheep Creek is an intermittently flowing stream, a decrease in Large Woody Material (LWM) recruitment would have a greater negative impact on water retention and temperature regulation. Sheep Creek flows into Rock Creek that then flows into the Grande Ronde River. If we reduce shade coverage created by trees and reduce the potential of LWM recruitment, then water temperatures will rise making the stream uninhabitable for these amphibians.

Moreover, because Sheep Creek is part of the Grande Ronde Watershed, it should be protected due to its contribution to ESA listed fish spawning habitat. Rock creek is a perennial stream that helps maintain the Grande Ronde River temperature especially during the peak summer months, and if Rock Creeks and two of its tributaries (e.g. Sheep Creek and Graves Creek) will be clear cut at multiple locations then this watershed will see a significant reduction in productivity. It is possible that ESA listed fish such as Bull Trout are using Rock Creek and eDNA should be done on this creek and its tributaries to see which fish species are present. In addition, the reduction in LWM and root mass will increase unstable banks causing erosion and an increase in sediment. Erosion can lead to flash floods and early spawning fish and amphibians to have their eggs and egg masses more easily swept away. The increase in sediment is a large contributor to both fish and amphibian eggs being smoothed and not hatching, thus further reducing productivity.

Lastly, migrating waterfowl that require deeper lakes such as Morgan Lake (especially the smaller lake) provides needed respite and save haven. Species such as Common Loons and grebes use this area in spring and

fall migration. This is one of only two locations (the other being Thief's Valley Reservoir) in which Common Loons are seen in this area. A transmission line would be an impediment on their yearly migration to and from Canada and would ultimately cause bird deaths.

I hope these points will be considered when choosing to continue this projects and which route is chosen.

Sincerely,

Marie Adele Gaylord





ESTERSON Sarah * ODOE

From: Susan Geer <susanmgeer@gmail.com>
Sent: Thursday, August 22, 2019 12:40 PM
To: B2H DPOComments * ODOE
Subject: Comment on weeds
Attachments: Geer_Comment_2019_weeds.docx

Please find my comment, attached

August 22, 2019

Energy Facilities Siting Council
c/o Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
Via email B2H.DPOComments@Oregon.gov

Subject: Idaho Power Amended Application for the Boardman to Hemingway Transmission Project dated 9/28/2018; Draft Proposed Order dated 5/22/2019

Dear Chair Beyeler and Members of the Council;

I am a Botanist/Ecologist who has worked in eastern Oregon for over 20 years; although employed by Wallowa Whitman National Forest, I write to you today as a Union County citizen and landowner. I have reviewed Idaho Power Company's (IPC's) amended Application and offer the following comments for the consideration by the council in their decision on the pending Application for Site Certificate.

With regards to Exhibit P, IPC's "Noxious Weed Plan" (DPO Attachment P 1-5) is vastly inadequate and presents a threat to Oregon's native plant communities/wildlife habitat, promotes risk from wildfire, and presents a public menace. Oregon statute 569.180 (Noxious weeds as public nuisance policy) states, "In recognition of the imminent and continuous threat to natural resources...noxious weeds are declared to be a public nuisance and shall be detected, controlled and, where feasible, eradicated on all lands in this state." Chapter 569 of Oregon law covers weed control https://www.oregonlegislature.gov/bills_laws/ors/ors569.html including obligation of land occupant:

569.390 Owner or occupant to eradicate weeds. Each person, firm or corporation owning or occupying land within the district shall destroy or prevent the seeding on such land of any noxious weed within the meaning of ORS 569.360 to 569.495 in accordance with the declaration of the county court and by the use of the best means at hand and within a time declared reasonable and set by the court, except that no weed declared noxious shall be permitted to produce seed.

Excellent comments were provided in "B2H Noxious Weed Plan Comments" by a large group of weed professionals, submitted by Brian Clapp of Union County. The document states, "The County Weed Supervisors of Morrow, Umatilla, and Union counties met with the Oregon Dept. of Ag and Tri-County CWMA on August 22, 2017 to go over the B2H Attachment P1-5 Noxious Weed Plan. In conjunction with comments from previous meetings with Malheur and Baker county weed supervisors, the following list of concerns was developed..." IPC's Noxious Weed Plan of 2018 (Attachment P1-5) does NOT include the suggestions made by the weed managers.

The foremost finding by weed managers in 2017 was that IPC illegally excludes themselves from responsibility for the FULL list of weeds. In 2018, IPC's Weed Plan still only obligates IPC to control weeds in Class A and Class T lists. It is widely recognized that these weed "Classes" are determined according to agricultural priorities, not according to which weeds are the biggest threats to natural areas. Treating only Class A and T, a shorter list of weeds which are not very common, is especially devastating for natural areas, i.e. the vast majority of the proposed B2H routes. Any invasive plant can devastate an area- regardless of which "list" it is on. In fact, Class B and C weeds are generally the worst weeds and tend to be those which are spreading most aggressively and to more areas, thus threatening and ultimately devastating the most native habitat. The Weed Managers state, "Every landowner and

land manager is responsible for the control of ALL state and county listed noxious weeds on their property/ ROW. Whether the weeds have been here for 50 years or don't show up till the 20th year of Operation, IPC will be held responsible for the control of noxious weeds in the areas they manage-the same as everyone else." IPC has offered nothing in response.

As an example of serious weeds that would be excluded according to IPC, two of the worst weeds which occur in Union County, *Leucanthemum vulgare* (ox eye daisy) and *Rosa rubiginosa* (sweet briar rose) are NOT included in Table 1 of the Weed Plan "Designated Noxious Weeds". These species are listed in Union County Class B <http://union-county.org/wp-content/uploads/2017/04/Union-County-Weed-List-2019-and-cost-share-Ad.pdf>. Other "Class B" list weeds include sulphur cinquefoil, whitetop, diffuse and spotted knapweed – all among the very worst noxious weeds, present in the proposed areas of disturbance and certain to spread to currently intact native plant communities, should B2H construction proceed. These weeds, which are even now devastating thousands of acres of native plant communities, would not be treated under IPC's Weed Plan – and neither would any of the other dozens of species on Class B and C lists, not to mention new invasives, which take some time to be added to a list. Union County Class "B" list alone includes 24 noxious weeds. Other landowners are required to follow County and State laws and control ALL noxious weeds. Why should Idaho Power be exempt?

Weed Surveys provided in Exhibit P-1 part 2a and b are misleading; many species which would NOT be controlled by IPC under their "Weed Plan" were included in the surveys. Surveys were done between 3-8 years ago, a very long time in terms of weed spread! Surveys done so long ago using an outdated list and in such an artificially limited area are not acceptable.

In addition to exempting themselves from the full list of weeds, IPC's Post Construction treatments is otherwise ridiculously limited and unacceptable. In fact I could not believe the State Weed Program would sign off on it. Perhaps they did not. No comments were provided in DPO Attachment 3, "Reviewing Agency Comments". Here is an excerpt from the IPC Plan (Monitoring 6.1):

As stated above, noxious weed monitoring and control will occur during the first 5-year period. When it is determined that an area of the Project has successfully controlled noxious weeds at any point during the first 5 years of control and monitoring, IPC will request concurrence from ODOE. If ODOE concurs, IPC will conclude that it has no further obligation to monitor and control noxious weeds in that area of the Project. If control of noxious weeds is deemed unsuccessful after 5 years of monitoring and noxious weed control actions, IPC will coordinate with ODOE regarding appropriate steps forward. At this point, IPC may suggest additional noxious weed control techniques or strategies, or may request a waiver from further noxious weed obligations at these sites.

Anyone who has tried to control weeds will realize that by treating weeds only once per year, many will be missed and weeds will spread. Further, noxious weeds cannot be "successfully controlled" in 5 years. My observations of disturbed areas on both public and private lands show that weed treatment and monitoring must continue in *perpetuity* to keep those areas weed free. An Alberta study by Cole et. al. in 2007 concluded, "Eradication attempts usually involve mechanical removal to prevent seed spread, followed by a systemic, residual herbicide treatment well beyond the infestation site. The key to the extirpation of these invasive plants is the on-going locating, marking, monitoring and managing by the municipalities, agricultural field men and land owners..." The treatment that IPC proposes fail in all ways; they are neither "on-going" nor do they extend "well beyond the infestation site". If there is any marking, monitoring and managing, IPC will be long gone and leaving that burden to residents and

County and State. It seems ludicrous that IPC be allowed to appeal to ODOE after 5 years to claim areas of the "Project" had "successfully controlled weeds"- and then be exempted from further responsibility-- while invasives return as soon as herbicide treatments cease.

In the same unreasonable vein, the Plan further states, "if control of noxious weeds is deemed unsuccessful...IPC will coordinate with ODOE regarding appropriate steps forward," including "request a waiver from further noxious weed obligations". Essentially IPC comes by once per year for 5 years at most, inevitably fails in weed control, and is ultimately not responsible. Landowners and County are burdened with more weed control, and our ever-shrinking valuable native plant communities are compromised or eliminated, leaving native animals without habitat.

IPC's Plan further states they are not responsible for "areas outside of the right of way (ROW)". Weed sites immediately outside areas of potential disturbance are nearly certain to but would not be recorded or treated! Noxious weeds spread quickly, often exploding exponentially in a single season. IPC is proposing a HUGE area of disturbance; their responsibility should not be limited to the ROW.

As IPC has proposed only annual treatments, one can surmise they would use primarily residual herbicides. Residual herbicides may seem like the answer to the dilemma of weeds constantly in seed production. Herbicides such as aminopyralid and imazapic have become the herbicides of choice for many species. I have been using these herbicides for years now and have found they prevent germination for up to 3 years following application in eastern Oregon. This means germination of native plants as well as weeds. Bare spots are created where weeds once were. Revegetation by anything at all is prevented. After 2-3 years when the soil born chemical is reduced, weeds pioneer the site. In addition, native plants next to the weeds can die as a result of root uptake of the herbicide even though they were not sprayed directly. When using aminopyralid, willows, aspen, conifers (especially larch) and desirable native forbs in certain families are often killed in this way. Successful revegetation very unlikely. Since IPC is proposing to treat weeds for only 5 years, it is very likely a couple of treatments using residual herbicides would suppress weeds for that time, only to explode on the – now bare—areas once occupied by valuable native plants.

In summary, IPC's Noxious Weed Plan does not comply with Chapter 569 of Oregon law. IPC denies responsibility for control of most weed species, denies responsibility for weed control after 5 years, controls weeds only annually, and even allows them a waiver when control has failed. EFSC should reject the Weed Plan and Application. As a condition of re-applying, IPC should be required to post a bond to secure weed management for the lifetime of the project, which they claim is 45 years. Much is at stake, and there is no going back when thousands of acres of native plant communities are lost to invasives.

Sincerely,

Susan Geer
906 Penn Ave.
La Grande OR 97850
susanmgeer@gmail.com
541-963-0477

ESTERSON Sarah * ODOE

From: Susan Geer <susanmgeer@gmail.com>
Sent: Thursday, August 22, 2019 4:31 PM
To: B2H DPOComments * ODOE
Cc: Fuji Kreider
Subject: Comment on rare plant and plant communities
Attachments: Geer_EFSC_comment_rareplants_2019.docx

Find attached

August 22, 2019

Energy Facilities Siting Council

C/o Kellen Tardaewether, Senior Siting Analyst

Oregon Department of Energy

B2H.DPOComments@Oregon.gov

Subject: Idaho Power Amended Application for the Boardman to Hemingway Transmission Project dated 9/28/2018; Draft Proposed Order dated 5/22/2019

Dear Chair Beyeler and Members of the Council;

In my previous letter I wrote to you outlining problems with Idaho Power's Noxious Weed Plan, part of their amended Application for Site Certificate. Here I offer comments on the implications for rare plants and State-listed priority unprotected plant communities, should IPC's Amended Application be accepted.

First of all, I was dismayed to learn that Oregon Department of Agriculture Rare Plant program did not provide comments (DPO Attachment 3, Reviewing Agency Comments). Upon contacting Oregon's Rare Plant Co-coordinator, I learned that no funding was provided to him for that task! It is a tremendous oversight and disservice to Oregon's rare plants, to have no State involvement in an application with such HUGE potential impacts to Oregon's rare plants and habitats.

The Threatened and Endangered Species Standard at Oregon Administrative Rule (OAR) 345-022-0070 provides:

To issue a site certificate, the Council, after consultation with appropriate state agencies, must find that:

(1) For plant species that the Oregon Department of Agriculture has listed as threatened or endangered under [Oregon Revised Statute (ORS)] 564.105(2), the design, construction and operation of the proposed facility, taking into account mitigation:

(a) Are consistent with the protection and conservation program, if any, that the Oregon Department of Agriculture has adopted under ORS 564.105(3); or

(b) If the Oregon Department of Agriculture has not adopted a protection and conservation program, are not likely to cause a significant reduction in the likelihood of survival or recovery of the species

Furthermore, Site Certificate applicant requirements OAR 345-021-0010(1)(q) requires Exhibit Q include the following:

(A) Based on appropriate literature and field study, identification of all threatened or endangered species listed under ORS 496.172(2), ORS 564.105(2) that may be affected by the proposed facility.

(B) For each species identified under (A), a description of the nature, extent, locations and timing of its occurrence in the analysis area and how the facility might adversely affect it.

(C) For each species identified under (A), a description of measures proposed by the applicant, if any, to avoid or reduce adverse impact.

(D) For each plant species identified under (A), a description of how the proposed facility, including any mitigation measures, complies with the protection and conservation program, if any, that the Oregon Department of Agriculture has adopted under ORS 564.105(3).

(E) For each plant species identified under paragraph (A), if the Oregon Department of Agriculture has not adopted a protection and conservation program under ORS 564.105(3), a description of significant potential impacts of the proposed facility on the continued existence of the species and on the critical habitat of such species and evidence that the proposed facility, including any mitigation measures, is not likely to cause a significant reduction in the likelihood of survival or recovery of the species.

(F) concerns only animals

(G) The applicant's proposed monitoring program, if any, for impacts to threatened and endangered species.

1

To say that IPC meets these requirements is a stretch of the imagination!

First of all, an incomplete and outdated plant list was used in surveys. Exhibit P, Attachment P1-2 Revised Final Biological Survey Workplan, 3.2.1 "Agency Survey Requirements" states that ODA "requires that state-listed threatened and endangered species, which appear on ORNHIC List 1 and have the potential to occur in the project area, be considered for survey...Regardless of land ownership, suitable habitat for sensitive plants will be identified during the pre-survey vegetation mapping phase and refined during the species-specific surveys. Appendix C-2 provides information on sensitive species with the potential to occur within the project area."

In fact, the State entity which maintains the state list is ORBIC, not ORNHIC. Appendix C-2 is undated and contains only 8 of the 64 State T & E plants listed by ODA in 2019 (<https://inr.oregonstate.edu/orbic/rare-species/ranking-documentation/vascular-plant-ranks>). The likely conclusion is that most current State T & E plant species were not included in surveys. Also, strangely, neither OR/WA BLM, nor USFS Region 6, which jointly participate in ISSSP (Interagency special status/sensitive species program <https://www.fs.fed.us/r6/sfpnw/issssp/agency-policy/>) are mentioned at all! Instead, Idaho State BLM program plant are listed in Attachment P1-2, Appendix C-2. ISSSP list was updated in 2015 and again in 2018; apparently none of those revisions were acknowledged by IPC in their surveys.

Exhibit Q part 3.4.2.3 "Summary of Potential Adverse Effects to Plants" finally mentions using 2016 **agency data** "BLM (2016), ORBIC (2016a), IDFG (2016), and USFS (2016) databases, along with field survey data results (see Exhibit P1, Attachment P1-7A, Biological Surveys Summary Report), were combined in GIS to generate species occurrence information". These references to 2016 lists appear to have only been added **post-survey** and hardly make up for the fact that IPC sponsored surveys themselves did not use proper or updated plant lists.

While I realize this a review of State mandates, not federal ones, all agencies purport to co-operate with each other in the effort to manage rare species to avoid further listing. Failing to use updated plant lists reflects negatively on IPC, and failure to survey for ISSSP species reflects negatively on both IPC and the State of Oregon. It is incredible to me that the BLM and USFS have signed off on this (2018 Record of Decision). I believe this is a gross oversight. **It is imperative EFSC halt this faulty process immediately and require ODA Rare Plant Program involvement and comments and surveys for ISSSP list plants!**

Secondly, in contrast to the wording in (OAR) 345-022-0070, **no** State listed plants have a conservation program in place. Undoubtedly, this is because the State has not yet developed the programs. IPC does not propose any either. In addition, no critical habitat is named for any of the species. The State has apparently not found time or funding for ODA to address this; IPC does the bare minimum and does not provide any conservation program or critical habitat either. To add insult to injury, IPC does not propose **any** monitoring programs (as suggested) for impacts to T&E species!

Even with inadequate plant lists and little access to private lands, 5 State listed T&E plant species (DPO Exhibit Q) were found in surveys of the B2H "analysis area". IPC claims "only" two of these rare species (Mulford's milkvetch and Snake River goldenweed) will suffer "direct impacts", by blading with heavy equipment. IPC claims that, "Avoidance and minimization measures ...described in Section 3.5.4" will "mitigate" impacts. Upon reading 3.5.4 we find that this consists of "minimum buffer of 33 feet

between the disturbance and the edge of the T&E occurrence". Habitat for these plants will be completely fragmented and a buffer of 33 – or even a few hundred--feet will not stop invasion by noxious weeds. OAR 345-022-0070 says *the design, construction and **operation** of the proposed facility*, - following their "Noxious Weed Plan" IPC stops treating weeds after 5 years, leaving T&E plants to be overwhelmed! T&E species will suffer irreparable damage under B2H. The Oregon Conservation Strategy rightly recognizes, "Invasive species are the second-largest contributing factor causing native species to become at-risk of extinction in the United States."

To delve further into rare plants slated for damage by B2H, *Trifolium douglasii* is a USFWS "Species of Concern" <https://www.fws.gov/oregonfwo/Documents/OregonSpeciesStateList.pdf> yet not even considered in IPC's 3.5 "Avoidance to Minimize Impacts". Although List 1 under ORBIC's latest ranking <https://inr.oregonstate.edu/orbic/rare-species/ranking-documentation/vascular-plant-ranks> it is not shown as State listed Threatened or Endangered, so is ignored by IPC. Species of Concern are "Taxa whose conservation status is of concern to the U.S. Fish and Wildlife Service (many previously known as Category 2 candidates), but for which further information is still needed." Douglas clover has a global rank of G2 "*Imperiled because of rarity or because other factors demonstrably make it very vulnerable to extinction (extirpation), typically with 6-20 occurrences*". DPO Exhibit P Part 2b Appendix 3A and 3B Figure 9 of 23 shows Douglas clover directly on the Morgan Lake alternative! This is not even taking into account private lands where access was not granted for survey, contains additional occurrences of Douglas clover. The Morgan Lake/ Glass Hill area is THE main place where this rare plant grows in Oregon, and B2H is set to permanently alter and compromise its main habitat with weeds!

State List 1 and 2 species NOT specifically included on the Threatened and Endangered list were not required by OARs and thus were not addressed at all by IPC. It seems wrong to completely exclude species which are only a step away from listing at the highest level. In fact, in these times, any rare species which shows a Moderate or higher "Climate Vulnerability" as determined by ORBIC <https://inr.oregonstate.edu/orbic/rare-species/ranking-documentation/vascular-plant-ranks> should absolutely be considered in any Application. The fact that it was not runs counter to the Oregon Climate Plan. Speaking of Oregon and State Goals, IPC's Application made no mention at all of the Oregon Conservation Strategy! Both of these omissions are critical and unacceptable!

Even more disturbing was the exclusion of the State Natural Areas Plan <https://inr.oregonstate.edu/orbic/natural-areas-program>.

A look at the list of unprotected plant associations according to the Natural Areas Plan reveals that many are located in the B2H "analysis area". Since I am most familiar with the Glass Hill area, I can point to Ponderosa pine/bluebunch wheatgrass, Ponderosa pine/Idaho fescue, Douglas fir/oceanspray, Mountain alder-snowberry riparian, and Western larch – mixed conifer forest as being plant communities slated for destruction under B2H in the Blue Mountains Ecoregion which are currently listed as "unprotected" by the Natural Areas program, and thus listed as top-priority in the Natural Areas Plan.

In conclusion, the ODA Rare Plant program was excluded from comments, and is apparently so underfunded they have not been able to provide essential conservation plans, critical habitat, or monitoring plans. Idaho Power surveys are outdated and used an incomplete list. ISSSSP lists were not included. Mitigation measures provided by IPC for State T&E species are pathetic. A Federal Species of Concern was not even considered in the Application. State List 1 and 2 species and Climate Vulnerable species were not considered. The Oregon Climate Plan and Oregon Conservation Strategy were ignored

Tuesday, August 27, 2019

COMMENT by Susan Geer

and completely excluded. The State Natural Areas Plan and unprotected plant community types was not even discussed.

Considering all of these crucial exclusions and problems meeting Oregon laws, plans, and goals, EFSC must deny IPC's Application.

Sincerely,

Susan Geer
906 Penn Ave.
La Grande OR 97850
susanmgeer@gmail.com



Oregon Department of Energy and the Energy Facility Siting Council

Public Hearing on the Draft Proposed Order
for the Boardman to Hemingway Transmission Line
June 18-20 and June 26-27, 2019, 4:30-8 p.m.
Public Written or Oral Testimony Registration

Name (mandatory) Irene Gilbert

Mailing Address (mandatory) 2310 Adams Ave,
Lagrange, OR

Phone Number (optional) (541) 963-8160 Email Address (optional) _____

Today's Date: 6/18/19

Do you wish to make oral public testimony at this Hearing: Yes X No _____

Written comments can also be submitted today.

All written comments must be received by the deadline, July 23, 2019, 5 p.m. PDT to:

Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol Street NE
Salem, OR 97301
Fax: 503-378-6457
Email: B2H.DPOComments@oregon.gov

Note: by submitting written or oral testimony, you will receive a notice from the Oregon Department of Energy at a future date of the opportunity to request party status in a contested case hearing on the proposed facility.

Written Testimony

(Please print legibly – Use the back for additional space if needed. Additional written comments may be attached to this card.)

I will provide later

TO: OREGON ENERGY FACILITY SITING COUNCIL June 18, 2019

**ORAL COMMENTS FOR MALHEUR COUNTY HEARING REGARDING THE
PROPOSED BOARDMAN TO HEMINGWAY TRANSMISSION LINE**

Following are some of the issues with the noise section of the Draft Proposed Order you are being asked to approve. I will elaborate on each of these issues in writing prior to your deadline of July 23 for comment and provide them per the specific requirements of your rules which the Oregon Department of Energy has implemented to discourage public participation in this process:

1. THE OREGON STANDARDS ALLOW FOR MORE NOISE THAN IS RECOMMENDED BY THE WORLD HEALTH ORGANIZATION AND ARE USED IN MOST OTHER COUNTRIES. IN MALHEUR COUNTY ALONE, THERE ARE 26 RESIDENCES THAT ARE "NOISE SENSITIVE RESIDENCES" WITHIN ½ MILE OF THE TRANSMISSION LINE. THAT MEANS THAT THEY WILL BE SUBJECTED TO NOISE INCREASES. ONLY A FEW OF THEM ACTUALLY EXCEED THE STANDARDS AND THE REST ARE IGNORED. THE NOISE AT RESIDENCES NOT EXCEEDING THE STANDARD COULD INCREASE BY UP TO 10 Dba, GIVEN THAT THE OREGON HEALTH AUTHORITY HAS STATED IN THEIR REPORT REGARDING WIND TURBINE NOISE THAT AN INCREASE OF 3 dBA IS PERCEIVED AS A DOUBLING OF THE NOISE BY THOSE EXPOSED TO IT, IT SEEMS TO ME THAT THESE OTHER PEOPLE SHOULD BE TOLD THAT THEY WILL BE IMPACTED AND THEY MIGHT WANT TO PARTICIPATE IN THIS PROCESS.
2. NO MODELING OF HELICOPTER, ROAD LEGAL VEHICLES OR AUXILIARY EQUIPMENT IN ESTABLISHING NOISE IMPACTS WHICH IS ACTUALLY REQUIRED IN MODELING THE IMPACTS OF THIS DEVELOPMENT IN RELATION TO THE 50 dBA NOISE LIMIT.
3. NO MODELING OR INCLUSION OF SCHOOLS, CHURCHES, HOSPITALS OR PUBLIC LIBRARIES IN NOISE MODELING.
4. NO MODELING OF ENTIRE SITE INCLUDING AREAS WHERE SITE BOUNDARY DOES NOT CONNECT WITH RIGHT OF WAY BOUNDARY.
5. RESTRICTED NOISE MODELING TO ½ MILE, IN SPITE OF DOCUMENTATION OF EXCEDANCES BEYOND THAT DISTANCE.
6. NO NOTICE TO PEOPLE BEYOND ½ MILE OF DIRECT IMPACTS NOISE WILL HAVE ON THEM.

7. LIMIT NOTICE TO 250 FEET FROM LINE IN SPITE OF DOCUMENTED IMPACTS BEYOND THAT DISTANCE.

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8. ONLY INCLUDED AS FOUL WEATHER RAIN FROM .8 MM PER HOUR TO 5 MM. PER HR. WITH NO DOCUMENTATION THAT CORONA EFFECT WOULD NOT BE PERCEIVED OVER 5 MM OR THAT WOULD NOT EXIST WITH LESS THAN .8 MM PER HOUR.

9. NO INCLUSION IN MODELING OF NOISE DUE TO "BURN IN PERIOD" DAMAGED LINES, OIL OR OTHER SUBSTANCES ON LINES OR OTHER CAUSES OF LINE NOISE.

10. NO ADDRESSING INCREASE IN NOISE IMPACTS WITH LINEAL NOISE SOURCE RATHER THAN POINT SOURCE.

11. DOCUMENTED EXCEDANCES BEYOND 50 dBA AND THEN MODELED THAT THERE WOULD BE NO FUTURE EXCEDANCES BEYOND 50 dBA.

12. INFERRED NOISE CONSULTANT APPROVED METHOD OF LIMITING EVALUATION OF INCREASED NOISE TO PERIOD FROM 12:00 MIDNIGHT till 5:00 A.M WHEN DID NOT APPROVE THIS LIMIT FOR PREDICTING FUTURE NOISE IMPACTS.

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THE PROPOSAL OF THE DEVELOPER THAT THEY PROVIDE OR PAY FOR NOISE BLOCKING DRAPERS WHICH WOULD THEN DESTROY OWNERS VIEWS IS NOT APPROPRIATE FOR DEALING WITH EXCEDANCES!

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17. NOT REQUIRING METHODS BEING UTILIZED BY OTHER UTILITIES TO MINIMIZE NOISE IMPACTS.

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I WILL BE PROVIDING THE LISTED ISSUES IN WRITING PRIOR TO THE JULY 23 DEADLINE FOR COMMENTING IN A FORMAT THAT MEETS YOUR REQUIREMENTS FOR FORMALIZING THE ISSUES REFERENCED IN THIS TESTIMONY. THESE ISSUES AND MORE ARE TAKEN FROM JUST 26 PAGES OF THE DRAFT PROPOSED ORDER. CAN YOU IMAGINE THE POOR ADVICE YOU ARE RECEIVING IN THE OTHER 600 PAGES OF THE DRAFT PROPOSED ORDER YOU ARE BEING ASKED TO APPROVE?

Irene Gilbert
2310 Adams Ave.
La Grande, Oregon 97850
Phone 541-963-8160

<p style="text-align: right;">Page 30</p> <p>1 Mr. Chamberlin, your name and your address and 2 then your comments. 3 MR. JAY CHAMBERLIN: Thank you. 4 My name is Jay Chamberlin. I'm general 5 manager of the Owyhee Irrigation District. My address 6 is 422 Thunderegg Boulevard, Nyssa, Oregon 97913. 7 I'd like to thank the Council for this 8 opportunity to hear our concerns. No. 1, the Department 9 of Energy needs to ensure that the tower placed between 10 mileposts 255 through 258 are placed in consultation 11 with the Owyhee Irrigation District's staff in order to 12 provide good, high clearance, and minimal structural 13 interference with existing irrigation canals, 14 structures, and roadways. 15 We would also like to see the term "...and 16 existing irrigation waterways" added after "protected 17 areas" on page 246 of the draft proposed order. 18 Also the statement on page 589 of the draft 19 proposed order that a water right transfer is 20 unnecessary is inaccurate. The proposed tower placement 21 near milepost 255 on existing irrigated lands will 22 require a water right transfer to allow that those water 23 rights be transferred to other portions of land, if 24 indeed that tower is placed there. 25 And other than that, I think we, as an</p>	<p style="text-align: right;">Page 32</p> <p>1 resources and people from one group of people to 2 another. 3 So I think one of the things that's happened 4 with this line is that it's kind of been a divide and 5 conquer thing where people who don't want this line to 6 happen, and actually there was a meeting in La Grande 7 with probably 400 people in the room, and when they were 8 asked, Does anyone support this line, no one did. But 9 people want, nobody wants to have to experience the 10 impact so they argue that it should hurt other things. 11 So we are not doing that. 12 Today I'm going to focus on just actually 13 about 25 pages of the draft proposed order, the section 14 regarding noise. And these are not all the issues but I 15 thought I would list some of them. I'm not going to 16 meet the standard to provide rules; I will give that to 17 you folks later in written testimony prior to the 18 July 23rd deadline. 19 But starting off, the Oregon standards allows 20 for more noise than is recommended by the World Health 21 Organization and the standard that is used in most other 22 countries. In Malheur County alone, there are 26 23 residences that are considered "noise sensitive 24 residences" within one-half mile of the transmission 25 line. That means that they will be subject to noise</p>
<p style="text-align: right;">Page 31</p> <p>1 irrigation district, have been part of the process all 2 along. It certainly isn't where we would like it to 3 see, but we have worked and we would certainly be 4 willing to continue to do such so that we can have as 5 least amount affected our waterways and transmission 6 systems ourselves as possible. 7 Thank you. 8 HEARING OFFICER WEBSTER: Thank you. 9 Following Ms. Gilbert we will hear Michael 10 Horton. 11 MS. IRENE GILBERT: Should I start? 12 HEARING OFFICER WEBSTER: Yes, please do, with 13 your name and your address, please. 14 MS. IRENE GILBERT: Irene Gilbert, 2310 Adams 15 Avenue, and I'm here representing myself but also 16 Friends of the Grande Ronde Valley, and I am a member of 17 Stop B2.H so I certainly hope my comments would be 18 considered coming from that group also. 19 A few things first is, in particular with the 20 B2H group, there are now over 500 members, as I 21 understand, individual members and multiple nonprofits 22 who are members of that group. And we are focused on 23 impacts to the entire route, along the entire route. So 24 Stop B2H has not said we prefer that you move the line 25 from here to there; it only moves the impacts on the</p>	<p style="text-align: right;">Page 33</p> <p>1 increases. Only a few of them actually exceed the 2 standards and the rest are ignored. The noise at 3 residences not exceeding the standard could increase by 4 up to 10 decibels. 5 Given that the Oregon Health Authority has 6 stated in their report regarding noise from wind 7 turbines that an increase of 3 decibels is perceived as 8 doubling the noise at a location. So as you can see, 9 there are a lot of people who are going to be 10 experiencing noise impacts that aren't being told that 11 that's going to happen. There's also documentation of 12 people actually exceeding the standard that are residing 13 more than a half mile from the proposed transmission 14 line. So there are a lot of people that don't know 15 what's going to happen here who will get a surprise. 16 There was no modeling of helicopter, road 17 legal vehicles or auxiliary equipment in establishing 18 the noise impacts, which is actually required in 19 modeling the impacts of this development in relation to 20 the 50 dBA noise limit. Idaho Power chose to ignore a 21 piece of the statute that requires that. 22 No modeling or inclusion of schools, churches, 23 hospitals or public libraries in the noise modeling. 24 That's also required. 25 No modeling of the entire site, including</p>

<p style="text-align: right;">Page 34</p> <p>1 areas where site boundary does not connect with the 2 right-of-way boundary. I'm talking about things here 3 like the lay-down areas. 4 I mentioned restricting the noise modeling to 5 one-half mile, in spite of the fact that there's 6 documentation, Idaho Power provided documentation of 7 exceedances beyond this distance. So a bunch of people 8 aren't getting noticed. 9 Limiting the notice to 250 feet from this line 10 is just unbelievable when you consider the impacts that 11 it will have beyond that area. 12 They only included in their monitoring of 13 noise impacts foul weather, rain from .8 millimeters per 14 hour to 5 millimeters per hour, with no documentation 15 that the corona effect would not be perceived over 16 5 millimeters or that it would not exist with less than 17 .8 millimeters per hour. 18 No inclusion in modeling of noise due to the 19 "burn in period," damaged lines, oil or substances on 20 the lines or other causes that also create noise from 21 these transmission lines. 22 No addressing increase in noise impacts with 23 the lineal noise source rather than point source, 24 because lineal sources actually create a higher level of 25 noise than the point generated source.</p>	<p style="text-align: right;">Page 36</p> <p>1 And I'm still working on a list of issues with 2 the proposed approaches to dealing with noise 3 exceedances, but I can tell you that Idaho Power has 4 stated in their application that they think a reasonable 5 mitigation method is that they provide noise, basically 6 blinds that will cut down on the noise impacts or pay 7 for them. Now, I don't know about the rest of you, but 8 for me, to have a power company move in and tell me that 9 I don't get to see out my windows because my noise 10 standards are too high seems pretty unbelievable. 11 They are averaging exceedances over a 300-mile 12 line -- this is the developer -- where the impacts will 13 be anywhere from 22 to 80 days a year where noise at 14 specific residences will exceed the DEQ limits. That's 15 not appropriate. 16 They're not requiring methods of mitigation 17 that are being utilized by other utilities to minimize 18 impacts. 19 They are allowing irrelevant reasons as 20 supporting documentation of why the noise rules should 21 be ignored such as federal rules that only apply to 22 federal lands. And they're applying them to private and 23 state lands. 24 They're accepting that this is the only way to 25 meet the developer's perceived need when they provided,</p>
<p style="text-align: right;">Page 35</p> <p>1 They documented exceedances beyond the 50 dBA 2 and then modeled that there would be no future 3 exceedances beyond 50 dBA. 4 They inferred that a noise consultant approved 5 methods of limiting evaluation of increased noise to a 6 period from 12:00 midnight till 5:00 a.m. There was no 7 approval of that particular period in terms of looking 8 at the noise occurring. They only approved that period 9 for establishing the baseline. 10 Redefined "infrequent" or "unusual," and this 11 is something that the Oregon Department of Energy did, 12 they redefined "infrequent" or "unusual" to mean, get 13 this, "not consistent, not continuous, and not 14 representative of normal operating procedures." This 15 definition is not consistent with any legal, dictionary, 16 other agency or public definition and the Oregon 17 Department of Energy lacks authority to make up 18 interpretations when they're applying rules of another 19 agency. 20 They are not requiring the developer to pay 21 for actual sound testing if there is a future question 22 regarding the accuracy of the modeling. Statutes 23 require developers to pay for actual monitoring, not 24 place the burden on the landowners to prove that the 25 developer's predictions are not accurate.</p>	<p style="text-align: right;">Page 37</p> <p>1 or the developer provided 12 other plans to the PUC that 2 did not include Boardman to Hemingway. And in the last 3 PUC notice they stated outright that Idaho Power should 4 remain flexible in terms of changing their plans based 5 on the change in energy environment. 6 The overarching concerns that drive me and 7 others regarding the decisions coming from the Energy 8 Facility Siting Council -- and I'm talking to you folks 9 here directly -- is that you were all placed in your 10 positions absent any requirement for knowledge, skills, 11 and abilities. And the governor appointed you, and it's 12 reasonable to assume that she appointed the folks on 13 this committee because she felt they would do what she 14 was hoping they would do. And so far they've approved 15 everything that has come before them. 16 Some of you have personal interests, which 17 mean that there may be a personal advantage to approving 18 these. 19 Oregon Department of Energy only provides to 20 the Energy Facility Siting Council supporting 21 information that leads you to agree with their 22 proposals. You do not receive the staff report that 23 indicates reasons why you should be denying this 24 particular energy development. The process makes it 25 very difficult for the public to have their views heard</p>

<p style="text-align: right;">Page 38</p> <p>1 because you don't get to respond to the decisions of the 2 Council directly. And the Department of Energy has made 3 it increasingly difficult for the public to access the 4 Energy Facility Siting Council members. 5 So you add to that the fact that there's no 6 reasonable time to review these proposed orders, and 7 you're talking about 600 pages in the draft proposed 8 order. These issues, and it's not the complete list, 9 came from 25 pages. I guess it was actually 24 pages of 10 that draft proposed order. So go figure. 11 Do I have any more time left? 12 HEARING OFFICER WEBSTER: You have 23 seconds. 13 MS. IRENE GILBERT: I was going to add a bunch 14 of other things. The developer has ignored things like 15 protected lands. There are three federal mitigation 16 sites at Ladd Marsh; they choose not to even mention 17 them. They ignore federal threatened and endangered 18 species protections. They will not provide any 19 protection of them. They don't honor the tribes and the 20 treaty agreements. 21 You've approved things as far as where the 22 views amount to someone floating on Wild and Scenic 23 River and looking up to energy development that's a mile 24 away, and seeing a bunch of turbines while you're on the 25 Wild and Scenic River.</p>	<p style="text-align: right;">Page 40</p> <p>1 District. The Joint Committee manages the Owyhee Dam on 2 the Owyhee River along with two hydroelectric power 3 plants. One of the power plants is located at the base 4 of the Owyhee Dam and the other plant is located at the 5 head of the irrigation tunnel near the Owyhee Dam. 6 The Joint Committee operates and maintains a 7 69-kV transmission line which transmits power from the 8 Owyhee hydroelectric facilities to Idaho Power's power 9 grid system. The hydroelectric power plants were 10 partially funded by loans through the Department of 11 Energy. The 69-kV transmission line will be crossed by 12 the proposed 500-kV line somewhere to the east of 13 proposed milepost 256. 14 The Joint Committee requests additional 15 language be added to the draft proposed order to require 16 Department of Energy staff and irrigation districts' 17 staff be consulted on tower and line placements near the 18 intersections of the power lines and canals, tunnels, 19 and access roads. 20 The Joint Committee members share the same 21 concerns expressed tonight, that you've heard tonight on 22 the proposed placement on EFU lands. 23 Thank you. 24 HEARING OFFICER WEBSTER: Thank you. 25 Following Mr. Jordan we will have Jim Foss.</p>
<p style="text-align: right;">Page 39</p> <p>1 As far as the placement of these, in Union 2 County, we have 80 percent on private land, we have 3 55 percent, federal land. So I could go on. I will go 4 on but not in this format. 5 So thank you for the time. You will get all 6 of the statutory references. 7 HEARING OFFICER WEBSTER: Thank you, 8 Ms. Gilbert. 9 MS. IRENE GILBERT: Thank you. 10 HEARING OFFICER WEBSTER: Before we hear from 11 Mr. Horton, the next one is Frank Jordan. 12 SECRETARY CORNETT: For the record, Council 13 Member Betty Roppe joined, so we do have a quorum at 14 this point in time. 15 HEARING OFFICER WEBSTER: Thank you. 16 Mr. Horton, if you want to start with your 17 name and address. 18 MR. MICHAEL HORTON: I'm Michael W. Horton. 19 My address is 106 Main Street, P.O. Box 1565, Nyssa, 20 Oregon 97913. I want to welcome Council to eastern 21 Oregon. 22 I'm secretary of the Joint Committee of the 23 Owyhee Project. The Joint Committee consists of 24 representatives from Owyhee Irrigation District, 25 Ridgeview Irrigation District, and Gem Irrigation</p>	<p style="text-align: right;">Page 41</p> <p>1 Mr. Jordan, if you'd state your name and 2 address, please. 3 MR. FRANK JORDAN: My name is Frank Jordan. I 4 live at 3370 Old Stage Road in Westfall. 5 I own property west of Vale that the power 6 line will be crossing. And my main concern is the power 7 line is basically using our driveways as their access 8 roads. We have a home within one-eighth of a mile of 9 the power line. We have fields that it's crossing. An 10 irrigation pond within feet of where they propose to 11 cross. 12 And I have not been contacted at all by Idaho 13 Power to come out and look at where they are putting the 14 line. No one from Idaho Power has come out. No one 15 from Oregon Department of Energy has been on my property 16 to look where the line is going. I find this kind of 17 disturbing that Idaho Power or the Oregon Department of 18 Energy would basically put a line somewhere without 19 actually going out and talking to the landowners and 20 seeing exactly where the line is proposed. That's my 21 only comment. 22 Thank you. 23 HEARING OFFICER WEBSTER: Thank you. 24 After we hear from Mr. Foss, will be followed 25 by Arnold Tropf.</p>

TO: OREGON ENERGY FACILITY SITING COUNCIL June 18, 2019

**ORAL COMMENTS FOR MALHEUR COUNTY HEARING REGARDING THE
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Following are some of the issues with the noise section of the Draft Proposed Order you are being asked to approve. I will elaborate on each of these issues in writing prior to your deadline of July 23 for comment and provide them per the specific requirements of your rules which the Oregon Department of Energy has implemented to discourage public participation in this process:

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Irene Gilbert
2310 Adams Ave.
La Grande, Oregon 97850
Phone 541-963-8160



Oregon Department of Energy and the Energy Facility Siting Council

Public Hearing on the Draft Proposed Order
for the Boardman to Hemingway Transmission Line
June 18-20 and June 26-27, 2019, 4:30-8 p.m.
Public Written or Oral Testimony Registration

Name (mandatory) Irene gilbert

Mailing Address (mandatory) 2310 Adams Ave
LaGrande, OR

Phone Number (optional) (541) 963-8160 Email Address (optional) _____

Today's Date: 6/19/19

Do you wish to make oral public testimony at this Hearing: Yes X No _____

Written comments can also be submitted today.

All written comments must be received by the deadline, July 23, 2019, 5 p.m. PDT to:

Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol Street NE
Salem, OR 97301
Fax: 503-378-6457
Email: B2H.DPOComments@oregon.gov

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Written Testimony

(Please print legibly – Use the back for additional space if needed. Additional written comments may be attached to this card.)

Will provide copy of issues
commenting on.

REGARDING THE BOARDMAN TO HEMINGWAY TRANSMISSION LINE

1. AN OBSERVATION FROM YESTERDAY'S HEARING. IT APPEARS THAT IDAHO POWER IS RELYING ON THEIR BELIEF THAT OREGON IS FULL OF A BUNCH OF "NIMBIES" ONLY INTERESTED IN OUR OWN BACK YARD. JUST REMEMBER, PROMISES MEAN NOTHING IF THEY ARE NOT INCLUDED IN THE SITE CERTIFICATE AND BY THE TIME PEOPLE FIGURE THAT OUT, THEIR RIGHTS TO A CONTESTED CASE WILL HAVE PASSED. IF IT IS BAD FOR ONE PERSON, IT IS BAD FOR ALL PEOPLE. DESTROYING SOMEONE ELSE'S HOME OR LIVELIHOOD IS NOT THE ANSWER. NO ONE SHOULD BE SUBJECTED TO THIS TRANSMISSION LINE.

INVASIVE WEEDS IMPACT AGRICULTURE, THREATENED AND ENDANGERED SPECIES, WILDLIFE HABITAT AND THE ECONOMIC STABILITY OF ALL THE COUNTIES.

PROBLEMS WITH THE SITE CERTIFICATE RELATING TO WEEDS

1. The plan is not complete so the reviewers and the agencies have no way of knowing how bad it will be. The Draft Proposed order and application provide only minimal information and require people to guess about what is omitted and is probably a violation of Land Use Goal One requiring public involvement.
2. Only requiring weed management for 5 years and allowing ODOE to excuse them early with no public notice or input.
3. The lack of any surveys outside the site boundary to determine current quality of surrounding habitat, and identify when it is changing more quickly than other areas which would no doubt be as a result of actions occurring along the transmission line.
4. Idaho power is claiming they are only responsible for noxious weeds in the right of way and as a result of their surface-disturbing activities.
5. Appears they are taking no responsibility for increased numbers of weeds of species that were present at the time the construction commences, weeds they allow to go to seed, the development of a road or transmission line in otherwise intact habitat, vehicle and equipment including trespassers having access where none existed previously.
6. Placing cleaning stations at the multi-use areas which are temporary and will not meet the requirement of the statute relating to vehicle and equipment cleaning.
8. Several counties submitted a plan that included 31 items needed in the weed management plan. I can see no evidence that Idaho Power is planning to implement that plan criteria.
9. Failing to assure that weeds do not go to seed during the lifetime of the transmission line. In reviewing the weeds present, and the timeframes from germination to seed, it will require monitoring and treatment at least twice per year to meet this statutory

requirement, weeds must be controlled for the life of the project, and landowners or counties who are typically unwilling recipients of the transmission line should not be left paying for control of weeds that result from the developer allowing weeds along the transmission line to go to seed.

PROJECT MUST COMPLY WITH STATE LAW ORS 569.390, 569.400 and 569.445 requiring the developer using the property or property owner to treat weeds prior to them going to seed, provides penalties for failing to do so which can include quarantening the land, requiring equipment to be cleaned prior to moving it over any public road or movement from one farm to another. The Oregon Department of Energy and Energy Facility Siting Council are prohibited by both statute and rule from overruling a state statute. Failure to abide by this statute will negatively impact OAR 345-022-0060, OAR 345-022-0070, OAR 345-0090, OAR 345-0212-0010(l)(u)(E). and OAR 345-022-010. Suggestion: If the developer is refusing to pay for managing the weeds, I would require my right of way agreement to include money to allow the property owner to hire someone to do this work for the life of the project.

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<p style="text-align: right;">Page 38</p> <p>1 effects of the transmission lines? We don't want the 2 transmission lines here any more than we need the oil 3 drilling on the Oregon Coast. 4 I have included several news clippings and our 5 testimony during the NEPA process for your review. 6 I thank you for your time. 7 Do you have any questions of me? Thank you. 8 HEARING OFFICER WEBSTER: Thank you. 9 Following Ms. Gilbert, we'll hear from JoAnn 10 Marlette. 11 MS. IRENE GILBERT: Hi. Irene Gilbert, here 12 representing myself, Friends of the Grande Ronde Valley, 13 and I'm a member of the Stop B2H group. So thank you 14 for allowing me to speak again. I spoke yesterday on 15 noise. And actually, if anyone in the audience wants 16 copies of my comments, I have them with me. 17 Today I kind of wanted to introduce with a few 18 sort of responses to Commissioner Bennett's comment, and 19 he talked about the need for mitigation. I would be 20 concerned, or I am concerned in this county with the 21 fact that this line is taking some of the very limited 22 allotment of basically damage to sage-grouse habitat. 23 And when you talk about mitigation, I start thinking, 24 what could they use with that land? Could they build a 25 manufacturing site? Would they build homes and utilize</p>	<p style="text-align: right;">Page 40</p> <p>1 supposed to be protected forever. There is supposed to 2 be absolutely no damage to that federal site. Or the 3 F&W gets paid every year to make sure there's absolutely 4 no impacts to that site. 5 Well, this is going to impact that site. It's 6 going to impact the animals that go back and forth 7 daily. And so I'm not sure that when they say permanent 8 protection that Idaho Power really means permanent 9 protection. 10 I'm concerned because moving this line, I know 11 Idaho Power has worked with people and said, Oh, they're 12 so mad about this, we'll see if we can do a little 13 micrositing. Well, first off, their area that they can 14 microsite is 500 feet across. So without an amendment 15 there's not going to be a lot of micrositing going on. 16 And I'm concerned that if it's not in the site 17 certificate, it isn't a guarantee and they can back out 18 on anything they say and it will be after the period of 19 time has lapsed when anyone can ask for a contested 20 case. 21 I'm also concerned because when you move the 22 line, you're just changing the damage to somebody else. 23 You're changing the damage to making it apply to other 24 animals, other people. The answer is, this is not a 25 line that's needed, and it shouldn't be placed, and it's</p>
<p style="text-align: right;">Page 39</p> <p>1 it? In this county, they can't build a garage once they 2 run out of that allotment of sage-grouse habitat that 3 they can damage. 4 So I'm really concerned about, No. 1, the lack 5 of mitigation; No. 2, the way mitigation is dealt with. 6 I know with habitat impacts there is no mitigation 7 provided whatsoever for all the farm damage. So of 8 course, developers like to place their developments on 9 high-value farmland. When they do provide mitigation, 10 it's only for the basis of structures. So when you're 11 talking about a transmission line, what they consider 12 permanent is a basis of those big metal structures, and 13 they make the folks reseed what they have torn up as far 14 as the habitat around there. 15 I don't think that was ever the intent of the 16 rules, but that's the way it's being interpreted. You 17 end up with thousands and thousands of acres of damage 18 in a 60-acre mitigation site. I'm making that up but it 19 really is that radical. It's unbelievable. 20 Anyway, I want to talk about mitigation. I 21 was reading the developer's material and they said, Oh, 22 we're going to mitigate for these damages, and we'll 23 provide land that's going to be protected permanently. 24 Well, that marsh is a federal mitigation site for the 25 Bonneville Power dam for the damages, and that's</p>	<p style="text-align: right;">Page 41</p> <p>1 causing a whole lot of damage in this state without 2 benefits to us. 3 So anyway, now I'll get on to what I mainly 4 was going to talk about, which was weeds. And I've been 5 kind of taking these sections one at a time, which is 6 challenging because when you talk about weeds, you have 7 to check about, well, eight or nine different areas in 8 the application. I don't think that ODOE did a real 9 good job of trying to put things in a capsule form where 10 people can find information. 11 But the invasive weeds, there's a state law 12 that says that the owner or the user of property has to 13 assure that no invasive -- that invasive weeds do not go 14 to seed. Now, Idaho Power has suggested that they will 15 do annual monitoring for the first 5 years unless Oregon 16 Department of Energy tells them they can get out of this 17 earlier. But it's once a year. And I went through some 18 of the invasive species of weeds that are along this 19 transmission line, and they come to -- they bloom and go 20 to seed at different times. So I can absolutely assure 21 you there's nowhere on this line where a once-a-year 22 approach to dealing with invasive weeds is going to keep 23 them from going to seed. 24 Idaho Power thinks that they should only be 25 responsible for their right of way. Well, if they're</p>

<p style="text-align: right;">Page 42</p> <p>1 not making sure that nothing is going to seed along that 2 right of way, they are seeding the whole area along 3 this, which is creating negative impacts to our 4 agriculture, it's a loss of agricultural growth, it is 5 causing damages to our threatened and endangered 6 species, it's causing damages to our habitat. There's a 7 bunch of rules that apply when you start sending weeds 8 out over the country.</p> <p>9 The Indians have commented directly, saying 10 they would like this site certificate to apply to the 11 state law that says that vehicles and equipment have to 12 be cleaned before they go on to a site or off of the 13 public roadway. They have to be cleaned before they go 14 from one landowner to another.</p> <p>15 The developer is saying they'll put these 16 cleaning sites at their multiple use areas. Well, those 17 are temporary, they're a long ways away from where these 18 areas are that they're supposed to be cleaning. So 19 they're flat out not planning on adhering to the state 20 statutes.</p> <p>21 I'm a little upset about this whole weed thing 22 because they're saying that if the weeds already exist, 23 well, they're not responsible for more of them. If 24 there are weeds in the area, they're not responsible for 25 them going on to the site. Well, I can tell you right</p>	<p style="text-align: right;">Page 44</p> <p>1 impacts are temporary, if they don't exceed the life of 2 the development. Now, okay, so you cut our timber down, 3 there's no timber growing there for the life of the 4 project, and that's a temporary impact? Hmm. Well, I 5 think it's kind of a creative definition. There are a 6 bunch of creative definitions about how they look at 7 what they have to mitigate for.</p> <p>8 Anyway, I'm actually going to give you a 9 minute or so free time here. But I thank you. You know 10 you'll be hearing from me again. I hope anybody here 11 that wants help with their comments, I've been fighting 12 with EFSC for 8 or 9 years. And while I have far more 13 losses in my columns than wins, I do have a few wins and 14 I'm very actively concerned about this.</p> <p>15 Thank you.</p> <p>16 HEARING OFFICER WEBSTER: Thank you.</p> <p>17 Following Ms. Marlette, we'll hear from 18 Michael Meyer. And Mr. Meyer, when you do come up, 19 please provide your address and contact information.</p> <p>20 MS. JoANN MARLETTE: Hello again. I'm JoAnn 21 Marlette, and I live at 2031 Fort Street, Baker City, 22 Oregon. And I am a member of Stop B2H Coalition.</p> <p>23 Well, I think all of you are aware that Oregon 24 has an existing utility corridor, which was set in place 25 during the administration of Governor Tom McCall. I</p>
<p style="text-align: right;">Page 43</p> <p>1 now, that when you start tearing up land and habitat, 2 that transmission line is going to be a focal point of 3 noxious weed development. And when they start growing 4 along the transmission line, that means that they're 5 going to increase all the way along it with all the 6 private property.</p> <p>7 And at least in Union County, I know we're in 8 Baker County right now, but in Union County, the line is 9 81 percent on private land. We have 51 percent BLM 10 land. And I wish I could remember the figures because I 11 wrote them down in a comment for Baker. But Baker is 12 comparable. And so you're talking about private 13 landowners suffering because this developer wants to 14 create a freeway that's 250 feet wide across our whole 15 state practically.</p> <p>16 And other things, just in terms of, I'm just 17 throwing things out here, they're undervaluing our 18 farmland, they're undervaluing our forest land. They're 19 saying that in Union County, for instance, that they can 20 destroy over 500 acres of our forest land, and that it's 21 worth \$97,000 to our economy. I own forest land. I can 22 tell you that I wouldn't own forest land if it was worth 23 \$97,000 over a 50-year period, which is kind of the 24 period that they talk about.</p> <p>25 They say that it's temporary impacts, their</p>	<p style="text-align: right;">Page 45</p> <p>1 knew Tom McCall. As a matter of fact, I typed the first 2 draft of his mother Dorothy Lawson McCall's book "Ranch 3 Under the Rimrock."</p> <p>4 It was his love of this ranch and to central 5 Oregon that led him to his commitment to preserve farm 6 and forest lands. In the early '70s as governor, he 7 signed Senate Bill 100, which created a statewide land 8 use regulatory system, aimed at preserving farm and 9 forest land.</p> <p>10 Knowing how important preserving farm and 11 forest land would be, a utility corridor was set from 12 Boardman, Oregon, to the Idaho border, so that issues 13 such as what we are having right now would not exist. 14 All the utilities would have their corridor and would 15 not encroach on farm and forest land in other parts of 16 the state. Idaho Power has claimed many times that 17 using our existing utility corridor would cost them too 18 much money.</p> <p>19 Also, I find a discrepancy as to their need. 20 My research shows that market is not growing. Idaho 21 Power's bill of sales for the last 10 years have been 22 essentially flat, if not declining. That's supported by 23 reports from the US government and Idaho Power's own 24 data.</p> <p>25 And thank you so much for your time.</p>

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Oregon Department of Energy and the Energy Facility Siting Council

Public Hearing on the Draft Proposed Order
for the Boardman to Hemingway Transmission Line
June 18-20 and June 26-27, 2019, 4:30-8 p.m.
Public Written or Oral Testimony Registration

Name (mandatory) Doree Gilbert

Mailing Address (mandatory) 2310 Adams Ave.
La Grande, OR

Phone Number (optional) 541 963-8160 Email Address (optional) _____

Today's Date: 6/20/19

Do you wish to make oral public testimony at this Hearing: Yes X No _____

Written comments can also be submitted today.

All written comments must be received by the deadline, July 23, 2019, 5 p.m. PDT to:

Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol Street NE
Salem, OR 97301
Fax: 503-378-6457
Email: B2H.DPOComments@oregon.gov

Note: by submitting written or oral testimony, you will receive a notice from the Oregon Department of Energy at a future date of the opportunity to request party status in a contested case hearing on the proposed facility.

Written Testimony

(Please print legibly – Use the back for additional space if needed. Additional written comments may be attached to this card.)

Talk about Goal 4 exception

<p style="text-align: right;">Page 74</p> <p>1 which is used by most of the wildfire prevention 2 districts, to be present during construction at all 3 times, including after hours when the vehicles and 4 equipment are being serviced. 5 Last, but not least, the vegetation management 6 plan that is presented by Idaho Power is a copy of 7 PacifiCorp's vegetation management plan. They did not 8 even take off PacifiCorp's logo. How insulting can that 9 be? 10 So I hope that you will hear the people here 11 tonight, and that you will turn down and reject the 12 current B2H. 13 Thank you. 14 HEARING OFFICER WEBSTER: Thank you. 15 Let's take a break. Let's come back at 6:40, 16 and then we will then be calling Irene Gilbert to 17 testify followed by John Williams. 18 Thank you all. 19 (Recess taken.) 20 HEARING OFFICER WEBSTER: We are back on the 21 record. We are going to be hearing from Irene Gilbert, 22 and following Irene we will be hearing from John 23 Williams. 24 SECRETARY CORNETT: Before we begin, I'd like 25 to make a quick announcement. For those of you who will</p>	<p style="text-align: right;">Page 76</p> <p>1 recognize or honor the federal protections for 2 threatened and endangered species; in fact, it removed 3 them from their rules. I asked Representative Greg 4 Smith to get a response from Oregon legal Council about 5 whether or not that was legitimate or legal. And the 6 response that he got was, Well, they can get away with 7 it if -- and this was a written response -- as long as 8 they include all those animals in their habitat section 9 of the evaluation. 10 They do not cover all of the threatened and 11 endangered or federally protected species; and, in fact, 12 it says that pretty much if they run into them, sort of 13 as an aside, they will note it. So I think that's a 14 problem. 15 I think that when you read through these site 16 certificates, there is a lot of use of language to 17 misdirect people. And in the thousands of pages of 18 information they provide they say things like: There 19 will be no direct impacts on things like the Oregon 20 Trail. That means they won't put a tower right in the 21 middle of the trail. 22 They have done other things, like with Ladd 23 Marsh, they rated it on a 30-point scale, they rated the 24 views from Ladd Marsh and rated it an 11. So I would 25 say that is a long ways from 30. And when they say they</p>
<p style="text-align: right;">Page 75</p> <p>1 come in a little bit later -- Max, can you raise your 2 hand back there? Max. Cliff, in the red shirt, if 3 anybody has come in late, we have comment cards. If you 4 would like to make a comment, please fill out a card. 5 Max is holding them up right now. Go back and talk to 6 him. You can fill them out and then he'll bring them up 7 to us. Thank you. 8 HEARING OFFICER WEBSTER: Also, if there is 9 anybody that is on the phone that would like to give a 10 comment telephonically, please speak up now so we can 11 accommodate you. We are going to put the phone callers 12 in at the end of the in-person testimony, but we need to 13 know if anybody is on the line so we can have time for 14 you. Hearing none, we will proceed and time it as if 15 there is nobody on the phone that wants to participate. 16 So, Ms. Gilbert, thank you. 17 MS. IRENE GILBERT: My name is Irene Gilbert. 18 I live at 2310 Adams Avenue here in La Grande. I come 19 representing myself. I'm also the legal research 20 analyst for Friends of the Grande Ronde Valley and a 21 member of the board for Stop B2H. 22 I want to make a few just really quick 23 comments before I get into the main part of my 24 presentation. But this is some of the concerns that I 25 have: The Oregon Department of Energy does not</p>	<p style="text-align: right;">Page 77</p> <p>1 are protecting raptor nests, that means they won't cut 2 one down as long as there are young in the nest; but if 3 the young are not there, they will cut it down and put a 4 tower right next to it. 5 So those are the kind of individual things 6 that I hope people are looking at and commenting on. I 7 could give you 50 others. 8 Anyway, you previously heard from me in some 9 level of detail about noise and weeds resulting from 10 this development. I'd like you to keep in mind that the 11 recommendations from the Oregon Department of Energy in 12 the draft proposed order only give information in 13 support of their recommendation. 14 So I hope that you thoroughly consider the 15 comments and the written comments that you will receive 16 from the rest of the community here. 17 One thing that happened is Idaho Power chose 18 to identify the minimum amount of land that they 19 possibly could as a part of their site. So what that 20 means is things like to notice those people who are 21 impacted that they have to notify people with 250 feet 22 of it, they really limited the amount of people who got 23 to know that this was happening. They also then got to 24 minimize the damages from things like farm and 25 forestland impacts. They didn't have to do surveys in a</p>

<p style="text-align: right;">Page 78</p> <p>1 fairly large area.</p> <p>2 And what's ended up happening is they've had</p> <p>3 to ask the Oregon Department of Energy and the Energy</p> <p>4 Facility Siting Council to give them an exception to the</p> <p>5 Goal 5 land use rules. And what the developers have</p> <p>6 asked is they have asked the Oregon Department of Energy</p> <p>7 to give them the exception to this for putting roads</p> <p>8 through forest lands that are not on part of the site.</p> <p>9 Now, this is kind of interesting, because I</p> <p>10 had a contested case before the Siting Council because</p> <p>11 of the developer who was not including a transmission</p> <p>12 line in their order. What happened is I lost that</p> <p>13 contested case because the Department of Energy decided</p> <p>14 that if the developer didn't include it in their</p> <p>15 application, then it wasn't considered part of the site.</p> <p>16 I was not real happy about losing that</p> <p>17 contested case until now, because now Idaho Power wants</p> <p>18 you to approve this exception to the forest damages that</p> <p>19 they are going to create. And unfortunately for them,</p> <p>20 it's clear in the state statutes, the agency rules,</p> <p>21 contested case results I referred to, that for site</p> <p>22 certificates the Council can only approve construction</p> <p>23 within the site.</p> <p>24 So Idaho Power now has four options for these</p> <p>25 roads outside of the area of their site, as I see it.</p>	<p style="text-align: right;">Page 80</p> <p>1 Mr. Williams, we will hear from Peter Barry.</p> <p>2 MR. JOHN WILLIAMS: Appreciate the opportunity</p> <p>3 to talk here. John Williams, I live at Box 1384,</p> <p>4 La Grande. I own property northwest and west of Morgan</p> <p>5 Lake, and both power lines are going to cross my</p> <p>6 property.</p> <p>7 I would like to start off and go back to</p> <p>8 something from 2009, which is the Sixth Power Plan</p> <p>9 Overview from Northwest Power Conservation Council. And</p> <p>10 this is the memo that apparently the folks didn't get.</p> <p>11 The first full paragraph says, this is a</p> <p>12 summary: "The Pacific Northwest power system is faced</p> <p>13 with significant uncertainties about the direction and</p> <p>14 form of climate change policy, future fuel prices,</p> <p>15 salmon recovery actions, economic growth, and</p> <p>16 integrating rapidly growing amounts of variable wind</p> <p>17 generation. And yet the focus of the Council's power</p> <p>18 plan is clear, especially with regard to the important</p> <p>19 near-term actions.</p> <p>20 "The Council's power plan addresses the risks</p> <p>21 these uncertainties pose for the region's electricity</p> <p>22 future and seeks an electrical resource strategy that</p> <p>23 minimizes the expected cost of, and risks to, the</p> <p>24 regional power system over the next 20 years. Across</p> <p>25 multiple scenarios considered in the development of the</p>
<p style="text-align: right;">Page 79</p> <p>1 They can go through each individual county and go</p> <p>2 through their processes to get approval for every one of</p> <p>3 these roads they are going to put on people's property</p> <p>4 who have received no notice and have no clue what is</p> <p>5 going on. That will allow people to participate in</p> <p>6 another process like this.</p> <p>7 They can amend the site certificate and start</p> <p>8 over with the Energy Facility Siting Council. They can</p> <p>9 try to win a court case by arguing that they should be</p> <p>10 able to have an exception for property where people have</p> <p>11 no idea that this thing is coming through and get the</p> <p>12 Energy Facility Siting Council to say, Yes, you can</p> <p>13 build roads anywhere you want outside the site.</p> <p>14 And the fourth option, which I recommend, is</p> <p>15 to recognize that this transmission line is not needed</p> <p>16 and build local energy developments in Idaho to meet</p> <p>17 their perceived need, assuming they actually do occur.</p> <p>18 I've said it before and I'll say it again:</p> <p>19 The Travel Management Plan is not the only government</p> <p>20 action eastern Oregon citizens can stop if the people</p> <p>21 are active in participating and resisting.</p> <p>22 And I am really glad to see, I want to thank</p> <p>23 everyone who showed up, because we can stop and we will</p> <p>24 stop the Boardman to Hemingway transmission line.</p> <p>25 HEARING OFFICER WEBSTER: Following</p>	<p style="text-align: right;">Page 81</p> <p>1 plan, one conclusion was constant: the most</p> <p>2 cost-effective and least risky resource for the region</p> <p>3 is improved efficiency of electrical use.</p> <p>4 "In each of its power plans, the Council has</p> <p>5 found substantial amounts of conservation to be cheaper</p> <p>6 and more sustainable than most other types of</p> <p>7 generation. In this Sixth Power Plan, because of the</p> <p>8 higher costs of alternative generation sources, rapidly</p> <p>9 developing technology, and heightened concerns about</p> <p>10 global climate change, conservation holds an even larger</p> <p>11 potential for the region.</p> <p>12 "The plan finds enough conservation to be</p> <p>13 available and cost effective to meet 85 percent of the</p> <p>14 region's load growth for the next 20 years. If</p> <p>15 developed aggressively, this conservation, combined with</p> <p>16 the region's past successful development of energy</p> <p>17 efficiency could constitute a resource comparable in</p> <p>18 size to the Northwest federal hydroelectric system.</p> <p>19 This efficiency resource will complement and protect the</p> <p>20 Northwest's heritage of clean and affordable power."</p> <p>21 The list goes on to address --</p> <p>22 HEARING OFFICER WEBSTER: If you could just</p> <p>23 slow down because we are trying to listen and she's</p> <p>24 trying to get it all down.</p> <p>25 MR. JOHN WILLIAMS: It goes on to address the</p>



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Name (mandatory)

Shene Gilbert

Mailing Address (mandatory)

2310 Adams Ave

LaGrange, OR 97850

Phone Number (optional)

(541) 963-8160

Email Address (optional)

Today's Date:

2/26

Do you wish to make oral public testimony at this Hearing: Yes X No

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Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol Street NE
Salem, OR 97301
Fax: 503-378-6457
Email: B2H.DPOComments@oregon.gov

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Written Testimony

(Please print legibly – Use the back for additional space if needed. Additional written comments may be attached to this card.)

<p style="text-align: right;">Page 26</p> <p>1 because the purpose is to hear from the public tonight. 2 But it's a concern that you can raise and a question 3 that you can present to be considered later. 4 MS. JENNIFER MILLER: Okay. I was just 5 wondering. 6 Of course all of my ideas ran right out of my 7 head. I can't think of anything else right now. 8 HEARING OFFICER WEBSTER: You had the trail 9 concern, the noise concern. Was there another one? 10 MS. JENNIFER MILLER: And the weed suppression 11 and the fires that was mentioned, too. So I appreciated 12 the comments that Kellen made. 13 I know that wildfires are becoming 14 increasingly more serious all the time. And so that is 15 a big concern of mine, that in the county level, that if 16 there were to be a fire, the demands and the pressure 17 would be on the local fire departments. And I think 18 that is too large of an area, too much demand for the 19 local communities to be able to support the cost, the 20 manpower, and just the wherewithal to be able to deal 21 with the kind of fire that might be very far-reaching 22 because of the cause. 23 I've also spent some time under electric 24 lines, and I hear how much snapping of electricity is 25 being lost as the electricity is being transported. And</p>	<p style="text-align: right;">Page 28</p> <p>1 I want to go over several different things. 2 One is about the forestland and the impacts that this 3 development is going to have on forestland. What I 4 found is that the assessment of what is forestland is 5 pretty questionable in terms of the amount of forestland 6 that they're saying the transmission line will affect. 7 And I know in Union County they used prevailing use of 8 the land, which is inconsistent with litigation that 9 said that it had to do with the soil classification. 10 And so first off, the amount of acres is I 11 think fairly low. Also, the way they value forestland 12 is really questionable. In Union County, we're going to 13 lose they say 530 acres. They value that the economic 14 value is \$97,000 for 50 years. 15 In Umatilla County, they're going to lose 16 245 acres, according to the developer, and they value 17 that at \$120,000. So I guess the people in Umatilla 18 County have better trees or something, I don't know. 19 I've been really curious about the difference in how 20 they value those. 21 One thing also with the forestland that are 22 impacted, they only include the ones that are within the 23 site boundary, and there is a lot of activity that's 24 going to occur outside of the site boundary, and they're 25 not including those impacts in their statement of the</p>
<p style="text-align: right;">Page 27</p> <p>1 to me that is a concern, that this proposed line is 2 going to transport all this energy and not all of it 3 will even be able to be delivered because of the loss 4 that happens over the miles that electricity is being 5 transported. 6 Another concern I have is there are no 7 off-ramps in Oregon. I don't want to pay for something 8 I don't get any benefit from. I think that's a fair 9 statement. I mean, our taxes, I'm assuming, would go up 10 to pay for this transmission line that will pay for 11 electricity to go to California or somewhere else, 12 wherever the highest bidder is. We get pretty cheap 13 electricity because we are right by the dam, and that 14 goes into our grid. So I have a concern about paying 15 higher bills because that electricity is going to 16 somebody else that I'm paying for. 17 I think that's it. 18 HEARING OFFICER WEBSTER: Thank you, 19 Ms. Miller. 20 Next is Irene Gilbert. 21 MS. IRENE GILBERT: Irene Gilbert, 2310 Adams 22 Avenue. I don't imagine you can figure out who one of 23 the groups are that I'm here for. I'm also here for 24 myself as a citizen and also as the legal research 25 analyst for Friends of the Grande Ronde Valley.</p>	<p style="text-align: right;">Page 29</p> <p>1 impacts to forestland. 2 One of the things that's very concerning to me 3 is the way Idaho Power did their application. There was 4 actually a contested case about what was included in the 5 site boundary, and the rules of the statute are pretty 6 clear. It says that it's going to be the development 7 and all the related or supporting facilities like roads 8 and transmission lines and that sort of thing. 9 Well, one of the developers didn't include a 10 transmission line, and so there was a contested case. 11 And I'm sure that the people on the Energy Facility 12 Siting Council recall that. The decision of the Council 13 was that if the developer did not include one of these 14 related and supporting facilities, it wasn't considered 15 part of the site. So it was left up to the developer to 16 make that decision. 17 Now, this developer, when they filed their 18 application, they included as the site basically the 19 right-of-way. They have some little isolated circles 20 around some multi-use areas, but they did not include a 21 lot of the access roads. And so what that has meant is 22 that they didn't do surveys of those areas, they didn't 23 do wildlife impacts, they didn't do any of the things 24 they have to do for the site. 25 Well, now we are at this point in the</p>

<p style="text-align: right;">Page 30</p> <p>1 application and Idaho Power is asking the Oregon 2 Department of Energy and the Energy Facility Siting 3 Council to authorize an exception or a variance to the 4 Goal 4 forestland impacts under the land management 5 rules. 6 That's going to be very problematic because, 7 for one thing -- I have some quotes from some site 8 certificates that the Department of Energy and the 9 Energy Facility Siting Council have issued that say 10 clearly: Site certificates are authorizing a 11 development at a designated site. And the Department of 12 Energy and the Energy Facility Siting Council do not 13 have the authority to authorize construction activities 14 outside of the site boundaries. 15 So we have the developer here who has avoided 16 all of the things that they have to do to clear a site, 17 and now they're saying that the Energy Facility Siting 18 Council should give them an exception to go forward. 19 Well, that really isn't an option that's available to 20 them from anything I can read in the statutes or rules. 21 Their options are: They can go back and add 22 all those roads, which would be nice because all of the 23 people along those roads, they didn't get notified if 24 they were affected by noise, they haven't received 25 notice. So it's going to be a real surprise to them</p>	<p style="text-align: right;">Page 32</p> <p>1 Anyway, this is a problem. And when it comes 2 to you folks and you see the draft proposed order and 3 you see that they are asking for this, I would suggest 4 that you really carefully read the comments that you get 5 about it. 6 I'm going to look through here because I have 7 a bunch of little notes on a whole bunch of little 8 pieces of paper. 9 What Idaho Power is saying also -- another 10 thing I found interesting about the application is where 11 the transmission line is going through forests, one 12 thing they say they value that area, that timberland, 13 for eternity, very low. 14 They've also said that their evaluation of the 15 value of this land will be reduced because the owners of 16 the forestland won't be able to graze cattle or raise 17 crops in this right-of-way. So we've got a 300-foot 18 right-of-way with forest owners, and I can tell you I'm 19 a forest owner, I don't have any equipment to plant the 20 plants and do agriculture that way. 21 Anyway, I got the figures for what it would 22 take to fence these corridors because that's what it 23 would take. And actually I did do some fencing around 24 this 6-acre plot, and it cost me over \$3,000 to put that 25 fence in.</p>
<p style="text-align: right;">Page 31</p> <p>1 when Idaho Power starts trying to run roads through 2 people's forestland when there has been nothing done so 3 far. So you have a bunch of noise-sensitive properties. 4 You have people who are just clueless. 5 Now, Idaho Power's answer to that is that they 6 are saying that they will ask for an alternative process 7 and approvals through that method. What that method 8 requires is the only way under the Forest Service rules 9 that you can do that is if you can change the 10 classification of the land from forestland to like 11 agricultural or grazing. 12 Idaho Power is saying that -- I don't know how 13 they can do this, but that's their plan is to require 14 these landowners somehow to allow their forestland to 15 all of a sudden not be forestland any longer, for it to 16 be agricultural land, and then they can cut the trees 17 and be okay. It's not going to fly. 18 In my mind, they either have to refile and 19 include all these roads or they are going to have to 20 deal with the local counties and get approval through 21 their processes for all of these roads, whereby all of 22 these citizens will get notice, they will get to 23 participate in that. Or another option would be just to 24 abandon the project, and I vote for that. We'll see how 25 that turns out.</p>	<p style="text-align: right;">Page 33</p> <p>1 But according to the -- I went to the people 2 who do this thing, and the cheapest that I could find 3 was to do a mile of fencing was \$1,900 for 1 mile. And 4 the other one was about \$1,600, not counting the 5 building of the fence. 6 So as you can see, nobody is going to be 7 putting cattle in the middle of -- I'm the only one who 8 is foolish enough to try to fence off agricultural in 9 the middle of a tree farm. 10 So another issue is noxious weeds. And 11 actually all of the weed folks in all five counties, I 12 believe, came up with this document, and this has 31 13 things that the weed management folks were requiring of 14 the developer. I could not find these things in the 15 draft of their weed management plan. So they are not 16 listening to the counties, from what I can see. 17 And just an interesting kind of a statement, 18 BLM -- this is a thing from BLM, it says that: Noxious 19 and invasive weeds in agricultural and natural areas 20 cost our country \$13 billion a year. Noxious and 21 invasive weeds are the second-most important reason for 22 the loss of biological diversity and habitat 23 destruction. The Bureau of Land Management estimates 24 that 2,300 acres per day of land, their land, is being 25 lost to noxious weeds and invasive plants and nearly</p>

<p style="text-align: right;">Page 34</p> <p>1 4,000 acres per day are estimated to be lost to weeds 2 nationally. So weeds are a big deal, a big deal for 3 agriculture, for animals, for everything. 4 And Oregon has a statute that says that for 5 noxious weeds the person who is the developer, or owner 6 in this case, the person that is building this, has to 7 assure that noxious weeds are not allowed to go to seed. 8 The other thing that they're required to do is 9 they're required to clean all their equipment when it 10 goes onto a public road or when it goes from one 11 person's property to another person's property. 12 The developer has said in their application 13 they are planning to doing a cleaning station at their 14 multipurpose area. Well, that's not consistent with 15 cleaning their equipment when it goes from one person's 16 property to another. So it's apparent that they don't 17 plan on doing that at this point unless their site 18 certificate demands that of them. 19 They also say they're only going to manage the 20 weeds for 3 to 5 years; that they would only be 21 responsible for the right-of-way, the 250 feet; and that 22 they would not be responsible for weeds that come from 23 the surrounding area. 24 So they're going to dig up this land, which we 25 all know creates a perfect place for noxious weeds to</p>	<p style="text-align: right;">Page 36</p> <p>1 That's probably enough to tell you. That 2 there are major problems with the weed management plan, 3 there are major problems with the forest management 4 issue, there are also major problems with noise. 5 Because the developer, in their analysis of 6 noise, they looked at a baseline that was developed by 7 actually taking noise measurements. So their baseline 8 for noise is considerably higher than the standard of 9 26 decibels, and they are considered out of compliance 10 if they raise the noise more than 10 decibels. Ten 11 decibels is a lot. Three decibels is perceived as 12 doubling the sound if you are listening to sound. 13 So 10 decibels is a great deal. They don't 14 even deal with noise unless there is at least that 15 10-decibel difference. 16 So in, I think it was 14 residences that were 17 considered noise-sensitive residences in Umatilla County 18 here, 4 of them exceeded the standard. They have 19 documented that there are people exceeding that noise 20 standard who are further than half a mile from the 21 transmission line; however, they're only looking at 22 noise sensitive properties within a half mile. 23 So one thing that I believe should happen is 24 they should look at a mile from the transmission line so 25 they can get all of those properties. The developer did</p>
<p style="text-align: right;">Page 35</p> <p>1 grow, and then take no responsibility if the surrounding 2 area sends seeds in and they take root along the 3 right-of-way. They are taking no responsibility for 4 anything that happens outside the right-of-way. They 5 say that they shouldn't be responsible for things like 6 vehicles that bring weeds in, like trespassers. 7 Basically, I'm not sure what they're taking 8 responsibility for, other than they say they will 9 monitor and treat weeds once a year, which isn't going 10 to keep them from going to seed, by the way. I did look 11 at some of the noxious weeds and when they go to seed, 12 and the periods when they go to seed are different for 13 different types of noxious weeds. It means they start 14 going to seed in the spring, they are also seeding clear 15 into the fall. It would require at least two trips a 16 year to deal with it. 17 By the way, there was one thing with Malheur 18 County, they said that they had to treat the noxious 19 weeds, not only at the right-of-way but 50 feet outside 20 the right-of-way. So I guess they were a little more 21 with it than the rest of those counties. 22 Let's see, some of the problems. The 23 construction contractors is going to do the weed 24 management plan for this developer. I think that's a 25 problem.</p>	<p style="text-align: right;">Page 37</p> <p>1 not do noise monitoring around the lay-down areas and 2 that kind of thing, and they're supposed to do it for 3 the entire site. So there is a problem there. 4 There is certainly a problem where they are 5 not including roads in the development. The developer 6 read the rules saying they didn't have to include things 7 like -- there are about six different things that it 8 says you don't have to include for part of your 9 evaluation. But for baseline noise evaluation, some of 10 the things that are in there are roadworthy equipment or 11 vehicles, and helicopters. So they did not consider the 12 impact of helicopters and these big pieces of equipment 13 that are roadworthy when they did their noise 14 evaluation, and they have to do that. 15 All they looked at when they looked at the 16 noise was basically weather, and they limited that. 17 They only looked at the time frame between midnight and 18 5:00 in the morning to say, Hey, we don't have a lot of 19 exceedances of the noise standard, look at these 20 numbers. 21 Well, in Union County, the weather alone means 22 that people who are impacted by this can expect 23 22 percent of the time our weather is conducive to the 24 corona effect, which is a snap, crackle, and pop. That 25 means 80 days out of every year these poor devils are</p>

<p style="text-align: right;">Page 38</p> <p>1 going to be experiencing a bunch of noise. That is like 2 inhumane to approve something like that. 3 And if the developer thinks that putting 4 noise-blocking blinds up is a way to mitigate for having 5 exceedances of the noise standard. So all these people 6 in all these counties that have beautiful views can 7 choose between going nuts with tinnitus and noise 8 impacts or not being able to see out the front window. 9 So those are not real good options in my mind. 10 I could go on for hours. And my last comment 11 I guess would be, I have done a lot of, spent a lot of 12 time reviewing rules and identifying various areas that 13 are problematic. I'm having a really hard time getting 14 through this application and the draft proposed order 15 and analyzing what it all means. And so I really 16 believe that you have a lot of people out here who are 17 laypeople, and I'm hearing from a lot of them saying, 18 I'm completely lost, I can't understand all this. 19 I think that July 23rd is really not realistic 20 for people -- I'll get through it by July 23rd because 21 I'm willing to working until 2:00 or 3:00 in the 22 morning, if that's what it takes to get through all of 23 these rules. But there are a whole lot of people out 24 there that have jobs -- I'm retired -- and they are 25 struggling.</p>	<p style="text-align: right;">Page 40</p> <p>1 And thank you for showing up. Thank you for 2 listening to me over and over. I hope I covered some 3 different things this time. 4 HEARING OFFICER WEBSTER: Thank you, 5 Ms. Gilbert. 6 We have Margaret Mead next. 7 MS. MARGARET MEAD: My name is Margaret L. 8 Mead. I live at 57744 Foothill Road, La Grande. 9 This doesn't meet a lot of your 10 specifications, but I feel like it's something that 11 needs to be said. And on behalf of a friend who 12 testified last week, he just had said, Would you please 13 say to the Council, listen to people talking. He had 14 the impression last week that people were more involved 15 with their computers or their laptops or whatever. And 16 I said, I really thought that people were taking notes. 17 So I'm just delivering that message. And I guess if I'm 18 the last speaker, it's irrelevant basically. 19 A myriad of reasons Idaho Power's preferred 20 route should not be approved have been presented in 21 previous testimony. My remarks primarily concern Idaho 22 Power's reason for choosing this particular route. It 23 is the least costly for them. Their cost estimation, 24 however, completely ignores the truly important costs, 25 that to the people who live along this proposed line.</p>
<p style="text-align: right;">Page 39</p> <p>1 So it seems to me that 60 days is not a lot of 2 time for them, especially when the Department of Energy 3 has been working on this for years. So that's my final 4 comment. 5 Any questions? 6 HEARING OFFICER WEBSTER: What do you believe 7 would be a reasonable time if Council were to consider a 8 request to extend it? 9 MS. IRENE GILBERT: I think they should have 10 had 90 days anyway. It's not good for me because I plan 11 on going somewhere this summer, and I probably still 12 will. But from what I'm hearing from people, they are 13 just now starting to figure out, at least a starting 14 point, but they are overwhelmed. 15 HEARING OFFICER WEBSTER: So total of 90 days 16 or -- 17 MS. IRENE GILBERT: A total of 90 days. 18 Another 30 days I think would be reasonable to give 19 people. Like I say, they are just starting to figure it 20 out. 21 HEARING OFFICER WEBSTER: Okay. I think, as I 22 indicated at the outset, we will approach, that Council 23 will approach that request I think at the end of the 24 public comment tonight. 25 MS. IRENE GILBERT: Thank you.</p>	<p style="text-align: right;">Page 41</p> <p>1 And yes, we, the people, matter. We live and 2 work here, we pay taxes, we are engaged in volunteer 3 activities that make our community better. We own 4 businesses, farms, ranches, and homes. We might have 5 been born here or we chose to live here, often because 6 of the natural beauty that surrounds us. We have a 7 quality of life that is not found in urban areas. 8 Should this line be built as proposed, that 9 quality of life will be greatly diminished. 74 percent 10 of the land along the preferred route is owned by 11 private persons, with only 26 percent being public. 12 What right does a corporation have to usurp 13 our private lands, this land individuals have cared for 14 and that provides a livelihood and/or a place of refuge, 15 our homes? 16 I understand eminent domain as a privilege 17 only for the government, which, theoretically, is for 18 the public's good. Corporations should not have the 19 capability to take from private persons. The cost to us 20 is great and immeasurable. 21 My Minnesota story, which I share because it 22 is similar to what millions of other people throughout 23 the United States have experienced. And I really hope 24 that the people who live along the proposed route won't 25 have to.</p>

TESTIMONY PUBLIC HEARING ON BOARDMAN TO HEMINGWAY TRANSMISSION LINE

You previously heard from me about concerns with noise and weeds as a result of this development. I hope you will keep in mind the fact that the recommendations from the Oregon Department of Energy in the draft proposed order only give information that supports their recommendation. Please thoroughly consider the comments and written comments you are receiving. You are being asked to approve a project that will impact almost 300 miles of this state. It would directly or indirectly destroy the quality of life of hundreds if not thousands of people as well as negatively impact the social, economic and resource base which have drawn many of us to live here.

Concern for today:

Idaho power chose to identify the minimum amount of land possible as part of the application for this transmission line. This allowed them to report only a portion of the damages this transmission line will cause to farm and forest lands, notify a minimum number of people of the plans, limit the area for modeling noise impacts, limit reporting of wildlife impacts, etc. They can do this because the Citing Council decided during a contested case I filed that the developer could decide what was included as a part of the development and the site by what they included in their application. I was not happy when I lost that contested case, until now.

Idaho Power is now asking you to approve an exception to the Land Use Plan requirements for forest damages they will cause outside the site boundary they have created. Unfortunately for them, it is clear in state statutes, agency rules, and site certificates previously issued for other developments that the council only has the authority to approve construction within the site boundary. Idaho Power now must decide between four options: 1. Go through each individual counties process for approval of construction outside the site boundary. This will allow people to participate in that process and they can vote people out who make bad decisions 2. They can amend the site certificate if one is approved and provide the Department of Energy information on the rest of the area they plan to construct roads or other things on and go through the process we are in now again.(3) they can try to win a court case by arguing that they should be able to make changes to people's property who have had no notice of or opportunity to participate in the process. (4) which is what I recommend: Recognize this transmission line is not needed and build local energy developments in Idaho to meet their perceived energy needs if or when they actually do occur. I have said it before, but will say it again, the Travel Management Plan is not the only government action Eastern Oregon citizens can stop if people care enough to participate.

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Submitted as an individual, as Legal Research Analyst for Friends of the Grande Ronde Valley and as a Board Member for STOP B2H. WEB site: STOPB2H.ORG

Sixth Power Plan Overview

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SUMMARY

The Pacific Northwest power system is faced with significant uncertainties about the direction and form of climate change policy, future fuel prices, salmon recovery actions, economic growth, and integrating rapidly growing amounts of variable wind generation. And yet the focus of the Council's power plan is clear, especially with regard to the important near-term actions.

The Council's power plan addresses the risks these uncertainties pose for the region's electricity future and seeks an electrical resource strategy that minimizes the expected cost of, and risks to, the regional power system over the next 20 years. Across multiple scenarios considered in the development of the plan, one conclusion was constant: the most cost-effective and least risky resource for the region is improved efficiency of electricity use.

In each of its power plans, the Council has found substantial amounts of conservation to be cheaper and more sustainable than most other types of generation. In this Sixth Power Plan, because of the higher costs of alternative generation sources, rapidly developing technology, and heightened concerns about global climate change, conservation holds an even larger potential for the region.

The plan finds enough conservation to be available and cost-effective to meet 85 percent of the region's load growth for the next 20 years. If developed aggressively, this conservation, combined with the region's past successful development of energy efficiency could constitute a resource comparable in size to the Northwest federal hydroelectric system. This efficiency resource will complement and protect the Northwest's heritage of clean and affordable power.

Aggressive pursuit of this conservation is the primary focus of the power plan's actions for the next five years. Combined with investments in renewable generation as required by state renewable portfolio standards, improved efficiency will help delay investments in more expensive and less clean forms of electricity until the direction and form of future climate change legislation becomes clearer, and alternative low-carbon energy technologies become cost-effective.

At the same time, the region cannot stand still in maintaining and improving the reliability of its power system. Investments to add transmission capability and improve operational agreements are important for the region, both to access growing site-based renewable energy and to better integrate it into the power system. The Council also expects that there are small-scale resources

available at the local level in the form of cogeneration or renewable energy opportunities. The plan encourages investment in these resources when cost-effective.

The power plan recognizes that meeting capacity needs and providing the flexibility reserves necessary to successfully integrate growing variable generation sources may require near-term investments in generation resources to provide reliable electricity supplies in specific utility balancing areas. In addition, individual utilities have varying degrees of access to electricity markets and varying resource needs. The Council's regional power plan is not necessarily a plan for every individual utility in the region, but is intended to provide guidance to the region on the types of resources that should be considered and their priority of development.

The near-term actions recommended in the Council's Sixth Power Plan are important, but the region cannot neglect longer-term needs. The plan encourages research in advanced technologies for the long-term development of the power system. For example, emerging smart-grid technologies could make it possible for consumers to help balance supply and demand. By providing information and tools to consumers to adjust electricity use in response to available supplies and costs, the capacity and flexibility of the power system would be enhanced. Smart-grid development also may facilitate the deployment of plug-in hybrid electric vehicles that work in concert with the power system to improve the use of available generating capacity and help reduce carbon emissions in the transportation sector. In general, these technologies offer the potential to fundamentally change the power system while improving its efficiency and reliability. Developing these technologies is a long-term process that will require many years to reach full potential, but the region can facilitate progress through research, development, and demonstration of the technologies.

Along with the smart grid, other technologies may be able to provide power when it is needed with low cost, low risk, and low emissions. In the future, the region may find greater value in power generated by geothermal resources, ocean waves, tides, gasified coal with carbon sequestration, advanced nuclear, or currently unknown technologies. New methods to store electric power, such as pumped storage or advanced battery technologies may enhance the value of existing variable generation like wind. Given the uncertainties of the future, the region should not concentrate on any one potential future solution to its power supply, but should explore a diversity of potential sources of future energy generation and conservation.

FUTURE REGIONAL ELECTRICITY NEEDS

The Pacific Northwest is expected to develop and expand over the next 20 years. Regional population is likely to increase from 12.7 million in 2007 to 16.7 million by 2030. This four million increase compares to a 3.8 million increase between 1985 and 2007. The population growth will be focused on older age categories as the baby boom generation reaches retirement age. While the total regional population is projected to increase by over 28 percent, the population over age 65 is expected to nearly double. Such a large shift in the age distribution of the population will change consumption patterns and electricity uses. Some possible effects could include increased health care, more retirement and elder care facilities, more leisure activities and travel, and smaller-sized homes.

The cost of energy (natural gas, oil, electricity) is expected to be significantly higher than during the 1980s and 1990s. Although these prices have decreased significantly since the summer of

2008, a significant portion of the reductions are likely due to the effects of the current economic recession. Natural gas prices have also been affected by the recent growth of production from nonconventional natural gas supplies. The technology to retrieve these supplies cost-effectively has only developed recently and has improved expectations of adequate future supplies. Nevertheless, the cost of finding and producing these supplies is higher than for conventional supplies, which increases the estimated future price trend for natural gas.

If carbon emissions taxes or cap-and-trade policies are implemented, energy costs are likely to increase. Some of the planning scenarios used to develop this plan include a wide range of possible carbon mitigation costs from zero to \$100 per ton. The expected average prices in this range start at zero and increase over time to \$47 per ton of CO₂ emissions by 2030. Carbon costs can have a significant impact on electricity costs and prices to consumers. While higher prices reduce demand, they also stimulate new sources of supply and efficiency and make more efficiency measures cost-effective.

Electricity load (before accounting for new conservation) is expected to grow by about 7,000 average megawatts between 2009 and 2030, growing at about 335 average megawatts, or 1.4 percent, per year. Residential and commercial sector electricity use account for much of the growth in demand. Contributing to the growth in the residential sector is an anticipated increase in air conditioning and consumer electronics. Also, summer peak electricity use is expected to grow more rapidly than annual energy. All of this growth in energy demand must be met by a combination of existing resources, more efficient use of electricity, and new generation. An important change for the Sixth Power Plan is that electricity needs in the future can no longer be adequately addressed by evaluating only average annual energy requirements. In the future, resource needs must also consider capacity to meet peak load and the flexibility to provide within-hour, load-following, and regulation services. The requirements for within-hour flexibility reserves have increased because of the growing amount of variable wind generation located in the region.

RESOURCE STRATEGY

The Council's resource strategy for the Sixth Power Plan provides guidance for the Bonneville Power Administration and the region's utilities on choices that will help meet the region's growing electricity needs while also reducing the risk associated with uncertain future conditions. The strategy minimizes the cost of, and risks to, the future power system. The timing of specific resource acquisitions is not the essence of the strategy because the timing of resource needs will vary for every utility. Rather, the important message of the resource strategy lies in the nature of the resources and their priorities.

The resource strategy can be summarized in five specific recommendations:

1. Improved efficiency of electricity use is by far the lowest-cost and lowest-risk resource available to the region. Cost-effective efficiency should be developed aggressively and on a consistent basis for the foreseeable future. The Council's plan demonstrates that cost-effective efficiency improvements could on average meet 85 percent of the region's growth in energy needs over the next 20 years.

2. Renewable resource development is required by resource portfolio standards in three of the four Northwest states. The most readily available and cost-effective renewable resource is wind power and it is being developed rapidly. Wind requires additional strategies to integrate its variable output into the power system and, in addition, it provides little capacity value for the region. The region needs to devote significant effort to expanding the supply of cost-effective renewable resources, many of which may be small scale and local in nature.
3. Remaining needs for new energy and capacity should be based on natural gas-fired generation until more attractive technologies become available. The resource strategy does not include any additional coal-fired generation to serve the region's needs. Further, the Council's plan demonstrates that meeting the Northwest power system's share of carbon reductions called for in some state, regional, and federal carbon-reduction goals will require reduced reliance on the region's existing coal plants.
4. The challenges of wind integration and the need for additional within-hour reserves initially should be addressed through improvements in system operating procedures and business practices. Changes in wind forecasting, reserve sharing among control areas, scheduling the system on a shorter time scale, and advancing dynamic scheduling can all help address wind integration and contribute to a more efficient use of existing system flexibility. The region is already making significant progress in these areas.
5. Finally, the Council's resource strategy calls for efforts to expand long-term resource alternatives. The region should demonstrate the potential of smart-grid applications to improve the operation and reliability of the regional power system and to access the potential of consumers to provide demand response for the capacity and flexibility of the power system. The region should continue to assess new efficiency opportunities, expand the availability of cost-effective renewable energy technologies, and monitor development of carbon capture and sequestration, advanced nuclear technologies, and other low-carbon or no-carbon resources.

Efficiency

The Council's power plan includes a detailed analysis of efficiency potential in hundreds of applications. The achievable technical potential of efficiency improvements increased from the Fifth Power Plan levels due to advancing technology, reduced cost, and estimates in new areas such as efficiency in electricity distribution systems, consumer electronics, and street, parking, and exterior building lighting. In addition, the cost-effectiveness of these technologies has increased significantly because avoided costs have doubled and carbon-cost risk is several times higher than in the Fifth Power Plan. The estimated achievable potential conservation is nearly 6,000 average megawatts for measures costing under \$100 per megawatt-hour. Over 4,000 average megawatts are available at a cost of less than \$40 per megawatt-hour. These increased opportunities exclude future savings from efficiencies that have already been secured through building codes and appliance efficiency standards.

The plan shows that a substantial amount of the growth in electricity demand could be met by conservation. Portfolio model analysis shows that over 5,900 average megawatts of conservation are cost-effective, double the amount in the Council's Fifth Power Plan. The amount that can be

achieved is constrained by the commercial availability of technologies, limits on the annual development rate, and an ultimate penetration rate limit of 85 percent. The amount of conservation found to be cost-effective changed very little in response to changing assumptions about carbon costs and policies. Conservation in the plan is projected to be responsible for reducing carbon emissions by 17 million tons per year by 2030, a 30 percent reduction in 2030 emissions. Failure to achieve the conservation included in the plan will increase both the cost of, and risks to, the power system and likely prevent Washington and Oregon from meeting legislated carbon-reduction goals.

Generation Alternatives

The Council analyzed a large number of alternative generating technologies. Each of these technologies is compared in terms of risk characteristics and cost with other generating technologies, efficiency improvements, and demand response. In addition, resource contributions need to be considered in terms of their energy, capacity, and flexibility characteristics.

Generating technologies that are technologically mature, meet restrictions on new plant emissions, and are cost-effective are limited in the short to intermediate term. Wind remains the primary large-scale, cost-effective renewable generation source in the near term. However, the Council believes there likely are small-scale dispersed renewable generation alternatives that are local and site-specific. Cost-effective development of these is encouraged, even though the Council currently lacks enough information to include them explicitly in the plan. Natural gas-fired generation is also feasible and cost-effective. New coal-fired generation is difficult to site and permit, and prohibited in many states by new plant emissions standards. During the next 20 years, alternatives may develop such as carbon separation and sequestration, maturing renewable technologies, advanced nuclear generation, demand response, smart-grid technologies, and storage strategies to help provide flexibility reserves. When CO₂ costs are added to the direct cost of generating alternatives, the cost of most generating resource alternatives range between \$70 and \$105 per megawatt-hour or higher (levelized 2006\$).

New renewable generation (primarily wind) is required to meet renewable portfolio standards in Washington, Oregon, and Montana. Analysis shows that meeting RPS requirements uses most of the 5,300 megawatts of readily accessible wind potential in the region. In addition to the wind, some geothermal resources were found to be attractive. However, the amount of geothermal potential is considered quite limited. Given the risk that a carbon-pricing policy might be enacted in the future, some renewable generation is cost-effective even without renewable portfolio standards.

Natural gas-fired generation is anticipated toward the middle of the planning period. Natural gas is attractive for energy and capacity needs and provides an ability to displace coal plants in the event of high carbon costs or coal plant closures. Both combined-cycle turbines and simple-cycle turbines are included in most scenarios. Although these natural gas plants are sited and licensed in the plan, this does not occur until after the five-year action plan period. Preparing to add natural gas-fired generation helps protect against the risk of uncertain future conditions, but the generating plants are not actually completed in many of the simulated futures during the 20-year planning period. The Council recognizes that individual utilities' needs and access to market resources vary. Some utilities will need additional resources in the near-term even if they

meet their renewable portfolio standards and acquire all conservation available to their service territories.

During the last 10 years of the power plan the generating resource priorities become less clear. Given current climate change policies and concerns, new coal without carbon sequestration is unlikely. Further, any significant reduction in carbon will require reduced operations of existing coal plants. Alternatives beyond greater reliance on natural gas are typically unproven commercial technologies or alternatives that require significant new transmission investments. Long-term generating resources considered include wind developed outside the region and imported on new transmission lines, advanced nuclear, gasified coal with carbon sequestration, and development of relatively unproven renewable resources, or ones that are currently too expensive. Natural gas is used in the plan to meet long-term needs, but the Council recognizes that other alternatives are likely to become available over time. In particular, the evolution of smart-grid technologies could significantly change the nature of future power system needs and the kinds of resource alternatives required and available.

CLIMATE CHANGE POLICY

Addressing the topic of uncertain climate policies was identified as one of the most important issues for the Sixth Power Plan. The focus of climate policy, especially for the power generation sector, will be on carbon dioxide emissions. Nationwide, carbon dioxide accounts for 85 percent of greenhouse gas emissions. Nationally, about 38 percent of carbon dioxide emissions are emitted from electricity generation, but for the Pacific Northwest the power generation share is only 23 percent because of the hydroelectric system. Analysis by others has shown that substantial and inexpensive reductions in carbon emissions can come from more efficient buildings and vehicles. More expensive reductions can come from substituting non- or reduced-carbon electricity generation such as renewable resources, natural gas, and nuclear generation, or from sequestering carbon.

Reductions in carbon emissions can be encouraged through various policy approaches, including regulatory mandates (RPS or emission standards), emissions cap-and-trade systems, emissions taxation, and efficiency improvement programs. State policy responses within the region to climate change concerns have focused on renewable energy standards and new generation emission limits. In addition, Oregon and Washington have carbon reduction targets adopted by statute. National and regional proposals have focused on cap-and-trade systems intended to reduce carbon and other greenhouse gases, although none have been implemented successfully in the region. Although carbon taxes are easier to implement than cap-and-trade systems, policy discussions have focused mainly on cap-and-trade systems.

The question for the power plan is what strategies are prudent given a future where carbon pricing policies are unclear. The Council does not take a position on any particular regional carbon reduction goal or carbon price in this power plan. The plan does recognize the uncertainty about future carbon prices and that possible carbon emission reductions are important risk issues for the regional power system. Multiple carbon reduction scenarios, including a carbon risk scenario that considers a range of future carbon prices between zero and \$100 per ton provide relevant information for policy makers in the region. In general, the resource strategy in the plan will allow Washington and Oregon to meet their carbon reduction targets and constructively address the risk of uncertain future carbon policy. According to Council analysis,

states and/or the federal government will need to take additional actions in order to achieve these targets. Potential carbon pricing plays an important role in the Council's resource strategy, with the exception of the conservation resource, which remains a key component regardless of climate change policy assumptions.

The key findings from the Council's analysis of climate change policies include the following:

- Without any carbon control policies, including existing ones, carbon emissions from the Northwest power system would continue to grow to 6 percent over 2005 levels by 2030. However, without the significant amount of conservation (which is cost-effective even without carbon policies) the growth in emissions would be far greater.
- Without additional carbon pricing policies, current policies would stabilize carbon emissions from the Northwest power system at 2005 levels, but not meet current carbon reduction goals.
- Assuming a risk of higher carbon prices, the Sixth Power Plan resource strategy has the potential to reduce average regional power system carbon emissions to 9 percent below 1990 levels, or 30 percent below 2005 levels, adjusted for normal hydro conditions.
- Significant reductions of carbon emissions from the Northwest's power system require reduced reliance on coal, which currently emits more than 85 percent of the carbon dioxide from the regional power system. A carefully coordinated retirement and replacement of half the existing coal-fired generation serving the region with conservation, renewable generation, and lower carbon-emission resources could reduce average carbon emissions to 18 percent below 1990 levels.
- To the extent that public policy raises the cost of carbon, we can expect an increase in a typical consumer's electric bill and a decrease in carbon emissions, especially when the carbon price begins to exceed \$40 per ton. A fixed carbon price of \$45 dollars per ton has a similar effect on carbon emissions as retiring half of the existing coal-fired generation. Both would meet current carbon reduction targets for 2020 on average, but coal retirement would provide more certainty in meeting the targets.
- Preserving the capability of existing regional hydroelectric generation will help keep power system costs and carbon emissions down. In scenarios where the capability of existing resources are reduced, whether hydroelectric or coal, the energy and capacity are largely replaced with gas-fired generation to maintain the adequacy and reliability of the power system.

CAPACITY, FLEXIBILITY, AND WIND INTEGRATION

Reliable operation of a power system requires minute-to-minute matching of electricity generation to varying electricity demand. In the Pacific Northwest, resource planners have been able to focus mostly on annual average energy requirements, leaving the minute-to-minute balancing problem to system operators. This was because, historically, the hydroelectric system had sufficient peaking capacity and flexibility to provide the needed operations as long as there was sufficient energy capability. This is changing for several reasons: growing regional

electricity needs are reducing the share of hydroelectricity in total demand, peak load has grown faster than annual energy, the capacity and flexibility of the hydro system has been reduced over time for fish operations, and growing amounts of variable wind generation have added to the balancing requirements of the system.

As a result, planners must now consider potential resources in terms of their energy, capacity, and flexibility contributions. The rapid growth of wind generation (which has little capacity value and increases the need for flexibility reserves) means that meeting growing peak load and flexibility reserves will require adding these capabilities to the power system. Changes can be made to the operation of the power and transmission system that will reduce flexibility reserve needs. These operational changes are expected to cost less than adding peaking generation, demand response, or flexibility storage, and they can be implemented more quickly.

FISH AND WILDLIFE PROGRAM AND THE POWER PLAN

The Columbia River Basin Fish and Wildlife Program is by statute incorporated into the Council's power plan. The fish and wildlife program guides Bonneville's efforts to mitigate the adverse effects of the Columbia River hydroelectric system on fish and wildlife. One of the roles of the power plan is to help assure reliable implementation of fish and wildlife hydrosystem operations. The Columbia River power system operators have reliably provided hydrosystem actions specified to benefit fish and wildlife (and Bonneville ratepayers have absorbed the cost of those actions) while maintaining an adequate, efficient, economic, and reliable energy supply. This is so even though the hydroelectric operations for fish and wildlife have a sizeable impact on power generation. On average, hydroelectric generation is reduced by about 1,200 average megawatts, relative to operation without any constraints for fish and wildlife. Since 1980, the power plan and the Bonneville Power Administration have addressed this impact through changes in secondary power sales and purchases, by acquiring conservation and some generating resources, by developing resource adequacy standards, and by implementing other strategies to minimize power system emergencies and events that might compromise fish operations.

In addition to operational changes, most of the direct cost and capital costs of fish and wildlife programs have been recovered through Bonneville revenues and Bonneville has absorbed the financial effects of lost generation, resulting in higher electricity prices. Bonneville estimates that the total financial effect of replacing lost hydropower capability and funding direct fish and wildlife program expenditures totals from \$750 million to \$900 million per year (a range affected by, among other things, water conditions and electric prices). The power system is less economical as a result of fish and wildlife program costs, but still economical in a broad affordability sense when compared to the costs of other reliable and available power supplies.

The future presents a host of uncertain changes that are sure to pose challenges for the successful integration of power system and fish and wildlife needs. These include possible new fish and wildlife requirements, increasing wind generation and other variable renewable integration needs that could require more flexibility in power system operations, conflicts between climate change policies and fish and wildlife operations, possible changes to the water supply from climate change that might make it more difficult to deliver flows for fish and meet power needs, and possible revisions to Columbia River Treaty operations to match 21st century power, flood control, and fish needs.

To address current operations and prepare for these additional challenges, the Council has adopted a regional adequacy standard to help ensure that events like the 2000-01 energy crisis, in which fish operations and power costs were affected, do not happen again. In addition, the Wind Integration Forum is addressing issues with integration of wind into the power system. Large swings in wind output have sometimes adversely affected hydropower and fish operations. Addressing adequacy and flexibility issues in the Sixth Power Plan will improve electricity reliability and help ensure reliable fish operations.



Oregon Department of Energy and the Energy Facility Siting Council

Public Hearing on the Draft Proposed Order
for the Boardman to Hemingway Transmission Line
June 18-20 and June 26-27, 2019, 4:30-8 p.m.
Public Written or Oral Testimony Registration

Name (mandatory) Irene Gilbert

Mailing Address (mandatory) 2310 Adams Ave.
La Grande, OR

Phone Number (optional) () _____ Email Address (optional) _____

Today's Date: 6/27/19

Do you wish to make oral public testimony at this Hearing: Yes ☒ No ☐

Written comments can also be submitted today.

All written comments must be received by the deadline, July 23, 2019, 5 p.m. PDT to:

Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol Street NE
Salem, OR 97301
Fax: 503-378-6457
Email: B2H.DPOComments@oregon.gov

Note: by submitting written or oral testimony, you will receive a notice from the Oregon Department of Energy at a future date of the opportunity to request party status in a contested case hearing on the proposed facility.

Written Testimony

(Please print legibly – Use the back for additional space if needed. Additional written comments may be attached to this card.)

<p style="text-align: right;">Page 42</p> <p>1 a lease with another company. I'm wondering how that's 2 going to be handled. And that lease could have 3 something be built on it? And if that is built, what 4 happens then to the power line? Where does it go? 5 And that's pretty much it at this point. 6 Unless somebody wants to answer the questions. 7 HEARING OFFICER WEBSTER: Unfortunately, no 8 real answers tonight, just testimony from the public. 9 MR. CHRIS RAUCH: Yeah, I know. 10 HEARING OFFICER WEBSTER: Thank you though. 11 Next up, Irene Gilbert. 12 MS. IRENE GILBERT: Irene Gilbert, Stop B2H 13 member. And first I want to make -- oh, 2310 Adams 14 Avenue, La Grande, Oregon. 15 First, actually, today I'm just going to make 16 some general comments about different areas of the 17 application. But I also wanted to remind the folks 18 here -- I know you don't deal with me that much -- but 19 when people talk about restrictions on the transmission 20 line, I just wanted to remind you that a lot of the big 21 players, like Google, Target, Walmart, Home Depot, all 22 those big companies are trying to get off the grid. 23 They're wanting to develop their own energy sources. 24 There are lots of litigation things going on in 25 different states now because the utilities don't want</p>	<p style="text-align: right;">Page 44</p> <p>1 A lot of these farmers and ranchers, the 2 average for these smaller developments -- we weren't 3 small, we had a thousand acres, that's a lot in the 4 Willamette Valley -- but here, a lot of these people, 5 according to the data, says they're living on an average 6 of like \$22,500 a year. 7 So I can appreciate this line would make jobs 8 for some electricians, and I can appreciate that they 9 would like that. But it also can take away the jobs and 10 the livelihood of a lot of farmers who understand they 11 don't own the land they're on; they are the caretakers 12 of that land. The land owns them. And they're here 13 trying to protect what is -- well, it's just the basis 14 of their entire existence. 15 So having said that as kind of an 16 introduction, I'd like to remind you that whatever you 17 put in the site certificate, if indeed you get a site 18 certificate issued, is all that Idaho Power is going to 19 be required to do. 20 So when you don't have final plans for things 21 like fire, and you say it's going to be developed after 22 the fact, you are leaving all of these people very 23 vulnerable because they had no input in what the final 24 product looks like. It's my observation that you have 25 accepted some very bare-bones kinds of plans, and say,</p>
<p style="text-align: right;">Page 43</p> <p>1 them to leave the grid or be able to do that. So 2 anyway, that really counters the idea that we're going 3 to have this huge influx of electric need. 4 Also, the FERC requirement that new renewables 5 have a consistent level of energy coming onto the grid 6 has resulted in, as you well know, a lot of the wind 7 developers are asking to have solar and batteries added 8 to their development so that they can have consistency 9 in the energy that they're providing. 10 So those kinds of things are going to mean 11 that the projections for this huge need for transmission 12 lines is somewhat overstated. 13 Now, I've been a member of a farming family, 14 ranching family. And in the Willamette Valley, we 15 raised a lot of cattle, we raised feed for them, we grew 16 trees, we harvested trees. We provided habitat for 17 western pond turtles and endangered species of fish, all 18 kinds of wildlife. 19 And I can remember at one point having to sit 20 around the table and having one of my sister-in-laws 21 say, I wonder how many cows we would have to raise to 22 make any money. We were selling 200 cows every fall and 23 the prices were so bad that we were thinking, if we 24 raise more will we start making money or how does this 25 work?</p>	<p style="text-align: right;">Page 45</p> <p>1 We'll work it out later. Idaho Power is going around 2 telling people, We'll work it out later. 3 They got 31 issues from the weed folks in five 4 counties that they have felt should be in that plan. 5 Those things are not in the plan. And Idaho Power is 6 telling people, they're telling our commissioners, We'll 7 work it out later. We'll talk about it after the site 8 certificate is issued. 9 We all know that if people don't ask for a 10 contested case now, by the time those things happen, 11 it's too late. And all of these people that are 12 concerned about it will have nothing. They wouldn't 13 even be notified of what kinds of final plans get 14 approved. So it's a pretty unbalanced kind of system. 15 And a few things I just wanted to just comment 16 about are notification of people. When you notify 17 people within 250 feet of a transmission line that this 18 line is going to go in, there are a whole lot of people 19 that are being directly impacted who don't even know, 20 who were never notified. It's not a just kind of 21 notification. 22 I am concerned about groundwater and the 23 groundwater impacts. You heard something about that 24 here from one of these farmers. But when you bring in a 25 bunch of equipment and you start -- one thing, you</p>

<p style="text-align: right;">Page 46</p> <p>1 compress the soils, you tear up the habitat. And 2 feeding the groundwater system is dependent on having a 3 cover of grasses and things for the water to get 4 through. When you take that away, what you end up with 5 is a lot of erosion. When you talk about in these 6 areas, it's not just about water erosion, you're not 7 getting water into the ground table, but you also have 8 issue of wind, and you have windstorms. And they are 9 losing their property when it blows away. 10 So I'm concerned about wetlands and the fact 11 that this developer is only having to deal with wetlands 12 within the site boundary. Now ODF&W, I go out to the 13 Ladd Marsh fairly frequently, and they have a sign there 14 on the wetlands that says: Wetlands are the most 15 important habitat in the state. And yet, this developer 16 is being allowed to do things right up next to wetlands, 17 and they are being allowed to tear up wetlands. 18 They also, for whatever reason, I know ODF&W 19 rates property as Category 1 through 6. Some of the 20 wetlands they're rating as a Category 3. I mean, where 21 do you come by figuring out that a wetlands and the 22 number of critters that are dependent on it, that that 23 would be just sort of an, Okay, let's just destroy it. 24 We'll just kind of make it up someplace else. So I hope 25 you really look carefully at how they're looking at the</p>	<p style="text-align: right;">Page 48</p> <p>1 The thing with Ladd Marsh and not talking 2 about the fact that there's a federal mitigation site 3 there. Actually, there are three parcels of land. And 4 ODF&W receives payment every single year to make sure 5 that those mitigation areas as a result of the Columbia 6 River Dam have, if you look at the documents, those are 7 supposed to have zero damage, zero negative impact. And 8 ODF&W has gotten hundreds of thousands of dollars to 9 protect those and see that nothing damages them. 10 Now, when you put a transmission line that's 11 impacting wildlife that are supposed to be utilizing 12 that, that's not consistent with zero damage. 13 I have trouble with the way they dealt with 14 scenic impacts because basically Idaho Power made up a 15 scale -- it's nothing that's had any kind of research -- 16 they made up a way of rating visual quality on a 1-to-30 17 scale, and then they made objective statements about how 18 different areas are rated on this scale. 19 And I'm sure when I go to turn in my 20 statements or my written information, I will include 21 pictures of some of these places that they've rated. 22 And certainly one of them will be Ladd Marsh because 23 they rated it an 11 on a scale of 30. And Ladd Marsh is 24 surrounded 360 degrees with mountains. 11 out of 30, 25 hmm, strange scale.</p>
<p style="text-align: right;">Page 47</p> <p>1 categorization of some of this. Any water resources 2 that they're saying is a Category 3, I just I can't 3 believe that. 4 The rating of things like farmlands are very 5 understated. And in fact, one place in the application 6 they said that when lands are rated as farm and grazing, 7 they don't include them in the farmland. They don't 8 include them as part of the farmland. So they said that 9 right in the application. And they said that someone 10 had gotten ahold of LCDC and made that determination. I 11 can tell you that the LCDC rules don't say that grazing 12 land is not farmland or the combination of grazing- 13 agricultural is not agricultural land. It is 14 agricultural land. So some things like that are just 15 kind of very questionable. 16 I think I said something to someone the other 17 day about the site certificates are getting a lot better 18 and it's a lot harder to challenge some of the site 19 certificates that are coming out. But this is not the 20 case with this one. And it doesn't have to do with EFSC 21 staff. It has to do with garbage in-garbage out. You 22 have gotten garbage in this application. And so you're 23 dealing with garbage and you're not going to get a good 24 product unless you go back and really look at what's in 25 that application, because it's not the way it seems.</p>	<p style="text-align: right;">Page 49</p> <p>1 I'm going to be quick today. You'll be 2 thrilled with this. 3 One thing, another thing that bothers me a lot 4 in looking through this application is that Idaho Power 5 has rated -- I have a problem with the habitat 6 mitigation anyway because only things that have 7 structures on them are considered permanent impacts 8 normally. But they decided that when you cut down a 9 forest, and they say this line is going to last 10 indefinitely, that that's a temporary impact because 11 it's only going to last as long as the transmission line 12 lasts. 13 I question that when you have something, when 14 you have a change in habitat that's going to last as 15 long as this transmission line, that's not a temporary 16 impact. 17 The area around that, along that transmission 18 line where they are cutting out forests, all of it 19 should be habitat that is compensated and mitigated for. 20 At least in the area around La Grande, their surveys for 21 wildlife show almost a hundred species fewer birds than 22 the surveys that were done for Antelope Ridge and the 23 surveys that have been done out at the wildlife refuge. 24 So I'm not so sure -- and they're looking at 25 this whole line and how many birds is it going to</p>

<p style="text-align: right;">Page 50</p> <p>1 impact. I can tell you, there's information out there 2 that contradicts what they're saying. 3 Around fires, this is another one. They're 4 relying on local fire departments, volunteer fire 5 departments, to deal with fires along this transmission 6 line. It takes minutes in some of these low-lying dry 7 areas for a fire to go a really long ways. 8 And I know one fire department in our area 9 said they can respond between 4 and 6 minutes. Well, 10 whoever asked them and they responded, I don't think so. 11 When you have a fire alarm and you're relying on people 12 to leave their work and their houses and get to the fire 13 department, they can't be there in 4 to 6 minutes. So 14 sometimes you kind of have to wonder how the question 15 was asked to get the kind of responses that they say 16 they've gotten. 17 Regardless of that, the fire issue and who is 18 going to take care of fires. I know Baker County asked 19 for a unit, to have the developer develop resources to 20 deal with fires, particularly in forested areas, because 21 those local fire departments don't have the equipment 22 that's necessary to deal with wildland fires. And 23 that's what you're going to be dealing with part of the 24 time. It's ignored in the application. 25 The traffic statements that they've made about</p>	<p style="text-align: right;">Page 52</p> <p>1 like 10 percent weather that would cause a corona effect 2 and 22 percent weather that would cause a corona effect, 3 that's a big difference. They didn't look at individual 4 locations, which as I read the rules, that's what you're 5 supposed to do is look at individual locations and what 6 is the difference going to be. 7 They didn't include some things in their 8 baseline noise evaluation that, according to the rules, 9 have to be included. 10 The fact that they took a consultant's 11 statement that it was okay to use a 5-hour period to 12 establish the baseline noise level and interpreted that, 13 it was interpreted as meaning it was okay to look at a 14 5-hour period of time to establish how many times a day 15 there was going to be a noise exceedance is pushing the 16 envelope, I would say. So typically you're looking at a 17 24-hour period when you look at it. 18 I would also like to share there was 19 mitigation with LCDC and also with the state courts that 20 say that the noise standard is not subject to de minimus 21 decision-making; it is a yes/no answer. It is a black 22 and white answer. So that is not consistent with saying 23 a certain percentage, whatever the percentage is, if 24 they're over the standard, they're over the standard. 25 And I did provide that to one of your folks here to go</p>
<p style="text-align: right;">Page 51</p> <p>1 changes in traffic, I haven't looked at a lot of the 2 roads they're going to use supposedly to take equipment 3 and things up to this site, back and forth, but I know 4 in my area they're talking about doubling the amount of 5 traffic that's currently existing on those roads. 6 Now, it may be legal to add 130 vehicles to a 7 narrow country road, with no sidewalks, like Foothills 8 Road. If any of you are familiar with Union County, 9 Foothill Road gets an incredible amount of -- bikers 10 love that road, walkers love that road. There is a lot 11 of just people who use that road. And now we're talking 12 about taking a road that normally gets about 120 13 vehicles a day and putting another 130 vehicles a day, 14 and that's not even including big equipment. That is a 15 safety issue where someone is going to get killed. Some 16 kid is going to run out in the middle of the road and 17 get killed. Who is responsible for that? 18 They didn't model noise along a lot of the 19 site, for instance, like the lay-down areas and that 20 kind of thing. I think I mentioned that the other day. 21 They also, as far as noise, there's so many problems 22 with noise I can't even hardly begin to think about it. 23 But they average the noise exposure across the 300-mile 24 line. So when people's exposure to noise is going to 25 run between 20 percent weather that would cause it -- or</p>	<p style="text-align: right;">Page 53</p> <p>1 back and look at that. 2 Because I don't think you can say that it's 3 okay when you have litigation already that's gone 4 through the Oregon courts that say it is yes or it is 5 no. It is not de minimus. 6 So thank you. And you'll hear lots and lots 7 from me, comments, I'm sure you know. Thank you. 8 HEARING OFFICER WEBSTER: Thank you. 9 MS. IRENE GILBERT: Any questions? 10 HEARING OFFICER WEBSTER: Anybody else that 11 would like to fill out a comment card, please do so. 12 And Mr. Luciani, you are up. 13 I have a question for you: Is today your 14 birthday? 15 MR. JOHN LUCIANI: Yes. I'm here on my 16 birthday. 17 HEARING OFFICER WEBSTER: Happy birthday. 18 MR. JOHN LUCIANI: Thank you. 19 HEARING OFFICER WEBSTER: It looked like you 20 were very used to writing June 27 of a different year, 21 that's why I guessed it was your birthday. 22 MR. JOHN LUCIANI: Very good. 23 I'm John H. Luciani. It's L-u-c-i-a-n-i. My 24 address is 27633 Butter Creek Road, Echo, Oregon 97826. 25 I thank you for being here.</p>

agriculture
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DEPARTMENT OF ENERGY

B2H EFSC Exhibit K APPLICANT FAILED TO INCLUDE ALL EFU LANDS FOR PURPOSES OF 215.275 ANALYSIS

Exhibit K, 4.1.1.4 Non-EFU Alternatives

Idaho Power failed to include all farm land in the analysis required by ORS 215.275. Of critical concern are items (4) requiring restoration of agricultural land and associated improvements that are damaged or otherwise disturbed by the siting, maintenance, repair or reconstruction of the facility.

And (5) requiring that there be clear and objective conditions on the application for utility facility siting to mitigate and minimize the impacts of the proposed facility, if any, on surrounding lands devoted to farm use in order to prevent a significant change in accepted farm practices or a significant increase in the cost of farm practices on the surrounding farmlands.

Idaho Power's analysis failed to include lands zoned as a combination of rangeland and farm use as farm land subject to the provisions of ORS 215.275

The failure to include all required land in the analysis results in a lack of compliance with the requirements of OAR 345-021-0010(l)(k) and OAR 345-022-0030. Due to this omission, the council cannot find the developer in compliance with ORS 469.504 or ORS 197.646 or OAR 345-022-0030.

On page K-18, the applicant states, "Several of the agricultural areas in the project area are zoned a combination of timber and farm use, or rangeland and farm use. Based on discussions with DLCD, IPC did not consider such hybrid zoned lands to be EFU lands for purposes of the ORS 215.278 analysis." This statement is not DOCUMENTATION as required for the application to be complete. There is no indication of who spoke with whom on what date, and nothing to document that the action actually occurred. Following is documentation taken directly from the LCDC rules that the combination zones are EFU and are required to be included in the ORS 215.278 analysis as well as the dictionary, IRS and FDA definitions of farm use which are consistent with the LCDC definition.

LCDC defines Exclusive Farm Use Zone in ORS 215.203(2)(a) as "farm use" means the current employment of land for the primary purpose of obtaining a profit in money by raising, harvesting and selling crops or the feeding, breeding, management and sale of, or the produce of, livestock, poultry, fur-bearing animals or honeybees or for dairying and the sale of dairy products or any other agricultural or horticultural use or animal husbandry or any combination thereof.----

Oxford Dictionary defines "farming" as "The activity or business of growing crops and raising livestock"

The Internal Revenue Service defines "farm" as "includes stock, dairy, poultry, fruit, furbearing animal, and truck farms, plantations, ranches, nurseries, ranges, greenhouses or other similar structures used primarily for the raising of agricultural or horticultural commodities, and orchards and woodlands."

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EFU
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B2H ESC Exhibit K FAILURE TO CONSIDER NON-EFU ALTERNATIVES

CONCISE STATEMENT OF ISSUE: The application fails to document that the Boardman to Hemingway Transmission line would have to be sited on EFU land in order to provide the service and failed to show that reasonable alternatives identified by other parties were evaluated with the same level of analysis as the companies preferred alternative, or in multiple cases were ignored.

Idaho Power's evaluation of ORS 215.283(l) and ORS 215.275 described on Page K-12 of the application fails to meet the standard for siting on exclusive farm use. While the alternatives analysis does not require consideration of alternatives that would also occur on EFU land, it does require analysis of alternatives that would utilize public lands. This analysis was not given serious consideration. The use of public lands meet the requirements that the alternatives be "fair, proper, just, moderate, and suitable under circumstances".

The issue is well presented in the March 18, 2015 letter from Baker County from Fred Warner Jr., Chair Baker County Commissioners, which is incorporated into this comment and included as an attachment. Specifically, Pages 1 through 3 outline the lack of serious consideration for legitimate alternatives and the No Action Alternative. Furthermore, the letter comments on the fact that the evaluation of alternatives placed greater weight on the effects of the project on wildlife on federally managed land than it did on private lands, failed to disclose impacts on the natural and human environment that may be greater than having the transmission line sited on federal lands.

The applicant failed to address reasonable alternatives identified by other parties as is required by ORS 215.275. There are multiple comments provided in the Environmental Impact Statement from businesses, government bodies, individuals and others supporting the use of alternatives that place the line on public lands. These alternatives were either not evaluated, discounted absent justification, or evaluation was of a cursory nature not consistent with the preferred route of Idaho Power. Incorporating by reference, Section K of the Final Environmental Impact Analysis listing Comments received on the Draft Environmental impact Statement.

The application submitted to the Oregon Department of Energy also fails to identify the private party recommendations and level of disclosure of impacts that is consistent with the handling of the proposed routes.

Following are three examples of the multiple comments stating that the line should be placed on public land rather than farm land from other parties which were provided during the "Response to 2008 BLM/ODOE scoping comments pertaining to Alternatives" Appendix A-I which did not receive adequate consideration.

- Ruth W. Metlen commented on December 2, 2008 recommending the use of existing lines and upgrading them to meet the required capacity. This alternative was discounted by simply stating that existing lines were being used at full capacity rather than actually identifying the impacts.

- Jonathan Westfall letter of 12/2/2008 stating that the existing utility corridors designated on Federal lands should be used rather than permitting new ones.
- Roger Findley and Jean Findley letter of December 11, 2008 suggested that the line follow the existing utility corridor identified in SEORMP and Westwide Energy Corridor EIS across Malheur County to Buchanan in the Burns District (BLM) in Harney County, then turn north and travel through largely uninhabited forest and grazing land to Boardman, SIP proposes that the route to Sand Hollow Substation in this alternative be through Idaho exclusively, with a 500Kv transmission line loop ultimately to the Pearl Substation east of Emmet, Idaho which is to be built at a later time. A second route which was proposed was using the existing PP&L corridor established in the Southern Oregon Resource Management Plan to Buchanan in the Burns District, then north to Boardman through the Malheur National Forest and private grazing land, Idaho Power in their Notice of Intent (NOI) identified this corridor (NOI, Exhibit (O-I) but rejected it without detailed analysis. This route appears to bypass almost completely the exclusive farm use-zoned land and inhabited area. It should be analyzed for the comparison of impacts to natural resources versus impacts to inhabited and farm use-zoned lands in both Malheur and Baker Counties.

These examples along with the large numbers of other public comments which did not receive analysis that was nearly as robust as Idaho Power's preferred route preclude a determination that Non-EFU Alternatives were Considered as required by ORS 215.283 and ORS 215.275. The application needs to be denied due to this critical failure to meet statutory requirements for siting in EFU.

The developer on page B-33 of application stated that of the three routes available, they chose the Eastern Corridor. They stated it had 75.8 ~~miles~~ more Agriculture EFU braced impacts, than the Western Corridor. They also stated it would follow a utility corridor for 50 miles. It actually follows the corridor less than 40 miles. The developer clearly did not make an effort to ~~remove~~ avoid farm land as over

3.1.2.4 Analysis of Three Alternative Corridors

As shown on Figure B-13, IPC identified three alternative corridors—Eastern, Central, and Western. For detailed discussion of the analysis, see Attachment B-1.

As a result of the analysis of the three corridors, IPC selected the Eastern Corridor as the basis for its Proposed Corridor.¹⁰ When compared to the Central and Western corridors, the Eastern Corridor:

- Would require over 35 fewer miles of new corridor,
- Would parallel existing utility corridors for over 50 miles more,
- Would require over 1,000 fewer acres of clearing,
- Would be significantly less difficult to construct, and
- Would avoid creating a new 30- to 45-mile utility corridor through one or more National Forests.

While it would avoid new impacts on rugged forest lands, the Eastern Corridor would cross approximately 75.8 more miles of EFU-zoned land than the Western Corridor, and 18.4 more miles than the Central Corridor. Compared to the Central Corridor, the Eastern Corridor would cross 33.1 fewer miles designated as high construction difficulty and 21.1 fewer miles designated high permitting difficulty and it would not require plan amendment to designate a utility corridor in the Wallowa-Whitman National Forest. The Western Corridor would have a similar degree of permitting difficulty as the Eastern Corridor, but would have required plan amendments for utility corridors crossing the Malheur and Wallowa-Whitman National Forests. The Western Corridor would also traverse 55.1 more miles designated high construction difficulty.

Table B-4 compares each corridor across all resource factors listed in Attachment B-3. The total of OAR 345-021-0010(1)(b)(D) factors encountered are categorized as more, less, or least reasonable when the corridors are compared to each other. In other words, the Eastern Corridor was the best corridor for avoiding impacts to 38 resources, the second best for another 19 resources, and the least reasonable for 11 resources. The results indicate an overall lower potential for resource impact for the Eastern Corridor. The results also clearly indicate that there was no single corridor that was the best choice for *all* of the resources; as contemplated by OAR 345-021-0010(1)(b)(D), IPC carefully considered and evaluated each corridor against the eight factors and selected the Eastern Corridor as the basis for the Proposed Corridor.

Table B-4. Comparison of OAR 345-021-0010(1)(b)(D) Factors by Corridor

Resource Factor Encounters	Western Corridor	Central Corridor	Eastern Corridor
More Reasonable	32	25	38
Less Reasonable	32	26	19
Least reasonable	13	11	11
No encounter	12	27	21
Total Resource Factors	89	89	89

Using the factors presented Tables B-4 and B-5, the Eastern Corridor was selected as the Proposed Corridor with the understanding that additional micro-siting would be necessary to avoid and reduce potential impacts. The additional siting work that has been done since 2010 is

¹⁰ Note that the Proposed Corridor differs from the Eastern Corridor in the Boardman area.

Curt Melcher, Director
Oregon Department of Fish and Wildlife

Ladd Marsh
RECEIVED
AUG 22 2019

Dear Mr. Melcher:

Regarding the Boardman to Hemingway Transmission Line

DEPARTMENT OF ENERGY

I am writing due to my concern that the Oregon Department of Fish and Wildlife does not appear to be meeting their obligation to assure the management and protection of the Bonneville Power Mitigation sites located within the Ladd Marsh Wildlife Area. There are several Administrative Laws, Oregon and Federal Statutes, and Land Use Plans which this development will not be in compliance with. Some of those identified include:

OAR 635-415-0020(3)

The Department shall recommend mitigation consistent with the goals and standards of OAR 645-415-0025 for development actions impacting fish and wildlife habitat for other than Department actions when: (a) Federal or state environmental laws or land use regulations authorize or require mitigation for impacts to fish and wildlife or (b) Local environmental laws or land use regulations authorize or require mitigation for impacts to fish and wildlife habitat or (c) The proposed development action requires either an amendment to an acknowledged comprehensive plan or land use regulation relating to fish and wildlife and habitat protection or adaptation of new land use regulations related to fish and wildlife protection and the department believes mitigation is necessary to comply with statewide Planning Goal 5 or other statewide plan goal requirements for fish and wildlife habitat protection.

Areas Requiring Action from the Oregon Department of Fish and Wildlife:

1. ODFW receives on an ongoing basis annual payments to manage and protect the habitat and wildlife utilizing the Federal Mitigation Sites established to compensate for the fish and wildlife damages done by the Columbia River Dams. The requirement for these areas that no actions have negative impacts on these areas. ODFW recommended no development occur in the forested areas adjacent to the Ladd Marsh Wildlife Area when they evaluated the area for the proposed development of the Antelope Ridge Wind Development due to the large numbers of birds utilizing these areas. Idaho Power is proposing cutting a transmission line through these forested areas that will be 250 feet wide. This transmission corridor will provide raptor opportunities to kill birds, will dissect contiguous areas of forested habitat, will result in placing a transmission line barrier across wildlife migration paths as well as placing a barrier between the marsh and nesting or roosting areas for birds.
2. The developer has requested that the Oregon Department of Energy Siting Division allow an exemption to the Forest Practices Act to allow the development of this line through existing private forest land. The Forest Practices Act protects wildlife, old growth, riparian areas and water resources that are critical habitat for wildlife and fish.
3. The Oregon Department of Energy Siting Division does not recognize nor honor Federal Threatened or Endangered Wildlife and fish. Contrary to the direction they received from the Legislative Council following an inquiry from Representative Greg Barreto, they are not only ignoring federally protected wildlife in their evaluation of Threatened and

Endangered wildlife, but also ignoring the need to protect their habitat under the habitat protection rules.

4. The planned actions are not consistent with the ODFW rules requiring mitigation for this development, they are not consistent with the Ladd Marsh Management Plan, they are not consistent with the contractual agreement with ODFW to protect the federal mitigation area, they are not consistent with the Migratory Bird Management Act, with the Forest Practices Act.
5. The developer is only conducting wildlife surveys within the project's site boundary. ODFW has surveys of birds such as Bald and Golden Eagles and Beunto, elk and deer showing that the impacts to birds and wildlife extend beyond the area of the development.
6. The Pre-Construction Biological Survey Work Plan will not be developed until after issuance of a site certificate which is intended to deny the public access to the actual survey methods, wildlife included, terrain,, timeframes and analysis of data.
7. Idaho Power is only including "fish bearing streams" in their survey. Federal rules regarding federally endangered fish consider the entire watershed as protected habitat when threatened and endangered fish are present in a tributary. Un addition, the federal rules refer to streams that either currently have, or historically have had the threatened and endangered fish.
8. The only biological surveys the applicant is planning are for: Northern Goshawk and rWashington Ground Squirrel(site +785 ft), Raptor Nest (1 mile of site boundary, but ½ mile in forested areas) (, Terrestrial Visual Encounter Surveys, Wetlands and Fish Presence Surveys.
9. Surveys for Great Gray Owl and Flammulated Owl were completed in 2012 and there are no plans to repeat those surveys in any previously surveyed areas.(site boundary +.25)
10. Wildlife survey results are only being provided to the Oregon Department of Energy. The survey information should also be provided to the Oregon Department of Fish and Wildlife and the US Department of Fish and Wildlife and be made available to the public.
11. It appears that the developer will only be identifying wetlands, but are making no effort to identify the wildlife present at the wetlands.
12. The developer has surveyed only 1757 acres of over 18,263 acres of Washington Ground Squirrel habitat in spite of the fact that they have access to additional land.o the
13. The developer states that theirTerrestrial Visual Encounter Surveys identified 136 birds. This transmission line is planned to go through Ladd Marsh or next to the boundary. Wildlife surveys at Ladd Marsh have identified 230 bird species present. The developer identified just over 50% of the species present in this area.
14. There appears to have been no effort to identify bat species at the location.
15. Fish habitat surveys can extend as little as 100 feet total length. This is not adequate. Fish surveys need to a minimum of 500 feet total length. In addition, given the fact that protected habitat includes streams with T & E fish, or where they could have historically occurred, these surveys are meaningless. Even with no currently present, the habitat is considered habitat for T and E fish. And needs to be protected accordingly.
16. Applicant on Paage PI-22 states that forests and wetlands are rare in this area.

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STOP B2H Coalition

Ladd Marsh

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AUG 22 2013

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DEPARTMENT OF ENERGY

B2H EFSC Failure to Assess Impacts to Ladd Marsh Wildlife Area Recreational Activities.

The transmission corridor that Idaho Power is planning to utilize which crosses the Ladd Marsh Wildlife Area. This portion of the Wildlife Area is owned by the Rocky Mountain Elk Foundation (RMEF) and the Oregon Department of Fish and Wildlife. This area is used for hunting opportunities and many other aspects of outdoor recreation such as hiking, horseback riding, mountain biking, etc. None of the public uses allow the use of motorized travel in the area to protect the wildlife. The MOU between the RMEF and ODFW requires that the land be managed for the benefit of wildlife and to implement habitat improvement projects. In addition, there are two other private landowners directly adjacent to the RMEF/ODFW lands that are currently enrolled in the ODFW's Access and Habitat Program. One landowner is implementing habitat improvement projects and the other has chosen to participate as a "Welcome to Hunt" property." Due to the requirements of the MOU and the public recreational uses being made of the property, the developer must evaluate the impacts the transmission line will have on public recreation, health and wildlife. Specific immediate concerns include the potential for disrupting the use of this designated critical winter habitat for both elk and deer, noise impacts on wildlife and users, invasive weed spread from the right of way, erosion occurring as a result of habitat disruptions along the right of way and resulting water flow off the ROW, and the demonstrated risk of land movement which has in the past resulted in a natural gas pipeline being moved completely out of the ground on the adjoining private property.

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DEPARTMENT OF ENERGY

B2H EFSC Exhibit K APPLICANT FAILED TO INCLUDE ALL EFU LANDS FOR PURPOSES OF 215.275 ANALYSIS

Exhibit K, 4.1.1.4 Non-EFU Alternatives

Idaho Power failed to include all farm land in the analysis required by ORS 215.275. Of critical concern are items (4) requiring restoration of agricultural land and associated improvements that are damaged or otherwise disturbed by the siting, maintenance, repair or reconstruction of the facility.

And (5) requiring that there be clear and objective conditions on the application for utility facility siting to mitigate and minimize the impacts of the proposed facility, if any, on surrounding lands devoted to farm use in order to prevent a significant change in accepted farm practices or a significant increase in the cost of farm practices on the surrounding farmlands.

Idaho Power's analysis failed to include lands zoned as a combination of rangeland and farm use as farm land subject to the provisions of ORS 215.275

The failure to include all required land in the analysis results in a lack of compliance with the requirements of OAR 345-021-0010(l)(k) and OAR 345-022-0030. Due to this omission, the council cannot find the developer in compliance with ORS 469.504 or ORS 197.646 or OAR 345-022-0030.

The applicant states, "Several of the agricultural areas in the project area are zoned a combination of rangeland and farm use. Based on discussions with DLCD, IPC did not consider such hybrid zoned lands to be EFU lands for purposes of the ORS 215.278 analysis." This statement is not DOCUMENTATION as required for the application to be complete. There is no indication of who spoke with whom on what date, and nothing to document that the action actually occurred. Following is documentation taken directly from the LCDC rules that the combination zones are EFU and are required to be included in the ORS 215.278 analysis as well as the dictionary, IRS and FDA definitions of farm use which are consistent with the LCDC definition.

LCDC defines Exclusive Farm Use Zone in ORS 215.203(2)(a) as "farm use" means the current employment of land for the primary purpose of obtaining a profit in money by raising, harvesting and selling crops or the feeding, breeding, management and sale of, or the produce of, livestock, poultry, fur-bearing animals or honeybees or for dairying and the sale of dairy products or any other agricultural or horticultural use or animal husbandry or any combination thereof.----

Oxford Dictionary defines "farming" as "The activity or business of growing crops and raising livestock"

The Internal Revenue Service defines "farm" as "includes stock, dairy, poultry, fruit, furbearing animal, and truck farms, plantations, ranches, nurseries, ranges, greenhouses or other similar structures used primarily for the raising of agricultural or horticultural commodities, and orchards and woodlands."

The FDA defines "farm" as "an establishment under one ownership in one general physical location devoted to the growing and harvesting of crops, the raising of animals (or seafood), or both"

A failure to include all farm land in completing the requirements of ORS 215.275 means the applicant is not in compliance with OAR 345-022-0030 which is required in order to issue a site certificate or determine whether or not the application meets the standards. This understatement of farm lands is especially problematic due to the decision *Friends of Parrett Mountain v. Northwest Natural Gas Co.*, 336. iOr. 93, 108 (2003) requiring the determination to be "reasonable" meaning fair proper, just, moderate or suitable under the circumstances". This transmission line is being sited on a far greater percentage of agricultural private land in counties where the public land includes a much greater percent of the total lands in the counties. The omission of most agricultural lands from the 215.275 analysis also means that the stated percentage of total farm lands being taken from the counties is significantly understated.

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DEPARTMENT OF ENERGY

B2H ESC Exhibit K FAILURE TO CONSIDER NON-EFU ALTERNATIVES

CONCISE STATEMENT OF ISSUE: The application fails to document that the Boardman to Hemingway Transmission line would have to be sited on EFU land in order to provide the service and failed to show that reasonable alternatives identified by other parties were evaluated with the same level of analysis as the companies preferred alternative, or in multiple cases were ignored.

Idaho Power's evaluation of ORS 215.283(l) and ORS 215.275 fails to meet the standard for siting on exclusive farm use as required by OAR 345-022-0030. While the alternatives analysis does not require consideration of alternatives that would also occur on EFU land, it does require analysis of alternatives that would utilize public lands. This analysis was not given serious consideration. The use of public lands meets the requirements that the alternatives be "fair, proper, just, moderate, and suitable under circumstances". The fact that this has not been the approach for years is documented on Page Bff-33 of the application. The developer had identified three potential corridors for the line, Western, Central and Eastern. They were all rated exactly the same for impacts. The ODOE accepted the corridor with the most significant

The issue is well presented in the March 18, 2015 letter from Baker County from Fred Warner Jr., Chair Baker County Commissioners, which is included here as a reference that Idaho Power was focused upon justifying the route they preferred, not an unbiased review that places significance on avoidance of damages to farm lands. into this comment and included as an attachment. Specifically, Pages 1 through 3 outline the lack of serious consideration for legitimate alternatives and the No Action Alternative. Furthermore, the letter comments on the fact that the evaluation of alternatives placed greater weight on the effects of the project on wildlife on federally managed land than it did on private lands, failed to disclose impacts on the natural and human environment that may be greater than having the transmission line sited on federal lands.

The applicant failed to address reasonable alternatives identified by other parties as is required by ORS 215.275. There are multiple comments provided in the Environmental Impact Statement from businesses, government bodies, individuals and others supporting the use of alternatives that place the line on public lands. Comments were also included in this application. These alternatives were either not evaluated, discounted absent justification, or evaluation was of a cursory nature not consistent with the preferred route of Idaho Power. Incorporating by reference, Section K of the Final Environmental Impact Analysis listing Comments received on the Draft Environmental impact Statement.

The application submitted to the Oregon Department of Energy also fails to identify the private party recommendations and level of disclosure of impacts that is consistent with the handling of the proposed routes.

Following are three examples of the multiple comments stating that the line should be placed on public land rather than farm land from other parties which were provided during the "Response to 2008 BLM/ODOE scoping comments pertaining to Alternatives" Appendix A-I which did not receive adequate consideration.

- Ruth W. Metlen commented on 2008 recommending the use of existing lines and

upgrading them to meet the required capacity. This alternative was discounted by simply stating that existing lines were being used at full capacity rather than actually identifying the impacts.

- Jonathan Westfall letter of 12/2/2008 stating that the existing utility corridors designated on Federal lands should be used rather than permitting new ones.
- Roger Findley and Jean Findley letter of December 11, 2008 suggested that the line follow the existing utility corridor identified in SEORMP and Westwide Energy Corridor EIS across Malheur County to Buchanan in the Burns District (BLM) in Harney County, then turn north and travel through largely uninhabited forest and grazing land to Boardman, SIP proposes that the route to Sand Hollow Substation in this alternative be through Idaho exclusively, with a 500Kv transmission line loop ultimately to the Pearl Substation east of Emmet, Idaho which is to be built at a later time. A second route which was proposed was using the existing PP&L corridor established in the Southern Oregon Resource Management Plan to Buchanan in the Burns District, then north to Boardman through the Malheur National Forest and private grazing land, Idaho Power in their Notice of Intent (NOI) identified this corridor (NOI, Exhibit (O-I) but rejected it without detailed analysis. This route appears to bypass almost completely the exclusive farm use-zoned land and inhabited area. It should be analyzed for the comparison of impacts to natural resources versus impacts to inhabited and farm use-zoned lands in both Malheur and Baker Counties.

These examples along with the large numbers of other public comments which did not receive analysis that was nearly as robust as Idaho Power's preferred route preclude a determination that Non-EFU Alternatives were Considered as required by ORS 215.283 and ORS 215.275. The application needs to be denied due to this critical failure to meet statutory requirements for siting in EFU.

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DEPARTMENT OF ENERGY

The Oregon Department of Energy recommendation that you allow the developer to avoid maintaining a bond to assure the public and landowners are not stuck with the costs of restoring the 300 mile site should the developer cease operation is undefensible. This developer has no more assurance that they will be in business in 10 years than any other energy company, and no doubt less than many. Idaho Power is a small player in the energy market with only 500,000 customers compared to Pacific Corp with 1.8 million, Pacific Power showing 2 million, Portland General electric with 1,749,136. Given that Portland General Electric with assets of 7.2 billion and customers numbering 1,749,136 is in chapter 11 bankruptcy, What is the Oregon Department of Energy planning to offer as collateral to make up the difference between the \$1.00 they recommend the developer put up and the actual cost of repairing the site? If Idaho Power were to go out of business, or be forced out of business, is the plans that the unwilling recipients of this transmission line get stuck with the costs of removing their structures? It makes it clear to me why the customers who rated this company gave them a 1 out of 5 points. The STOP B2H coalition is not just pretending we believe this transmission line is a dinosaur that will be dead before it's time. Most of us believe it will be as unutilized as phone lines in a very few years.

Given the realities of the energy market including the impact of conservation, which according to the news is going to be embraced by the federal government, microgrids, mini nuclear generators, batteries, rooftop solar, and the developments that are already being built to reduce and eliminate the need for high voltage lines such as this, I would not be inclined to buy stock in Idaho Power. There will be utility companies that will not be here in 10-20 years, just as there are currently transmission lines that were planned but are not being built. Idaho Power is not a significant player in the energy market which makes them vulnerable. Attachments include an information Sheet on Idaho Power, with notations regarding information from some other utility web sites regarding their size, a sheet with some customer ratings from people who appear to hope they are not here in a few years, and a long list of the many utility companies that will be hoping they are in business long after Idaho Power no longer viable. This company has not even provided documentation that they could get a bond for more than 4 years and yet the Oregon Department of Energy is suggesting that you let the customers, landowners and citizens of Oregon assume the risk of having to pay their bill. /This proposed action is not supported by OAR 345-022-0050, nor is it consistent with any past practices. If Idaho Power cannot afford the bond, what makes them think you should be giving them a site certificate?

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DEPARTMENT OF ENERGY

This document is organized by use of a central document (This one) which has at least a short synopsis of the rule that is of concern. Many of the issues also have a more detailed reference letter which is noted at the end of the information in this document. In that case, the more extended letter and any attachments to the letter are included as an attachment to this comment. An issue that has direct impact on every section of this application which is dealt with in detail later in the document is the fact that the developer did not include all areas of the development within the site boundary which resulted in all information regarding impacts the facility will have understated in the application..

Area of Concern Number One:
Wildlife

THE DRAFT PROPOSED ORDER FOR THE BOARDMAN TO HEMINGWAY TRANSMISSION LINE FAILS TO PROVIDE A PREPONDERANCE OF EVIDENCE TO SUPPORT THE LEGAL FINDINGS NECESSARY TO ISSUE A SITE CERTIFICATE INDICATING COMPLIANCE WITH THE HABITAT MITIGATION RULES AND PROTECTIONS OF LISTED SPECIES AS REQUIRED BY OAR 345-022-0060

Note: The species specific examples used do not reflect the total area where the species may be found, and they do not represent full disclosure of the species impacted by the development. It is the developers responsibility to show eligibility by providing survey information for all areas they are able to access. Given the fact that the developer is not being required to provide full surveys for all areas due to the linear nature of the development and lack of owner access, those areas accessible need to be fully surveyed prior to issuing a final site certificate. It is not intended to indicate that ~~the~~ only species listed in this section of the comments require additional surveys. OAR 345-021-0010(1)(p) requires the identification of all fish and wildlife at the proposed location and identification of the habitat classification categories as set forth in OAR 635-415-0025. The area of influence and number of surveys have not been completed to justify a determination that the developer meets the requirements of the rules, and multiple species have been entirely ignored.

This information is necessary in order to comply with the requirements of OAR 345-022-0060 requiring the identification of habitat categories and required mitigation.

1. Developer has failed to provide survey information adequate to show a preponderance of evidence regarding the number of impacted animals in order to determine if the impacts will be significant.

- a. According to the application, Washington Ground Squirrel surveys were only completed in a small area along the Bombing Range even though much of the rest of the habitat area was accessible.
 - i. Steve Cherry and Sarah Reif, ODFW recommended June 1, 2016 for Wheatridge: surveys in potential WGS habitat within 1,000 feet of ground disturbing activities. (This standard should be applied to the surveys at the proposed development.)
- b. Golden Eagles are documented in the forested area of Union County. In fact, the area of the attached golden eagle surveys, which is near Ladd Marsh has been identified by the USFWS as being a location of high natural resource and wildlife value. See attached nest surveys from 2011 and 2012 completed in the 6 mile survey area which includes the location of the proposed transmission line. Multiple long-term studies of golden eagle migration, populations, and surveys sponsored by the US Fish and Wildlife Service show population declines (Millsap and Allen 2006, Good et al. 2007, Farmer et al. 2008, Smith et al. 2008, USFWS 2009) Previous surveys reported 107 observations of golden eagles (32 during sensitive species surveys and 75 during other surveys or incidentally).

US Forest Service mitigation recommendations to minimize negative impacts to habitat used by golden eagles in the area adjacent to the proposed Elkhorn Wind Development which will be crossed by the transmission line included the following.: (This reference is provided specifically to indicate the mitigation measures that should be included for B2H as the measures are clearly defined in this document)

- i. Design and sight all transmission to avoid electrocution and collision by avoiding areas of high use habitat such as high ridgeline slopes.
- ii. .Design project roads to avoid disturbance during access to transmission line.
- iii. Place all collector lines and higher voltage transmission lines underground where feasible.
- iv. large transmission lines need to be designed to Avian Power Line Interaction Committee (APLIC) standards (2006)
- v. New roads should be designed and sited at least one mile away from active or inactive golden eagle nests (line of sight) or a minimum of ½ mile not line of sight.
- vi. Construction and maintenance activities should not occur within 1 mile of a nest between January 1 and July 15 (Pagel et al. 2010, Kochert et al. 2002). These are periods of golden eagle courtship and nesting in the intermountain west region (Beebe 1974, Kochert et al. 2002, Watson and Whalen 2003) (Draft site certificate is not consistent with these distances.).

Prior to the developer not being willing to disclose Golden Eagle deaths at the wind development which the transmission line will cross in front of, for the year 2009 there were 4 golden eagle deaths at the wind development documenting the significant use of this area. The area also has

documented burrowing owl, Swanson's Hawk and red tailed hawk nests within the area as well as 4 species of bats.

Area of Concern Number Two- Mitigation for Wildlife Impacts

2. Developer failed to identify and mitigate for habitat impacts to federally protected species as referenced in Representative Barreto letter from Oregon Legislative Council.
 - a. The USFWS documented in a letter to Sue Oliver dated Feb. 14, 2011 that in breeding bird surveys for a proposed Wind Development, 5 sensitive bird species were identified, 75 different species, and 64 active raptor nests resulting in a USFWS recommendation that the forested habitat be categorized as Category 1 or 2 habitat and that no project features be located in the forested areas. Idaho Power should not be allowed to place a 350 foot clear cut through this area fragmenting the habitat, destroying nest sites and displacing wildlife to what would likely be less desirable habitat. Both the USFWS and the Oregon Department of Fish and Wildlife supported this area being designated as a Zone of Multiple Biological Values. *The importance of the forested habitat being removed by the developer combined with the permanence of the impacts according to the developer means that all of the right of way where existing forest habitat will be removed for the life of the project needs to be included in the establishment of a mitigation amount.*
3. All species listed as threatened or endangered or protected by federal law need to be included in the evaluation of OAR 345-022-0060 habitat in order to comply with the Threatened and Endangered species act since they have been removed from consideration under OAR 345-022-0070.
4. According to ODFW and ODOE, Habitat is a function not only of the type of habitat, but also the species of fish and wildlife dependent upon that habitat. In their application for Site Certificate, Idaho Power identifies no Category 1 streams or riparian areas which is contrary to the federal designation of species along the transmission line which are designated as threatened or endangered.. The Oregon Department of Energy Comment Number 18 to the BLM regarding the May 2009 Draft B2H Biological Survey Work Plan stated that "The ODFW Habitat Mitigation Policy is for both fish and wildlife". Even without field surveys, Idaho Power is aware of water resources containing Threatened or Endangered Fish and they have access to information regarding water resources which historically contained these species. ODFW habitat categories as listed in the application for water resources must include consideration of the species of fish present in the waterway which can be obtained with or without surveys
 - a. Bull trout are listed as a Threatened species by the USFWS. Critical habitat is identified in Federal Register, Vol. 80, No. 107, Thursday, June 4, 2015 (Attached). In addition, the Recovery Plan for the Coterminous United States

Population of Bull Trout (attached) shows the river sections considered "critical" or core for the Mid-Columbia Recovery Unit which could be impacted by the Boardman To Hemingway Transmission line. Bull trout habitat is known to exist in Malheur, Umatilla, Union and Baker Counties and critical habitat is specifically identified in the federal law recording their listing. ODFW regulations designate such areas as Category 1 habitat necessitating no direct or indirect impacts from the proposed development. When a threatened or endangered fish is present in a waterway, the entire watershed is identified as critical habitat. Protections include any water resources where protected species are present or were historically present. Habitat for threatened or endangered fish could meet the definition for a Category 1 or 2 rating, but would not be a Category 3 as the developer has indicated. Idaho Power has indicated nothing regarding how and where these areas will be impacted by the proposed transmission line and methods being incorporated to assure no impacts will result from the development. For example, this fish has very specific needs in terms of water temperature, and there is concern regarding the impacts of the removal of vegetation along the impacted streams. The developer cannot ignore the specific needs of this species or others present at the site of the development. In addition, the developer needs to develop a plan for long term monitoring to make sure that the impact they have does not increase the water temperature and reduce the potential survival of the species.

- b. Water, wetlands and riparian areas are some of the most important habitat available. This habitat typically provides habitat for a large number of different species of fish and wildlife. USFWS recommend a 200 foot construction buffer from any stream to minimize construction and maintenance impacts on the stream's water quality. No new or significantly improved road building should occur within this distance of a stream.
5. A related issue is the plan for the Oregon Department of Energy and Energy Facility Siting Council to manage the requirements for Fish Passage. Given the critical nature of providing appropriate and adequate evaluation and management of fish passage to the maintenance and recovery of this fish, it does not appear prudent for an agency which has no experience in managing fish passage issues to assume responsibility and accountability for determining the appropriateness of the methods being used and the results of allowing an ineffective design to further impede the recovery of a threatened species. Page iv of the Recovery plan states "historical habitat loss and fragmentation, interaction with nonnative species, and fish passage issues are widely regarded as the most significant primary threat factors affecting bull trout. Since these fish are threatened, ODOE and the EFSC are considered equal to a "person" under the rules and in the event that they issue a site certificate that will result in injury or death of a protected species, they can be sued by any private party regarding their actions.

Additional Site Certificate Conditions Needed: The site certificate must include a requirement that the developer identify all habitat along the transmission line ROW that is Category 1 and establish methods to avoid any direct or indirect impacts to those areas impacted by the development as Category 1, mitigate for damages to that habitat, and obtain written assurance from the Oregon Department of Fish and Wildlife or the US Department of Fish and Wildlife that all fish passage plans provide adequate access for these fish, and establish a monitoring plan to extend for the life of the development to assure continued protection for the mitigation area. The requirement for monitoring during the life of the project are in ORS 469.507(1), as well as in comments from the US Department of Fish and Wildlife referring to the Antelope Ridge proposal. Given the ongoing debris removal that is typically required with fish passage methods, fish impacts require ongoing monitoring. Idaho Power needs to identify their monitoring plan to assure that fish passage methods are not being circumvented by such things as debris clogging the passages. Due to the importance of access to fishing opportunities to the recreational economy of Eastern Oregon and the severe economic damages that will result if a fish category were raised to "Endangered", the information needs to be made available to the impacted counties for their review and comment. It appears that EFSC is communicating with ODFW regarding the impacts, however, we are very concerned that EFSC will overrule the recommendations from ODFW since they have the authority to do so. In addition, the developer will be going over the items that must be included in the application with EFSC staff. The file does not currently include all information required for the issuance of a site certificate.

Area of Concern Number Three Impacts to Farm and Forest Land

THE APPLICANT SIGNIFICANTLY UNDERSTATES THE FINANCIAL IMPACTS TO THE STATE AND LOCAL ECONOMY AS A RESULT OF THE LOSS OF FARM AND FOREST LANDS "PERMANENTLY"

Exhibit K, Attachment K-2, Section 7.0

Idaho Power values Oregon's forest lands at an absurdly low amount according to individuals owning forest land in both counties.

The assessment of the impacts to accepted forest practices is seriously understated partially due to the understatement of forest lands, the lack of including the long term impacts to forest practices and the economic impacts of removing the land from forest uses and/or excluding the potential for growing trees on the land,.

The applicant claims that removal of forestland by clearing of trees permanently will have little economic impact to Umatilla and Union County. They value the loss of 245.6 acres of forestland in Umatilla County at \$488.60 per acre. They value the removal of 530.1 acres lost to the transmission line in Union County at \$182.98 per acre. The applicant provides no justification or documentation to support the figures they claim apply or the basis for the difference in value per acre between Umatilla and Union Counties for forest economic value.

The applicant failed to address OAR 660-006-0025(5)(a) which does not apply only to forest zoned land currently in production. It addresses FOREST ZONED LAND. The developer is removing the income and opportunity for the landowners and counties to obtain the benefits available through timber production opportunities.. For example, a large amount of land was burned and is recovering but will become productive timber land.

The applicant also limited their assessment of impacts to accepted forest practices to the current use of the land. The requirement under OAR660-006-0025(5)(a) is to assess whether or not the development will cause a significant change or significantly increase the costs of accepted forest practices on forest lands. This developer is stating that they are going to cause a permanent change to the land in their proposed right of way. Accepted forest practices are based upon the impacts in the future when the land is being utilized for growing trees or other uses consistent with the forest zoned lands. Forest uses are defined in Union County Land Use Plan as The (1)production of trees and the processing of forest products (2) open space, buffers from noise, and visual separation of conflicting uses; (3) watershed protection and wildlife and fisheries habitat; (4) soil protection from wind and water, (5) maintenance of clean air and water (6) outdoor recreational activities and related support services and wilderness values compatible with these uses, and (7) grazing land for livestock.

A very similar definition can be found as applied to the State Forester

The developer assumes incorrectly that the forest zoned lands not currently in production of trees will never be used for that purpose. That is not accurate, nor is it assumed by the definition of forest land.

As a result of only counting forest lands currently in production, the forest impacts are significantly understated. There is no explanation regarding how they came to the numbers they are using for forest sector jobs or explain the difference between the two counties. Additional issues with the value of farmland is the fact that they ignored the timeframes for how long they predict the land will not be available to the farmer. If it is over 50 years, their calculation should reflect that.

The applicant's identification of the acres of forest land impacted is incorrect due not only to the failure to use soil types to identify forest lands, but also, the fact that they are requesting a 300 foot right of way and they need to include any additional trees they will be removing in the 100 foot area on each side of the right of way.

The applicants claims that the land in the right of way will have a further reduced value due to the opportunity to use the land for agriculture or range land after the transmission line is constructed. This is completely unfounded. The lineal nature of a transmission line precludes any productive use of land taken for the transmission line. The right of way is too narrow to

make it available for production of crops, and the costs associated with purchasing equipment for agricultural operations would be prohibitive. It would be unusual for a forest operator to already own equipment for a crop operation. In order to use the right of way as grazing land, it would have to be fenced. According to "Estimated Livestock Fencing Costs for the Small-Farm Owner" by Derek L. Barber, the average cost of materials for ¼ mile (1,320 ft.) of field fence is \$1,108.53 plus the cost of building it. The Iowa State University Extension identified 2011 costs for constructing ¼ mile of fencing to be \$1,947.75 installed. Enclosing a square acre requires 820 feet of fence. In other words, the cost of fencing an acre of lost forest land would exceed the value the applicant claims the land would add to the local economy per acre for the 50 years the transmission line is predicted to be in place.

The applicant also claims that the transmission line right of way through forest lands will not cause a substantial change in accepted forest practices or cause a significant increase in the cost of accepted forest practices on either lands to be directly impacted by the Project or on surrounding lands.

Removing trees from land currently being used to grow them will create a substantial change in accepted forest practices. It also will substantially increase the costs of growing and harvesting trees on the surrounding lands. The transmission line will make it impossible to use aerial equipment to harvest trees on steep hillsides adjacent to the line, it will increase time and costs of harvest due to the need to avoid equipment contact with the transmission lines, avoid trees falling on the transmission lines, require the use of routes of access and egress from the forested lands that avoid having log trucks and equipment moving below the transmission lines, will decrease the harvest along the transmission line due to loss of trees along the forested land along the corridor due to wind and weather conditions impacting weakened root infrastructure once the transmission corridor is cleared.

In other words, this transmission line will remove forested land resulting in nearly a total loss of the economic value of the land removed from production of trees, and will impact the landowners and county economy not only by the loss of the production of trees and taxes, fees, employment and other benefits coming from that activity, but there will be related losses to the productivity of adjacent land, increased costs of harvesting along the transmission line, increased risk of wildfire, potential increase in the number of trespassers, interference with wildlife activities including displacement of wildlife using the forest lands to what may be less desirable habitat, opening the area up to increased predation on the multiple non-raptor species utilizing the forested areas, decreased value of land if it is sold, long-term reduction in assessed value of the land, etc. The Conclusions stated by the applicant in section 8.0 are absolutely false.

Removing trees from land currently being used to grow them certainly will create a substantial change in accepted forest practices. It also will substantially increase the costs of growing and harvesting trees on the surrounding lands. The transmission line will make it impossible to use aerial equipment to harvest trees on steep hillsides adjacent to the line, it will increase time and costs of harvest due to the need to avoid equipment contact with the transmission lines, avoid

trees falling on the transmission lines, require the use of routes of access and egress from the forested lands that avoid having log trucks and equipment moving below the transmission lines, will decrease the harvest along the transmission line due to loss of trees along the forested land along the corridor due to wind and weather conditions impacting weakened root infrastructure once the transmission corridor is cleared.

In addition, the applicant has failed to provide documentation to support their comments. The only reference the applicant cites that relates at all to this issue is the publication from the Oregon Forest Resources Institute. Some facts related to the value of forest land: According to US Forest Service Tech. Rept. PNW-GTR-578 Rev. 2004 entitled "Forests of Eastern Oregon: an Overview", Eastern Oregon Forests produce an average of 20 cubic feet per acre of timber each year. That would mean that an acre of land would produce approximately 240 board feet of lumber per year per acre during the life of the transmission line. According to Scott Hartell, Planning Director, Union County, forest land in Union County is classified as either 20 cubic feet per acre per year, or 50 cubic feet per acre per year, so the amounts could be significantly higher. The "Forest Facts Oregon's Forests: Some Facts and Figures" published in 2009 by the Oregon Department of Forestry states that economists estimate that for every billion board feet that is harvested in Oregon 11 forest sector jobs are created or retained. With the reduced harvest of timber on public land, the importance of private forest lands has increased significantly in sustaining the industry.

In other words, this transmission line will remove forested land resulting in nearly a total loss of the economic value of the land removed from production of trees, and will impact the landowners and county economy not only by the loss of the production of trees and taxes, fees, employment and other benefits coming from that activity, but there will be related losses to the productivity of adjacent land, increased costs of harvesting along the transmission line, increased risk of wildfire, potential increase in the number of trespassers, interference with wildlife activities including displacement of wildlife using the forest lands to what may be less desirable habitat, opening the area up to increased predation on the multiple non-raptor species utilizing the forested areas, it will decrease the value of land if it is sold, cause a long-term reduction in assessed value of the land, etc.

The Conclusions stated by the applicant in section 8.0 are absolutely false.

In summary:

The applicant has failed to document that they will comply with Land Use Goal 4 OAR 660-006-000 through OAR 660-006-0010; There is no documentation provided that would indicate they are in compliance with OAR 345-022-0030; and they have not documented, nor are they able to meet the requirement contained in OAR 345-022-0030(4) to allow an exception.

Costs to the landowner of forest zoned land currently in production of timber:

1. There is a significant change when the landowner can no longer use his land for growing timber, but continues to have the expense of paying taxes on land that is not productive. The loss comes directly from the landowners profit from the harvest. In addition, if the land is in forest deferral and loses that designation, the landowner will be assessed a penalty and have to pay back taxes plus increased taxes on an ongoing basis.
2. Landowners will receive less income with the same or greater expenses.
3. For landowners who receive income from hunters, the land will become less desirable due to the visual impact of the line and the fact that elk will avoid the area for multiple reasons including human and vehicle traffic, corona visual impacts, etc.(Attachment indicating research showing animals can see corona)
4. Landowners use their land as collateral for borrowing funding to run their operations. The reduction in value will make it more difficult for owners to obtain necessary funding in order to stay in business.
5. Rural Fire Protection Districts are only able to fight structural fires, so cannot be identified as resources should the transmission line result in a fire along the line. Landowners are required to protect forestland from fires that start or spread to their land according to ORS 477.210. Idaho Power is subjecting these landowners to an increased threat of fire, providing no additional resources to protect the land, and assuming that they can call on local Rural Fire Districts to fight a fire that occurs. Idaho Power needs to provide fire protection that is approved by the State Board of Forestry. A failure to do so will result in the landowner having to pay for fire protection resulting in a large expenditure which will impact the farmer's ability to continue farming due to the cost.
6. Accessing timber on either side of the transmission line requires moving vehicles and equipment around the transmission line due to an inability to move log trucks and large equipment under the line.
7. Limits the direction for falling timber and can result in more dangerous tree falling with increased damage to the remaining timber as well as the one being harvested.
8. A transmission line results in the loss of timber along the line due to blow downs.
9. There is an increase in the potential for fire both from the line, but even more significantly, from human traffic along the transmission line.
10. Increased liability and insurance needed due to increased risk of injury to trespassers.
11. There is a loss of wildlife habitat without being mitigated due to a failure to require the developer to provide mitigation for the destruction of forest habitat along the right of way. Requiring mitigation for only the bases of the structures means only a minute amount of the loss will be compensated for. Only allowing the removal of nest sites when birds are not present does not address the fact that many birds such as bald and golden eagles use the same nesting sites year after year and forest landowners usually include wildlife habitat as a reason for maintaining the forest land.
12. Idaho Power states that the value of the forest land removed permanently from production would be further reduced due to the ability of the forest owners to use the transmission line corridor for growing crops or grazing. This statement is unequivocally false. The lineal nature of a transmission line precludes any productive use of land taken for the transmission line. The right of way is too narrow to make it available for production of crops, and the costs associated with purchasing equipment

- for agricultural operations would be prohibitive. It would be unusual for a forest operator to already own equipment for a crop operation. In order to use the right of way as grazing land, it would have to be fenced. According to "Estimated Livestock Fencing Costs for the Small-Farm Owner" by Derek L. Barber, the average cost of materials for ¼ mile (1,320 ft.) of field fence is \$1,108.53 plus the cost of building it. The Iowa State University Extension identified 2011 costs for constructing ¼ mile of fencing to be \$1,947.75 installed. Enclosing a square acre requires 820 feet of fence.
13. In the event that EFSC allows this developer to avoid having a bond during most, if not all of the life of the transmission line, the property owners and citizens will be required to assume the cost of removing the transmission structures and line.

Farmers will be subject to many of the same costs as forest owners, and can also experience:

1. Idaho Power failed to consider Idaho Power only includes the area of the transmission tower bases as a permanent impact. The area of permanent impact is significantly larger than this. The impacts to the farmer's ability to use the area around a transmission pole is significantly larger than the base of the structure and must include the 20 foot gravel area around the structure plus the ground that is lost from agricultural production due to the turning radius of equipment. Impacts can be even greater in the event that a field is divided into two parcels which will also increase the cost of preparing, planting and harvesting crops more time consuming and result in a smaller yield,
See Section K 5.7.1 The value of the additional lost land for production must be included in the financial impacts of the development on farmers.
2. Idaho Power failed to include all farm land in the analysis required by ORS 215.275. Of critical concern are items (4) requiring restoration of agricultural land and associated improvements that are damaged or otherwise disturbed by the siting, maintenance, repair or reconstruction of the facility.
3. And (5) requiring that there be clear and objective conditions on the application for utility facility siting to mitigate and minimize the impacts of the proposed facility, if any, on surrounding lands devoted to farm use in order to prevent a significant change in accepted farm practices or a significant increase in the cost of farm practices on the surrounding farmlands.
4. Idaho Power's analysis failed to include lands zoned as a combination of rangeland and farm use as farm land subject to the provisions of ORS 215.275 It should have been included as farmland.
5. The failure to include all required land in the analysis results in a lack of compliance with the requirements of OAR 345-021-0010(l)(k) and OAR 345-022-0030. Due to this omission, the council cannot find the developer in compliance with ORS 469.504 or ORS 197.646 or OAR 345-022-0030.
6. The applicant states, "Several of the agricultural areas in the project area are zoned a combination of rangeland and farm use. Based on discussions with DLCD, IPC did not consider such hybrid zoned lands to be EFU lands for purposes of the ORS 215.278 analysis." This statement is not DOCUMENTATION as required for the application to be complete. There is no indication of who spoke with whom on what date, and nothing to document that the action actually occurred. Following is documentation taken directly from the LCDC rules that the combination zones are EFU and are required to be included

in the ORS 215.278 analysis as well as the dictionary, IRS and FDA definitions of farm use which are consistent with the LCDC definition.

--"LCDC defines Exclusive Farm Use Zone in ORS 215.203(2)(a) as "farm use" means the current employment of land for the primary purpose of obtaining a profit in money by raising, harvesting and selling crops or the feeding, breeding, management and sale of, or the produce of, livestock, poultry, fur-bearing animals or honeybees or for dairying and the sale of dairy products or any other agricultural or horticultural use or animal husbandry or any combination thereof.---"

--Oxford Dictionary defines "farming" as "The activity or business of growing crops and raising livestock"

--The Internal Revenue Service defines "farm" as "includes stock, dairy, poultry, fruit, furbearing animal, and truck farms, plantations, ranches, nurseries, ranges, greenhouses or other similar structures used primarily for the raising of agricultural or horticultural commodities, and orchards and woodlands.

--The FDA defines "farm" as "an establishment under one ownership in one general physical location devoted to the growing and harvesting of crops, the raising of animals (or seafood), or both"

--A failure to include all farm land in completing the requirements of ORS 215.275 means the applicant is not in compliance with OAR 345-022-0030 which is required in order to issue a site certificate or determine whether or not the application meets the standards. This understatement of farm lands is especially problematic due to the decision *Friends of Parrett Mountain v. Northwest Natural Gas Co.*, 336. iOr. 93, 108 (2003) requiring the determination to be "reasonable" meaning fair proper, just, moderate or suitable under the circumstances". This transmission line is being sited on a far greater percentage of agricultural private land in counties where the public land includes a much greater percent of the total lands in the counties. The omission of a great deal of agricultural lands from the 215.275 analysis also means that the stated percentage of total farm lands being taken from the counties is significantly greater than is being claimed. This is no small matter in a county who's economic stability relies upon the use of natural resources contained in our farm and forest lands.

7. Increased costs to apply herbicides, pesticides and fertilizer due to restricting the use of aircraft for application.
8. Increased safety hazard due to transmission line interference with emergency calling.
9. Increased cost of activities normally occurring through radio controlled equipment due to need to hire a person to perform the function.
10. Interference with irrigation equipment.
11. Loss of land use around the transmission structures due to turning radius of equipment and restrictions regarding height of equipment that can go under the transmission lines.
12. Soil compaction from equipment causes reduced crop yield for years according to landowners with existing transmission lines crossing their land.
Road damage due to ongoing use by developer and contractors performing maintenance on the transmission line.
13. Loss of land value and use of land as collateral for borrowing money to sustain the business. (Attached paper documents lost value due to transmission structures on farm land)
14. Eliminates the opportunities for purchase of additional land or consolidation of farms to remain economically sound in spite of fluctuating wholesale values of products.

The local economy will suffer from this development for the foreseeable future to an extent that far exceeds the minimal benefits Idaho Power has credited to the county, much of which is of questionable local value.

1. The county will end up paying to address increased invasive weeds in areas far from the transmission line due to the fact that weeds can travel so far.
2. The developer failed to include the harvest income that is received by the landowner and then spent primarily in the local area.
3. There is no consideration for the increased value of money which is circulated in the local community.

There is no accounting for the state and local taxes paid as well as harvest taxes which are paid and support the state and local area.

4. Replacing trees with a transmission line will negatively impact tourism dollars as it will reduce the numbers of wildlife viewers and hunters due to a reduction in elk, deer, birds, and other wildlife that draw them to the area. The Oregon Department of Fish and Wildlife and Travel Oregon reported that 2008 recreation expenditures in Oregon totaled \$2.5 billion as reported by Dean Runyan Associates. As the following comment notes, energy projects are cutting into that revenue.

Attached article "Are energy projects causing loss of tourism dollars on public lands?" cites the data from the Bureau of Land Management which recorded a 12% drop in the number of visitors to the Imperial Sand Dunes Recreation Area over the year after a high voltage power line was constructed. Data is available in the BLM's Centro Field Office under Highlights of the Desert District Advisory Council Meeting dated February 9, 2013.

5. The increased costs to harvest timber after a transmission line has been built is recognized by the courts who mandate that payment be made to landowners for this loss if their property is condemned to build the transmission line. The compensation must include at a minimum the value of the existing timber, the value of the timber that could be produced on the land in the future, and the increased costs of harvesting the timber along both sides of the transmission line. Increased costs include such things as having to build roads around the transmission line since log trucks and equipment cannot go under the lines, being limited in where a landing and other related but necessary parts of the logging operation are placed and the areas are likely to be less desirable than the location of the transmission line, the need to develop more roads through the area in order to avoid crossing under the transmission lines, limits on where logs can be dropped mean the cutters will require extra experience and training, interference with emergency communications equipment due to interference with the transmission frequencies, blow down along the transmission line due to weakened root systems and the fact that trees on the outside of a forested area receive more wind and damage. Increased risk to loggers due to electric line, limits on the use of helicopters due to risk of collision with transmission lines, etc.
6. The developer plans to use local resources to fight fires caused by the transmission line or access created by the transmission line to human caused fires. There is no required

mitigation for the increased risk of fire. The applicant's statements that they "may" restrict hours of operation, they "may" require water trailers, "may" require fire watches, "may" restrict road use during thaws means there is no mitigation being required to reduce the increased fire risk or the road damages that will occur.

7. Recreation is a significant income producing activity. The previous information shows a 12% reduction in visitors to a recreation area following development of a high voltage power line in the area. Many people would simply rather to go to a pristine environment for their recreation and fine high voltage electric lines incongruent. "The attached article entitled "Outdoor Industry Association Releases State-by-State Outdoor Recreation Economy Report" from July 26, 2017, gives the economic value of recreation by state. In Oregon, it is valued at \$16.4 billion dollars and 69% of the residents participate each year. It supports 172,000 jobs in this state. (Attached) There is little doubt that many visitors to Union County come here to enjoy the views and open areas. This transmission line will reduce the reason to chose this county over another for enjoying views, and a natural setting,

In addition, the applicant has failed to provide documentation to support their comments. The only reference the applicant sites that relates at all to this issue is the publication from the Oregon Forest Resources Institute.

In summary: As per the above information, the applicant has failed to document and they are not in compliance with Land Use Goal 3 or 4 OAR 660-006-000 through OAR 660-006-0010; There is no documentation provided that would indicate they are in compliance with OAR 345-022-0030; and they have not documented, nor are they able to meet the requirement contained in OAR 345-022-0030(4) to allow an exception.

This analysis of financial impacts on farm and forest practices and owners as a result of the proposed transmission line are significantly understated. The application needs to be denied due to the significant and far reaching costs that will be assumed both by landowners as well as the county as a whole.

Additional comments regarding forest/farm imoacts attached

Area of Concern Number Four Ladd Marsh Wildlife Area Impacts

Ladd Marsh is a protected area and the application addresses it as such. It also contains three parcels that are mitigation areas to compensate for damages to Columbia River wildlife resources due to the development of the dams and one area intended to mitigate for damages due to an ODOT development. The responsibilities and management requirements for the mitigation sites are significantly different than those for the Refuge, however, the developer ignored the

mitigation sites and treated them as a group with the rest of the refuge. This is a significant error and needs to be corrected prior to the issuance of a site certificate.

There are multiple management plans and documents specific to the mitigation areas. They document the fact that there are three parcels of ground, that as of 2011 there were over 200 species of birds, 40 species of mammals and 13 species of reptiles and amphibians utilizing this habitat and the numbers continue to increase. Another important function of this area is that it serves as a staging area for migrant waterfowl as well as providing nesting habitat for multiple other birds.

While there has been public dissatisfaction with other mitigation areas, there has been a good deal of public support for these. Bonneville Power contributed \$265,000 toward the purchase of these properties and makes annual payments to ODFW to manage, maintain and protect the integrity of these sites. The agreements with ODFW contain verbiage such as "promote connectivity of terrestrial and aquatic areas", "protect, restore and enhance biological diversity of site". "Assist BPA in meeting their fish and wildlife mitigation obligation in a cost effective way"; "Comply with Federal and State Endangered Species Act and Clean Water Act requirements" These words denote a significant amount of responsibility is being placed on ODFW to manage the site, but then again, they are getting paid to do so.

Unfortunately, it does not appear that there is a serious effort being made by ODFW to meet the requirements of their obligation. They have primarily focused on the elk winter range, however, they are apparently willing to support a level of mitigation that is smaller than that required in the past for winter range for other energy sites that have been sited. In addition, while they are aware that there are three different threatened or endangered fish species utilizing the site, there is no discussion regarding the fact that the location of the development on an unstable hillside above the mitigation sites will increase the flow of water off the hillside and onto the marsh which may then cause damage to the T & E fish species at this location. There also has been no discussion I am aware of regarding the wealth of bird species that are located on the marsh and which use the forests that the transmission line is scheduled to cut through for critical nesting, breeding and feeding as they move back and forth from the marsh property. These omissions may be due to a failure on the part of the Oregon Department of Energy to ask direct questions of the agency. Since the actual decisions on the mitigation required is being put off until after the site certificate is issued and there is no opportunity for public involvement in the process, it is critical that the Union County commissioners are involved with the final wildlife mitigation package and appropriate consideration be given to migratory and other birds and wildlife that may have population changes due to the impacts this transmission line may have on their life cycles. You cannot assess wildlife impacts to Ladd Marsh without discussion regarding the additional impacts to the forested lands above the marsh. Given the documents presented previously discussing such issues as wildlife viewing of corona effect, it is clear that there needs to be discussion regarding this topic.

The financial arrangement with ODFW involved the initial payment from BPA of \$265,000 toward the purchase of the properties. The annual payment is not a consistent amount, but appears to exceed \$50,000 per year. There are ongoing management plans that drive the

management of the wildlife area. I attached the first few pages of one of these documents FYI. They provide very detailed information related to the goals and expectations for the area.

Any assessment of how the B2H development will impact the surrounding areas must include information regarding what species of birds and bats are using the area outside the reserve which will be crossed. Given the amount of information and research that has occurred in Union county and the surrounding forest lands and the fact that the US Fish and Wildlife Service and ODFW previously recommended that no forest lands contain any development, there certainly should be a mitigation plan in the event the development occurs that assures that forested areas be mitigated using a calculation for the entire width of the clear cut and that these be considered permanent impacts due to the projected timeframe the developer plans to be at the location combined with the fact that the trees will not be allowed to be replanted with trees similar to those removed. Prior to approving a site certificate the developer must complete all surveys in the area of Ladd Marsh. Surveys must include all state and federal species potentially present at the site and extend into the forested areas. In addition to providing habitat for fish, birds and other species, Ladd Marsh provides quality recreational opportunities. It is available for hunting, fishing, bird watching, for example. Also, there have been no noise studies at the site that have been available to the public, and the visual impacts assessment done was purely subjective and lacks any type of validity. This area was rated as having 11 out of 30 points for visual quality. The Grande Ronde Valley is literally surrounded on all sides with beautiful forested mountains. In addition to identifying the actual wildlife using the site and implementing appropriate mitigation, it is no

Concerns regarding the mitigation for the wildlife sites include:

1. There does not appear to be comments or studies regarding the extent of the use of the habitat surrounding the marshland by birds which utilize the marsh,
2. There has been no change I am aware of that negates the responsibility for ODFW to recommend mitigation for direct and indirect impacts to the loss of habitat for migratory birds and bats. Each habitat area has it's own goals. The attached 2001 example shows the diversity of management objective es. In this case, the overall safety and health program was multi-facited including addressing fire, Vegetation management, water management, control of predators and nuisance animals, etc. The management plan needs to be consistent with the Northwest Power Planning Council's Fish and Wildlife Program and the Wildlife Management Program and ROD. In return for including payments to support development and maintenance of the land, Bonneville Power was awarded 281.23 habitat points and they continue to receive credit for this area as an offset for damages. This area is clearly a valuable resource for the county and the forested land outside the official boundary of the wildlife refuge must be included in any evaluation of the impacts to the marsh due to the fact that the wildlife are dependent upon the combination of habitat types for their health and safety. ODFW and the Oregon Department of Energy must address how the cutting of trees just outside the marsh will impact the well being of the animals on the marsh. Unless a species never leaves the

reserve marsh, cutting forests will change the value of the habitat. I encourage you to discuss the material needed for your evaluation with ODFW.

Area of Concern Number Five
Protection of the Public Interests

--The draft proposed order fails to require an adequate amount of county or advisory committee involvement, a dispute resolution process and a bond to assure that the public or other landowners are protected should the developer default from his obligation to address this issue.
Attached Document

--The draft site certificate cannot state that it is a safe exposure limit even if the individual is exposed to an EMF level lower than the standard because ODOE does not have the expert level required to give an opinion regarding the validity of the standard. That is going to require the expert panel that the legislature has required, but ODOE has not authorized.
Attached Document

EFSC needs to require bonding as is required of all other energy developments.
Attached Document

Area of Concern Number 6
EFSC cannot approve construction outside site boundary

Attachments identify several issues.

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Friends of the Grande Ronde Valley
Member Organization STOP B₂H
Coalition

Ms. Tardaewether:

Comment regarding the Boardman to Hemingway Transmission Line

Goal 4 of the Land Use Rules states that the decision needs to “conserve forest lands by maintaining the forest land base and to protect the states forest economy by making possible economically efficient forest practices that assure the continuous growth and harvesting of forest tree species as the leading use on forest land consistent with sound management of soil, air, water and fish and wildlife resources and to provide for recreational opportunities and agriculture.”

The applicant and the department failed to follow the state statutes or ODOE rules contained in OAR 345-022-0030 in the identification of the forest lands in Union County and the resulting impacts the B2H Transmission line will have on this critical local resource.

There is no statute or rule that allows forest land identification and impacts to be based upon information taken from County Administrative rules as was done by the use of the Union County Zoning, Partition, and Subdivision Ordinance (UCZPSO) to establish amount of Forest Lands in Union County impacted by the proposed development.

The action conflicts with ORS 469.504, Facility compliance with statewide planning goals. ORS 469.504(5) addresses the actions that the Oregon Department of Energy is to use if no applicable substantive criteria is provided regarding the counties state plan. The Union County Planning Department inadvertently provided comments based upon the local land use procedures rather than the official Land Use Plan. to provide substantive criteria from the Union County recognized State Land Use Plan. ORS 469/504 states, “If the advisory group does not recommend applicable substantive criteria within the time established in the department’s request, the council may either determine and apply the applicable substantive criteria under subsection (l)(b) of this section or determine compliance with the statewide planning goals under subsection (l)(b)(B) or (C) of this section.” The developer apparently was aware of this, but chose not to share the information with Union County Planning Department. No site certificate can be issued prior to having the applicant correct the inaccurate information, complete the required evaluation, provide the public and reviewing agencies opportunity to consider the significantly increased impacts on wildlife, economic, social and environmental determinations which will result. In addition, any exception to Goal 4 must be based upon the legal definition of what constitutes “forest lands”. That definition as established through legislative changes made during 2008 and 2011 and resulting court decisions must be based upon soil. Due to the use of “prevailing use” to identify forest lands in Union County, the amount of forest land and impacts of the development are significantly understated. The information contained in Section IV.E.1. 3, Page 145 through Page 170 of the Draft Proposed order including information in Table LU-3 and LU-5 does not comply with either state statutes or ODFW Administrative rules. All analysis and decisions related to forest lands including any exceptions to the allowed uses of forest lands must be corrected and be based upon the actual amount of forest lands being taken out of production for the foreseeable future. Two areas of immediate concern regarding the B2 H application and draft proposed order are:

1. The applicant established the amount of forest land impacted by road development outside the right of way using a 500 foot right of way. The right of way is only being approved for 300 feet, so corrections need to occur.

2. The second, much bigger issue is the fact that the developer is not counting range land as Forest Land. The amount of rangeland being crossed is very significant and will seriously impact the projected impacts of this transmission line to the economic and social well being of this county.

Sincerely,

*Diane Gilbert, Legal Research Analyst
FGRV member Org, STOP B₂H Coalition*

On page P1-6 of the application, the developer states, "Although the focus of this Exhibit is State Sensitive Species and fish and wildlife habitats, special status species as defined above are occasionally referenced in this Exhibit as they relate to Project siting, biological surveys and avoidance and minimization measures that also apply to State Sensitive Species and fish and wildlife habitats."

This is not consistent with the requirements in order to keep the Oregon Department of Energy and Energy Facility Siting Council from being out of compliance with the federal Threatened and Endangered Species Act. According to the act, the department and EFSC meet the definition of "person" under the act and will be held responsible for any and all fatalities, injuries or impacts defined in the act. Dealing with federally Threatened and Endangered Species as referenced if their needs are consistent with those for State Sensitive species is not what is required in order to provide protection as described in the included opinion obtained from the Oregon Legislative Council in their response to questions posed by Representative Greg Barreto in relation to the failure to deal with federally protected species under the Threatened and Endangered species section OAR 345-022-0070. The species must be addressed in the Habitat Mitigation section OAR 345-022-0060. As you should be aware, any private party can file a complaint regarding a failure to protect Threatened and Endangered species in federal court should the EFSC approve a site certificate that ignores a T & A species and causes them damage.

*Irene Gilbert, legal Research Analyst
FORU member org. STOP B₂ HCoalition*

The developer has the burden of providing a preponderance of evidence that they meet the requirements of the ODOE and Oregon Fish and Wildlife mitigation rule at the time the site certificate is issued. This determination cannot be made absent current information from completed wildlife surveys. The limited amount of information provided is inconsistent with known data regarding the wildlife using the area of and adjacent to the right of way corridor. This indicates that the surveyors are lacking in training, the surveys are not being done during an appropriate timeframe, the areas for the surveys are inadequate to determine indirect impacts, or the numbers of wildlife using the area is increasing. For example, Idaho Power surveyors in their old surveys looked at $\frac{3}{4}$ of the entire right of way. They identified 136 species of birds by surveying approximately $\frac{3}{4}$ of the entire length of the right-of-way. Bird surveys completed by other people found over 200 species of birds using Ladd Marsh alone.

This indicates a problem with meeting the requirements of the following rules:

The applicant failed to provide current wildlife surveys prior to issuance of a site certificate. Statutes and rules which apply are ORS 469.401(2), ORS 469.503 and OAR 345-022-0000. OAR 345-001-0010(57) states: ""Study area" mean an area defined in this rule. Except as specified in subsection (f) and (g), the study area is an area that includes all the area within the site boundary and the area within the following distances from the site boundary:

- (a) For impacts to threatened and endangered plant and animal species, 5 miles."
- (b).....jun
- (c) For land use impacts and impacts to fish and wildlife habitat, one-half mile."

The applicant failed to provide current wildlife surveys prior to issuance of a site certificate. Statutes and rules which apply are ORS 469.401(2), ORS 469.503 and OAR 345-022-0000. OAR 345-001-0010(57) states: ""Study area" mean an area defined in this rule. Except as specified in subsection (f) and (g), the study area is an area that includes all the area within the site boundary and the area within the following distances from the site boundary:

- (a) For impacts to threatened and endangered plant and animal species, 5 miles."
- (b).....jun
- (c) For land use impacts and impacts to fish and wildlife habitat, one-half mile."

I urge you to deny the issuance of a site certificate to Idaho Power absent adequate, current information regarding the impacts to wildlife that will occur during construction and operation of the proposed transmission line.

*Irene Gilbert, Legal Research Analyst
FORU member org STOP B₂H Coalition*

ISSUE STATEMENTS:

1. The developer did not do current surveys for wildlife to provide the necessary evidence to show he was compliant with OAR 345-022- 0060, but also did not use easily accessible studies completed by and for ODFW during the compilation of information for issuing a site certificate. The nest surveys completed for the Antelope Ridge Wind development which was planned to be sited adjacent to this proposed transmission line found 75 different bird species nesting in the forested areas. The numbers of nesting birds was so high that the US Fish and Wildlife Service recommended no development in the forested areas. The Baseline Noise Surveys describe the route of the transmission line to be adjacent to the 230 KV line which is adjacent to the Elkhorn Wind Development. For this reason, the wildlife information and studies completed as a result of the Elkhorn and Antelope Ridge Wind Developments are relevant to and should be analyzed in terms of providing some baseline information to compare with current surveys. recommendations and concerns documented in comments regarding these two developments are directly related to the area of impact of this transmission line.
2. The creation of a corridor through the middle of forest land is stated as a benefit to wildlife. There are multiple studies showing the negative impacts of creating corridors such as this as it provides opportunities for raptors and other predators to access prey. This should be widely known by the developers given the concerns they are required to address to attempt to minimize the use of transmission structures by raptors and other birds.
3. The entire section on Forested Land Analysis needs to be rewritten to accurately reflect the true impacts of this development including negative impacts to adjacent land and adjacent landowners such as impacts from the use of chemicals to control vegetation, erosion from development of the transmission line and roads, transmission lines are identified in multiple studies as a primary source of invasive weeds and it appears from this section that the developer plans to only spray for weeds once a year. That will assure that there will be multiple problems with invasive weeds as a result of this transmission line.
4. I am also concerned regarding the number of nests that will be destroyed by this transmission line as well as the lack of completed work indicating a commitment to identifying, addressing and mitigating for the wildlife impacts this development will have. This area is known to serve as an important location for federally protected migratory birds. While the Oregon Department of Energy can legally refuse to address federally protected species under the threatened and endangered species rules, they are required to address them in the habitat mitigation rules. The developer has made literally no effort to identify and protect federally protected species under OAR 345-022-0060 or 0070. This is not an optional activity according to the opinion received from the Oregon Legislative Council.

*Doreen Gilbert, Legal Research Analyst
EGRV member org. 5TOP B₂ H Coalition*

Kellen Tardaewether, Senior Siting Analyst
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**THE DRAFT PROPOSED ORDER FOR THE BOARDMAN TO HEMINGWAY
TRANSMISSION LINE FAILS TO IDENTIFY AND MITIGATE FOR IMPACTS TO
CRITICAL HABITAT FOR BULL TROUT OR PROVIDE SITE CERTIFICATE
REQUIREMENTS THAT ASSURE THAT THE DEVELOPMENT WILL NOT
SIGNIFICANTLY IMPACT THEIR POTENTIAL RECOVERY**

Exhibit P, OAR 345-021-0010(1)(p) requires the identification of all fish and wildlife at the proposed location and identification of the habitat classification categories as set forth in OAR 635-415-0025.

This information is necessary in order to comply with the requirements of OAR 345-022-0060 requiring the identification of habitat categories and required mitigation. Bull trout are listed as a Threatened species by the USFWS. While the Oregon Department of Energy has been unwilling to recognize federally listed threatened and endangered species under OAR 345-022-0070, there remains a requirement that they at a minimum demonstrate a robust effort to protect their habitat under OAR 345-022-0060. As a part of the federal determination, critical habitat is identified in the Federal Register, Vol. 80, No. 107, Thursday, June 4, 2015 (Attached). In addition, the Recovery Plan for the Coterminous United States Population of Bull Trout (attached) shows the river sections considered "critical" to the recovery of this fish.

1. Idaho Power need not complete surveys for this threatened fish, or make any determination regarding their presence, or the presence of fish in the watersheds that include critical habitat. The entire watershed is protected when it is determined that it contains federally threatened or endangered fish species. Idaho Power has failed to incorporate information regarding identification of the Category 1 habitat and locations which will be impacted by their proposed development in relation to it being Category 1 habitat. Bull trout habitat is known to exist in Malheur, Umatilla, Union and Baker counties and critical habitat is specifically identified in the federal law recording their listing. The attached document addressed to Representative Greg Barreto from the Oregon Legislative Council, Dated April 20, 2017, responded to the question regarding the legality of not including federally listed species under OAR 345-022-0070. It clearly indicates that in legislative council's opinion, so long as they are addressed under OAR 345-022-0060, the State of Oregon would not be out of compliance with the federal law. The current application and site certificate fails to include all federally listed species under OAR 345-022-0060. Issuing a site certificate that does not include, mitigation and avoidance of Category 1 habitat for bull trout will place the Oregon Department of energy, the Energy Facility Siting Council, and the State of Oregon in the position of being responsible for approving the death of threatened bull trout and will place them in a

position of being vulnerable to federal litigation should any injury or fatality occur as a result of their actions.

2. Critical Habitat is a function not only of the type of habitat, but also the species of fish and wildlife dependent upon that habitat. In their application for Site Certificate, Idaho Power identifies no Category 1 streams or riparian areas which is contrary to the federal designation of bull trout habitat as critical.
3. The Oregon Department of Energy Comment Number 18 to the BLM regarding the May 2009 Draft B2H Biological Survey Work Plan stated that "The ODFW Habitat Mitigation Policy is for both fish and wildlife. However, fish and their associated habitat are not identified. Bull trout are listed by the US fish and wildlife service as threatened. The USFWS has identified critical habitat for this species which is identified in the "Recovery Plan for Coterminous United States Population of Bull Trout" final plan signed by the Regional Director, Pacific Region, US Fish and Wildlife Service, September 28, 2015. This document identifies core habitat areas for the Mid-Columbia Recovery Unit which could be impacted by the Boardman to Hemingway Transmission line. These areas constitute Category 1 habitat for this species of fish and ODFW regulations designate such areas as Category 1 habitat necessitating no direct or indirect impacts from the proposed development. Idaho Power must indicate where these areas are and what methods are being incorporated to assure no impacts will result from the development. Given the very specific needs this fish requires in terms of the temperature of the water, there is concern regarding the impacts of the removal of vegetation along the impacted streams.
4. A related issue is the plan for the Oregon Department of Energy and Energy Facility Siting Council to manage the requirements for Fish Passage. Given the critical nature of providing appropriate and adequate evaluation and management of fish passage to the maintenance and recovery of this fish, it does not appear prudent for an agency which has no experience in managing fish passage issues to assume responsibility and accountability for determining the appropriateness of the methods being used and the results of allowing an ineffective design to further impede the recovery of a threatened species. While the Oregon Department of Energy Rules allow them to overrule other agency recommendations, doing so in this instance would make the agency and the state very vulnerable. Page iv of the Recovery plan states "historical habitat loss and fragmentation, interaction with nonnative species, and fish passage issues are widely regarded as the most significant primary threat factors affecting bull trout. Under federal law, ODOE and the EFSC are considered equal to a "person" under the rules and in the event that they issue a site certificate that will result in injury or death of a protected species, they can be sued by any private party regarding their actions.

Additional Actions the developer must take prior to the issuance of a site certificate: Identify all Category 1 critical habitat which could be impacted by the development, mitigate for damages to

adjoining habitat that may not be Category 1, but is necessary to maintain the Category 1 habitat such as riparian areas that maintain the water temperature, obtain written confirmation from the Oregon Department of Fish and Wildlife or the US Department of Fish and Wildlife that all fish passage plans provide adequate access for these fish or have the Oregon Department of Fish and Wildlife, who are the "experts", manage fish passage approvals. Due to the importance of access to fishing opportunities to the recreational economy of Eastern Oregon and the severe economic damages that will result if the fish category were raised to "Endangered", the information needs to be made available to the impacted counties for their review and comment.

Under the current draft proposed order, Idaho Power does not meet the requirements for issuing a site certificate due to the failure to identify and avoid damages to Category 1 habitat. This conflicts with the habitat mitigation, threatened and endangered species as well as the recreational standard requirements contained in OAR 345-022-0080.

Sincerely,

*Irene Gilbert, Legal Research Analyst
FORU member org STOP B₂H Coalition*



STATE OF OREGON
LEGISLATIVE COUNSEL COMMITTEE

April 20, 2017

Representative Greg Barreto
900 Court Street NE H384
Salem OR 97301

Re: Department of Energy—Rule Review

Dear Representative Barreto:

You have asked our office to conduct a review, as provided in ORS 183.720, of OAR 345-021-0010 (1)(q), which was recently amended by the Energy Facility Siting Council (EFSC) to remove the requirement that developers identify federally protected threatened and endangered species in facility siting applications.¹ More broadly, however, we understand your question to be whether the recent rule change conflicts with federal law. In our opinion, OAR 345-021-0010 (1)(q) does not conflict with federal law. In addition, we believe a court would conclude that EFSC acted within its discretionary rulemaking authority when it amended its site certificate application rule.

1. Does the EFSC Rule Conflict with Federal Law?

Federal Law

The federal Endangered Species Act (federal ESA) is intended "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of [certain treaties and conventions listed in the Act]."² To enjoy the substantial protections afforded a species by the federal ESA, the species must first be listed as "threatened" or "endangered."³ The National Marine Fisheries Service (NMFS) is responsible for oceangoing species and anadromous species listing under the authority of the Secretary of Commerce.⁴ The United States Fish and Wildlife Service (USFWS), under the authority of the Secretary of the Interior, is responsible for all other species not covered by NMFS jurisdiction.

Section 9 of the federal ESA prohibits the taking of a species listed as endangered or threatened.⁵ The term "take" is defined under the federal ESA to mean "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."⁶ The term "harm," furthermore, is defined to "include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavior

¹ OAR 345-021-0010(1)(q).

² 16 U.S.C. 1531(b).

³ 16 U.S.C. 1533 (governing the listing of species).

⁴ *Id.*

⁵ 16 U.S.C. 1538(a)(1).

⁶ 16 U.S.C. 1532(19).

patterns, including breeding, feeding or sheltering.”⁷ The take prohibition applies to any “person,”⁸ including individuals, businesses and federal, state and local governmental bodies.⁹

Section 10 of the federal ESA provides a mechanism to allow private landowners to take threatened and endangered species “if such taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.”¹⁰ A private landowner can avoid potential liability for taking a threatened species by obtaining an incidental take permit (ITP).¹¹ In exchange for permission to “take” a listed species pursuant to an ITP, the permit applicant must commit to implementing a plan that “conserv[es]”—i.e., facilitates the recovery of—the species.¹² This plan is called a Habitat Conservation Plan (HCP) and it must delineate “the impact which will likely result from such taking” and the “steps the applicant will take to minimize and mitigate such impacts.”¹³

Oregon State Law

The Oregon Endangered Species Act (Oregon ESA) is far more limited in scope than its federal counterpart.¹⁴ The law provides for the state listing and conservation of threatened and endangered species. The Director of Agriculture or the State Fish and Wildlife Commission (FWC), as appropriate, determines which species are on the state lists.¹⁵ As a result, Oregon’s threatened and endangered species lists do not necessarily mirror the federal ESA lists. In fact, it is part of Oregon’s stated environmental policy to minimize duplication and overlap between state and federal laws dealing with threatened or endangered species.¹⁶ To that end, unlike the federal ESA which applies to individuals, businesses, and federal, state and local governmental bodies, the Oregon ESA generally focuses only on state lands and state management activities such as permitting.

Passed in 1987, the Oregon ESA underwent revisions that outlined listed species protection requirements in 1995.¹⁷ For threatened or endangered species listed by the state during or after 1996, the FWC is directed to establish by rule quantifiable and measurable guidelines that it considers necessary to ensure the survival of individual members of the species.¹⁸ The guidelines “may include take avoidance and protecting resource sites.”¹⁹ If a species is listed as threatened, state agencies are required to determine whether “a proposed action on land it owns or leases, or for which it holds a recorded easement, has the potential to violate the [survival] guidelines established” by the commission.²⁰ If the potential exists, the agency must work with the State Department of Fish and Wildlife (ODFW) to either pursue reasonable and prudent alternatives to the proposed action, or to take other actions to minimize adverse impacts on the affected species.²¹

⁷ 50 C.F.R. 17.3.

⁸ 16 U.S.C. 1538(a)(1).

⁹ 16 U.S.C. 1532(13).

¹⁰ 16 U.S.C. 1539(a)(1)(B).

¹¹ *Id.*

¹² *Id.*; 16 U.S.C. 1539(a)(2)(A); see also *Sierra Club v. U.S. Fish and Wildlife Serv.*, 245 F.3d 434, 441-442 (5th Cir. 2001) (“[c]onservation’ is a much broader concept than mere survival” because the “ESA’s definition of ‘conservation’ speaks to the recovery of a threatened or endangered species.”).

¹³ 16 U.S.C. 1539(a)(2)(A).

¹⁴ ORS 496.171 to 496.192.

¹⁵ ORS 496.176 (2), ORS 564.110 (2).

¹⁶ ORS 496.182 (1).

¹⁷ Chapter 590, Oregon Laws 1995.

¹⁸ ORS 496.182 (2)(a).

¹⁹ *Id.*

²⁰ ORS 496.182 (3).

²¹ ORS 496.182 (3), (4).

Like the federal ESA, the Oregon ESA prohibits the “take” of listed species.²² However, there is some ambiguity as to whether the take prohibition in the Oregon ESA applies to private parties. On the one hand, the Oregon ESA specifically provides that it is not “intended, by itself, to require an owner of any commercial forestland or other private land to take action to protect a threatened species or endangered species, or to impose additional requirements or restrictions on the use of private land.”²³ ODFW, however, has apparently interpreted this limiting provision narrowly, arguing that ORS 496.192 (1) does not provide private landowners with take authorization, but instead simply states that a private owner is not required to take affirmative steps to protect a listed species.²⁴ Application of the Oregon ESA take provisions to private parties has not been tested in court. The Oregon ESA does also include a process for FWC to issue incidental take permits.²⁵

Finally, although it was not adopted pursuant to the Oregon ESA, ODFW’s formal Fish and Wildlife Habitat Mitigation Policy plays an important role in ODFW and FWC implementing the Oregon ESA and in carrying out its duties under the other federal, state and local permitting processes. The policy is “to require or recommend, depending upon the habitat protection and mitigation opportunities provided by specific statutes, mitigation for losses of fish and wildlife habitat resulting from development actions.”²⁶ ODFW applies the policy when developing recommendations to other state, federal or local agencies regarding development actions for which “mitigation for impacts to fish and wildlife habitat is authorized or required by federal, state, or local environmental laws or land use regulations.”²⁷ Thus, despite the stated limitation of the Oregon ESA to state actions found in ORS 496.192 (1), ODFW’s implementation of its Fish and Wildlife Habitat Mitigation Policy serves as a mechanism for considering the effects of development actions on listed species, and often results in recommendations for mitigation that become incorporated into development permits and approvals for actions by private entities.

Energy Facility Siting

The Legislative Assembly has entrusted the EFSC with the authority to decide whether to issue an energy facility site certificate for a proposed project.²⁸ As part of this authority, the EFSC is tasked with adopting standards for the siting, construction and operation of energy facilities.²⁹ Although it is not required to do so, when establishing these standards the EFSC may consider the effects of the proposed facility on fish and wildlife, including threatened and endangered fish, wildlife or plant species.³⁰

OAR 345-022-0070 states that before the EFSC may issue a site certificate, it must find that the design, construction and operation of the proposed facility, taking into account mitigation, are not likely to cause a significant reduction in the likelihood of survival or recovery of threatened or endangered species listed by the FWC and the Director of Agriculture.³¹ In addition, although not addressed in the EFSC rules or statutes, if the construction or operation of the proposed facility affects federally listed threatened or endangered species, the applicant

²² ORS 498.026.

²³ ORS 496.192 (1).

²⁴ David E. Filippi and Greg D. Corbin, “Federal and Oregon Endangered Species Acts” in *Environmental and Natural Resources Law*, at 43.38 (2002).

²⁵ ORS 496.172 (4); OAR 635-100-0170.

²⁶ OAR 635-415-0010.

²⁷ OAR 635-415-0015 (2).

²⁸ ORS 469.470 (1).

²⁹ ORS 469.501 (1).

³⁰ ORS 469.501 (1)(e).

³¹ OAR 345-022-0070.

may be required to apply separately to the Secretary of the Interior for an ITP under section 10 of the federal ESA in addition to the application to EFSC.³²

Despite the EFSC's recent rule change, applicants for energy facility site certificates must continue to identify *all* threatened and endangered species that may be affected by the construction and operation of the proposed facility, regardless of whether those species are listed on the federal or state list. First, the applicant must disclose any affected state listed species to the EFSC in Exhibit Q of its site certificate application.³³ Second, the applicant must identify all additional fish and wildlife species and habitat that may be affected by the project in Exhibit P of the site certificate application, which would include any federally listed species.³⁴ Third, if any of the potentially affected species are listed on the federal endangered or threatened species list, the federal ESA may require the applicant to apply separately to the Secretary of the Interior for an ITP.³⁵ Accordingly, the EFSC's recent rule change does not appear to be in conflict with any applicable federal laws because applicants must still identify *all* fish and wildlife species and habitat that may be affected by the project in the site certificate application. In addition, the federal ESA continues to apply to energy facility site certificate applicants.

2. ORS 183.720 Administrative Rule Review

As a member of the Legislative Assembly, you may request that the Legislative Counsel review an adopted rule of a state agency.³⁶ When reviewing a rule, the scope of review of this office is limited to:

- Determining whether the rule appears to be within the intent and scope of the enabling legislation purporting to authorize its adoption; and
- Determining whether the rule raises constitutional issues other than falling outside of the intent and scope of the law.³⁷

You have asked our office to review OAR 345-021-0010 (1)(q)(A), as amended effective March 8, 2017. OAR 345-021-0010 sets forth specific information that must be provided with applications for energy facility site certificates. Prior to March 8, 2017, OAR 345-021-0010(1)(q)(A) required applications to include:

Information about threatened and endangered plant and animal species that may be affected by the proposed facility . . . [b]ased on appropriate literature and field study, identification of all threatened or endangered species listed under ORS 496.172 (2), ORS 564.105 (2) or 16 USC Sec. 1533 that may be affected by the proposed facility.³⁸

ORS 496.172 (2) refers to Oregon's list of threatened and endangered wildlife species, as identified by the FWC. ORS 564.105 (2) refers to Oregon's list of threatened and endangered

³² 16 U.S.C. 1539(a)(1)(B).

³³ OAR 345-021-0010 (1)(q).

³⁴ OAR 345-021-0010 (1)(p).

³⁵ 16 U.S.C. 1539(a)(1)(B).

³⁶ ORS 183.720.

³⁷ ORS 183.720 (3).

³⁸ OAR 345-021-0010(1)(q)(A) (prior to March 8, 2017).

native plant species, as identified by the Director of Agriculture. 16 U.S.C. 1533 refers to the list of threatened and endangered species under the federal ESA.

As of March 8, 2017, OAR 345-021-0010(1)(q) no longer requires applicants to identify threatened or endangered species under the federal ESA that may be affected by the proposed facility.

In determining whether a rule is within the "intent and scope" of the enabling legislation, Legislative Counsel is directed to "follow generally accepted principles of statutory construction."³⁹ Accordingly, the text of the statute is the principal guide in determining whether or not the agency is authorized to make the rule.

The EFSC offers ORS 469.470 and 469.501 as the statutory authority for its rulemaking. ORS 469.470 provides that the EFSC shall:

In accordance with the applicable provisions of ORS chapter 183, and subject to the provisions of ORS 469.501 (3), adopt standards and rules to perform the functions vested by law in the council including the adoption of standards and rules for the siting of energy facilities pursuant to ORS 469.501, and implementation of the energy policy of the State of Oregon set forth in ORS 469.010 and 469.310.⁴⁰

ORS 183.332 provides that it is the policy of the State of Oregon that agencies attempt to adopt rules that correspond with equivalent federal laws and rules unless, among other exceptions, there is specific statutory direction to the agency that authorizes the adoption of the rule.⁴¹ Oregon's energy policy set forth in ORS 469.010 and 469.310 makes no direct reference to the federal ESA, but does indicate that the siting, construction and operation of energy facilities shall be consistent with the environmental policies of this state.⁴² With respect to endangered species, it is state policy to minimize duplication and overlap between state and federal laws dealing with threatened or endangered species.⁴³

ORS 469.501 provides, in pertinent part, that the EFSC shall adopt standards for the siting of facilities and that such standards "may address but need not be limited to the . . . [e]ffects of the facility, taking into account mitigation, on fish and wildlife, including threatened and endangered fish, wildlife or plant species."⁴⁴ The use of the words "may address" in ORS 469.501 (1) demonstrates that the legislature intended the council to have discretion regarding the creation of its permitting standards.⁴⁵

Pursuant to this discretionary rulemaking authority, the EFSC enacted OAR 345-022-0070 which limits the issuance of site certificates to projects that are "not likely to cause a significant reduction in the likelihood of survival or recovery of" state listed threatened or endangered species.⁴⁶ The rule at issue here, OAR 345-021-0010 (1)(q), promulgated under the same rulemaking authority, previously required site certificate applicants to identify both federal

³⁹ ORS 183.720 (4).

⁴⁰ ORS 469.740 (2).

⁴¹ ORS 183.332 (1).

⁴² ORS 469.310.

⁴³ ORS 496.182 (1).

⁴⁴ ORS 469.501 (1).

⁴⁵ *Save Our Rural Oregon v. Energy Facility Siting Council (In re COB Energy Facility)*, 339 Or. 353, 377 (2005).

⁴⁶ OAR 345-022-0070.

and state listed threatened and endangered species that may be affected by the proposed facility in Exhibit Q of the site certificate application. Presumably, OAR 345-021-0010 (1)(q) was enacted to require applicants to provide EFSC with the information it needs to comply with OAR 345-022-0070; however, OAR 345-022-0070 does not apply to federally listed threatened and endangered species. Accordingly, in March, the EFSC amended OAR 345-021-0010 (1)(q) to remove the requirement that developers identify federally listed threatened and endangered species in Exhibit Q. Nevertheless, developers must still identify state listed threatened and endangered species in Exhibit Q. Furthermore, developers must still identify any other fish and wildlife species and habitat which may be affected by the proposed project (which would include any affected federally listed species) in Exhibit P of the site certificate application.⁴⁷

The EFSC is tasked with prescribing standards and rules for the siting of facilities under ORS 469.470 and 469.501. The only reference in either ORS 469.470 or 469.501 to endangered or threatened species is in ORS 469.501 (1) regarding the discretionary authority of the EFSC to develop standards regarding the effects of proposed facilities on fish and wildlife, including threatened or endangered species. Accordingly, we believe that the EFSC's removal of the requirement in OAR 345-021-0010 (1)(q)(A) that applicants for site certificates identify federally listed threatened or endangered species in Exhibit Q of the site certificate application meets the EFSC's duties to prescribe standards and rules for the siting of facilities under ORS 469.470 and 469.501 because there is no express statutory requirement that EFSC consider federally listed threatened and endangered species when it issues site certificates. Furthermore, EFSC still requires applicants to identify state and federally listed species on site certificate applications, albeit in different exhibits. For these reasons, we conclude that the rule adopted by the EFSC falls under the broad rulemaking authority of the EFSC, is within the intent and scope of the enabling legislation and does not raise any additional constitutional issues.

The opinions written by the Legislative Counsel and the staff of the Legislative Counsel's office are prepared solely for the purpose of assisting members of the Legislative Assembly in the development and consideration of legislative matters. In performing their duties, the Legislative Counsel and the members of the staff of the Legislative Counsel's office have no authority to provide legal advice to any other person, group or entity. For this reason, this opinion should not be considered or used as legal advice by any person other than legislators in the conduct of legislative business. Public bodies and their officers and employees should seek and rely upon the advice and opinion of the Attorney General, district attorney, county counsel, city attorney or other retained counsel. Constituents and other private persons and entities should seek and rely upon the advice and opinion of private counsel.

Very truly yours,

DEXTER A. JOHNSON
Legislative Counsel



By
Lori Anne Sills
Staff Attorney

⁴⁷ OAR 345-021-0010 (1)(p).

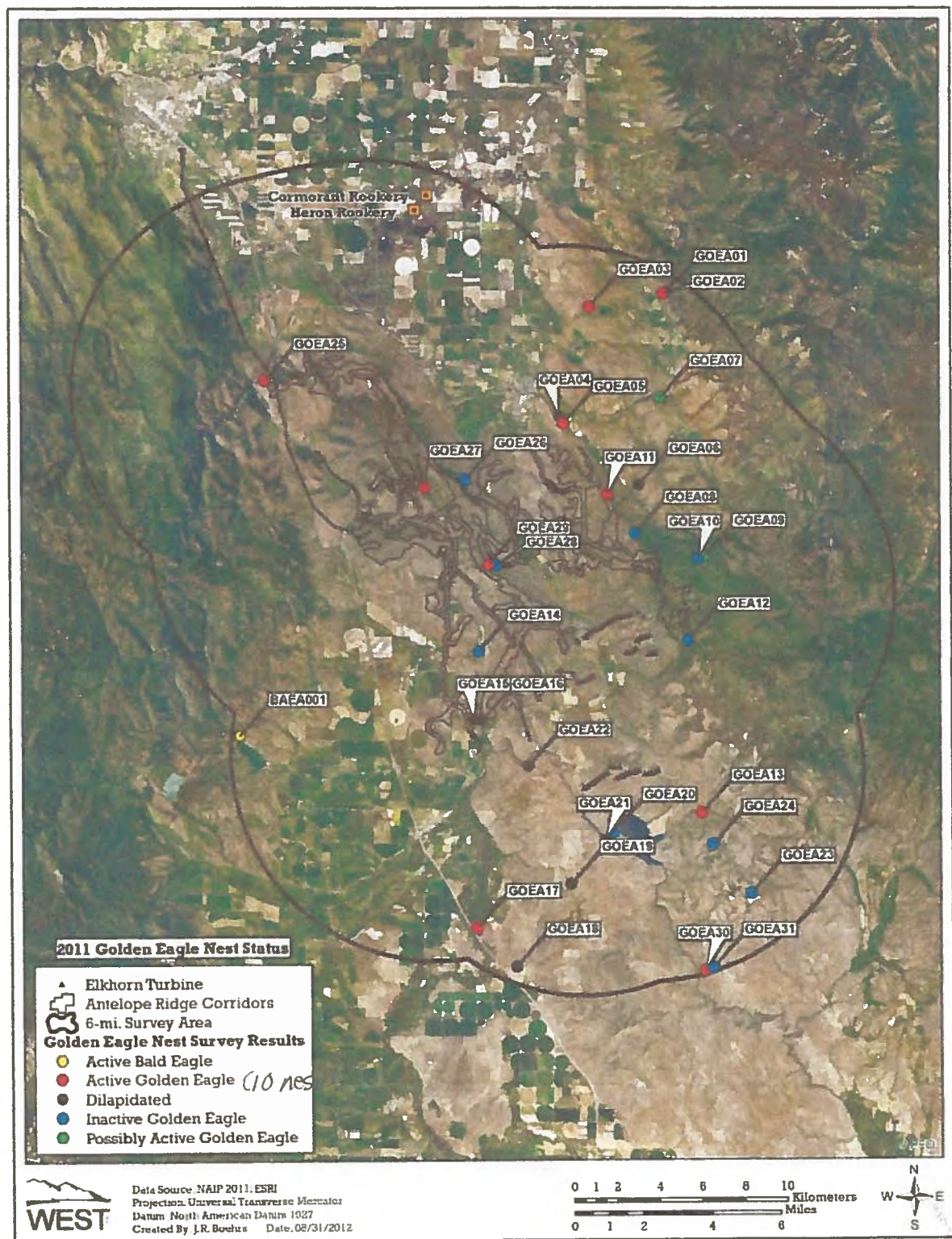


Figure 2. 2011 Golden eagle nest survey results and activity status in the greater Elkhorn/Antelope Ridge area and six-mile buffer.

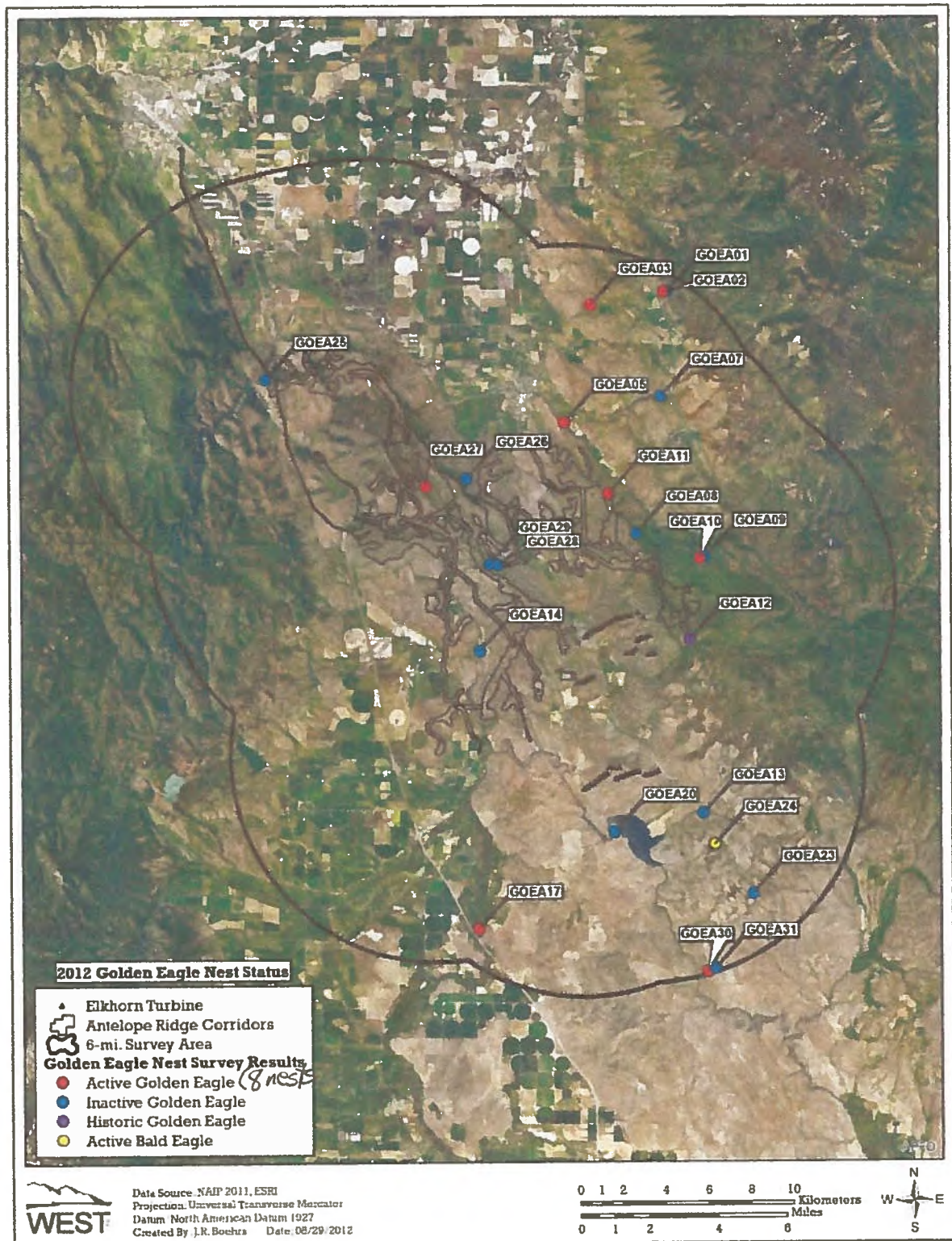
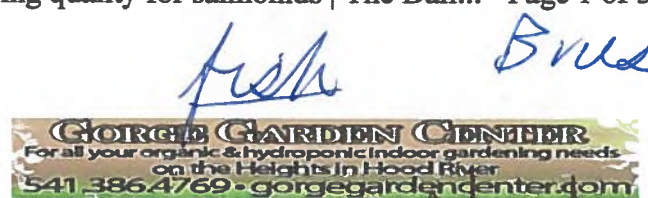
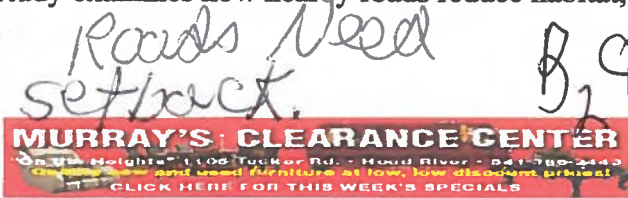


Figure 3. 2012 golden eagle nest reconnaissance survey results.



resource road/water

Breaking News White River Fire at 300 acres July 13, 2014

Study examines how nearby roads reduce habitat, rearing quality for salmonids

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As of Saturday, July 12, 2014

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Streams less than 30 meters from roads in the interior Columbia River basin have significantly less wood debris in the stream than those waterways greater than 60 meters from roads, reducing habitat and rearing quality for salmonids in those streams.

River managers have made considerable efforts to improve habitat conditions in streams where young salmon reside, but these efforts are often hindered by "the legacy of past land management decisions," according to an article published in June in the North American Journal of Fisheries Management.

That legacy includes roads built for logging, recreation, fire suppression and transportation. The impact of this network of existing roads is significant since 29 percent of the total stream mileage in the study zone is within 60 meters of a road and the recovery of in-stream wood may be limited by the presence of these roads.

The study and resulting article looked at the average reduction in in-stream wood at reaches near roads in the interior Columbia River basin and found significant reductions in overall wood frequency (26 percent), volume (42 percent) and pool-forming frequency (37 percent) for reaches within 30 meters of a road. Significant reductions also occurred for stream sites less than 60 meters from a road.

The results of the study lead the authors to conclude that there is a need for road removal and road relocation projects in order to increase wood in streams.

"Road decommissioning, relocation, and improvement projects can have a large impact on improving habitat conditions by reducing road effects on instream wood," said lead author Christy Meredith, data analyst, PacFish Infish Biological Opinion Effectiveness Monitoring Program, with the U. S. Forest Service.

However, there is a need for additional evaluation of these efforts to determine the types of projects that are most successful, she added. "In the many cases where roads cannot be removed, findings suggest that managers should adjust expectations regarding the amount of wood to expect or to use alternative strategies, such as wood additions."

"Reductions of In-stream Wood in Streams near Roads in the Interior Columbia River Basin" (http://www.tandfonline.com/doi/abs/10.1080/02755947.2014.882451#.U78N0_idVqU and http://www.fs.fed.us/biology/resources/pubs/feu/pibo/PIBO_pubs-summary.pdf, was researched and written by Meredith, Brett Roper, National Aquatic Monitoring Program Leader, and Eric Archer, Program Leader, all with the Pacfish Infish Biological Opinion (PIBO) Effectiveness Monitoring Program (EMP) at the U.S. Forest Service in Logan, Utah.

Meredith said this research was funded by the U.S. Forest Service and the Bureau of Land Management.

"Cover provided by in-stream wood contributes to higher densities of fry and juvenile salmonids," the article says. Wood protects these fish from predation and high flow events, stores and sorts sediment for spawning, shapes channels and creates pools and backwaters.

"Ultimately, reductions in wood have cascading effects on many aspects of salmonid habitat," including up to a 50 percent reduction of historical "pool frequencies."

Road +
water impacts

Some of the damaging impacts of high road density, according to the article, are "adverse effects on hydrology and geomorphology, increased habitat fragmentation, increased invasion by exotic species, degraded water quality, and degraded riparian habitat quality." Much of this is the result of the removal of streamside vegetation, increased erosion and channelization, changes to a stream's flows and the "alteration of surface and subsurface flow paths."

The bottom line is that since most in-stream wood comes from a stream's riparian zone, when a road is nearby there is little available for the stream itself.

The study also found that the amount of wood varies based on climate, land use (grazing for example) and local geomorphic conditions. We "advocate setting different targets regarding how much wood to expect based on these natural conditions," she said.

"Our findings illustrate that roads can have the same effect on wood in streams as large changes in climate, geomorphology, and management," the article concludes.

"Road-relocation and improvement projects that minimize the effects of roads on stream conditions are currently a priority within the U. S. Forest Service," Meredith said. "While there is a focus on removing roads near streams, this is often difficult because of the high public demand and use of these roads." These trade-offs will be assessed as the Forest Service implements its Travel Management Rule, which designates roads and trails that are open to motor vehicles.

Meredith added that this and other research done by PIBO-EMP complements other efforts in the interior Columbia River basin, including implementation of the Watershed Condition Framework (the U. S. Forest Service's National Assessment of watershed condition), and will continue to be used in conjunction with "future assessment and prioritization of stream restoration efforts in the interior Columbia River Basin."

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Executive Summary

Recovery Plan for the Coterminous United States Population of Bull Trout

CURRENT STATUS OF THE SPECIES

In November 1999, the U.S. Fish and Wildlife Service (Service) listed all populations of bull trout within the coterminous United States as a threatened species pursuant to the Endangered Species Act of 1973, as amended (Act) (64 FR 58910; November 1, 1999). Our 1999 listing applied to one distinct population segment (DPS) of bull trout within the coterminous United States by including bull trout in the Coastal-Puget Sound populations (Olympic Peninsula and Puget Sound regions) and Saint Mary-Belly River populations (east of the Continental divide in Montana) with previous listings of three separate distinct population segments of bull trout in the Columbia River, Klamath River, and Jarbidge River basins (63 FR 31647, June 10, 1998; 64 FR 17110, April 8, 1999).

Our most recent 5-year status review for bull trout was completed on April 8, 2008, and concluded that listing the species as “threatened” remained warranted range-wide in the coterminous United States. Based on this status review, in our most recent recovery report to Congress (USFWS 2012) we reported that bull trout were generally “stable” overall range-wide (species status neither improved nor declined during the reporting year), with some core area populations decreasing, some stable, and some increasing. The combination of core habitat (*i.e.*, habitat that could supply all elements for the long-term security of bull trout) and a core population (a group of one or more local bull trout populations that exist within core habitat) constitutes a core area, the basic unit on which to gauge recovery within a recovery unit. Since the listing of bull trout, there has been very little change in the general distribution of bull trout in the coterminous United States, and we are not aware that any known, occupied bull trout core areas have been extirpated. Additionally, since the listing of bull trout, numerous conservation measures have been and continue to be implemented across its coterminous range. These measures are being undertaken by a wide variety of local and regional partnerships, including State fish and game agencies, State and Federal land management and water resource agencies, Tribal governments, power companies, watershed working groups, water users, ranchers, and landowners. In many cases these bull trout conservation measures incorporate or are closely interrelated with ongoing work for the recovery of salmon and steelhead, which are limited by many of the same threats. The Service has compiled a comprehensive overview of conservation

appropriate mitigation planning goal should be considered as enhancement measures. The Service strongly supports enhancement of fish and wildlife resources. The Service will recommend that all opportunities for fish and wildlife resource enhancement be thoroughly considered and included in project plans, to the extent practicable.

IV. DEFINITION OF MITIGATION

The President's Council on Environmental Quality defined the term "mitigation" in the National Environmental Policy Act regulations to include: "(a) avoiding the impact altogether by not taking a certain action or parts of an action; (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (c) rectifying the impact by repairing, rehabilitating, or restoring the affected environment; (d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and (e) compensating for the impact by replacing or providing substitute resources or environments." (40 CFR Part 1508.20(a-e)).

The Service supports and adopts this definition of mitigation and considers the specific elements to represent the desirable sequence of steps in the mitigation planning process. (See Appendix B for definitions of other important terms necessary to understand this policy.)

V. MITIGATION POLICY OF THE U.S. FISH AND WILDLIFE SERVICE

The overall goals and objectives of the Service are outlined in the Service Management Plan and an accompanying Important Resource Problems document which describes specific fish and wildlife problems of importance for planning purposes. Goals and objectives for Service activities related to land and water development are contained in the Habitat Preservation Program Management Document. The mitigation policy was designed to stand on its own; however, these documents will be consulted by Service personnel to provide the proper perspective for the Service mitigation policy. They are available upon request from the Director, U.S. Fish and Wildlife Service, Washington, D.C. 20240.

A. General Policy

The mission of the U.S. Fish and Wildlife Service is to:

PROVIDE THE FEDERAL LEADERSHIP TO CONSERVE, PROTECT AND ENHANCE FISH AND WILDLIFE AND THEIR HABITATS FOR THE CONTINUING BENEFIT OF THE PEOPLE.

The goal of Service activities oriented toward land and water development responds to Congressional direction that fish and wildlife resource conservation receive equal consideration and be coordinated with other features of Federal resource development and regulatory programs through effective and harmonious planning, development, maintenance and coordination of fish and wildlife resource conservation and rehabilitation in the United States, its territories and possessions. The goal is to:

CONSERVE, PROTECT AND ENHANCE FISH AND WILDLIFE AND THEIR HABITATS AND FACILITATE BALANCED DEVELOPMENT OF THIS NATION'S NATURAL RESOURCES BY TIMELY AND EFFECTIVE PROVISION OF FISH AND WILDLIFE INFORMATION AND RECOMMENDATIONS.

Fish and wildlife and their habitats are public resources with clear commercial, recreational, social, and ecological value to the Nation. They are conserved and managed for the people by State, Federal and Indian tribal Governments. If land or water developments are proposed which may reduce or eliminate the public benefits that are provided by such natural resources, then State and Federal resource agencies and Indian tribal agencies have a responsibility to recommend means and measures to mitigate such losses. Accordingly:

IN THE INTEREST OF SERVING THE PUBLIC, IT IS THE POLICY OF THE U.S. FISH AND WILDLIFE SERVICE TO SEEK TO MITIGATE LOSSES OF FISH, WILDLIFE, THEIR HABITATS, AND USES THEREOF FROM LAND AND WATER DEVELOPMENTS.

In administering this policy, the Service will strive to provide information and recommendations that fully support the Nation's need for fish and wildlife resource conservation as well as sound economic and social development through balanced multiple use of the Nation's natural resources. The Service will actively seek to facilitate needed development and avoid conflicts and delays through early involvement in land and water development planning activities in advance of proposals for specific projects or during the early planning and design stage of specific projects.

This should include early identification of resource areas containing high and low habitat values for important species and the

development of ecological design information that outlines specific practicable means and measures for avoiding or minimizing impacts. The former can be used by developers to site projects in the least valuable areas. This could possibly lower total project costs to development interests. These actions are part of good planning and are in the best public interest.

The early provision of information to private and public agencies in a form which enables them to avoid or minimize fish and wildlife losses as a part of initial project design is the preferred form of fish and wildlife conservation.

B. U.S. Fish and Wildlife Service Mitigation Planning Goals by Resource Category

The planning goals and guidelines that follow will be used to guide Service recommendations on mitigation of project impacts. Four Resource Categories are used to indicate that the level of mitigation recommended will be consistent with the fish and wildlife resource values involved.

The policy covers impacts to fish and wildlife populations, their habitat and the human uses thereof. However, the primary focus in terms of specific guidance is on recommendations related to habitat value losses. In many cases, compensation of habitat value losses should result in replacement of fish and wildlife populations and human uses. But where it does not, the Service will recommend appropriate additional means and measures.

RESOURCE CATEGORY 1

a. Designation Criteria

Habitat to be impacted is of high value for evaluation species and is unique and irreplaceable on a national basis or in the ecoregion section.

b. Mitigation Goal

No Loss of Existing Habitat Value.

c. Guideline

The Service will recommend that all losses of existing habitat be prevented as these one-of-a-kind areas cannot be replaced. Insignificant changes that do not result in adverse impacts on habitat value may be acceptable provided they will have no significant cumulative impact.

RESOURCE CATEGORY 2

a. Designation Criteria

Habitat to be impacted is of high value for evaluation species and is relatively scarce or becoming scarce on a national basis or in the ecoregion section.

b. Mitigation Goal**No Net Loss of In-Kind Habitat Value.****c. Guideline**

The Service will recommend ways to avoid or minimize losses. If losses are likely to occur, then the Service will recommend ways to immediately rectify them or reduce or eliminate them over time. If losses remain likely to occur, then the Service will recommend that those losses be compensated by replacement of the same kind of habitat value so that the total loss of such in-kind habitat value will be eliminated.

Specific ways to achieve this planning goal include: (1) physical modification of replacement habitat to convert it to the same type lost; (2) restoration or rehabilitation of previously altered habitat; (3) increased management of similar replacement habitat so that the in-kind value of the lost habitat is replaced, or (4) a combination of these measures. By replacing habitat value losses with similar habitat values, populations of species associated with that habitat may remain relatively stable in the area over time. This is generally referred to as in-kind replacement.

Exceptions: An exception can be made to this planning goal when: (1) different habitats and species available for replacement are determined to be of greater value than those lost, or (2) in-kind replacement is not physically or biologically attainable in the ecoregion section. In either case, replacement involving different habitat kinds may be recommended provided that the total value of the habitat lost is recommended for replacement (see the guideline for Category 3 mitigation below).

RESOURCE CATEGORY 3**a. Designation Criteria**

Habitat to be impacted is of high to medium value for evaluation species and is relatively abundant on a national basis.

b. Mitigation Goal**No Net Loss of Habitat Value While Minimizing Loss of In-Kind Habitat Value.****c. Guideline**

The Service will recommend ways to avoid or minimize losses. If losses are likely to occur, then the Service will recommend ways to immediately rectify them or reduce or eliminate them over time. If losses remain likely to occur, then the Service will recommend that those losses be compensated by replacement of habitat value so that the total loss of habitat value will be eliminated.

It is preferable, in most cases, to recommend ways to replace such habitat value losses in-kind. However, if the Service determines that in-kind replacement is not desirable or possible, then other specific ways to achieve this planning goal include: (1) substituting different kinds of habitats, or (2) increasing management of different replacement habitats so that the value of the lost habitat is replaced. By replacing habitat value losses with different habitats or increasing management of different habitats, populations of species will be different, depending on the ecological attributes of the replacement habitat. This will result in no net loss of total habitat value, but may result in significant differences in fish and wildlife populations. This is generally referred to as out-of-kind replacement.

RESOURCE CATEGORY 4**a. Designation Criteria**

Habitat to be impacted is of medium to low value for evaluation species.

b. Mitigation Goal**Minimize Loss of Habitat Value.****c. Guideline**

The Service will recommend ways to avoid or minimize losses. If losses are likely to occur, then the Service will recommend ways to immediately rectify them or reduce or eliminate them over time. If losses remain likely to occur, then the Service may make a recommendation for compensation, depending on the significance of the potential loss.

However, because these areas possess relatively low habitat values, they will likely exhibit the greatest potential for significant habitat value improvements. Service personnel will fully investigate these areas' potential for improvement, since they could be used to mitigate Resource Category 2 and 3 losses.

C. Mitigation Planning Policies**1. State-Federal Partnership**

a. The U.S. Fish and Wildlife Service will fully coordinate activities with those State agencies responsible for fish and wildlife resources, the National Marine Fisheries Service (NMFS) and the Environmental Protection Agency (EPA) related to the investigation of project proposals and development of mitigation recommendations for resources of concern to the State, NMFS or EPA.

b. Service personnel will place special emphasis on working with State agencies responsible for fish and wildlife resources, NMFS and EPA to

develop compatible approaches and to avoid duplication of efforts.

2. Resource Category Determinations

a. The Service will make Resource Category determinations as part of the mitigation planning process. Such determinations will be made early in the planning process and transmitted to the Federal action agency or private developer to aid them in their project planning, to the extent practicable.

b. Resource Category determinations will be made through consultation and coordination with State agencies responsible for fish and wildlife resources and other Federal resource agencies, particularly the National Marine Fisheries Service and the Environmental Protection Agency, whenever resources of concern to those groups are involved. Where other elements of the public, including development groups, have information that can assist in making such determinations, the Service will welcome such information.

c. All Resource Category determinations will contain a technical rationale consistent with the designation criteria. The rationale will: (1) outline the reasons why the evaluation species were selected; (2) discuss the value of the habitat to the evaluation species; and (3) discuss and contrast the relative scarcity of the fish and wildlife resource on a national and ecoregion section basis.

Note.—If the State agency responsible for fish and wildlife resources wishes to outline scarcity on a more local basis, U.S. Fish and Wildlife Service personnel should assist in developing such rationale, whenever practicable.

d. When funding, personnel, and available information make it practicable, specific geographic areas or, alternatively, specific habitat types that comprise a given Resource Category should be designated in advance of development. Priority for predesignation will be placed on those areas that are of high value for evaluation species and are subject to development pressure in the near future. Such predesignations can be used by developers or regulators to determine the least valuable areas for use in project planning and siting considerations.

e. The following examples should be given special consideration as either Resource Category 1 or 2:

(1) Certain habitats within Service-identified Important Resource Problem (IRP) areas. Those IRPs dealing with threatened or endangered species are not covered by this policy. (See Scope)

(2) Special aquatic and terrestrial sites including legally designated or set-aside

limited to, maintenance of natural systems and long-term productivity of existing flora and fauna, habitat diversity, hydrological utility, fish, wildlife, timber, and food. Under this Order, a developmental project in a wetland may proceed only if no practicable alternatives can be ascertained and if the proposal . . . includes all practicable measures to minimize harm to the wetland that may result from its use."

Executive Order 11988—Floodplain Management (May 24, 1977). This Executive Order requires that Federal agencies take floodplain management into account when formulating or evaluating water or land use plans and that these concerns be reflected in the budgets, procedures, and regulations of the various agencies. This Order allows developmental activities to proceed in floodplain areas only when the relevant agencies have ". . . considered alternatives to avoid adverse effects and incompatible development in the floodplains . . ." or when, in lieu of this, they have ". . . designed or modified their actions in order to minimize potential harm to or within the floodplain . . .".

Executive Order 11987—Exotic Organisms (May 24, 1977). This Executive Order requires that Federal agencies shall restrict, to the extent permitted by law, the introduction of exotic species into the lands or waters which they own, lease, or hold for purposes of administration, and encourage the States, local governments, and private citizens to do the same. This Executive Order also requires Federal agencies to restrict, to the extent permitted by law, the importation of exotic species and to restrict the use of Federal funds and programs for such importation. The Secretary of the Interior, in consultation with the Secretary of Agriculture, is authorized to develop by rule or regulation a system to standardize and simplify the requirements and procedures appropriate for implementing this Order.

NATIONAL/INTERNATIONAL TREATIES

Federal Trust Responsibility to Indian Tribes. This responsibility is reflected in the numerous Federal treaties with the Indian tribes. These treaties have the force of law. Protection of Indian hunting and fishing rights necessitates conservation of fish and wildlife and their habitat.

Convention Between the United States and Japan (September 19, 1974). This Treaty endorses the establishment of sanctuaries and fixes preservation and enhancement of migratory bird

habitat as a major goal of the signatories.

Convention Between the United States and the Union of Soviet Socialist Republics Concerning the Conservation of Migratory Birds and Their Environments (November 8, 1978). This Treaty endorses the establishment of sanctuaries, refuges, and protected areas. It mandates reducing or eliminating damage to all migratory birds. Furthermore, it provides for designation of special areas for migratory bird breeding, wintering, feeding, and molting, and commits the signatories to ". . . undertake measures necessary to protect the ecosystems in these areas . . . against pollution, detrimental alteration and other environmental degradation."

Implementing legislation, Pub. L. 95-618, was passed in the United States in 1978.

Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere (April 15, 1941). This Treaty has several provisions requiring parties to conserve certain wildlife resources and their habitats.

Convention Between the United States and Great Britain (for Canada) for Protection of Migratory Birds (August 1, 1916, as amended January 30, 1979). This Treaty provides for a uniform "... system of protection for certain species of birds which migrate between the United States and Canada, in order to assure the preservation of species either harmless or beneficial to man." The Treaty prohibits hunting insectivorous birds, but allows killing of birds under permit when injurious to agriculture. The 1979 amendment allows subsistence hunting of waterfowl outside of the normal hunting season.

APPENDIX B—OTHER DEFINITIONS

"Compensation," when used in the context of Service mitigation recommendations, means full replacement of project-induced losses to fish and wildlife resources, provided such full replacement has been judged by the Service to be consistent with the appropriate mitigation planning goal.

"Ecoregion" refers to a large biogeographical unit characterized by distinctive biotic and abiotic relationships. An ecoregion may be subclassified into domains, divisions, provinces, and sections. A technical explanation and map is provided in the "Ecoregions of the United States" by Robert G. Bailey, published by the U.S. Forest Service, 1976.

"Ecosystem" means all of the biotic elements (i.e., species, populations, and communities) and abiotic elements (i.e., land, air, water, energy) interacting in a given geographic area so that a flow of

energy leads to a clearly defined trophic structure, biotic diversity, and material cycles. (Eugene P. Odum, 1971.

Fundamentals of Ecology)

"Evaluation species" means those fish and wildlife resources in the planning area that are selected for impact analysis. They must currently be present or known to occur in the planning area during at least one stage of their life history except where species not present (1) have been identified in fish and wildlife restoration or improvement plans approved by State or Federal resource agencies, or (2) will result from natural species succession over the life of the project. In these cases, the analysis may include such identified species not currently in the planning area.

There are two basic approaches to the selection of evaluation species: (1) selection of species with high public interest, economic value or both; and (2) selection of species to provide a broader ecological perspective of an area. The choice of one approach in lieu of the other may result in a completely different outcome in the analysis of a proposed land or water development. Therefore, the objectives of the study should be clearly defined before species selection is initiated. If the objectives of a study are to base a decision on potential impacts to an entire ecological community, such as a unique wetland, then a more ecologically based approach is desirable. If, however, a land or water use decision is to be based on potential impacts to a public use area, then species selection should favor animals with significant human use values. In actual practice, species should be selected to represent social, economic and broad ecological views because mitigation planning efforts incorporate objectives that have social, economic, and ecological aspects. Species selection always should be approached in a manner that will optimize contributions to the stated objectives of the mitigation planning effort.

Most land and water development decisions are strongly influenced by the perceived impacts of the proposed action on human use. Since economically or socially important species have clearly defined linkages to human use, they should be included as evaluation species in all appropriate land and water studies. As a guideline, the following types of species should be considered:

• Species that are associated with Important Resource Problems as designated by the Director of the Fish and Wildlife Service (except for threatened or endangered species).

• Other species with monetary and non-monetary benefits to people accruing from consumptive and nonconsumptive human uses including, but not limited to, fishing, hunting, bird-watching and educational, aesthetic, scientific or subsistence uses.

An analysis based only on those species with directly identifiable economic or social value may not be broad enough to adequately describe all of the ramifications of a land and water use proposal. If it is desirable to increase the ecological perspective of an assessment, the following types of species should be considered:

- Species known to be sensitive to specific land and water use actions. The species selected with this approach serve as "early warning" or indicator species for the affected fish and wildlife community.

- Species that perform a key role in a community because of their role in nutrient cycling or energy flows. These species also serve as indicators for a large segment of the fish and wildlife community, but may be difficult to identify.

- Species that represent groups of species which utilize a common environmental resource (guilds). A representative species is selected from each guild and predicted environmental impacts for the selected species are extended with some degree of confidence to other guild members.

"Federal action agency" means a department, agency or instrumentality of the United States which plans, constructs, operates or maintains a project, or which plans for or approves a permit, lease, or license for projects or manages Federal lands.

"Fish and wildlife resources" means birds, fishes, mammals, and all other classes of wild animals and all types of aquatic and land vegetation upon which wildlife is dependent.

"Habitat" means the area which provides direct support for a given species, population, or community. It includes all environmental features that comprise an area such as air quality, water quality, vegetation and soil characteristics and water supply (including both surface and groundwater).

"Habitat value" means the suitability of an area to support a given evaluation species.

"Important Resource Problem" means a clearly defined problem with a single important population or a community of similar species in a given geographic area as defined by the Director of the Fish and Wildlife Service.

"In-kind replacement" means providing or managing substitute

resources to replace the habitat value of the resources lost, where such substitute resources are physically and biologically the same or closely approximate those lost.

"Loss" means a change in fish and wildlife resources due to human activities that is considered adverse and;

(1) reduces the biological value of that habitat for evaluation species;

(2) reduces population numbers of evaluation species;

(3) increases population numbers of "nuisance" species;

(4) reduces the human use of those fish and wildlife resources; or

(5) disrupts ecosystem structure and function.

Changes that improve the value of existing habitat for evaluation species are not to be considered losses, i.e., burning or selective tree harvesting for wildlife management purposes. In addition, reductions in animal populations for the purpose of harvest or fish and wildlife management will not be considered as losses for the purpose of this policy.

"Minimize" means to reduce to the smallest practicable amount or degree.

"Mitigation banking" means habitat protection or improvement actions taken expressly for the purpose of compensating for unavoidable losses from specific future development actions. It only includes those actions above and beyond those typically taken by Congress for protection of fish and wildlife resources.

"Out-of-kind replacement" means providing or managing substitute resources to replace the habitat value of the resources lost, where such substitute resources are physically or biologically different from those lost.

"Planning area" means a geographic space with an identified boundary that includes:

(1) The area identified in the study's authorizing document;

(2) The locations of resources included in the study's identified problems and opportunities;

(3) The locations of alternative plans, often called "project areas;" and

(4) The locations of resources that would be directly, indirectly, or cumulatively affected by alternative plans, often called the "affected area."

"Practicable" means capable of being done within existing constraints. The test of what is practicable depends upon the situation and includes consideration of the pertinent factors, such as environment, cost, or technology.

"Project" means any action, planning or approval process relating to an action

that will directly or indirectly affect fish and wildlife resources.

"Replacement" means the substitution or offsetting of fish and wildlife resource losses with resources considered to be of equivalent biological value. However, resources used for replacement represent loss or modification of another type of habitat value. Replacement actions still result in a loss of habitat acreage and types which will continually diminish the overall national resource base. It should be clearly understood that replacement actions never restore the lost fish and wildlife resource—that is lost forever.

Dated: January 13, 1981.

Cecil Andrus,

Secretary of the Department of the Interior.

(FR Doc. 81-1005 Filed 1-23-81; 8:45 am)

BILLING CODE 4310-55-M

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**EFSC LACKS AUTHORITY TO APPROVE CONSTRUCTION OR
MODIFICATION OF ROADS OR OTHER DEVELOPMENT OUTSIDE THE
SITE BOUNDARY FOR THE BOARDMAN TO HEMINGWAY
TRANSMISSION LINE.**

The Oregon Department of Energy and Energy Facility Siting Council span of control for approving development is limited to the area within the site boundary. In order to be covered under the site certificate, roads or other construction must be included in the site boundary. The decision regarding whether or not to include these areas in the site was made by the developer. They chose to limit the area of the site to exclude some of the roads they planned to modify or build. Due to this decision, these areas must be approved through the local county or city planning process. They do not fall under the rules contained in OAR 345-022-0030.

Prior decisions and a contested case decision by the Energy Facility Siting Council support the above, for example: The Oregon Department of Energy and Energy Facility Siting Council allowed Wheatridge Wind Development to not include the gen-tie transmission line in the site certificate. That decision gave control of the gen-tie line, roads and other actions related to building the transmission line to the contractor and the developer and removed the Oregon Department of Energy and Energy Facility Siting Council from involvement.

Definitions contained in the Oregon Statutes and EFSC Rules clearly define the area which is controlled by the site certificate.

1. A site certificate by definition contained in ORS 469.300(26), ORS 469.401` (4) and ORS 369.503(3) means “the binding agreement between the State of Oregon and the applicant, authorizing the applicant to *construct and operate a facility on an approved site*, incorporating all conditions imposed by the council on the applicant.”
2. The “site” is defined in ORS 469.300 as “any proposed location of an energy facility and related or supporting facilities.”
3. ORS 469.300 also defines “Related or supporting facilities” as “means any structure, proposed by the applicant, to *be constructed or substantially*

modified in connection with the construction of an energy facility, including associated transmission lines, reservoirs, storage facilities, intake structures, road and rail access.-----"

4. ORS 469.401(4) and ORS 369.503(3) state that the council does not have jurisdiction over matters that are not *included in and governed by the site certificate* or amended site certificate.

In construing a statute, you may not "insert what has been omitted, or ***omit what has been inserted." ORS 174.010.

The area of EFSC control of modifications to existing roads or development of new roads is also contained in counsel standards contained in OAR 345-001-0010 including:

5. (54) ""Site" as defined in ORS 469.300. "Energy facility site" means all land upon which an energy facility is located or proposed to be located. "Related or supporting facilities site" means all land upon which related or supporting facilities for an energy facility are located or proposed to be located.

6. (55) ""Site boundary" means the perimeter of the site of a proposed energy facility, its related or supporting facilities, all temporary laydown and staging areas and all corridors and micro-siting corridors proposed by the applicant."

7. (56) ""Site certificate" as defined in ORS 469.300." "means the binding agreement between the State of Oregon and the applicant, authorizing the applicant to *construct and operate* an energy facility *on an approved site*, incorporating all conditions imposed by the state on the applicant."

The above definitions, particularly the definition of "site certificate" in the statute clearly limit the extent of the Oregon Department of Energy and Energy Facility Siting Council evaluation and control to activities occurring on the "site" as defined in the above rules and statutes and impacts those development activities occurring on the site have on the surrounding area. Any modifications to road segments or new roads which are not included in the site boundary are outside the jurisdiction of the Energy Facility Siting Council. The site certificate cannot authorize exceptions to local or state land use goals or plans in order to approve development outside the site.

The applicant claims on Page K-216 of their application that the access roads and other such facilities outside the site boundary are related and supporting facilities.

Since the applicant chose not to include these facilities in the site certificate, they are not related or supporting facilities. The Energy Facility Siting Council and the Department of Energy made this very clear in the contested case decision regarding the developer's choice not to include the gen-tie line in the site for the Wheatridge Wind Facility. That decision was incorporated into the Final Order for Wheatridge Wind Facility issued April 2017. For example: Page 1, Line 10 states "A site certificate is a binding agreement between the State of Oregon and the applicant, authorizing the applicant to design, construct, operate, and retire a facility on an approved site, incorporating all conditions imposed by the Council on the applicant" In the footnotes on that page there is additional comment relating to this issue, "On the record of the public hearing, Ms. Gilbert/FGRV requested that the Council impose a condition restricting construction and construction impacts to the area within the site boundary. In response, on the record of the June 6, 2016 public hearing, the applicant stated that a specific condition limiting impacts to within the site boundary should not be required as this limitation is self-implementing through approval of the site boundary and site certificate. The department generally agreed with the applicant's statement. Construction activities must be restricted to areas within the site boundary, which as defined at OAR 345-001-0010 means the perimeter of the site of the proposed energy facility, its related or supporting facilities, all temporary laydown and staging areas and all corridors and micrositing corridors. Once issued, the site certificate becomes a binding, contractual agreement between the certificate holder and the State of Oregon, which authorizes the certificate holder to design, construct, operate and retire a facility only on an approved site, incorporating all conditions imposed by the council."

The applicant's reference to OAR 660-006-0025(4)(q) applies only to transmission lines. The applicant's reference to 215.283(1) talks to dwellings related to farm use. These arguments are moot since decisions regarding the roads or any other construction activities outside the site boundary are not included in the site certificate.

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Literature Study

HVTL Impacts on Rural and Agricultural Properties

Throughout the nation's rural communities, literature research suggests that the presence of an HVTL easement can have a noticeable impact on both the use and appeal of rural properties and farms. Common concerns include stray voltage, health risks to livestock and cattle, diminished livelihoods and heritage, limited land use, and lessened aesthetic appeal. As the following literature survey will show, many different issues play a role in shaping one's perception of the impact of HVTLS on rural property values.

Stray Voltage

To understand the potential impact of HVTLS on rural land, it's important to discuss a key component in many farmers' apprehension about HVTLS: stray voltage.

Stray voltage is the rural equivalent of the high-profile residential Electromagnetic Field (EMF) factor, but instead of fearing leukemia or brain cancer, farmers fear their animals will become unproductive, ill, and even die.

Whenever energy is transferred, some is lost along the way. If metal buildings are near leaking energy, they can act as a conduit for voltage to find its way to feeding systems, milking systems and stalls.

In their 1995 presentation, "Stray Voltage: The Wisconsin Experience," a team of researchers led by Mark Cook and Daniel Dascho stated that farmers most worry that stray voltage will increase somatic cell count in their animals, make cows nervous, reduce milk production, and increase clinical mastitis.³

"Few issues are more upsetting to dairymen than fighting case after case of clinical mastitis with more and more cows in the sick pen," writes Dr. Winston Ingalls. "It represents extra time to properly handle such cows, lost production, vet calls, treatment products, concern about contaminated milk and an occasional dead or culled cow."⁴

In Cook & Dascho's presentation, they discuss their findings from a non-random sampling study of farms with stray voltage complaints stemming from a nearby substation. Their research team found no significant relationship between cow contact current and distance from the substation or contact currents. However, they also noted that cow contact current depends on many physical factors from on-farm and off-farm electrical power systems. They say, "There are many confounding factors that may outweigh the impacts of stray voltage which makes it difficult to draw conclusions from field studies about its effects on production and animal health."⁵

³ **Stray Voltage: The Wisconsin Experience.** Written for presentation at the 1995 International Meeting by Mark A Cook, Daniel M Dascho, Richard Reines and Dr. Douglas J Reinemann.

⁴ **Clinical Mastitis.** Winston Ingalls, Ph.D. GoatConnection.com. August 2, 2003.
http://goatconnection.com/articles/publish/article_173.shtml

⁵ **Stray Voltage: The Wisconsin Experience.** Written for presentation at the 1995 International Meeting by Mark A Cook, Daniel M Dascho, Richard Reines and Dr. Douglas J Reinemann.

In a 2003 study prepared for the NRAES Stray Voltage and Dairy Farms Conference, a research team conducted by the University of Wisconsin-Madison and led by Dr. Douglas J Reinemann studied the effects of stray voltage on cows at four dairy farms over a two-week time period. He and his team found that after the first few days of exposure, cows quickly acclimated to the presence of stray voltage. They also found that stray voltage of 1mA had little effect on the immune system of a cow.⁶

Concerning EMF levels, they noted that "even though man-made signals were larger than the naturally occurring currents, levels are significantly lower than what is considered sufficient earth current strength to develop step potential anywhere near the Public Service Commission 'level of concern.'"⁷

Stray voltage is usually undetectable by humans, and some researchers believe it occurs when electricity escapes a power line or wiring system and emits a secondary current. The problem intensifies with older barns that add automated electrical equipment, "raising ambient levels of current. Soon the cumulative effect of these secondary currents becomes harmful to cows." Though stray voltage can be measured, experts don't know how and why it happens or what conclusive effect (if any) it has on animals.⁸

Despite little concrete evidence, courts have compensated farmers for their losses due to stray voltage when all other factors are eliminated. In 1999 a jury awarded Peterson Bros. Dairy \$700,000 after deciding that stray voltage from an automated feeding system from Maddalena's Dairy Equipment of Petaluma, California slashed the herd's milk output and increased the cow's death rate.⁹

The company's defense attorney called stray voltage "junk science," the Petersons' claim of stray voltage in the milk barn a "harebrained theory" unsupported by electrical engineers, and blamed the herd's health problems on the Petersons' own mismanagement.¹⁰

In a similar case in Wisconsin in 2004, a dairy operation owned by George and Kathy Muth successfully sued Wisconsin Electric Power Co. (now We Energies) for negligence in the maintenance and operation of a distribution system on their farm. They claimed that the system led to stray voltage that injured and killed several of their dairy cows and damaged their milk production. The utility said that the levels of stray voltage were "extremely low" and were levels you could find anywhere.¹¹

6 Dairy Cow Response to the Electrical Environment: A Summary of Research conducted at the University of Wisconsin-Madison. Paper presented at the NRAES Stray Voltage and Dairy Farms Conference. Dr. Douglas J. Reinemann. April 2003.

7 Results of the University of Wisconsin Stray Voltage Earth-Current Measurement Experiment. A revised version of a report submitted to the State of Wisconsin Legislature on June 25, 2003. Written by David L. Alumbaugh and Dr. Louise Pellerin.

8 Jury gives \$700,000 to dairy farmers for losses blamed on "stray voltage." Author Unknown. The Associated Press. April 21, 1999.

9 Ibid.

10 Ibid.

11 Power company negligent in dairy suit; Jury awards \$850,000 to couple over effect of stray voltage on cows. Lauria Lynch-German. Milwaukee Journal Sentinel. February 27, 2004.

The farmers said that shortly after moving to their new location, they faced low milk production, excessive illnesses, and deaths of cows.¹² The cows didn't walk right or act normal. They didn't want to go into the barn, inside, or into the stalls. The Muths examined everything from the animals' food to their bedding until consultants told them it could be stray voltage. In one year, they lost 15-18 cows and calves. Autopsies were inconclusive.¹³

After reviewing herd management and nutrition, they hired a consultant who detected stray voltage. Later that year the utility found no stray voltage problems. The farmers further consulted with veterinarians and tested and ruled out all the other factors except for stray voltage.¹⁴

The farmers hired an electrician to upgrade the farm's wiring, but it didn't decrease the stray voltage. After being asked, the utility made some other changes, but this also had no effect. Further consultants still found stray voltage from a conductor on the utility's distribution lines. A couple years later the utility removed a piece of underground electrical equipment and the herd immediately recovered...though the level of stray voltage remained the same.¹⁵

The utility's attorney stated that being able to measure something doesn't make it harmful. He cited several federal and state studies that say the current must be 2 milliamps or higher to adversely affect cattle and said no reading on their farm reached that level.¹⁶

The jury awarded the dairy farm \$850,000 in damages.¹⁷

Stray voltage fears aren't limited to dairy or cattle operations. Max Hempt, a horse farm owner in Pennsylvania, tried to oppose a proposed 9-mile 138kV HVTL because he feared that the line's EMFs caused by stray voltage could cause sterility and death among his horses.¹⁸

Though it's difficult to prove a significant presence of stray voltage, and even more difficult to prove a direct correlation between stray voltage and poor health, courts have awarded farmers sizable judgments to compensate them for damaging stray voltage from nearby power lines.

In 2002, one such case in Iowa made it to the state supreme court where the court upheld a \$700,000 judgment to a dairy farmer who argued that stray voltage from nearby power lines injured his herd. A substation sits less than a quarter mile from his farm. He said he often got electric shocks from the metal buildings on the farm. Also, he said his herd acted oddly, appearing frightened and refusing to enter barns. Milk production also suffered.¹⁹

12 Jury must decide in voltage complaint; Farm family says stray power harmed dairy herd. Lauria Lynch-German. Milwaukee Journal Sentinel. February 5, 2004.

13 Dairy farm owner testifies that stray voltage killed cows in his herd. Lauria Lynch-German. Milwaukee Journal Sentinel. February 10, 2004.

14 Jury must decide in voltage complaint; Farm family says stray power harmed dairy herd. Lauria Lynch-German. Milwaukee Journal Sentinel. February 5, 2004.

15 Ibid.

16 Ibid.

17 Power company negligent in dairy suit; Jury awards \$850,000 to couple over effect of stray voltage on cows. Lauria Lynch-German. Milwaukee Journal Sentinel. February 27, 2004.

18 Farmer Fears Stray Voltage From PP&L 138 kV Line Could Harm His Horses. Author Unknown. Northeast Power Report. June 24, 1994.

19 Court upholds stray voltage judgment. Mike Glover. The Associated Press. October 10, 2002.

The defendant, Interstate Power Co., said that “there’s an inherent risk to transmitting electricity” and it shouldn’t be vulnerable to such lawsuits unless they were negligent. The court ruled in favor of the dairy farmer, citing the lack of a statute exempting electric utilities from nuisance claims.²⁰

One year later the Wisconsin Supreme Court similarly found “that a utility can be held responsible for harming the health of a dairy herd with stray voltage even though state-recommended voltage tests did not find potentially damaging levels where the animals congregated.”²¹

As the preceding case studies show, courts have acknowledged stray voltage and its possible effects. However, to fully understand the apprehension surrounding power lines, one must examine the EMF debate and its fear factor.

EMFs and Fear

In 1990, the EMF debate was so prevalent that members of Congress passed a bill that would limit the public’s exposure to EMFs.²² A couple years later, in response to public concern about EMFs, Congress established the EMF-RAPID program in 1992. Its purpose was to coordinate and execute a limited research program to fill information gaps concerning the potential health effects of exposure to EMFs, to achieve credibility with the public that previous research has not earned, and to coordinate and unify federal agencies’ public messages about possible EMF effects.²³ The program originally was to receive \$65 million in funding, but total funding is expected to be \$46 million.²⁴

Several years later in 1999, the National Institute of Environmental Health Sciences studied the health effects of EMF exposure and found conflicting results. Though they concluded that the evidence is weak linking EMFs to health risks, they also found that the most common health risk was leukemia (mostly appearing in children). They also found a fairly consistent pattern of a small, increased risk of childhood leukemia with increasing exposure. The majority of the panel’s voting members voted to acknowledge EMFs as a possible human carcinogen. They concluded that ELF-EMF exposure cannot be recognized as entirely safe because of weak scientific evidence.²⁵

In 2005, UK scientists conducted a case-control study on childhood cancer in relation to distance from high voltage power lines in England and Wales. They found an association between childhood leukemia and proximity of home address at birth to HVTLS. “The apparent risk extends to a greater distance than

20 Ibid.

21 **Utility liable for stray voltage, high court says.** Don Behm. Milwaukee Journal-Sentinel. June 26, 2003.

22 **Electric Powerlines: Health and Public Policy Implications** – Oversight Hearing before the Subcommittee on General Oversight and Investigations of the Committee on Interior and Insular Affairs House of Representatives, 101st Congress, second session on electric powerlines: health and public policy implications. March 8, 1990.

23 **Electric and Magnetic Fields Research Program** by Mr. Mukowski from the Committee on Energy and Natural Resources. 105th Congress, first session. June 12, 1997.

24 Ibid.

25 **NIEHS Report on Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields.** Released by the National Institute of Environmental Health Sciences on May 4, 1999.

would have been expected from previous studies" although they have yet to discover an "accepted biological mechanism" to explain their results.²⁶

Though an accepted biological mechanism remains elusive, an early nineties case made it possible to link loss of property value to a fear of EMFs. In the 1993 case, *Criscuola v. Power Authority of the State of New York*, the court found that, "there should be no requirement that the claimant must establish the reasonableness of a fear or perception of danger or of health risks from exposure to high voltage power lines" and "Whether the danger is a scientifically genuine or verifiable fact should be irrelevant to the central issue of its market value impact."²⁷

Utilities say that landowners should not be able to recover damages or injunctive relief "based on myth, superstition or fear about an alleged health risk that is not supported by substantial scientific or medical evidence."²⁸

With the EMF debate unresolved, and evidence for both sides of the argument, some communities are reluctant to approve new HVTLs...and may even legally oppose them.

In an effort to preempt public opposition, Public Service Enterprise Group offered hundreds of thousands of dollars to New Jersey towns opposing its proposed HVTL project if the towns dropped all opposition and didn't comment on the payments. Opponents called them "bribes." The utility called them "settlements" to help minimize impacts of the project on towns and residents.²⁹

Some towns accepted payment, but the majority did not. Either they said they didn't have enough time to respond to the offer, or they rejected them as payoffs. One of the opposing mayors, Mayor James Sandham of Montville, said it's not about the money; "It's about safety and property values."³⁰

HVTLs and Property Values

Fear can impact the public's buying habits. Residential homeowners' resistance to abutting HVTLs is well documented. Though homeowners may fear negative effects on their community and environment,³¹ their first point of opposition is usually safety, especially if there are many children in the neighborhood. Though the 1979 Wertheimer study linking EMFs to childhood leukemia has long been contested, supported, and contested again, the very existence of a debate about the safety of EMFs sows enough doubt in residents' minds to justify the fear.³² And that fear can influence the values of nearby homes.^{33 34 35 36}

26 Childhood cancer in relation to distance from high voltage power lines in England and Wales: a case-control study. Gerald Draper, Tim Vincent, Mary E Kroll, John Swanson. British Medical Journal (bmj.com). June 3, 2005.

27 'Criscuola' - The Sparks Are Still Flying. Michael Rikon. New York Law Journal. April 24, 1996.

28 High Court Hears Arguments Today on EMF Claims. Todd Woody. The Recorder. June 6, 1996.

29 Opponents of \$750M N.J. power line project argue towns were paid to drop opposition. Lawrence Ragonese, The Star-Ledger. January 31, 2010.

30 Ibid.

31 NY Power Line Opponents Win Court Fight. Associated Press. New York Post. February 20, 2009.

32 Lines in Sand and Sky. B.Z. Khasru. Fairfield County Business Journal. September 3, 2001. Vol. 40 Issue 36, p3, 2p.

33 Power line plan concerns metro residents. Melissa Maynarich. News 9 (Oklahoma). July 22, 2008.

When given the choice to purchase two identical homes, one with such health concerns and the other without, most buyers will choose the home without the concern,³⁷ forcing the homeowner to lower their price. Aesthetic impact can also influence a property's value. Many residents don't want to look at HVTLs,³⁸ something they consider to be an "eyesore."³⁹

One of the hardest properties to sell can be one encumbered by an HVTL. Unlike roadway proximity, its effect isn't readily noticeable or measurable. Though homes near HVTLs typically have larger lots (and that can be a benefit), the biggest disadvantage is the fear factor surrounding EMFs.⁴⁰

In the early nineties, when EMFs were just entering the public consciousness, it was difficult to find a measurable price difference between homes close to an HVTL and those that were not.⁴¹ However, two researchers (Hsiang-te Kung & Charles F Seagle) conducted a case study on the impact of power transmission lines on property values and found that such negligible results depended almost entirely on the public's ignorance of EMFs and their related issues. They also found that the amount of potential property loss increased dramatically the more homeowners were aware of the potential health impacts of EMFs.⁴²

The effect of HVTLs on property values has long been a matter of contention with many studies either proving a diminutive effect or none at all. Methodologies differ and different areas of the country register different results. Some markets (ex. high-end homes) are very sensitive to HVTLs whereas others (ex. low-end homes) hardly notice them. The size of the line and the pylons are also a factor. A 69kV power line will have less effect than will a 1,200kV power line. Distance from the easement also matters. Some studies combine homes thousands of feet from HVTLs with those directly encumbered. Research sponsors also may play a factor with many being funded by the utilities themselves.

For example, in a 2007 study funded by a utility, researchers Jennifer Pitts and Thomas Jackson conducted market interviews, literature research and empirical research and reported little (if any) impact of power lines on property values. However, they did note that there is an increasing recent opinion that proximity to power lines has a slight negative effect on property values.⁴³

34 **Power Line Worries Landowners.** Ben Fischer. The Wisconsin State Journal. June 3, 2006.

35 **Lines in Sand and Sky.** B.Z. Khasru. Fairfield County Business Journal. September 3, 2001. Vol. 40 Issue 36, p3, 2p.

36 **Commissioners voice opposition to transmission lines.** David Rupkalvis. The Graham Leader. February 9, 2010.

37 **Real Estate Agents on Property Value Declines.** 4 Realtor opinion letters submitted to residents in the Sunfish, MN area whose properties are being affected by an HVTL.

38 **Ibid.**

39 **Power line plan concerns metro residents.** Melissa Maynarich. News 9 (Oklahoma). July 22, 2008.

40 **High Voltage Transmission Lines, Electric and Magnetic Fields (EMF's) And How They Affect Real Estate Prices.** David Blockhus. January 3rd, 2008. <http://siliconvalleyrealestateinfo.com/electric-and-magnetic-fields-emfs-and-how-they-effect-real-estate-prices.html>

41 **Impact of power transmission lines on property values: A case study.** Hsiang-te Kung & Charles F Seagle. Appraisal Journal. Vol. 60, Issue 3, p.413, 6p. July 1992.

42 **Ibid.**

43 **Power lines and property values revisited.** Jennifer M. Pitts & Thomas O. Jackson. Appraisal Journal. Fall, 2007.

Two California appraisers, David Harding and Arthur Gimmy, published a rebuttal to the Pitts-Jackson study that disagreed with their methodology, took issue with their sponsor, addressed omitted information, and failure to conduct before-and-after cost comparisons.⁴⁴

Pitts and Jackson responded to the rebuttal and defended their methodology, saying they purposely limited their literature research to only include empirical, peer-reviewed articles from *The Appraisal Journal* and the American Real Estate Society journals. They acknowledged they conducted the research for "a litigation matter" but did not elaborate on their sponsor.⁴⁵

In a similar case, researchers James A Chalmers and Frank A Voorvaart published a large study spanning nearly 10 years and over 1,200 properties in which they found that an encumbering HVTL had only a small negative effect on the sale price of a residential home. In half of their samples they found consistent negative property values mostly limited to less than 10%, with most between 3%-6%.⁴⁶

They summarized their findings as showing "no evidence of systematic effects of either proximity or visibility of 345-kV (kilovolt) transmission lines on residential real estate values."⁴⁷

They did, however, say that "An opinion supporting HVTLs effects would have to be based on market data particular to the situation in question and could not be presumed or based on casual, anecdotal observation. It is fair to presume that the direction of the effect would in most circumstances be negative, but the existence of a measureable effect and the magnitude of such an effect can only be determined by empirical analysis of actual market transactions."⁴⁸

Appraiser Kerry M. Jorgensen disagreed with the authors' views that paired data analysis and retroactive appraisal were "too unrefined and too subjective to be of much value," and that only through objective statistics could the effect of HVTLs on property value be truly understood. He argued that relying too much on statistics can be dangerous as there could be problems with how the data is compiled and interpreted. For example, he points out that out of their set of 1,286 qualifying sales, only 78 (6%) are directly encumbered by a power line easement, and only 33 (2.6%) more are within 246 feet of a power line easement.⁴⁹

44 Comments on "Property Lines and Property Values Revisited." (Letter to the editor) David M. Harding & Arthur E. Gimmy & Thomas O. Jackson & Jennifer M. Pitts. *Appraisal Journal*. Winter, 2008.
<http://www.entrepreneur.com/tradejournals/article/176131510.html>

45 Ibid.

46 **High-Voltage Transmission Lines: Proximity, Visibility, and Encumbrance Effects.** James A Chalmers and Frank A Voorvaart. *The Appraisal Journal* via the Appraisal Institute website. Volume 77, Issue 3; Summer, 2009; pages 227-246. Reposted by CostBenefit of the Environmental Valuation and Cost-Benefit News blog -
<http://www.envirovaluation.org/index.php/2009/11/09/high-voltage-transmission-lines-proximity-visibility-and-encumbrance-effects>

47 **Power Lines Don't Affect Property Values.** *The Appraisal Journal*. July 30, 2009.
http://www.appraisalinstitute.org/about/news/2009/073009_TAJ.aspx

48 **High-Voltage Transmission Lines: Proximity, Visibility, and Encumbrance Effects.** James A. Chalmers, PhD and Frank A. Voorvaart, PhD. *The Appraisal Journal*. Summer 2009. Pgs. 227-245.

49 **Letters to the Editor.** Kerry M. Jorgensen. *Appraisal Journal*. January 1, 2010.
[http://www.thefreelibrary.com/Comments+on+\"high-voltage+transmission+lines:+proximity,+visibility,...\"-a0220765052](http://www.thefreelibrary.com/Comments+on+\)

The Chalmers-Voorvaart study also attracted the interest of Washington Post Real Estate writer Elizabeth Razzi who wrote that the study was paid for by Northeast Utilities and completed before they proposed a high-voltage transmission grid in New England. She also wrote that both Chalmers and Voorvaart are appraisers and expert witnesses for the power industry.⁵⁰

Several studies have found that, over time, property value damages from nearby HVTLs diminish though properties near the pylons stay permanently damaged no matter the elapsed time.⁵¹ In the first case, though the property owner may grow accustomed to HVTLs and thus think less of them, new potential buyers aren't as sensitized and the diminutive impact is fresh to them.

Realtors usually oppose HVTLs. Nearly all surveyed realtors and appraisers in the Roanoke and New River valleys of Virginia said that close proximity to HVTLs would diminish property values by as much as \$25,000, but mostly for high-end homes. Lower-end homes see little impact.⁵²

Diminished property values can also impact communities. In one case, Delaware residents were worried that a proposed 1,200 megawatt HVTL would depress local property values, thus weakening the local tax base and leading to higher taxes to offset the losses. Kent Sick, author of a 1999 paper on power lines and property values, projects losses from a few percentage points to 53%.⁵³

In Atlanta, a local realty group named Bankston Realty ranked power lines as the number one item that damages resale value, followed closely by busy roads and inferior lot topography. They advise buyers to pay 15% less of the asking price if power lines are present, and they advise sellers to accept it as a logical perception of value.⁵⁴

Evidence suggests that HVTLs affect the health of residents in close proximity to lines 345kV and higher. Evidence also suggests that the power lines have little to no impact on property values because encumbered lots are often larger and more private than unencumbered lots, resulting in no diminution of purchase price. However, most studies did observe longer time on the market for encumbered properties.⁵⁵

Rural Impact

Now that the reader is aware of stray voltage, EMFs, and property values, the reader will have a deeper understanding of the potential effects of HVTLs on rural land throughout the United States.

50 Do High-Voltage Lines Zap Property Values? Elizabeth Razzi. Local Address. August 4, 2009.

http://voices.washingtonpost.com/local-address/2009/08/do_high-voltage_lines_zap_prop.html

51 The Effect of Public Perception on Residential Property Values in Close Proximity to Electricity Distribution Equipment. Sally Sims, B.Sc. Paper presented to the Ph.D. Forum at the Pacific Rim Real Estate Society Conference. January 2002. This is the first part to the study.

52 A Question of Power: Part III – Realtors: High voltage lines lower property values. Leslie Brown. Roanoke Times. 1998. <http://www.vaproperyrights.org/articles/98lineslowervalues.html>

53 Expert: Power lines hurt property value, market research shows sellers lose up to 53 percent. Elizabeth Cooper. Gannett News Service. May 20th, 2006.

54 Atlanta Homes and Resale Value... Power lines are a definite NO. The Bankston Group. July 17, 2008. <http://atlantaintheknow.com/2008/07/17/atlanta-homes-and-resale-value-power-lines-are-a-definite-no/>

55 High Voltage Power Lines Impact On Nearby Property Values. Ben Beasley. Right of Way Magazine. February 1991.

In Goodhue County, Minnesota, an area locally known for protecting agriculture, CapX2020 (a utility consortium) is proposing to build a 345kV HVTL through the county that may be doubled to 690kV. Local landowner Linda Grovender voiced her concern in a 2010 letter to the editor of the Cannon Falls Beacon. She worries that the line, proposed to traverse residential and agricultural lands instead of following existing utility right-of-way, will have an adverse effect on her family's health (due to EMFs), jeopardize agricultural interests, result in lost agricultural productivity, and damage property values.⁵⁶ She wrote that if the proposed 345kV HVTL is doubled to 690kV (as it legally could be) it could have an adverse effect on her family's health, jeopardize agricultural interests, result in lost agricultural productivity, and damage property values.⁵⁷

Elsewhere in Minnesota, Dairyland Power Cooperative (one of the chief members of CapX2020) surveyed rural landowners for their opinion regarding the proposed HVTL in their area. Whether they were crop or dairy farmers, each had several reasons why the proposed line would impact their business. The unnamed respondents shared Grovender's views and said they prefer to use highway corridors and woodlands to avoid impacts to productive agricultural land; protect livestock; avoid interference with large farm equipment, GPS, and navigation systems used in farm machinery; preserve open channels for crop-dusting; protect farm buildings; protect pasture land, tree farms, and timber production.⁵⁸

The Dairyland survey also found that livestock operations are concerned that the HVTL will generate stray voltage, impacting livestock and feedlots. Cattle, horses, and other livestock will not go near transmission lines due to stray voltage. And stray voltage can impact the health of beef cattle and hogs. Farmers also fear potential impacts on dairy operations, poultry, livestock mortality, horse boarding facilities, and herd reproduction.⁵⁹

HVTLs also pose potential technological obstacles. For example, The GPS equipment used in the farm equipment may not be able to steer around transmission poles, potentially making farming around the towers extremely difficult.⁶⁰

One major concern was the routing the HVTLs through the middle of properties or fields. The surveyed farmers quoted many repercussions for bisecting a property. They include: Interrupted irrigation and tile drainage equipment and practices; decreased food production; fragmented existing cropland and dairy operations; diminished lease value: the addition of transmission lines would make it difficult to lease farm land for the top rental price; compacted soil from construction of the HVTLs and access roads: it would take 3–5 years to restore.⁶¹

Across the border in Wisconsin, the state's Department of Agriculture validated many of the Minnesota respondents' concerns when it found that HVTL construction could compact soil, making it difficult to

56 No CAPX2020. Letter to the Editor by Linda Grovender. The Cannon Falls Beacon. March 23, 2010.

57 Ibid.

58 SE Twin Cities-Rochester-La Crosse Transmission System Improvement Project Macro-Corridor Study, Appendix A: Summary of Public Comments regarding a proposed HVTL. Dairyland Farm Cooperative. September 2007.

59 SE Twin Cities-Rochester-La Crosse Transmission System Improvement Project Macro-Corridor Study, Appendix A: Summary of Public Comments regarding a proposed HVTL. Dairyland Farm Cooperative. September 2007.

60 Ibid.

61 Ibid.

plow and plant those areas, naturally resulting in reduced crop yields. The HVTLs force farmers to change planting patterns to avoid support structures. Since farm land is only as valuable as its ability to yield good crops, rural property values suffer from the limitations and effects of HVTLs on their land.⁶²

Potential compaction, forced building changes, and lower property values equally threaten dairy operations as much as agricultural farmers. Susan and Robert Herckendorf, dairy farmers in the path of the proposed A-W HVTL, are worried that the line could put local dairies out of business.⁶³

In researching the possible negative factors of the then-proposed Arrowhead-Weston HVTL in Wisconsin in 2000, the state's Public Service Commission found that rural property values may decrease from "concern or fear of possible health effects from electric or magnetic fields; The potential noise and visual unattractiveness of the transmission line; Potential interference with farming operations or foreclosure of present or future land uses."⁶⁴ They also found that the value of agricultural property will likely decrease if the pylons inhibit farm operations.⁶⁵ However, they also found that adverse effects appear to diminish over time.⁶⁶

The impact report further states that, on farmland, HVTL installation can remove land from production, interfere with operation of equipment, create safety hazards, and deprive landowners the opportunity to consolidate farmlands or develop the land for another use. The greatest impact on farm property values is likely to occur on intensively managed agricultural lands.⁶⁷

Nearly a decade later in 2009, the Wisconsin Public Service Commission conducted another study on the environmental impacts of transmission lines and found that "in agricultural areas, the number of poles crossing a field may be the most significant measure of impact," and "agricultural values are likely to decrease if the transmission line poles are in a location that inhibits farm operations."⁶⁸ Beyond the impact of pole placement, the PSC found that "the overall aesthetic effect of a transmission line is likely to be negative to most people, especially where proposed lines would cross natural landscapes. The tall steel or wide 'H-frame' structures may seem out of proportion and not compatible with agricultural landscapes or wetlands."⁶⁹ They further explained that "Transmission lines can affect farm operations and increase costs for the farm operator. Potential impacts depend on the transmission line design and the type of farming. Transmission lines can affect field operations, irrigation, aerial spraying, wind breaks, and future land development."⁷⁰

The study further examines how rural HVTL pole placements can affect agricultural land values: They can create problems for turning field machinery and maintaining efficient fieldwork patterns; expose

62 Line could affect farms, property values. Author Unknown. Oshkosh Northwestern. June 26, 2000.

63 Ibid.

64 Property Values (pages 212-215) from Final Environmental Impact Statement, Arrowhead-Weston Electric Transmission Line Project, Volume 1. Public Service Commission of Wisconsin. Docket 05-CE-113. Date issued, October 2000.

65 Ibid..

66 Ibid.

67 Property Values (pages 212-215) from Final Environmental Impact Statement, Arrowhead-Weston Electric Transmission Line Project, Volume 1. Public Service Commission of Wisconsin. Docket 05-CE-113. Date issued, October 2000.

68 Environmental Impacts of Transmission Lines. Public Service Commission of Wisconsin. March 2009.

69 Ibid.

70 Ibid.

properties to weed encroachment; compact soils and damage drain tiles; result in safety hazards due to pole and guy wire placement; hinder or prevent aerial activities by planes or helicopters; interfere with moving irrigation equipment; hinder future consolidation of farm fields or subdividing land for residential development.⁷¹

To oppose these potentially diminutive effects on their land, landowners sometimes organize against them. In Ohio, a group of concerned citizens formed the group, Citizens Advocating Responsible Energy (CARE), to oppose FirstEnergy's proposed Geauga County power line. On their website they state the reasons for their opposition. They fear the HVTL will devalue the properties it crosses, force affected property owners to continue paying taxes on damaged property, damage natural beauty and local ecology, lessen agricultural productivity of impacted land, thus reducing farm income and local purchasing power, and create a thorough-fare for snowmobiles and off-road vehicles.⁷²

Other times, concerned landowners are united in voice, but not in form. In 2010, Idaho property owners in Bonneville County are nervously following the progress of Idaho Falls Power's proposed 161kV HVTL that would pass close to their homes.⁷³

Lynn Pack, a Bonneville County dairy farmer, has educated himself on HVTLs and said he's most concerned with stray voltage. "It causes so many problems with cow's production. They won't feed, they won't drink water, they dry up and when they dry up they just don't give any milk." ⁷⁴ Another property owner, Sharon Nixon, fears the HVTL could harm her husband's health after his recent victory over bone cancer. She also fears the value of her home will fall. "It is not something we want in our backyard. We worked all our lives. This is our dream home." ⁷⁵

Idaho Falls Power General Manager Jackie Flowers said the HVTL is a necessary step to meet new federal energy reliability standards and that the utility is open to the public's input. ⁷⁶

A year earlier in Idaho, a coalition of Rockland County farmers tried to convince Idaho Power Company to avoid routing a new HVTL through their land, citing environmental and development concerns.⁷⁷ Doug Dokter, Idaho Power project leader, said the new lines are required because the existing lines are at their capacity.⁷⁸ Because of their concerns, utility representatives say they're looking at other options and hope for a compromise to avoid invoking eminent domain to take the land. ⁷⁹

Sometimes opposition to a proposed HVTL route can alter its course. In 1994, Public Service Company of New Mexico abandoned plans to take new right-of-way through the Jemez Mountains for a 50-mile long HVTL extension that Indian groups and environmentalists argued would cut through several miles

71 Ibid.

72 We oppose FirstEnergy's proposed Geauga County power line. Website posting by Citizens Advocating Responsible Energy (CARE). Date unknown but website copyright suggests sometime from 2008-2009.

73 Transmission Lines Worry Property Owners. Brett Crandall. Local News 8. March 5, 2010.

74 Ibid.

75 Ibid.

76 Ibid.

77 Headway being made on proposed route for power transmission line. Author Unknown. The Power County Press and Aberdeen Times. April 8, 2009.

78 Ibid.

79 Ibid.

of pristine vistas and Native American ruins.⁸⁰ The utility instead re-routed the extension to follow an existing utility corridor, bringing the decade-long dispute to a close.⁸¹

In 2008, California farmers and ranchers found themselves in a similar situation. San Diego Gas & Electric proposed a 150-mile long, 500kV HVTL (in conjunction with several 230kV HVTLs) across San Diego and surrounding counties to meet increasing energy needs and transport required renewable energy.⁸²

Affected landowners are worried the line will have "huge" impacts on their properties. Katie Moretti, an affected cattle rancher, and other farmers worry that building construction access roads across untouched land will limit their land's future use. She also worries that the utility won't compensate her for the loss of use.⁸³

Another rancher, Glen Drown, also worries about the impact the line will have on land-use and property values since the proposed route bisects several of his parcels subdivided for future development.⁸⁴

Local dairy producer, Richard Van Leeuwen, is worried that stray voltage from the line would damage the health of his calves and milking cows. To protect his herd's health he said he would have to relocate the calf farm to another part of his property, costing millions.⁸⁵

San Diego County Farm Bureau Executive Director Eric Larson acknowledges that the farming community won't be able to stop the project, but he's trying to make it compatible with the area's farming interests by recommending burying the line underground in some areas, going around some areas, and utilizing existing right-of-way.⁸⁶

Elsewhere in the state, the City of Brentwood researched the potential impact of HVTLs on agricultural land values by interviewing several of their local and experienced Real Estate brokers. All the brokers said that "Agricultural land with power lines above ground is worth less than properties with below-ground utilities."⁸⁷

However, in a 2007 report, the California Department of Conservation's Farmland Mapping and Monitoring Program reported that HVTLs installed on agricultural land for a wind farm will result in a temporary disturbance of 10 acres of farmland and permanently affect 1 acre. Since the affected areas are mainly grazing land, the report concluded that the HVTL would not significantly impair productivity. Though the impact to agricultural productivity during construction would be negative, they claimed it would be mostly insignificant.⁸⁸

80 PNM Scraps Jemez Power Line Plan. Keith Easthouse. Sante Fe New Mexican. December 16, 1994.

81 Ibid.

82 Proposed power line would impact farms. Christine Souza. California Farm Bureau Federation. May 28, 2008.

83 Proposed power line would impact farms. Christine Souza. California Farm Bureau Federation. May 28, 2008.

84 Ibid.

85 Ibid.

86 Ibid.

87 City of Brentwood, California. Website page explaining their approaches to valuing agricultural land. Date and author unknown.

88 3.3 Agricultural Resources. Part of the public draft by The California Department of Conservation's Farmland Mapping and Monitoring Program. July 2007.

Across the country in Leesburg, Virginia, 26 landowners opposed Dominion Energy's proposed 230kV HVTL, saying it will damage their property values, thus decreasing their tax base and thus affect the county as a whole. They also fear its impact on Blue Ridge tourism.⁸⁹

Bill Hatch, owner of a 400-acre farm was upset to learn the line would run through his farm. He said the proposed line would so affect his farm that he could only afford to keep it by direct marketing or agro-tourism, but he admitted that few people would want to visit a farm with power lines.⁹⁰

Landowners want the utility to bury the lines, but the utility says it will cost 10 times more than traditional overhead lines. However, Harry Orton, an underground power line expert, testified that while the initial costs of burying the lines are higher, the lower cost of maintenance over the years evens the cost along the lines' lifecycle.⁹¹

A year later in 2006, Dominion proposed an additional 500kV HVTL to meet growing demand and routed it through northern Virginia because it was the most efficient route. However, the area is also one of the state's most pristine, and the proposal met with fierce resistance from landowners, environmentalists, Congressman Frank Wolf, and actor Robert Duvall.⁹²

In the path of the HVTL are landowners of some of the most valuable land in Virginia, and they were bothered that the utility plans to erect the 40-mile, 15-story HVTL in their back yards.⁹³

One landowner, Cameron Eaton, fears the line will bring financial ruin and "sink" her investment into her 100-acre Fauquier County property and horse business. "No one will buy that land if some ugly power line could run right over their house. I'm broken off at the knees."⁹⁴

Real estate agents consider the area's picturesque countryside to be its most valuable quality. Matt Sheedy, a land developer and president of Virginians for Sensible Energy Policy, said that the very proposal that the line will soon dominate the countryside has already "sent land values plummeting." Brokers confirmed that the market froze. People backed out of real estate contracts, unwilling to live anywhere under the line. Sheedy's groups estimated that land immediately affected could lose as much as 75% of its value.⁹⁵

"When you're out in the country and you're selling property, what you're selling is the open space and the bucolic views and the history," Sheedy said. "Running power lines through an area like this is just devastating." To landowners Gene and Deborah Bedell, who were trying to sell their 223-acre farm to pay for their retirement, it was a hard blow. Their agent told them no one would buy their property if they knew "that it could have a power line looming over it."⁹⁶

89 Committee Hears Debate Over Underground, Overhead Power Lines. Megan Kuhn. Leesburg Today. May 20, 2005.

90 Ibid.

91 Committee Hears Debate Over Underground, Overhead Power Lines. Megan Kuhn. Leesburg Today. May 20, 2005.

92 Landowners Fear Ruin from Power Line Route. Sandhya Somashekhar. Washington Post Staff Writer. December 11, 2006.

93 Ibid.

94 Ibid.

95 Ibid.

96 Ibid.

Further north in New York, over 50 landowners and local officials spoke before the state's Public Service Commission in opposition to Upstate NY Power Corp's proposed construction of a 230kV HVTL in their community.⁹⁷

Sharon B. Rossiter, co-owner of Doubledale Farms in Ellisburg, said the HVTL will damage their crop cycle, remove 100 acres from use, and make planting difficult by having to navigate around the poles. Also worried is Roberta F. French, owner of Farnham Farms in Sandy Creek. The proposed line will bisect her blueberry farm, eliminating two-thirds of it.⁹⁸

Jay M. Matteson, Jefferson County agricultural coordinator, advocated routing the HVTL through public land to avoid damaging productive, private land. "The burden should be on New York state and the developer to prove to local landowners why their land is less valuable than public land," he said.⁹⁹

The Town of Henderson opposed it because the town's foundation is tourism and agriculture, and the community is "very concerned about the visual impacts of this project."¹⁰⁰

Robert E. Ashodian, chairman of the Henderson Harbor Area Chamber of Commerce's Economic Development Committee, agreed. "The scenic resources of the community and the natural resources are at the heart of the value of the community."¹⁰¹

In an effort to appease worried or angry landowners, agricultural property owners in Montana with HVTLs encumbering their land will be exempt from paying taxes on land within 600 feet on either side of the HVTL Right-of-Way.¹⁰²

In the 2002 study, "The Impact of Transmission Lines on Property Values: Coming to Terms with Stigma," authors Peter Elliott and David Wadley cite a 1978 Canadian study that, according to one commentary, found "the per acre values from more than 1,000 agricultural property sales in Eastern Canada were 16-29% lower for properties with easements for transmission lines than for similar properties without easements." The impact was greater on smaller properties. The 1978 study found little difference in impact from 230kV or 500kV HVTLs. The study also found that the impacts didn't seem influenced by time.¹⁰³

Three more Canadian studies on the impact of HVTLs on agricultural land values found different results.¹⁰⁴ Brown 1976 studied the effect of low-voltage power lines on agricultural land in Saskatchewan and found no measurable impact on property values. The Woods Gordon 1981 study focused on the effects of 230kV to 500kV HVTLs on Ontario farmland and found some areas had an average of a 16.9% negative impact, two areas had a positive effect, and others showed no statistically

97 **Transmission line gets no support.** Nancy Madsen. Watertown Daily Times. November 17, 2009.

98 **Transmission line gets no support.** Nancy Madsen. Watertown Daily Times. November 17, 2009.

99 Ibid.

100 Ibid.

101 Ibid.

102 **Tax facts on proposed power line.** The Montana Standard Staff. The Montana Standard. July 11, 2009.

103 **The Impact of Transmission Lines on Property Values: Coming to Terms with Stigma.** Peter Elliott & David Wadley. Property Management, pgs.137-152. 2002.

104 **The Effects of Overhead Transmission Lines On Property Values: A Review And Analysis Of The Literature.** Edison Electric Institute Siting & Environmental Planning Task Force. 1992.

significant effect. The third study, a master's thesis referred to as Thompson 1982 found sales prices lower for properties crossed by HVTLs but only where the land has potential for irrigation.(pgs. 56-57)¹⁰⁵

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¹⁰⁵ Ibid.

Loss of Ag land

Ag land for select Northwest counties

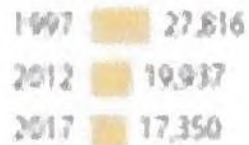
According to the 2017 Census of Agriculture, U.S. cropland has declined more than 10% nationwide since 1997 while pastureland has seen a modest gain of 0.7%. Ag land for select counties in the Northwest:

Snohomish Co., Wash.

Crop acres



Pasture acres

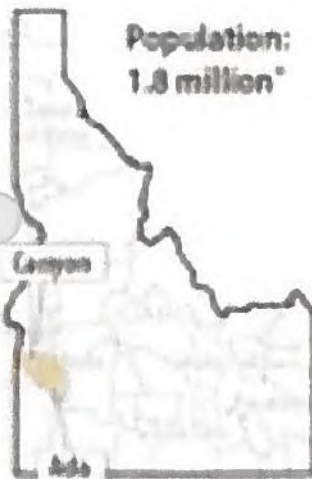
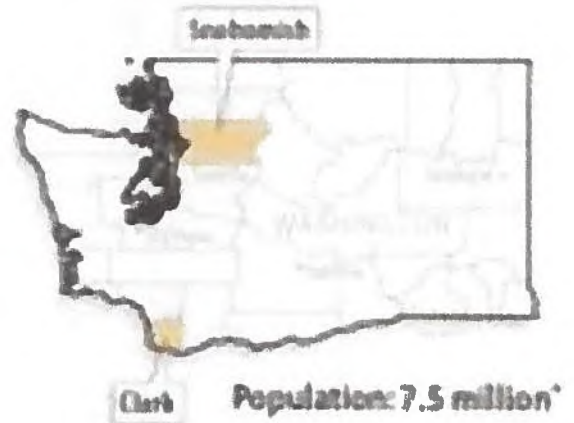


Clark Co., Wash.

Crop acres



Pasture acres



Ada Co., Idaho

Crop acres



Pasture acres

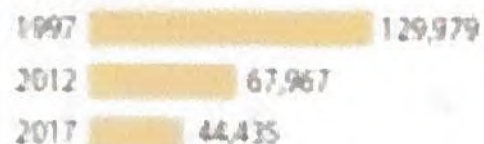


Canyon Co., Idaho

Crop acres



Pasture acres



Marion Co., Ore.

Crop acres



Pasture acres

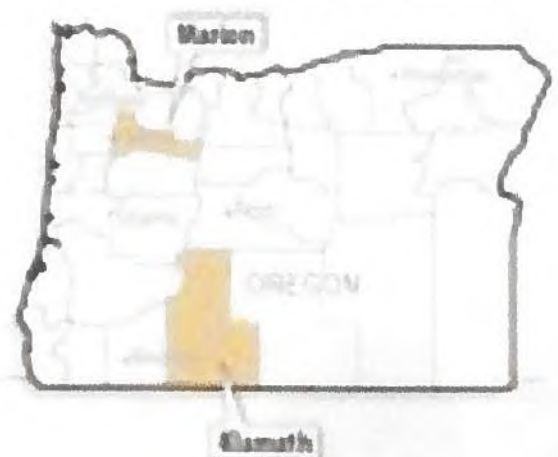


Klamath Co., Ore.

Crop acres



Population: 4.2 million*



Value of Land for
Recreation

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OUTDOOR INDUSTRY ASSOCIATION RELEASES STATE-BY-STATE OUTDOOR RECREATION ECONOMY REPORT

Across all fifty states, reports show a thriving outdoor recreation economy generating billions in consumer spending annually and supporting millions of American jobs.

July 26, 2017

BOULDER, Colo. – July 26, 2017 – Outdoor Industry Association (OIA) today released the state-level Outdoor Recreation Economy Report

featuring economic data for all 50 states across the United States, the largest and most comprehensive state-by-state report of its kind. The data underscores a growing economic force that generates billions in consumer spending and directly contributes millions of good-paying, American jobs in communities across the country.

Earlier this year, OIA released its national Outdoor Recreation Economy Report, which found that the outdoor recreation economy generates \$887 billion in consumer spending annually and directly sustains 7.6 million American jobs. The state report released today offers a deeper look into a thriving sector that's helping to create healthier economies and healthier communities.



"No matter your political affiliation, where you live or your walk of life, the outdoors brings us together," said Amy Roberts, OIA executive director.

"From Maine to California, consumers are spending more on outdoor recreation as millions of Americans depend on it for their livelihoods.

Outdoor recreation is a powerful economic engine that contributes to businesses and healthy communities in each and every state and is a vital and sustainable sector that relies on investing in and protecting America's public lands and waters."

Here are the highlights from the state report:

State	Annual Consumer Spending (in billions)	Direct Jobs	% of Residents Participating in Outdoor Recreation Each Year
California	\$92.0	691,000	56%
Colorado	\$28.0	229,000	71%
Idaho	\$7.8	78,000	79%
Kentucky	\$12.8	120,000	61%
Maine	\$8.2	76,000	70%
Minnesota	\$16.7	140,000	70%
Montana	\$7.1	71,000	81%
New Hampshire	\$8.7	79,000	69%
New Mexico	\$9.9	99,000	65%
New York	\$41.8	313,000	52%

North Carolina	\$28.0		260,000	56%	
Oregon	\$16.4	LOG IN	172,000	69%	SEARCH
Utah	\$12.3		110,000	72%	
Vermont	\$5.5		51,000	72%	
Virginia	\$21.9		197,000	57%	
Washington	\$26.2		201,000	72%	
Wyoming	\$5.6		50,000	73%	

All 50 state reports can be viewed [here](#).

“The outdoor recreation economy continues to thrive across rural and urban America,” said REI President and CEO Jerry Stritzke. “These new state-by-state numbers show how Americans from every corner of the country love to spend time outdoors. People from all backgrounds continue to hike, camp, boat, fish, ski, and paddle. You name it. It’s a rich part of the nation’s heritage. And when we follow our passion and opt outside, we create economic activity across all 50 states. This is a sustainable, growing sector of the economy—one that drives positive return-on-investment throughout the country.”

With the outdoor recreation economy poised to continue to grow, there are actions that can be taken to support its positive economic impact. OIA urges elected policymakers to do the following:

- ▶ Adequately fund state and local parks and trails to make them attractive and accessible to families and friends seeking to get outside.
- ▶ Take steps to raise awareness of the importance of the outdoor recreation economy.
- ▶ Develop and plan urban areas in a way that means every citizen can get outside and recreate within 30 minutes of their home.

- 
- Support policies that encourage outdoor innovators to start businesses.

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Outdoor Industry Association issued the first Outdoor Recreation Economy state-level report in 2012 and has made significant improvements to the report since then. This second edition of the state report takes a broader view of the growing industry and its shifting demographics. The sample that was drawn for this study was designed to represent the U.S. population on the basis of gender, age, education and race.

Respondents were solicited through Survey Sampling International (SSI), a longtime leader in survey research. The report was made possible through the generous support of REI, Patagonia, The North Face, W.L. Gore, People for Bikes, The Teddy Roosevelt Conservation Partnership (TRCP) and The Outdoor Foundation.

About Outdoor Industry Association

Based in Boulder, Colo., with offices in Washington, D.C., Outdoor Industry Association (OIA) is the leading trade association for the outdoor industry and the title sponsor of Outdoor Retailer. Outdoor Industry Association unites and serves over 1,200 manufacturer, supplier, sales representative and retailer members through its focus on trade and recreation policy, sustainable business innovation and outdoor participation. For more information, visit outdoorindustry.org.

Media Contact

Jennifer Pringle

Outdoor Industry Association

Ladd Marsh

United States Government

Department of Energy
Bonneville Power Administration

memorandum

DATE: March 13, 2001

REPLY TO
ATTN OF: KEC-4

SUBJECT: Supplement Analysis for the Wildlife Mitigation Program EIS, (DOE/EIS-0246/SA-14)

TO: Joe DeHerrera - KEWN-4
Project Manager

Proposed Action: Ladd Marsh WMA Additions, Conley Lake Upland Habitat Restoration

Project No.: 1999-056-011

Budget No.: 00002964

Wildlife Management Techniques of Actions Addressed Under this Supplement Analysis (See App A of the Wildlife Mitigation Program EIS):

1.0 Fee-Title Acquisition, 2.0 Plant Propagation Techniques (Transplanting, Seeding, Irrigation, Fertilization), 5.2 Culverts, 6.0 Fire Management Techniques (Prompt Fire Suppression and Natural Fire Management), 7.0 Vegetation Management: Enhancement and Control (Herbicides, Mechanical Removal, Biological Control, Hand Pulling, Prescribed Burn, Water Level Manipulation), 8.2 Control of Predators and Nuisance Animals,

9.1 Integration of Wildlife Habitat and Crop Production, 9.2 Provision of Educational and Recreational Opportunities, 10.1 Land Use Restrictions, 10.3 Road Maintenance.

Location: Union County, Oregon, near LaGrande

Proposed by: Bonneville Power Administration (BPA), and Oregon Department of Fish and Wildlife (ODFW)

Description of the Proposed Action: The overall goal of this project is to enhance and maintain lands near the Ladd Marsh Wildlife Management Area (WMA) for the benefit of wildlife. The WMA is in the Grande Ronde River valley. This project involves upland habitat restoration around a seasonal lake. The Conley Lake property consists of a 120-acre lake and associated wetland and 40 acres of upland which has been farmland. It is an extremely important habitat area for wetland birds. The purpose of this project is to improve upland habitat for waterfowl, shorebirds, and other wildlife.

Findings: The project is generally consistent with Sections 11.2D.1, 11.3A, and 11.3D of the Northwest Power Planning Council's Fish and Wildlife Program. This Supplement Analysis finds; 1) that the proposed actions are substantially consistent with the Wildlife Management Program EIS (DOE/EIS-2965) and ROD, and 2) that there are no new circumstances or information relevant to environmental concerns and bearing on the proposed actions or their impacts. Therefore, no further NEPA documentation is required.

/s/ Nancy Weintraub
Nancy Weintraub
KEC Project Lead
Environment, Fish and Wildlife Group

CONCUR: /s/ Thomas C. McKinney DATE: 03/13/01
Thomas C. McKinney
NEPA Compliance Officer

Attachment
Compliance Checklist - Ladd Marsh WMA Additions, Conley Lake Property

Ladd Marsh

Re: mitigation

(3) The Department shall recommend mitigation consistent with the goals and standards of OAR 635-415-0025 for development actions which impact fish and wildlife habitat for other than Department actions when:

(a) Federal or state environmental laws or land use regulations authorize or require mitigation for impacts to fish and wildlife; or

(b) Local environmental laws or land use regulations authorize or require mitigation for impacts to fish and wildlife habitat; or

(c) The proposed development action requires either an amendment to an acknowledged comprehensive plan or land use regulation relating to fish and wildlife habitat protection, or adoption of a new land use regulation relating to fish and wildlife habitat protection, and the Department believes that mitigation is necessary to comply with Statewide Planning Goal 5 or other applicable statewide planning goal requirements for fish and wildlife habitat protection.

(4) The Department's recommendations or requirements for mitigating the impacts of a development action shall be based on the following considerations:

(a) The location, physical and operational characteristics, and duration of the proposed development action; and

(b) The alternatives to the proposed development action; and

(c) The fish and wildlife species and habitats which will be affected by the proposed development action; and

(d) The nature, extent, and duration of impacts expected to result from the proposed development action.

(5) The Department shall require the project proponent to prepare a written mitigation plan approved by the Department if required by an ODFW implemented statute; or recommend or require a written plan approved by the Department if the impacts of the proposed development action may, in the opinion of the Department, be so significant in nature, extent, or duration that mitigation measures to achieve the goals and standards of OAR 635-415-0025 cannot be identified without the evaluation that would be provided in a written mitigation plan.

(6) The Department may recommend or require the posting of a bond, or other financial instrument acceptable to the Department, to cover the cost of mitigation actions based on the nature, extent, and duration of the impact and/or the risk of the mitigation plan not achieving mitigation goals.

(7) The Department may consider the use of mitigation banks or payment-to-provide mitigation based on the nature, extent, and duration of the impact and/or the risk of the mitigation plan not achieving mitigation goals.

(a) The Department may consider the use of mitigation banks and payment-to-provide mitigation only for habitat categories two through six and only if they are consistent with the mitigation goals and standards identified in OAR 635-415-0025.

(b) The amount of payment-to-provide mitigation, recommended or required, shall include at a minimum the cost of property acquisition, mitigation actions, maintenance, monitoring, and any other actions needed for the long-term protection and management of the mitigation site.

(8) In addition to any other information that may be required by law, a written mitigation plan prepared for the Department shall:

(a) Include the information required in OAR 635-415-0020(4)(a)-(d); and

(b) Describe the mitigation actions which shall be taken to achieve the fish and wildlife habitat mitigation goals and standards of OAR 635-415-0025; and

(c) Describe and map the location of the development action and mitigation actions including the latitude and longitude, township, range, section, quartersection and county; and

(d) Complement and not diminish mitigation provided for previous development actions; and

(e) Include protocols and methods, and a reporting schedule for monitoring the effectiveness of mitigation measures. Monitoring efforts shall continue for a duration and at a frequency needed to ensure that the goals and standards in OAR 635-415-0025 are met, unless the Department determines that no significant benefit would result from such monitoring; and

(f) Provide for future modification of mitigation measures that may be required to meet the goals and standards of OAR 635-415-0025; and

(g) Be effective throughout the project life or the duration of project impacts whichever is greater.

(h) Contain mitigation plan performance measures including:

**LADD MARSH WILDLIFE AREA ADDITIONS
MITIGATION PROJECT**



**DRAFT
FIVE-YEAR-HABITAT MANAGEMENT PLAN
2001-2005**

DRAFT

DRAFT

DRAFT

DRAFT

**LADD MARSH WILDLIFE AREA ADDITIONS
MITIGATION PROJECT**

**FIVE-YEAR HABITAT MANAGEMENT PLAN
2001-2005**

Prepared for:

Bonneville Power Administration
905 NE 11th Avenue
Portland, Oregon 97232

Prepared by:

Oregon Department of Fish and Wildlife
Ladd Marsh Wildlife Area
59116 Pierce Road
La Grande, Oregon 97850

April, 2002

6/10/02

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Kellen Tardaewether, Senior Siting Analyst

June 27, 2018

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**EFSC LACKS AUTHORITY TO APPROVE CONSTRUCTION OR
MODIFICATION OF ROADS OR OTHER DEVELOPMENT OUTSIDE THE
SITE BOUNDARY FOR THE BOARDMAN TO HEMINGWAY
TRANSMISSION LINE.**

The Oregon Department of Energy and Energy Facility Siting Council span of control for approving development is limited to the area within the site boundary. In order to be covered under the site certificate, roads or other construction must be included in the site boundary. The decision regarding whether or not to include these areas in the site was made by the developer. They chose to limit the area of the site to exclude some of the roads they planned to modify or build. Due to this decision, these areas must be approved through the local county or city planning process. They do not fall under the rules contained in OAR 345-022-0030.

Prior decisions and a contested case decision by the Energy Facility Siting Council support the above, for example: The Oregon Department of Energy and Energy Facility Siting Council allowed Wheatridge Wind Development to not include the gen-tie transmission line in the site certificate. That decision gave control of the gen-tie line, roads and other actions related to building the transmission line to the contractor and the developer and removed the Oregon Department of Energy and Energy Facility Siting Council from involvement.

Definitions contained in the Oregon Statutes and EFSC Rules clearly define the area which is controlled by the site certificate.

1. A site certificate by definition contained in ORS 469.300(26), ORS 469.401(4) and ORS 369.503(3) means “the binding agreement between the State of Oregon and the applicant, authorizing the applicant to *construct and operate a facility on an approved site*, incorporating all conditions imposed by the council on the applicant.”
2. The “site” is defined in ORS 469.300 as “any proposed location of an energy facility and related or supporting facilities.”
3. ORS 469.300 also defines “Related or supporting facilities” as “means any structure, proposed by the applicant, to *be constructed or substantially*

modified in connection with the construction of an energy facility, including associated transmission lines, reservoirs, storage facilities, intake structures, road and rail access.-----"

4. ORS 469.401(4) and ORS 369.503(3) state that the council does not have jurisdiction over matters that are not *included in and governed by the site certificate* or amended site certificate.

In construing a statute, you may not "insert what has been omitted, or ***omit what has been inserted." ORS 174.010.

The area of EFSC control of modifications to existing roads or development of new roads is also contained in council standards contained in OAR 345-001-0010 including:

5. (54) ""Site" as defined in ORS 469.300. "Energy facility site" means all land upon which an energy facility is located or proposed to be located. "Related or supporting facilities site" means all land upon which related or supporting facilities for an energy facility are located or proposed to be located.

6. (55) ""Site boundary" means the perimeter of the site of a proposed energy facility, its related or supporting facilities, all temporary laydown and staging areas and all corridors and micro-siting corridors proposed by the applicant."

7. (56) ""Site certificate" as defined in ORS 469.300." "means the binding agreement between the State of Oregon and the applicant, authorizing the applicant to *construct and operate* an energy facility *on an approved site*, incorporating all conditions imposed by the state on the applicant."

The above definitions, particularly the definition of "site certificate" in the statute clearly limit the extent of the Oregon Department of Energy and Energy Facility Siting Council evaluation and control to activities occurring on the "site" as defined in the above rules and statutes and impacts those development activities occurring on the site have on the surrounding area. Any modifications to road segments or new roads which are not included in the site boundary are outside the jurisdiction of the Energy Facility Siting Council. The site certificate cannot authorize exceptions to local or state land use goals or plans in order to approve development outside the site.

The applicant claims on Page K-216 of their application that the access roads and other such facilities outside the site boundary are related and supporting facilities.

Since the applicant chose not to include these facilities in the site certificate, they are not related or supporting facilities. The Energy Facility Siting Council and the Department of Energy made this very clear in the contested case decision regarding the developer's choice not to include the gen-tie line in the site for the Wheatridge Wind Facility. That decision was incorporated into the Final Order for Wheatridge Wind Facility issued April 2017. For example: Page 1, Line 10 states "A site certificate is a binding agreement between the State of Oregon and the applicant, authorizing the applicant to design, construct, operate, and retire a facility on an approved site, incorporating all conditions imposed by the Council on the applicant" In the footnotes on that page there is additional comment relating to this issue, "On the record of the public hearing, Ms. Gilbert/FGRV requested that the Council impose a condition restricting construction and construction impacts to the area within the site boundary. In response, on the record of the June 6, 2016 public hearing, the applicant stated that a specific condition limiting impacts to within the site boundary should not be required as this limitation is self-implementing through approval of the site boundary and site certificate. The department generally agreed with the applicant's statement. Construction activities must be restricted to areas within the site boundary, which as defined at OAR 345-001-0010 means the perimeter of the site of the proposed energy facility, its related or supporting facilities, all temporary laydown and staging areas and all corridors and microsites corridors. Once issued, the site certificate becomes a binding, contractual agreement between the certificate holder and the State of Oregon, which authorizes the certificate holder to design, construct, operate and retire a facility only on an approved site, incorporating all conditions imposed by the council."

The applicant's reference to OAR 660-006-0025(4)(q) applies only to transmission lines. The applicant's reference to 215.283(1) talks to dwellings related to farm use. These arguments are moot since decisions regarding the roads or any other construction activities outside the site boundary are not included in the site certificate.

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B2H EFSC COUNTY NEEDS TRAFFIC ROUTES IDENTIFIED TO DETERMINE COMPLIANCE WITH PUBLIC SERVICES REQUIREMENTS

The applicant must identify transportation routes prior to determining that the development complies with the Public Services standard contained in OAR 345-022-0110. Rules which require the identification of road impacts in counties crossed by the Boardman to Hemingway Transmission line are contained in OAR 345-022-0110; OAR 345-022-0030; OAR 345-021-0050

OAR 345-022-0110 Public Services

(1) Except for facilities described in sections (2) and (3), to issue a site certificate, the Council must find that the construction and operation of the facility taking into account mitigation, are not likely to result in significant adverse impact to the ability of public and private providers within the analysis area described in the project order to provide sewers and sewage treatment, water, storm water drainage, solid waste management, housing, traffic safety, police and fire protection, health care and schools.

OAR 345-022-0030(3) As used in this rule, the "applicable substantive criteria" are criteria from the affected local government's acknowledged comprehensive plan and land use ordinances that are required by the statewide planning goals and that are in effect on the date the applicant submits the application. If the special advisory group recommends applicable substantive criteria, as described under OAR 345-021-0050, the Council shall apply them."

On Page 19 of IDAHO POWER RESPONSES TO COMMENTS AND REQUESTS FOR ADDITIONAL INFORMATION ON THE B2H APASC FROM UNION COUNTY the county stated the need to have the travel routes identified in order to determine road restrictions and other restrictions necessary to provide traffic safety..

Idaho Power was unwilling to disclose this information until after the site certificate was issued and the counties timeframes for development of a response was limited. This process was used for multiple Plans which means that even the advisory groups and SAG's are not aware of what the final plan will include which hindered their ability to respond to them. Because of this, we strongly support the Union County recommendation that they, and we are including all the counties be involved with the development of final plans and that there be a conflict resolution process to be used when the groups cannot come to agreement. Union County as the responsible agency for applying the traffic management rules was unable to determine impacts without knowing the routes as the hazards associated with allowing the use of the routes is dependent upon where the routes will be. For example, is there a large amount of foot and bicycle use of Foothill road and the road currently is narrow with ongoing movement of farm machinery. The Morgan Lake Road is narrow, and located on a steep slope with historic problems with landslides and land movement. In order to use that road, it would require widening, traffic barriers, ongoing monitoring to determine land movement as well as bonding or some form of financial guarantee that in the event that the developer's construction activities result in future road damages or injury to those using the road that IP would provide funding to address the problem.

If the route includes bridges with weight restrictions or that is not structurally sound, that needs to be documented prior to construction and checked again following construction. The developer listed the capacity of roads and bridges as the amount they were supposedly constructed to handle. Many roads and bridges in eastern Oregon are defective and cannot hold the weights or numbers of vehicles they were originally constructed for. Roads and bridges in Eastern Oregon as a group have been lacking in ongoing maintenance for years. Many bridges in the area are not meeting their construction specifications for safety. Prior to the developer using existing bridge structures in any of the counties, they need to have a professional safety engineer evaluate them for structural soundness and have them evaluated again after construction is completed. (Attached information on the Infrastructure Report Card for Oregon 2017 is provided to document the need for this site condition.) Not only can the developers vehicles cause new damage, but the vehicles could damage the structures to the extent that a citizen's vehicle would be involved in a catastrophic failure of the structure due to additional damage. Does the area have large numbers of children on foot? Is there a school, hospital or park located along the route? Is the area prone to land movement or land slides? Are there steep slopes and sharp curves on the road? These are the types of factors that the county would utilize to make a determination regarding whether a development would have a significant adverse impact on the counties ability to provide traffic safety. Since the county with knowledge of the roads and conditions surrounding the roads is unable to determine if the project will create traffic safety issues that will preclude or significantly impact the ability of the county to provide traffic safety, safety related to health care facilities, schools, etc., it is not possible for the EFSC to make those determinations prior to being provided the routes that will be used. Due to the foregoing comments, the applicant fails to be in compliance with OAR 345-022-0110 and a site certificate cannot be issued absent conditions to address the defective structures along the route..

Dore Gilbert, Legal Research Analyst
FORU member of STOP B₂H Coalition



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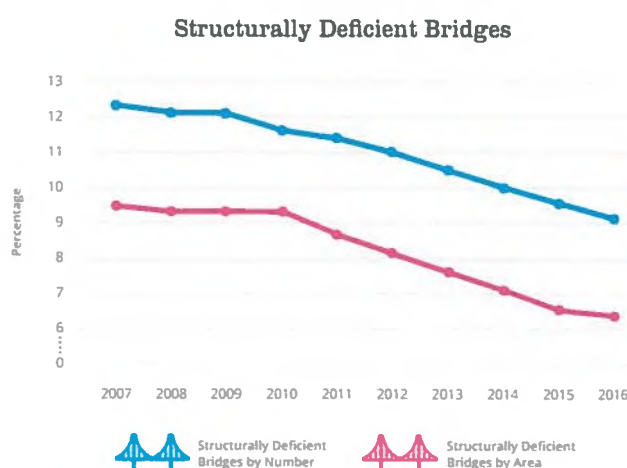
SUMMARY

The U.S. has 614,387 bridges, almost four in 10 of which are 50 years or older. 56,007 — 9.1% — of the nation's bridges were structurally deficient in 2016, and on average there were 188 million trips across a structurally deficient bridge each day. While the number of bridges that are in such poor condition as to be considered structurally deficient is decreasing, the average age of America's bridges keeps going up and many of the nation's bridges are approaching the end of their design life. The most recent estimate puts the nation's backlog of bridge rehabilitation needs at \$123 billion.

CONDITION & CAPACITY

Over the past decade, there has been increased awareness of the significance of bridges to our nation's economy and the safety of the traveling public. At all levels of government, a concerted effort has been made to reduce the number of structurally deficient bridges in the U.S.—bridges that require significant maintenance, rehabilitation, or replacement. Structurally deficient bridges are not unsafe, but could become so and need to be closed without substantial improvements.

As of 2016, one in 11 (9.1%) of bridges were designated structurally deficient, which



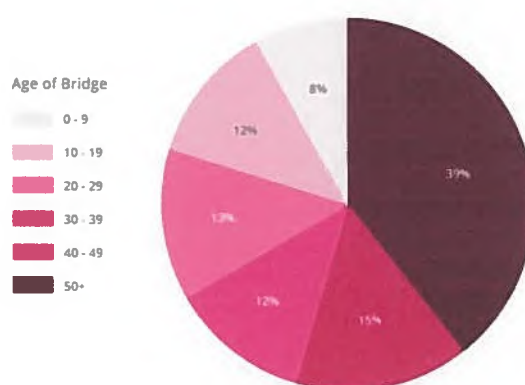


2017 INFRASTRUCTURE REPORT CARD

represents an improvement from a decade ago when 12.3% of bridges were structurally deficient. As bridges greatly vary in size, the percentage of deck area that belongs to structurally deficient bridges is another useful indicator. 6.3% of total bridge area belonged to structurally deficient bridges in 2016, an improvement from 9.5% in 2007. Encouragingly, higher traffic volume bridges are less likely to be structurally deficient. Yet, on average, there were 188 million trips across a structurally deficient bridge each day in 2016. Some states are doing better than others at maintaining, repairing, or replacing their bridges. The percentage of bridges that are structurally deficient ranged from 1.6% in Nevada to 24.9% in Rhode Island in 2016.

Of the 614,387 bridges in the National Bridge Inventory, almost four in 10 (39%) are over 50 years or older, and an additional 15% are between the ages of 40 and 49. The average bridge in the U.S. is 43 years old. Most of the country's bridges were designed for a lifespan of 50 years, so an increasing number of bridges will soon need major rehabilitation or retirement.

America's Bridges by Age



As part of a bridge's regular inspection, it may be determined that the bridge can only carry traffic up to a certain weight or speed, requiring posting of a load restriction. One in 10 (10.1%) bridges had such restrictions in 2016. Posted bridges can dramatically increase driving time for larger vehicles such as school buses, ambulances, and delivery trucks. Bridges that do not serve current traffic demand or meet current standards, whether due to too few lanes or too narrow lanes or shoulders, are considered functionally obsolete. More than one in eight (13.6%) bridges in the U.S. were functionally obsolete in 2016 (if a bridge is both functionally obsolete and structurally deficient, it is only counted as structurally deficient). These bridges frequently act as choke points and can increase congestion.

FUNDING & FUTURE NEED

In recent years, investment at all levels of government has prioritized fixing bridges. The federal government estimates that \$17.5 billion was spent on bridge capital projects in 2012, with \$6 billion from the federal government and \$11.5 billion from state and local sources. This is a substantial increase from the \$11.5 billion that was spent on bridges in 2006. Investments in bridges were bolstered in 2009 and 2010 with the influx of additional funding from the American Recovery and Reinvestment Act and peaked in 2010 with \$18 billion spent. Despite the recent increases in spending, investments in the country's bridges are insufficient. The most recent federal estimate puts the backlog of rehabilitation projects for the nation's bridges at \$123 billion. *See the Roads chapter for more information on public spending on highways, including bridges.*

The past decade has also been marked with uncertainty for the federal surface transportation program, making it a challenge for state transportation agencies to make long-term plans. In December 2015, Congress passed the Fixing America's Surface Transportation (FAST) Act, a five-year surface

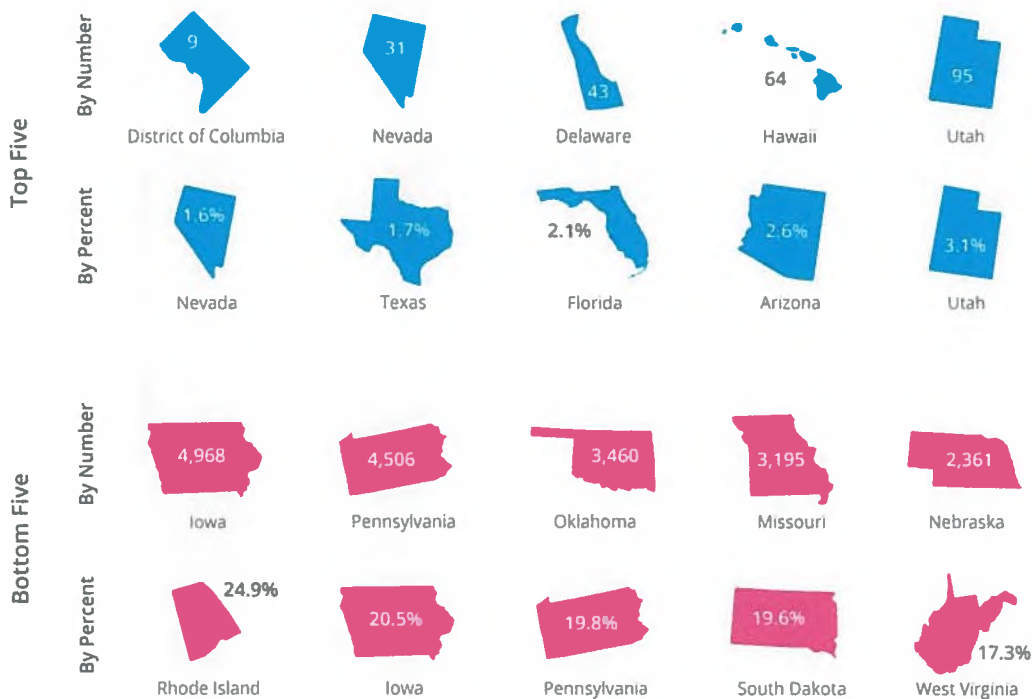


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transportation bill, which should secure federal funding through 2020, however implementation of the increased funding levels included in the FAST Act has been delayed due to Congress' inability to pass a new spending bill.

Federal investment in bridges has historically been paid for from the Highway Trust Fund, however, the fund has been teetering on the brink of insolvency for nine years due to the limitations of its primary funding source, the federal motor fuels tax. The state of the Highway Trust Fund is explored in greater depth in the *Roads* chapter.

Structurally Deficient Bridges: Top and Bottom Five States by Number and Percent



INNOVATION

New technologies and materials are helping engineers build bridges better and faster while also improving maintenance for longer bridge life. Sensors are being embedded into both new and existing bridges to provide continuous feedback on structural conditions. These data help engineers identify and address problems earlier and improve public safety. New materials such as ultra-high performance concrete, high performance steel, and composites are being used to add durability, higher strengths, resilience, and longer life to bridges. Prefabricated bridge elements—structural components that are built off-site—are being used to reduce the amount of time traffic needs to be disrupted while a bridge is repaired or constructed.



2017

INFRASTRUCTURE REPORT CARD

RECOMMENDATIONS TO RAISE THE GRADE

1. Increase funding from all levels of government to continue reducing the number of structurally deficient bridges, decrease the maintenance backlog, and address the large number of bridges that have passed or are approaching the end of their design life.
2. Bridge owners should consider the costs across a bridge's entire lifecycle to make smart design decisions and prioritize maintenance and rehabilitation.
3. Fix the federal Highway Trust Fund by raising the federal motor fuels tax. To ensure long-term, sustainable funding for the federal surface transportation program, the current user fee of 18.4 cents per gallon on gasoline and 24.4 cents per gallon on diesel should be raised and tied to inflation to restore its purchasing power, fill the funding deficit, and ensure reliable funding for the future.
4. States should ensure their funding mechanisms (motor fuels taxes or other) are sufficient to fund needed investment in bridges.
5. States and the federal government should consider long-term funding solutions for transportation infrastructure and potential alternatives to the motor fuel taxes, including further study and piloting of mileage-based user fees.

DEFINITIONS

Structurally deficient – Bridges that require significant maintenance, rehabilitation, or replacement. These bridges must be inspected at least every year since critical load-carrying elements were found to be in poor condition due to deterioration or damage.

Functionally obsolete – Bridges that do not meet current engineering standards, such as narrow lanes or low load-carrying capacity. A bridge that is both structurally deficient and functionally obsolete is only counted as structurally deficient.

SOURCES

ASCE analysis of U.S. Department of Transportation, Federal Highway Administration. National Bridge Inventory ASCII files.

U.S. Department of Transportation, Federal Highway Administration. 2015 Status of the Nation's Highways, Bridges and Transit: Conditions and Performance. January 2017.

U.S. Government Accountability Office. Report to Congressional Committees: Highway Bridges—Linking Funding to Conditions May Help Demonstrate Impact of Federal Investment. September 2016.

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Magnetic Fields from 500 kV line create a public health risk

The Draft Site Certificate allows up to 9mA of exposure. While this is the standard that is being used, it has had no formal review by the statutorily required review committee for at least 15 years or longer. ORS 469.480(4) states, "The council by rule shall form an Electric and Magnetic Field Committee which shall meet at the call of the council chair. The committee shall include representatives of the public, utilities, manufacturers and state agencies. The committee shall monitor information being developed on electric and magnetic fields and report the committee's findings to the council. The council shall report the findings of the Electric and Magnetic Field Committee to the Legislative Assembly." This requirement is repeated in OAR 345-022-0000.

In spite of the clear legislative and rule requirement, the Oregon Department of Energy and Energy Facility Siting Council have refused to establish this committee in spite of a specific request that they do so. The standard has not been reviewed for over a decade, in spite of the fact that it is one of the highest in the nation and the world for residences. The last time there was any consideration, it was not as a result of a multi-expertise group, but was conducted by a single person, Dr. Kara Warner. She clearly recommended that the committee should be meeting on an ongoing basis in her report.(EFSC 2009).

The Oregon Department of Energy and EFSC continue to make unilateral decisions in spite of the fact that they do not have the expertise represented by the stakeholders required by the legislature to be reviewing this issue and in spite of the mounting evidence indicating this standard is too high. For example, the National Electric Safety Code limits workplace exposure to 5 mA and the National Radiation Laboratory states workplace limits should not be used for the public. The limits need to be lower due to potential prolonged exposure, and different ages, health, etc. They indicate induced current should not exceed 2 mA for public exposure.

Due to the mounting evidence that a health and safety issue exists due to the large amount of exposure being allowed and the fact that the council has not met the requirements of the statute specifically requiring them to do so, the site certificate cannot be issued. In order to issue a site certificate, the required committee must be brought together, a review of the appropriate amount of exposure needs to occur, and this issue needs to be reviewed based upon credible, current research and standards being used by other agencies and groups.

*Doree Gilbert, Legal Research Analyst
FGRU member Org STOP B₂H Coalition*

Table AA-1. International Guidelines for Alternating Current Power-frequency EMF Levels

Agency	Exposure	Electric Field (kV/m)	Magnetic Field (mG)
European Union	General public	4.2	833
ICES ¹	Occupational	20	27,100
	General public	5	9,040
	General public within ROW	10	NA
ICNIRP	Occupational	8.3	10,000
	General public	4.2	2,000

¹ ICES recommendations have been adopted as standards by the Institute of Electrical and Electronics Engineers (IEEE); see Standard C95.6 -2002 (R2007).

Magnetic fields are measured in gauss (G) and milligauss. 1 G = 1,000 mG

NA = Not Applicable (no requirements)

Transmission line projects in Oregon must comply with the electric field standard found in OAR 345-024-0090, which requires that the applicant design, construct, and operate the proposed transmission line so that AC electric fields do not exceed 9 kV/m at 1 meter above the ground surface in areas accessible to the public. There is no similar Oregon design standard for magnetic fields.

Six other states have adopted limits for electric field strength either at the edge or within the ROW of the transmission line corridor. Only Florida and New York currently limit magnetic field levels from transmission lines. The magnetic field levels set in those two states only apply at the edge of the ROW and were developed to prevent magnetic fields from increasing beyond levels currently experienced by the public. Table AA-2 shows the AC electric field and magnetic field standards that have been adopted by states in the U.S.

Table AA-2. Other State Alternating Current Power-frequency EMF Standards

State	Location	Electric Field (kV/m)	Magnetic Field (mG)
Florida 230- to 500-kV lines	Within ROW	10	NA
	Edge of ROW	2	200 ¹
230 kV or less	Within ROW	8	NA
	Edge of ROW	2	150
Minnesota	Within ROW	8	NA
Montana	Within ROW—road crossing	7	NA
	Edge of ROW	1 ²	NA
New Jersey	Within ROW	NA	NA
	Edge of ROW	3	NA
New York	Within ROW—open	11.8	NA
	Within ROW—public road	7	NA
	Within ROW—private road	11	NA
	Edge of ROW	1.6	200
North Dakota	Within ROW	9	NA
	Edge of ROW	NA	NA

State	Location	Electric Field (kV/m)	Magnetic Field (mG)
Oregon	Within ROW Edge of ROW	9 NA	NA NA

¹ Magnetic field strength is limited to 250 mG for new double-circuit 500-kV lines constructed on a previously existing right-of-way.

² Can be waived by landowner.

NA = Not Applicable (no requirements)

In the fall of 2009, the Energy Facility Siting Council (EFSC or Council) commissioned a review of existing information to prepare for the review of several transmission lines under discussion at that time. That review was conducted by Dr. Kara Warner and presented to the Council on November 20, 2009, during a regular Council meeting. The prevailing conclusions were that there is a need to continue to monitor the science on EMF; that low-cost, prudent avoidance measures of public EMF exposure are appropriate; and that health-based limits are not appropriate given the scientific data available (EFSC 2009).

3.3 Distance Between Transmission Line Center Lines and Right-of-Way Edge

OAR 345-021-0010(1)(aa)(A)(i): The distance in feet from the proposed center line of each proposed transmission line to the edge of the right-of-way.

The transmission line will be located approximately in the middle of the ROW. The ROW width will typically be 150 feet, but in a few areas for very short distances may extend to 250 feet; accordingly, the distance from the center line to the ROW edge will be 75 to 125 feet. While crossing the Naval Weapons System Training Facility Boardman, the ROW will be 90 feet. The ROW width for the single-circuit 230-kV rebuilding portion of the Project will be up to 125 feet. The ROW width for the 1.1 miles of 138-kV rebuilding will be 100 feet. The required ROW width will be determined during final design.

3.4 Occupied Structures Within 200 Feet of Transmission Lines

OAR 345-021-0010(1)(aa)(A): . . . (ii) The type of each occupied structure, including but not limited to residences, commercial establishments, industrial facilities, schools, daycare centers and hospitals, within 200 feet on each side of the proposed center line of each proposed transmission line. (iii) The approximate distance in feet from the proposed center line to each structure identified in (A). . . .

3.4.1 Methods for Identifying Occupied Structures Within 200 Feet

Geographic information system and aerial photographs were used to identify and classify potential structures near the transmission line and rebuild segments that could be affected by Project EMF. A field reconnaissance was then undertaken to determine occupancy. Occupied structures included in this analysis are defined by OAR 345-021-0010 as including but not limited to residences, commercial establishments, industrial facilities, schools, daycare centers, hospitals, and rest areas. Receptors that were not included as occupied structures consisted of silos, tanks, gravel pits, mines, quarries, and water features.

3.4.2 Occupied Structures Identified Within 200 Feet

Based on review of aerial photography from 2012-2016, IPC identified six possible structures within 200 feet of the transmission line. IPC investigated the nature of those structures further, finding that

2017 ORS 469.520¹

Cooperation of state governmental bodies

• adoption of rules by state agencies on energy facility development

- (1)** Each state agency and political subdivision in this state that is concerned with energy facilities shall inform the State Department of Energy, promptly of its activities and programs relating to energy and radiation.
- (2)** Each state agency proposing to adopt, amend or rescind a rule relating to energy facility development first shall file a copy of its proposal with the council, which may order such changes as it considers necessary to conform to state policy as stated in ORS 469.010 (Policy) and 469.310 (Policy).
- (3)** The effective date of a rule relating to energy facility development, or an amendment or rescission thereof, shall not be sooner than 10 days subsequent to the filing of a copy of such proposal with the council. [Formerly 453.525]

¹ Legislative Counsel Committee, *CHAPTER 469—Energy; Conservation Programs; Energy Facilities*, https://www.oregonlegislature.gov/bills_laws/ors/ors469.html (2017) (last accessed Mar. 30, 2018).

ESTERSON Sarah * ODOE

From: Carolyn Giles <gilesci@eou.edu>
Sent: Wednesday, August 21, 2019 7:32 PM
To: B2H DPOComments * ODOE
Subject: [Fortimail Spam Detected] B2H.DPOComments@Oregon.gov Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018; Draft Proposed Order 5/23/2019

August 21, 2019

Energy Facilities Siting Council
c/o Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol Street N.E.
Salem, OR. 97301

Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018; Draft Proposed Order 5/23/2019

To: Chairmen Beyeler and Members of the Council

I appreciate the opportunity to comment on the Draft Project Order for the Boardman to Hemingway Transmission Project. I am very supportive of the Oregon California Trails Association (OCTA) and the work that they have done to protect the Oregon Trail, especially here in Oregon. OCTA is mentioned numerous times in Exhibit S and the Historic Properties Management Plan and Programmatic Agreement. OCTA does NOT believe that Exhibit S Historic Properties Management Plan is complete in 7.2.3 Field Crew, and offers this additional condition.

ADDITIONAL CONDITION #1 OCTA recommends that the Council add an Oregon Trail expert to the Cultural Resource Team. This Oregon Trail individual will have qualifications similar to Field crew members. For example, they will have an undergraduate degree in anthropology, archaeology, or in a field such as geology, engineering or history. It will not be necessary to have attended a field school. This individual will be recommended by the National OCTA President and agreed to by the Field Director.

The field surveys, even with SHPO and NPS data, have missed and/or mislabeled some sections of the emigrant trail. OCTA wants the public to know where the Trails are and I do too! OCTA over the years has marked the trail location with wooden signs, small triangles attached to trees, and more recently, carbonite posts and steel rails. Most private property owners are proud of the trail on their property, and after obtaining permission allow the public to walk and hike on the trail.

Idaho Power and their consultants have not acknowledged trail crossings shown on submitted Maps and do not acknowledge visual intrusion of the line for 10 miles per standards, and only upon ODOE's RAI's, put into documents some trail protections. This has been consistent from the BLM process to current day.

Considering the points above, Idaho Power does not comply with the state standards for cultural resources OAR 354-022-0090, or 345-022-0080, Scenic resources. EFSC Must Deny the Site Certificate!

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From: Carolyn Giles <gilesci@eou.edu>
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Subject: [Fortimail Spam Detected] Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018; Draft Proposal Order

Energy Facilities Siting Council

c/o Kellen Tardaewether, Senior Siting Analyst

Oregon Department of Energy

550 Capitol St. NE

Salem, OR 97301

Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018; Draft Proposal Order

Chair Beyeler and Members of the Council:

As a citizen of La Grande and a City Councilor, I have grave concerns about the proposed placement of the Idaho Power Boardman to Hemingway Transmission Project. My concerns are for the safety of myself, my family and the citizens of La Grande if this line is erected. My primary concerns are twofold: slope instability and wildfire hazard.

The proposed route sited to the west of La Grande is placed on a ridge noted to have instability and high risk for slides. The geologic study provided by Idaho Power references several studies (below).

Table H-2. USGS Quaternary Faults within 5 Miles of Project by County on page H-12 clearly shows that the project is placed right on an active fault in the West Grande Ronde Valley Fault Zone. In addition, in exhibit H, Geological Hazards and Soil Stability, Table B3: Soils Descriptions, Union County, much of the erosion hazard is rated "severe." Below is part of the report:

5.2 La Grande Area Slope Instability

As part of our study, we reviewed DOGAMI's open file report: Engineering Geology of the La Grande Area, Union County, Oregon, by Schlicker and Deacon (1971). The study identified several landslides in the areas west and south of La Grande. The majority of the landslide features mapped by Schlicker and Deacon (1971) were similarly mapped as landslides or alluvial fans in Ferns and others (2010). The current SLIDO database uses the feature locations mapped in Ferns and others (2010). While the two map sets generally agree, there are differences in the mapped limits of some landslide and alluvial fan areas, and there is one landslide area in Schlicker and Deacon (1971), near towers 106/3 and 106/4, which is not included in SLIDO or Ferns and others (2010). The Landslide Inventory in Appendix E includes mapped landslide and alluvial fan limits from both SLIDO and Schlicker and Deacon (1971).

This slope instability is not inconsequential to a project like this. Recall in 2014, Oso, Washington, was the site of a catastrophic mudslide as the result of logging disturbance of the soil upslope from the town combined with significant rainfall. This resulted in 43 fatalities. We must learn from previous mistakes in not heeding the geologists' warnings. The area down slope from the proposed B2H line lies the Grande Ronde Hospital and Clinics, which employs hundreds of people and is the critical access hospital for this region. La Grande High School and Central Elementary School are also positioned down slope from the proposed towers. At least 100 homes are positioned down slope of the proposed towers. According to "Engineering Geology of the La Grande Area, Union County, Oregon" maps published by Schlicker, and Deacon (1971), the ENTIRE area of the hillside is deemed a "landslide area" in the La Grande SE quadrangle. This is not a safe place for a transmission line.

The next significant hazard to our community is wildfire. Oregon is ranked 8th Most Wildfire Prone state in the United States according to Verisk Wildfire Risk analysis. La Grande is ranked in the top 50 communities in Oregon with the greatest cumulative housing-unit exposure to wildfire as referenced in "Exposure of human communities to wildfire in the Pacific Northwest," by Joe H. Scott, Julie Gilbertson-Day and Richard D. Stratton (available at http://pyrologix.com/ftp/Public/Reports/RiskToCommunities_OR-WA_BriefingPaper.pdf).

Cal Fire cites Pacific Gas and Electric equipment and power lines as the cause of numerous wildfires in the state in the last 2 years. This includes the Camp Fire in Butte County (2018), Tubbs Fire in Napa/Sonoma Counties (2017), Witch Fire in San Diego (2007), Valley Fire in Lake/Napa/Sonoma Counties (2015), Nuns Fire in Sonoma County (2017), which were ALL ATTRIBUTED TO ELECTRICAL OR POWER LINES.

The Boardman To Hemingway Transmission Line Project proposal places lines about 2000 feet or less than half a mile from the La Grande city limits, including medium density housing within the City as well as Grande Ronde Hospital. If a line from this proposed route were to spark a fire, La Grande residents would have little time to react. According to National Geographic, wildfires can move as fast as 6.7 mph in forests and 14 mph in grasslands. A fast-moving fire starting at the B2H lines could move to residential areas of La Grande and HOSPITAL in 10 minutes. This is frightening and an UNACCEPTABLE risk for our citizens.

The current proposal for a Boardman to Hemingway electrical transmission line does not adequately address the issue of landslides, basically by stating it will be mitigated somehow when the time comes to build. The proposal offers no analysis of wildfire risk, which is an unacceptable omission. All of the routes proposed are unsafe and create an unacceptable risk to the citizens of La Grande. This proposal should be REJECTED.

Yours truly

Carolyn Giles

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email: gilesci@eou.edu

From: Carolyn Giles <gilesci@eou.edu>
Sent: Thursday, August 22, 2019 2:49 PM
To: B2H DPOComments * ODOE
Subject: [Fortimail Spam Detected] IdahoPower Amended Application for the Boardman to Hemingway TransmissionProject dated 9/28/2018; draft proposed order dated 5-23-2019

Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol St. NE
Salem, Oregon 97301

COMMENT: The Section K, Attachment K-2 FOREST LAND IMPACTS

This section is grossly inadequate and inaccurate. For example:

1. The application provides no information regarding the wildlife present in the forested areas and indicates an intent to obtain information from the Oregon Department of Forestry or USFS. The agency which should be addressing these impacts is the Oregon Department of Fish and Wildlife and the US Fish and Wildlife Service.
2. No surveys have been completed as part of the application to indicate the actual extent of the wildlife present in the forested areas.
3. The wildlife surveys completed for the Antelope Ridge Wind development which was to be sited adjacent to this proposed transmission line found 75 different bird species nesting in the forested areas. The numbers of birds was so high that the US Fish and Wildlife Service recommended no development in the forested areas. The Baseline Noise Surveys, page 10, describe the route of the transmission line to be adjacent to the 230 KV line adjacent to the Elkhorn Wind Development. For this reason, the wildlife information and studies completed as a result of the Elkhorn and Antelope Ridge Wind Developments are relevant to and should be analyzed in terms of impacts to wildlife which can be expected from the transmission line. Comments, recommendations and concerns documented in comments regarding these two developments are directly related to the area of impact of this transmission line.
4. The creation of a corridor through the middle of forest land is stated as a benefit to wildlife. There are multiple studies showing the negative impacts of creating corridors such as this as it provides opportunities for raptors and other predators to access prey. This should be widely known by the developers given the concerns they are required to address to attempt to minimize the use of transmission structures by raptors and other birds.

The entire section on Forested Land Analysis needs to be rewritten to accurately reflect the true impacts of this development including negative impacts to adjacent land and adjacent landowners such as impacts from the use of chemicals to control vegetation, erosion from development of the transmission line and roads, transmission lines are identified in multiple studies as a primary source of invasive weeds and it appears from this section that the developer plans to only spray for weeds a couple of times a year. That will assure that there will be multiple problems with invasive weeds as a result of this transmission line.

Yours truly
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Sent: Thursday, August 22, 2019 2:40 PM
To: B2H DPOComments * ODOE
Subject: [Fortimail Spam Detected] IdahoPower Amended Application for the Boardman to Hemingway TransmissionProject dated 9/28/2018; draft proposed order dated 5-23-2019

Energy Facilities Siting Council
c/o Kellen Tardaewether, Senior Siting Analyst
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**Subject: Idaho Power Amended Application for the Boardman to Hemingway Transmission Project dated 9/28/2018;
Draft Proposed Order dated 5/23/2019**

Dear Chair Beyeler and Members of the Council;

Thank you for the opportunity to comment on the Draft Proposed Order for Idaho Power's B2H project.

IPC's "Noxious Weed Plan" fails to take responsibility for spreading noxious weeds in several alarming ways. Here is an excerpt from their Plan (Monitoring 6.1):

As stated above, noxious weed monitoring and control will occur during the first 5-year period. When it is determined that an area of the Project has successfully controlled noxious weeds at any point during the first 5 years of control and monitoring, IPC will request concurrence from ODOE. If ODOE concurs, IPC will conclude that it has no further obligation to monitor and control noxious weeds in that area of the Project. If control of noxious weeds is deemed unsuccessful after 5 years of monitoring and noxious weed control actions, IPC will coordinate with ODOE regarding appropriate steps forward. At this point, IPC may suggest additional noxious weed control techniques or strategies, or may request a waiver from further noxious weed obligations at these sites.

To start with, the landowner or occupant of land in this case, is required by law to control weeds in perpetuity—not just for 5 years! TO say that IPC "has no further obligation" and can "request a waiver" is in blatant disregard to the law.

From Chapter 569 of Oregon law (https://www.oregonlegislature.gov/bills_laws/ors/ors569.html):

569.180 Noxious weeds as public nuisance; policy. *In recognition of the imminent and continuous threat to natural resources, watershed health, livestock, wildlife, land and agricultural products of this state, and in recognition of the widespread infestations and potential infestations of noxious weeds throughout this state, noxious weeds are declared to be a public nuisance and shall be detected, controlled and, where feasible, eradicated on all lands in this state. It is declared to be the policy of this state that priority shall be given first to the prevention of new infestations of noxious weeds and then to the control and, where feasible, eradication of noxious weeds in infested areas. [Formerly 452.615]*

569.390 Owner or occupant to eradicate weeds. *Each person, firm or corporation owning or occupying land within the district shall destroy or prevent the seeding on such land of any noxious weed within the meaning of ORS 569.360 to 569.495 in accordance with the declaration of the county court and by the use of the best means at hand and within a time declared reasonable and set by the court, except that no weed declared noxious shall be permitted to produce seed.*

Secondly, IPC flagrantly flaunts Oregon law by proposing to treat only Class "A" and "T" (a rotating list of weeds for focused treatments in a given year) weeds- ignoring the majority of weed species. Class A weeds are mainly agricultural weeds and weeds which an entity (County or State) believes they have the best chance of controlling i.e. known patches

are few in that area. Class B and C weeds are generally the worst weeds, spreading most aggressively and to more areas, thus threatening and ultimately devastating the most native habitat. Why should Idaho Power be exempt from responsibility for the FULL list of weeds? This is absolutely awful proposition, but especially awful for Union County, where 81% of the land that would be wrecked by the B2H project is private land. Putting the route through federal lands, IPC at least gives a nod to Agency (BLM or USFS) rules for weeds. On private lands in Union County, several of the landowners in on "Proposed" or "Morgan Lake Alternative" routes have labored for years, even decades, to control weeds and maintain native habitats. Case in point are Joel Rice and the City of La Grande (Morgan Lake Park). Now Idaho Power comes along to trash these natural areas. The B2H project is set to become a conduit for the worst noxious weed species to be injected into some of the best native habitat in our County.

"B2H Noxious Weed Plan Comments" is a document collated by weed supervisor Brian Clapp of Union County after a meeting of Morrow, Umatilla, and Union counties, Oregon Dept. of Ag and Tri-County CWMA on August 22, 2017 to go over the B2H Attachment P1-5 Noxious Weed Plan. These comments reflect some of my concerns about weeds. I find it nearly unbelievable the Comments by weed managers are NOT acknowledged in IPC's Plan, published over a year later!

To top the travesty of IPC's "Noxious Weed Plan" the Plan states they are not responsible for "areas outside of the ROW". The weed sites immediately outside areas of potential disturbance are definitely going to spread to disturbed areas --but would not even be recorded! Noxious weeds would explode near the ROW, ruining native habitat, trashing decades of work by landowners, and with no accountability by IPC. IPC is proposing a huge area of disturbance; their responsibility should not be limited to the ROW.

I strongly urge you to deny IPC's B2H Application. IPC's "Noxious Weed Plan" does not comply with Oregon law. They deny responsibility for control of most weed species, deny responsibility for weed control after 5 years, control weeds only once a year, and give themselves a waiver when control fails. EFSC should reject the Weed Plan and Application.

Yours truly

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From: Carolyn Giles <gilesci@eou.edu>
Sent: Thursday, August 22, 2019 2:30 PM
To: B2H DPOComments * ODOE
Subject: [Fortimail Spam Detected] Idaho Power Amended Application for the Boardman to Hemingway Transmission Project dated 9/28/2018; Draft Proposed Order dated 5/22/2019

Energy Facilities Siting Council
c/o Kellen Tardaewether, Senior Siting Analyst

Oregon Department of Energy
550 Capitol St N.E.
Salem, OR. 97301
Kellen.Tardaewether@oregon.gov

Subject: Idaho Power Amended Application for the Boardman to Hemingway Transmission Project dated 9/28/2018; Draft Proposed Order dated 5/22/2019

Dear Chair Beyeler and Members of the Council;

I am very concerned re: Idaho Power's faulty and illegal "Noxious Weed Plan" (DPO Attachment P 1-5) as well as their failure to take into account in any way, the Oregon Conservation Strategy.

The Oregon Conservation Strategy <http://oregonconservationstrategy.org/overview/> "represents Oregon's first overarching state strategy for conserving fish and wildlife. It uses the best available science to create a broad vision and conceptual framework for long-term conservation of Oregon's native fish and wildlife, as well as various invertebrates, plants, and algae. The Conservation Strategy emphasizes proactively conserving declining species and habitats to reduce the possibility of future federal or state listings. It is not a regulatory document but instead presents issues, opportunities, and recommended voluntary actions that will improve the efficiency and effectiveness of conservation in Oregon."

Under the Oregon Conservation Strategy, IPC's B2H project is a Key Conservation Issue: "(KCI)s are large-scale conservation issues or threats that affect or potentially affect many species and habitats over large landscapes throughout the state."

Despite being a Key Conservation Issue, the Oregon Conservation Strategy and its Goals, are not mentioned in IPC's Application at all! Consider Land Use Planning Goal 1: Manage land use changes to conserve farm, forest, and range lands, open spaces, natural or scenic recreation areas, and fish and wildlife habitats. Neither the current Proposed Route nor Morgan Lake Alternative of IPC's Application to EFSC takes these into account! Even if we ignore the fact that the B2H Project likely is not needed at all, given lowered demand and improved technology of energy storage batteries—IPC intends to disregard the "Proposed Route" considered in the BLM/USFS Records of Decision. That "Proposed Route" was chosen by the agencies as being the least harmful to the greatest list of resources—yet IPC has abandoned that in favor of two other routes imminently MORE harmful and despised by MOST residents of Union County. Is Goal 1 being met when the B2H line goes less than 100 feet from Twin Lake, a gem of a wetland that deserves protection? Is Goal 1 being met when B2H goes through Rice Glass Hill property, proposed as a State Natural Area? Is Goal 1 being met when noxious weeds are spread by B2H through Union County's finest wet meadows and elk wintering habitat?

No, Goal 1 is not being met. Another very specific example is 5 State listed rare plant species (DPO Exhibit Q) within the B2H "analysis area". IPC claims "only" two of these rare species (Mulford's milkvetch and Snake River goldenweed) will suffer "direct impacts", by blading with heavy equipment. IPC claims that, "Avoidance and minimization measures ...described in Section 3.5.4" will "mitigate" impacts. Upon reading 3.5.4 we find that this consists of "minimum buffer of 33 feet between the disturbance and the edge of the T&E

occurrence". Habitat for these plants will be completely fragmented and a buffer of 33 – or even a few hundred--feet will not stop invasion by noxious weeds! These species will suffer irreparable damage under B2H. The Oregon Conservation Strategy rightly recognizes, "Invasive species are the second-largest contributing factor causing native species to become at-risk of extinction in the United States." To delve further into rare plants slated for damage by B2H, *Trifolium douglasii* is a USFWS "Species of Concern" <https://www.fws.gov/oregonfwo/Documents/OregonSpeciesStateList.pdf> yet not even considered in IPC's 3.5 "Avoidance to Minimize Impacts". Although List 1 under ORBIC's latest ranking <https://inr.oregonstate.edu/orbic/rare-species/ranking-documentation/vascular-plant-ranks> it is not shown as State listed Threatened or Endangered, so is ignored by IPC. Species of Concern are "Taxa whose conservation status is of concern to the U.S. Fish and Wildlife Service (many previously known as Category 2 candidates), but for which further information is still needed." Douglas clover has a global rank of G2 "Imperiled because of rarity or because other factors demonstrably make it very vulnerable to extinction (extirpation), typically with 6-20 occurrences". DPO Exhibit P Part 2b Appendix 3A and 3B Figure 9 of 23 shows Douglas clover directly on the Morgan Lake alternative! This is not even taking into account that areas of private land where access was not granted for survey, likely contain additional occurrences of Douglas clover. The area is THE main place where this rare plant grows in Oregon, and B2H is set to permanently alter and compromise its main habitat with weeds! Another very obvious lack is IPC's failure to discuss Strategy Habitats, outlined in Oregon's Conservation Strategy: <http://oregonconservationstrategy.org/strategy-habitats/strategy-habitats-summary-by-ecoregion/>.

In Union County alone, the Strategy Habitats of Grasslands, Late Successional Mixed Conifer Forest, and Ponderosa Pine Woodlands would very obviously be impacted by B2H as proposed in the Application. The Application also neglects to address Strategy Species under OCS "The Conservation Strategy identifies 294 Strategy Species, which are Oregon's "Species of Greatest Conservation Need". Strategy Species are defined as having small or declining populations, are at-risk, and/or are of management concern. "This is completely unacceptable! How can an action set to devastate so many of Northeast Oregon's Strategy Habitats and Species not even respond to our State Conservation Strategy? Moving on to invasives, IPC's "Noxious Weed Plan" is greatly lacking. As noted above, it is a threat to Oregon's native plant communities. Oregon's Conservation Strategy states "Invasive non-native species can have many negative consequences throughout Oregon. Depending on the species and location, invasive plants can:

- affect food chain dynamics
- change habitat composition
- increase wildfire risk
- reduce productivity of commercial forestlands, farmlands, and rangelands
- modify soil chemistry
- accelerate soil erosion
- reduce water quality"

Chapter 569 of Oregon law covers weeds. Oregon statute 569.180 (Noxious weeds as public nuisance policy) states, "In recognition of the imminent and continuous threat to natural resources...noxious weeds are declared to be a public nuisance and shall be detected, controlled and, where feasible, eradicated on all lands in this state."

Upon careful reading, "Noxious Weed Plan" breaks the law by exempting IPC from weed control after 5 years, denying responsibility for Class B and C Weed species (the vast majority of weeds), and holding IPC accountable for only the very limited area of ROW, despite the B2H project introducing and spreading weeds far and wide along a 300 mile stretch plus dozens of additional access roads and tensioning areas.

In summary, IPC's Application does not take into account the Oregon Conservation Strategy. The Application clearly is breaks Goal 1 of the Strategy in many ways; additionally the Application imperils a Federal "Species of Concern", and does not consider Strategy Habitats or Strategy Species. IPC's

Noxious Weed Plan does not comply with Chapter 569 of Oregon law. I strongly urge you to deny IPC's Application. Our State Conservation Strategy and Goals and the integrity of our native plant habitats and rare plant occurrences cannot be sacrificed.

Sincerely,
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Energy Facilities Study Council

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RECEIVED

AUG 19 2019

DEPARTMENT OF ENERGY



August 10, 2019

Energy Facilities Siting Council

c/o Kellen Tardaewether, Siting Senior Analyst

Oregon Department of Energy

550 Capitol St. N.E.

Salem, OR 97301

Via EMAIL: B2H.DPOComments@Oregon.gov

Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018; Draft Proposed Order.

Dear Chair Beyeler and Members of the Council:

Re: Soil Protection - **Drill site 92/1, 92/2 and 92/4 on unstable and steep slopes**

My comment addresses the known hazards and adverse effects of construction of the B2H transmission line on unstable ground. My name is Marcia Collins and I have lived in La Grande for thirty years. I love this valley and the Blue Mountains area.

(c) ...The applicant, through appropriate site-specific study, has adequately characterized the potential geological and soil hazards of the site and its vicinity that could, in the absence of a seismic event, adversely affect, or be aggravated by, the construction and operation of the proposed facility...

Permanent Administrative Order EFSC 2-2017 Chapter 345 Department of Energy; Energy Facility Siting Council; effective date 10/18/2017; agency approved date 09/22/2017.

Geological Hazards and Soil Stability; Exhibit H. Attachment H-1, Engineering Geology and Seismic Hazards Supplement to Exhibit H Boardman to Hemingway 500kV Transmission Line Project Boardman, Oregon to Hemingway, Idaho January 25, 2018; Shannon & Wilson, Inc. 3990 Collins Way, Suite 100, Lake Oswego, Oregon. 97035.

Drill sites 92/1, 92/2 and 92/4 are shown on the following tables and maps and analysis by Shannon & Wilson, Inc.:

Soils; Map page 18 of 44:

Table B3: Soil Descriptions, described as:

5775CO

Table C1: Summary of Proposed Borings; Map Sheet 34

92/1 – Angle change along alignment; Geo-Seismic Hazard

92/2 - Angle change along alignment; Geo-Seismic Hazard

92/4 - Angle change along alignment; Geo-Seismic Hazard

Idaho Power Corporation, in Exhibit H 2.2.4 states *"The soils (in Union County) vary from a few inches to a few feet thick over weathered bedrock, are generally well-drained, and are typically characterized as having a severe erosion hazard."*

Idaho Power Corporation admits in ASC page B-12 that *"The mountainous area such as the Blue Mountains present very challenging topography with many areas of steep slopes in excess of 35 percent and other areas of unstable slopes presenting design and construction challenges."*

IPCs stated original intention to the EFSC was the following: *"Using topographic maps the corridors were adjusted to avoid or minimize distance across very steep slopes and other physical features less desirable for construction and operation of a transmission line."*


Hazard Analysis Union County Emergency Operations Plan Updated 6/30/16 lists Winter weather as the highest weighted risk item before Seismic, Fire, Hazmat-Transportation, and Drought. Most of the area receives a large percentage of the annual moisture as snowfall and both the Winter storms and the Spring melt can be precipitous and unpredictable.

The area surrounding the drill site **92/1, 92/2 and 92/4** is within a mile of the heavily traveled I84 transportation/utility corridor.

Conclusion and Requested Relief:

Drill site 92/1, 92/2 and 92/4, and its vicinity, represent a significant risk of several possible adverse effects. This area should be removed for consideration as a site for a transmission "facility". Idaho Power Corporation in *Exhibit H 3.9 Mitigation* describes methods, trucks, and towers designed to mitigate problems of unstable soil with structure and footing modifications, this should not be considered an acceptable risk when the entire area is unstable.

I appreciate your consideration and your attention to this matter.


Name: Alishia Griller
Address: 66158 Imbler Rd
Cove OR 97824

References:

Ferns, Mark L. McConnell, V. S., Madin, I.P., and Johnson, J.A., 2010 Geology of the Upper Grande Ronde Basin, Union County, Oregon: Oregon Department of Geology and Mineral Industries Open-File Report 2003-11, 85.0, scale 1:125,000.

Idaho Power Corporation, 2017, *Exhibit H of the Application for the Boardman to Hemingway Transmission Line Project*: Report Prepared by Idaho Power Corporation, Boise, Idaho.

Geological Hazards and Soil Stability; Exhibit H. Attachment H-1, Engineering Geology and Seismic Hazards Supplement to Exhibit H Boardman to Hemingway 500kV Transmission Line Project Boardman, Oregon to Hemingway, Idaho January 25, 2018; Shannon & Wilson, Inc. 3990 Collins Way, Suite 100, Lake Oswego, Oregon. 97035.

Permanent Administrative Order EFSC 2-2017 Chapter 345 Department of Energy; Energy Facility Siting Council; effective date 10/18/2017; agency approved date 09/22/2017.

Oregon Department of Energy; Energy Facility Siting Council – Chapter 345, Division 22 General Standards for Siting Facilities; OAR Amend: 345-022-0022; *Soil Protection* Effective date: 10/18/2017.

Idaho Power Corporation, 2017, *Exhibit H of the Application for the Boardman to Hemingway Transmission Line Project*: Report Prepared by Idaho Power Corporation, Boise, Idaho.

Geological Hazards and Soil Stability; Exhibit H. Attachment H-1, Engineering Geology and Seismic Hazards Supplement to Exhibit H Boardman to Hemingway 500kV Transmission Line Project Boardman, Oregon to Hemingway, Idaho January 25, 2018; Shannon & Wilson, Inc. 3990 Collins Way, Suite 100, Lake Oswego, Oregon. 97035, page 28 and elsewhere.

Union County, Oregon, Union County Emergency Operations Plan – Hazard Analysis. Updated – 6/30/2016.



Oregon Department of Energy and the Energy Facility Siting Council

Public Hearing on the Draft Proposed Order
for the Boardman to Hemingway Transmission Line
June 18-20 and June 26-27, 2019, 4:30-8 p.m.
Public Written or Oral Testimony Registration

Name (mandatory) Charles Gillis

Mailing Address (mandatory) 1306 Adams Ave
La Grande OR 97850

Phone Number (optional) (511) 910-8949 Email Address (optional) charlie@gillis-law.com
8949

Today's Date: 6/20/19

Do you wish to make oral public testimony at this Hearing: Yes ☒ No ☐

Written comments can also be submitted today.

All written comments must be received by the deadline, July 23, 2019, 5 p.m. PDT to:

Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol Street NE
Salem, OR 97301
Fax: 503-378-6457
Email: B2H.DPOComments@oregon.gov

Note: by submitting written or oral testimony, you will receive a notice from the Oregon Department of Energy at a future date of the opportunity to request party status in a contested case hearing on the proposed facility.

Written Testimony

(Please print legibly – Use the back for additional space if needed. Additional written comments may be attached to this card.)

<p style="text-align: right;">Page 126</p> <p>1 litigation that had proven that. So I have to trust 2 them on that, I guess. 3 I think you'll have to understand, I'm a 4 little bit skeptical about this. Idaho Power hasn't 5 been -- I haven't been contacted -- I mean, I have now. 6 But through this planning process, I really wasn't 7 contacted. Nobody came to my place and looked at the 8 site. I don't know if they know there is a pond right 9 next to where they want to put this tower. I don't know 10 if they understand I had to put a well in 700 feet deep, 11 the water is amazing. I don't know if that will change. 12 The road coming up Hawthorne has to have a lot 13 of annual maintenance on it for just three houses. The 14 idea of them hauling that heavy equipment, and I don't 15 know what they are going to do to improve or better that 16 road, my concern is they will make it worse. Only 17 because of the limited history that I've had with them 18 hasn't really been very supportive. Tonight was the 19 first night that I got a chance to listen to this many 20 people talk about their concerns. 21 Honestly, I'm more concerned now than before I 22 came in. I have heard a lot of information tonight that 23 kind of would make, I think, anybody in my shoes afraid 24 of the future of what's going to happen up there. I 25 love this place. I think it's going to change</p>	<p style="text-align: right;">Page 128</p> <p>1 For everybody here, if you are looking at 2 the computer screen that's up on the back wall, there is 3 a third power line, which is the green route. There is 4 red, green, and yellow. And I'm pleased to see that the 5 green line was turned on this evening. It wasn't on 6 when I originally looked at it. 7 I also came in late and I was told that I'm 8 not supposed to advocate for the western route 9 recognized by the BLM and environmental analysis because 10 it has not been applied for. That route is what I've 11 been involved with advocating for for 10 years now, 12 since day one, really. 13 I think I probably wrote Adam Bless, with the 14 Oregon Energy Council, probably the first letter he 15 received with my concerns about siting this line through 16 Union County here. And with an empirical background for 17 virtually every acre of the stretch from Hilgard to Ladd 18 Canyon that probably nobody else has, I feel like it's 19 my community contribution to represent it as completely 20 and as well as I can. 21 The green route is by far the superior route 22 when you consider just about any aspect; fish, forest, 23 wildlife, range, fire, feasibility, all the above. In 24 my analysis collecting facts relative to all these 25 resources, the green route is by far the best route.</p>
<p style="text-align: right;">Page 127</p> <p>1 dramatically. That is all I have. 2 HEARING OFFICER WEBSTER: Thank you. 3 Following Mr. McAllister we have Charles 4 Gillis on deck. 5 MR. MICHAEL McALLISTER: I'm Michael 6 McAllister. I live at 60069 Morgan Lake Road right at 7 the top where you confront the wind as you break the 8 summit. 9 I am of the Move B2H camp, an advocate of 10 moving and have been for at least 10 years, when the 11 initial proposed route was presented. I am a natural 12 resource inventory expert, and made a career 13 inventorying fish, forest, wildlife, range, ozone 14 damage, carbon sequestration. I collect facts from the 15 landscape and have been in La Grande since 1979, when I 16 lived right below lower Morgan Lake, which apparently is 17 not recognized by Idaho Power. 18 The eagles built two nests right above my wall 19 tent where I lived as I went to school here at Eastern 20 Oregon University. And it's really a pleasure to be 21 here tonight with the community and hearing all of their 22 different concerns and considerations. It's always been 23 above my mental capacity to explore the rightness or 24 wrongness of the power line; so I have focused on moving 25 B2H.</p>	<p style="text-align: right;">Page 129</p> <p>1 And I can honestly say that it's a travesty that, for 2 whatever reason, Idaho Power has chosen to completely 3 disregard that route. I have seen no evidence in 4 10 years that Idaho Power has shown any consideration of 5 that route. I think it's appalling. 6 I do credit Idaho Power for having in the 7 10 years considered routes through John Day, extensively 8 routes through the Blue Mountains, and having recognized 9 the importance of not further fragmenting large-scale 10 forest tracks, and that the I-84 corridor is probably 11 the best route. But specifically through this neck of 12 the woods, through Union County, Ladd Canyon, I think 13 every concern I've heard here this evening can be 14 mitigated by placing this transmission line on the 15 environmentally-preferred route. 16 And I am providing comment, written comment 17 that will specify as well as I can with the time that I 18 have. I don't believe it's up to me to demonstrate a 19 burden of proof to this end, but I'm doing my best to do 20 that. 21 And I thank you all for your listening here 22 this evening. 23 HEARING OFFICER WEBSTER: Thank you. 24 Following Mr. Gillis, we will hear from, I 25 believe it's John Winters, if I'm reading that</p>

Page 130	Page 132
<p>1 correctly.</p> <p>2 MR. CHARLES GILLIS: I would like to thank the</p> <p>3 Energy Facility Council for coming here. The last time</p> <p>4 I spoke before you, about 10 years ago, Ryan Wolf was</p> <p>5 the chairman. A very fine man. I hope he's doing well.</p> <p>6 HEARING OFFICER WEBSTER: If you could state</p> <p>7 your name and your address, please.</p> <p>8 MR. CHARLES GILLIS: Charles Gillis,</p> <p>9 G-i-l-l-i-s, 1210 1/2 Adams Avenue in La Grande.</p> <p>10 Mr. McAllister mentioned the burden of</p> <p>11 evidence, and I hope that there is a burden of proof on</p> <p>12 Idaho Power to -- that is, something along the lines of</p> <p>13 the preponderance of the evidence, or more likely than</p> <p>14 not, that they can achieve the tasks that they have to</p> <p>15 do to show the Energy Facility Siting Council that they</p> <p>16 are worthy of a site certificate.</p> <p>17 Tonight I would like to address Exhibit M,</p> <p>18 Financial Capability. "Information about Idaho Power's</p> <p>19 financial capabilities including ability to obtain a</p> <p>20 bond or letter of credit for decommissioning site."</p> <p>21 OAR 345-022-0050 states: "Retirement and</p> <p>22 Financial Assurance.</p> <p>23 "To issue a site certificate the Council must</p> <p>24 find:</p> <p>25 "(1) The site, taking into account mitigation,</p>	<p>1 communication between Oregon Public Utilities Commission</p> <p>2 and PacifiCorp.</p> <p>3 In the OPUC written comments, the term "the</p> <p>4 Company" refers to PacifiCorp. OPUC asked PacifiCorp:</p> <p>5 "The Company has not identified a need for B2H in its</p> <p>6 IRP." I believe that is Integrated Resource Plan.</p> <p>7 "Beyond an update of the project sponsors' role and</p> <p>8 resource need, the Company has not presented a clear</p> <p>9 case for why B2H is needed but other segments of Energy</p> <p>10 Gateway are not. The Company should identify the role</p> <p>11 of B2H as a need or component in its</p> <p>12 least-cost/least-risk portfolio and why it intends on</p> <p>13 moving forward with the project. The Company should</p> <p>14 also explain the size and status of any B2H transmission</p> <p>15 service requests that have been submitted to</p> <p>16 PacifiCorp."</p> <p>17 Again, this is October 2018.</p> <p>18 PacifiCorp Response:</p> <p>19 "The project schedule and in-service date is</p> <p>20 driven by Idaho Power as the project manager, and</p> <p>21 PacifiCorp reflects that information as it is made</p> <p>22 available. PacifiCorp has not determined a need to move</p> <p>23 forward beyond the permitting phase of the project and</p> <p>24 as such is only a party to the current permit funding</p> <p>25 agreement. As the project moves to permit completion, a</p>
Page 131	Page 133
<p>1 can be restored adequately to a useful, nonhazardous</p> <p>2 condition following permanent cessation of construction</p> <p>3 or operation of the facility.</p> <p>4 "(2) The applicant has a reasonable likelihood</p> <p>5 of obtaining a bond or letter of credit in a form and</p> <p>6 amount satisfactory to the Council to restore the site</p> <p>7 to a useful, nonhazardous condition.</p> <p>8 "Idaho Power Corporation is the lead</p> <p>9 organization for B2H but has only a 21 percent interest.</p> <p>10 The Bonneville Power Administration and PacifiCorp</p> <p>11 control the majority interests in B2H. Therefore BPA</p> <p>12 and PacifiCorp must pick up 79 percent of the costs</p> <p>13 associated with obtaining a bond or letter of credit in</p> <p>14 a form and amount satisfactory to the Council to restore</p> <p>15 the site to a useful, nonhazardous condition.</p> <p>16 "Included in Project Fact Sheets provided by</p> <p>17 Idaho Power," is the statement, quote: "Economic and</p> <p>18 population growth are driving up demand for electricity</p> <p>19 among customers of Idaho Power, PacifiCorp and</p> <p>20 Bonneville Power Administration (BPA). In the next</p> <p>21 decade, the utilities will need more resources to meet</p> <p>22 customers' needs in part of Idaho and Oregon."</p> <p>23 In October of 2018, there was testimony before</p> <p>24 the Oregon Public Utilities Commission by PacifiCorp.</p> <p>25 As a consequence of that testimony, there was written</p>	<p>1 determination of next steps will be made based on</p> <p>2 customer need. To date PacifiCorp has not received any</p> <p>3 requests for service on the B2H [transmission] line."</p> <p>4 Zero. That might have changed. This is October 2018,</p> <p>5 but I haven't heard of them.</p> <p>6 One of the concepts that I've learned in</p> <p>7 discussing and speaking with my many friends who oppose</p> <p>8 this is the concept of stranded assets. And I believe</p> <p>9 that Exhibit M is a collateral consequence of a failure</p> <p>10 of Idaho Power to meet Exhibit M's requirements would be</p> <p>11 stranded assets.</p> <p>12 Specifically, let's hypothetically assume that</p> <p>13 the Energy Facility Siting Council gives Idaho Power the</p> <p>14 go-ahead. After 5 years of so of our county being</p> <p>15 blessed with 140-foot power towers, the paradigm shift</p> <p>16 discussed earlier occurs, the power lines are no longer</p> <p>17 needed and we are stuck with God knows how many</p> <p>18 unnecessary power lines because the PacifiCorp and</p> <p>19 Bonneville Power Administration did not pony up the</p> <p>20 money required to restore the site to a useful</p> <p>21 nonhazardous condition.</p> <p>22 I thank you for your time.</p> <p>23 HEARING OFFICER WEBSTER: Thank you.</p> <p>24 Following Mr. Winters, we will hear from Bill</p> <p>25 DeLashmutt.</p>

Preponderance of the Evidence

Exhibit M Financial Capability

Charles Gillis

Information about Idaho Power's financial capabilities including ability to obtain a bond or letter of credit for decommissioning site.

OAR 345-022-0050 states

Retirement and Financial Assurance

To issue a site certificate, the Council must find that:

- (1) The site, taking into account mitigation, can be restored adequately to a useful, non-hazardous condition following permanent cessation of construction or operation of the facility.
- (2) **The applicant has a reasonable likelihood of obtaining a bond or letter of credit in a form and amount satisfactory to the Council to restore the site to a useful, non-hazardous condition.**

IPC is the lead organization for B2H but has only a 21% interest. The Bonneville Power Administration and PacifiCorp control the majority interests in B2H. Therefore BPA and PacifiCorp must pick up 79% of the costs associated with **obtaining a bond or letter of credit in a form and amount satisfactory to the Council to restore the site to a useful, non-hazardous condition.**

Included in Project Fact Sheets provided by Idaho Power, "Economic and population growth are driving up demand for electricity among customers of Idaho Power, PacifiCorp and Bonneville Power Administration (BPA). In the next decade, the utilities will need more resources to meet customers' needs in part of Idaho and Oregon."

OPUC:

~~The Company should explain why a B2H in-service date has been moved to 2025 from 2026. Further,~~ the Company has not identified a need for B2H in its IRP.

Beyond an update of the project sponsor's role and resource need, the Company has not presented a clear case for why B2H is needed but other segments of Energy Gateway are not. The Company should identify the role of B2H as a need or component in its least-cost/least-risk portfolio and why it intends on moving forward with the project. The Company should also explain the size and status of any B2H transmission service requests have been submitted to PacifiCorp.

PacifiCorp Response:

The project schedule and in-service date is driven by Idaho Power as the project manager, and PacifiCorp reflects that information as it is made available. PacifiCorp has not determined a need to move forward beyond the permitting phase of

the project and as such is only a party to the current permit funding agreement. As the project moves to permit completion, a determination of next steps will be made based on customer need. To date PacifiCorp has not received any requests for service on the B2H transmission line.

Stranded Assets

Kellen Tardaaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol Street N.E.
Salem, OR. 97301

August 5, 2019

B2H.DPOComments@Oregon.gov

Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018; Draft Proposal Order May 23, 2019.

To: Chairman Beyeler and Members of the Council

I am very concerned about the risks to our communities during construction of the proposed transmission line. I take particular exception to the Exhibit G Materials Analysis, Attachment G-5 FRAMEWORK BLASTING PLAN. The document states; "This plan framework serves as baseline document to guide development of the complete Blasting Plan developed with the Plan of Development **before** issuance of the site certificate and commencement of construction."

On page 7, at 3.4, Design Feature 32 states; "Watering facilities (tanks, natural springs and/or developed springs, water lines, wells, etc.) will be repaired or replaced if they are damaged or destroyed by construction and/or maintenance activities to their pre-disturbed condition as required by the landowner or land-management agency. Should construction and/or maintenance activities prevent use of a watering facility while livestock are grazing in that area, then the Applicant will provide alternate sources of water and/or alternate sources of forage where water is available."

The stated purpose of blasting is to "crack" rocks to facilitate geotechnical drilling. Introducing new or expanded fissures/cracks into rock may alter the flow direction or amount of water to existing natural springs or wells.

Since there is no indication that Idaho Power will determine "predisturbed" water flow from wells or springs, how will the landowner prove that flow has been reduced? Without an agreed upon baseline, negotiation or legal action will be required. In the case of private landowners, that will mean legal expenses that may not be available.

Prior to the issuance of a Site Certificate, EFSC should require the additional condition:

ADDED CONDITION TO BLASTING PLAN, DESIGN FEATURES:

Idaho Power will determine baseline flow of natural springs or wells within 1/4 mile of blasting site.

Exhibit G Materials Analysis, Attachment G-5 FRAMEWORK BLASTING PLAN on page 5 at 3.3 Safety Procedures, 3.3.3 Fire Safety: Posting fire suppression personnel at the blast site during high-fire danger periods and prohibiting blasting during extreme fire danger periods is not sufficient to minimize fire risk.

Idaho Power has written terminology, "high-fire danger periods" and "extreme fire danger periods" without definition or concurrence with Oregon Department of Forestry. Fire Suppression Personnel have been previously identified in the Fire Suppression and Prevention Plan as a "watchman." This is inadequate!

ADDED CONDITION TO BLASTING PLAN, FIRE SAFETY:

During blasting Idaho Power will provide a water tender staffed by a crew of at least two personnel.

Sincerely,

C Gill

Name: Charles H. Gillis

Address: 1210 1/2 Adams Ave., # 201
La Grande, OR 97850

August 10, 2019

Oregon Energy Facility Siting Council
c/o Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol St. N.E
Salem, OR 97301

B2H.DPOComments@Oregon.gov

Dear Chair Beyeler and Members of the Council:

I am a long time La Grande resident. I have always treasured Morgan Lake as an exceptional part of my enjoyment of this area, and I was pleased to see that the applicant apparently agrees with me:

Morgan Lake Park is an important opportunity primarily because of its unique designation status as a city park, rareness, and special qualities per OAR 345-021-0010(1)(i)(A) Attachment T-3, Table T-3-1 (p. T-13).

I certainly agree with this part of the application:

Page 146 (T-4-47) "The landscape character is natural appearing. Scenic integrity is high as the human developments are harmonious with the landscape," but I can't imagine how pine trees no taller than 80' are supposed to "... block views of the towers from most locations in the park." p. 49 (T-44)

I don't see any photos or graphics that support that conclusion. Is it so just because Idaho Power says it's so?

Because I have visited Morgan Lake many times over the years, I was surprised by the incomplete and thus inaccurate description of Morgan Lake Park:

Page 145 (T-4-46) Morgan Lake Park is described as 204 acres, with one lake. Morgan Lake Park actually contains two lakes. Morgan Lake covers 70 acres; the other, Twin Lake, right beside it, covers 27 acres.

Twin Lake is basically a wet lands which blooms with beautiful yellow water lilies in the spring. It is completely undeveloped. The bird population, including ducks, geese, osprey, cormorants, and nesting bald eagles, as well as other wildlife, enjoys this special sanctuary.

I have to wonder how Idaho Power, which claims to have carefully surveyed all the areas the transmission line might impact, could have omitted such an important feature of the Park. How many other errors are in the application? I urge EFSC to require documentation to support all of applicant's conclusions.


signature

Name: Charles H. Gillis

Address: 1210 1/2 Adams Ave., #201
La Grande, OR
97850

Kellen Tardaaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol Street N.E.
Salem, OR. 97301

August 5, 2019

B2H.DPOComments@Oregon.gov

Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018; Draft Proposal Order May 23, 2019.

To: Chairman Beyeler and Members of the Council

I am very concerned about the risks to our communities during construction of the proposed transmission line. I take particular exception to the Exhibit G Materials Analysis, Attachment G-5 FRAMEWORK BLASTING PLAN. The document states; "This plan framework serves as baseline document to guide development of the complete Blasting Plan developed with the Plan of Development **before** issuance of the site certificate and commencement of construction."

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The stated purpose of blasting is to "crack" rocks to facilitate geotechnical drilling. Introducing new or expanded fissures/cracks into rock may alter the flow direction or amount of water to existing natural springs or wells.

Since there is no indication that Idaho Power will determine "predisturbed" water flow from wells or springs, how will the landowner prove that flow has been reduced? Without an agreed upon baseline, negotiation or legal action will be required. In the case of private landowners, that will mean legal expenses that may not be available.

Prior to the issuance of a Site Certificate, EFSC should require the additional condition:

ADDED CONDITION TO BLASTING PLAN, DESIGN FEATURES:

Idaho Power will determine baseline flow of natural springs or wells within ¼ mile of blasting site.

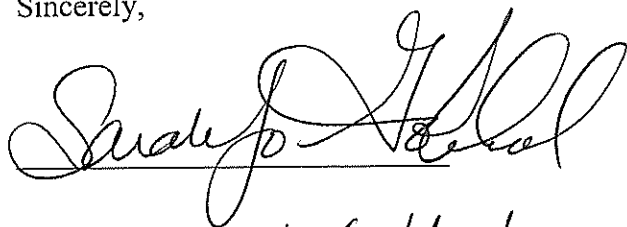
Exhibit G Materials Analysis, Attachment G-5 FRAMEWORK BLASTING PLAN on page 5 at 3.3 Safety Procedures, 3.3.3 Fire Safety: Posting fire suppression personnel at the blast site during high-fire danger periods and prohibiting blasting during extreme fire danger periods is not sufficient to minimize fire risk.

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ADDED CONDITION TO BLASTING PLAN, FIRE SAFETY:

During blasting Idaho Power will provide a water tender staffed by a crew of at least two personnel.

Sincerely,

A handwritten signature in black ink, appearing to read "Sarah Jo Goddard", written over a horizontal line.

Name: Sarah Jo Goddard

Address: 804 WASHINGTON AVE.
LA GRANDE, OR 97850

TARDAEWETHER Kellen * ODOE

From: jgold@eoni.com
Sent: Monday, August 19, 2019 1:44 PM
To: B2H DPOComments * ODOE
Attachments: Idaho Power.docx

Letter voicing concerns about the need for B2H.

Joel Goldstein
60826 Morgan Lake Road
La Grande, Oregon 97850
(541) 910-4072

August 19, 2019

Energy Facilities Siting Council
c/o Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol St N.E.
Salem, OR. 97301

Via EMAIL: B2H.DPOComments@Oregon.gov

Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway
Transmission Project
9/28/2018; Draft Proposed Order 5/23/2019.

Dear Chair Beyeler and Members of the Council:

I'm writing in opposition to the B2H Proposal. I am a former member of the committee appointed by our county commissioners to explore the B2H proposal. The general consensus of the committee was not to support the proposal for the following reasons:

- 1) The need for the line was not substantiated.
- 2) Lack of consideration was given to more environmentally friendly sources of energy and local grids less vulnerable to attack.
- 2) Concerns about the environmental impact.
- 3) Cost, initial and ongoing.
- 4) Increased fire risk.
- 5) Impact on the towns view-scape.

The following strongly suggests the need for the line has not been substantiated.

Idaho Power's "Integrated Resources Plan" (IRP) includes the Boardman to Hemingway (B2H) transmission project as their "preferred portfolio." They consider B2H as their "least-cost, least-risk" portfolio in their plan. Stop B2H Coalition is challenging the IRP and Idaho Power's calculations before the Oregon Public Utility Commission in docket LC-68.

Who pays for this?

The 2016 estimate for the cost of the B2H line is \$1-1.2 billion! That's before inflation and cost overruns which can easily be half again as large. Rate payers may be on the hook for \$1.4 to 1.7 billion when all is said and done.

Is the Transmission Line Needed? Is it “Lowest-cost?”

The utility may have a lot more capacity on its existing transmission lines than it's letting on. One of our consultants, who has examined the Idaho Power plan carefully, believes that it's biased in favor of B2H and that the costs are calculated incorrectly.

These are the important points for challenging the plan (IRP):

1) Idaho Power hasn't included all existing transmission capacity they already have to the Northwest energy market. That makes it seem like the system has less capacity than it really does and therefore supports the assumption that they need the B2H for additional capacity.

They don't! Energy imports from the Pacific Northwest are adequate for Idaho Power.

2) Idaho Power is also using lower cost estimates for the power that they would purchase from the Pacific Northwest, less than what is being charged right now! That makes those purchases look cheaper than they will be. Our estimates are that the real cost would be 134% higher - \$52 a MWh – than the amount shown in their 2017 plan.

The plan also includes something that no utility has included up to now. Idaho Power proposes using anticipated revenue from sales to third party customers to offset the costs of the B2H line. Not only is this not standard practice, the sales projections for this charge are unrealistic.

There's more:

1) A fee for the transport of energy on the B2H line could price renewables out of the market! Our calculations show an increase of 144% in the transmission rate for wind and solar if the B2H line is ever built. An attack on Oregon's clean energy goals?

2) There's no agreement about how much of the power line Idaho Power could write off or depreciate every year. Is it the 20 years of the planning process, the 50-year schedule Idaho Power imagines, or is it the estimate of the OPUC staff with its 60-65-year schedule? Without an agreed upon schedule there's no knowing the amount ratepayers will end up paying.

The OPUC can protect Oregon ratepayers by requiring Idaho Power to fully disclose all calculations and costs of the B2H, including their forecasted revenues and customers who will be required to pay their transmission tariffs.

“Batteries & Grid Security”

STOP B2H Coalition has been raising technical-heck about Idaho Power's Integrated Resource Plan (IRP) in front of the Oregon Public Utilities Commission (OPUC) in docket LC-68! An IRP is a significant planning document in a utilities' demonstration of “need.”

Batteries are out there and getting cheaper... Idaho power's plan (IRP) gives lip-service to batteries, only considering them as a “storage resource.” Batteries can offer much more with the ancillary services they provide.

Getting power to customers means a lot of things. It means:

- 1) smoothing out power fluctuations
- 2) making sure that there's the right relationship between current and voltage;
- 3) reduced start-up and shut-down costs when coal or gas generation facilities need to ramp up to meet demand;
- 4) less carbon emissions; and:
- 5) reduced risk of exposure to fuel price volatility.

Batteries can help with all of this. This is happening with many utilities are cutting down on the need for fossil fuels. These services will make the grid more stable. Batteries may or may not be the cheapest alternative but prices are dropping extremely rapidly. A bid for new wind + storage energy in Colorado is cheaper than energy from the state's existing coal plants;

solar + storage energy is cheaper than 75% of the state's coal energy. Keeping them out of the Idaho Power plan lacks vision and rubs up against an Oregon PUC's Guideline: "...taking into account anticipated advances in technology." That couldn't be much clearer.

The Oregon PUC should order Idaho Power to look at all the benefits of distributed generation. and of battery storage and the services they can provide.

As for grid security and reliability...

Research and real-life experience argue strongly for turning away from ever-larger grid components, and towards the emerging modular grid. These campus-scale grids will bring greatly improved resilience for – hospitals, police stations, fire stations, assembly points, food distribution centers and more – that are essential both in emergency and non-emergency situations.

On the other hand, the lack of security of a centralized transmission system is not in our best interest. The failure of one large transmission line can cascade across an entire region with cities and rural areas blacked out and vulnerable. These days, cyber-terrorism is one more reason to worry about that possibility. With distributed generation, some areas would still have power including military installations with their need for preparedness.

Distributed generation has other advantages, including reliability which is something Idaho Power claims to value with their vision, values, and mission statements. A large transmission line like B2H sited directly next to an existing power line, will not offer that reliability. Those lines themselves are known to start forest fires which can take out all the lines in the corridor.

What about the Forecasts for Future Electric Demand?

Idaho Power insists that there will be increased electric demand in the future and they will have a shortfall by 2025, but the market is not growing. Idaho Power's billed sales (in all categories of customers) for the last ten years have been flat. That's in line with reports from the US Government. Across the country from 2010 to the present,

residential electricity sales have declined by 3%. This makes sense because each of those homes is, on average, using 7 % less electricity. The population has increased but the drop in average demand has decreased even faster. The same thing is happening in Idaho Power's service area. An increase in population has been matched step-for-step by renewables and by more efficient use of energy.

Acknowledging this trend, Idaho Power's forecast for customer demand has decreased since the last plan two years ago. Yet they continue to claim a .9% annual increase in their forecasting.

Considering the rapid and accelerating changes in the industry and consumer demands, projections from Idaho Power of increases in load are not very realistic. The Oregon Public Utility Commission should step forward and ask for a more robust analysis of the population and energy growth scenarios.

Are there provisions for Energy Efficiency and Conservation?

Idaho Power's efforts to persuade rate payers to conserve energy are less than stellar. Energy conservation is the act of saving energy by reducing a service. In other words, to conserve energy, you need to cut back on your usage. In 2016 Idaho Power promoted a Smart-Saver Pledge to make an "energy saving behavior change" for 21 days. This included suggestions like turning thermostats down one to three degrees, washing a full load of laundry in cold water and hanging drying it, have a "no electronics" night once a week; and using the crock pot or BBQ instead of the oven. The pledge was responded to by 937 people out of over 500,000 customers and 408 participated in a follow up survey for \$100 cash prize. These results as compared to the work of the Oregon Energy Trust are uninspiring. However, using less energy decreases sales and thus profits so energy conservation is a de-incentive to Idaho Power.

Incentives can have a real impact on reducing consumption when they're used. Idaho Power can do more!

In addition to their less than stellar energy conservation measures, Idaho Power continues to underestimate the energy efficiency of their customers. Energy efficiency is defined as saving energy, but keeping the same level of service. For example, if you turn off the lights when you leave a room, you are practicing energy conservation. If you replace an inefficient incandescent light bulb with a more efficient LED bulb, you are practicing energy efficiency.

Major industrial customers, like Simplot, have a 25x10 goal where they are reducing energy consumption by 2.5% per year for 10 years with a 25% energy efficiency target. Idaho Power is out of step with their customers who are already saving energy and have the ability for more! Since 2010, Idaho Power consistently under predicts its energy efficiency (aka demand-side) savings by almost 37%, according to their own planning documents.

If these energy efficiency and conservation savings, were to be incorporated into the company's "need" calculation in their (IRP) plan and forecasts, there would be a significant reduction in Idaho Power's estimated power needs and the B2H would not be needed.

Idaho Power needs encouragement to up their energy efficiency and conservation programs! The OPUC, in their review of the Idaho Power's (IRP) plan, can insist that Idaho Power do more!

What About Local (Distributed) Generation?

The Oregon Public Utility Commission's own guidelines state that electric utilities should evaluate distributed generation on an equal footing with the other resources they use to meet their needs, and to put a number on the additional benefits from that generation.

The technology for measuring (e.g.: smart meters) and feeding in the power from those new sources (e.g.: solar and batteries) is changing fast! That means price declines in energy generation (e.g.: roof-top solar) and distribution (micro-grids) could push back or even eliminate the need for big investments, like the B2H. That would seem to be a better and more prudent strategy. Yet, the Idaho Power planning document pays hardly any attention to distributed generation. The Oregon PUC should order Idaho Power to do a thorough examination of distributed generation and incorporate it into their IRP planning.

Thank you,

Joel Goldstein
60836 Morgan Lake Road
La Grande, Oregon 97850

August 5, 2019

Energy Facilities Siting Council
c/o Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol St. NE
Salem, Oregon 97301

Via EMAIL: B2H.DPOComments@Oregon.gov

Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018; Draft Proposed Order.

Dear Chair Beyeler and Members of the Council:

APPLICANT FAILED TO INCLUDE ALL REQUIRED SOURCES OF NOISE IN
THEIR MODELING OF NOISE IMPACTS OF DEVELOPMENT

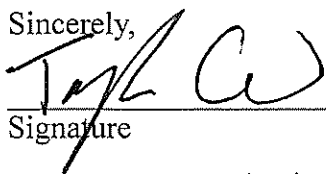
Idaho Power did not include any of the items listed in OAR 340-035-0035(l)(b)(B)(ii), which are only exempt from the noise measurement when the development occurs on a previously used site. When establishing ambient noise level for a new development on a site not previously used, it states: "Sources exempt from the requirements of section (l) of this rule, which are identified in subsections (5)(b) - (f), (j), and (k) of this rule, shall not be excluded from this ambient measurement."

The applicant's noise modeling only includes the noise generated from the transmission line itself. Noise modeling must be corrected to include (b) Warning Devices, (c) sounds created by road vehicles, (d) Sounds from the operation of any equipment or facility of a surface carrier engaged in interstate commerce by railroad to the extent that such equipment or facility is regulated by pre-emptive federal regulations as set forth in Part 201 of Title 40 of the Code of Federal Regulations, promulgated pursuant to Section 17 of the Noise Control Act of 1972, 86 Stat. 1248, Public Law 92-576 ; (e) bells, chimes, or carillons; (f) aircraft subject to pre-emptive federal regulations and (k) sounds created by the operation of road vehicle auxiliary equipment.

The application is incomplete. Without having the information regarding these additional noise sources, the department and the siting council lack the information regarding how many noise sensitive properties are impacted and by how much.

A proposed order cannot be issued until the developer submits all the information regarding the noise impacts of this development. This information must be available to decide if the standard is met or if it can be met with additional site conditions.

Sincerely,


Signature

Printed Name: Taylor Gould

Mailing Address: 703 Main Ave. La Grande, OR 97850



Oregon Department of Energy and the Energy Facility Siting Council

Public Hearing on the Draft Proposed Order
for the Boardman to Hemingway Transmission Line
June 18-20 and June 26-27, 2019, 4:30-8 p.m.
Public Written or Oral Testimony Registration

Name (mandatory) Jeffrey Grammer

Mailing Address (mandatory) 1705 First St.
La Grande, OR 97850

Phone Number (optional) () Email Address (optional)

Today's Date: 6/20/19

Do you wish to make oral public testimony at this Hearing: Yes No Y

Written comments can also be submitted today.

All written comments must be received by the deadline, July 23, 2019, 5 p.m. PDT to:

Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol Street NE
Salem, OR 97301
Fax: 503-378-6457
Email: B2H.DPOComments@oregon.gov

Note: by submitting written or oral testimony, you will receive a notice from the Oregon Department of Energy at a future date of the opportunity to request party status in a contested case hearing on the proposed facility.

Written Testimony

(Please print legibly – Use the back for additional space if needed. Additional written comments may be attached to this card.)

I am not in support.

ESTERSON Sarah * ODOE

From: Dianne Gray <diannebgray@gmail.com>
Sent: Wednesday, August 21, 2019 2:00 PM
To: B2H DPOComments * ODOE
Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project
Attachments: B2H Noise monitoring and mitigation Dianne Gray.docx

Attached please find my letter commenting on the proposed B2H project siting.

August 21, 2019

Energy Facilities Siting Council
c/o Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol St. NE
Salem, Oregon 97301

Via EMAIL: B2H.DPOComments@Oregon.gov

Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018; Draft Proposed Order.

Dear Chair Beyeler and Members of the Council:

I am writing about the inadequate noise estimates that Idaho Power provides in its application for a site certificate. Specifically,

1. Idaho Power failed to provide noise estimates for the lay down areas and incorrectly determined they were not required to do so, and
2. Idaho Power failed to include all sources of noise as required by OAR 340-035-0035 in noise modeling done on all sites which were not previously used.

References:
OAR 340-035-0035

The application is incomplete as Section X must include information regarding all receptors within ½ mile of site and include all noise sources required to be included in establishing the noise level generated directly or indirectly by the development. Idaho Power has not provided information adequate to determine if they are able to meet the noise standard, even with site certificate conditions.

IDAHO POWER FAILED TO COMPLY WITH OAR 345-021-0010(1)(x) which states that Exhibit X must include information about noise generated by construction and operation of the Project within ½ mile of the site boundary. The site boundary means “the perimeter of the site of a proposed energy facility, it’s related or supporting facilities, all temporary laydown and staging areas and all corridors and micrositing corridors proposed by the applicant” (OAR 345-001-0010(55)).

1. The applicant lists the areas which are included in the site boundary in Exhibit F, Page F-2, however, they failed to include noise modeling or include all the receptors within the ½ mile area beyond the entire site perimeter.

2. The applicant failed to do noise modeling for all noise sensitive property as they did not include churches, schools, libraries, or hospitals as is required by the definition in OAR 340-035-0015(38).
3. The applicant also failed to include the noise identified in OAR 340-035-0035(1)(b)(B)(ii) as not being exempt from the ambient statistical noise level indirectly caused by or attributable to that source including all its related activities. This section states, "Sources exempted from the requirements of section (1) of this rule, which are identified in subsections (5)(b) - (f), (j), and (k) of this rule, shall not be excluded from this ambient measurement." The application is not complete prior to the applicant finishing Exhibit X to include all sources required by this rule as well as all receptors within ½ mile of the entire site boundary. No decisions can be made absent an accurate accounting of the predicted noise impacts which has not occurred.

The exception to requiring noise impacts from sources listed in subsections (5)(b)-(f), (j), and (k) does not apply to developments on sites not previously used. When a lay down area, or other development is located on a site not previously used, the rule states "Sources exempt from the requirements of section (ii) of this rule which are identified in subsections (5)(b) - (f), (j), and (k) of this rule, shall not be excluded from this ambient measurement." The applicant must provide noise monitoring results for all lay down areas or other areas where these types of noise will occur in areas not previously used.

The applicant has not provided information necessary to determine compliance with the noise standard or if conditions can be included which would make them meet the noise standard. Therefore, the site certificate must be denied.

Sincerely,

Signature

Printed Name: Dianne B. Gray

Mailing address: 60332 Marvin Rd.

La Grande, OR 97850

James Gray
304 N AVE
LA GRANDE OR 97850

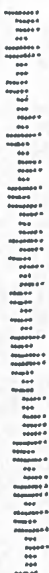
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Department of Energy

PORTLAND OR 972
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ENERGY FACILITIES SITING COUNCIL
c/o KELLER TANDREWEITZ, SENIOR STAFF ANALYST
ENERGY DEPARTMENT OF ENERGY
550 CAPITOL ST NE
SALMON, OR. 97301

97301-374233



August 5, 2019

Energy Facilities Siting Council
c/o Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol St. NE
Salem, OR 97301

B2H.DPOComments@Oregon.gov

Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018; Draft Proposal Order May 23, 2019.

Chair Beyeler and Members of the Council:

I am very concerned about the Boardman to Hemingway Transmission Project as it is proposed. My concerns are for the safety of myself and all of the citizens of La Grande if this line is permitted. My primary concerns are slope instability and wildfire hazard.

The proposed route sited to the west of La Grande is placed on a ridge noted to have instability and high risk for slides. The geologic study provided by Idaho Power references several studies (below).

Table H-2. USGS Quaternary Faults within 5 Miles of Project by County on page H-12 clearly shows that the project is placed right on an active fault in the West Grande Ronde Valley Fault Zone. In addition, in exhibit H, Geological Hazards and Soil Stability, Table B3: Soils Descriptions, Union County, much of the erosion hazard is rated "severe." Below is part of the report:

5.2 La Grande Area Slope Instability

As part of our study, we reviewed DOGAMI's open file report: Engineering Geology of the La Grande Area, Union County, Oregon, by Schlicker and Deacon (1971). The study identified several landslides in the areas west and south of La Grande. The majority of the landslide features mapped by Schlicker and Deacon (1971) were similarly mapped as landslides or alluvial fans in Ferns and others (2010). The current SLIDO database uses the feature locations mapped in Ferns and others (2010). While the two map sets generally agree, there are differences in the mapped limits of some landslide and alluvial fan areas, and there is one landslide area in Schlicker and Deacon (1971), near towers 106/3 and 106/4, which is not included in SLIDO or Ferns and others (2010). The Landslide Inventory in Appendix E includes mapped landslide and alluvial fan limits from both SLIDO and Schlicker and Deacon (1971).

This slope instability is not inconsequential to a project like this. Recall in 2014, Oso, Washington, was the site of a catastrophic mudslide as the result of logging disturbance of the soil upslope from the town combined with significant rainfall. This resulted in 43 fatalities. We must learn from previous mistakes in not heeding the geologists' warnings. The area down slope from the proposed B2H line lies the Grande Ronde Hospital and Clinics, which employs hundreds of people and is the critical access hospital for this region. La Grande High School and Central Elementary School are also positioned down slope from the proposed towers. At least 100 homes are positioned down slope of the proposed towers. According to "Engineering Geology of the La Grande Area, Union County, Oregon" maps published by Schlicker, and Deacon (1971), the ENTIRE area of the hillside is deemed a "landslide area" in the La Grande SE quadrangle. This is not a safe place for a transmission line.

The next significant hazard to our community is wildfire. Oregon is ranked 8th Most Wildfire Prone state in the United States according to Verisk Wildfire Risk analysis. La Grande is ranked in the top 50 communities in Oregon with the greatest cumulative housing-unit exposure to wildfire as referenced in "Exposure of human communities to wildfire in the Pacific Northwest," by Joe H. Scott, Julie Gilbertson-Day and Richard D. Stratton (available at http://pyrologix.com/ftp/Public/Reports/RiskToCommunities_OR-WA_BriefingPaper.pdf). Finally the proposed route is in the vicinity of Morgan lake, the highest risk area (#1) in Union County in terms of wildland-urban interface, according to the County's Community Wildfire Protection Plan, August 10, 2005.

Cal Fire cites Pacific Gas and Electric equipment and power lines as the cause of numerous wildfires in the state in the last 2 years. This includes the Camp Fire in Butte County (2018), Tubbs Fire in Napa/Sonoma Counties (2017), Witch Fire in San Diego (2007), Valley Fire in Lake/Napa/Sonoma Counties (2015), Nuns Fire in Sonoma County (2017), which were all attributed to transmission.

The Boardman To Hemingway Transmission Line Project proposal places lines about 2000 feet or less than half a mile from the La Grande city limits, including medium density housing within the city as well as Grande Ronde Hospital. If a line from this proposed route were to spark a fire, La Grande residents would have little time to react. According to National Geographic, wildfires can move as fast as 6.7 mph in forests and 14 mph in grasslands. A fast-moving fire starting at the B2H lines could move to residential areas of La Grande and HOSPITAL in 10 minutes. This is frightening and an unacceptable risk for our citizens.

The current proposal for a Boardman to Hemingway transmission line does not adequately address the issue of landslides, basically by stating it will be mitigated somehow when the time comes to build. The proposal offers no analysis of wildfire risk, which is an unacceptable omission. All of the routes proposed are unsafe and create an unacceptable risk to the citizens of La Grande.

The Council should DENY the request for a site certificate.

Sincerely,



Name: JAMES G. GRAY

Address: 304 N AVE
La Grande, OR. 97850

Oregon Energy Facility Siting Council
c/o Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol St. N.E
Salem, OR 97301

Email: B2H.DPOComments@Oregon.gov

Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project (B2H) 9/28/2018; Draft Proposed Order 5/23/2019.

Dear Chair Beyeler and Members of the Council:

This letter is a public comment for the above referenced project. Specifically, this letter will discuss Idaho Power's compliance with Standard 345-022-0110 - Public Services, in Exhibit U (3.5.6.2 and 3.5.6.5) of the EFSC application for B2H to ODOE. The letter will discuss the impact potential wildfires caused by the B2H transmission line will have on the ability of public and private providers within the analysis area to provide fire protection.

The effect of transmission lines on wildfire impact in western states has been well documented. In California, PG&E lines have caused 5 of the 10 most destructive fires since 2015, producing a liability of over 30 billion for PG&E. When considering the impact of B2H's operation, residents of Union County find the similarities between La Grande and Paradise California, where the infamous Camp Fire struck in 2018, deeply concerning. La Grande and Paradise share similar elevations and populations, however, La Grande has several characteristics that make it significantly more vulnerable to the ravages of wildfire than Paradise. For instance, La Grande averages 18 inches of rain yearly while Paradise enjoys 55 inches. Additionally, the proposed line runs adjacent to La Grande, while the line causing the Camp Fire was 7 miles from Paradise. *Oregon's 2006 Communities at Risk Assessment* by the Oregon Department of Forestry cites a startling fact: **The fire risk of the wildland urban interface (WUI) in La Grande has been rated the #1 WUI fire risk in Oregon!**

There is no doubt that construction of the proposed B2H transmission line would significantly increase the risk of wildfire in our area. From Idaho Power's own Draft Protection Order (Exhibit U-3.5.6.2, p. U-24): "Most activities will occur during summer when the weather is hot and dry. Much of the proposed construction will occur in grassland and shrub-dominated landscapes where the potential for naturally occurring fire is high. Project construction-related activities, including the use of vehicles, chainsaws, and other motorized equipment, will likely increase this potential risk in some areas within the Site Boundary. Fire hazards can also be related to workers smoking, refueling, and operating vehicles and other equipment off roadways. Welding on broken construction equipment could also potentially result in the combustion of native materials near the welding site." Idaho Power recognizes this hazard but makes no consideration of it in its application.

There are several specifics to examine in an analysis of the proposed B2H line's effects on Union County's ability to provide fire protection services. Firstly, firefighting crews in our region are

limited and volunteer. In their application, Idaho Power avers, "Most of the fire districts within the analysis area comprise volunteers, and in some cases, it takes considerable time to collect and mobilize an entire fire crew." As well, JB Brock, Union County emergency Manager states in Idaho Power's application "volunteer fire departments (rural fire protection districts) have a hard time finding volunteers due to budget constraints, similarly to budget constraints at the state and federal level. The wildland fires are getting bigger and cost more to fight" (U-1C-6). Fire crews in Union County are not equipped to handle potential wildfires generated by the proposed B2H transmission line.

The fact that fire crews are unstable, small and volunteer affects many aspects of their ability to respond to wildfires. Delayed response times, as noted in the quote from the previous paragraph, is one effect. Estimates of response time in the EFSC application are best-case scenarios. The estimate of 4 to 8 minutes as the response time in Union County (Table U-10) is far from even a best-case scenario (p. U-17). Residents that live on Morgan Lake Road concur that driving time is at least 10-15 minutes to the most accessible areas of the line from the base of Morgan Lake Road. Add to this estimate travel time from the La Grande Fire Station (approximately 7 minutes) and the time needed for individual fire fighters to travel to the Fire Station for a more realistic best-case scenario response time. The Paradise Camp Fire burned at a rate of over 1 acre per second!

Another factor in transmission line fires particularly impactful for small volunteer fire departments is the complications to firefighting introduced by the transmission lines themselves. According to Marvin Vetter, ODOF's Rangeland Coordinator, "local crews have no training in this scenario and will wait for the lines to be de-energized." JB Brock, Union County Emergency Manager, states, "The project (transmission line) could limit the ability on initial attack if fire fighters have to wait for power lines to be de-energized." (U-1C-6) These delays allow fires to grow even more.

How can communities struggling to maintain volunteer fire crews hope to address the overwhelming additional challenges and risks imposed by a project such as the B2H transmission line? Where is this addressed in Idaho Power's application and how can Idaho Power conclude that the proposed B2H transmission line is "not expected to have significant adverse impacts on fire protections services" (Exhibit U 3.5.6.2)? Considering the current capacities of fire protection services in Union County and the additional risks of wildfire imposed by the B2H transmission line, I urge you to act in accordance with state statute OAR 345-022-0110 and reject Idaho Power's application to construct the Boardman to Hemingway transmission line.

Sincerely,



Name Mary K. Gray
Address 304 'N' Ave
La Grande, OR 97850
(541) 963-6192

TARDAEWETHER Kellen * ODOE

From: Dale Mammen <dmammen@eoni.com>
Sent: Thursday, August 15, 2019 5:53 PM
To: B2H DPOComments * ODOE
Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018; Draft Proposed Order 5/23/2019
Attachments: Scan 2019-8-15 17.38.19.pdf

To: Chairman Beyeler and Members of the Council

Find attached a letter signed by me and 54 other residents of La Grande expressing our concerns regarding the B2H Project and we request that EFSC deny the Site Certificate.

I have also sent a bound copy of this material by the US Postal Service.

Sincerely,

Virginia L. Mammen
405 Balsa
La Grande, Oregon 97850

August 10, 2019

Energy Facilities Siting Council
c/o Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol St. N.E.
Salem, OR. 97301

Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018:Draft Proposed Order.

Dear Chair Beyeler and Members of the Council:

My comment is about the usage of the "Local Streets" ¹ specifically the Modelaire-Hawthorne Loop) ², hereafter referred to as the "loop", of La Grande to access the site entrance. This residential "loop" was constructed without sidewalks for a new development around the early 1960s.

According to OAR 345-022-0110, Public Services (pg. 5. April 2017) "The applicant...must address all permanent and temporary impacts of the facility on housing, traffic, safety, police and fire protection, health care and schools." ³

My impression from reviewing the application Page 17 ⁴ is that the applicant has not fully examined the final portion of the intended route nor does it fully recognize or address the need for traffic mitigation. This "loop" is the only access to/from thirty-six houses to the rest of the city. The area to the north of the "loop" is occupied by the Grande Ronde Hospital and Medical Clinic. Two blocks to the east is located the local high school and a grade school. ²

In June of 2016, the Grande Ronde Hospital petitioned the City to have a conditional use for a parking lot expansion project next to Hawthorne. The Conditional Use Permit was approved subject to the Condition of Approval that "No driveway access to GRH parking lot areas shall be permitted onto Hawthorn Drive as such street is developed to residential standards and is not designed to support commercial traffic." ⁵

The La Grande Director of Public Works, Kyle Carpenter, provided information regarding the widths for the streets in question. The two streets range from 33 feet to 37 feet in width with no sidewalks. I personally measured the area where the unpaved stem of Hawthorne leaves the "loop" to go up the hill. At the junction it measures 32 feet curb cut to curb cut and narrows to 18-21 feet in width as it goes around the corner up the hill. 6 The Public Works Director also provided pictures of the mapping system showing the existing utilities located in the "loop". 7-8. It should also be noted that from the entrance to the "loop" at Sunset Drive to the entrance of the site the road has a 16% grade.

Attachment U2 9 from the application shows an "Aerial Lift Crane to be Used During Construction" and the Transportation and Traffic Plan on page 19 10 lists a number of other vehicles anticipated to be used. Article 6.6 — Public Street Standards for the City of La Grande Section 6.6.002 states that "Collector Streets are designed to withstand normal trucks of an HS20 loading. Larger trucks are to utilize Arterial Streets where at all possible." 11 The majority of vehicles listed on page 19 exceed that limit and would be using a Local Street in addition to Arterial and Collector Streets. According to the Public Works Director the two streets in the "loop" were designed as Local Streets for residential use, able to accept the pressures of HS20 for the purpose of an occasional need such as a weekly garbage truck or an emergency vehicle but for no more than 5% of the time. The paving construction of these over 50 year old streets in the "loop" was not designed for repetitive use by vehicles heavier than a normal car. These streets in the "loop" have not been repaved, only patched when necessary, since they were first constructed.

The application does not address the "loop" specifically, but 3.1.2 (pg. 19) 10 and Table 6 (pg.17) 12 of the Transportation and Traffic Plan indicate there would be numerous vehicles using this route. Not knowing exactly just which vehicles would be on the "loop" daily but making a conservative estimate of 50 round trips (100 single) it would be a constant parade with one truck every 7.2 minutes. This is unacceptable for numerous reasons including constant excessive noise.

Not only would weight of the vehicles be a problem but the narrowness of the "loop" streets and the ninety degree blind curves that would have to be executed would be either impossible or extremely dangerous considering the turning radius for many of these large vehicles. The

already dangerous situation for a number of driveways that exit onto these "loop" streets at blind curves would be exacerbated. 13-14

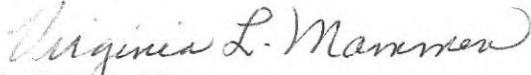
When considering only the traffic and safety issues listed above, the use of the "loop" as a part of the route for Idaho Power seems to be not only dangerous for the residents but unconscionable and irresponsible for Idaho Power to use such streets that are currently primarily for the neighborhood for walking (children to school, all ages for physical training), driving, or biking. I fear there are standards that are either not being considered or they are intentionally being ignored. There should be some common sense, courtesy and respect for the impact this project would impose on any neighborhood.

Finally, La Grande Ordinance Number 3077, which adopted Oregon State Traffic Laws by reference, states in Section 17 page 8 "It shall be unlawful for any person, firm or corporation to use, drive or operate any vehicle or combination of vehicles with a gross weight of 26,000, pounds or more upon any street of the City of La Grande, Oregon, except upon posted truck routes." Neither Modelaire/Hawthorne Loop nor Sunset Drive are posted as truck routes. 15-16

A site review and traffic plan must be completed prior to the cite certificate being issued and not 90 days prior to construction as stated.

For the above reasons I oppose the usage of the proposed route for the construction of the B2H transmission line.

Sincerely,


Virginia L. Mammen
405 Balsa
La Grande, Oregon. 97850

gmammen@eoni.com

**TABLE 1
 STREET STANDARDS**

Functional Classification	ADT Volume	Speed (mph)	# of Travel Lanes	Travel Lane Width	Turn Lane or Median Width	Bike Lanes	Min. Bike Lane Width	On-Street parking
Downtown Arterial	10,000	20	2-3	11'	11'			both sides
Arterial	10,000	40-55	2-5	12'	4-14'	optional ⁴	5'	none
Major Collector	2,000 - 10,000	25-45	2-3	11'	12'	required	5'	one or both sides
Minor Collector	1,000 - 2,000	25-35	2	11'	none	Optional ⁵	5'	one or both sides
Local Street	0 - 1,000	15-25	2	10'	none	none	none	one or both sides

Functional Classification	Sidewalks	Min. Sidewalk Width	Planting Strip Width ¹	Total Paved Width ²	Total ROW Width ³	Private Access Spacing
Downtown Arterial	required	12'	3'6" ⁶	49'	80'	200'
Arterial	required	5'	8'	36'-72'	80'-102'	200' - 400'
Major Collector	required	5'	8'	52'-60'	62'-90'	150' - 300'
Minor Collector	required	5'	8'	30'-48'	60'-78'	75' - 150'
Local Street	required	5'	8'	28'-36'	40'-66'	Each Lot

¹A portion of the required planting strip width may be used instead as additional sidewalk width or reduced right of way, as appropriate.

²The minimum of the paved width was calculated with the following assumptions:

Arterials: Two (2) travel lanes, four foot (4') median divider, no center turn lane, no bike lanes.

Major Collectors: Two (2) travel lanes, two (2) bike lanes, no center turn lane, parking on one (1) side.

Minor Collectors: Two (2) travel lanes, parking on one (1) side of street, no bike lanes.

Local Streets: Two (2) travel lanes, parking on one (1) side of street.

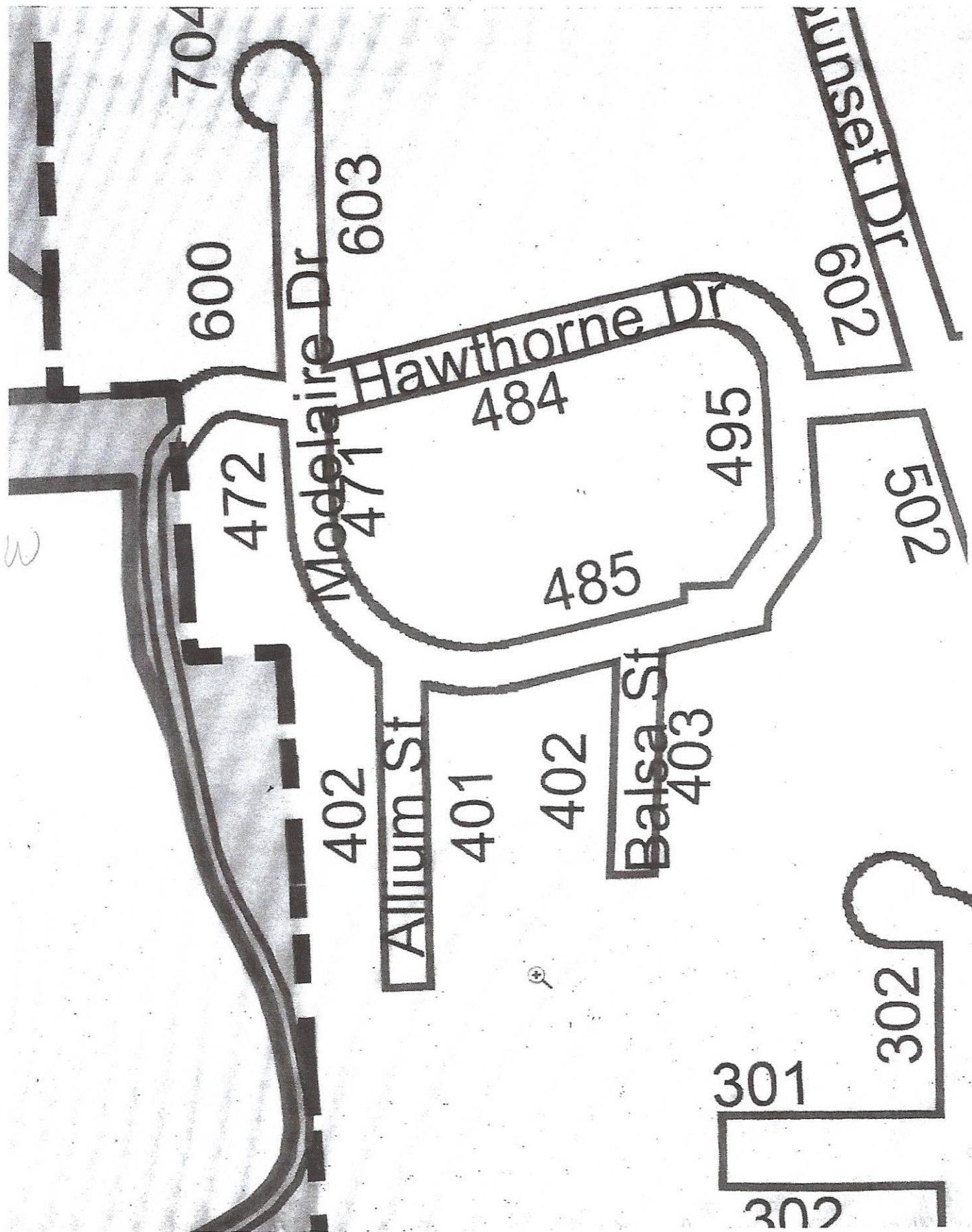
The maximum paved width for each street was calculated assuming the inclusion of all required and optional facilities. Minimum paved widths for each street are as required in Section 6.2.005 of this Code.

³These right-of-way width ranges are for new streets.

⁴Bike lanes should be provided on Arterials unless more desirable parallel facilities are designated and designed to accommodate bicycles.

⁵ Bike lanes should be provided on Minor Collectors where traffic volumes or other factors warrant. Otherwise, Minor Collectors should be designed and designated as shared roadway facilities with wide outside travel lanes of 14' on important bike routes.

N



5

Public Services

OAR 345-022-0110

This standard ensures that the proposed facility will not affect the ability of service providers in local communities to provide public services, such as fire protection or education. The applicant must assess the proposed facility's need for water and for disposal of wastewater, storm water and solid waste. The applicant must also evaluate the expected population increases in local communities resulting from construction and operation of the facility; and must address all permanent and temporary impacts of the facility on housing, traffic safety, police and fire protection, health care and schools. The Council must determine whether the applicant has identified potential adverse impacts to service providers and proposed adequate mitigation to ensure that there will be no significant adverse effect on the ability of a service provider to provide services. In considering the impacts, the Council solicits comments from affected local governments, fire or police departments, school districts and health care agencies.

Waste Minimization

OAR 345-022-0120

This standard requires the Council to evaluate the applicant's proposal to minimize solid waste and wastewater generated by construction and operation of the proposed facility. The standard requires recycling of wastes, if feasible, or proper waste disposal if recycling is not feasible.

The applicant must evaluate the types of waste products that would be produced during construction and operation of the proposed facility and estimate the amounts or volume of waste products. The applicant must propose appropriate methods to handle the waste through collection, storage and disposal. Compliance with the standard assures that the applicant will reduce the amount of waste generated and dispose of waste in a responsible manner.

Need for a Facility

OAR 345-023-0005

This standard requires the applicant for non-generating energy facilities (such as electric transmission lines) to demonstrate the need for the proposed facility. The Council's rules allow an applicant to demonstrate need for a non-generating facility through one of several methods, including the "Least-Cost Plan Rule" (OAR 345-023-0020) or the "System Reliability Rule for Electric Transmission Lines" (OAR 345-023-0030). Under the Least-Cost Plan Rule, the applicant meets this standard if the proposed transmission line was included in an Integrated Resource Plan that has been acknowledged by the Oregon Public Utilities Commission (OPUC). More information about the OPUC and the Integrated Resource Plan acknowledgement process can be found at www.puc.state.or.us.

Specific Standards for Wind Facilities

OAR 345-024-0010 and 345-024-0015

This standard requires the Council to evaluate applications for wind energy facilities to ensure that applicants can design, construct and operate the facility so that that the public is not endangered by moving turbine blades or electrical equipment, and that the applicant can design, construct and operate wind turbines to prevent structural failure that could endanger public safety. Siting standards for wind facilities also require the applicant to reduce cumulative adverse environmental effects in the vicinity by using existing roads, if possible, placing collection lines underground, designing the facility to avoid impacts to vulnerable wildlife in the area (especially birds and bats), and designing the facility to minimize adverse visual features, including using the minimum amount of lighting necessary to meet the requirements of the Federal Aviation Administration for protecting aircraft.

Specific Standards for Transmission Lines

OAR 345-024-0090

This standard requires that the Council evaluate transmission lines under Council jurisdiction to ensure they are designed, constructed and operated to limit the strength of electromagnetic fields in areas where those lines are accessible to the public.



Idaho Power Responses to Comments and Requests for Additional Information on the B2H APASC
from the City of La Grande
Compiled by ODOE. RAI's from the City of La Grande and Responses from IPC

		proposed helipad is a necessary supporting facility.	
U	U- Public Services include utilities such as road systems, water, sanitation services, power, and other amenities necessary for the construction.	Ordinance #2912, Series 1997 gives the City jurisdiction and control on all City street rights-of-way and Ordinance #3077, Series 2009, establishes the process and requirements for permits and licenses for uses of the streets that are not normal uses and may result in damages.	<p>The project construction has two major road systems through La Grande that are proposed for this project – Morgan Lake Road via Gekeler Lane, 'C' Avenue, Walnut Street, and on up Morgan Lake Road. Roads along these routes are used by the ambulance service for accessing the hospital, the public transit system on its normal daily route, citizens to access locations within and outside this area and also for the school bus system for transporting kids to the La Grande Middle School, La Grande High School and Central Elementary School. In addition to the vehicular modes of travel, those routes are heavily used by bicyclists and pedestrians. The other route that would be utilized is the same route with the exception of turning onto Sunset Drive and up Hawthorne Street to a private gravel road that heads up the area above Deal Canyon. Two other routes that are not addressed but that would be obvious access routes for construction would be South 12th Street and South 20th Street. As a general rule, City streets are built with ninety degree angles, which may restrict some</p> <p>To address the City's concerns regarding traffic and road use within the city's limits, Idaho Power has added the following proposed conditions to Exhibit K:</p> <p><u>Land Use Condition 9: Prior to construction in Union County, the site certificate holder shall complete the following to address traffic impacts in the county:</u></p> <p><u>a. The site certificate holder shall finalize, and submit to the department for its approval, a final county-specific transportation and traffic plan. The protective measures described in the draft Transportation and Traffic Plan in ASG Exhibit U, Attachment U-2, shall be included and implemented as part of the final county-specific plan, unless otherwise approved by the department;</u></p> <p><u>b. The site certificate holder shall work with the Union County Road Department and the City of La Grande Public Works Department to identify concerns related to Project construction traffic; and</u></p> <p><u>c. The site certificate holder shall develop traffic control measures to mitigate the effects of Project construction traffic;</u></p> <p><u>Land Use Condition 26: During construction in Union County, the site certificate holder shall conduct all work in compliance with the Union County-specific</u></p>

IV. CONCLUSIONS

Based on the Findings of Fact above, the Planning Commission concludes that the application meets the requirements established in LDC Articles 8.5 and other applicable codes and Ordinances.

V. ORDER AND CONDITIONS OF APPROVAL

Based on the conclusions above, the Planning Commission approves the Conditional Use Permit as requested, subject to the following Conditions of Approval:

1. No driveway access to GRH parking lot areas shall be permitted onto Hawthorn Drive as such street is developed to a residential standards and is not designed to support commercial traffic.
2. Any existing driveway curb cuts along Hawthorn Drive bordering GRH's property, that are not used for residential purposes, shall be removed and replaced with City standard improvements that exists adjacent to such areas.
3. There is a storm sewer line extending through the project area that shall to be protected. Any improvements that may affect the storm sewer line shall be reviewed and approved by the Public Works Director.

VI. STANDARD CONDITIONS OF APPROVAL FOR LAND USE APPLICATIONS

1. **Revisions to a Valid Conditional Use Permit:** Any variations, alterations, or changes in a valid Conditional Use Permit requested by the deed holder shall be considered in accordance with the procedures of the Land Development Code as though a new Conditional Use Permit were being applied for.
2. **Public Works Standards:** Where a development involves work within the public right-of-way, a Right-of-Way Permit shall be obtained from the Public Works Department in advance of commencing with any work in the right-of-way. All improvements within the public right-of-way shall be in conformance with the most recent adopted City of La Grande "Engineering Standard Drawings and Specifications for Construction Manual."
3. **Building Permits:** The City of La Grande Building Department shall be contacted early in the process and in advance of development to coordinate and obtain required building, plumbing, electrical and/or mechanical permits. All required permits shall be acquired in advance of construction.

VI. OTHER PERMITS AND RESTRICTIONS

The applicant and property owner is herein advised that the use of the property involved in this application may require additional permits from the City of La Grande or other local, State or Federal Agencies.

The City of La Grande land use review, approval process and any decision issued does not take the place of, or relieve the applicant of responsibility for acquiring such other permits, or satisfy any restrictions or conditions thereon. The land use decision herein does not remove, alter, or impair in any way the covenants or restrictions imposed on this property by deed or other instrument.

The land use approvals granted by this decision shall be effective only when the rights granted herein have been exercised and commenced within one (1) year of the effective date of the decision. In case such right has not been exercised and commenced or an extension obtained, the approvals granted by this decision shall become null and void. A written request for an extension of time shall be filed with the Planning Department at least thirty (30) days prior to the expiration date of the approval.



Virginia Mammen <4gmammen@gmail.com>

Modelaire Roadway Specifications

3 messages

Kyle Carpenter <KCarpenter@cityoflagrande.org>
To: "gmammen@eoni.com" <gmammen@eoni.com>

Fri, Jul 12, 2019 at 1:51 PM

I have attached a couple pictures of our mapping system that will give you a sense of where existing utilities are in Modelaire and Hawthorne. As for the widths of the roadways, I took measurements in multiple places, and found the following:

- Modelaire Drive (F Avenue) between Sunset Blvd and Hawthorne Drive is approximately 33 feet wide with a grade of about 5 Percent.
- Hawthorne Drive is approximately 32 feet wide at the bottom near the intersection of Modelaire/F Avenue and widens to about 34 feet where it intersects Modelaire at the top of the hill. The grade heading up hill is approximately 15.5 Percent.
- Modelaire Drive is generally 36 feet wide with some minor variability generally less than a foot (35' to 37'). On the southernmost segment of the roadway where the majority of the elevation gain is observed the grade is approximately 16 Percent.

Let me know if there are any other specifications of these roadways that you are interested in that I have missed. Have a great weekend and thanks for the treats, the guys were very appreciative.

Kyle Carpenter, PE

Public Works Director

City of La Grande

Public Works

Ph: (541) 962-1325

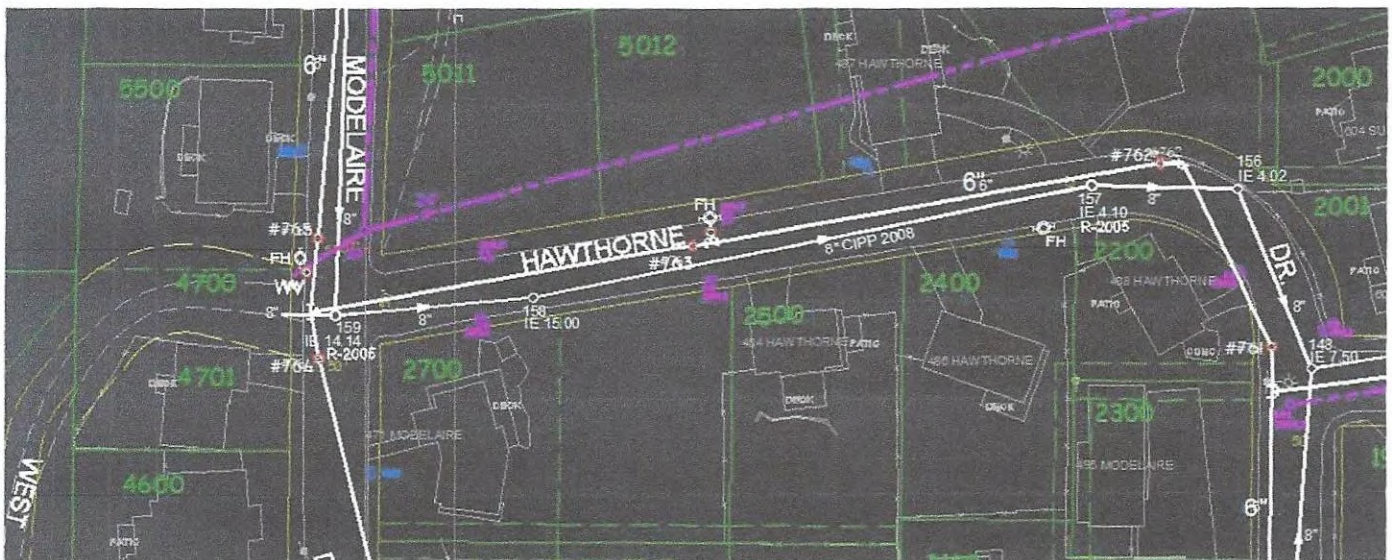
Fax: (541) 963-4844

2 attachments

Hawthorne.jpg
150K

Modelaire.jpg
120K





attachment U2

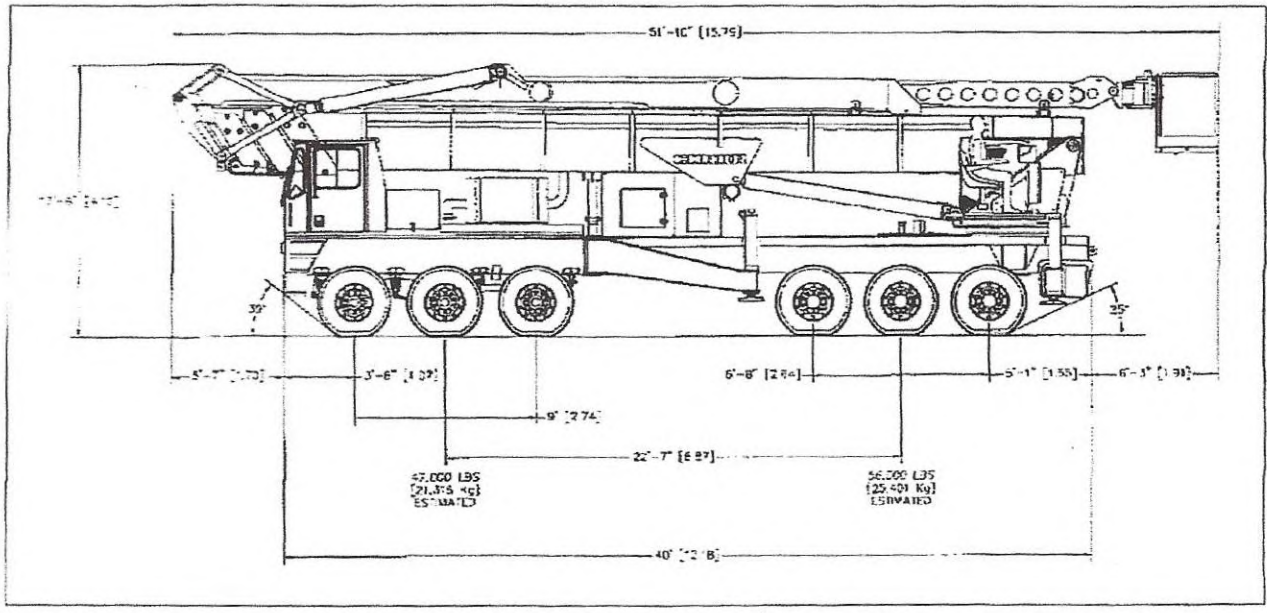


Figure 2. Example Aerial Lift Crane to be Used During Construction (Roadable Length 52 Feet; Width 8 Feet 6 Inches)

The following is a summary of anticipated equipment to be used for each transmission-line construction activity.

- Survey work: pickup trucks or ATVs.
- Timber removal: pickup trucks, feller bunchers, dump trucks, wood chippers.
- Road construction: pickup trucks, bulldozers, motor graders, and water trucks.
- Hole digging, installation of directly embedded structures, or foundation installation: pickup trucks, 2-ton trucks, digger derrick trucks, hole diggers, bulldozers, concrete trucks, water trucks, cranes, hydro cranes, wagon rock drills, dump trucks, and front-end loaders.
- Hauling lattice steel members, tubular poles, braces, and hardware to the structure sites: steel haul trucks, carry alls, cranes, and forklifts.
- Assembly and erection of structures: pickup trucks, 2-ton trucks, carry alls, cranes, and a heavy lift helicopter.
- Wire installation: pickups, wire reel trailers, diesel tractors, cranes, 5-ton boom trucks, splicing trucks, three drum pullers, single drum pullers, tensioner, sagging dozers, carry-alls, static wire reel trailers, bucket trucks, and a light duty helicopter.
- Final cleanup, reclamation, and restoration: pickup trucks, 2-ton trucks, bulldozers, motor graders, dump trucks, front-end loaders, hydro-seed truck, and water trucks.

The highest level of traffic will be when the wire stringing operations begin while several other operations are occurring at the same time, which will likely include ROW clearing, installing foundations, hauling steel, and assembling and erecting structures. For the station work, the highest level of traffic will be during site grading and foundation installation. For the communication station sites, the highest level of traffic will be during grading and site preparation.

Detailed estimates of trips generated by transporting Project construction equipment will be provided by the construction contractor prior to construction.

3.1.3 Traffic Related to Timber Removal

In forested areas, the Project will require removal of timber from the Project ROW and for construction and improvement of access roads. Specific timber harvest plans have not been finalized. Logs from timber clearing may be transported to nearby sawmills. Decisions regarding transportation routes for harvested timber will be made following completion of a timber harvest plan, and the number of log truck trips will be estimated when the timber harvest plan has been finalized. Logging slash will remain onsite if possible. For additional discussion regarding removal of timber in forested areas, see Exhibit K, Attachment K-2, ROW Clearing Assessment.

3.1.4 Impacts to V/C Ratios

Based on the estimated trip generation numbers in Tables 4 and 6, a maximum of approximately 1,294 daily one-way vehicle trips are expected within any one construction spread. To facilitate traffic and other analyses, the two construction spreads are divided into smaller sections based on similar construction windows and seasonal weather restrictions. Not all construction sections will have the same number of concurrent construction activities, depending on how the construction contractor sequences and executes the Project. Some sections will have fewer daily vehicle trips. For the purposes of the traffic analysis, the spreads are divided into five sections with multi-use areas that could have additive traffic impacts. The sections are assumed to have approximately equal levels of activity. The 1,294 daily one-way trips per spread divided over five sections of more concentrated traffic results in 259 daily one-

ARTICLE 6.6 – PUBLIC STREET STANDARDS

SECTION 6.6.001 - PURPOSE

Upon the request of the La Grande City Council, a variety of street design standards have been reviewed and are now incorporated in the Land Development Code.

SECTION 6.6.002 - CLASS I IMPROVEMENT STANDARDS

This classification will cover those streets that are designed to meet the standards for an expected life of twenty (20) years or more. The attached drawings shall be the minimum standard for those streets in this classification. All streets designated as Federal Aid Urban Streets (F.A.U.) shall be constructed under these design standards. Streets in this designation shall be constructed with sidewalks when at all possible in an effort to increase pedestrian safety. Collector streets are designed to withstand normal trucks of an HS 20 loading. Larger trucks are to utilize Arterial streets where at all possible. This level of development shall be the ultimate goal for all streets within the City of La Grande.

Possible means of financing available for this Class shall be methods A, B, C, D, E, F, G, and H in Section 6.6.006.

A. Advantages

1. The construction life is extended to a period above other City standards.
2. The visible aesthetics in relationship to having curbs and a blacktop surface with landscaping or concrete driveways and a sidewalk is generally appealing to the public.
3. Easy maintenance for the Public Works Department for cleaning and minor repair.
4. Storm sewer drainage is confined within the bounds of the curbs during minor flooding periods.
5. Parking is restricted to a solid barrier, that being the curb; this restricts parking in the area on the back side of the curb and confines travel to the street surface.
6. Defined areas for possible cross walks, signs, power poles, and other utilities that are restricted to the outside areas behind the curbs.
7. It allows for a wide range of financing methods and is to City standards for a ten (10) year Bancroft bonding.
8. Provides a dust free surface.

B. Disadvantages

1. The extreme high level of cost that is incurred with this type of development.

SECTION 6.6.003 - CLASS II IMPROVEMENT LEVEL

Streets constructed in this classification shall be constructed to the same standards as Class I Streets with the exception of the form of drainage system. These streets shall meet the standards as shown on the attached drawing. This level of construction shall be only utilized in substitution for Class I Streets when it is determined by the City Council at the recommendation of the City Engineer or Engineering Superintendent, that an adequate drainage system cannot be installed for a Class I Street.

Table 6. Construction Vehicle Trips per Day per Construction Spread

Construction Crew Type	Construction Vehicles					
	Light Construction Vehicles			Heavy Construction Vehicles		
	Number of Pickups/ Mechanic Trucks (per day)	Number of One-way Trips on Public Roads (per day)	Total One-way Trips (per day)	Number of Other Vehicles	Number of One-way Trips on Public Roads (per day)	Total One-way Trips (per day)
Substation Construction	20	2	40	5	2	10
ROW Clearing	9	4	36	5	4	20
Roads/ Pad Grading	9	4	36	9	2	18
Foundations	9	2	18	5	8	40
Tower Lacing (assembly)	27	2	54	0	0	0
Tower Setting (erection)	20	2	40	0	0	0
Wire Stringing	9	4	36	9	4	36
Restoration	3	2	6	0	0	0
Blasting	5	4	20	0	0	0
Material Delivery	20	8	160	12	2	24
Mechanic and Equipment Mgmt.	5	6	30	0	0	0
Refueling	0	0	0	5	4	20
Dust Control	0	0	0	5	4	20
Construction Inspection	5	8	40	0	0	0
Concrete Testing	5	4	20	0	0	0
Environmental Compliance	9	6	54	0	0	0
Surveyors	5	3	30	0	0	0
Totals	—	—	620	—	—	188

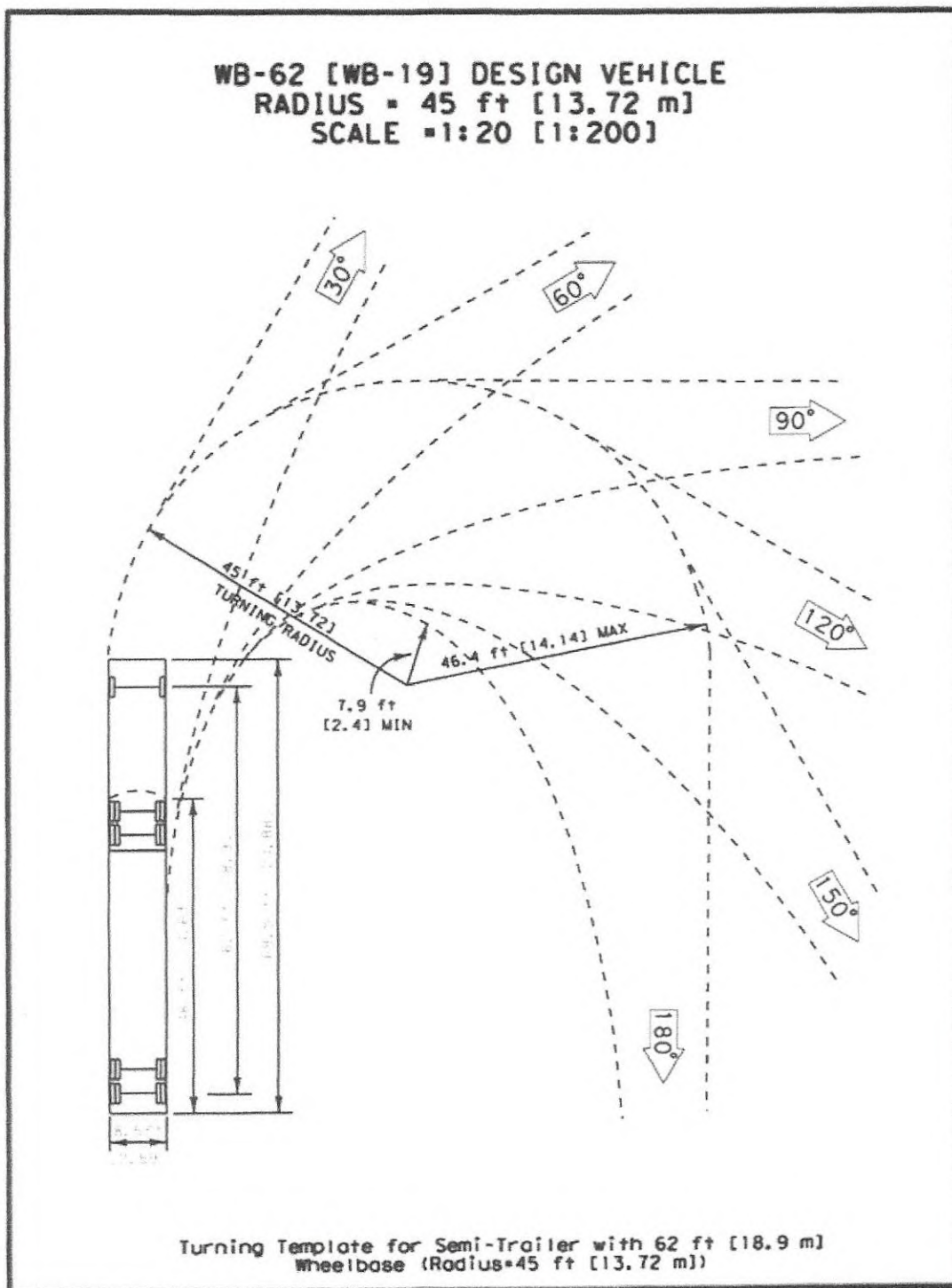
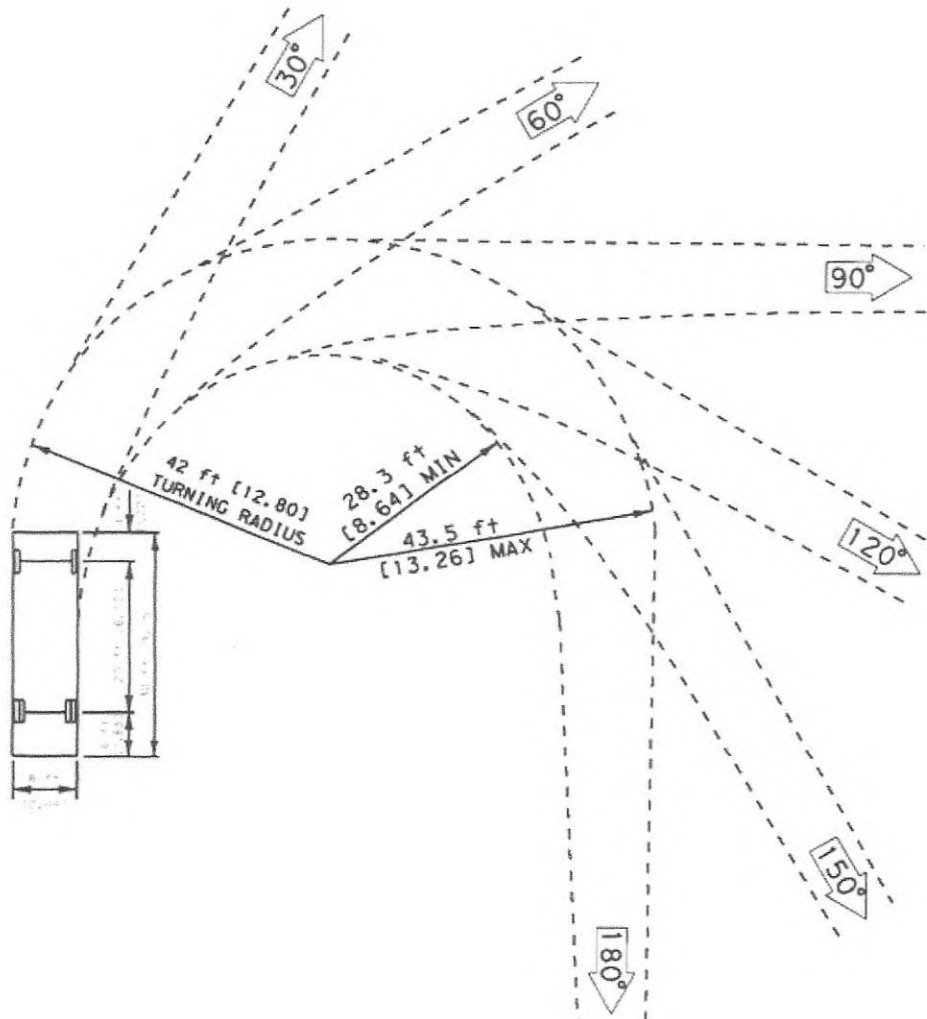


Figure 7-4. Turning Template for Semi-Trailer with 62 ft [18.9 m] Wheelbase, (not to scale). Click [here](#) to see a PDF of the image.

SINGLE UNIT (SU) TRUCK DESIGN VEHICLE
TURNING RADIUS = 42 ft [12.80 m]
SCALE = 1:20 [1:200]



Turning Template for Single Unit Trucks or Buses

Exhibit 15

**CITY OF LA GRANDE
ORDINANCE NUMBER 3077
SERIES 2009**

**AN ORDINANCE CONTROLLING VEHICULAR AND PEDESTRIAN TRAFFIC, PARADES
AND PROCESSIONS AND ISSUANCE OF PERMITS; PROVIDING PENALTIES; AND
REPEALING ORDINANCE NUMBER 2845, SERIES 1993; ALL AMENDING ORDINANCES
AND ALL OTHER ORDINANCES OR PARTS OF ORDINANCES IN CONFLICT HEREWITH;
AND DECLARING AN EFFECTIVE DATE**

THE CITY OF LA GRANDE ORDAINS AS FOLLOWS:

Section 1. This Ordinance may be cited as the City of La Grande Uniform Traffic Ordinance.

Section 2. APPLICABILITY OF STATE TRAFFIC LAWS.

Oregon Revised Statutes, Chapter 153, and the Oregon Vehicle Code, ORS Chapter 801 and 822, as now constituted, are adopted by reference. Violation of an adopted provision of those chapters is an offense against the City.

Section 3. DEFINITIONS

In addition to those definitions contained in the Oregon state Motor Vehicle Code, the following words or phrases, except where the context clearly indicates a different meaning, shall mean:

a. Alley

A street or highway primarily intended to provide access to the rear or side of lots or buildings in urban areas and not intended for through vehicular traffic.

b. Bicycle

A bicycle is a vehicle that:

1. Is designed to be operated on the ground on wheels;
2. has a seat or saddle for use of the rider;
3. is designed to travel with not more than three (3) wheels in contact with the ground;
4. is propelled exclusively by human power; and,
5. has every wheel more than fourteen inches (14") in diameter or two (2) tandem wheels, either of which is more than fourteen inches (14") in diameter.

c. Bicycle Lane

That part of the highway, adjacent to the roadway, designated by official signs or markings for use by persons riding bicycles, except as otherwise specifically provided by law.

d. Bicycle Path

A public way, not part of a highway, which is designated by official signs or markings for use by persons riding bicycles, except as otherwise specifically provided by law.

e. Block

The part of one side of a street lying between the two (2) nearest cross streets.

f. Central Business District

a. City Regulation of Special Movement of Oversized Load

The applicant shall submit an application to the City Manager or designee, showing the terminal points of the purported movement; the proposed route; the nature of the movement requested, including the weight and dimensions of the vehicle, load, machine, building, or structure to be moved; the time, date and duration of the proposed movement.

b. Special Movement Permit

A permit shall be required to move any vehicle, structure, or load on, or to access a street when, after preparation for movement, the vehicle, structure or load exceeds fourteen feet (14') in height, requires the use of guy wires, or could result in the blockage of a street. An approved application may serve as a permit, and a copy of the approved application shall be provided to the applicant.

Section 17. TRUCK ROUTES

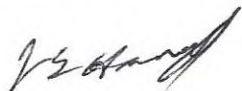
- a. It shall be unlawful for any person, firm, or corporation to use, drive or operate any vehicle or combination of vehicles with a gross weight of 26,000, pounds or more upon any street of the City of La Grande, Oregon, except upon posted truck routes.
- b. Any vehicle with a gross weight over 26,000, pounds specifically picking up deliveries or making deliveries to any business or residence located on a street that is not a truck route will be exempted if the vehicle is driven from the truck route to the destination in the shortest, most direct, and safest route.
- c. The use of Jacob brakes shall not be allowed within the city limits of La Grande, Oregon.
- d. Truck routes will be posted as follows:
 1. Walnut street north from the city limits to C Avenue;
 2. C Avenue east from Walnut Street to Gekeler Avenue;
 3. Gekeler Avenue east to the city limits;
 4. 12th street south from Gekeler Avenue to the city limits;
 5. 2nd Street south from the city limits to Adams Avenue;
 6. Monroe Avenue east from Spruce Street to Highway 82;
 7. Jackson Avenue east from Spruce Street, and
 8. Spruce Street south from the city limits to Monroe.

Section 18. IMPOUNDMENT AND DETENTION OF VEHICLES

- a. Whenever a vehicle is placed in a manner or location that constitutes an obstruction to traffic or a hazard to public safety, a police officer or enforcement officer shall order the owner or operator of the vehicle to remove said vehicle. If the vehicle is unattended, the officer or enforcement officer may cause the vehicle to be towed and stored at the owner's expense. The owner shall be liable for the costs of towing and storing, notwithstanding that the vehicle was parked by another or that the vehicle was initially parked in a safe manner but subsequently became an obstruction or hazard.

I have read the attached letter regarding the use of the Modelaire/Hawthorne Loop and it expresses my concerns and my request to abandon the plan to use this residential loop for the project. As one of the undersigned I strongly oppose our community being used as a primary access point to build this transmission line. Furthermore, I oppose the current proposed preferred route close to the city limits of La Grande because it impacts in various other ways the daily lives of many residents of our community.

SIGNATURE

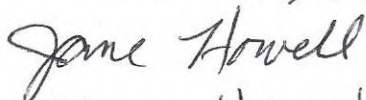


PRINTED NAME James E. Howell II

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SIGNATURE



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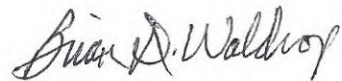


PRINTED NAME Lisa Waldrop

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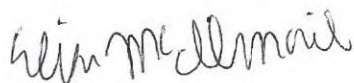


PRINTED NAME BRIAN D. WALDROP

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SIGNATURE

PRINTED NAME

ADDRESS

EMAIL

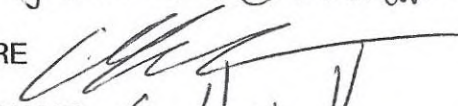

Jessie Huxell
472 Modelaire Dr. LaGrande OR 97850

SIGNATURE

PRINTED NAME

ADDRESS

EMAIL

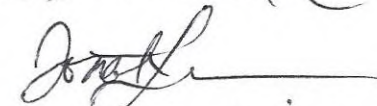

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I have read the attached letter regarding the use of the Modelaire/Hawthorne Loop and it expresses my concerns and my request to abandon the plan to use this residential loop for the project. As one of the undersigned I strongly oppose our community being used as a primary access point to build this transmission line. Furthermore, I oppose the current proposed preferred route close to the city limits of La Grande because it impacts in various other ways the daily lives of many residents of our community.

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John Barutz

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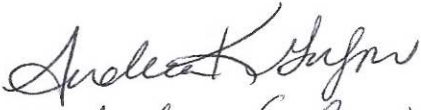
John Barutz


ADDRESS


484 Hawthorne LG, OR 97850


EMAIL


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PRINTED NAME M. Jeannette Smith
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SIGNATURE 
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EMAIL kimheitstuman@hotmail.com

I have read the attached letter regarding the use of the Modelaire/Hawthorne Loop and it expresses my concerns and my request to abandon the plan to use this residential loop for the project. As one of the undersigned I strongly oppose our community being used as a primary access point to build this transmission line. Furthermore, I oppose the current proposed preferred route close to the city limits of La Grande because it impacts in various other ways the daily lives of many residents of our community.

SIGNATURE: 

PRINTED NAME Shawn K. Mangum

ADDRESS 2905 E. M. Ave,

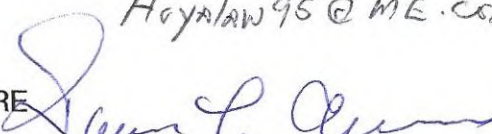
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CONNIE L. ALLEN 541-9637720
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EMAIL

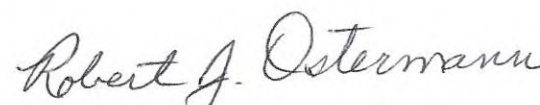

Linda Snyder
491 Modelaire Dr

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Robert J. Ostermann
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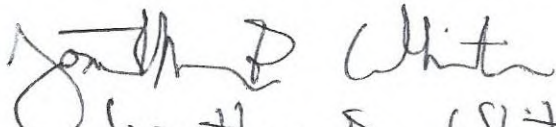
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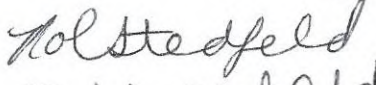
ADDRESS


EMAIL

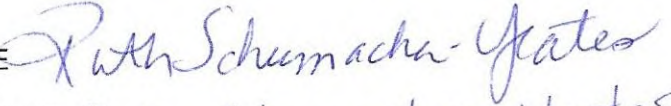

Robin J. Ostermann
495 Modelaire Dr LaGrande, OR 97850

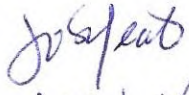
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SIGNATURE

Lois Barry

PRINTED NAME

LOIS BARRY

ADDRESS

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SIGNATURE

Cathy Webb

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CATHY WEBB

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GERALDINE BRASETH-PALMER

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[Signature]

SIGNATURE

Jean Rapp

PRINTED NAME

Jean RAPP


ADDRESS


1509 MADISON AVE LaGrande, OR 97850

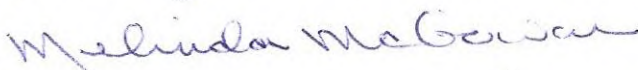
EMAIL


Jrapp19@gmail.com


I have read the attached letter regarding the use of the Modelaire/Hawthorne Loop and it expresses my concerns and my request to abandon the plan to use this residential loop for the project. As one of the undersigned I strongly oppose our community being used as a primary access point to build this transmission line. Furthermore, I oppose the current proposed preferred route close to the city limits of La Grande because it impacts in various other ways the daily lives of many residents of our community.

SIGNATURE 
PRINTED NAME Damon Sexton
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EMAIL Sexton.damon@gmail.com

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PRINTED NAME Cory Sexton
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PRINTED NAME Melinda McGowan
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SIGNATURE 
PRINTED NAME Keith D. Hudson
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SIGNATURE 
PRINTED NAME Laura Elly Hudson
ADDRESS 605 F Ave, La Grande OR 97850
EMAIL ellyhudson@gmail.com

I have read the attached letter regarding the use of the Modelaire/Hawthorne Loop and it expresses my concerns and my request to abandon the plan to use this residential loop for the project. As one of the undersigned I strongly oppose our community being used as a primary access point to build this transmission line. Furthermore, I oppose the current proposed preferred route close to the city limits of La Grande because it impacts in various other ways the daily lives of many residents of our community.

SIGNATURE

Gary D. Pierson

PRINTED NAME

Gary D. Pierson

ADDRESS 489 Modelaire Drive, La Grande OR 97850

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SIGNATURE

Lynn Wheeler Duncan

PRINTED NAME

LYNN WHEELER DUNCAN

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JOE HORST

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SIGNATURE

Angela Sherer

PRINTED NAME

ANGELA Sherer

ADDRESS

91 W. Hawthorne Dr. LaGrande, OR 97850

EMAIL asherer@frontier.com

I have read the attached letter regarding the use of the Modelaire/Hawthorne Loop and it expresses my concerns and my request to abandon the plan to use this residential loop for the project. As one of the undersigned I strongly oppose our community being used as a primary access point to build this transmission line. Furthermore, I oppose the current proposed preferred route close to the city limits of La Grande because it impacts in various other ways the daily lives of many residents of our community.

SIGNATURE *Robert J. Sherer*
PRINTED NAME Robert J. Sherer
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SIGNATURE *Heather M. Null*
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SIGNATURE *Bert R. Frewing*
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SIGNATURE *Lindsey McCullough*
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SIGNATURE
PRINTED NAME
ADDRESS
EMAIL

I have read the attached letter regarding the use of the Modelaire/Hawthorne Loop and it expresses my concerns and my request to abandon the plan to use this residential loop for the project. As one of the undersigned I strongly oppose our community being used as a primary access point to build this transmission line. Furthermore, I oppose the current proposed preferred route close to the city limits of La Grande because it impacts in various other ways the daily lives of many residents of our community.

SIGNATURE *Merle E. Comfort*
PRINTED NAME MERLE E. COMFORT
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SIGNATURE *Robin L. Maille*
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SIGNATURE *Carol S. Summers*
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SIGNATURE *Caroline Kaye Juniper*
PRINTED NAME Caroline Kaye Juniper
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EMAIL

I have read the attached letter regarding the use of the Modelaire/Hawthorne Loop and it expresses my concerns and my request to abandon the plan to use this residential loop for the project. As one of the undersigned I strongly oppose our community being used as a primary access point to build this transmission line. Furthermore, I oppose the current proposed preferred route close to the city limits of La Grande because it impacts in various other ways the daily lives of many residents of our community.

SIGNATURE *Gerald D. Juniper*
PRINTED NAME *Gerald Darwin Juniper*
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SIGNATURE
PRINTED NAME
ADDRESS
EMAIL

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PRINTED NAME
ADDRESS
EMAIL

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PRINTED NAME
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EMAIL

SIGNATURE
PRINTED NAME
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EMAIL

TARDAEWETHER Kellen * ODOE

From: Dale Mammen <dmammen@eoni.com>
Sent: Thursday, August 15, 2019 5:28 PM
To: B2H DPOComments * ODOE
Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018; Draft Proposal Order 5/23/2019
Attachments: Scan 2019-8-15 17.14.06.pdf

To: Chairman Beyeler and Members of the Council

Find attached a letter sign by me and 46 other residents of La Grande expressing our concerns regarding the B2H Project and requesting that EFSC Deny the Site Certificate.

I have also sent a bound copy of this material by US Postal Service.

Virginia L. Mammen
405 Balsa
La Grande, Oregon 97850

August 10, 2019

Energy Facilities Siting Council
c/o Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol St. N.E.
Salem, Oregon. 97301

Subject: Idaho Power Application for a Site Certificate for the Boardman to Hemingway Transmission Project 9/28/2018:Draft Proposed Order.

Dear Chair Beyeler and Members of the Council:

My comment is about the predicted noise levels resulting from construction and operation of the proposed Boardman to Hemingway Transmission Line Project. I would like to address the noise coming from the blasting and rock breaking specifically above the area at the top of Modelaire Drive 1 both to the north and the south of that area and also the construction traffic noise that that will impact the west hills and the area below.

In Exhibit X page X-9 3.3.1.1 2 blasting and rock breaking is mentioned saying that "Modern blasting techniques include the electronically controlled ignition of multiple small explosive charges in an area of rock that are delayed fractions of second, resulting in a total event that is generally less than a second. Impulse (instantaneous) noise from blasts could reach up to 140dBA at the blast location or over 90 dBA within 500 feet." This sounds oh so "don't worry about it, it will be OK just over in a split second." Living in this area off Modelaire Drive, I don't find this at all comforting. And the fact that this will be overseen by properly licensed personnel and all of the necessary authorizations doesn't help anything either.

The area in question, which for such inordinate construction is extremely close to many residents, has been my home for over 50 years and during

related medical problems and exhibit various reactions to loud noises.¹⁰
These children also live in the neighborhoods to be affected by the noise so they would be impacted coming and going to school, at home and also while at school. To impose the constant possibility of loud noises is cruel, disrespectful and totally unacceptable. ¹¹

For a project like this involving blasting and heavy machinery noise so close to homes, schools, and medical facilities impacting hundreds of peoples' daily lives, the day to day agitation, wondering what is coming next, fear and being on constant alert are not just addressed by some type of mitigation but must be addressed by a route that is much less impactful to peoples' safety, sanity, and health.

Sincerely,

A handwritten signature in cursive script that reads "Virginia L. Mammen".

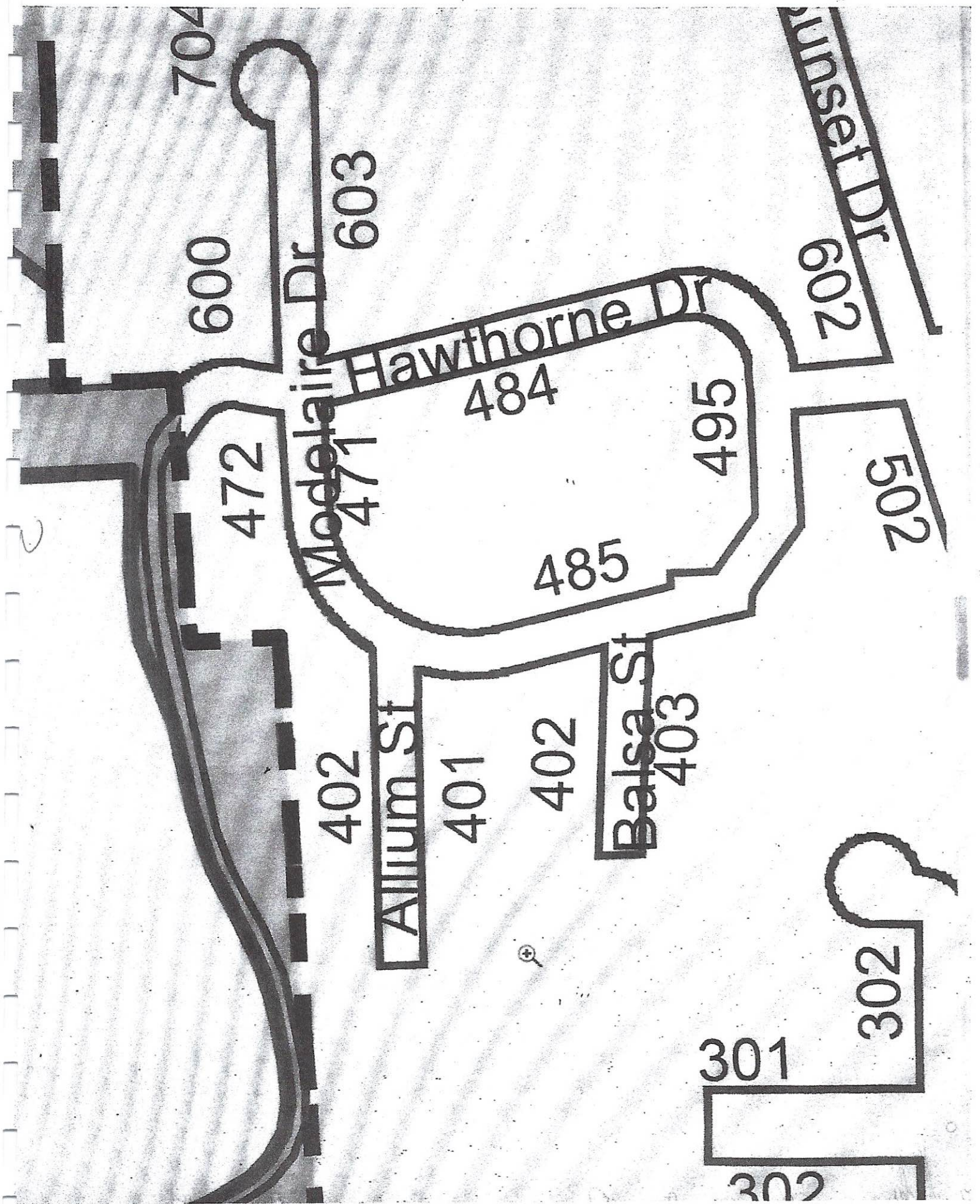
Virginia L. Mammen

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La Grande, Oregon 97850

gmammen@eoni.com

N



3.3 Predicted Noise Levels

OAR 345-021-0010(1)(x)(A): Predicted noise levels resulting from construction and operation of the proposed facility.

3.3.1 Construction Noise

3.3.1.1 Predicted Construction Noise Levels

Project construction will occur sequentially, moving along the length of the Project route, or in other areas such as near access roads, structure sites, conductor pulling sites, and staging and maintenance areas. Overhead transmission line construction is typically completed in the following stages, but various construction activities may overlap, with multiple construction crews operating simultaneously:

- Site access and preparation
- Installation of structure foundations
- Erecting of support structures
- Stringing of conductors, shield wire, and fiber-optic ground wire

The following subsections discuss certain construction activities that will periodically generate audible noise, including blasting and rock breaking, implosive devices used during conductor stringing, helicopter operations, and vehicle traffic.

Blasting and Rock Breaking

Blasting is a short-duration event as compared to rock removal methods, such as using track rig drills, rock breakers, jackhammers, rotary percussion drills, core barrels, or rotary rock drills. Modern blasting techniques include the electronically controlled ignition of multiple small-explosive charges in an area of rock that are delayed fractions of second, resulting in a total event duration that is generally less than a second. Impulse (instantaneous) noise from blasts could reach up to 140 dBA at the blast location or over 90 dBA within 500 feet.

Lattice tower foundations for the Project typically will be installed using drilled shafts or piers; however, if hard rock is encountered within the planned drilling depth, blasting may be required to loosen or fracture the rock to reach the required depth to install the structure foundations. Final blasting locations will not be identified until an investigative geotechnical survey of the analysis area is conducted during the detailed design.

The contracted blasting specialist will prepare a blasting plan that demonstrate compliance with applicable state and local blasting regulations, including the use of properly licensed personnel and the acquisition of necessary authorizations. The Framework Blasting Plan is set forth in Exhibit G, Attachment G-5.

Implosive Devices

An implosive conductor splice consists of a split-second detonation with sound and flash. Implosive splicing activities are anticipated to be limited to daytime hours. A blasting plan will be developed by an individual certified and licensed to perform the work. The plan will communicate all safety and technical requirements including, but not limited to, delineation of the controlled access zone and distance away from residences.

Public Services

OAR 345-022-0110

This standard ensures that the proposed facility will not affect the ability of service providers in local communities to provide public services, such as fire protection or education. The applicant must assess the proposed facility's need for water and for disposal of wastewater, storm water and solid waste. The applicant must also evaluate the expected population increases in local communities resulting from construction and operation of the facility; and must address all permanent and temporary impacts of the facility on housing, traffic safety, police and fire protection, health care and schools. The Council must determine whether the applicant has identified potential adverse impacts to service providers and proposed adequate mitigation to ensure that there will be no significant adverse effect on the ability of a service provider to provide services. In considering the impacts, the Council solicits comments from affected local governments, fire or police departments, school districts and health care agencies.

Waste Minimization

OAR 345-022-0120

This standard requires the Council to evaluate the applicant's proposal to minimize solid waste and wastewater generated by construction and operation of the proposed facility. The standard requires recycling of wastes, if feasible, or proper waste disposal if recycling is not feasible.

The applicant must evaluate the types of waste products that would be produced during construction and operation of the proposed facility and estimate the amounts or volume of waste products. The applicant must propose appropriate methods to handle the waste through collection, storage and disposal. Compliance with the standard assures that the applicant will reduce the amount of waste generated and dispose of waste in a responsible manner.

Need for a Facility

OAR 345-023-0005

This standard requires the applicant for non-generating energy facilities (such as electric transmission lines) to demonstrate the need for the proposed facility. The Council's rules allow an applicant to demonstrate need for a non-generating facility through one of several methods, including the "Least-Cost Plan Rule" (OAR 345-023-0020) or the "System Reliability Rule for Electric Transmission Lines" (OAR 345-023-0030). Under the Least-Cost Plan Rule, the applicant meets this standard if the proposed transmission line was included in an Integrated Resource Plan that has been acknowledged by the Oregon Public Utilities Commission (OPUC). More information about the OPUC and the Integrated Resource Plan acknowledgement process can be found at www.puc.state.or.us.

Specific Standards for Wind Facilities

OAR 345-024-0010 and 345-024-0015

This standard requires the Council to evaluate applications for wind energy facilities to ensure that applicants can design, construct and operate the facility so that the public is not endangered by moving turbine blades or electrical equipment, and that the applicant can design, construct and operate wind turbines to prevent structural failure that could endanger public safety. Siting standards for wind facilities also require the applicant to reduce cumulative adverse environmental effects in the vicinity by using existing roads, if possible, placing collection lines underground, designing the facility to avoid impacts to vulnerable wildlife in the area (especially birds and bats), and designing the facility to minimize adverse visual features, including using the minimum amount of lighting necessary to meet the requirements of the Federal Aviation Administration for protecting aircraft.

Specific Standards for Transmission Lines

OAR 345-024-0090

This standard requires that the Council evaluate transmission lines under Council jurisdiction to ensure they are designed, constructed and operated to limit the strength of electromagnetic fields in areas where those lines are accessible to the public.



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Department of Environmental Quality

Chapter 340

Division 35

NOISE CONTROL REGULATIONS

340-035-0035**Noise Control Regulations for Industry and Commerce****(1) Standards and Regulations:**

(a) **Existing Noise Sources.** No person owning or controlling an existing industrial or commercial noise source shall cause or permit the operation of that noise source if the statistical noise levels generated by that source and measured at an appropriate measurement point, specified in subsection (3)(b) of this rule, exceed the levels specified in Table 7, except as otherwise provided in these rules. [Table not included. See ED. NOTE.]

(b) New Noise Sources:

(A) **New Sources Located on Previously Used Sites.** No person owning or controlling a new industrial or commercial noise source located on a previously used industrial or commercial site shall cause or permit the operation of that noise source if the statistical noise levels generated by that new source and measured at an appropriate measurement point, specified in subsection (3)(b) of this rule, exceed the levels specified in Table 8, except as otherwise provided in these rules. For noise levels generated by a wind energy facility including wind turbines of any size and any associated equipment or machinery, subparagraph (1)(b)(B)(iii) applies. [Table not included. See ED. NOTE.]

(B) New Sources Located on Previously Unused Site:

(i) No person owning or controlling a new industrial or commercial noise source located on a previously unused industrial or commercial site shall cause or permit the operation of that noise source if the noise levels generated or indirectly caused by that noise source increase the ambient statistical noise levels, L10 or L50, by more than 10 dBA in any one hour, or exceed the levels specified in Table 8, as measured at an appropriate measurement point, as specified in subsection (3)(b) of this rule, except as specified in subparagraph (1)(b)(B)(iii).

(ii) The ambient statistical noise level of a new industrial or commercial noise source on a previously unused industrial or commercial site shall include all noises generated or indirectly caused by or attributable to that source including all of its related activities. Sources exempted from the requirements of section (1) of this rule, which are identified in subsections (5)(b)-(f), (j), and (k) of this rule, shall not be excluded from this ambient measurement.

(iii) For noise levels generated or caused by a wind energy facility:

(I) The increase in ambient statistical noise levels is based on an assumed background L50 ambient noise level of 26 dBA or the actual ambient background level. The person owning the wind energy facility may conduct measurements to determine the actual ambient L10 and L50 background level.

(II) The "actual ambient background level" is the measured noise level at the appropriate measurement point as specified in subsection (3)(b) of this rule using generally accepted noise engineering measurement practices. Background noise measurements shall be obtained at the appropriate measurement point, synchronized with wind speed measurements of hub height conditions at the nearest wind turbine location. "Actual ambient background level" does not include noise generated or caused by the wind energy facility.

(III) The noise levels from a wind energy facility may increase the ambient statistical noise levels L10 and L50 by more than 10 dBA (but not above the limits specified in Table 8), if the person who owns the noise sensitive property executes a legally effective easement or real covenant that benefits the property on which the wind energy facility is located. The easement or covenant must authorize the wind energy facility to increase the ambient statistical noise levels, L10 or L50 on the sensitive property by more than 10 dBA at the appropriate measurement point.

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(2) Compliance. Upon written notification from the Director, the owner or controller of an industrial or commercial noise source operating in violation of the adopted rules shall submit a compliance schedule acceptable to the Department. The schedule will set forth the dates, terms, and conditions by which the person responsible for the noise source shall comply with the adopted rules.

(3) Measurement:

(a) Sound measurements procedures shall conform to those procedures which are adopted by the Commission and set forth in Sound Measurement Procedures Manual (NPCS-1), or to such other procedures as are approved in writing by the Department;

(b) Unless otherwise specified, the appropriate measurement point shall be that point on the noise sensitive property, described below, which is further from the noise source:

(A) 25 feet (7.6 meters) toward the noise source from that point on the noise sensitive building nearest the noise source;

(B) That point on the noise sensitive property line nearest the noise source.

(4) Monitoring and Reporting:

(a) Upon written notification from the Department, persons owning or controlling an industrial or commercial noise source shall monitor and record the statistical noise levels and operating times of equipment, facilities, operations, and activities, and shall submit such data to the Department in the form and on the schedule requested by the Department. Procedures for such measurements shall conform to those procedures which are adopted by the Commission and set forth in Sound Measurement Procedures Manual (NPCS-1);

(b) Nothing in this rule shall preclude the Department from conducting separate or additional noise tests and measurements. Therefore, when requested by the Department, the owner or operator of an industrial or commercial noise source shall provide the following:

(A) Access to the site;

(B) Reasonable facilities, where available, including but not limited to, electric power and ladders adequate to perform the testing;

(C) Cooperation in the reasonable operation, manipulation, or shutdown of various equipment or operations as needed to ascertain the source of sound and measure its emission.

(5) Exemptions: Except as otherwise provided in subparagraph (1)(b)(B)(ii) of this rule, the rules in section (1) of this rule shall not apply to:

(a) Emergency equipment not operated on a regular or scheduled basis;

(b) Warning devices not operating continuously for more than 5 minutes;

(c) Sounds created by the tires or motor used to propel any road vehicle complying with the noise standards for road vehicles;

(d) Sounds resulting from the operation of any equipment or facility of a surface carrier engaged in interstate commerce by railroad only to the extent that such equipment or facility is regulated by pre-emptive federal regulations as set forth in Part 201 of Title 40 of the Code of Federal Regulations, promulgated pursuant to Section 17 of the Noise Control Act of 1972, 86 Stat. 1248, Public Law 92-576; but this exemption does not apply to any standard, control, license, regulation, or restriction necessitated by special local conditions which is approved by the Administrator of the EPA after consultation with the Secretary of Transportation pursuant to procedures set forth in Section 17(c)(2) of the Act;

(e) Sounds created by bells, chimes, or carillons;

(f) Sounds not electronically amplified which are created by or generated at sporting, amusement, and entertainment events, except those sounds which are regulated under other noise standards. An event is a noteworthy happening and does not include informal, frequent, or ongoing activities such as, but not limited to, those which normally occur at bowling alleys or amusement parks operating in one location for a significant period of time;

(g) Sounds that originate on construction sites.

(h) Sounds created in construction or maintenance of capital equipment;

(i) Sounds created by lawn care maintenance and snow removal equipment;

(j) Sounds generated by the operation of aircraft and subject to pre-emptive federal regulation. This exception does not apply to aircraft engine testing, activity conducted at the airport that is not directly related to flight operations, and any other activity not pre-emptively regulated by the federal government or controlled under OAR 340-035-0045;

Controlling the Adverse Effects of Blasting

This module addresses the control of offsite impacts that result from blasting, namely:

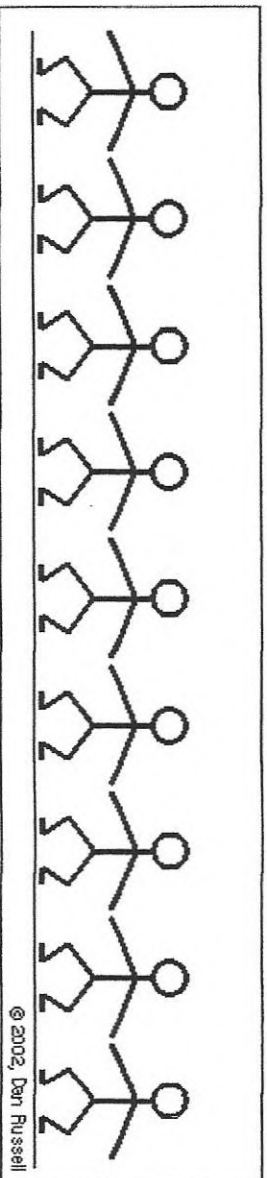
- vibrations,
- airblast, and
- flyrock.

Much of the information in the module is derived from the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The performance standards apply to all surface coal mines. Similar standards have been adopted on some State and local levels and applied to non-coal blasting operations such as quarrying and construction.



Part I: Ground Vibrations, Airblast, and Flyrock

Explosive energy is used to break rock. However, the use of this energy is not 100-percent efficient. Some of the energy escapes into the atmosphere to generate **airblast or air vibrations**. Some of the energy also leaves the blast site through the surface soil and bedrock in the form of **ground vibrations**.



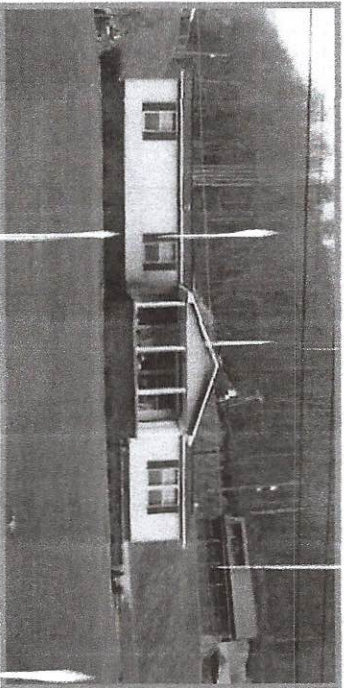
Both air and ground vibrations create waves that disturb the material in which they travel. When these waves encounter a structure, they cause it to shake. Ground vibrations enter the house through the basement and airblast enters the house through the walls and roof.

Airblast may be audible (noise) or in-audible (concussion). When outside a house the blast may be heard because of the noise, however noise has little impact on the structure. The concussion wave causes the structure to shake and rattles objects hanging on walls or sitting on shelves. This "interior noise" will alarm and startle people living in the house.

Flyrock is debris ejected from the blast site that is traveling through the air or along the ground. Flyrock the single most dangerous adverse effect that can cause property damage and personal injury or death.

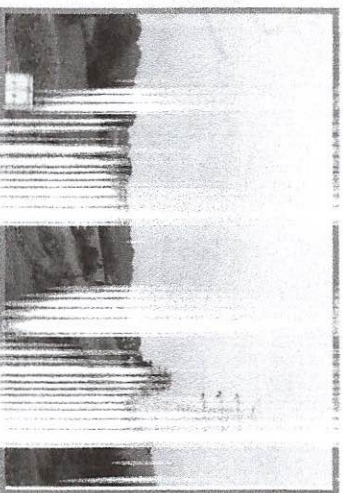
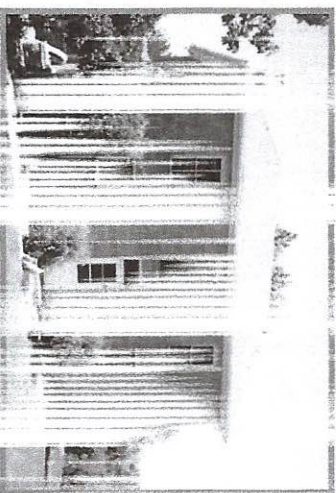
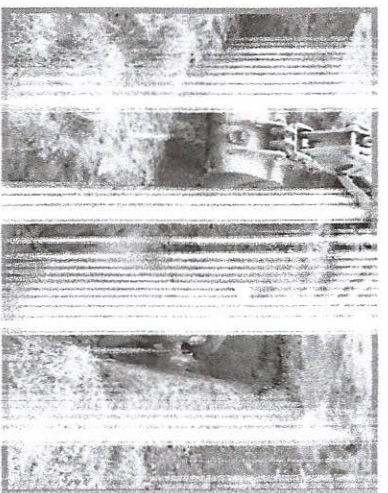
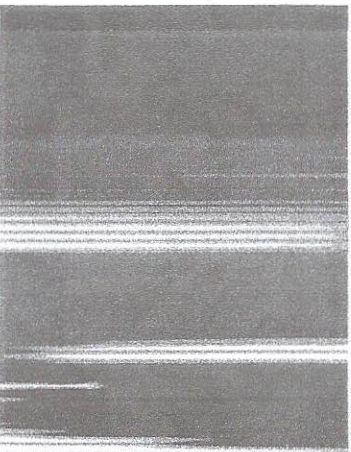
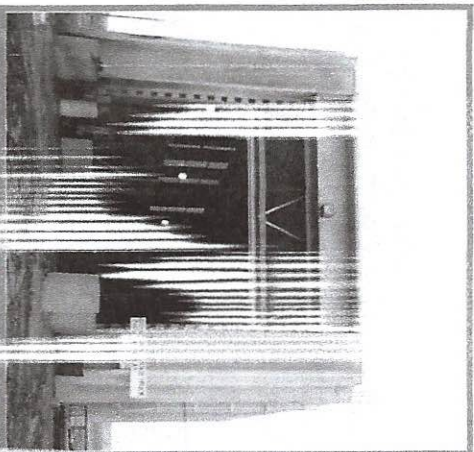
Blasting Impacts on Structures

Both above-ground and below-ground structures are susceptible to vibration impacts. Structures can include onsite mine offices and buildings, as well as offsite residences, schools, churches, power-transmission lines, and buried pipelines. Some of these structures may include historic or cultural features sensitive to even low levels of vibrations.



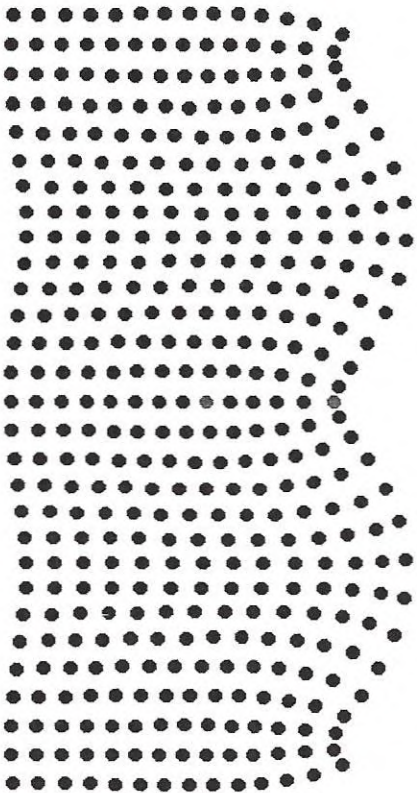
It is important to understand:

1. the causes of ground vibrations and airblast, and
2. what practices can be followed to control and minimize the adverse effects



Ground Vibrations

Ground vibrations propagate away from a blast site as Rayleigh (or surface) waves. These waves form a disturbance in the ground that displaces particles of soil or rock as they pass by. Particle motions are quite complicated. At the ground surface (free boundary), measured particle motions have the greatest displacements, and displacements decrease with depth (see the illustration below). At a depth of between 20 to 50 feet below ground surface, particle displacements are barely detectable. Structures that are well coupled to the ground tend to move with this motion; structures buried in the ground are less affected by surface motions.



©1999, Daniel A. Russell

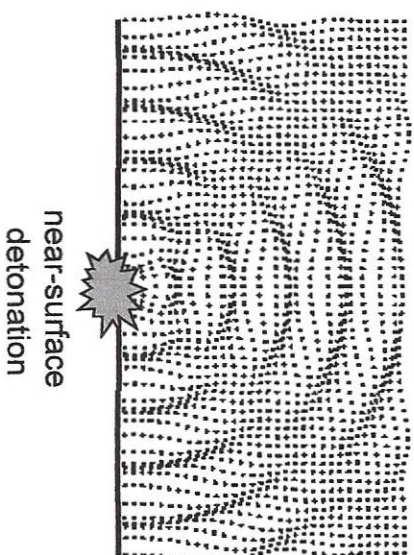
Ground vibrations are measured in terms of **particle velocity** and are reported in inches per second (ips) or the speed at which a particle of soil or rock moves.

At typical blasting distances from residential structures, the ground only moves with displacements equal to the thickness of a piece of writing paper. In terms of displacement, this equates to hundredths of an inch; visually, such movement cannot be detected.

Airblast

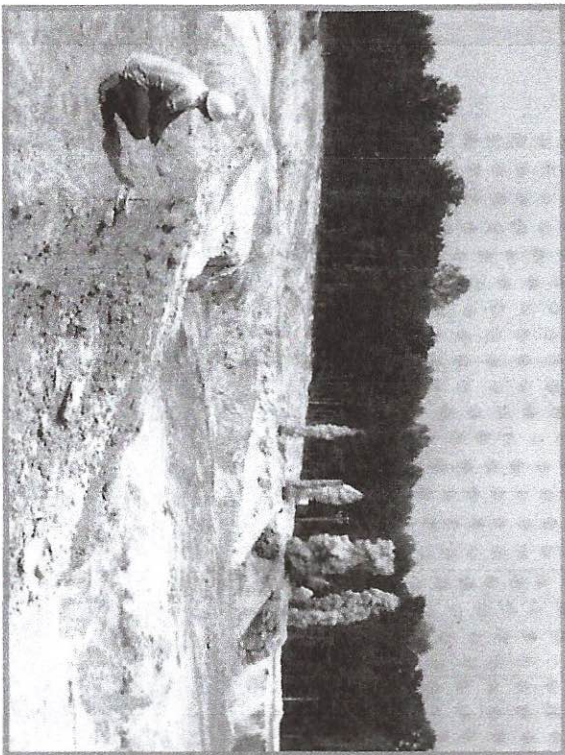
2 Airblast is measured as a pressure in pounds per square
5 inch (psi) and is often reported in terms of **decibels (dB)**.

Airblast is a pressure wave that that may be audible or in-audible. Elevated airblast levels are generated when explosive energy in the form gases escape from the detonating blast holes. Energy escapes either through the top stemming or through fractures in the rock along the face or at the ground surface.



Airblast radiates outward from the blast site in all directions and can travel long distances. Sound waves travel much slower (1,100 ft/s) than ground vibrations (about 5,000 – 20,000 ft/s). Hence, airblast arrives at offsite structures later than do ground vibrations.

Both ground vibrations and airblast cause structures to shake structures. Occupants in structures that are located far from a blast may experience shaking from vibration and airblast as two separate, closely spaced events. This can be particularly bothersome, as it prolongs the duration of structure shaking and leads the property owner to think that two separate blasts occurred.



Structure Response

As ground and air vibrations reach a structure, each will cause it to shake. Structure response is dependant on the vibration characteristics (frequency and amplitude) and structure type.

Ground Vibrations enter the house through the basement. This is like shaking the bottom of a flag pole. Movement at the top of the pole depends on how (frequency) and how hard (amplitude) the bottom of the pole is shaken. If shaken at just the right pace, or at the pole's natural frequency, the top will move significantly compared to the bottom. Motion at the top is amplified from the bottom motion.

All blast damage studies have measured incoming ground vibrations at the ground surface. The observed structure amplifications were typically between 1 to 4 times the ground vibration. Structure response below ground level is the same or less than the incoming vibrations

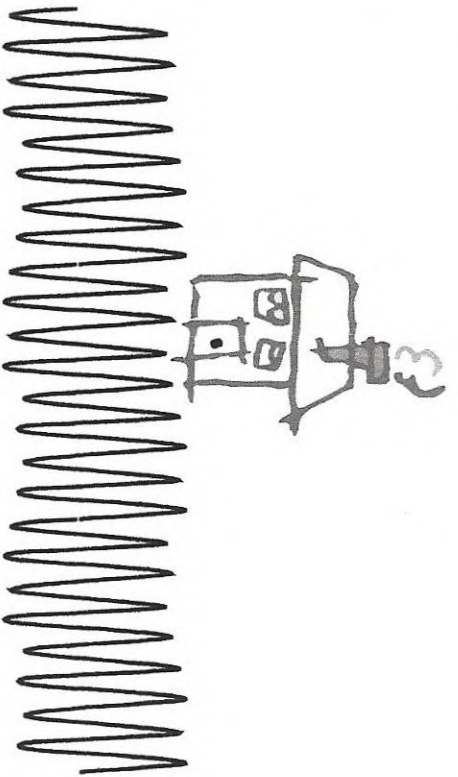
Airblast enters the house through the roof and walls. Like ground vibrations, the frequency and amplitude of the vibrations affect structure response. However the low frequency events (concussion) that most strongly affect structures is normally only a one or two cycle event.

Due to the different arrival times of ground and air vibrations, occupants may feel two distinct impacts on the house.

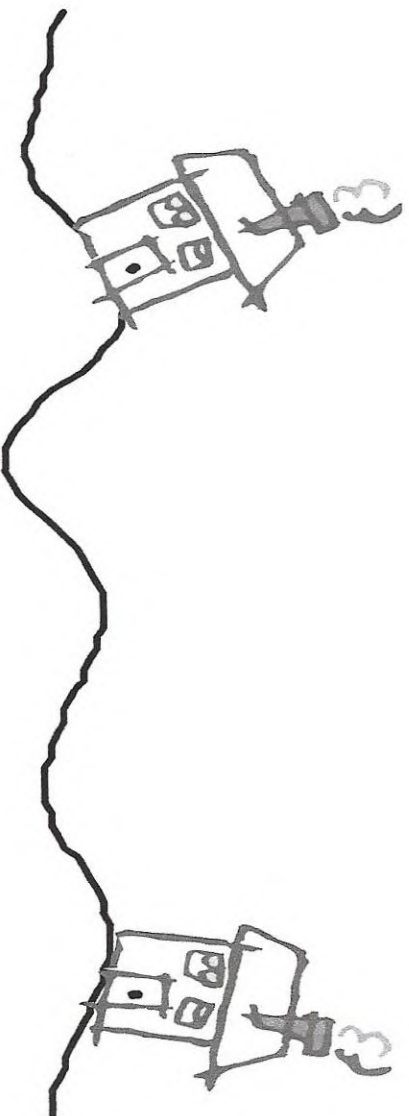


Ground Vibration Structure Response

Exhibit 59



On the other hand, low-frequency wave cycles are long as compared with the dimensions of structures. Accordingly, low frequencies tend to efficiently couple energy into structures and to promote higher-amplitude, long-duration shaking.



High frequencies do not promote structure shaking. The length of a single high-frequency wave cycle is short as compared with the dimension of a structure. A structure does not significantly respond to high frequencies.

HEART
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PAIN

STAYING
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DISEASES &
CONDITIONSMEN'S
HEALTHWOMEN'S
HEALTH

LICENSING

Harvard Men's Health Watch

A noisy problem

People often become more sensitive to noise as they age, which can affect their mental and physical health.

Published: March, 2019



Image: © Juanmonino/Getty Images

Are you more sensitive to noises than you used to be? Do certain sounds now feel too loud and jarring? Don't worry; it's actually quite normal.

Age-related hearing loss is common among older adults and affects about two-thirds of men in their 70s and 85% of men ages 80 and older. Although it's not clear why, this can also make people hypersensitive to sounds that they used to tolerate easily, which in turn can affect their well-being.

"Exposure to noises from crowds, traffic, and other everyday sounds can become harder to tolerate and increase stress levels, leading to anxiety and a reduction in overall quality of life," says Dr. Stephanie Tompkins, an audiologist with Harvard-affiliated Massachusetts Eye and Ear. "As your sensitivity to noises increases, this can lead to greater isolation, too, as you may try to avoid potentially noisy places and situations."

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Quiet in the Hospital: How Noise...

Quiet in the Hospital: How Noise Reduction Helps Patients Heal

on June 7, 2018 (<https://medcenterblog.uvmhealth.org/innovations/hospital-noise-reduction/>) in Innovation
(<https://medcenterblog.uvmhealth.org/category/innovations/>) by UVM Medical Center
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Noise. It is present in almost every aspect of our lives. From the traffic in the streets, to the fan that provides us white noise in the background to sleep, noise exists. Unfortunately, like stress, too much of it can have a negative impact on a person's health and rest. Some sounds we do like to hear, such as birds chirping, signaling spring in Vermont, but what about sounds in a hospital?

Many of us get admitted to hospitals when we are too sick to take care of ourselves at home. We expect exceptional care from physicians and nurses and, of course, to rest in order to help our bodies heal. We understand that some noises in a hospital are necessary for care; however, others simply aren't.

The Sounds of a Hospital

Many organizations, including the UVM Medical Center, have high tech equipment, which greatly assists in the delivery of care to our patients, but can also be noisy. Sometimes, healthcare providers are the source of the noise as we interact and communicate with our patients and other health team members.

Another factor is visits from families and friends during visiting hours. It is difficult when one's roommate is trying to rest in the opposite bed. Yet, we need to be cognizant of noise in patient care areas as sounds can be magnified and misinterpreted, increasing agitation and even confusion for some patients.

We become accustomed to the noise; our patients are not.

The Research on Noise, Quiet, and Healing

Research has shown that noise plays a negative role in healing and that decreasing noise in patient care areas aids in healing processes and helps facilitate speedier recoveries for patients. Patients are able to heal, sleep better and recover more quickly when able to rest. A quieter environment can also help decrease burnout for hospital staff.

Studies show that patients are more likely to develop negative side effects from a noisy hospital, such as sleep disturbances, elevated blood pressure and heart rate, and increased use of pain medications.

Noise can also increase annoyance levels for staff. One study indicated noise, such as talking inside and outside patient rooms, is the most common source of noise as well as visitors' voices, TVs, and behaviors of other patients.

Research concluded that best practices to eliminate noise from talking included staff education about noise reduction, public indicators such as sound monitors, a quiet time protocol, and lower cost environmental fixes, such as fixing noisy doors and squeaky wheels. Lastly, by introducing scripting with routine monitoring, patients' perception of quietness increased and the perception of noise decreased.

How We Address Noise at the UVM Medical Center

We introduced the "Culture of Quiet" Organizational initiative. The Nursing Professional Governance Patient and Family Experience Global council continued this work. After convening a small task force of nurses and assessing current quiet strategies, we introduced the following tactics:

- Many hospital units have designated 'quiet hours' with automatically dimming of lights at quiet hour intervals.
- Signage is visible in most patient care areas to help keep patients, family, and visitors aware. Throughout the hospital, you will see signs with a relaxing pair of Adirondack chairs and the sun setting with details on when a unit has quiet hours.
- Many semi-private rooms have windows in doors, so doors can be closed allowing for patient rest.
- We offer headphones for TVs and earplugs to help minimize sounds.
- In-patient kits contain a sleeping mask and other comfort items that can be provided at time of admission. Each kit contains a card and explains, 'the best healing occurs in a quiet environment.'
- New education material is available for staff, patients and visitors-just ask to review the next time visiting.
- Some units offer white noise machines, others have this built in.
- Noisy equipment such as wheels and doors can be tagged and replaced.
- Our facility and distribution staff have changed their cleaning and supply delivery schedules to accommodate patient care.
- Healthcare teams within the hospital are focusing efforts to cluster patient care to minimize interruptions to provide restful moments.

How you can help us.

We ask patients and visitors to hold us accountable when sounds are too loud. We want our community to alert us when noise levels are high and we will do what we can to minimize sound. In turn, we ask that all members of the healthcare team, patients, family, and friends be aware to keep voices soft, cell phones on vibrate, and hold each other accountable for these are the times of the day when our patients take pause to rest and positively impact their healing.

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Dangerous Decibels: Hospital Noise More Than a Nuisance

By Diane Sparacino, Staff Writer

Imagine a world where hospitals have become so noisy that the annoyance has topped hospital complaints, even more than for the tasteless, Jell-O-laden hospital food (Deardorff, 2011). If you're a nurse, you know that we're already there – with noise levels reaching nearly that of a chainsaw (Garcia, 2012). In fact, for more than five decades, hospital noise has seen a steady rise (ScienceDaily, 2005).

But it wasn't always that way. At one time, hospitals were virtually noise-free like libraries – respected spaces, preserved as quiet zones. The culture was such that a loud visitor might be silenced by a nurse's purposeful glare or sharply delivered "Shhh!" As early as 1859, the importance of maintaining a quiet environment for patients was a topic for discussion. In Florence Nightingale's book, "Notes on Nursing," she described needless noise as "the most cruel absence of care" (Deardorff, 2011).

Fast forward to 1995, when the World Health Organization (WHO) outlined its hospital noise guidelines, suggesting that patient room sound levels not exceed 35 decibels (dB). Yet since 1960, the average daytime hospital noise levels around the world have steadily risen to more than double the



acceptable level (from 57 to 72 dB), with nighttime levels increasing from 42 to 60 dB. WHO found that the issue was not only pervasive, but high noise levels remained fairly consistent across the board, despite the type of hospital (ScienceDaily, 2005).

Researchers at Johns Hopkins University began to look into the noise problem in 2003. They maintained that excessive noise not only hindered the ability for patients to rest, but raised the risk for medical errors. Other studies blamed hospital noise for a possible increase in healing time and a contributing factor in stress-related burnout among healthcare workers (ScienceDaily, 2005).

Technology is, of course, partly to blame. State-of-the-art machines, banks of useful alarms, respirators, generators, powerful ventilation systems and intercoms all add up to a lot of unwanted racket. When human voices are added to the mix, (i.e., staff members being forced to speak loudly over the steady din of medical equipment), it's anything but a restful environment. For the recovering patient in need of sleep, that can be a real issue (Deardorff, 2011).

Contributing to the problem, experts say, are the materials used in hospitals. Because they must be easily sanitized, surfaces cannot be porous where they could harbor disease-causing organisms. Rather than using noise-muffling materials like carpet, acoustic tiles and other soft surfaces, hospitals have traditionally been outfitted using smooth, hard surfaces – especially in patient rooms. Good for cleanliness – not so great for dampening sounds, which tend to bounce around the typical hospital (Deardorff, 2011).

Which brings us to the most recent research, published January 2012 in the *Archives of Internal Medicine*. In the report, Jordan Yoder, BSE, from the Pritzker School of Medicine, University of Chicago, and his colleagues associated elevated noise levels with “clinically significant sleep loss among hospitalized patients,” perhaps causing a delay in their recovery time (Garcia, 2012). During the 155-day study period, researchers examined hospital sound levels. The numbers far exceeded (WHO) recommendations for average hospital-room noise levels, with the peak noise at an average 80.3 dB – nearly as loud as a chainsaw or electric sander (85 dB), and well over the recommended maximum of 40 dB. And while nights tended to be quieter, they were still noisier than recommended allowances, with “a mean maximum sound level of 69.7 dB” (Garcia, 2012).

Perhaps most interestingly, the researchers broke down the sources of noise into categories: “Staff conversation (65%), roommates (54%), alarms (42%), intercoms (39%), and pagers (38%) were the most common sources of noise disruption reported by patients” (Garcia, 2012). “Despite the importance of sleep for recovery, hospital noise may put patients at risk for sleep loss and its associated negative effects,” they wrote. In addition, researchers found that the intensive care and surgical wards had some work to do in dampening noise levels, with ICU peaking at 67 dB and 42 dB for surgical areas. Both far exceeded WHO’s 30 dB patient room recommendation (Garcia, 2012).

Besides patient sleep deprivation, which itself can lead to a multitude of health problems including high blood sugar, high blood pressure and fatigue, studies have reported that elevated noise levels can increase heart and respiratory rates, blood pressure and cortisol levels. Recovery room noise causes patients to request more pain medication, and preterm infants “are at increased risk for hearing loss, abnormal brain and sensory development, and speech and language problems when exposed to prolonged and excessive noise” (Deardorff, 2011).

There is still more research to be done, of course, but Yoder and his colleagues had good news, as well; much of the hospital noise they identified is modifiable, suggesting that hospitals can take steps to successfully create a quieter environment for both patients and healthcare providers (Garcia, 2012).

Around the country, "quiet campaigns" have been launched by hospitals in an attempt to dampen nighttime noise. Besides dimming lights and asking staff to keep their voices down at night, they are working to eliminate overhead paging systems, replace wall and/or floor coverings – even the clang of metal trashcans. Northwestern's Prentice Women's Hospital in Chicago was built with noise reduction in mind, replacing the idea of centralized nursing stations with the advent of smaller, multiple stations (Deardorff, 2011)

Billed as "one of the nation's largest hospital construction projects," Palomar Medical Center in North San Diego County is a state-of-the-art facility that has been designed "to encourage quietness," according to Tina Pope, Palomar Health Service Excellence Manager. Slated to open its doors this August, the hospital will feature a new nursing call system to route calls directly to staff and help eliminate the need for overhead paging, de-centralized nursing stations and clear sig lines, allowing staff to check on patients without having to leave unit doors open. With measures already in place including "Quiet Hospital" badges on staff and posters at the entrance of every unit, a "Quiet at Night" campaign (9 p.m. – 6 a.m.), and a "Quiet Champions" program that encourages staff to report noise problems, Palomar is one of a growing number of hospitals working toward a new era of quiet.

References:

Deardorff, J. (2011). Chicago Tribune.com. Chicago Tribune, Health. Hospitals drowning in noise. Retrieved from http://articles.chicagotribune.com/2011-04-24/health/ct-met-hospital-noise-20110424_1_hospitals-neonatal-intensive-care-unit-noise

Garcia, J. (2012). Medscape.com. Medscape Today, News. Hospital Noise Results in Significant Patient Sleep Loss. Retrieved from <http://www.medscape.com/viewarticle/756575>

Sciencedaily.com. (2005). Rise In Hospital Noise Poses Problems For Patients And Staff. Retrieved from <http://www.sciencedaily.com/releases/2005/11/051121101949.htm>

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Noises Are Truly Horrible For People Who Have PTSD

20 Mar '2018 [Sound](#)

Noise is a really big issue for PTSD survivors: people who have mental health problems because of their traumas. How are they connected?

Almost everybody has experienced a trauma. But some traumas are more scarring than others and can even result in long-lasting mental disorders like **PTSD**, which can have an extreme impact on someone's life. It's a disorder that can develop in the brain after a horrifying experience, like war or a car crash.

Symptoms

The symptoms of PTSD are, to say the least, not pleasant. They range from nightmares about the traumatic events, disturbing thoughts and feelings, anxiety, trying to avoid anything that has something to do with the traumatic event, and an increase in the fight-or-flight response.

Around ten percent of the population suffers from PTSD, according to data from **NCBI**, a part of the US National Library of Medicine. And, remarkably enough, that percentage is the same for people who suffer from tinnitus (the sound of a constant beep in your ears). The NCBI clearly sees a link between the two.

PTSD survivors also suffer from the Exaggerated Startle Syndrome, with anxiety and actions in an extreme and irrational way too loud noises and bangs. And then there are the sounds that remind them of the sounds during the traumatic events, which can trigger memories of the



Fear

PTSD can also cause a general fear of sounds: phonophobia, or a fear of some specific sounds: misophonia. Survivors of the disorder also are generally much more sensitive to sounds and perceive them as much louder than other people would.

All of this makes the life of people with PTSD very hard. If you think you are suffering from this, consult your doctor. Really, please do it. For yourself, and for the ones you love.

Do you have PTSD and would you like to tell your experiences to us? We are always very open and interested to hear what you have to say. And again: if you haven't done it yet, visit your doctor, please. Thank you!

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Does noise affect learning? A short review on noise effects on cognitive performance in children

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Abstract

The present paper provides an overview of research concerning both acute and chronic effects of exposure to noise on children's cognitive performance. Experimental studies addressing the impact of acute exposure showed negative effects on speech perception and listening comprehension. These effects are more pronounced in children as compared to adults. Children with language or attention disorders and second-language learners are still more impaired than age-matched controls. Noise-induced disruption was also found for non-auditory tasks, i.e., serial recall of visually presented lists and reading. The impact of chronic exposure to noise was examined in quasi-experimental studies. Indoor noise and reverberation in classroom settings were found to be associated with poorer performance of the children in verbal tasks. Regarding chronic exposure to aircraft noise, studies consistently found that high exposure is associated with lower reading performance. Even though the reported effects are usually small in magnitude, and confounding variables were not always sufficiently controlled, policy makers responsible for noise abatement should be aware of the potential impact of environmental noise on children's development.

Keywords: noise, cognitive performance, cognitive development, children, speech perception, listening comprehension, irrelevant sound effect, classroom acoustics

In everyday life, cognitive tasks are often performed in the presence of task-irrelevant environmental noise. Accordingly, numerous studies on noise effects on performance have been conducted since the middle of the 20th century (for reviews see Hellbrück and Liebl, 2007; Szalma and Hancock, 2011), showing that—depending on characteristics of sounds and tasks—noise of low to moderate intensity may in fact evoke substantial impairments in performance.

Most of these studies were conducted with adults. The present review, however, will focus on studies including children. Children are especially vulnerable to harmful effects of environmental noise, as cognitive functions are less automatized and thus more prone to disruption. We will report findings concerning effects of acute noise on performance in concurrent auditory and non-auditory tasks, as well as effects of chronic noise on children's cognitive development.

Effects of acute noise on children's performance in auditory tasks

Psychoacoustic studies have consistently shown that children's speech perception is more impaired than adults' by unfavorable listening conditions. The ability to recognize speech under conditions of noise or noise combined with reverberation improves until the teenage years (Johnson, 2000; Wightman and Kistler, 2005; Talarico et al., 2007; Neuman et al., 2010). With stationary noise makers, signal-to-noise ratios (SNRs) have to be 5–7 dB higher for young children when compared to adults in order to achieve comparable levels of identification of speech or nonspeech signals, with adult-like performance reached at about 6 years of age (Schneider et al., 1989; Fallon et al., 2000; Werner, 2007). However, with maskers that vary over time, i.e., with trial-by-trial variation of the maskers' spectral composition (Oh et al., 2001; Hall et al., 2005; Leibold and Neff, 2007) or with fluctuating maskers such as single-talker speech (Wightman and Kistler, 2005), adult-like performance is usually not reached before the age of 10 years. Furthermore, children are less able than adults to make use of spectro-temporal and spatial cues for separation of signal and noise (Wightman et al., 2003; Hall et al., 2005). These findings demonstrate that children are especially prone to *informational* masking, i.e., masking that goes beyond energetic masking predicted by filter models of the auditory periphery.

Studies identified a range of linguistic and cognitive factors to be responsible for children's difficulties with speech perception in noise: concerning the former, children are less able than adults to use stored phonological knowledge to reconstruct degraded speech input. This holds for the level of individual phonemes, as children's phoneme categories are less well specified than adults' (Hazan and Barrett, 2000), but also for the lexical level since children's phonological word representations are more holistic and less segmented into phoneme units. Therefore the probability of successfully matching incomplete speech input with stored long-term representations is reduced (Nittrouer, 1996; Metsala, 1997; Mayo et al., 2003). In addition, young children are less able than older children and adults to make use of contextual cues to reconstruct noise-masked words presented in sentential context (Elliott, 1979). Concerning attention, children's immature auditory selective attention skills contribute to their difficulties with speech-in-noise perception. Children's susceptibility to informational masking has been attributed to deficits in focusing attention on auditory channels centered on signal frequencies, while ignoring nonsignal channels (Wightman and Kistler, 2005). Behavioral and ERP measures from dichotic listening paradigms provide evidence that auditory selective attention improves throughout entire childhood (Doyle, 1973; Pearson and Lane, 1991; Coch et al., 2005; Wightman et al., 2010; Gomes et al., 2012).

Owing to the mediating role of linguistic competence and selective attention, children with language or attention disorders are still more impaired than normally developing children by noise in speech perception tasks (Geffner et al., 1996; Ziegler et al., 2005, 2009). A stronger noise effect is also evident for children tested in their second language when compared to native children (Crandell and Smaldino,

Autism & Anxiety: Parents seek help for extreme reaction to loud noise

September 5, 2018

Our 12-year-old son has autism, mild intellectual disability and anxiety attacks so severe that we end up in the emergency room. Loud noises are the worst – for example the school fire alarm, thunderstorms, a balloon popping, fireworks. Any help would be greatly appreciated.



This week's "Got Questions?" answer is by Judy Reaven, a clinical psychologist and associate professor of psychiatry and pediatrics at the University of Colorado School of Medicine and Children's Hospital Colorado, in Denver. Dr. Reaven's conducted research on the effectiveness of cognitive-behavioral therapy for anxiety in adolescents with autism, with the support of an [Autism Speaks research grant](#).

Editor's note: The following information is not meant to diagnose or treat and should not take the place of personal consultation, as appropriate, with a qualified healthcare professional and/or behavioral therapist.

Thanks for the great question. It certainly sounds like your family is experiencing a very difficult situation. Anxiety symptoms and reactions are very common in individuals with autism spectrum disorder (ASD). They can interfere with functioning across home, community and school settings.

Although your son's reaction sounds more severe than most, many people with autism struggle with a range of fears, phobias and worries. These can range from a debilitating fear of, say, spiders or the dark to chronic anxiety about making mistakes or being late.

Fortunately, recent research suggests that anxiety in children and adults who have autism is quite treatable. Often, these individuals are helped by the same or similar strategies that work well in treating anxiety in the general population.

These approaches include cognitive behavior therapy, or CBT. Cognitive-behavioral approaches are well-established, evidenced-based treatments that have become the gold standard of psychosocial treatments for anxiety. [My own research](#) and that of my colleagues has demonstrated the helpfulness of modifying cognitive-behavioral approaches to address the special needs of those who have autism.

Where to begin?

You describe a number of fears that may be related to sensory sensitivities. I recommend that you begin by consulting an occupational therapist who can assess whether your son's extreme sensitivities to noises are part of a broader sensory processing disorder. If this is the case, and if your son's fears are exclusively triggered by sensory stimuli, then his symptoms may be best addressed by a sensory-focused intervention. Many occupational therapists who specialize in autism receive special training in this area.

It's common for children with ASD and anxiety to become extremely frightened in response to sensory stimuli. Perhaps – like many individuals with autism – your son also has difficulty telling you what's scaring him. Instead, he may show his fear with extreme avoidance of a situation.

For example, he might refuse to go to school after a fire drill. He might become fearful of birthday parties after being frightened by a balloon that popped unexpectedly. Other signs of extreme distress can include yelling, crying, clinging and general agitation. Because your son may have difficulty communicating, it's important to observe his behavior for these signs of distress. This can help you determine what's triggering his fears.

Avoidance versus learning to cope

Many parents go to great pains to protect their children by avoiding agitating situations. This approach is sometimes appropriate and even necessary. However, it denies individuals the opportunity to learn how to manage anxiety-provoking situations on their own.

By helping your son learn to manage his fear, you can prepare him for an unpredictable world so that he can participate in it to the maximum extent possible.

Given the severity of your son's anxiety symptoms, I suggest that you seek professional support in addition to the strategies offered here. Families whose children have milder symptoms of anxiety can try these strategies on their own – seeking professional help if symptoms worsen.

Tackling one fear at a time

I suggest making a list of your child's major fears and worries. Try to rank order them from mild to severe. To encourage success, I'd start with a mild-to-moderate fear before taking on his extreme reaction to loud noises.

Key components of a cognitive behavioral approach include introducing coping strategies such as deep breathing and "helpful thoughts" that can help a person manage fearful reactions.

For example, you can teach your son to take deep slow breaths to help manage his body's physical anxiety reactions.

"Helpful thoughts" are statements that your son can say to himself when faced with a situation that makes him anxious. For example, you can coach to your son to say, "This is a loud noise. I don't like it, but I can handle it."

To help your son to learn these strategies, I suggest you model taking deep breaths while repeating a "helpful thought" out loud.

Graded exposure

The most important step is to help your son face his fears a little at a time. We call this "graded exposure." For example, explain to your son that the two of you are going to listen to a recording of thunder. The first time, you might play the recording at a soft volume, then gradually increase the volume over time as he demonstrates increased comfort with the sounds.

Or you might try watching a video of a balloon pop – perhaps with the volume off the first time. Then he can watch a real balloon pop while standing some distance away. Over time, he can move closer and closer to the balloon.

After such exercises, you can present him with small rewards for being brave and "facing fears." Remember that even a small act of bravery – such as listening to a recording of thunder for 10 seconds – represents an important step toward handling fears. It deserves to be acknowledged.

Although graded exposure may seem counterintuitive, research indicates that this strategy is the single most effective strategy for getting over a particular fear.

I wish you and your son the very best. Please let us know how you're doing with an email to GotQuestions@autismspeaks.org.

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I have read the attached letter regarding noise and it expresses my concerns and my request to abandon the use of the proposed route for the Boardman to Hemingway Transmission Project and that it be rerouted to an area that is much less impactful to the residents of La Grande and to the surrounding area.

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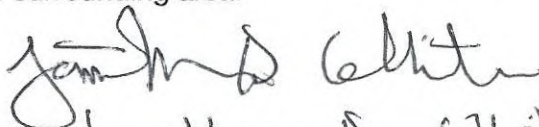
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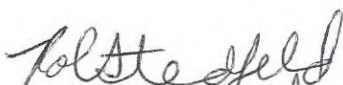
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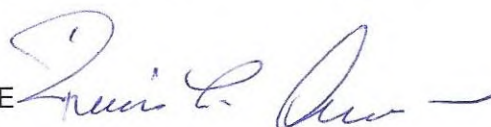
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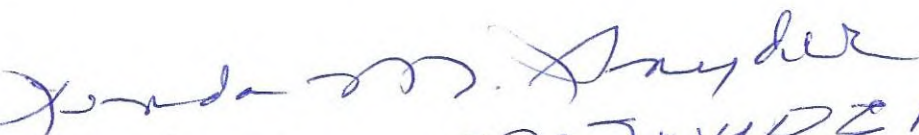
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PRINTED NAME *Coy Sexton*
ADDRESS *401 Balsa Street, La Grande, OR 97850*
EMAIL *Coytris@gmail.com*

SIGNATURE *Melinda McGowan*
PRINTED NAME *Melinda McGowan*
ADDRESS *602 Sunset Dr.*
EMAIL *melindamegowan@gmail.com*

SIGNATURE
PRINTED NAME
ADDRESS
EMAIL

SIGNATURE
PRINTED NAME
ADDRESS
EMAIL

I have read the attached letter regarding noise and it expresses my concerns and my request to abandon the use of the proposed route for the Boardman to Hemingway Transmission Project and that it be rerouted to an area that is much less impactful to the residents of La Grande and to the surrounding area.

SIGNATURE *Lois Barry*
PRINTED NAME LOIS BARRY
ADDRESS P.O. BOX 566, LA GRANDE, OR 97850
EMAIL loisbarry31@gmail.com

SIGNATURE *Cathy Webb*
PRINTED NAME CATHY WEBB
ADDRESS 1700 Cedar St. LA GRANDE, OR 97850
EMAIL thinkski@gmail.com

SIGNATURE *JoAnn Marlette*
PRINTED NAME JOANN MARLETTE
ADDRESS 2031 Court St. #8, Baker City, OR 97814
EMAIL joannmarlette@yahoo.com

SIGNATURE *Keith D. Hudson*
PRINTED NAME Keith D. Hudson
ADDRESS 605 F Ave, La Grande OR 97850
EMAIL Keithdhudson@gmail.com

SIGNATURE *Laura Elly Hudson*
PRINTED NAME Laura Elly Hudson
ADDRESS 605 F Ave, La Grande OR 97850
EMAIL ellyhudson@gmail.com

I have read the attached letter regarding noise and it expresses my concerns and my request to abandon the use of the proposed route for the Boardman to Hemingway Transmission Project and that it be rerouted to an area that is much less impactful to the residents of La Grande and to the surrounding area.

SIGNATURE *Lynn Wheeler Duncan*
PRINTED NAME LYNN WHEELER DUNCAN
ADDRESS 489 Modelaire Drive, LaGrande OR 97850
EMAIL rlwd1910@gmail.com

SIGNATURE *Gary D. Pierson*
PRINTED NAME Gary D. Pierson
ADDRESS 489 Modelaire Drive, La Grande OR 97850
EMAIL -

SIGNATURE *Anna G. Carinato*
PRINTED NAME Anna G. Carinato
ADDRESS 86 Hawthorne Dr. La Grande OR 97850
EMAIL acavinat@ecu.edu

SIGNATURE *Joe Horst*
PRINTED NAME JOE HORST
ADDRESS 86 HAWTHORNE DR. LA GRANDE OR 97850
EMAIL joehorst@con.com

SIGNATURE *Angela Sherer*
PRINTED NAME Angela Sherer
ADDRESS 91 W. Hawthorne Dr La Grande, OR 97850
EMAIL asherer@frontier.com

I have read the attached letter regarding noise and it expresses my concerns and my request to abandon the use of the proposed route for the Boardman to Hemingway Transmission Project and that it be rerouted to an area that is much less impactful to the residents of La Grande and to the surrounding area.

SIGNATURE

Merle E Comfort

PRINTED NAME

MERLE E COMFORT

ADDRESS

209 SWAPLO LA GRANDE OR 97850

EMAIL

merlecomfort@gmail.com

SIGNATURE

Robin L. Maille

PRINTED NAME

Robin Maille

ADDRESS

401 Cedar St., La Grande

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rmaille@icloud.com

SIGNATURE

Carol S. Summers

PRINTED NAME

CAROL S. SUMMERS

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2811 Bekelen Lane La Grande, OR.

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SIGNATURE

Caroline Kaye Juniper

PRINTED NAME

Caroline Kaye Juniper

ADDRESS

406 4th Street - LaGrande - OR 97850

EMAIL

SIGNATURE

Gerald D. Juniper

PRINTED NAME

Gerald Darwin Juniper

ADDRESS

406 4th St. LaGrande, OR. 97850

EMAIL

I have read the attached letter regarding noise and it expresses my concerns and my request to abandon the use of the proposed route for the Boardman to Hemingway Transmission Project and that it be rerouted to an area that is much less impactful to the residents of La Grande and to the surrounding area.

SIGNATURE *Robert J. Sherer*
PRINTED NAME Robert J. Sherer
ADDRESS 970 Hawthorne Dr, La Grande, OR 97850
EMAIL asherer@frontier.com.

SIGNATURE *Heather M. Null*
PRINTED NAME Heather M. Null
ADDRESS 492 Madeleine Dr. La Grande, OR 97850
EMAIL hnull@conl.com

SIGNATURE *Bert R. Freewing*
PRINTED NAME Bert R. Freewing
ADDRESS 709 South 12th Street La Grande, OR 97850
EMAIL jeantfreewing@gmail.com

SIGNATURE
PRINTED NAME
ADDRESS
EMAIL

SIGNATURE
PRINTED NAME
ADDRESS
EMAIL

PLEASE RETURN THIS FORM TO THE COUNCIL ASSISTANT

*See reverse for tips on giving testimony

ENERGY FACILITY SITING COUNCIL (EFSC)

Date: 6/20/19 Location: LaGrande

REGISTRATION FOR PUBLIC COMMENT

Name:

Nicole Haggerty

Address:

10404 S Valley AVE Island city OR 97850

I represent (if applicable)

Print your name OR your organization/business name.

- ☐ Send me future notifications about Council meetings via email.

My email address is: _____

- ☐ I wish to address the Energy Facility Siting Council and/or

- ☒ I wish to submit the following written comment:

I do not Agree with the B2H Coalition -
It will be a Hazard/Danger to our
environment & our wildlife.

I Also do not appreciate the fact that it
will destroy the Oregon Trail & Reduce Property
Values.

PLEASE NOTE: If there are a large number of speakers, it may be necessary to limit the amount of time each speaker is allowed.

How to Testify at Energy Facility Siting Council Meetings and Public Hearings:

State your name and address for the record and indicate whether you are speaking for yourself or for a group.

Keep your statement **concise**. Often the Council will inform the public how much time can be given to each person testifying.

Begin your statement by stating whether you support or oppose the particular agenda item and why. Describe how the issue(s) affects you or your group and feel free to suggest a solution. If you are opposing the agenda item, discuss how you see the proposal as inconsistent with existing laws, rules or ordinances.

It may help to prepare an outline of your testimony to use while speaking. If you wish, you can leave this testimony with the Council.

TARDAEWETHER Kellen * ODOE

From: Roberta Hall <rlhall@peak.org>
Sent: Thursday, June 13, 2019 8:57 AM
To: B2H DPOComments * ODOE
Subject: [Fortimail Spam Detected] Boardman to Idaho transmission

To: Kellen Tardaewether, Senior Siting Analyst, Oregon Dept of Energy, 550 Capitol St N.E., Salem 97301

As an Oregonian concerned about wildfires and other potential injuries to our natural systems and our wildlife, I oppose the proposed transmission line from Boardman to Hemingway, Idaho. This is a time of climate change. Where I live in the Willamette Valley of Western Oregon we are experiencing unusually hot weather for early June (high 90's, normally occurring later in the summer) and increasing wind. These features bode ill for spread of fire, and in themselves are not healthy. This is a time to conserve and cut back on power—not increase it.

Thank you for your attention, Roberta Hall, 620 NW Wiltham Drive, Corvallis, OR 97330

TARDAEWETHER Kellen * ODOE

From: Rogers Asphalt <rasphalt@oregonwireless.net>
Sent: Friday, July 19, 2019 1:31 PM
To: B2H DPOComments * ODOE
Subject: Fw: NO to B2H
Attachments: 20190719120519089.pdf

Attaching our comments. Mailing the original with signatures.

Patricia Hampton
Randall & Charlene Hampton
541-963-3633

-----Original Message-----

From: rasphalt@oregonwireless.net
Sent: 19 July, 2019 09:05 AM
To: Rogers

This E-mail was sent from "RNPF70DDC" (Aficio MP C2050).

Scan Date: 07.19.2019 12:05:18 (-0400)
Queries to: rasphalt@oregonwireless.net

This email has been checked for viruses by Avast antivirus software.
<https://www.avast.com/antivirus>

NO to B2H Alternative Route

The Hampton Family:

Patricia Hampton P.O. Drawer K, La Grande, Oregon 97850 phone: 541-963-3633

Randall & Charlene Hampton, 57119 Hwy 244, La Grande, Oregon 97850 phone: 541-910-3374 & 541-786-7288

Travis & Bryce Hampton, 57121 Oregon Hwy 244, La Grande, Oregon 97850 phone: 541-786-4288

Ranch history;

Great Uncle Jim Payne and Great Aunt Lilly Payne, (James S. Payne and Lillian H. Payne husband and wife) purchased the property we now own subject to a purchase money mortgage on August 17, 1937 from Travelers Insurance Company By F.W. Cole, Vice President.

Our Family have lived on our working ranch for 82 years. We are not new to this area. We currently have 3 generations living here on Highway 244. Our Family is in opposition of putting the lines on your alternative route. We strongly oppose the line being put across our property.

When it could continue on the already existing power line just one hill over from our property.

When we suggested this to the B2H group at the last meeting, we were told, "You wouldn't want it there!" That is not an answer. *YES we would.* There is no reason not to follow the existing line or what about permitting on the current system. Either by going above it, or extending it out to the sides. If you are using the excuse that if one goes down, then they all go down. When was the last time one of these lines have gone down? Why not bury the line in the existing easement which makes the most sense, especially since the devastating fires that caused many homes to be destroyed in California, was caused by a power line spark, and now the proposal is to cut power completely during fire season. (<https://www.foxnews.com/us/pacific-gas-electric-power-lines-caused-californias-deadliest-and-most-destructive-wildfire-officials>) Not only are the taller poles unsightly they create more exposure for possible lightning strikes causing more fires. Burying the power lines now will save money from firefighting in the years to come.

The route of the B2H if it comes across the mountain and onto our property will follow the Oregon Trail and Flowers crossing, putting the power line over the Oregon Trail, has a potential impact to the historic Oregon Trail. This trail is our heritage, of the State and our Nation. Which would disturb the Oregon Trail, in fact it would probably remove the wagon wheel marks on the trail itself. Flowers Crossing is on the corner of our property on the Grande Ronde River. It was marked with a sign until recently, we are not sure what happened to that landmark sign.

Our other concern is the Stray Voltage. We raise our children and our grandchildren and great grandchildren on this ranch. When energy is transferred, some is lost along the way. Our metal buildings, metal water troughs, our newly drilled well for watering our cattle, will be in line with the B2H line. These metal items on our property can act as a conduit for voltage to find its way to our feeding systems and water systems. It has been found that stray voltage will increase somatic cell counts in our cattle. Causing them to be nervous, reduce milk production and increase clinical mastitis. Which in turn makes for more of our cattle becoming sick. This represents more time to properly handle these cows, lost production, vet calls, treatment products, and occasional dead or culled cows. It will be said that there is no proof that this will happen, even no significant findings. But in 1999 a jury awarded Peterson Bros. Dairy \$700,000 after deciding that stray voltage was the cause of slashed herds milk output and increased the cattle's death rate. Another jury awarded a farmer \$850,000 over effects of stray voltage on their cows in 2004. It not only affects dairy cattle, but beef cattle as well. So as you can see, these cases show courts have acknowledged stray voltage and its possible effects.

Farmers have also reported that stray voltage caused them to get electric shocks from their metal buildings on their farms. We now fear the health risks from exposure to high voltage power lines. Whether the danger is scientifically genuine or verifiable fact should be irrelevant. If it takes one life or multiple, or if our children end up with leukemia... the safety of EMFs sows enough doubt that we say NO TO THE POWER LINE. And you should be thinking twice about putting a family who has been on this land for 82 years in this predicament. We choose this place due to the majestic beauty, the health and welfare of our children and our children's children. Attached to this letter is documentation on stray voltage.

The B2H line would also impact the migration patterns of the Elk, Whitetail Deer and Mule Deer in our valley. You can visibly see their migration trails on the mountain which is one of the alternative routes for the B2H. Elk and Deer summer range in our valley. Power lines have been shown to be barriers for Elk and Deer. They refrained from crossing the power line barrier. Whitetail were even less likely to cross the barrier.

Research has revealed that Power lines are seen as glowing and flashing bands across the sky by many animals. The work suggests that the pylons and wires that stretch across many landscapes are having a worldwide impact on wildlife. Scientists knew many creatures avoid power lines but the reason why was mysterious as they are not impassable physical barriers. Now, a new understanding of just how many species can see the ultraviolet light – which is invisible to humans – has revealed the major visual impact of the power lines. "It was a big surprise but we now think the majority of animals can see UV light," said Professor Glen Jeffery, a vision expert at University College London.

Our understanding is that these lines will be noisy. Which we are also opposed to. The audible noise emitted from high-voltage lines is caused by the discharge of energy that occurs when the electrical field strength on the conductor surface is greater than the 'breakdown strength' (the field intensity necessary to start a flow of electric current) of the air surrounding the conductor. This discharge is also responsible for radio noise, a visible glow of light near the conductor, an energy loss known as corona loss and other phenomena associated with high-voltage lines.

"The degree or intensity of the corona discharge and the resulting audible noise are affected by the condition of the air--that is, by humidity, air density, wind and water in the form of rain, drizzle and fog. Water increases the conductivity of the air and so increases the intensity of the discharge. Also, irregularities on the conductor surface, such as nicks or sharp points and airborne contaminants, can increase the corona activity. What will the noise do to wildlife, our cattle, and our family?

Until recently the City of Cove has sold their excess Hydro Electric power to Idaho Power. Idaho Power has decided they do not need to purchase this excess power because they no longer need the extra power. So, what is the real purpose of this line, if this is in truth the facts.

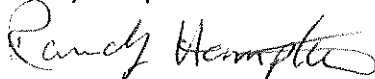
Our family strongly opposes the line and extremely opposes the line coming across our property.

The Hampton Family

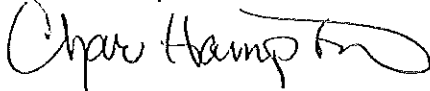
Patricia Hampton



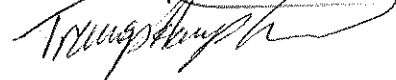
Randy Hampton



Char Hampton



Travis Hampton



Bryce Hampton



Stray Voltage and Dairy Farms Can Lead to Large Damage Awards

Mary Francque*
May 16, 2018

History of Stray Voltage Suits

Stray voltage causing damages to dairy farms is a problem that has been facing the dairy industry for year with damages cases dating back to 1984. Stray voltage is caused when a power line's neutral line is "leaking" electrical currents into the ground. A common cause of stray voltage is a neutral wire that is either too small or damaged and allows the current to go into the ground. Even when the stray voltage current is at a low level, specifically anything above 0.5 volt, it can still be harmful to livestock. These currents put stress on the animals, which in turn lowers their immune systems, leading to a variety of issues. Dairy cows have shown to be more sensitive to stray voltage than any other livestock. Voltage has been shown to cause decreased milk production, due to a lowered water intake and in turn a lowered feed intake. Farmers have also noted a range of issues relating to breeding and calving. Dairy farmers have even reported extremely sick cows, some of which have later died.

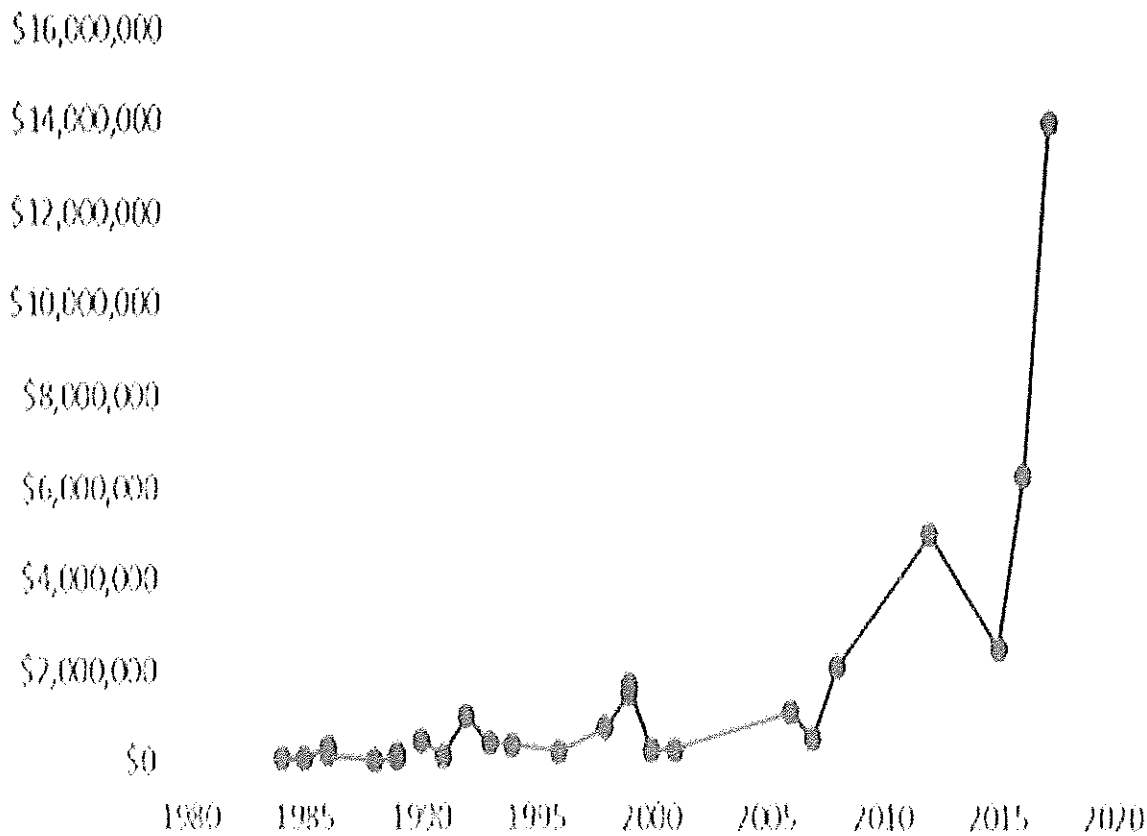
Since the 1980s farmers have been filing a variety claims against electrical utility companies across the United States relating to stray voltage, including claims for trespass, negligence, strict liability, and nuisance. Additionally, dairy farmers have filed suits against milk system suppliers for stray voltage. However, a majority of these suits have been unsuccessful or have resulted in limited relief due to the economic loss doctrine that prevents the collection of damages when it relates to a loss in profit due to defective goods. A majority of courts have held that unlike milking systems, the utility companies are providing a service rather than a good.

In suits relating strictly to electrical utility companies we have seen an evolution in damages from the 1980s to today. These suits have proven to be successful on multiple occasions and the awarded damages continue to grow.

Evolution of Damages in Stray Voltage Cases Heard throughout the United States

Since 1984 many farmers have received damages awards. However, those awards have grown from \$36,500 up to \$14 million. While there has been variation in damages awards throughout the years, there has been an upward trend overall. While some of this growth in awarded damages is due to growing farm sizes, a majority of the growth is due to an increase in understanding and research.

Awarded Damages in Stray Voltage Cases



Year	Case Name
1984	Zorn v. Electric Manufacturing
1985	Schriner v. Pen Light Co.
1986	Public Service v. Nichols
1986	Hensley v. How Coop.
1988	Otte v. Dayton
1989	Lipke v. Waush
1989	Taplin Farms, Inc. v. Service
1990	Fink v. Lafayette
1991	Kolpin v. Pioneer
1992	ZumBerge v. Ne Co.
1993	Cook v. Goodhu
1994	Matchey v. Trei Coop.
1996	Vogel v. Grant Electric Coop.
1998	Vandenberg v. Co.
1999	James v. Beaun
1999	Tipmont Rural Corp. v. Fisher
2000	Scullion v. Wisc Light Co.
2001	Iowa Lakes Elec
2006	Muth v. Wiscor Co.
2007	Gumz v. Northe
2008	Chapman v. Ne Coop.
2012	Bollant v. Scenl Coop.
2015	Poppler v. Wrigl Cooperative Elc
2016	Norman v. Crov
2017	Haldersons v. N Power
2017	Burdick v. Inter Light

Recent Stray Voltage Case in Iowa

The Iowa Court of Appeals recently decided in favor of a dairy farm awarding them \$500,000 in damages. Burdicks, a family dairy in Northern Iowa, filed suit against Interstate Power & Light Co. The Burdicks claimed that Interstate was negligent in its maintenance of its system, which caused stray voltage damages to the

Burdicks' dairy herd. They also filed a nuisance claim against Interstate. The jury found for Burdicks on the issue of negligence, awarding them \$500,000. After the trial, Interstate filed a motion for a new trial claiming that Burdicks did not provide enough evidence for the jury to calculate the damages. The district court granted Interstate's motion for a new trial.

The case decided by the Iowa Court of Appeals found that if there is proof a party has sustained damages, then that party can recover, even if there is uncertainty in the amount of the damages. There must just be a basis from which the amount of damages can be inferred. While parties should still aim to provide detailed evidence showing damages, the court here allowed the party to recover even without such evidence.

Burdicks appealed the district court's grant of a new trial. The appellate court found for Burdicks, as Interstate's case-in-chief provided adequate information to support a determination of damages by the jury. In addition, Interstate did not appeal the jury's finding of its negligence. The court has held that "there is a distinction between proof of the fact that damages have been sustained and proof of the amount of those damages."^[1] The proof of the amount of damages only needs to be presented to a point where the jury can come to an approximate estimate of the loss, not to an exact mathematical conclusion.

Therefore, even though Burdicks failed to present significant evidence that would aid the jury in determining the *amount* of damages, there were no grounds for the court to order a new trial. This was especially true because Interstate's expert witness' testimony and admitted exhibits provide sufficient evidence. Previous courts have shown that the court must look at evidence presented in the whole trial, not just the evidence presented by one side.

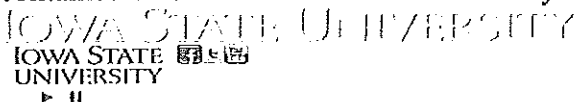
Here, Interstate's expert submitted graphs which showed expense figures and other important financial data. This along with his testimony allowed the jury to determine an estimate of the loss. Therefore, the Iowa Court of Appeals upheld the jury's previous holding that Interstate was negligent for \$500,000 in damages.

The case was *Burdick v. Interstate Power & Light Co.*, No. 16-0821 (Iowa Ct. App. October 25, 2017).

[1] *Yost v. City of Council Bluffs*, 471 2d N.W. 2d 836, 840 (Iowa 1991).

*Mary Francque completed her second year of law school at Drake University in May of 2018. She served as an intern for CALT during the Spring 2018 semester.

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Electrical Notes & Articles

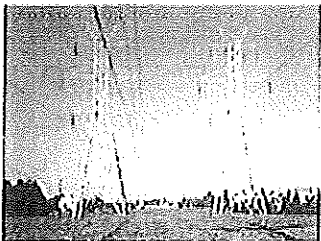
Sharing Abstracts, Notes on various Electrical Engineering Topics.

Filed
September 29, 2014
Data Center
Missouri Public
Service Commission

Effects of High Voltage Transmission Lines on Humans and Plants

FEBRUARY 17, 2012 [30 COMMENTS](#)

<http://electricalnotes.wordpress.com/2012/02/17/effects-of-high-voltage-transmission-lines-on-humans-and-plants/#comments>



<http://electricalnotes.files.wordpress.com/2012/02/untitled.png>

Introduction:

By increasing population of the world, towns are expanding, many buildings construct near high voltage overhead power transmission lines. The increase of power demand has increased the need for transmitting huge amount of power over long distances. Large transmission lines configurations with high voltage and current levels generate large values of electric and magnetic fields stresses which affect the human being and the nearby objects located at ground surfaces. This needs to be investigating the effects of electromagnetic fields near the transmission lines on human health.

The electricity system produces extremely low frequency electromagnetic field which comes under Non ionizing radiations which can cause health effects. Apart from human effect, the electrostatic coupling & electromagnetic interference of high voltage transmission lines have impact on plants and telecommunication equipments mainly operating in frequency range below UHF.

IS Power Line EMF safe? This is the controversy Discussion directly eludes on Government Regulation policy and Power Company. There are lots of supporting documents and research paper in favor and criticize this arguments.

What is The Electric and Magnetic fields:

Witness Exhibit No. 32
Date 9.4.14 Reporter
File No. EA-2014-0207
Hamilton, MO

- Electric and magnetic fields, often referred to as electromagnetic fields or EMF, occur naturally and as a result of the Power generation, Power Transmission, Power distribution and use of electric power.

- EMF is fields of force and is created by electric voltage and current. They occur around electrical devices or whenever power lines are energized.
- Electric fields are due to voltage so they are present in electrical appliances and cords whenever the electric cord to an appliance is plugged into an outlet (even if the appliance is turned off).
- Electric fields (E) exist whenever a (+) or (-) electrical charge is present. They exert forces on other charges within the field. Any electrical wire that is charged will produce an electric field (i.e. Electric field produces charging of bodies, discharge currents, biological effects and sparks). This field exists even when there is no current flowing. The higher the voltage, the stronger is electric field at any given distance from the wire.
- The strength of the electric field is typically measured in volts per meter (V/m) or in kilovolts per meter (kV/m). Electric fields are weakened by objects like trees, buildings, and vehicles. Burying power lines can eliminate human exposure to electric fields from this source.
- Magnetic fields result from the motion of the electric charge or current, such as when there is current flowing through a power line or when an appliance is plugged in and turned on. Appliances which are plugged in but not turned on do not produce magnetic fields.
- Magnetic field lines run in circles around the conductor (i.e. produces magnetic induction on objects and induced currents inside human and animal (or any other conducting) bodies causing possible health effects and a multitude of interference problems). The higher the current, the greater the strength of the magnetic field.
- Magnetic fields are typically measured in tesla (T) or more commonly, in gauss (G) and milli gauss (mG). One tesla equals 10,000 gauss and one gauss equals 1,000 milli gauss.
- The strength of an EMF decreases significantly with increasing distance from the source.
- The Strength of an electric field is proportional to the voltage of the source. Thus, the electric fields beneath high voltage transmission lines far exceed those below the lower voltage distribution lines. The magnetic field strength, by contrast, is proportional to the current in the lines, so that a low voltage distribution line with a high current load may produce a magnetic field that is as high as those produced by some high voltage transmission lines.
- In fact, electric distribution systems account for a far higher proportion of the population's exposure to magnetic fields than the larger and more visible high voltage transmission lines.
- Electrical field: the part of the EMF that can easily be shielded.
- Magnetic field: part of the BMF that can penetrate stone, steel and human flesh. In fact, when it comes to magnetic fields, human flesh and bone has the same penetrability as air!
- Both fields are invisible and perfectly silent: People who live in an area with electric power, some level of artificial EMF is surrounding them.
- The magnetic field strength produced from a transmission line is proportional to: load current, phase to phase spacing, and the inverse square of the distance from the line.
- Many previous works studied the effect of different parameters on the produced magnetic field such as: the distance from the line, the conductor height, line shielding and transmission line configuration and compaction.

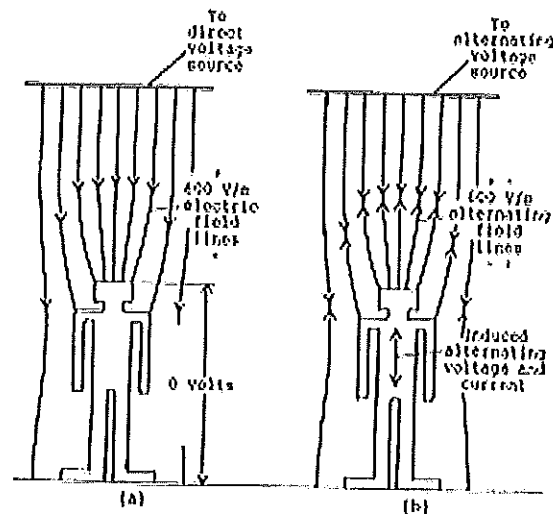
Electric and Magnetic Field (EMF) Effects

- Extremely high voltages in HV lines cause electrostatic effects, whereas short circuit currents & line loading currents are responsible for electromagnetic effects. The effect of these electrostatic fields is

seen prominent with living things like humans, plants, animals along with vehicles, fences & buried pipes under & close to these lines.

1) EMF Effects Human beings:

- The human body is composed of some biological materials like blood, bone, brain, lungs, muscle, skin etc. The permeability of human body is equal to permeability of air but within a human body has different electromagnetic values at a certain frequency for different material.
- The human body contains free electric charges (largely in ion-rich fluids such as blood and lymph) that move in response to forces exerted by charges on and currents flowing in nearby power lines. The processes that produce these body currents are called electric and magnetic induction.
- In electric induction, charges on a power line attract or repel free charges within the body. Since body fluids are good conductors of electricity, charges in the body move to its surface under the influence of this electric force. For example, a positively charged overhead transmission line induces negative charges to flow to the surfaces on the upper part of the body. Since the charge on power lines alternates from positive to negative many times each second, the charges induced on the body surface alternate also. Negative charges induced on the upper part of the body one instant flow into the lower part of the body the next instant. Thus, power-frequency electric fields induce currents in the body (Eddy Current) as well as charges on its surface.



(<http://electricalnotes.files.wordpress.com/2012/02/13.png>) The currents induced in the body by magnetic fields are greatest near the periphery of the body and smallest at the center of the body.

- It is believed that, the magnetic field might induce a voltage in the tissue of human body which causes a current to flow through it due to its conductivity of around them.
- The magnetic field has influence on tissues in the human body. These influences may be beneficial or harmful depending upon its nature.
- The magnitude of surface charge and internal body currents that are induced by any given source of power-frequency fields depends on many factors. These include the magnitude of the charges and currents in the source, the distance of the body from the source, the presence of other objects that might

shield or concentrate the field, and body posture, shape, and orientation. For this reason the surface charges and currents which a given field induces are very different for different Human and animals.

- When a person who is isolated from ground by some insulating material comes in close proximity to an overhead transmission line, an electrostatic field is set in the body of human being, having a resistance of about 2000 ohms.
- When the same person touches a grounded object, it will discharge through his body causing a large amount of discharge current to flow through the body. Discharge currents from 50-60 Hz electromagnetic fields are weaker than natural currents in the body, such as those from the electrical activity of the brain and heart.
- For human beings the limit for undisturbed field is 15 kV/m, R.M.S., to experience possible shock. When designing a transmission lines this limit is not crossed, in addition to this proper care has been taken in order to keep minimum clearance between transmission lines.
- According to research and publications put out by the World Health Organization(WHO), EMF such as those from power lines, can also cause:

■ Short term Health Problem

1. Headaches.
2. Fatigue
3. Anxiety
4. Insomnia
5. Prickling and/or burning skin
6. Rashes
7. Muscle pain

■ Long term Health Problem:

- Following serious health Problems may be arise due to EMF effects on human Body.

(1) Risk of damaging DNA.

- Our body acts like an energy wave broadcaster and receiver, incorporating and responding to EMFs. In fact, scientific research has demonstrated that every cell in your body may have its own EMF, helping to regulate important functions and keep you healthy.
- Strong, artificial EMFs like those from power lines can scramble and interfere with your body's natural EMF, harming everything from your sleep cycles and stress levels to your immune response and DNA!

(2) Risk of Cancer

- After hundreds of international studies, the evidence linking EMFs to cancers and other health problems is loud and clear. High Voltage power lines are the most obvious and dangerous culprits, but

the same EMFs exist in gradually decreasing levels all along the grid, from substations to transformers to homes.

(3) Risk of Leukemia:

- Researchers found that children living within 650 feet of power lines had a 70% greater risk for leukemia than children living 2,000 feet away or more. (As per British Medical Journal, June, 2005).

(4) Risk of Neurodegenerative disease:

- "Several studies have identified occupational exposure to extremely low-frequency electromagnetic fields (EMF) as a potential risk factor for neuro degenerative disease." (As per Epidemiology, 2003 Jul; 14(4):413-9).

(5) Risk of Miscarriage:

- There is "strong prospective evidence that prenatal maximum magnetic field exposure above a certain level (possibly around 16 mG) may be associated with miscarriage risk." (As per Epidemiology, 2002 Jan; 13(1):9-20)

2) EMF Effects on Animals

- Many researchers are studying the effect of Electrostatic field on animals. In order to do so they keep the cages of animals under high Electrostatic field of about 30 kV/m. The results of these Experiments are shocking as animals (are kept below high Electrostatic field their body acquires a charge & when they try to drink water, a spark usually jumps from their nose to the grounded Pipe) like hens are unable to pick up grain because of chattering of their beaks which also affects their growth.

3) EMF Effects on Plant Life

- Most of the areas in agricultural and forest lands where high power transmission lines pass. The voltage level of high power transmission Lines are 400KV, 230KV, 110KV, 66KV etc. The electromagnetic field from high power transmission lines affects the growth of plants.
- Gradually increases or decreases and reaches to maximum current or minimum current and thereafter it starts to fall down to lowest current or raises to maximum current or a constant current. Again the current, it evinces with little fluctuations till the next day morning.
- Current in Power transmission lines varies according to Load (it depending upon the amount of electricity consumed by the consumers). Hence the effect of EMF (due to current flowing in the power lines) upon the growth of plants under the high power transmission lines remains unaltered throughout the year.
- From various practically study it was found that the response of the crop to EMF from 110 KV and 230 KV Power lines showed variations among themselves. Based on the results the growth characteristics

like shoot length, root length, leaf area, leaf fresh weight, specific leaf weight, shoot/root ratio, total biomass content and total water content of the four crop plants were reduced significantly over the control plants.

- Similar trend were observed in the biochemical characteristics like chlorophyll.
- Reduced growth and physiological parameter was primarily due to the effect of reduced cell division and cell enlargement. Further the growth was stunted which may be due to poor action of hormones responsible for cell division and cell enlargement.
- The bio-chemical changes produced in this plant due to EMF stress quite obvious and it affects the production leading to economic loss.
- It is concluded that the reduced growth parameter shown in the crop plants would indicates that the EMF has exerted a stress on that plants and this EMF stress was quite obvious and it affects the production leading to economic loss. So further research activities are needed to safe guard plants from EMF stress.

4) EMF Effects on Vehicles parked near Line

- When a vehicle is parked under high voltage transmission line an electrostatic field is developed in it. When a person who is grounded touches it a discharge current flows through the human being. In order to avoid this parking lots are located below the transmission lines the recommended clearance is 17 m for 345 kV and 20 m for 400 kV lines.

5) EMF Effects on Pipe Line/Fence/Cables:

- A fence, irrigation pipe, pipeline, electrical distribution line forms a conducting loops when it is grounded at both ends. The earth forms the other portion of the loop. The magnetic field from a transmission line can induce a current to flow in such a loop if it is oriented parallel to the line. If only one end of the fence is grounded, then an induced voltage appears across the open end of the loop. The possibility for a shock exists if a person closes the loop at the open end by contacting both the ground and the conductor.
- For fences, buried cables, and pipe lines proper care has been taken to prevent them from charging due to Electrostatic field. When using pipelines which are more than 3 km in length & 15 cm in Diameter they must be buried at least 30 laterally from the line center.

6) EMF Effects on Maintenance Worker:

- For providing continuous and uninterrupted supply of electric power to consumers maintenance operations of power lines are often performed with systems energized or live.

- This is live line maintenance or hot line maintenance. The electric fields and magnetic fields associated with these power lines may affect the health of live line workers. Its electric field and current densities affect the health of humans and cause several diseases by affecting majority parts of the human body. These electric field and current densities affects humans of all stages and causes short term diseases in them and sometimes death also.

Contradiction of EMF Effect on Human Health:

- There are two reasons why electromagnetic fields associated with power systems could pose no threat to human health.
- First, The EMF from power lines and appliances are of extremely low frequency and low energy. They are non-ionizing and are markedly different in frequency from ionizing radiation such as X-rays and gamma rays. As a comparison, transmission lines have a low frequency of 60Hz while television transmitters have higher frequencies in the 55 to 890 MHz range. Microwaves have even higher frequencies, 1,000 MHz and above. Ionizing radiation, such as X-rays and gamma rays, has frequencies above 10¹⁵ Hz. The energy from higher-frequency fields is absorbed more readily by biological material. Microwaves can be absorbed by water in body tissues and cause heating which can be harmful, depending upon the degree of heating that occurs. X-rays have so much energy that they can ionize (form charged particles) and break up molecules of genetic material (DNA) and no genetic material, leading to cell death or mutation. In contrast, extremely low frequency EMF does not have enough energy to heat body tissues or cause ionization.
- Second, all cells in the body maintain large natural electric fields across their outer membranes. These naturally occurring fields are at least 100 times more intense than those that can be induced by exposure to common power-frequency fields. However, despite the low energy of power-frequency fields and the very small perturbations that they make to the natural fields within the body.
- When an external agent such as an ELF fields lightly perturbs a process in the cell, other processes may compensate for it so that there is no overall disturbance to the organism. Some perturbations may be within the ranges of disturbances that a system can experience and still function properly.
- During Research on health effects of electric and magnetic fields, it has come forward that electric field intensity exposure of about 1-10 mv/m in tissue interact with cells but not proved to be harmful. But strong fields cause harmful effects when their magnitude exceeds stimulation thresholds for neural tissues (central nervous system and brain), muscle and heart

Surface Current Density(mA/m ²)	Health Effect
<1	Absence of any established effects.
1 To 10	Minor biological effects.
10 To 100	Well established effects(a) Visual effect.(b) Possible nervous system effect
100 To 1000	Changes in central nervous System
>1000	Ventricular Fibrillation (Heart Condition 0. Health hazards.

- In India it is stipulated that electric field intensity should not exceed 4.16 kV/m and magnetic field intensity should not exceed 100 μ T in public areas.
- Even when effect is demonstrated consistently on the cellular level in laboratory experiments, it is hard to predict whether and how they will affect the whole organism. Processes at the individual cell level are integrated through complex mechanisms in the animal.

Mitigation of EMF Effect of Transmission Line:

1) Line shielding:

- There are two basic 60-Hz magnetic field mitigation (reduction) methods: passive and active.
- Passive magnetic field mitigation includes rigid magnetic shielding with ferromagnetic and highly conductive materials, and the use of passive shield wires installed near transmission lines that generate opposing cancellation fields from electromagnetic induction.
- Active magnetic field mitigation uses electronic feedback to sense a varying 60-Hz magnetic field, then generates a proportionally opposing (nulling) cancellation field within a defined area (room or building) surrounded by cancellation coils. Ideally, when the two opposing 180-degree out-of-phase magnetic fields of equal magnitude intersect, the resultant magnetic field is completely cancelled (nullified). This technology has been successfully applied in both residential and commercial environments to mitigate magnetic fields from overhead transmission and distribution lines, and underground residential distribution (URD) lines.

2) Line Configuration and Compaction

- Line compaction means that, bringing the conductors close together keeping the minimum (safe) phase-to-phase spacing constant. Keeping all the parameters the same and the only variable is the phase-to-phase spacing. The magnetic field is proportional to the dimensions of the phase-to-phase spacing.
- Other studies showed that, increasing the distance between phases by increasing the height of the central phase conductor above the level of the other phase conductors leads to the reduction of the peak value of the magnetic field.
- Reducing the phase-to-phase distance, leads to the decrease of the magnetic field. This reduction between phases is limited by the electrical insulation level between phases.
- (A) For single circuit lines, compaction causes a great reduction to the maximum magnetic field values. This reduction of magnetic field allows for lower conductor heights above the ground. This leads to transmit the same power on shorter towers. This gives a great reduction of the tower cost.
- (B) For double circuit lines, some studies showed that, the use of optimum phase arrangement causes a drastic reduction to the maximum magnetic field values for both conventional and compact lines i.e. with vertical conductor

3) Grounding:

- Induced currents are always present in electric fields under transmission lines and will be present. However, there must be a policy to ground metal objects, such as fences, that are located on the right-of-way. The grounding eliminates these objects as sources of induced current and voltage shocks. Multiple grounding points are used to provide redundant paths for induced current flow and mitigate nuisance shocks.

4) Providing Right of Way(R.O.W):

- Overhead transmission systems required strips of land to be designed as right-of-ways (R.O.W.). These strips of land are usually evaluated to decrease the effects of the energized line including magnetic and electric field effects.

5) Maintaining Proper Clearance:

- Unlike fences or buildings, mobile objects such as vehicles and farm machinery cannot be grounded permanently. Limiting the possibility of induced currents from such objects to persons is accomplished by maintaining proper clearances for above-ground conductors tend to limit field strengths to levels that do not represent a hazard or nuisance.
- Limiting access area by increasing conductor clearances in areas where large vehicles could be present.

Conclusion:

- Based on the review and analysis and other research projects it is of the opinion that there is no conclusive and convincing evidence that exposure to extremely low frequency EMF emanated from nearby high voltage Transmission lines is causally associated with an increased incidence of cancer or other detrimental health effects in humans. Even if it is assumed that there is an increased risk of cancer as implied in some epidemiological studies, the empirical relative risk appears to be fairly small in magnitude and the observed association appears to be tenuous. Although the possibility is still remain about the verse effect on health by EMF.

References:

- SSGBCOE&T, Electronics and Communication Engineering-Girish Kulkarni1, Dr.W.Z.Gandhare
- Pharmacology, School of Medicine, Chung-Ang University, Seoul, Korea-Sung-Hyuk Yim, Ji-Hoon Jeong.
- Electrical Engineering Department, Shoubra, Benha University, Cairo, Egypt- Nagat Mohamed Kamel Abdel-Gawad.
- Madurai Kamaraj University-S. Somasekaran.
- Electrical Engineering Department at King Fahd University of Petroleum & Minerals- J. M. Bakhshwain, M. H. Shwehdi, U. M. Johar and A. A. AL-Naim.
- Dept. of Electrical Engineering, College of Engineering – University of Tikrit-Iraq- Ghanim Thiab Hasan, Kamil Jadu Ali, Mahmood Ali Ahmed.

<http://www.electricalnotes.com/about-these-ads/>

About Jignesh.Parmar

Jignesh Parmar has completed his B.E(Electrical) from Gujarat University. He has more than 11 years experience in Power Transmission-Power Distribution-Electrical energy theft detection-Electrical Maintenance-Electrical Projects(Planning-Designing-coordination-Execution). He is Presently associate with one of the leading business group as a Assistant Manager at Ahmedabad,India. He is Freelancer Programmer of Advance Excel and design useful Excel Sheets of Electrical Engineering as per IS,NEC,IEC,IEEE codes. He is technical Author for "Electrical Mirror" and "Electrical India" Magazines. He

is Technical Blogger and Familiar with English, Hindi, Gujarati, French languages. He wants to Share his experience & knowledge and help technical enthusiasts to find suitable solutions and updating themselves on various Engineering Topics.

30 Responses to *Effects of High Voltage Transmission Lines on Humans and Plants*

moses says:

February 18, 2012 at 10:39 am

Thanks for the info, man

Reply

Mohd saood Khan says:

February 18, 2012 at 10:51 am

It needs more discussions & debates.....

Reply

prakash chandra says:

February 22, 2012 at 5:15 pm

sir i am dooing my final year project on optimal location of interline power flow controller (ipfc) ,i am facing problem in design of IPFC controller in matlab simulation .if you having some idea about this topis then please help me .

Reply

theja says:

March 17, 2012 at 5:53 pm

very good article.An eye opener to everybody

Reply

Pushpinder Asthir says:

March 24, 2012 at 3:35 pm

It is an intersting article.But than we also need Transmission lines for the development and any large development that benefits mass population always effects some small portion of population.

Reply

suren says:

May 11, 2012 at 11:17 am

sir,

We are construction a g+ 3 upper floor building adjoining the 400KV NTPC line in bangalore,

Pl inform at what level we may have induction & danger to life,

what is the minimum clearence required form over head line to bulding.

answers may also be mailed to my mail is surend26@rocketmail.com

Reply

balasubramani says:

December 2, 2012 at 4:54 pm

sir i got a plot for house construction 10m from the overhead lines it will make any problem in future by legaly & safety and howmany meters clearence need from the OHLINES in india

Reply

Syed Rizwan says:

May 15, 2012 at 1:48 pm

Sir i would want to know your views on the Ultra high voltage transmission line being built by China having a length of 2,210 Km. Waiting for your blog on this topic .

Reply

Sandeep Beniwal says:

August 9, 2012 at 4:37 am

sir i would to know that when a new tower established on a field then what the payment made by power grid or the company who is establishing that tender tower. If the quality of irrigation on that area is very good. please reply me ASAP

Reply

shiraz says:

September 11, 2012 at 3:10 am

nice work

Shirazul Islam

Reply

karen says:

October 6, 2012 at 11:30 pm

Thank you for your clear, current info. we are considering a purchase of a home within 60 meters of 30 towers of hi voltage electric transmission lines. Would you live there? or want your family to live in this home?

thanks so,

karen

Reply

eli says:

October 11, 2012 at 3:33 am

I'm in a similar situation, but I want to buy the house is 350 meters from high voltage antennas, do you think that is bad for the health?

Thank you so much.

Eli

Reply

Bharat Bhushan says:

November 22, 2012 at 11:16 am

Hi , This is very good info indeed ,

I am trying to buy a home in builder society and there is high voltage line passing over it.The distance of flat I am looking is 10 mtrs away from line.Will that not effect health in any mean.

Please advise

Bharat.leo@gmail.com

Reply

hemant kharat says:

December 17, 2012 at 10:14 am

sir please tell me what are distance of electrical overhead tower line of 400 kv and living home its urgent please????

Reply

Jignesh Parmar says:

December 17, 2012 at 6:02 pm

Refer Post of "Electrical Safety Distance Part 1 to 6" of this Blog

Reply

RAVI says:

January 14, 2013 at 4:26 am

we r planing to buy agriculture land of 20 acers. in between the high tension line and one high line pole is there. is it safe to health for humans and plants? how much distance should maintain from the line hight and long?

Reply

mary kwan says:

January 24, 2013 at 4:52 am

Sir,

Thank you so much for yr helpful article. I am thinking about buying a flat in Hong Kong, it is 2/F on the building and the ground level is for stores and an electricity (maybe transforming) substation which seems to supply electricity for the complex. Is it safe, will there be radiation harmful for humans? Urgently needing your advice.

Reply

Guillermo Ferrando says:

March 19, 2013 at 1:05 pm

Hello: I need to find any article or reference about of the EMF effects on steel bridges. In a case, I need install a 33 KV electrical line over a steel bridge, but I think that is an dangerous situation for the people, vehicles and the steel of structure, because the electrical induced currents on the steel is (for me) of uncertain effects....Thank you. Guillermo

Reply

iman says:

March 28, 2013 at 9:45 am

al salam alaikm I'M a physics teacher, and graduate student, my thesis is about, the risk of high voltage transformers on human health, can you help me, all my thanks and God bless you. ,

Reply

shaneel says:

April 19, 2013 at 5:10 am

can any body tell me what is distance working on a live transmission lines of different voltages....

Reply

Jignesh Parmar says:

April 20, 2013 at 5:58 pm

Review old post of this Blog

Reply

N.S.DUHAN says:

May 12, 2013 at 7:43 am

Sir, we r running a mild steel galvanized pipe mfg.co. We have a electronic weighing bridge of 80 m.t. cap. A high voltage (H.T.LINE) is going on the bridge. There is a big variation on weight. We called so many experts. But result is zero. Is it possible, that due to H.T. Line there is any effect on weighing bridge load cells. There r 6 load cells in the bridge. If it is possible what r the remedies for this .Please suggest.

Thanks.

Reply

A Tierney says:

June 14, 2013 at 11:09 pm

Am I in any danger? I live in a 12 unit apt building with all the wires and boxes for cable, electricity, and phone serving it attached to my outside bedroom wall. I can sometimes hear a loud hum in the wires and have called the utility to do something about it. My neighborhood is a dense urban DC area.

My bed is within 3 feet of these wires and boxes. Is there any way to measure the strength of the electromagnetic field I am sleeping in? What distance mitigates the impact of this field?

My neighbor of 12 years, who lived below me with her bedroom in the same configuration, recently died of a lung disease. I have lived here for 9 years. I was recently diagnosed with a spot on my lung. Any advice you can offer would be appreciated.

ETN

Reply

suryabhan singh says:

August 14, 2013 at 3:27 pm

recently i purchased a house in mumbai later on i find a high tension cable over head wire passing around 80 to 90 meter away from my building is it safe pls suggest

Reply

Dr. Aung Ze Ya says:

September 5, 2013 at 8:25 am

Your document is very effective to us.

Thank you.

Reply

Charlie says:

September 15, 2013 at 2:55 pm

I have booked an apartment and yet to take possession. The distance between the flat and HT Line is 18Meters away. Is it advisable to proceed?

Reply

Bhagyaman Chettri says:

October 8, 2013 at 2:23 am

Sir Please advise me that what is that safe distance between high tension line 400kv and humam

Reply

Jignesh.Parmar says:

October 8, 2013 at 3:01 pm

Already given in the Blog

Reply

othman hasnaoui says:

November 4, 2013 at 9:05 pm

dear sir

I'm a phd student, my research is about the EMF Effects Human and plants and i want to know if there are a scientific studies who demonstrate if really there is a damage for human and plants.

Plz let me know

Reply

Peter Yougha says:

November 5, 2013 at 9:07 am

I'm a MSc GIS student, I am researching on effect on overhead power transmission lines near residential buildings in UK. I need contribution on EMF radiation from the power lines to the environment.

Reply

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The Enterprise Theme.

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TARDAEWETHER Kellen * ODOE

From: Rogers Asphalt <rasphalt@oregonwireless.net>
Sent: Friday, July 19, 2019 1:31 PM
To: B2H DPOComments * ODOE
Subject: Fw: NO to B2H
Attachments: 20190719120519089.pdf

Attaching our comments. Mailing the original with signatures.

Patricia Hampton
Randall & Charlene Hampton
541-963-3633

-----Original Message-----

From: rasphalt@oregonwireless.net
Sent: 19 July, 2019 09:05 AM
To: Rogers

This E-mail was sent from "RNPF70DDC" (Aficio MP C2050).

Scan Date: 07.19.2019 12:05:18 (-0400)
Queries to: rasphalt@oregonwireless.net

This email has been checked for viruses by Avast antivirus software.
<https://www.avast.com/antivirus>

NO to B2H Alternative Route

The Hampton Family:

Patricia Hampton P.O. Drawer K, La Grande, Oregon 97850 phone: 541-963-3633

Randall & Charlene Hampton, 57119 Hwy 244, La Grande, Oregon 97850 phone: 541-910-3374 & 541-786-7288

Travis & Bryce Hampton, 57121 Oregon Hwy 244, La Grande, Oregon 97850 phone: 541-786-4288

Ranch history;

Great Uncle Jim Payne and Great Aunt Lilly Payne, (James S. Payne and Lillian H. Payne husband and wife) purchased the property we now own subject to a purchase money mortgage on August 17, 1937 from Travelers Insurance Company By F.W. Cole, Vice President.

Our Family have lived on our working ranch for 82 years. We are not new to this area. We currently have 3 generations living here on Highway 244. Our Family is in opposition of putting the lines on your alternative route. We strongly oppose the line being put across our property.

When it could continue on the already existing power line just one hill over from our property.

When we suggested this to the B2H group at the last meeting, we were told, "You wouldn't want it there!" That is not an answer. *YES we would.* There is no reason not to follow the existing line or what about permitting on the current system. Either by going above it, or extending it out to the sides. If you are using the excuse that if one goes down, then they all go down. When was the last time one of these lines have gone down? Why not bury the line in the existing easement which makes the most sense, especially since the devastating fires that caused many homes to be destroyed in California, was caused by a power line spark, and now the proposal is to cut power completely during fire season. (<https://www.foxnews.com/us/pacific-gas-electric-power-lines-caused-californias-deadliest-and-most-destructive-wildfire-officials>) Not only are the taller poles unsightly they create more exposure for possible lightning strikes causing more fires. Burying the power lines now will save money from firefighting in the years to come.

The route of the B2H if it comes across the mountain and onto our property will follow the Oregon Trail and Flowers crossing, putting the power line over the Oregon Trail, has a potential impact to the historic Oregon Trail. This trail is our heritage, of the State and our Nation. Which would disturb the Oregon Trail, in fact it would probably remove the wagon wheel marks on the trail itself. Flowers Crossing is on the corner of our property on the Grande Ronde River. It was marked with a sign until recently, we are not sure what happened to that landmark sign.

Our other concern is the Stray Voltage. We raise our children and our grandchildren and great grandchildren on this ranch. When energy is transferred, some is lost along the way. Our metal buildings, metal water troughs, our newly drilled well for watering our cattle, will be in line with the B2H line. These metal items on our property can act as a conduit for voltage to find its way to our feeding systems and water systems. It has been found that stray voltage will increase somatic cell counts in our cattle. Causing them to be nervous, reduce milk production and increase clinical mastitis. Which in turn makes for more of our cattle becoming sick. This represents more time to properly handle these cows, lost production, vet calls, treatment products, and occasional dead or culled cows. It will be said that there is no proof that this will happen, even no significant findings. But in 1999 a jury awarded Peterson Bros. Dairy \$700,000 after deciding that stray voltage was the cause of slashed herds milk output and increased the cattle's death rate. Another jury awarded a farmer \$850,000 over effects of stray voltage on their cows in 2004. It not only affects dairy cattle, but beef cattle as well. So as you can see, these cases show courts have acknowledged stray voltage and its possible effects.

Farmers have also reported that stray voltage caused them to get electric shocks from their metal buildings on their farms. We now fear the health risks from exposure to high voltage power lines. Whether the danger is scientifically genuine or verifiable fact should be irrelevant. If it takes one life or multiple, or if our children end up with leukemia... the safety of EMFs sows enough doubt that we say NO TO THE POWER LINE. And you should be thinking twice about putting a family who has been on this land for 82 years in this predicament. We choose this place due to the majestic beauty, the health and welfare of our children and our children's children. Attached to this letter is documentation on stray voltage.

The B2H line would also impact the migration patterns of the Elk, Whitetail Deer and Mule Deer in our valley. You can visibly see their migration trails on the mountain which is one of the alternative routes for the B2H. Elk and Deer summer range in our valley. Power lines have been shown to be barriers for Elk and Deer. They refrained from crossing the power line barrier. Whitetail were even less likely to cross the barrier.

Research has revealed that Power lines are seen as glowing and flashing bands across the sky by many animals. The work suggests that the pylons and wires that stretch across many landscapes are having a worldwide impact on wildlife. Scientists knew many creatures avoid power lines but the reason why was mysterious as they are not impassable physical barriers. Now, a new understanding of just how many species can see the ultraviolet light – which is invisible to humans – has revealed the major visual impact of the power lines. "It was a big surprise but we now think the majority of animals can see UV light," said Professor Glen Jeffery, a vision expert at University College London.

Our understanding is that these lines will be noisy. Which we are also opposed to. The audible noise emitted from high-voltage lines is caused by the discharge of energy that occurs when the electrical field strength on the conductor surface is greater than the 'breakdown strength' (the field intensity necessary to start a flow of electric current) of the air surrounding the conductor. This discharge is also responsible for radio noise, a visible glow of light near the conductor, an energy loss known as corona loss and other phenomena associated with high-voltage lines.


"The degree or intensity of the corona discharge and the resulting audible noise are affected by the condition of the air--that is, by humidity, air density, wind and water in the form of rain, drizzle and fog. Water increases the conductivity of the air and so increases the intensity of the discharge. Also, irregularities on the conductor surface, such as nicks or sharp points and airborne contaminants, can increase the corona activity. What will the noise do to wildlife, our cattle, and our family?

Until recently the City of Cove has sold their excess Hydro Electric power to Idaho Power. Idaho Power has decided they do not need to purchase this excess power because they no longer need the extra power. So, what is the real purpose of this line, if this is in truth the facts.

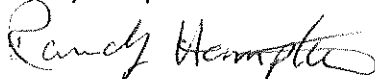
Our family strongly opposes the line and extremely opposes the line coming across our property.

The Hampton Family

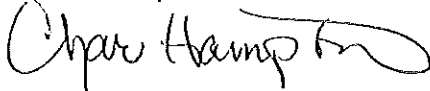
Patricia Hampton



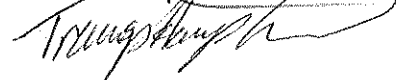
Randy Hampton



Char Hampton



Travis Hampton



Bryce Hampton



Stray Voltage and Dairy Farms Can Lead to Large Damage Awards

Mary Francque*
May 16, 2018

History of Stray Voltage Suits

Stray voltage causing damages to dairy farms is a problem that has been facing the dairy industry for year with damages cases dating back to 1984. Stray voltage is caused when a power line's neutral line is "leaking" electrical currents into the ground. A common cause of stray voltage is a neutral wire that is either too small or damaged and allows the current to go into the ground. Even when the stray voltage current is at a low level, specifically anything above 0.5 volt, it can still be harmful to livestock. These currents put stress on the animals, which in turn lowers their immune systems, leading to a variety of issues. Dairy cows have shown to be more sensitive to stray voltage than any other livestock. Voltage has been shown to cause decreased milk production, due to a lowered water intake and in turn a lowered feed intake. Farmers have also noted a range of issues relating to breeding and calving. Dairy farmers have even reported extremely sick cows, some of which have later died.

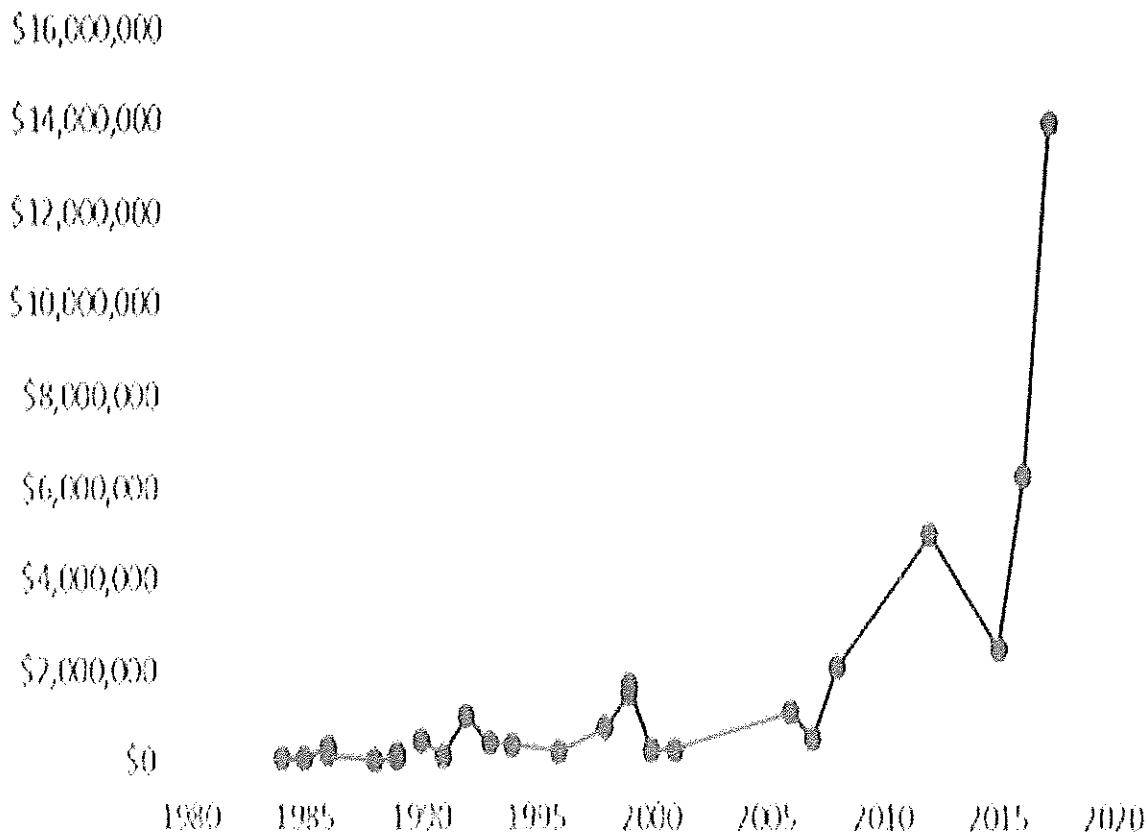
Since the 1980s farmers have been filing a variety claims against electrical utility companies across the United States relating to stray voltage, including claims for trespass, negligence, strict liability, and nuisance. Additionally, dairy farmers have filed suits against milk system suppliers for stray voltage. However, a majority of these suits have been unsuccessful or have resulted in limited relief due to the economic loss doctrine that prevents the collection of damages when it relates to a loss in profit due to defective goods. A majority of courts have held that unlike milking systems, the utility companies are providing a service rather than a good.

In suits relating strictly to electrical utility companies we have seen an evolution in damages from the 1980s to today. These suits have proven to be successful on multiple occasions and the awarded damages continue to grow.

Evolution of Damages in Stray Voltage Cases Heard throughout the United States

Since 1984 many farmers have received damages awards. However, those awards have grown from \$36,500 up to \$14 million. While there has been variation in damages awards throughout the years, there has been an upward trend overall. While some of this growth in awarded damages is due to growing farm sizes, a majority of the growth is due to an increase in understanding and research.

Awarded Damages in Stray Voltage Cases



Year	Case Name
1984	Zorn v. Electric Manufacturing
1985	Schriner v. Pen Light Co.
1986	Public Service v. Nichols
1986	Hensley v. How Coop.
1988	Otte v. Dayton
1989	Lipke v. Waush
1989	Taplin Farms, Inc. v. Service
1990	Fink v. Lafayette
1991	Kolpin v. Pioneer
1992	ZumBerge v. Ne Co.
1993	Cook v. Goodhu
1994	Matchey v. Trei Coop.
1996	Vogel v. Grant Electric Coop.
1998	Vandenberg v. Co.
1999	James v. Beaun
1999	Tipmont Rural Corp. v. Fisher
2000	Scullion v. Wisc Light Co.
2001	Iowa Lakes Elec
2006	Muth v. Wiscor Co.
2007	Gumz v. Northe
2008	Chapman v. Ne Coop.
2012	Bollant v. Scenl Coop.
2015	Poppler v. Wrigl Cooperative Elc
2016	Norman v. Crov
2017	Haldersons v. N Power
2017	Burdick v. Inter Light

Recent Stray Voltage Case in Iowa

The Iowa Court of Appeals recently decided in favor of a dairy farm awarding them \$500,000 in damages. Burdicks, a family dairy in Northern Iowa, filed suit against Interstate Power & Light Co. The Burdicks claimed that Interstate was negligent in its maintenance of its system, which caused stray voltage damages to the

Burdicks' dairy herd. They also filed a nuisance claim against Interstate. The jury found for Burdicks on the issue of negligence, awarding them \$500,000. After the trial, Interstate filed a motion for a new trial claiming that Burdicks did not provide enough evidence for the jury to calculate the damages. The district court granted Interstate's motion for a new trial.

The case decided by the Iowa Court of Appeals found that if there is proof a party has sustained damages, then that party can recover, even if there is uncertainty in the amount of the damages. There must just be a basis from which the amount of damages can be inferred. While parties should still aim to provide detailed evidence showing damages, the court here allowed the party to recover even without such evidence.

Burdicks appealed the district court's grant of a new trial. The appellate court found for Burdicks, as Interstate's case-in-chief provided adequate information to support a determination of damages by the jury. In addition, Interstate did not appeal the jury's finding of its negligence. The court has held that "there is a distinction between proof of the fact that damages have been sustained and proof of the amount of those damages."^[1] The proof of the amount of damages only needs to be presented to a point where the jury can come to an approximate estimate of the loss, not to an exact mathematical conclusion.

Therefore, even though Burdicks failed to present significant evidence that would aid the jury in determining the *amount* of damages, there were no grounds for the court to order a new trial. This was especially true because Interstate's expert witness' testimony and admitted exhibits provide sufficient evidence. Previous courts have shown that the court must look at evidence presented in the whole trial, not just the evidence presented by one side.

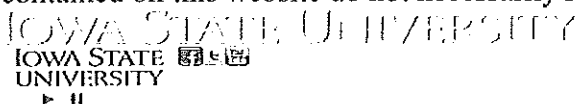
Here, Interstate's expert submitted graphs which showed expense figures and other important financial data. This along with his testimony allowed the jury to determine an estimate of the loss. Therefore, the Iowa Court of Appeals upheld the jury's previous holding that Interstate was negligent for \$500,000 in damages.

The case was *Burdick v. Interstate Power & Light Co.*, No. 16-0821 (Iowa Ct. App. October 25, 2017).

[1] *Yost v. City of Council Bluffs*, 471 2d N.W. 2d 836, 840 (Iowa 1991).

*Mary Francque completed her second year of law school at Drake University in May of 2018. She served as an intern for CALT during the Spring 2018 semester.

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Electrical Notes & Articles

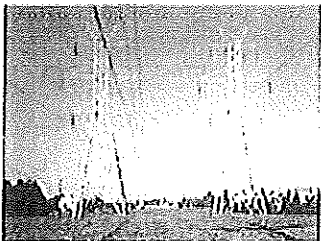
Sharing Abstracts, Notes on various Electrical Engineering Topics.

Filed
September 29, 2014
Data Center
Missouri Public
Service Commission

Effects of High Voltage Transmission Lines on Humans and Plants

FEBRUARY 17, 2012 [30 COMMENTS](#)

<http://electricalnotes.wordpress.com/2012/02/17/effects-of-high-voltage-transmission-lines-on-humans-and-plants/#comments>



<http://electricalnotes.files.wordpress.com/2012/02/untitled.png>

Introduction:

By increasing population of the world, towns are expanding, many buildings construct near high voltage overhead power transmission lines. The increase of power demand has increased the need for transmitting huge amount of power over long distances. Large transmission lines configurations with high voltage and current levels generate large values of electric and magnetic fields stresses which affect the human being and the nearby objects located at ground surfaces. This needs to be investigating the effects of electromagnetic fields near the transmission lines on human health.

The electricity system produces extremely low frequency electromagnetic field which comes under Non ionizing radiations which can cause health effects. Apart from human effect, the electrostatic coupling & electromagnetic interference of high voltage transmission lines have impact on plants and telecommunication equipments mainly operating in frequency range below UHF.

IS Power Line EMF safe? This is the controversy Discussion directly eludes on Government Regulation policy and Power Company. There are lots of supporting documents and research paper in favor and criticize this arguments.

What is The Electric and Magnetic fields:

Witness Exhibit No. 32
Date 9.4.14 Reporter
File No. EA-2014-0207
Hamilton, MO

- Electric and magnetic fields, often referred to as electromagnetic fields or EMF, occur naturally and as a result of the Power generation, Power Transmission, Power distribution and use of electric power.

- EMF is fields of force and is created by electric voltage and current. They occur around electrical devices or whenever power lines are energized.
- Electric fields are due to voltage so they are present in electrical appliances and cords whenever the electric cord to an appliance is plugged into an outlet (even if the appliance is turned off).
- Electric fields (E) exist whenever a (+) or (-) electrical charge is present. They exert forces on other charges within the field. Any electrical wire that is charged will produce an electric field (i.e. Electric field produces charging of bodies, discharge currents, biological effects and sparks). This field exists even when there is no current flowing. The higher the voltage, the stronger is electric field at any given distance from the wire.
- The strength of the electric field is typically measured in volts per meter (V/m) or in kilovolts per meter (kV/m). Electric fields are weakened by objects like trees, buildings, and vehicles. Burying power lines can eliminate human exposure to electric fields from this source.
- Magnetic fields result from the motion of the electric charge or current, such as when there is current flowing through a power line or when an appliance is plugged in and turned on. Appliances which are plugged in but not turned on do not produce magnetic fields.
- Magnetic field lines run in circles around the conductor (i.e. produces magnetic induction on objects and induced currents inside human and animal (or any other conducting) bodies causing possible health effects and a multitude of interference problems). The higher the current, the greater the strength of the magnetic field.
- Magnetic fields are typically measured in tesla (T) or more commonly, in gauss (G) and milli gauss (mG). One tesla equals 10,000 gauss and one gauss equals 1,000 milli gauss.
- The strength of an EMF decreases significantly with increasing distance from the source.
- The Strength of an electric field is proportional to the voltage of the source. Thus, the electric fields beneath high voltage transmission lines far exceed those below the lower voltage distribution lines. The magnetic field strength, by contrast, is proportional to the current in the lines, so that a low voltage distribution line with a high current load may produce a magnetic field that is as high as those produced by some high voltage transmission lines.
- In fact, electric distribution systems account for a far higher proportion of the population's exposure to magnetic fields than the larger and more visible high voltage transmission lines.
- Electrical field: the part of the EMF that can easily be shielded.
- Magnetic field: part of the BMF that can penetrate stone, steel and human flesh. In fact, when it comes to magnetic fields, human flesh and bone has the same penetrability as air!
- Both fields are invisible and perfectly silent: People who live in an area with electric power, some level of artificial EMF is surrounding them.
- The magnetic field strength produced from a transmission line is proportional to: load current, phase to phase spacing, and the inverse square of the distance from the line.
- Many previous works studied the effect of different parameters on the produced magnetic field such as: the distance from the line, the conductor height, line shielding and transmission line configuration and compaction.

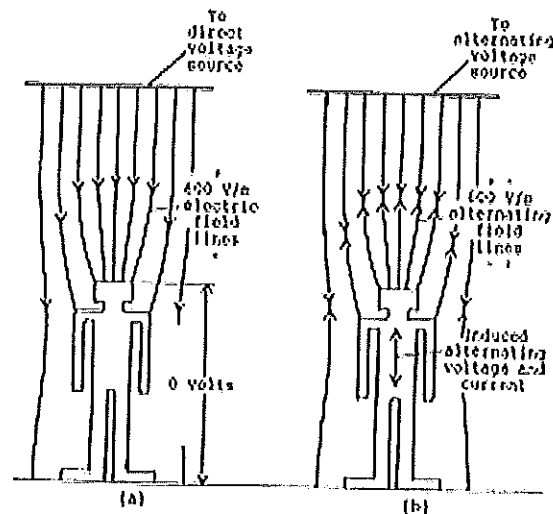
Electric and Magnetic Field (EMF) Effects

- Extremely high voltages in EHV lines cause electrostatic effects, whereas short circuit currents & line loading currents are responsible for electromagnetic effects. The effect of these electrostatic fields is

seen prominent with living things like humans, plants, animals along with vehicles, fences & buried pipes under & close to these lines.

1) EMF Effects Human beings:

- The human body is composed of some biological materials like blood, bone, brain, lungs, muscle, skin etc. The permeability of human body is equal to permeability of air but within a human body has different electromagnetic values at a certain frequency for different material.
- The human body contains free electric charges (largely in ion-rich fluids such as blood and lymph) that move in response to forces exerted by charges on and currents flowing in nearby power lines. The processes that produce these body currents are called electric and magnetic induction.
- In electric induction, charges on a power line attract or repel free charges within the body. Since body fluids are good conductors of electricity, charges in the body move to its surface under the influence of this electric force. For example, a positively charged overhead transmission line induces negative charges to flow to the surfaces on the upper part of the body. Since the charge on power lines alternates from positive to negative many times each second, the charges induced on the body surface alternate also. Negative charges induced on the upper part of the body one instant flow into the lower part of the body the next instant. Thus, power-frequency electric fields induce currents in the body (Eddy Current) as well as charges on its surface.



(<http://electricalnotes.files.wordpress.com/2012/02/13.png>) The currents induced in the body by magnetic fields are greatest near the periphery of the body and smallest at the center of the body.

- It is believed that, the magnetic field might induce a voltage in the tissue of human body which causes a current to flow through it due to its conductivity of around them.
- The magnetic field has influence on tissues in the human body. These influences may be beneficial or harmful depending upon its nature.
- The magnitude of surface charge and internal body currents that are induced by any given source of power-frequency fields depends on many factors. These include the magnitude of the charges and currents in the source, the distance of the body from the source, the presence of other objects that might

shield or concentrate the field, and body posture, shape, and orientation. For this reason the surface charges and currents which a given field induces are very different for different Human and animals.

- When a person who is isolated from ground by some insulating material comes in close proximity to an overhead transmission line, an electrostatic field is set in the body of human being, having a resistance of about 2000 ohms.
- When the same person touches a grounded object, it will discharge through his body causing a large amount of discharge current to flow through the body. Discharge currents from 50-60 Hz electromagnetic fields are weaker than natural currents in the body, such as those from the electrical activity of the brain and heart.
- For human beings the limit for undisturbed field is 15 kV/m, R.M.S., to experience possible shock. When designing a transmission lines this limit is not crossed, in addition to this proper care has been taken in order to keep minimum clearance between transmission lines.
- According to research and publications put out by the World Health Organization(WHO), EMF such as those from power lines, can also cause:

■ Short term Health Problem

1. Headaches.
2. Fatigue
3. Anxiety
4. Insomnia
5. Prickling and/or burning skin
6. Rashes
7. Muscle pain

■ Long term Health Problem:

- Following serious health Problems may be arise due to EMF effects on human Body.

(1) Risk of damaging DNA.

- Our body acts like an energy wave broadcaster and receiver, incorporating and responding to EMFs. In fact, scientific research has demonstrated that every cell in your body may have its own EMF, helping to regulate important functions and keep you healthy.
- Strong, artificial EMFs like those from power lines can scramble and interfere with your body's natural EMF, harming everything from your sleep cycles and stress levels to your immune response and DNA!

(2) Risk of Cancer

- After hundreds of international studies, the evidence linking EMFs to cancers and other health problems is loud and clear. High Voltage power lines are the most obvious and dangerous culprits, but

the same EMFs exist in gradually decreasing levels all along the grid, from substations to transformers to homes.

(3) Risk of Leukemia:

- Researchers found that children living within 650 feet of power lines had a 70% greater risk for leukemia than children living 2,000 feet away or more. (As per British Medical Journal, June, 2005).

(4) Risk of Neurodegenerative disease:

- "Several studies have identified occupational exposure to extremely low-frequency electromagnetic fields (EMF) as a potential risk factor for neuro degenerative disease." (As per Epidemiology, 2003 Jul; 14(4):413-9).

(5) Risk of Miscarriage:

- There is "strong prospective evidence that prenatal maximum magnetic field exposure above a certain level (possibly around 16 mG) may be associated with miscarriage risk." (As per Epidemiology, 2002 Jan; 13(1):9-20)

2) EMF Effects on Animals

- Many researchers are studying the effect of Electrostatic field on animals. In order to do so they keep the cages of animals under high Electrostatic field of about 30 kV/m. The results of these Experiments are shocking as animals (are kept below high Electrostatic field their body acquires a charge & when they try to drink water, a spark usually jumps from their nose to the grounded Pipe) like hens are unable to pick up grain because of chattering of their beaks which also affects their growth.

3) EMF Effects on Plant Life

- Most of the areas in agricultural and forest lands where high power transmission lines pass. The voltage level of high power transmission Lines are 400KV, 230KV, 110KV, 66KV etc. The electromagnetic field from high power transmission lines affects the growth of plants.
- Gradually increases or decreases and reaches to maximum current or minimum current and thereafter it starts to fall down to lowest current or raises to maximum current or a constant current. Again the current, it evinces with little fluctuations till the next day morning.
- Current in Power transmission lines varies according to Load (it depending upon the amount of electricity consumed by the consumers). Hence the effect of EMF (due to current flowing in the power lines) upon the growth of plants under the high power transmission lines remains unaltered throughout the year.
- From various practically study it was found that the response of the crop to EMF from 110 KV and 230 KV Power lines showed variations among themselves. Based on the results the growth characteristics

like shoot length, root length, leaf area, leaf fresh weight, specific leaf weight, shoot/root ratio, total biomass content and total water content of the four crop plants were reduced significantly over the control plants.

- Similar trend were observed in the biochemical characteristics like chlorophyll.
- Reduced growth and physiological parameter was primarily due to the effect of reduced cell division and cell enlargement. Further the growth was stunted which may be due to poor action of hormones responsible for cell division and cell enlargement.
- The bio-chemical changes produced in this plant due to EMF stress quite obvious and it affects the production leading to economic loss.
- It is concluded that the reduced growth parameter shown in the crop plants would indicates that the EMF has exerted a stress on that plants and this EMF stress was quite obvious and it affects the production leading to economic loss. So further research activities are needed to safe guard plants from EMF stress.

4) EMF Effects on Vehicles parked near Line

- When a vehicle is parked under high voltage transmission line an electrostatic field is developed in it. When a person who is grounded touches it a discharge current flows through the human being. In order to avoid this parking lots are located below the transmission lines the recommended clearance is 17 m for 345 kV and 20 m for 400 kV lines.

5) EMF Effects on Pipe Line/Fence/Cables:

- A fence, irrigation pipe, pipeline, electrical distribution line forms a conducting loops when it is grounded at both ends. The earth forms the other portion of the loop. The magnetic field from a transmission line can induce a current to flow in such a loop if it is oriented parallel to the line. If only one end of the fence is grounded, then an induced voltage appears across the open end of the loop. The possibility for a shock exists if a person closes the loop at the open end by contacting both the ground and the conductor.
- For fences, buried cables, and pipe lines proper care has been taken to prevent them from charging due to Electrostatic field. When using pipelines which are more than 3 km in length & 15 cm in Diameter they must be buried at least 30 laterally from the line center.

6) EMF Effects on Maintenance Worker:

- For providing continuous and uninterrupted supply of electric power to consumers maintenance operations of power lines are often performed with systems energized or live.

- This is live line maintenance or hot line maintenance. The electric fields and magnetic fields associated with these power lines may affect the health of live line workers. Its electric field and current densities affect the health of humans and cause several diseases by affecting majority parts of the human body. These electric field and current densities affects humans of all stages and causes short term diseases in them and sometimes death also.

Contradiction of EMF Effect on Human Health:

- There are two reasons why electromagnetic fields associated with power systems could pose no threat to human health.
- First, The EMF from power lines and appliances are of extremely low frequency and low energy. They are non-ionizing and are markedly different in frequency from ionizing radiation such as X-rays and gamma rays. As a comparison, transmission lines have a low frequency of 60Hz while television transmitters have higher frequencies in the 55 to 890 MHz range. Microwaves have even higher frequencies, 1,000 MHz and above. Ionizing radiation, such as X-rays and gamma rays, has frequencies above 10¹⁵ Hz. The energy from higher-frequency fields is absorbed more readily by biological material. Microwaves can be absorbed by water in body tissues and cause heating which can be harmful, depending upon the degree of heating that occurs. X-rays have so much energy that they can ionize (form charged particles) and break up molecules of genetic material (DNA) and no genetic material, leading to cell death or mutation. In contrast, extremely low frequency EMF does not have enough energy to heat body tissues or cause ionization.
- Second, all cells in the body maintain large natural electric fields across their outer membranes. These naturally occurring fields are at least 100 times more intense than those that can be induced by exposure to common power-frequency fields. However, despite the low energy of power-frequency fields and the very small perturbations that they make to the natural fields within the body.
- When an external agent such as an ELF fields lightly perturbs a process in the cell, other processes may compensate for it so that there is no overall disturbance to the organism. Some perturbations may be within the ranges of disturbances that a system can experience and still function properly.
- During Research on health effects of electric and magnetic fields, it has come forward that electric field intensity exposure of about 1-10 mv/m in tissue interact with cells but not proved to be harmful. But strong fields cause harmful effects when their magnitude exceeds stimulation thresholds for neural tissues (central nervous system and brain), muscle and heart

Surface Current Density(mA/m ²)	Health Effect
<1	Absence of any established effects.
1 To 10	Minor biological effects.
10 To 100	Well established effects(a) Visual effect.(b) Possible nervous system effect
100 To 1000	Changes in central nervous System
>1000	Ventricular Fibrillation (Heart Condition 0. Health hazards.

- In India it is stipulated that electric field intensity should not exceed 4.16 kV/m and magnetic field intensity should not exceed 100 μ T in public areas.
- Even when effect is demonstrated consistently on the cellular level in laboratory experiments, it is hard to predict whether and how they will affect the whole organism. Processes at the individual cell level are integrated through complex mechanisms in the animal.

Mitigation of EMF Effect of Transmission Line:

1) Line shielding:

- There are two basic 60-Hz magnetic field mitigation (reduction) methods: passive and active.
- Passive magnetic field mitigation includes rigid magnetic shielding with ferromagnetic and highly conductive materials, and the use of passive shield wires installed near transmission lines that generate opposing cancellation fields from electromagnetic induction.
- Active magnetic field mitigation uses electronic feedback to sense a varying 60-Hz magnetic field, then generates a proportionally opposing (nulling) cancellation field within a defined area (room or building) surrounded by cancellation coils. Ideally, when the two opposing 180-degree out-of-phase magnetic fields of equal magnitude intersect, the resultant magnetic field is completely cancelled (nullified). This technology has been successfully applied in both residential and commercial environments to mitigate magnetic fields from overhead transmission and distribution lines, and underground residential distribution (URD) lines.

2) Line Configuration and Compaction

- Line compaction means that, bringing the conductors close together keeping the minimum (safe) phase-to-phase spacing constant. Keeping all the parameters the same and the only variable is the phase-to-phase spacing. The magnetic field is proportional to the dimensions of the phase-to-phase spacing.
- Other studies showed that, increasing the distance between phases by increasing the height of the central phase conductor above the level of the other phase conductors leads to the reduction of the peak value of the magnetic field.
- Reducing the phase-to-phase distance, leads to the decrease of the magnetic field. This reduction between phases is limited by the electrical insulation level between phases.
- (A) For single circuit lines, compaction causes a great reduction to the maximum magnetic field values. This reduction of magnetic field allows for lower conductor heights above the ground. This leads to transmit the same power on shorter towers. This gives a great reduction of the tower cost.
- (B) For double circuit lines, some studies showed that, the use of optimum phase arrangement causes a drastic reduction to the maximum magnetic field values for both conventional and compact lines i.e. with vertical conductor

3) Grounding:

- Induced currents are always present in electric fields under transmission lines and will be present. However, there must be a policy to ground metal objects, such as fences, that are located on the right-of-way. The grounding eliminates these objects as sources of induced current and voltage shocks. Multiple grounding points are used to provide redundant paths for induced current flow and mitigate nuisance shocks.

4) Providing Right of Way(R.O.W):

- Overhead transmission systems required strips of land to be designed as right-of-ways (R.O.W.). These strips of land are usually evaluated to decrease the effects of the energized line including magnetic and electric field effects.

5) Maintaining Proper Clearance:

- Unlike fences or buildings, mobile objects such as vehicles and farm machinery cannot be grounded permanently. Limiting the possibility of induced currents from such objects to persons is accomplished by maintaining proper clearances for above-ground conductors tend to limit field strengths to levels that do not represent a hazard or nuisance.
- Limiting access area by increasing conductor clearances in areas where large vehicles could be present.

Conclusion:

- Based on the review and analysis and other research projects it is of the opinion that there is no conclusive and convincing evidence that exposure to extremely low frequency EMF emanated from nearby high voltage Transmission lines is causally associated with an increased incidence of cancer or other detrimental health effects in humans. Even if it is assumed that there is an increased risk of cancer as implied in some epidemiological studies, the empirical relative risk appears to be fairly small in magnitude and the observed association appears to be tenuous. Although the possibility is still remain about the verse effect on health by EMF.

References:

- SSGBCOE&T, Electronics and Communication Engineering-Girish Kulkarni1, Dr.W.Z.Gandhare
- Pharmacology, School of Medicine, Chung-Ang University, Seoul, Korea-Sung-Hyuk Yim, Ji-Hoon Jeong.
- Electrical Engineering Department, Shoubra, Benha University, Cairo, Egypt- Nagat Mohamed Kamel Abdel-Gawad.
- Madurai Kamaraj University-S. Somasekaran.
- Electrical Engineering Department at King Fahd University of Petroleum & Minerals- J. M. Bakhshwain, M. H. Shwehdi, U. M. Johar and A. A. AL-Naim.
- Dept. of Electrical Engineering, College of Engineering – University of Tikrit-Iraq- Ghanim Thiab Hasan, Kamil Jadu Ali, Mahmood Ali Ahmed.

<http://www.electricalnotes.com/about-these-ads/>

About Jignesh.Parmar

Jignesh Parmar has completed his B.E(Electrical) from Gujarat University. He has more than 11 years experience in Power Transmission-Power Distribution-Electrical energy theft detection-Electrical Maintenance-Electrical Projects(Planning-Designing-coordination-Execution). He is Presently associate with one of the leading business group as a Assistant Manager at Ahmedabad,India. He is Freelancer Programmer of Advance Excel and design useful Excel Sheets of Electrical Engineering as per IS,NEC,IEC,IEEE codes. He is technical Author for "Electrical Mirror" and "Electrical India" Magazines. He

is Technical Blogger and Familiar with English, Hindi, Gujarati, French languages. He wants to Share his experience & knowledge and help technical enthusiasts to find suitable solutions and updating themselves on various Engineering Topics.

30 Responses to *Effects of High Voltage Transmission Lines on Humans and Plants*

moses says:

February 18, 2012 at 10:39 am

Thanks for the info, man

Reply

Mohd saood Khan says:

February 18, 2012 at 10:51 am

It needs more discussions & debates.....

Reply

prakash chandra says:

February 22, 2012 at 5:15 pm

sir i am dooing my final year project on optimal location of interline power flow controller (ipfc) ,i am facing problem in design of IPFC controller in matlab simulation .if you having some idea about this topis then please help me .

Reply

theja says:

March 17, 2012 at 5:53 pm

very good article.An eye opener to everybody

Reply

Pushpinder Asthir says:

March 24, 2012 at 3:35 pm

It is an intersting article.But than we also need Transmission lines for the development and any large development that benefits mass population always effects some small portion of population.

Reply

suren says:

May 11, 2012 at 11:17 am

sir,

We are construction a g+ 3 upper floor building adjoining the 400KV NTPC line in bangalore,

Pl inform at what level we may have induction & danger to life,

what is the minimum clearence required form over head line to bulding.

answers may also be mailed to my mail is surend26@rocketmail.com

Reply

balasubramani says:

December 2, 2012 at 4:54 pm

sir i got a plot for house construction 10m from the overhead lines it will make any problem in future by legaly & safety and howmany meters clearence need from the OHLINES in india

Reply

Syed Rizwan says:

May 15, 2012 at 1:48 pm

Sir i would want to know your views on the Ultra high voltage transmission line being built by China having a length of 2,210 Km. Waiting for your blog on this topic .

Reply

Sandeep Beniwal says:

August 9, 2012 at 4:37 am

sir i would to know that when a new tower established on a field then what the payment made by power grid or the company who is establishing that tender tower. If the quality of irrigation on that area is very good. please reply me ASAP

Reply

shiraz says:

September 11, 2012 at 3:10 am

nice work

Shirazul Islam

Reply

karen says:

October 6, 2012 at 11:30 pm

Thank you for your clear, current info. we are considering a purchase of a home within 60 meters of 30 towers of hi voltage electric transmission lines. Would you live there? or want your family to live in this home?

thanks so,

karen

Reply

eli says:

October 11, 2012 at 3:33 am

I'm in a similar situation, but I want to buy the house is 350 meters from high voltage antennas, do you think that is bad for the health?

Thank you so much.

Eli

Reply

Bharat Bhushan says:

November 22, 2012 at 11:16 am

Hi , This is very good info indeed ,

I am trying to buy a home in builder society and there is high voltage line passing over it.The distance of flat I am looking is 10 mtrs away from line.Will that not effect health in any mean.

Please advise

Bharat.leo@gmail.com

Reply

hemant kharat says:

December 17, 2012 at 10:14 am

sir please tell me what are distance of electrical overhead tower line of 400 kv and living home its urgent please????

Reply

Jignesh Parmar says:

December 17, 2012 at 6:02 pm

Refer Post of "Electrical Safety Distance Part 1 to 6" of this Blog

Reply

RAVI says:

January 14, 2013 at 4:26 am

we r planing to buy agriculture land of 20 acers. in between the high tension line and one high line pole is there. is it safe to health for humans and plants? how much distance should maintain from the line hight and long?

Reply

mary kwan says:

January 24, 2013 at 4:52 am

Sir,

Thank you so much for yr helpful article. I am thinking about buying a flat in Hong Kong, it is 2/F on the building and the ground level is for stores and an electricity (maybe transforming) substation which seems to supply electricity for the complex. Is it safe, will there be radiation harmful for humans? Urgently needing your advice.

Reply

Guillermo Ferrando says:

March 19, 2013 at 1:05 pm

Hello: I need to find any article or reference about of the EMF effects on steel bridges. In a case, I need install a 33 KV electrical line over a steel bridge, but I think that is an dangerous situation for the people, vehicles and the steel of structure, because the electrical induced currents on the steel is (for me) of uncertain effects....Thank you. Guillermo

Reply

iman says:

March 28, 2013 at 9:45 am

al salam alaikm I'M a physics teacher, and graduate student, my thesis is about, the risk of high voltage transformers on human health, can you help me, all my thanks and God bless you. ,

Reply

shaneel says:

April 19, 2013 at 5:10 am

can any body tell me what is distance working on a live transmission lines of different voltages....

Reply

Jignesh Parmar says:

April 20, 2013 at 5:58 pm

Review old post of this Blog

Reply

N.S.DUHAN says:

May 12, 2013 at 7:43 am

Sir, we r running a mild steel galvanized pipe mfg.co. We have a electronic weighing bridge of 80 m.t. cap. A high voltage (H.T.LINE) is going on the bridge. There is a big variation on weight. We called so many experts. But result is zero. Is it possible, that due to H.T. Line there is any effect on weighing bridge load cells. There r 6 load cells in the bridge. If it is possible what r the remedies for this .Please suggest.

Thanks.

Reply

A Tierney says:

June 14, 2013 at 11:09 pm

Am I in any danger? I live in a 12 unit apt building with all the wires and boxes for cable, electricity, and phone serving it attached to my outside bedroom wall. I can sometimes hear a loud hum in the wires and have called the utility to do something about it. My neighborhood is a dense urban DC area.

My bed is within 3 feet of these wires and boxes. Is there any way to measure the strength of the electromagnetic field I am sleeping in? What distance mitigates the impact of this field?

My neighbor of 12 years, who lived below me with her bedroom in the same configuration, recently died of a lung disease. I have lived here for 9 years. I was recently diagnosed with a spot on my lung. Any advice you can offer would be appreciated.

ETN

Reply

suryabhan singh says:

August 14, 2013 at 3:27 pm

recently i purchased a house in mumbai later on i find a high tension cable over head wire passing around 80 to 90 meter away from my building is it safe pls suggest

Reply

Dr. Aung Ze Ya says:

September 5, 2013 at 8:25 am

Your document is very effective to us.

Thank you.

Reply

Charlie says:

September 15, 2013 at 2:55 pm

I have booked an apartment and yet to take possession. The distance between the flat and HT Line is 18Meters away. Is it advisable to proceed?

Reply

Bhagyaman Chettri says:

October 8, 2013 at 2:23 am

Sir Please advise me that what is that safe distance between high tension line 400kv and humam

Reply

Jignesh.Parmar says:

October 8, 2013 at 3:01 pm

Already given in the Blog

Reply

othman hasnaoui says:

November 4, 2013 at 9:05 pm

dear sir

I'm a phd student, my research is about the EMF Effects Human and plants and i want to know if there are a scientific studies who demonstrate if really there is a damage for human and plants.

Plz let me know

Reply

Peter Yougha says:

November 5, 2013 at 9:07 am

I'm a MSc GIS student, I am researching on effect on overhead power transmission lines near residential buildings in UK. I need contribution on EMF radiation from the power lines to the environment.

Reply

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TARDAEWETHER Kellen * ODOE

From: Rogers Asphalt <rasphalt@oregonwireless.net>
Sent: Friday, July 19, 2019 1:31 PM
To: B2H DPOComments * ODOE
Subject: Fw: NO to B2H
Attachments: 20190719120519089.pdf

Attaching our comments. Mailing the original with signatures.

Patricia Hampton
Randall & Charlene Hampton
541-963-3633

-----Original Message-----

From: rasphalt@oregonwireless.net
Sent: 19 July, 2019 09:05 AM
To: Rogers

This E-mail was sent from "RNPF70DDC" (Aficio MP C2050).

Scan Date: 07.19.2019 12:05:18 (-0400)
Queries to: rasphalt@oregonwireless.net

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<https://www.avast.com/antivirus>

NO to B2H Alternative Route

The Hampton Family:

Patricia Hampton P.O. Drawer K, La Grande, Oregon 97850 phone: 541-963-3633

Randall & Charlene Hampton, 57119 Hwy 244, La Grande, Oregon 97850 phone: 541-910-3374 & 541-786-7288

Travis & Bryce Hampton, 57121 Oregon Hwy 244, La Grande, Oregon 97850 phone: 541-786-4288

Ranch history;

Great Uncle Jim Payne and Great Aunt Lilly Payne, (James S. Payne and Lillian H. Payne husband and wife) purchased the property we now own subject to a purchase money mortgage on August 17, 1937 from Travelers Insurance Company By F.W. Cole, Vice President.

Our Family have lived on our working ranch for 82 years. We are not new to this area. We currently have 3 generations living here on Highway 244. Our Family is in opposition of putting the lines on your alternative route. We strongly oppose the line being put across our property.

When it could continue on the already existing power line just one hill over from our property.

When we suggested this to the B2H group at the last meeting, we were told, "You wouldn't want it there!" That is not an answer. *YES we would.* There is no reason not to follow the existing line or what about permitting on the current system. Either by going above it, or extending it out to the sides. If you are using the excuse that if one goes down, then they all go down. When was the last time one of these lines have gone down? Why not bury the line in the existing easement which makes the most sense, especially since the devastating fires that caused many homes to be destroyed in California, was caused by a power line spark, and now the proposal is to cut power completely during fire season. (<https://www.foxnews.com/us/pacific-gas-electric-power-lines-caused-californias-deadliest-and-most-destructive-wildfire-officials>) Not only are the taller poles unsightly they create more exposure for possible lightning strikes causing more fires. Burying the power lines now will save money from firefighting in the years to come.

The route of the B2H if it comes across the mountain and onto our property will follow the Oregon Trail and Flowers crossing, putting the power line over the Oregon Trail, has a potential impact to the historic Oregon Trail. This trail is our heritage, of the State and our Nation. Which would disturb the Oregon Trail, in fact it would probably remove the wagon wheel marks on the trail itself. Flowers Crossing is on the corner of our property on the Grande Ronde River. It was marked with a sign until recently, we are not sure what happened to that landmark sign.

Our other concern is the Stray Voltage. We raise our children and our grandchildren and great grandchildren on this ranch. When energy is transferred, some is lost along the way. Our metal buildings, metal water troughs, our newly drilled well for watering our cattle, will be in line with the B2H line. These metal items on our property can act as a conduit for voltage to find its way to our feeding systems and water systems. It has been found that stray voltage will increase somatic cell counts in our cattle. Causing them to be nervous, reduce milk production and increase clinical mastitis. Which in turn makes for more of our cattle becoming sick. This represents more time to properly handle these cows, lost production, vet calls, treatment products, and occasional dead or culled cows. It will be said that there is no proof that this will happen, even no significant findings. But in 1999 a jury awarded Peterson Bros. Dairy \$700,000 after deciding that stray voltage was the cause of slashed herds milk output and increased the cattle's death rate. Another jury awarded a farmer \$850,000 over effects of stray voltage on their cows in 2004. It not only affects dairy cattle, but beef cattle as well. So as you can see, these cases show courts have acknowledged stray voltage and its possible effects.

Farmers have also reported that stray voltage caused them to get electric shocks from their metal buildings on their farms. We now fear the health risks from exposure to high voltage power lines. Whether the danger is scientifically genuine or verifiable fact should be irrelevant. If it takes one life or multiple, or if our children end up with leukemia... the safety of EMFs sows enough doubt that we say NO TO THE POWER LINE. And you should be thinking twice about putting a family who has been on this land for 82 years in this predicament. We choose this place due to the majestic beauty, the health and welfare of our children and our children's children. Attached to this letter is documentation on stray voltage.

The B2H line would also impact the migration patterns of the Elk, Whitetail Deer and Mule Deer in our valley. You can visibly see their migration trails on the mountain which is one of the alternative routes for the B2H. Elk and Deer summer range in our valley. Power lines have been shown to be barriers for Elk and Deer. They refrained from crossing the power line barrier. Whitetail were even less likely to cross the barrier.

Research has revealed that Power lines are seen as glowing and flashing bands across the sky by many animals. The work suggests that the pylons and wires that stretch across many landscapes are having a worldwide impact on wildlife. Scientists knew many creatures avoid power lines but the reason why was mysterious as they are not impassable physical barriers. Now, a new understanding of just how many species can see the ultraviolet light – which is invisible to humans – has revealed the major visual impact of the power lines. "It was a big surprise but we now think the majority of animals can see UV light," said Professor Glen Jeffery, a vision expert at University College London.

Our understanding is that these lines will be noisy. Which we are also opposed to. The audible noise emitted from high-voltage lines is caused by the discharge of energy that occurs when the electrical field strength on the conductor surface is greater than the 'breakdown strength' (the field intensity necessary to start a flow of electric current) of the air surrounding the conductor. This discharge is also responsible for radio noise, a visible glow of light near the conductor, an energy loss known as corona loss and other phenomena associated with high-voltage lines.


"The degree or intensity of the corona discharge and the resulting audible noise are affected by the condition of the air--that is, by humidity, air density, wind and water in the form of rain, drizzle and fog. Water increases the conductivity of the air and so increases the intensity of the discharge. Also, irregularities on the conductor surface, such as nicks or sharp points and airborne contaminants, can increase the corona activity. What will the noise do to wildlife, our cattle, and our family?

Until recently the City of Cove has sold their excess Hydro Electric power to Idaho Power. Idaho Power has decided they do not need to purchase this excess power because they no longer need the extra power. So, what is the real purpose of this line, if this is in truth the facts.

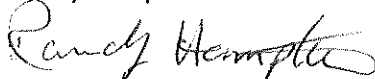
Our family strongly opposes the line and extremely opposes the line coming across our property.

The Hampton Family

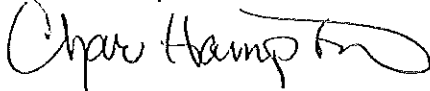
Patricia Hampton



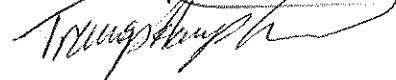
Randy Hampton



Char Hampton



Travis Hampton



Bryce Hampton



Stray Voltage and Dairy Farms Can Lead to Large Damage Awards

Mary Francque*
May 16, 2018

History of Stray Voltage Suits

Stray voltage causing damages to dairy farms is a problem that has been facing the dairy industry for year with damages cases dating back to 1984. Stray voltage is caused when a power line's neutral line is "leaking" electrical currents into the ground. A common cause of stray voltage is a neutral wire that is either too small or damaged and allows the current to go into the ground. Even when the stray voltage current is at a low level, specifically anything above 0.5 volt, it can still be harmful to livestock. These currents put stress on the animals, which in turn lowers their immune systems, leading to a variety of issues. Dairy cows have shown to be more sensitive to stray voltage than any other livestock. Voltage has been shown to cause decreased milk production, due to a lowered water intake and in turn a lowered feed intake. Farmers have also noted a range of issues relating to breeding and calving. Dairy farmers have even reported extremely sick cows, some of which have later died.

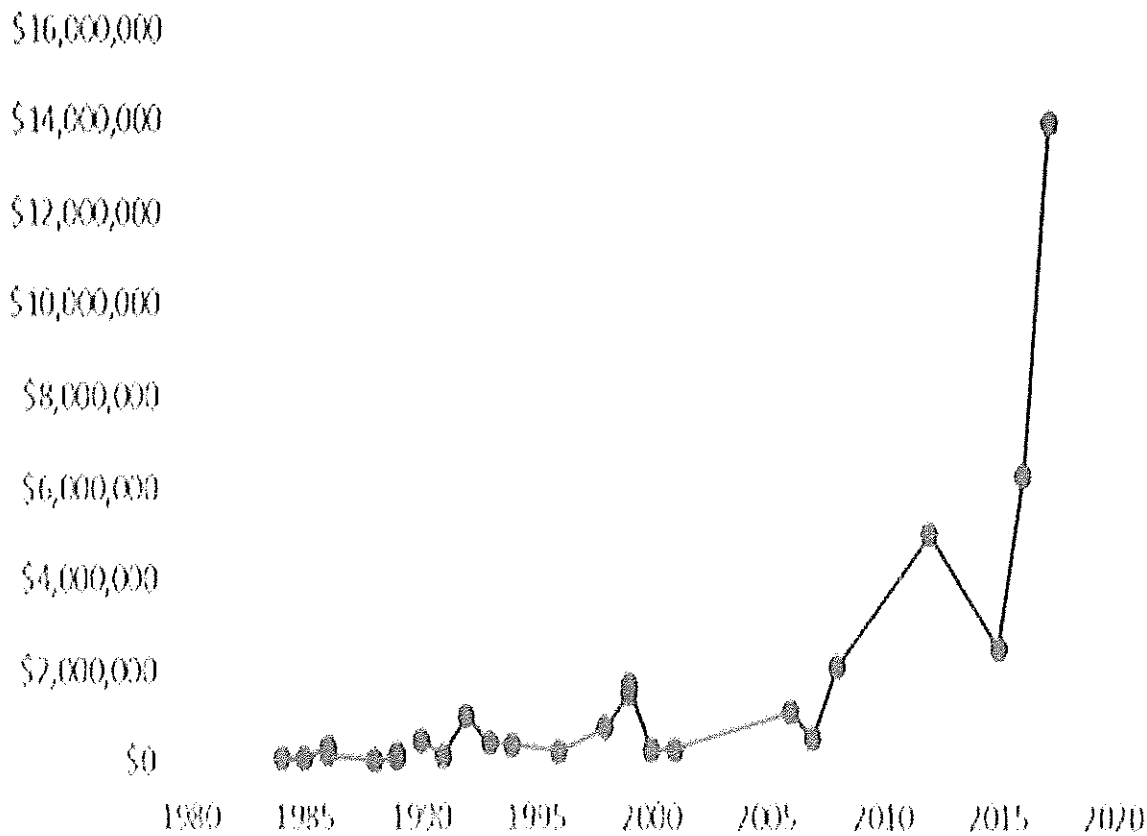
Since the 1980s farmers have been filing a variety claims against electrical utility companies across the United States relating to stray voltage, including claims for trespass, negligence, strict liability, and nuisance. Additionally, dairy farmers have filed suits against milk system suppliers for stray voltage. However, a majority of these suits have been unsuccessful or have resulted in limited relief due to the economic loss doctrine that prevents the collection of damages when it relates to a loss in profit due to defective goods. A majority of courts have held that unlike milking systems, the utility companies are providing a service rather than a good.

In suits relating strictly to electrical utility companies we have seen an evolution in damages from the 1980s to today. These suits have proven to be successful on multiple occasions and the awarded damages continue to grow.

Evolution of Damages in Stray Voltage Cases Heard throughout the United States

Since 1984 many farmers have received damages awards. However, those awards have grown from \$36,500 up to \$14 million. While there has been variation in damages awards throughout the years, there has been an upward trend overall. While some of this growth in awarded damages is due to growing farm sizes, a majority of the growth is due to an increase in understanding and research.

Awarded Damages in Stray Voltage Cases



Year	Case Name
1984	Zorn v. Electric Manufacturing
1985	Schriner v. Pen Light Co.
1986	Public Service v. Nichols
1986	Hensley v. How Coop.
1988	Otte v. Dayton
1989	Lipke v. Waush
1989	Taplin Farms, Inc. v. Service
1990	Fink v. Lafayette
1991	Kolpin v. Pioneer
1992	ZumBerge v. Ne Co.
1993	Cook v. Goodhu
1994	Matchey v. Trei Coop.
1996	Vogel v. Grant Electric Coop.
1998	Vandenberg v. Co.
1999	James v. Beaun
1999	Tipmont Rural Corp. v. Fisher
2000	Scullion v. Wisc Light Co.
2001	Iowa Lakes Elec
2006	Muth v. Wiscor Co.
2007	Gumz v. Northe
2008	Chapman v. Ne Coop.
2012	Bollant v. Scenl Coop.
2015	Poppler v. Wrigl Cooperative Elc
2016	Norman v. Crov
2017	Haldersons v. N Power
2017	Burdick v. Inter Light

Recent Stray Voltage Case in Iowa

The Iowa Court of Appeals recently decided in favor of a dairy farm awarding them \$500,000 in damages. Burdicks, a family dairy in Northern Iowa, filed suit against Interstate Power & Light Co. The Burdicks claimed that Interstate was negligent in its maintenance of its system, which caused stray voltage damages to the

Burdicks' dairy herd. They also filed a nuisance claim against Interstate. The jury found for Burdicks on the issue of negligence, awarding them \$500,000. After the trial, Interstate filed a motion for a new trial claiming that Burdicks did not provide enough evidence for the jury to calculate the damages. The district court granted Interstate's motion for a new trial.

The case decided by the Iowa Court of Appeals found that if there is proof a party has sustained damages, then that party can recover, even if there is uncertainty in the amount of the damages. There must just be a basis from which the amount of damages can be inferred. While parties should still aim to provide detailed evidence showing damages, the court here allowed the party to recover even without such evidence.

Burdicks appealed the district court's grant of a new trial. The appellate court found for Burdicks, as Interstate's case-in-chief provided adequate information to support a determination of damages by the jury. In addition, Interstate did not appeal the jury's finding of its negligence. The court has held that "there is a distinction between proof of the fact that damages have been sustained and proof of the amount of those damages."^[1] The proof of the amount of damages only needs to be presented to a point where the jury can come to an approximate estimate of the loss, not to an exact mathematical conclusion.

Therefore, even though Burdicks failed to present significant evidence that would aid the jury in determining the *amount* of damages, there were no grounds for the court to order a new trial. This was especially true because Interstate's expert witness' testimony and admitted exhibits provide sufficient evidence. Previous courts have shown that the court must look at evidence presented in the whole trial, not just the evidence presented by one side.

Here, Interstate's expert submitted graphs which showed expense figures and other important financial data. This along with his testimony allowed the jury to determine an estimate of the loss. Therefore, the Iowa Court of Appeals upheld the jury's previous holding that Interstate was negligent for \$500,000 in damages.

The case was *Burdick v. Interstate Power & Light Co.*, No. 16-0821 (Iowa Ct. App. October 25, 2017).

[1] *Yost v. City of Council Bluffs*, 471 2d N.W. 2d 836, 840 (Iowa 1991).

*Mary Francque completed her second year of law school at Drake University in May of 2018. She served as an intern for CALT during the Spring 2018 semester.

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Electrical Notes & Articles

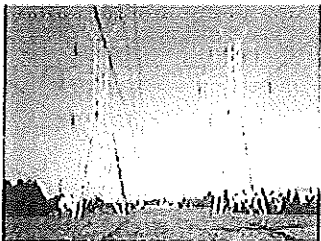
Sharing Abstracts, Notes on various Electrical Engineering Topics.

Filed
September 29, 2014
Data Center
Missouri Public
Service Commission

Effects of High Voltage Transmission Lines on Humans and Plants

FEBRUARY 17, 2012 [30 COMMENTS](#)

<http://electricalnotes.wordpress.com/2012/02/17/effects-of-high-voltage-transmission-lines-on-humans-and-plants/#comments>



<http://electricalnotes.files.wordpress.com/2012/02/untitled.png>

Introduction:

By increasing population of the world, towns are expanding, many buildings construct near high voltage overhead power transmission lines. The increase of power demand has increased the need for transmitting huge amount of power over long distances. Large transmission lines configurations with high voltage and current levels generate large values of electric and magnetic fields stresses which affect the human being and the nearby objects located at ground surfaces. This needs to be investigating the effects of electromagnetic fields near the transmission lines on human health.

The electricity system produces extremely low frequency electromagnetic field which comes under Non ionizing radiations which can cause health effects. Apart from human effect, the electrostatic coupling & electromagnetic interference of high voltage transmission lines have impact on plants and telecommunication equipments mainly operating in frequency range below UHF.

IS Power Line EMF safe? This is the controversy Discussion directly eludes on Government Regulation policy and Power Company. There are lots of supporting documents and research paper in favor and criticize this arguments.

What is The Electric and Magnetic fields:

Witness Exhibit No. 32
Date 9.4.14 Reporter
File No. EA-2014-0207
Hamilton, MO

- Electric and magnetic fields, often referred to as electromagnetic fields or EMF, occur naturally and as a result of the Power generation, Power Transmission, Power distribution and use of electric power.

- EMF is fields of force and is created by electric voltage and current. They occur around electrical devices or whenever power lines are energized.
- Electric fields are due to voltage so they are present in electrical appliances and cords whenever the electric cord to an appliance is plugged into an outlet (even if the appliance is turned off).
- Electric fields (E) exist whenever a (+) or (-) electrical charge is present. They exert forces on other charges within the field. Any electrical wire that is charged will produce an electric field (i.e. Electric field produces charging of bodies, discharge currents, biological effects and sparks). This field exists even when there is no current flowing. The higher the voltage, the stronger is electric field at any given distance from the wire.
- The strength of the electric field is typically measured in volts per meter (V/m) or in kilovolts per meter (kV/m). Electric fields are weakened by objects like trees, buildings, and vehicles. Burying power lines can eliminate human exposure to electric fields from this source.
- Magnetic fields result from the motion of the electric charge or current, such as when there is current flowing through a power line or when an appliance is plugged in and turned on. Appliances which are plugged in but not turned on do not produce magnetic fields.
- Magnetic field lines run in circles around the conductor (i.e. produces magnetic induction on objects and induced currents inside human and animal (or any other conducting) bodies causing possible health effects and a multitude of interference problems). The higher the current, the greater the strength of the magnetic field.
- Magnetic fields are typically measured in tesla (T) or more commonly, in gauss (G) and milli gauss (mG). One tesla equals 10,000 gauss and one gauss equals 1,000 milli gauss.
- The strength of an EMF decreases significantly with increasing distance from the source.
- The Strength of an electric field is proportional to the voltage of the source. Thus, the electric fields beneath high voltage transmission lines far exceed those below the lower voltage distribution lines. The magnetic field strength, by contrast, is proportional to the current in the lines, so that a low voltage distribution line with a high current load may produce a magnetic field that is as high as those produced by some high voltage transmission lines.
- In fact, electric distribution systems account for a far higher proportion of the population's exposure to magnetic fields than the larger and more visible high voltage transmission lines.
- Electrical field: the part of the EMF that can easily be shielded.
- Magnetic field: part of the BMF that can penetrate stone, steel and human flesh. In fact, when it comes to magnetic fields, human flesh and bone has the same penetrability as air!
- Both fields are invisible and perfectly silent: People who live in an area with electric power, some level of artificial EMF is surrounding them.
- The magnetic field strength produced from a transmission line is proportional to: load current, phase to phase spacing, and the inverse square of the distance from the line.
- Many previous works studied the effect of different parameters on the produced magnetic field such as: the distance from the line, the conductor height, line shielding and transmission line configuration and compaction.

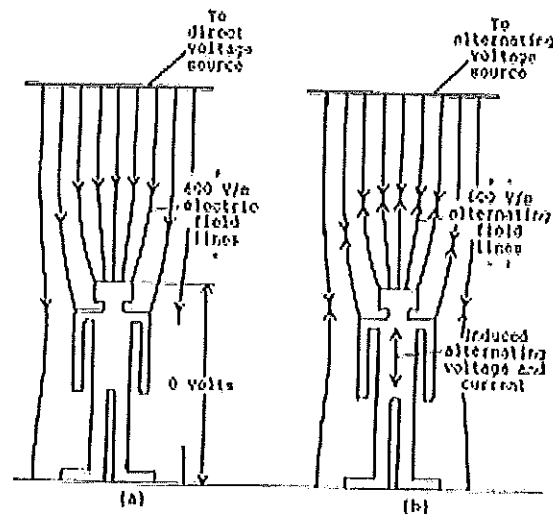
Electric and Magnetic Field (EMF) Effects

- Extremely high voltages in EHV lines cause electrostatic effects, whereas short circuit currents & line loading currents are responsible for electromagnetic effects. The effect of these electrostatic fields is

seen prominent with living things like humans, plants, animals along with vehicles, fences & buried pipes under & close to these lines.

1) EMF Effects Human beings:

- The human body is composed of some biological materials like blood, bone, brain, lungs, muscle, skin etc. The permeability of human body is equal to permeability of air but within a human body has different electromagnetic values at a certain frequency for different material.
- The human body contains free electric charges (largely in ion-rich fluids such as blood and lymph) that move in response to forces exerted by charges on and currents flowing in nearby power lines. The processes that produce these body currents are called electric and magnetic induction.
- In electric induction, charges on a power line attract or repel free charges within the body. Since body fluids are good conductors of electricity, charges in the body move to its surface under the influence of this electric force. For example, a positively charged overhead transmission line induces negative charges to flow to the surfaces on the upper part of the body. Since the charge on power lines alternates from positive to negative many times each second, the charges induced on the body surface alternate also. Negative charges induced on the upper part of the body one instant flow into the lower part of the body the next instant. Thus, power-frequency electric fields induce currents in the body (Eddy Current) as well as charges on its surface.



(<http://electricalnotes.files.wordpress.com/2012/02/13.png>) The currents induced in the body by magnetic fields are greatest near the periphery of the body and smallest at the center of the body.

- It is believed that, the magnetic field might induce a voltage in the tissue of human body which causes a current to flow through it due to its conductivity of around them.
- The magnetic field has influence on tissues in the human body. These influences may be beneficial or harmful depending upon its nature.
- The magnitude of surface charge and internal body currents that are induced by any given source of power-frequency fields depends on many factors. These include the magnitude of the charges and currents in the source, the distance of the body from the source, the presence of other objects that might

shield or concentrate the field, and body posture, shape, and orientation. For this reason the surface charges and currents which a given field induces are very different for different Human and animals.

- When a person who is isolated from ground by some insulating material comes in close proximity to an overhead transmission line, an electrostatic field is set in the body of human being, having a resistance of about 2000 ohms.
- When the same person touches a grounded object, it will discharge through his body causing a large amount of discharge current to flow through the body. Discharge currents from 50-60 Hz electromagnetic fields are weaker than natural currents in the body, such as those from the electrical activity of the brain and heart.
- For human beings the limit for undisturbed field is 15 kV/m, R.M.S., to experience possible shock. When designing a transmission lines this limit is not crossed, in addition to this proper care has been taken in order to keep minimum clearance between transmission lines.
- According to research and publications put out by the World Health Organization(WHO), EMF such as those from power lines, can also cause:

■ Short term Health Problem

1. Headaches.
2. Fatigue
3. Anxiety
4. Insomnia
5. Prickling and/or burning skin
6. Rashes
7. Muscle pain

■ Long term Health Problem:

- Following serious health Problems may be arise due to EMF effects on human Body.

(1) Risk of damaging DNA.

- Our body acts like an energy wave broadcaster and receiver, incorporating and responding to EMFs. In fact, scientific research has demonstrated that every cell in your body may have its own EMF, helping to regulate important functions and keep you healthy.
- Strong, artificial EMFs like those from power lines can scramble and interfere with your body's natural EMF, harming everything from your sleep cycles and stress levels to your immune response and DNA!

(2) Risk of Cancer

- After hundreds of international studies, the evidence linking EMFs to cancers and other health problems is loud and clear. High Voltage power lines are the most obvious and dangerous culprits, but

the same EMFs exist in gradually decreasing levels all along the grid, from substations to transformers to homes.

(3) Risk of Leukemia:

- Researchers found that children living within 650 feet of power lines had a 70% greater risk for leukemia than children living 2,000 feet away or more. (As per British Medical Journal, June, 2005).

(4) Risk of Neurodegenerative disease:

- "Several studies have identified occupational exposure to extremely low-frequency electromagnetic fields (EMF) as a potential risk factor for neuro degenerative disease." (As per Epidemiology, 2003 Jul; 14(4):413-9).

(5) Risk of Miscarriage:

- There is "strong prospective evidence that prenatal maximum magnetic field exposure above a certain level (possibly around 16 mG) may be associated with miscarriage risk." (As per Epidemiology, 2002 Jan; 13(1):9-20)

2) EMF Effects on Animals

- Many researchers are studying the effect of Electrostatic field on animals. In order to do so they keeps the cages of animals under high Electrostatic field of about 30 kV/m. The results of these Experiments are shocking as animals (are kept below high Electrostatic field their body acquires a charge & when they try to drink water, a spark usually jumps from their nose to the grounded Pipe) like hens are unable to pick up grain because of chattering of their beaks which also affects their growth.

3) EMF Effects on Plant Life

- Most of the areas in agricultural and forest lands where high power transmission lines pass. The voltage level of high power transmission Lines are 400KV, 230KV, 110KV, 66KV etc. The electromagnetic field from high power transmission lines affects the growth of plants.
- Gradually increases or decreases and reaches to maximum current or minimum current and thereafter it starts to fall down to lowest current or raises to maximum current or a constant current. Again the current, it evinces with little fluctuations till the next day morning.
- Current in Power transmission lines varies according to Load (it depending upon the amount of electricity consumed by the consumers). Hence the effect of EMF (due to current flowing in the power lines) upon the growth of plants under the high power transmission lines remains unaltered throughout the year.
- From various practically study it was found that the response of the crop to EMF from 110 KV and 230 KV Power lines showed variations among themselves. Based on the results the growth characteristics

like shoot length, root length, leaf area, leaf fresh weight, specific leaf weight, shoot/root ratio, total biomass content and total water content of the four crop plants were reduced significantly over the control plants.

- Similar trend were observed in the biochemical characteristics like chlorophyll.
- Reduced growth and physiological parameter was primarily due to the effect of reduced cell division and cell enlargement. Further the growth was stunted which may be due to poor action of hormones responsible for cell division and cell enlargement.
- The bio-chemical changes produced in this plant due to EMF stress quite obvious and it affects the production leading to economic loss.
- It is concluded that the reduced growth parameter shown in the crop plants would indicates that the EMF has exerted a stress on that plants and this EMF stress was quite obvious and it affects the production leading to economic loss. So further research activities are needed to safe guard plants from EMF stress.

4) EMF Effects on Vehicles parked near Line

- When a vehicle is parked under high voltage transmission line an electrostatic field is developed in it. When a person who is grounded touches it a discharge current flows through the human being. In order to avoid this parking lots are located below the transmission lines the recommended clearance is 17 m for 345 kV and 20 m for 400 kV lines.

5) EMF Effects on Pipe Line/Fence/Cables:

- A fence, irrigation pipe, pipeline, electrical distribution line forms a conducting loops when it is grounded at both ends. The earth forms the other portion of the loop. The magnetic field from a transmission line can induce a current to flow in such a loop if it is oriented parallel to the line. If only one end of the fence is grounded, then an induced voltage appears across the open end of the loop. The possibility for a shock exists if a person closes the loop at the open end by contacting both the ground and the conductor.
- For fences, buried cables, and pipe lines proper care has been taken to prevent them from charging due to Electrostatic field. When using pipelines which are more than 3 km in length & 15 cm in Diameter they must be buried at least 30 laterally from the line center.

6) EMF Effects on Maintenance Worker:

- For providing continuous and uninterrupted supply of electric power to consumers maintenance operations of power lines are often performed with systems energized or live.

- This is live line maintenance or hot line maintenance. The electric fields and magnetic fields associated with these power lines may affect the health of live line workers. Its electric field and current densities affect the health of humans and cause several diseases by affecting majority parts of the human body. These electric field and current densities affects humans of all stages and causes short term diseases in them and sometimes death also.

Contradiction of EMF Effect on Human Health:

- There are two reasons why electromagnetic fields associated with power systems could pose no threat to human health.
- First, The EMF from power lines and appliances are of extremely low frequency and low energy. They are non-ionizing and are markedly different in frequency from ionizing radiation such as X-rays and gamma rays. As a comparison, transmission lines have a low frequency of 60Hz while television transmitters have higher frequencies in the 55 to 890 MHz range. Microwaves have even higher frequencies, 1,000 MHz and above. Ionizing radiation, such as X-rays and gamma rays, has frequencies above 10¹⁵ Hz. The energy from higher-frequency fields is absorbed more readily by biological material. Microwaves can be absorbed by water in body tissues and cause heating which can be harmful, depending upon the degree of heating that occurs. X-rays have so much energy that they can ionize (form charged particles) and break up molecules of genetic material (DNA) and no genetic material, leading to cell death or mutation. In contrast, extremely low frequency EMF does not have enough energy to heat body tissues or cause ionization.
- Second, all cells in the body maintain large natural electric fields across their outer membranes. These naturally occurring fields are at least 100 times more intense than those that can be induced by exposure to common power-frequency fields. However, despite the low energy of power-frequency fields and the very small perturbations that they make to the natural fields within the body.
- When an external agent such as an ELF fields lightly perturbs a process in the cell, other processes may compensate for it so that there is no overall disturbance to the organism. Some perturbations may be within the ranges of disturbances that a system can experience and still function properly.
- During Research on health effects of electric and magnetic fields, it has come forward that electric field intensity exposure of about 1-10 mv/m in tissue interact with cells but not proved to be harmful. But strong fields cause harmful effects when their magnitude exceeds stimulation thresholds for neural tissues (central nervous system and brain), muscle and heart

Surface Current Density(mA/m ²)	Health Effect
<1	Absence of any established effects.
1 To 10	Minor biological effects.
10 To 100	Well established effects(a) Visual effect.(b) Possible nervous system effect
100 To 1000	Changes in central nervous System
>1000	Ventricular Fibrillation (Heart Condition 0. Health hazards.

- In India it is stipulated that electric field intensity should not exceed 4.16 kV/m and magnetic field intensity should not exceed 100 μ T in public areas.
- Even when effect is demonstrated consistently on the cellular level in laboratory experiments, it is hard to predict whether and how they will affect the whole organism. Processes at the individual cell level are integrated through complex mechanisms in the animal.

Mitigation of EMF Effect of Transmission Line:

1) Line shielding:

- There are two basic 60-Hz magnetic field mitigation (reduction) methods: passive and active.
- Passive magnetic field mitigation includes rigid magnetic shielding with ferromagnetic and highly conductive materials, and the use of passive shield wires installed near transmission lines that generate opposing cancellation fields from electromagnetic induction.
- Active magnetic field mitigation uses electronic feedback to sense a varying 60-Hz magnetic field, then generates a proportionally opposing (nulling) cancellation field within a defined area (room or building) surrounded by cancellation coils. Ideally, when the two opposing 180-degree out-of-phase magnetic fields of equal magnitude intersect, the resultant magnetic field is completely cancelled (nullified). This technology has been successfully applied in both residential and commercial environments to mitigate magnetic fields from overhead transmission and distribution lines, and underground residential distribution (URD) lines.

2) Line Configuration and Compaction

- Line compaction means that, bringing the conductors close together keeping the minimum (safe) phase-to-phase spacing constant. Keeping all the parameters the same and the only variable is the phase-to-phase spacing. The magnetic field is proportional to the dimensions of the phase-to-phase spacing.
- Other studies showed that, increasing the distance between phases by increasing the height of the central phase conductor above the level of the other phase conductors leads to the reduction of the peak value of the magnetic field.
- Reducing the phase-to-phase distance, leads to the decrease of the magnetic field. This reduction between phases is limited by the electrical insulation level between phases.
- (A) For single circuit lines, compaction causes a great reduction to the maximum magnetic field values. This reduction of magnetic field allows for lower conductor heights above the ground. This leads to transmit the same power on shorter towers. This gives a great reduction of the tower cost.
- (B) For double circuit lines, some studies showed that, the use of optimum phase arrangement causes a drastic reduction to the maximum magnetic field values for both conventional and compact lines i.e. with vertical conductor

3) Grounding:

- Induced currents are always present in electric fields under transmission lines and will be present. However, there must be a policy to ground metal objects, such as fences, that are located on the right-of-way. The grounding eliminates these objects as sources of induced current and voltage shocks. Multiple grounding points are used to provide redundant paths for induced current flow and mitigate nuisance shocks.

4) Providing Right of Way(R.O.W):

- Overhead transmission systems required strips of land to be designed as right-of-ways (R.O.W.). These strips of land are usually evaluated to decrease the effects of the energized line including magnetic and electric field effects.

5) Maintaining Proper Clearance:

- Unlike fences or buildings, mobile objects such as vehicles and farm machinery cannot be grounded permanently. Limiting the possibility of induced currents from such objects to persons is accomplished by maintaining proper clearances for above-ground conductors tend to limit field strengths to levels that do not represent a hazard or nuisance.
- Limiting access area by increasing conductor clearances in areas where large vehicles could be present.

Conclusion:

- Based on the review and analysis and other research projects it is of the opinion that there is no conclusive and convincing evidence that exposure to extremely low frequency EMF emanated from nearby high voltage Transmission lines is causally associated with an increased incidence of cancer or other detrimental health effects in humans. Even if it is assumed that there is an increased risk of cancer as implied in some epidemiological studies, the empirical relative risk appears to be fairly small in magnitude and the observed association appears to be tenuous. Although the possibility is still remain about the verse effect on health by EMF.

References:

- SSGBCOE&T, Electronics and Communication Engineering-Girish Kulkarni1, Dr.W.Z.Gandhare
- Pharmacology, School of Medicine, Chung-Ang University, Seoul, Korea-Sung-Hyuk Yim, Ji-Hoon Jeong.
- Electrical Engineering Department, Shoubra, Benha University, Cairo, Egypt- Nagat Mohamed Kamel Abdel-Gawad.
- Madurai Kamaraj University-S. Somasekaran.
- Electrical Engineering Department at King Fahd University of Petroleum & Minerals- J. M. Bakhshwain, M. H. Shwehdi, U. M. Johar and A. A. AL-Naim.
- Dept. of Electrical Engineering, College of Engineering – University of Tikrit-Iraq- Ghanim Thiab Hasan, Kamil Jadu Ali, Mahmood Ali Ahmed.

<http://www.electricalnotes.com/about-these-ads/>

About Jignesh.Parmar

Jignesh Parmar has completed his B.E(Electrical) from Gujarat University. He has more than 11 years experience in Power Transmission-Power Distribution-Electrical energy theft detection-Electrical Maintenance-Electrical Projects(Planning-Designing-coordination-Execution). He is Presently associate with one of the leading business group as a Assistant Manager at Ahmedabad,India. He is Freelancer Programmer of Advance Excel and design useful Excel Sheets of Electrical Engineering as per IS,NEC,IEC,IEEE codes. He is technical Author for "Electrical Mirror" and "Electrical India" Magazines. He

is Technical Blogger and Familiar with English, Hindi, Gujarati, French languages. He wants to Share his experience & knowledge and help technical enthusiasts to find suitable solutions and updating themselves on various Engineering Topics.

30 Responses to *Effects of High Voltage Transmission Lines on Humans and Plants*

moses says:

February 18, 2012 at 10:39 am

Thanks for the info, man

Reply

Mohd saood Khan says:

February 18, 2012 at 10:51 am

It needs more discussions & debates.....

Reply

prakash chandra says:

February 22, 2012 at 5:15 pm

sir i am dooing my final year project on optimal location of interline power flow controller (ipfc) ,i am facing problem in design of IPFC controller in matlab simulation .if you having some idea about this topis then please help me .

Reply

theja says:

March 17, 2012 at 5:53 pm

very good article.An eye opener to everybody

Reply

Pushpinder Asthir says:

March 24, 2012 at 3:35 pm

It is an intersting article.But than we also need Transmission lines for the development and any large development that benefits mass population always effects some small portion of population.

Reply

suren says:

May 11, 2012 at 11:17 am

sir,

We are construction a g+ 3 upper floor building adjoining the 400KV NTPC line in bangalore,

Pl inform at what level we may have induction & danger to life,

what is the minimum clearence required form over head line to bulding.

answers may also be mailed to my mail is surend26@rocketmail.com

Reply

balasubramani says:

December 2, 2012 at 4:54 pm

sir i got a plot for house construction 10m from the overhead lines it will make any problem in future by legaly & safety and howmany meters clearence need from the OHLINES in india

Reply

Syed Rizwan says:

May 15, 2012 at 1:48 pm

Sir i would want to know your views on the Ultra high voltage transmission line being built by China having a length of 2,210 Km. Waiting for your blog on this topic .

Reply

Sandeep Beniwal says:

August 9, 2012 at 4:37 am

sir i would to know that when a new tower established on a field then what the payment made by power grid or the company who is establishing that tender tower. If the quality of irrigation on that area is very good. please reply me ASAP

Reply

shiraz says:

September 11, 2012 at 3:10 am

nice work

Shirazul Islam

Reply

karen says:

October 6, 2012 at 11:30 pm

Thank you for your clear, current info. we are considering a purchase of a home within 60 meters of 30 towers of hi voltage electric transmission lines. Would you live there? or want your family to live in this home?

thanks so,

karen

Reply

eli says:

October 11, 2012 at 3:33 am

I'm in a similar situation, but I want to buy the house is 350 meters from high voltage antennas, do you think that is bad for the health?

Thank you so much.

Eli

Reply

Bharat Bhushan says:

November 22, 2012 at 11:16 am

Hi , This is very good info indeed ,

I am trying to buy a home in builder society and there is high voltage line passing over it.The distance of flat I am looking is 10 mtrs away from line.Will that not effect health in any mean.

Please advise

Bharat.leo@gmail.com

Reply

hemant kharat says:

December 17, 2012 at 10:14 am

sir please tell me what are distance of electrical overhead tower line of 400 kv and living home its urgent please????

Reply

Jignesh Parmar says:

December 17, 2012 at 6:02 pm

Refer Post of "Electrical Safety Distance Part 1 to 6" of this Blog

Reply

RAVI says:

January 14, 2013 at 4:26 am

we r planing to buy agriculture land of 20 acers. in between the high tension line and one high line pole is there. is it safe to health for humans and plants? how much distance should maintain from the line hight and long?

Reply

mary kwan says:

January 24, 2013 at 4:52 am

Sir,

Thank you so much for yr helpful article. I am thinking about buying a flat in Hong Kong, it is 2/F on the building and the ground level is for stores and an electricity (maybe transforming) substation which seems to supply electricity for the complex. Is it safe, will there be radiation harmful for humans? Urgently needing your advice.

Reply

Guillermo Ferrando says:

March 19, 2013 at 1:05 pm

Hello: I need to find any article or reference about of the EMF effects on steel bridges. In a case, I need install a 33 KV electrical line over a steel bridge, but I think that is an dangerous situation for the people, vehicles and the steel of structure, because the electrical induced currents on the steel is (for me) of uncertain effects....Thank you. Guillermo

Reply

iman says:

March 28, 2013 at 9:45 am

al salam alaikm I'M a physics teacher, and graduate student, my thesis is about, the risk of high voltage transformers on human health, can you help me, all my thanks and God bless you. ,

Reply

shaneel says:

April 19, 2013 at 5:10 am

can any body tell me what is distance working on a live transmission lines of different voltages....

Reply

Jignesh Parmar says:

April 20, 2013 at 5:58 pm

Review old post of this Blog

Reply

N.S.DUHAN says:

May 12, 2013 at 7:43 am

Sir, we r running a mild steel galvanized pipe mfg.co. We have a electronic weighing bridge of 80 m.t. cap. A high voltage (H.T.LINE) is going on the bridge. There is a big variation on weight. We called so many experts. But result is zero. Is it possible, that due to H.T. Line there is any effect on weighing bridge load cells. There r 6 load cells in the bridge. If it is possible what r the remedies for this .Please suggest.

Thanks.

Reply

A Tierney says:

June 14, 2013 at 11:09 pm

Am I in any danger? I live in a 12 unit apt building with all the wires and boxes for cable, electricity, and phone serving it attached to my outside bedroom wall. I can sometimes hear a loud hum in the wires and have called the utility to do something about it. My neighborhood is a dense urban DC area.

My bed is within 3 feet of these wires and boxes. Is there any way to measure the strength of the electromagnetic field I am sleeping in? What distance mitigates the impact of this field?

My neighbor of 12 years, who lived below me with her bedroom in the same configuration, recently died of a lung disease. I have lived here for 9 years. I was recently diagnosed with a spot on my lung. Any advice you can offer would be appreciated.

ETN

Reply

suryabhan singh says:

August 14, 2013 at 3:27 pm

recently i purchased a house in mumbai later on i find a high tension cable over head wire passing around 80 to 90 meter away from my building is it safe pls suggest

Reply

Dr. Aung Ze Ya says:

September 5, 2013 at 8:25 am

Your document is very effective to us.

Thank you.

Reply

Charlie says:

September 15, 2013 at 2:55 pm

I have booked an apartment and yet to take possession. The distance between the flat and HT Line is 18Meters away. Is it advisable to proceed?

Reply

Bhagyaman Chettri says:

October 8, 2013 at 2:23 am

Sir Please advise me that what is that safe distance between high tension line 400kv and humam

Reply

Jignesh.Parmar says:

October 8, 2013 at 3:01 pm

Already given in the Blog

Reply

othman hasnaoui says:

November 4, 2013 at 9:05 pm

dear sir

I'm a phd student, my research is about the EMF Effects Human and plants and i want to know if there are a scientific studies who demonstrate if really there is a damage for human and plants.

Plz let me know

Reply

Peter Yougha says:

November 5, 2013 at 9:07 am

I'm a MSc GIS student, I am researching on effect on overhead power transmission lines near residential buildings in UK. I need contribution on EMF radiation from the power lines to the environment.

Reply

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The Enterprise Theme.

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TARDAEWETHER Kellen * ODOE

From: Rogers Asphalt <rasphalt@oregonwireless.net>
Sent: Friday, July 19, 2019 1:31 PM
To: B2H DPOComments * ODOE
Subject: Fw: NO to B2H
Attachments: 20190719120519089.pdf

Attaching our comments. Mailing the original with signatures.

Patricia Hampton
Randall & Charlene Hampton
541-963-3633

-----Original Message-----

From: rasphalt@oregonwireless.net
Sent: 19 July, 2019 09:05 AM
To: Rogers

This E-mail was sent from "RNPF70DDC" (Aficio MP C2050).

Scan Date: 07.19.2019 12:05:18 (-0400)
Queries to: rasphalt@oregonwireless.net

This email has been checked for viruses by Avast antivirus software.
<https://www.avast.com/antivirus>

NO to B2H Alternative Route

The Hampton Family:

Patricia Hampton P.O. Drawer K, La Grande, Oregon 97850 phone: 541-963-3633

Randall & Charlene Hampton, 57119 Hwy 244, La Grande, Oregon 97850 phone: 541-910-3374 & 541-786-7288

Travis & Bryce Hampton, 57121 Oregon Hwy 244, La Grande, Oregon 97850 phone: 541-786-4288

Ranch history;

Great Uncle Jim Payne and Great Aunt Lilly Payne, (James S. Payne and Lillian H. Payne husband and wife) purchased the property we now own subject to a purchase money mortgage on August 17, 1937 from Travelers Insurance Company By F.W. Cole, Vice President.

Our Family have lived on our working ranch for 82 years. We are not new to this area. We currently have 3 generations living here on Highway 244. Our Family is in opposition of putting the lines on your alternative route. We strongly oppose the line being put across our property.

When it could continue on the already existing power line just one hill over from our property.

When we suggested this to the B2H group at the last meeting, we were told, "You wouldn't want it there!" That is not an answer. *YES we would.* There is no reason not to follow the existing line or what about permitting on the current system. Either by going above it, or extending it out to the sides. If you are using the excuse that if one goes down, then they all go down. When was the last time one of these lines have gone down? Why not bury the line in the existing easement which makes the most sense, especially since the devastating fires that caused many homes to be destroyed in California, was caused by a power line spark, and now the proposal is to cut power completely during fire season. (<https://www.foxnews.com/us/pacific-gas-electric-power-lines-caused-californias-deadliest-and-most-destructive-wildfire-officials>) Not only are the taller poles unsightly they create more exposure for possible lightning strikes causing more fires. Burying the power lines now will save money from firefighting in the years to come.

The route of the B2H if it comes across the mountain and onto our property will follow the Oregon Trail and Flowers crossing, putting the power line over the Oregon Trail, has a potential impact to the historic Oregon Trail. This trail is our heritage, of the State and our Nation. Which would disturb the Oregon Trail, in fact it would probably remove the wagon wheel marks on the trail itself. Flowers Crossing is on the corner of our property on the Grande Ronde River. It was marked with a sign until recently, we are not sure what happened to that landmark sign.

Our other concern is the Stray Voltage. We raise our children and our grandchildren and great grandchildren on this ranch. When energy is transferred, some is lost along the way. Our metal buildings, metal water troughs, our newly drilled well for watering our cattle, will be in line with the B2H line. These metal items on our property can act as a conduit for voltage to find its way to our feeding systems and water systems. It has been found that stray voltage will increase somatic cell counts in our cattle. Causing them to be nervous, reduce milk production and increase clinical mastitis. Which in turn makes for more of our cattle becoming sick. This represents more time to properly handle these cows, lost production, vet calls, treatment products, and occasional dead or culled cows. It will be said that there is no proof that this will happen, even no significant findings. But in 1999 a jury awarded Peterson Bros. Dairy \$700,000 after deciding that stray voltage was the cause of slashed herds milk output and increased the cattle's death rate. Another jury awarded a farmer \$850,000 over effects of stray voltage on their cows in 2004. It not only affects dairy cattle, but beef cattle as well. So as you can see, these cases show courts have acknowledged stray voltage and its possible effects.

Farmers have also reported that stray voltage caused them to get electric shocks from their metal buildings on their farms. We now fear the health risks from exposure to high voltage power lines. Whether the danger is scientifically genuine or verifiable fact should be irrelevant. If it takes one life or multiple, or if our children end up with leukemia... the safety of EMFs sows enough doubt that we say NO TO THE POWER LINE. And you should be thinking twice about putting a family who has been on this land for 82 years in this predicament. We choose this place due to the majestic beauty, the health and welfare of our children and our children's children. Attached to this letter is documentation on stray voltage.

The B2H line would also impact the migration patterns of the Elk, Whitetail Deer and Mule Deer in our valley. You can visibly see their migration trails on the mountain which is one of the alternative routes for the B2H. Elk and Deer summer range in our valley. Power lines have been shown to be barriers for Elk and Deer. They refrained from crossing the power line barrier. Whitetail were even less likely to cross the barrier.

Research has revealed that Power lines are seen as glowing and flashing bands across the sky by many animals. The work suggests that the pylons and wires that stretch across many landscapes are having a worldwide impact on wildlife. Scientists knew many creatures avoid power lines but the reason why was mysterious as they are not impassable physical barriers. Now, a new understanding of just how many species can see the ultraviolet light – which is invisible to humans – has revealed the major visual impact of the power lines. "It was a big surprise but we now think the majority of animals can see UV light," said Professor Glen Jeffery, a vision expert at University College London.

Our understanding is that these lines will be noisy. Which we are also opposed to. The audible noise emitted from high-voltage lines is caused by the discharge of energy that occurs when the electrical field strength on the conductor surface is greater than the 'breakdown strength' (the field intensity necessary to start a flow of electric current) of the air surrounding the conductor. This discharge is also responsible for radio noise, a visible glow of light near the conductor, an energy loss known as corona loss and other phenomena associated with high-voltage lines.

"The degree or intensity of the corona discharge and the resulting audible noise are affected by the condition of the air--that is, by humidity, air density, wind and water in the form of rain, drizzle and fog. Water increases the conductivity of the air and so increases the intensity of the discharge. Also, irregularities on the conductor surface, such as nicks or sharp points and airborne contaminants, can increase the corona activity. What will the noise do to wildlife, our cattle, and our family?

Until recently the City of Cove has sold their excess Hydro Electric power to Idaho Power. Idaho Power has decided they do not need to purchase this excess power because they no longer need the extra power. So, what is the real purpose of this line, if this is in truth the facts.

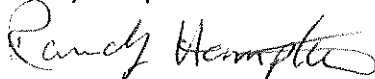
Our family strongly opposes the line and extremely opposes the line coming across our property.

The Hampton Family

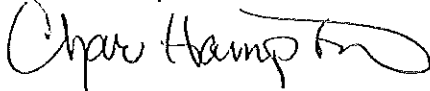
Patricia Hampton



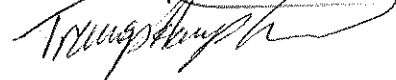
Randy Hampton



Char Hampton



Travis Hampton



Bryce Hampton



Stray Voltage and Dairy Farms Can Lead to Large Damage Awards

Mary Francque*
May 16, 2018

History of Stray Voltage Suits

Stray voltage causing damages to dairy farms is a problem that has been facing the dairy industry for year with damages cases dating back to 1984. Stray voltage is caused when a power line's neutral line is "leaking" electrical currents into the ground. A common cause of stray voltage is a neutral wire that is either too small or damaged and allows the current to go into the ground. Even when the stray voltage current is at a low level, specifically anything above 0.5 volt, it can still be harmful to livestock. These currents put stress on the animals, which in turn lowers their immune systems, leading to a variety of issues. Dairy cows have shown to be more sensitive to stray voltage than any other livestock. Voltage has been shown to cause decreased milk production, due to a lowered water intake and in turn a lowered feed intake. Farmers have also noted a range of issues relating to breeding and calving. Dairy farmers have even reported extremely sick cows, some of which have later died.

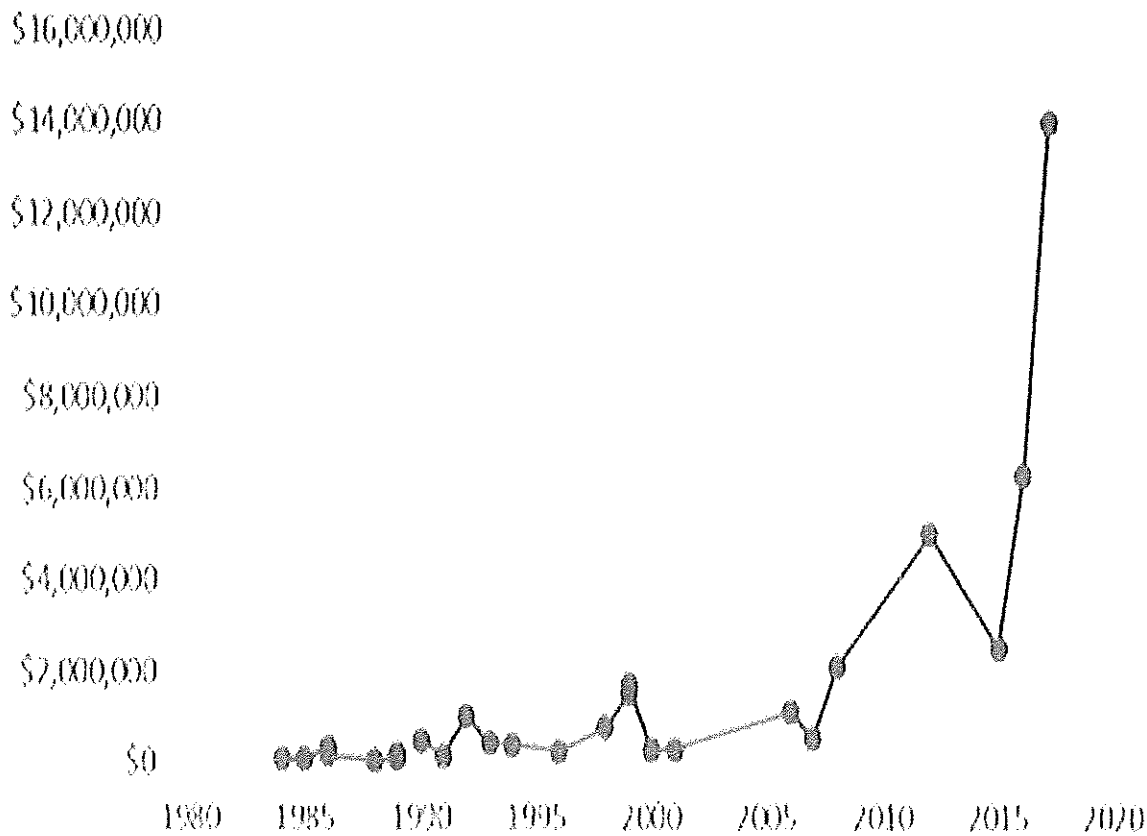
Since the 1980s farmers have been filing a variety claims against electrical utility companies across the United States relating to stray voltage, including claims for trespass, negligence, strict liability, and nuisance. Additionally, dairy farmers have filed suits against milk system suppliers for stray voltage. However, a majority of these suits have been unsuccessful or have resulted in limited relief due to the economic loss doctrine that prevents the collection of damages when it relates to a loss in profit due to defective goods. A majority of courts have held that unlike milking systems, the utility companies are providing a service rather than a good.

In suits relating strictly to electrical utility companies we have seen an evolution in damages from the 1980s to today. These suits have proven to be successful on multiple occasions and the awarded damages continue to grow.

Evolution of Damages in Stray Voltage Cases Heard throughout the United States

Since 1984 many farmers have received damages awards. However, those awards have grown from \$36,500 up to \$14 million. While there has been variation in damages awards throughout the years, there has been an upward trend overall. While some of this growth in awarded damages is due to growing farm sizes, a majority of the growth is due to an increase in understanding and research.

Awarded Damages in Stray Voltage Cases



Year	Case Name
1984	Zorn v. Electric Manufacturing
1985	Schriner v. Pen Light Co.
1986	Public Service v. Nichols
1986	Hensley v. How Coop.
1988	Otte v. Dayton
1989	Lipke v. Waush
1989	Taplin Farms, Inc. v. Service
1990	Fink v. Lafayette
1991	Kolpin v. Pioneer
1992	ZumBerge v. Ne Co.
1993	Cook v. Goodhu
1994	Matchey v. Trei Coop.
1996	Vogel v. Grant Electric Coop.
1998	Vandenberg v. Co.
1999	James v. Beaun
1999	Tipmont Rural Corp. v. Fisher
2000	Scullion v. Wisc Light Co.
2001	Iowa Lakes Elec
2006	Muth v. Wiscor Co.
2007	Gumz v. Northe
2008	Chapman v. Ne Coop.
2012	Bollant v. Scenl Coop.
2015	Poppler v. Wrigl Cooperative Elc
2016	Norman v. Crov
2017	Haldersons v. N Power
2017	Burdick v. Inter Light

Recent Stray Voltage Case in Iowa

The Iowa Court of Appeals recently decided in favor of a dairy farm awarding them \$500,000 in damages. Burdicks, a family dairy in Northern Iowa, filed suit against Interstate Power & Light Co. The Burdicks claimed that Interstate was negligent in its maintenance of its system, which caused stray voltage damages to the

Burdicks' dairy herd. They also filed a nuisance claim against Interstate. The jury found for Burdicks on the issue of negligence, awarding them \$500,000. After the trial, Interstate filed a motion for a new trial claiming that Burdicks did not provide enough evidence for the jury to calculate the damages. The district court granted Interstate's motion for a new trial.

The case decided by the Iowa Court of Appeals found that if there is proof a party has sustained damages, then that party can recover, even if there is uncertainty in the amount of the damages. There must just be a basis from which the amount of damages can be inferred. While parties should still aim to provide detailed evidence showing damages, the court here allowed the party to recover even without such evidence.

Burdicks appealed the district court's grant of a new trial. The appellate court found for Burdicks, as Interstate's case-in-chief provided adequate information to support a determination of damages by the jury. In addition, Interstate did not appeal the jury's finding of its negligence. The court has held that "there is a distinction between proof of the fact that damages have been sustained and proof of the amount of those damages."^[1] The proof of the amount of damages only needs to be presented to a point where the jury can come to an approximate estimate of the loss, not to an exact mathematical conclusion.

Therefore, even though Burdicks failed to present significant evidence that would aid the jury in determining the *amount* of damages, there were no grounds for the court to order a new trial. This was especially true because Interstate's expert witness' testimony and admitted exhibits provide sufficient evidence. Previous courts have shown that the court must look at evidence presented in the whole trial, not just the evidence presented by one side.

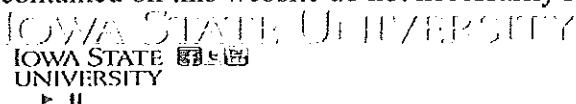
Here, Interstate's expert submitted graphs which showed expense figures and other important financial data. This along with his testimony allowed the jury to determine an estimate of the loss. Therefore, the Iowa Court of Appeals upheld the jury's previous holding that Interstate was negligent for \$500,000 in damages.

The case was *Burdick v. Interstate Power & Light Co.*, No. 16-0821 (Iowa Ct. App. October 25, 2017).

[1] *Yost v. City of Council Bluffs*, 471 2d N.W. 2d 836, 840 (Iowa 1991).

*Mary Francque completed her second year of law school at Drake University in May of 2018. She served as an intern for CALT during the Spring 2018 semester.

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Electrical Notes & Articles

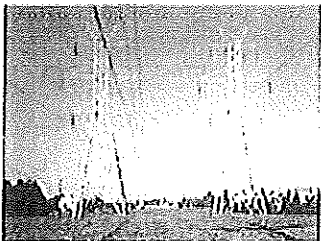
Sharing Abstracts, Notes on various Electrical Engineering Topics.

Filed
September 29, 2014
Data Center
Missouri Public
Service Commission

Effects of High Voltage Transmission Lines on Humans and Plants

FEBRUARY 17, 2012 [30 COMMENTS](#)

<http://electricalnotes.wordpress.com/2012/02/17/effects-of-high-voltage-transmission-lines-on-humans-and-plants/#comments>



<http://electricalnotes.files.wordpress.com/2012/02/untitled.png>

Introduction:

By increasing population of the world, towns are expanding, many buildings construct near high voltage overhead power transmission lines. The increase of power demand has increased the need for transmitting huge amount of power over long distances. Large transmission lines configurations with high voltage and current levels generate large values of electric and magnetic fields stresses which affect the human being and the nearby objects located at ground surfaces. This needs to be investigating the effects of electromagnetic fields near the transmission lines on human health.

The electricity system produces extremely low frequency electromagnetic field which comes under Non ionizing radiations which can cause health effects. Apart from human effect, the electrostatic coupling & electromagnetic interference of high voltage transmission lines have impact on plants and telecommunication equipments mainly operating in frequency range below UHF.

IS Power Line EMF safe? This is the controversy Discussion directly eludes on Government Regulation policy and Power Company. There are lots of supporting documents and research paper in favor and criticize this arguments.

What is The Electric and Magnetic fields:

Witness Exhibit No. 32
Date 9.4.14 Reporter
File No. EA-2014-0207
Hamilton, MO

- Electric and magnetic fields, often referred to as electromagnetic fields or EMF, occur naturally and as a result of the Power generation, Power Transmission, Power distribution and use of electric power.

- EMF is fields of force and is created by electric voltage and current. They occur around electrical devices or whenever power lines are energized.
- Electric fields are due to voltage so they are present in electrical appliances and cords whenever the electric cord to an appliance is plugged into an outlet (even if the appliance is turned off).
- Electric fields (E) exist whenever a (+) or (-) electrical charge is present. They exert forces on other charges within the field. Any electrical wire that is charged will produce an electric field (i.e. Electric field produces charging of bodies, discharge currents, biological effects and sparks). This field exists even when there is no current flowing. The higher the voltage, the stronger is electric field at any given distance from the wire.
- The strength of the electric field is typically measured in volts per meter (V/m) or in kilovolts per meter (kV/m). Electric fields are weakened by objects like trees, buildings, and vehicles. Burying power lines can eliminate human exposure to electric fields from this source.
- Magnetic fields result from the motion of the electric charge or current, such as when there is current flowing through a power line or when an appliance is plugged in and turned on. Appliances which are plugged in but not turned on do not produce magnetic fields.
- Magnetic field lines run in circles around the conductor (i.e. produces magnetic induction on objects and induced currents inside human and animal (or any other conducting) bodies causing possible health effects and a multitude of interference problems). The higher the current, the greater the strength of the magnetic field.
- Magnetic fields are typically measured in tesla (T) or more commonly, in gauss (G) and milli gauss (mG). One tesla equals 10,000 gauss and one gauss equals 1,000 milli gauss.
- The strength of an EMF decreases significantly with increasing distance from the source.
- The Strength of an electric field is proportional to the voltage of the source. Thus, the electric fields beneath high voltage transmission lines far exceed those below the lower voltage distribution lines. The magnetic field strength, by contrast, is proportional to the current in the lines, so that a low voltage distribution line with a high current load may produce a magnetic field that is as high as those produced by some high voltage transmission lines.
- In fact, electric distribution systems account for a far higher proportion of the population's exposure to magnetic fields than the larger and more visible high voltage transmission lines.
- Electrical field: the part of the EMF that can easily be shielded.
- Magnetic field: part of the BMF that can penetrate stone, steel and human flesh. In fact, when it comes to magnetic fields, human flesh and bone has the same penetrability as air!
- Both fields are invisible and perfectly silent: People who live in an area with electric power, some level of artificial EMF is surrounding them.
- The magnetic field strength produced from a transmission line is proportional to: load current, phase to phase spacing, and the inverse square of the distance from the line.
- Many previous works studied the effect of different parameters on the produced magnetic field such as: the distance from the line, the conductor height, line shielding and transmission line configuration and compaction.

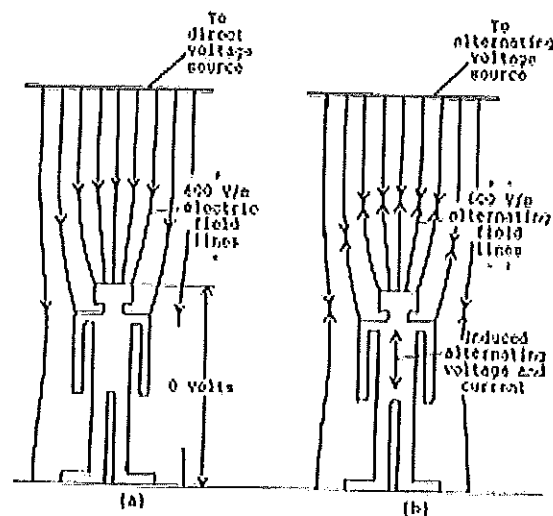
Electric and Magnetic Field (EMF) Effects

- Extremely high voltages in EHV lines cause electrostatic effects, whereas short circuit currents & line loading currents are responsible for electromagnetic effects. The effect of these electrostatic fields is

seen prominent with living things like humans, plants, animals along with vehicles, fences & buried pipes under & close to these lines.

1) EMF Effects Human beings:

- The human body is composed of some biological materials like blood, bone, brain, lungs, muscle, skin etc. The permeability of human body is equal to permeability of air but within a human body has different electromagnetic values at a certain frequency for different material.
- The human body contains free electric charges (largely in ion-rich fluids such as blood and lymph) that move in response to forces exerted by charges on and currents flowing in nearby power lines. The processes that produce these body currents are called electric and magnetic induction.
- In electric induction, charges on a power line attract or repel free charges within the body. Since body fluids are good conductors of electricity, charges in the body move to its surface under the influence of this electric force. For example, a positively charged overhead transmission line induces negative charges to flow to the surfaces on the upper part of the body. Since the charge on power lines alternates from positive to negative many times each second, the charges induced on the body surface alternate also. Negative charges induced on the upper part of the body one instant flow into the lower part of the body the next instant. Thus, power-frequency electric fields induce currents in the body (Eddy Current) as well as charges on its surface.



(<http://electricalnotes.files.wordpress.com/2012/02/13.png>) The currents induced in the body by magnetic fields are greatest near the periphery of the body and smallest at the center of the body.

- It is believed that, the magnetic field might induce a voltage in the tissue of human body which causes a current to flow through it due to its conductivity of around them.
- The magnetic field has influence on tissues in the human body. These influences may be beneficial or harmful depending upon its nature.
- The magnitude of surface charge and internal body currents that are induced by any given source of power-frequency fields depends on many factors. These include the magnitude of the charges and currents in the source, the distance of the body from the source, the presence of other objects that might

shield or concentrate the field, and body posture, shape, and orientation. For this reason the surface charges and currents which a given field induces are very different for different Human and animals.

- When a person who is isolated from ground by some insulating material comes in close proximity to an overhead transmission line, an electrostatic field is set in the body of human being, having a resistance of about 2000 ohms.
- When the same person touches a grounded object, it will discharge through his body causing a large amount of discharge current to flow through the body. Discharge currents from 50-60 Hz electromagnetic fields are weaker than natural currents in the body, such as those from the electrical activity of the brain and heart.
- For human beings the limit for undisturbed field is 15 kV/m, R.M.S., to experience possible shock. When designing a transmission lines this limit is not crossed, in addition to this proper care has been taken in order to keep minimum clearance between transmission lines.
- According to research and publications put out by the World Health Organization(WHO), EMF such as those from power lines, can also cause:

■ Short term Health Problem

1. Headaches.
2. Fatigue
3. Anxiety
4. Insomnia
5. Prickling and/or burning skin
6. Rashes
7. Muscle pain

■ Long term Health Problem:

- Following serious health Problems may be arise due to EMF effects on human Body.

(1) Risk of damaging DNA.

- Our body acts like an energy wave broadcaster and receiver, incorporating and responding to EMFs. In fact, scientific research has demonstrated that every cell in your body may have its own EMF, helping to regulate important functions and keep you healthy.
- Strong, artificial EMFs like those from power lines can scramble and interfere with your body's natural EMF, harming everything from your sleep cycles and stress levels to your immune response and DNA!

(2) Risk of Cancer

- After hundreds of international studies, the evidence linking EMFs to cancers and other health problems is loud and clear. High Voltage power lines are the most obvious and dangerous culprits, but

the same EMFs exist in gradually decreasing levels all along the grid, from substations to transformers to homes.

(3) Risk of Leukemia:

- Researchers found that children living within 650 feet of power lines had a 70% greater risk for leukemia than children living 2,000 feet away or more. (As per British Medical Journal, June, 2005).

(4) Risk of Neurodegenerative disease:

- "Several studies have identified occupational exposure to extremely low-frequency electromagnetic fields (EMF) as a potential risk factor for neuro degenerative disease." (As per Epidemiology, 2003 Jul; 14(4):413-9).

(5) Risk of Miscarriage:

- There is "strong prospective evidence that prenatal maximum magnetic field exposure above a certain level (possibly around 16 mG) may be associated with miscarriage risk." (As per Epidemiology, 2002 Jan; 13(1):9-20)

2) EMF Effects on Animals

- Many researchers are studying the effect of Electrostatic field on animals. In order to do so they keep the cages of animals under high Electrostatic field of about 30 kV/m. The results of these Experiments are shocking as animals (are kept below high Electrostatic field their body acquires a charge & when they try to drink water, a spark usually jumps from their nose to the grounded Pipe) like hens are unable to pick up grain because of chattering of their beaks which also affects their growth.

3) EMF Effects on Plant Life

- Most of the areas in agricultural and forest lands where high power transmission lines pass. The voltage level of high power transmission Lines are 400KV, 230KV, 110KV, 66KV etc. The electromagnetic field from high power transmission lines affects the growth of plants.
- Gradually increases or decreases and reaches to maximum current or minimum current and thereafter it starts to fall down to lowest current or raises to maximum current or a constant current. Again the current, it evinces with little fluctuations till the next day morning.
- Current in Power transmission lines varies according to Load (it depending upon the amount of electricity consumed by the consumers). Hence the effect of EMF (due to current flowing in the power lines) upon the growth of plants under the high power transmission lines remains unaltered throughout the year.
- From various practically study it was found that the response of the crop to EMF from 110 KV and 230 KV Power lines showed variations among themselves. Based on the results the growth characteristics

like shoot length, root length, leaf area, leaf fresh weight, specific leaf weight, shoot/root ratio, total biomass content and total water content of the four crop plants were reduced significantly over the control plants.

- Similar trend were observed in the biochemical characteristics like chlorophyll.
- Reduced growth and physiological parameter was primarily due to the effect of reduced cell division and cell enlargement. Further the growth was stunted which may be due to poor action of hormones responsible for cell division and cell enlargement.
- The bio-chemical changes produced in this plant due to EMF stress quite obvious and it affects the production leading to economic loss.
- It is concluded that the reduced growth parameter shown in the crop plants would indicates that the EMF has exerted a stress on that plants and this EMF stress was quite obvious and it affects the production leading to economic loss. So further research activities are needed to safe guard plants from EMF stress.

4) EMF Effects on Vehicles parked near Line

- When a vehicle is parked under high voltage transmission line an electrostatic field is developed in it. When a person who is grounded touches it a discharge current flows through the human being. In order to avoid this parking lots are located below the transmission lines the recommended clearance is 17 m for 345 kV and 20 m for 400 kV lines.

5) EMF Effects on Pipe Line/Fence/Cables:

- A fence, irrigation pipe, pipeline, electrical distribution line forms a conducting loops when it is grounded at both ends. The earth forms the other portion of the loop. The magnetic field from a transmission line can induce a current to flow in such a loop if it is oriented parallel to the line. If only one end of the fence is grounded, then an induced voltage appears across the open end of the loop. The possibility for a shock exists if a person closes the loop at the open end by contacting both the ground and the conductor.
- For fences, buried cables, and pipe lines proper care has been taken to prevent them from charging due to Electrostatic field. When using pipelines which are more than 3 km in length & 15 cm in Diameter they must be buried at least 30 laterally from the line center.

6) EMF Effects on Maintenance Worker:

- For providing continuous and uninterrupted supply of electric power to consumers maintenance operations of power lines are often performed with systems energized or live.

- This is live line maintenance or hot line maintenance. The electric fields and magnetic fields associated with these power lines may affect the health of live line workers. Its electric field and current densities affect the health of humans and cause several diseases by affecting majority parts of the human body. These electric field and current densities affects humans of all stages and causes short term diseases in them and sometimes death also.

Contradiction of EMF Effect on Human Health:

- There are two reasons why electromagnetic fields associated with power systems could pose no threat to human health.
- First, The EMF from power lines and appliances are of extremely low frequency and low energy. They are non-ionizing and are markedly different in frequency from ionizing radiation such as X-rays and gamma rays. As a comparison, transmission lines have a low frequency of 60Hz while television transmitters have higher frequencies in the 55 to 890 MHz range. Microwaves have even higher frequencies, 1,000 MHz and above. Ionizing radiation, such as X-rays and gamma rays, has frequencies above 10¹⁵ Hz. The energy from higher-frequency fields is absorbed more readily by biological material. Microwaves can be absorbed by water in body tissues and cause heating which can be harmful, depending upon the degree of heating that occurs. X-rays have so much energy that they can ionize (form charged particles) and break up molecules of genetic material (DNA) and no genetic material, leading to cell death or mutation. In contrast, extremely low frequency EMF does not have enough energy to heat body tissues or cause ionization.
- Second, all cells in the body maintain large natural electric fields across their outer membranes. These naturally occurring fields are at least 100 times more intense than those that can be induced by exposure to common power-frequency fields. However, despite the low energy of power-frequency fields and the very small perturbations that they make to the natural fields within the body.
- When an external agent such as an ELF fields lightly perturbs a process in the cell, other processes may compensate for it so that there is no overall disturbance to the organism. Some perturbations may be within the ranges of disturbances that a system can experience and still function properly.
- During Research on health effects of electric and magnetic fields, it has come forward that electric field intensity exposure of about 1-10 mv/m in tissue interact with cells but not proved to be harmful. But strong fields cause harmful effects when their magnitude exceeds stimulation thresholds for neural tissues (central nervous system and brain), muscle and heart

Surface Current Density(mA/m ²)	Health Effect
<1	Absence of any established effects.
1 To 10	Minor biological effects.
10 To 100	Well established effects(a) Visual effect.(b) Possible nervous system effect
100 To 1000	Changes in central nervous System
>1000	Ventricular Fibrillation (Heart Condition 0. Health hazards.

- In India it is stipulated that electric field intensity should not exceed 4.16 kV/m and magnetic field intensity should not exceed 100 μ T in public areas.
- Even when effect is demonstrated consistently on the cellular level in laboratory experiments, it is hard to predict whether and how they will affect the whole organism. Processes at the individual cell level are integrated through complex mechanisms in the animal.

Mitigation of EMF Effect of Transmission Line:

1) Line shielding:

- There are two basic 60-Hz magnetic field mitigation (reduction) methods: passive and active.
- Passive magnetic field mitigation includes rigid magnetic shielding with ferromagnetic and highly conductive materials, and the use of passive shield wires installed near transmission lines that generate opposing cancellation fields from electromagnetic induction.
- Active magnetic field mitigation uses electronic feedback to sense a varying 60-Hz magnetic field, then generates a proportionally opposing (nulling) cancellation field within a defined area (room or building) surrounded by cancellation coils. Ideally, when the two opposing 180-degree out-of-phase magnetic fields of equal magnitude intersect, the resultant magnetic field is completely cancelled (nullified). This technology has been successfully applied in both residential and commercial environments to mitigate magnetic fields from overhead transmission and distribution lines, and underground residential distribution (URD) lines.

2) Line Configuration and Compaction

- Line compaction means that, bringing the conductors close together keeping the minimum (safe) phase-to-phase spacing constant. Keeping all the parameters the same and the only variable is the phase-to-phase spacing. The magnetic field is proportional to the dimensions of the phase-to-phase spacing.
- Other studies showed that, increasing the distance between phases by increasing the height of the central phase conductor above the level of the other phase conductors leads to the reduction of the peak value of the magnetic field.
- Reducing the phase-to-phase distance, leads to the decrease of the magnetic field. This reduction between phases is limited by the electrical insulation level between phases.
- (A) For single circuit lines, compaction causes a great reduction to the maximum magnetic field values. This reduction of magnetic field allows for lower conductor heights above the ground. This leads to transmit the same power on shorter towers. This gives a great reduction of the tower cost.
- (B) For double circuit lines, some studies showed that, the use of optimum phase arrangement causes a drastic reduction to the maximum magnetic field values for both conventional and compact lines i.e. with vertical conductor

3) Grounding:

- Induced currents are always present in electric fields under transmission lines and will be present. However, there must be a policy to ground metal objects, such as fences, that are located on the right-of-way. The grounding eliminates these objects as sources of induced current and voltage shocks. Multiple grounding points are used to provide redundant paths for induced current flow and mitigate nuisance shocks.

4) Providing Right of Way(R.O.W):

- Overhead transmission systems required strips of land to be designed as right-of-ways (R.O.W.). These strips of land are usually evaluated to decrease the effects of the energized line including magnetic and electric field effects.

5) Maintaining Proper Clearance:

- Unlike fences or buildings, mobile objects such as vehicles and farm machinery cannot be grounded permanently. Limiting the possibility of induced currents from such objects to persons is accomplished by maintaining proper clearances for above-ground conductors tend to limit field strengths to levels that do not represent a hazard or nuisance.
- Limiting access area by increasing conductor clearances in areas where large vehicles could be present.

Conclusion:

- Based on the review and analysis and other research projects it is of the opinion that there is no conclusive and convincing evidence that exposure to extremely low frequency EMF emanated from nearby high voltage Transmission lines is causally associated with an increased incidence of cancer or other detrimental health effects in humans. Even if it is assumed that there is an increased risk of cancer as implied in some epidemiological studies, the empirical relative risk appears to be fairly small in magnitude and the observed association appears to be tenuous. Although the possibility is still remain about the verse effect on health by EMF.

References:

- SSGBCOE&T, Electronics and Communication Engineering-Girish Kulkarni1, Dr.W.Z.Gandhare
- Pharmacology, School of Medicine, Chung-Ang University, Seoul, Korea-Sung-Hyuk Yim, Ji-Hoon Jeong.
- Electrical Engineering Department, Shoubra, Benha University, Cairo, Egypt- Nagat Mohamed Kamel Abdel-Gawad.
- Madurai Kamaraj University-S. Somasekaran.
- Electrical Engineering Department at King Fahd University of Petroleum & Minerals- J. M. Bakhshwain, M. H. Shwehdi, U. M. Johar and A. A. AL-Naim.
- Dept. of Electrical Engineering, College of Engineering – University of Tikrit-Iraq- Ghanim Thiab Hasan, Kamil Jadu Ali, Mahmood Ali Ahmed.

<http://www.electricalnotes.com/about-these-ads/>

About Jignesh.Parmar

Jignesh Parmar has completed his B.E(Electrical) from Gujarat University. He has more than 11 years experience in Power Transmission-Power Distribution-Electrical energy theft detection-Electrical Maintenance-Electrical Projects(Planning-Designing-coordination-Execution). He is Presently associate with one of the leading business group as a Assistant Manager at Ahmedabad,India. He is Freelancer Programmer of Advance Excel and design useful Excel Sheets of Electrical Engineering as per IS,NEC,IEC,IEEE codes. He is technical Author for "Electrical Mirror" and "Electrical India" Magazines. He

is Technical Blogger and Familiar with English, Hindi, Gujarati, French languages. He wants to Share his experience & knowledge and help technical enthusiasts to find suitable solutions and updating themselves on various Engineering Topics.

30 Responses to *Effects of High Voltage Transmission Lines on Humans and Plants*

moses says:

February 18, 2012 at 10:39 am

Thanks for the info, man

Reply

Mohd saood Khan says:

February 18, 2012 at 10:51 am

It needs more discussions & debates.....

Reply

prakash chandra says:

February 22, 2012 at 5:15 pm

sir i am dooing my final year project on optimal location of interline power flow controller (ipfc) ,i am facing problem in design of IPFC controller in matlab simulation .if you having some idea about this topis then please help me .

Reply

theja says:

March 17, 2012 at 5:53 pm

very good article.An eye opener to everybody

Reply

Pushpinder Asthir says:

March 24, 2012 at 3:35 pm

It is an intersting article.But than we also need Transmission lines for the development and any large development that benefits mass population always effects some small portion of population.

Reply

suren says:

May 11, 2012 at 11:17 am

sir,

We are construction a g+ 3 upper floor building adjoining the 400KV NTPC line in bangalore,

Pl inform at what level we may have induction & danger to life,

what is the minimum clearence required form over head line to bulding.

answers may also be mailed to my mail is surend26@rocketmail.com

Reply

balasubramani says:

December 2, 2012 at 4:54 pm

sir i got a plot for house construction 10m from the overhead lines it will make any problem in future by legaly & safety and howmany meters clearence need from the OHLINES in india

Reply

Syed Rizwan says:

May 15, 2012 at 1:48 pm

Sir i would want to know your views on the Ultra high voltage transmission line being built by China having a length of 2,210 Km. Waiting for your blog on this topic .

Reply

Sandeep Beniwal says:

August 9, 2012 at 4:37 am

sir i would to know that when a new tower established on a field then what the payment made by power grid or the company who is establishing that tender tower. If the quality of irrigation on that area is very good. please reply me ASAP

Reply

shiraz says:

September 11, 2012 at 3:10 am

nice work

Shirazul Islam

Reply

karen says:

October 6, 2012 at 11:30 pm

Thank you for your clear, current info. we are considering a purchase of a home within 60 meters of 30 towers of hi voltage electric transmission lines. Would you live there? or want your family to live in this home?

thanks so,

karen

Reply

eli says:

October 11, 2012 at 3:33 am

I'm in a similar situation, but I want to buy the house is 350 meters from high voltage antennas, do you think that is bad for the health?

Thank you so much.

Eli

Reply

Bharat Bhushan says:

November 22, 2012 at 11:16 am

Hi , This is very good info indeed ,

I am trying to buy a home in builder society and there is high voltage line passing over it.The distance of flat I am looking is 10 mtrs away from line.Will that not effect health in any mean.

Please advise

Bharat.leo@gmail.com

Reply

hemant kharat says:

December 17, 2012 at 10:14 am

sir please tell me what are distance of electrical overhead tower line of 400 kv and living home its urgent please????

Reply

Jignesh Parmar says:

December 17, 2012 at 6:02 pm

Refer Post of "Electrical Safety Distance Part 1 to 6" of this Blog

Reply

RAVI says:

January 14, 2013 at 4:26 am

we r planing to buy agriculture land of 20 acers. in between the high tension line and one high line pole is there. is it safe to health for humans and plants? how much distance should maintain from the line hight and long?

Reply

mary kwan says:

January 24, 2013 at 4:52 am

Sir,

Thank you so much for yr helpful article. I am thinking about buying a flat in Hong Kong, it is 2/F on the building and the ground level is for stores and an electricity (maybe transforming) substation which seems to supply electricity for the complex. Is it safe, will there be radiation harmful for humans? Urgently needing your advice.

Reply

Guillermo Ferrando says:

March 19, 2013 at 1:05 pm

Hello: I need to find any article or reference about of the EMF effects on steel bridges. In a case, I need install a 33 KV electrical line over a steel bridge, but I think that is an dangerous situation for the people, vehicles and the steel of structure, because the electrical induced currents on the steel is (for me) of uncertain effects....Thank you. Guillermo

Reply

iman says:

March 28, 2013 at 9:45 am

al salam alaikm I'M a physics teacher, and graduate student, my thesis is about, the risk of high voltage transformers on human health, can you help me, all my thanks and God bless you. ,

Reply

shaneel says:

April 19, 2013 at 5:10 am

can any body tell me what is distance working on a live transmission lines of different voltages....

Reply

Jignesh Parmar says:

April 20, 2013 at 5:58 pm

Review old post of this Blog

Reply

N.S.DUHAN says:

May 12, 2013 at 7:43 am

Sir, we r running a mild steel galvanized pipe mfg.co. We have a electronic weighing bridge of 80 m.t. cap. A high voltage (H.T.LINE) is going on the bridge. There is a big variation on weight. We called so many experts. But result is zero. Is it possible, that due to H.T. Line there is any effect on weighing bridge load cells. There r 6 load cells in the bridge. If it is possible what r the remedies for this .Please suggest.

Thanks.

Reply

A Tierney says:

June 14, 2013 at 11:09 pm

Am I in any danger? I live in a 12 unit apt building with all the wires and boxes for cable, electricity, and phone serving it attached to my outside bedroom wall. I can sometimes hear a loud hum in the wires and have called the utility to do something about it. My neighborhood is a dense urban DC area.

My bed is within 3 feet of these wires and boxes. Is there any way to measure the strength of the electromagnetic field I am sleeping in? What distance mitigates the impact of this field?

My neighbor of 12 years, who lived below me with her bedroom in the same configuration, recently died of a lung disease. I have lived here for 9 years. I was recently diagnosed with a spot on my lung. Any advice you can offer would be appreciated.

ETN

Reply

suryabhan singh says:

August 14, 2013 at 3:27 pm

recently i purchased a house in mumbai later on i find a high tension cable over head wire passing around 80 to 90 meter away from my building is it safe pls suggest

Reply

Dr. Aung Ze Ya says:

September 5, 2013 at 8:25 am

Your document is very effective to us.

Thank you.

Reply

Charlie says:

September 15, 2013 at 2:55 pm

I have booked an apartment and yet to take possession. The distance between the flat and HT Line is 18Meters away. Is it advisable to proceed?

Reply

Bhagyaman Chettri says:

October 8, 2013 at 2:23 am

Sir Please advise me that what is that safe distance between high tension line 400kv and humam

Reply

Jignesh.Parmar says:

October 8, 2013 at 3:01 pm

Already given in the Blog

Reply

othman hasnaoui says:

November 4, 2013 at 9:05 pm

dear sir

I'm a phd student, my research is about the EMF Effects Human and plants and i want to know if there are a scientific studies who demonstrate if really there is a damage for human and plants.

Plz let me know

Reply

Peter Yougha says:

November 5, 2013 at 9:07 am

I'm a MSc GIS student, I am researching on effect on overhead power transmission lines near residential buildings in UK. I need contribution on EMF radiation from the power lines to the environment.

Reply

Blog at WordPress.com.

The Enterprise Theme.

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TARDAEWETHER Kellen * ODOE

From: Rogers Asphalt <rasphalt@oregonwireless.net>
Sent: Friday, July 19, 2019 1:31 PM
To: B2H DPOComments * ODOE
Subject: Fw: NO to B2H
Attachments: 20190719120519089.pdf

Attaching our comments. Mailing the original with signatures.

Patricia Hampton
Randall & Charlene Hampton
541-963-3633

-----Original Message-----

From: rasphalt@oregonwireless.net
Sent: 19 July, 2019 09:05 AM
To: Rogers

This E-mail was sent from "RNPF70DDC" (Aficio MP C2050).

Scan Date: 07.19.2019 12:05:18 (-0400)
Queries to: rasphalt@oregonwireless.net

This email has been checked for viruses by Avast antivirus software.
<https://www.avast.com/antivirus>

NO to B2H Alternative Route

The Hampton Family:

Patricia Hampton P.O. Drawer K, La Grande, Oregon 97850 phone: 541-963-3633

Randall & Charlene Hampton, 57119 Hwy 244, La Grande, Oregon 97850 phone: 541-910-3374 & 541-786-7288

Travis & Bryce Hampton, 57121 Oregon Hwy 244, La Grande, Oregon 97850 phone: 541-786-4288

Ranch history;

Great Uncle Jim Payne and Great Aunt Lilly Payne, (James S. Payne and Lillian H. Payne husband and wife) purchased the property we now own subject to a purchase money mortgage on August 17, 1937 from Travelers Insurance Company By F.W. Cole, Vice President.

Our Family have lived on our working ranch for 82 years. We are not new to this area. We currently have 3 generations living here on Highway 244. Our Family is in opposition of putting the lines on your alternative route. We strongly oppose the line being put across our property.

When it could continue on the already existing power line just one hill over from our property.

When we suggested this to the B2H group at the last meeting, we were told, "You wouldn't want it there!" That is not an answer. *YES we would.* There is no reason not to follow the existing line or what about permitting on the current system. Either by going above it, or extending it out to the sides. If you are using the excuse that if one goes down, then they all go down. When was the last time one of these lines have gone down? Why not bury the line in the existing easement which makes the most sense, especially since the devastating fires that caused many homes to be destroyed in California, was caused by a power line spark, and now the proposal is to cut power completely during fire season. (<https://www.foxnews.com/us/pacific-gas-electric-power-lines-caused-californias-deadliest-and-most-destructive-wildfire-officials>) Not only are the taller poles unsightly they create more exposure for possible lightning strikes causing more fires. Burying the power lines now will save money from firefighting in the years to come.

The route of the B2H if it comes across the mountain and onto our property will follow the Oregon Trail and Flowers crossing, putting the power line over the Oregon Trail, has a potential impact to the historic Oregon Trail. This trail is our heritage, of the State and our Nation. Which would disturb the Oregon Trail, in fact it would probably remove the wagon wheel marks on the trail itself. Flowers Crossing is on the corner of our property on the Grande Ronde River. It was marked with a sign until recently, we are not sure what happened to that landmark sign.

Our other concern is the Stray Voltage. We raise our children and our grandchildren and great grandchildren on this ranch. When energy is transferred, some is lost along the way. Our metal buildings, metal water troughs, our newly drilled well for watering our cattle, will be in line with the B2H line. These metal items on our property can act as a conduit for voltage to find its way to our feeding systems and water systems. It has been found that stray voltage will increase somatic cell counts in our cattle. Causing them to be nervous, reduce milk production and increase clinical mastitis. Which in turn makes for more of our cattle becoming sick. This represents more time to properly handle these cows, lost production, vet calls, treatment products, and occasional dead or culled cows. It will be said that there is no proof that this will happen, even no significant findings. But in 1999 a jury awarded Peterson Bros. Dairy \$700,000 after deciding that stray voltage was the cause of slashed herds milk output and increased the cattle's death rate. Another jury awarded a farmer \$850,000 over effects of stray voltage on their cows in 2004. It not only affects dairy cattle, but beef cattle as well. So as you can see, these cases show courts have acknowledged stray voltage and its possible effects.

Farmers have also reported that stray voltage caused them to get electric shocks from their metal buildings on their farms. We now fear the health risks from exposure to high voltage power lines. Whether the danger is scientifically genuine or verifiable fact should be irrelevant. If it takes one life or multiple, or if our children end up with leukemia... the safety of EMFs sows enough doubt that we say NO TO THE POWER LINE. And you should be thinking twice about putting a family who has been on this land for 82 years in this predicament. We choose this place due to the majestic beauty, the health and welfare of our children and our children's children. Attached to this letter is documentation on stray voltage.

The B2H line would also impact the migration patterns of the Elk, Whitetail Deer and Mule Deer in our valley. You can visibly see their migration trails on the mountain which is one of the alternative routes for the B2H. Elk and Deer summer range in our valley. Power lines have been shown to be barriers for Elk and Deer. They refrained from crossing the power line barrier. Whitetail were even less likely to cross the barrier.

Research has revealed that Power lines are seen as glowing and flashing bands across the sky by many animals. The work suggests that the pylons and wires that stretch across many landscapes are having a worldwide impact on wildlife. Scientists knew many creatures avoid power lines but the reason why was mysterious as they are not impassable physical barriers. Now, a new understanding of just how many species can see the ultraviolet light – which is invisible to humans – has revealed the major visual impact of the power lines. "It was a big surprise but we now think the majority of animals can see UV light," said Professor Glen Jeffery, a vision expert at University College London.

Our understanding is that these lines will be noisy. Which we are also opposed to. The audible noise emitted from high-voltage lines is caused by the discharge of energy that occurs when the electrical field strength on the conductor surface is greater than the 'breakdown strength' (the field intensity necessary to start a flow of electric current) of the air surrounding the conductor. This discharge is also responsible for radio noise, a visible glow of light near the conductor, an energy loss known as corona loss and other phenomena associated with high-voltage lines.

"The degree or intensity of the corona discharge and the resulting audible noise are affected by the condition of the air--that is, by humidity, air density, wind and water in the form of rain, drizzle and fog. Water increases the conductivity of the air and so increases the intensity of the discharge. Also, irregularities on the conductor surface, such as nicks or sharp points and airborne contaminants, can increase the corona activity. What will the noise do to wildlife, our cattle, and our family?

Until recently the City of Cove has sold their excess Hydro Electric power to Idaho Power. Idaho Power has decided they do not need to purchase this excess power because they no longer need the extra power. So, what is the real purpose of this line, if this is in truth the facts.

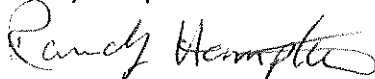
Our family strongly opposes the line and extremely opposes the line coming across our property.

The Hampton Family

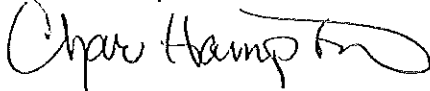
Patricia Hampton



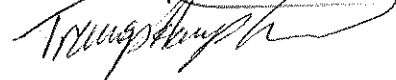
Randy Hampton



Char Hampton



Travis Hampton



Bryce Hampton



Stray Voltage and Dairy Farms Can Lead to Large Damage Awards

Mary Francque*
May 16, 2018

History of Stray Voltage Suits

Stray voltage causing damages to dairy farms is a problem that has been facing the dairy industry for year with damages cases dating back to 1984. Stray voltage is caused when a power line's neutral line is "leaking" electrical currents into the ground. A common cause of stray voltage is a neutral wire that is either too small or damaged and allows the current to go into the ground. Even when the stray voltage current is at a low level, specifically anything above 0.5 volt, it can still be harmful to livestock. These currents put stress on the animals, which in turn lowers their immune systems, leading to a variety of issues. Dairy cows have shown to be more sensitive to stray voltage than any other livestock. Voltage has been shown to cause decreased milk production, due to a lowered water intake and in turn a lowered feed intake. Farmers have also noted a range of issues relating to breeding and calving. Dairy farmers have even reported extremely sick cows, some of which have later died.

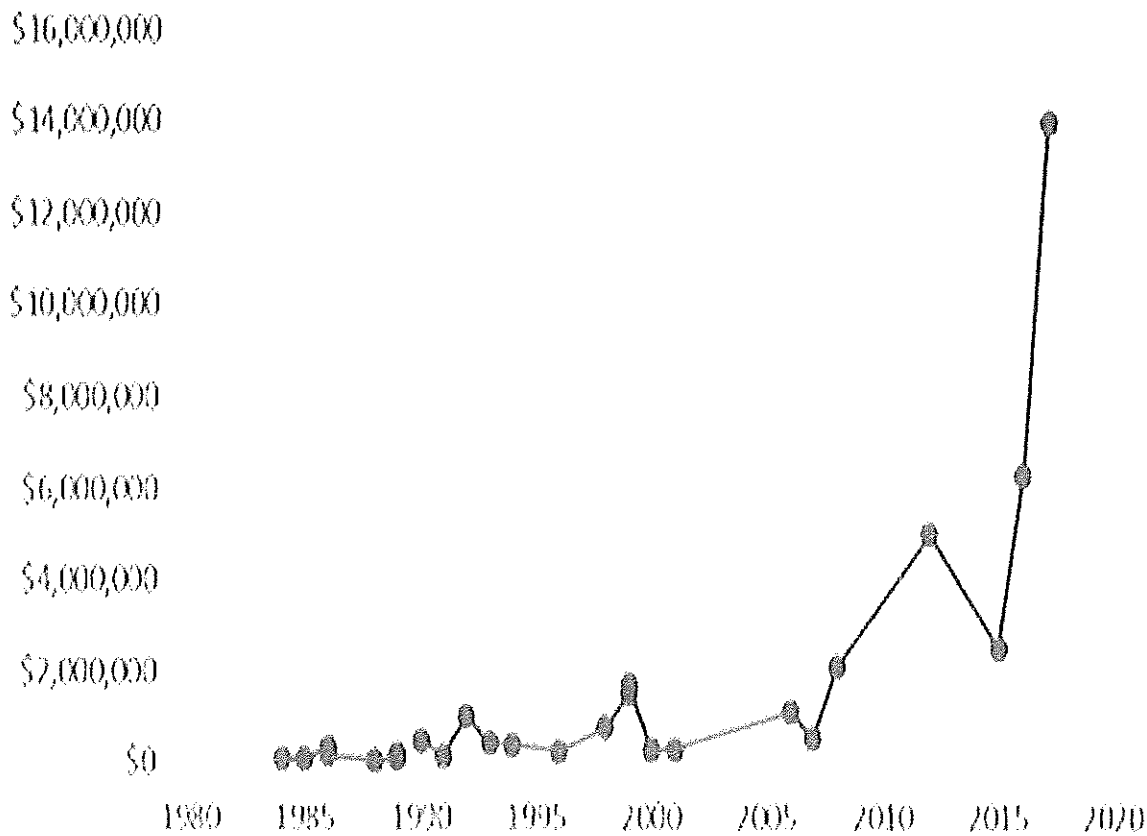
Since the 1980s farmers have been filing a variety claims against electrical utility companies across the United States relating to stray voltage, including claims for trespass, negligence, strict liability, and nuisance. Additionally, dairy farmers have filed suits against milk system suppliers for stray voltage. However, a majority of these suits have been unsuccessful or have resulted in limited relief due to the economic loss doctrine that prevents the collection of damages when it relates to a loss in profit due to defective goods. A majority of courts have held that unlike milking systems, the utility companies are providing a service rather than a good.

In suits relating strictly to electrical utility companies we have seen an evolution in damages from the 1980s to today. These suits have proven to be successful on multiple occasions and the awarded damages continue to grow.

Evolution of Damages in Stray Voltage Cases Heard throughout the United States

Since 1984 many farmers have received damages awards. However, those awards have grown from \$36,500 up to \$14 million. While there has been variation in damages awards throughout the years, there has been an upward trend overall. While some of this growth in awarded damages is due to growing farm sizes, a majority of the growth is due to an increase in understanding and research.

Awarded Damages in Stray Voltage Cases



Year	Case Name
1984	Zorn v. Electric Manufacturing
1985	Schriner v. Pen Light Co.
1986	Public Service v. Nichols
1986	Hensley v. How Coop.
1988	Otte v. Dayton
1989	Lipke v. Waush
1989	Taplin Farms, Inc. v. Service
1990	Fink v. Lafayette
1991	Kolpin v. Pioneer
1992	ZumBerge v. Ne Co.
1993	Cook v. Goodhu
1994	Matchey v. Trei Coop.
1996	Vogel v. Grant Electric Coop.
1998	Vandenberg v. Co.
1999	James v. Beaun
1999	Tipmont Rural Corp. v. Fisher
2000	Scullion v. Wisc Light Co.
2001	Iowa Lakes Elec
2006	Muth v. Wiscor Co.
2007	Gumz v. Northe
2008	Chapman v. Ne Coop.
2012	Bollant v. Scenl Coop.
2015	Poppler v. Wrigl Cooperative Elc
2016	Norman v. Crov
2017	Haldersons v. N Power
2017	Burdick v. Inter Light

Recent Stray Voltage Case in Iowa

The Iowa Court of Appeals recently decided in favor of a dairy farm awarding them \$500,000 in damages. Burdicks, a family dairy in Northern Iowa, filed suit against Interstate Power & Light Co. The Burdicks claimed that Interstate was negligent in its maintenance of its system, which caused stray voltage damages to the

Burdicks' dairy herd. They also filed a nuisance claim against Interstate. The jury found for Burdicks on the issue of negligence, awarding them \$500,000. After the trial, Interstate filed a motion for a new trial claiming that Burdicks did not provide enough evidence for the jury to calculate the damages. The district court granted Interstate's motion for a new trial.

The case decided by the Iowa Court of Appeals found that if there is proof a party has sustained damages, then that party can recover, even if there is uncertainty in the amount of the damages. There must just be a basis from which the amount of damages can be inferred. While parties should still aim to provide detailed evidence showing damages, the court here allowed the party to recover even without such evidence.

Burdicks appealed the district court's grant of a new trial. The appellate court found for Burdicks, as Interstate's case-in-chief provided adequate information to support a determination of damages by the jury. In addition, Interstate did not appeal the jury's finding of its negligence. The court has held that "there is a distinction between proof of the fact that damages have been sustained and proof of the amount of those damages."^[1] The proof of the amount of damages only needs to be presented to a point where the jury can come to an approximate estimate of the loss, not to an exact mathematical conclusion.

Therefore, even though Burdicks failed to present significant evidence that would aid the jury in determining the *amount* of damages, there were no grounds for the court to order a new trial. This was especially true because Interstate's expert witness' testimony and admitted exhibits provide sufficient evidence. Previous courts have shown that the court must look at evidence presented in the whole trial, not just the evidence presented by one side.

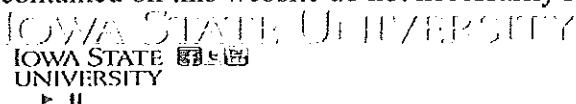
Here, Interstate's expert submitted graphs which showed expense figures and other important financial data. This along with his testimony allowed the jury to determine an estimate of the loss. Therefore, the Iowa Court of Appeals upheld the jury's previous holding that Interstate was negligent for \$500,000 in damages.

The case was *Burdick v. Interstate Power & Light Co.*, No. 16-0821 (Iowa Ct. App. October 25, 2017).

[1] *Yost v. City of Council Bluffs*, 471 2d N.W. 2d 836, 840 (Iowa 1991).

*Mary Francque completed her second year of law school at Drake University in May of 2018. She served as an intern for CALT during the Spring 2018 semester.

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Electrical Notes & Articles

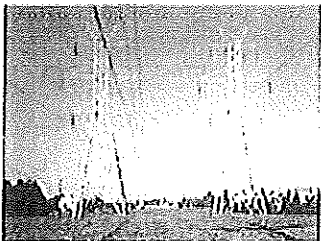
Sharing Abstracts, Notes on various Electrical Engineering Topics.

Filed
September 29, 2014
Data Center
Missouri Public
Service Commission

Effects of High Voltage Transmission Lines on Humans and Plants

FEBRUARY 17, 2012 [30 COMMENTS](#)

<http://electricalnotes.wordpress.com/2012/02/17/effects-of-high-voltage-transmission-lines-on-humans-and-plants/#comments>



<http://electricalnotes.files.wordpress.com/2012/02/untitled.png>

Introduction:

By increasing population of the world, towns are expanding, many buildings construct near high voltage overhead power transmission lines. The increase of power demand has increased the need for transmitting huge amount of power over long distances. Large transmission lines configurations with high voltage and current levels generate large values of electric and magnetic fields stresses which affect the human being and the nearby objects located at ground surfaces. This needs to be investigating the effects of electromagnetic fields near the transmission lines on human health.

The electricity system produces extremely low frequency electromagnetic field which comes under Non ionizing radiations which can cause health effects. Apart from human effect, the electrostatic coupling & electromagnetic interference of high voltage transmission lines have impact on plants and telecommunication equipments mainly operating in frequency range below UHF.

IS Power Line EMF safe? This is the controversy Discussion directly eludes on Government Regulation policy and Power Company. There are lots of supporting documents and research paper in favor and criticize this arguments.

What is The Electric and Magnetic fields:

Witness Exhibit No. 32
Date 9.4.14 Reporter
File No. EA-2014-0207
Hamilton, MO

- Electric and magnetic fields, often referred to as electromagnetic fields or EMF, occur naturally and as a result of the Power generation, Power Transmission, Power distribution and use of electric power.

- EMF is fields of force and is created by electric voltage and current. They occur around electrical devices or whenever power lines are energized.
- Electric fields are due to voltage so they are present in electrical appliances and cords whenever the electric cord to an appliance is plugged into an outlet (even if the appliance is turned off).
- Electric fields (E) exist whenever a (+) or (-) electrical charge is present. They exert forces on other charges within the field. Any electrical wire that is charged will produce an electric field (i.e. Electric field produces charging of bodies, discharge currents, biological effects and sparks). This field exists even when there is no current flowing. The higher the voltage, the stronger is electric field at any given distance from the wire.
- The strength of the electric field is typically measured in volts per meter (V/m) or in kilovolts per meter (kV/m). Electric fields are weakened by objects like trees, buildings, and vehicles. Burying power lines can eliminate human exposure to electric fields from this source.
- Magnetic fields result from the motion of the electric charge or current, such as when there is current flowing through a power line or when an appliance is plugged in and turned on. Appliances which are plugged in but not turned on do not produce magnetic fields.
- Magnetic field lines run in circles around the conductor (i.e. produces magnetic induction on objects and induced currents inside human and animal (or any other conducting) bodies causing possible health effects and a multitude of interference problems). The higher the current, the greater the strength of the magnetic field.
- Magnetic fields are typically measured in tesla (T) or more commonly, in gauss (G) and milli gauss (mG). One tesla equals 10,000 gauss and one gauss equals 1,000 milli gauss.
- The strength of an EMF decreases significantly with increasing distance from the source.
- The Strength of an electric field is proportional to the voltage of the source. Thus, the electric fields beneath high voltage transmission lines far exceed those below the lower voltage distribution lines. The magnetic field strength, by contrast, is proportional to the current in the lines, so that a low voltage distribution line with a high current load may produce a magnetic field that is as high as those produced by some high voltage transmission lines.
- In fact, electric distribution systems account for a far higher proportion of the population's exposure to magnetic fields than the larger and more visible high voltage transmission lines.
- Electrical field: the part of the EMF that can easily be shielded.
- Magnetic field: part of the BMF that can penetrate stone, steel and human flesh. In fact, when it comes to magnetic fields, human flesh and bone has the same penetrability as air!
- Both fields are invisible and perfectly silent: People who live in an area with electric power, some level of artificial EMF is surrounding them.
- The magnetic field strength produced from a transmission line is proportional to: load current, phase to phase spacing, and the inverse square of the distance from the line.
- Many previous works studied the effect of different parameters on the produced magnetic field such as: the distance from the line, the conductor height, line shielding and transmission line configuration and compaction.

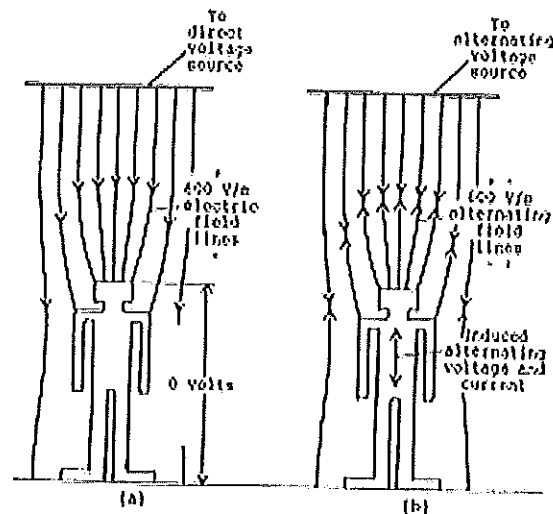
Electric and Magnetic Field (EMF) Effects

- Extremely high voltages in EHV lines cause electrostatic effects, whereas short circuit currents & line loading currents are responsible for electromagnetic effects. The effect of these electrostatic fields is

seen prominent with living things like humans, plants, animals along with vehicles, fences & buried pipes under & close to these lines.

1) EMF Effects Human beings:

- The human body is composed of some biological materials like blood, bone, brain, lungs, muscle, skin etc. The permeability of human body is equal to permeability of air but within a human body has different electromagnetic values at a certain frequency for different material.
- The human body contains free electric charges (largely in ion-rich fluids such as blood and lymph) that move in response to forces exerted by charges on and currents flowing in nearby power lines. The processes that produce these body currents are called electric and magnetic induction.
- In electric induction, charges on a power line attract or repel free charges within the body. Since body fluids are good conductors of electricity, charges in the body move to its surface under the influence of this electric force. For example, a positively charged overhead transmission line induces negative charges to flow to the surfaces on the upper part of the body. Since the charge on power lines alternates from positive to negative many times each second, the charges induced on the body surface alternate also. Negative charges induced on the upper part of the body one instant flow into the lower part of the body the next instant. Thus, power-frequency electric fields induce currents in the body (Eddy Current) as well as charges on its surface.



(<http://electricalnotes.files.wordpress.com/2012/02/13.png>) The currents induced in the body by magnetic fields are greatest near the periphery of the body and smallest at the center of the body.

- It is believed that, the magnetic field might induce a voltage in the tissue of human body which causes a current to flow through it due to its conductivity of around them.
- The magnetic field has influence on tissues in the human body. These influences may be beneficial or harmful depending upon its nature.
- The magnitude of surface charge and internal body currents that are induced by any given source of power-frequency fields depends on many factors. These include the magnitude of the charges and currents in the source, the distance of the body from the source, the presence of other objects that might

shield or concentrate the field, and body posture, shape, and orientation. For this reason the surface charges and currents which a given field induces are very different for different Human and animals.

- When a person who is isolated from ground by some insulating material comes in close proximity to an overhead transmission line, an electrostatic field is set in the body of human being, having a resistance of about 2000 ohms.
- When the same person touches a grounded object, it will discharge through his body causing a large amount of discharge current to flow through the body. Discharge currents from 50-60 Hz electromagnetic fields are weaker than natural currents in the body, such as those from the electrical activity of the brain and heart.
- For human beings the limit for undisturbed field is 15 kV/m, R.M.S., to experience possible shock. When designing a transmission lines this limit is not crossed, in addition to this proper care has been taken in order to keep minimum clearance between transmission lines.
- According to research and publications put out by the World Health Organization(WHO), EMF such as those from power lines, can also cause:

■ Short term Health Problem

1. Headaches.
2. Fatigue
3. Anxiety
4. Insomnia
5. Prickling and/or burning skin
6. Rashes
7. Muscle pain

■ Long term Health Problem:

- Following serious health Problems may be arise due to EMF effects on human Body.

(1) Risk of damaging DNA.

- Our body acts like an energy wave broadcaster and receiver, incorporating and responding to EMFs. In fact, scientific research has demonstrated that every cell in your body may have its own EMF, helping to regulate important functions and keep you healthy.
- Strong, artificial EMFs like those from power lines can scramble and interfere with your body's natural EMF, harming everything from your sleep cycles and stress levels to your immune response and DNA!

(2) Risk of Cancer

- After hundreds of international studies, the evidence linking EMFs to cancers and other health problems is loud and clear. High Voltage power lines are the most obvious and dangerous culprits, but

the same EMFs exist in gradually decreasing levels all along the grid, from substations to transformers to homes.

(3) Risk of Leukemia:

- Researchers found that children living within 650 feet of power lines had a 70% greater risk for leukemia than children living 2,000 feet away or more. (As per British Medical Journal, June, 2005).

(4) Risk of Neurodegenerative disease:

- "Several studies have identified occupational exposure to extremely low-frequency electromagnetic fields (EMF) as a potential risk factor for neuro degenerative disease." (As per Epidemiology, 2003 Jul; 14(4):413-9).

(5) Risk of Miscarriage:

- There is "strong prospective evidence that prenatal maximum magnetic field exposure above a certain level (possibly around 16 mG) may be associated with miscarriage risk." (As per Epidemiology, 2002 Jan; 13(1):9-20)

2) EMF Effects on Animals

- Many researchers are studying the effect of Electrostatic field on animals. In order to do so they keep the cages of animals under high Electrostatic field of about 30 kV/m. The results of these Experiments are shocking as animals (are kept below high Electrostatic field their body acquires a charge & when they try to drink water, a spark usually jumps from their nose to the grounded Pipe) like hens are unable to pick up grain because of chattering of their beaks which also affects their growth.

3) EMF Effects on Plant Life

- Most of the areas in agricultural and forest lands where high power transmission lines pass. The voltage level of high power transmission Lines are 400KV, 230KV, 110KV, 66KV etc. The electromagnetic field from high power transmission lines affects the growth of plants.
- Gradually increases or decreases and reaches to maximum current or minimum current and thereafter it starts to fall down to lowest current or raises to maximum current or a constant current. Again the current, it evinces with little fluctuations till the next day morning.
- Current in Power transmission lines varies according to Load (it depending upon the amount of electricity consumed by the consumers). Hence the effect of EMF (due to current flowing in the power lines) upon the growth of plants under the high power transmission lines remains unaltered throughout the year.
- From various practically study it was found that the response of the crop to EMF from 110 KV and 230 KV Power lines showed variations among themselves. Based on the results the growth characteristics

like shoot length, root length, leaf area, leaf fresh weight, specific leaf weight, shoot/root ratio, total biomass content and total water content of the four crop plants were reduced significantly over the control plants.

- Similar trend were observed in the biochemical characteristics like chlorophyll.
- Reduced growth and physiological parameter was primarily due to the effect of reduced cell division and cell enlargement. Further the growth was stunted which may be due to poor action of hormones responsible for cell division and cell enlargement.
- The bio-chemical changes produced in this plant due to EMF stress quite obvious and it affects the production leading to economic loss.
- It is concluded that the reduced growth parameter shown in the crop plants would indicates that the EMF has exerted a stress on that plants and this EMF stress was quite obvious and it affects the production leading to economic loss. So further research activities are needed to safe guard plants from EMF stress.

4) EMF Effects on Vehicles parked near Line

- When a vehicle is parked under high voltage transmission line an electrostatic field is developed in it. When a person who is grounded touches it a discharge current flows through the human being. In order to avoid this parking lots are located below the transmission lines the recommended clearance is 17 m for 345 kV and 20 m for 400 kV lines.

5) EMF Effects on Pipe Line/Fence/Cables:

- A fence, irrigation pipe, pipeline, electrical distribution line forms a conducting loops when it is grounded at both ends. The earth forms the other portion of the loop. The magnetic field from a transmission line can induce a current to flow in such a loop if it is oriented parallel to the line. If only one end of the fence is grounded, then an induced voltage appears across the open end of the loop. The possibility for a shock exists if a person closes the loop at the open end by contacting both the ground and the conductor.
- For fences, buried cables, and pipe lines proper care has been taken to prevent them from charging due to Electrostatic field. When using pipelines which are more than 3 km in length & 15 cm in Diameter they must be buried at least 30 laterally from the line center.

6) EMF Effects on Maintenance Worker:

- For providing continuous and uninterrupted supply of electric power to consumers maintenance operations of power lines are often performed with systems energized or live.

- This is live line maintenance or hot line maintenance. The electric fields and magnetic fields associated with these power lines may affect the health of live line workers. Its electric field and current densities affect the health of humans and cause several diseases by affecting majority parts of the human body. These electric field and current densities affects humans of all stages and causes short term diseases in them and sometimes death also.

Contradiction of EMF Effect on Human Health:

- There are two reasons why electromagnetic fields associated with power systems could pose no threat to human health.
- First, The EMF from power lines and appliances are of extremely low frequency and low energy. They are non-ionizing and are markedly different in frequency from ionizing radiation such as X-rays and gamma rays. As a comparison, transmission lines have a low frequency of 60Hz while television transmitters have higher frequencies in the 55 to 890 MHz range. Microwaves have even higher frequencies, 1,000 MHz and above. Ionizing radiation, such as X-rays and gamma rays, has frequencies above 10¹⁵ Hz. The energy from higher-frequency fields is absorbed more readily by biological material. Microwaves can be absorbed by water in body tissues and cause heating which can be harmful, depending upon the degree of heating that occurs. X-rays have so much energy that they can ionize (form charged particles) and break up molecules of genetic material (DNA) and no genetic material, leading to cell death or mutation. In contrast, extremely low frequency EMF does not have enough energy to heat body tissues or cause ionization.
- Second, all cells in the body maintain large natural electric fields across their outer membranes. These naturally occurring fields are at least 100 times more intense than those that can be induced by exposure to common power-frequency fields. However, despite the low energy of power-frequency fields and the very small perturbations that they make to the natural fields within the body.
- When an external agent such as an ELF fields lightly perturbs a process in the cell, other processes may compensate for it so that there is no overall disturbance to the organism. Some perturbations may be within the ranges of disturbances that a system can experience and still function properly.
- During Research on health effects of electric and magnetic fields, it has come forward that electric field intensity exposure of about 1-10 mv/m in tissue interact with cells but not proved to be harmful. But strong fields cause harmful effects when their magnitude exceeds stimulation thresholds for neural tissues (central nervous system and brain), muscle and heart

Surface Current Density(mA/m ²)	Health Effect
<1	Absence of any established effects.
1 To 10	Minor biological effects.
10 To 100	Well established effects(a) Visual effect.(b) Possible nervous system effect
100 To 1000	Changes in central nervous System
>1000	Ventricular Fibrillation (Heart Condition 0. Health hazards.

- In India it is stipulated that electric field intensity should not exceed 4.16 kV/m and magnetic field intensity should not exceed 100 μ T in public areas.
- Even when effect is demonstrated consistently on the cellular level in laboratory experiments, it is hard to predict whether and how they will affect the whole organism. Processes at the individual cell level are integrated through complex mechanisms in the animal.

Mitigation of EMF Effect of Transmission Line:

1) Line shielding:

- There are two basic 60-Hz magnetic field mitigation (reduction) methods: passive and active.
- Passive magnetic field mitigation includes rigid magnetic shielding with ferromagnetic and highly conductive materials, and the use of passive shield wires installed near transmission lines that generate opposing cancellation fields from electromagnetic induction.
- Active magnetic field mitigation uses electronic feedback to sense a varying 60-Hz magnetic field, then generates a proportionally opposing (nulling) cancellation field within a defined area (room or building) surrounded by cancellation coils. Ideally, when the two opposing 180-degree out-of-phase magnetic fields of equal magnitude intersect, the resultant magnetic field is completely cancelled (nullified). This technology has been successfully applied in both residential and commercial environments to mitigate magnetic fields from overhead transmission and distribution lines, and underground residential distribution (URD) lines.

2) Line Configuration and Compaction

- Line compaction means that, bringing the conductors close together keeping the minimum (safe) phase-to-phase spacing constant. Keeping all the parameters the same and the only variable is the phase-to-phase spacing. The magnetic field is proportional to the dimensions of the phase-to-phase spacing.
- Other studies showed that, increasing the distance between phases by increasing the height of the central phase conductor above the level of the other phase conductors leads to the reduction of the peak value of the magnetic field.
- Reducing the phase-to-phase distance, leads to the decrease of the magnetic field. This reduction between phases is limited by the electrical insulation level between phases.
- (A) For single circuit lines, compaction causes a great reduction to the maximum magnetic field values. This reduction of magnetic field allows for lower conductor heights above the ground. This leads to transmit the same power on shorter towers. This gives a great reduction of the tower cost.
- (B) For double circuit lines, some studies showed that, the use of optimum phase arrangement causes a drastic reduction to the maximum magnetic field values for both conventional and compact lines i.e. with vertical conductor

3) Grounding:

- Induced currents are always present in electric fields under transmission lines and will be present. However, there must be a policy to ground metal objects, such as fences, that are located on the right-of-way. The grounding eliminates these objects as sources of induced current and voltage shocks. Multiple grounding points are used to provide redundant paths for induced current flow and mitigate nuisance shocks.

4) Providing Right of Way(R.O.W):

- Overhead transmission systems required strips of land to be designed as right-of-ways (R.O.W.). These strips of land are usually evaluated to decrease the effects of the energized line including magnetic and electric field effects.

5) Maintaining Proper Clearance:

- Unlike fences or buildings, mobile objects such as vehicles and farm machinery cannot be grounded permanently. Limiting the possibility of induced currents from such objects to persons is accomplished by maintaining proper clearances for above-ground conductors tend to limit field strengths to levels that do not represent a hazard or nuisance.
- Limiting access area by increasing conductor clearances in areas where large vehicles could be present.

Conclusion:

- Based on the review and analysis and other research projects it is of the opinion that there is no conclusive and convincing evidence that exposure to extremely low frequency EMF emanated from nearby high voltage Transmission lines is causally associated with an increased incidence of cancer or other detrimental health effects in humans. Even if it is assumed that there is an increased risk of cancer as implied in some epidemiological studies, the empirical relative risk appears to be fairly small in magnitude and the observed association appears to be tenuous. Although the possibility is still remain about the verse effect on health by EMF.

References:

- SSGBCOE&T, Electronics and Communication Engineering-Girish Kulkarni1, Dr.W.Z.Gandhare
- Pharmacology, School of Medicine, Chung-Ang University, Seoul, Korea-Sung-Hyuk Yim, Ji-Hoon Jeong.
- Electrical Engineering Department, Shoubra, Benha University, Cairo, Egypt- Nagat Mohamed Kamel Abdel-Gawad.
- Madurai Kamaraj University-S. Somasekaran.
- Electrical Engineering Department at King Fahd University of Petroleum & Minerals- J. M. Bakhshwain, M. H. Shwehdi, U. M. Johar and A. A. AL-Naim.
- Dept. of Electrical Engineering, College of Engineering – University of Tikrit-Iraq- Ghanim Thiab Hasan, Kamil Jadu Ali, Mahmood Ali Ahmed.

<http://www.electricalnotes.com/about-these-ads/>

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Jignesh Parmar has completed his B.E(Electrical) from Gujarat University. He has more than 11 years experience in Power Transmission-Power Distribution-Electrical energy theft detection-Electrical Maintenance-Electrical Projects(Planning-Designing-coordination-Execution). He is Presently associate with one of the leading business group as a Assistant Manager at Ahmedabad,India. He is Freelancer Programmer of Advance Excel and design useful Excel Sheets of Electrical Engineering as per IS,NEC,IEC,IEEE codes. He is technical Author for "Electrical Mirror" and "Electrical India" Magazines. He

is Technical Blogger and Familiar with English, Hindi, Gujarati, French languages. He wants to Share his experience & knowledge and help technical enthusiasts to find suitable solutions and updating themselves on various Engineering Topics.

30 Responses to *Effects of High Voltage Transmission Lines on Humans and Plants*

moses says:

February 18, 2012 at 10:39 am

Thanks for the info, man

Reply

Mohd saood Khan says:

February 18, 2012 at 10:51 am

It needs more discussions & debates.....

Reply

prakash chandra says:

February 22, 2012 at 5:15 pm

sir i am dooing my final year project on optimal location of interline power flow controller (ipfc) ,i am facing problem in design of IPFC controller in matlab simulation .if you having some idea about this topis then please help me .

Reply

theja says:

March 17, 2012 at 5:53 pm

very good article.An eye opener to everybody

Reply

Pushpinder Asthir says:

March 24, 2012 at 3:35 pm

It is an intersting article.But than we also need Transmission lines for the development and any large development that benefits mass population always effects some small portion of population.

Reply

suren says:

May 11, 2012 at 11:17 am

sir,

We are construction a g+ 3 upper floor building adjoining the 400KV NTPC line in bangalore,

Pl inform at what level we may have induction & danger to life,

what is the minimum clearence required form over head line to bulding.

answers may also be mailed to my mail is surend26@rocketmail.com

Reply

balasubramani says:

December 2, 2012 at 4:54 pm

sir i got a plot for house construction 10m from the overhead lines it will make any problem in future by legaly & safety and howmany meters clearence need from the OHLINES in india

Reply

Syed Rizwan says:

May 15, 2012 at 1:48 pm

Sir i would want to know your views on the Ultra high voltage transmission line being built by China having a length of 2,210 Km. Waiting for your blog on this topic .

Reply

Sandeep Beniwal says:

August 9, 2012 at 4:37 am

sir i would to know that when a new tower established on a field then what the payment made by power grid or the company who is establishing that tender tower. If the quality of irrigation on that area is very good. please reply me ASAP

Reply

shiraz says:

September 11, 2012 at 3:10 am

nice work

Shirazul Islam

Reply

karen says:

October 6, 2012 at 11:30 pm

Thank you for your clear, current info. we are considering a purchase of a home within 60 meters of 30 towers of hi voltage electric transmission lines. Would you live there? or want your family to live in this home?

thanks so,

karen

Reply

eli says:

October 11, 2012 at 3:33 am

I'm in a similar situation, but I want to buy the house is 350 meters from high voltage antennas, do you think that is bad for the health?

Thank you so much.

Eli

Reply

Bharat Bhushan says:

November 22, 2012 at 11:16 am

Hi , This is very good info indeed ,

I am trying to buy a home in builder society and there is high voltage line passing over it.The distance of flat I am looking is 10 mtrs away from line.Will that not effect health in any mean.

Please advise

Bharat.leo@gmail.com

Reply

hemant kharat says:

December 17, 2012 at 10:14 am

sir please tell me what are distance of electrical overhead tower line of 400 kv and living home its urgent please????

Reply

Jignesh Parmar says:

December 17, 2012 at 6:02 pm

Refer Post of "Electrical Safety Distance Part 1 to 6" of this Blog

Reply

RAVI says:

January 14, 2013 at 4:26 am

we r planing to buy agriculture land of 20 acers. in between the high tension line and one high line pole is there. is it safe to health for humans and plants? how much distance should maintain from the line hight and long?

Reply

mary kwan says:

January 24, 2013 at 4:52 am

Sir,

Thank you so much for yr helpful article. I am thinking about buying a flat in Hong Kong, it is 2/F on the building and the ground level is for stores and an electricity (maybe transforming) substation which seems to supply electricity for the complex. Is it safe, will there be radiation harmful for humans? Urgently needing your advice.

Reply

Guillermo Ferrando says:

March 19, 2013 at 1:05 pm

Hello: I need to find any article or reference about of the EMF effects on steel bridges. In a case, I need install a 33 KV electrical line over a steel bridge, but I think that is an dangerous situation for the people, vehicles and the steel of structure, because the electrical induced currents on the steel is (for me) of uncertain effects....Thank you. Guillermo

Reply

iman says:

March 28, 2013 at 9:45 am

al salam alaikm I'M a physics teacher, and graduate student, my thesis is about, the risk of high voltage transformers on human health, can you help me, all my thanks and God bless you. ,

Reply

shaneel says:

April 19, 2013 at 5:10 am

can any body tell me what is distance working on a live transmission lines of different voltages....

Reply

Jignesh Parmar says:

April 20, 2013 at 5:58 pm

Review old post of this Blog

Reply

N.S.DUHAN says:

May 12, 2013 at 7:43 am

Sir, we r running a mild steel galvanized pipe mfg.co. We have a electronic weighing bridge of 80 m.t. cap. A high voltage (H.T.LINE) is going on the bridge. There is a big variation on weight. We called so many experts. But result is zero. Is it possible, that due to H.T. Line there is any effect on weighing bridge load cells. There r 6 load cells in the bridge. If it is possible what r the remedies for this .Please suggest.

Thanks.

Reply

A Tierney says:

June 14, 2013 at 11:09 pm

Am I in any danger? I live in a 12 unit apt building with all the wires and boxes for cable, electricity, and phone serving it attached to my outside bedroom wall. I can sometimes hear a loud hum in the wires and have called the utility to do something about it. My neighborhood is a dense urban DC area.

My bed is within 3 feet of these wires and boxes. Is there any way to measure the strength of the electromagnetic field I am sleeping in? What distance mitigates the impact of this field?

My neighbor of 12 years, who lived below me with her bedroom in the same configuration, recently died of a lung disease. I have lived here for 9 years. I was recently diagnosed with a spot on my lung. Any advice you can offer would be appreciated.

ETN

Reply

suryabhan singh says:

August 14, 2013 at 3:27 pm

recently i purchased a house in mumbai later on i find a high tension cable over head wire passing around 80 to 90 meter away from my building is it safe pls suggest

Reply

Dr. Aung Ze Ya says:

September 5, 2013 at 8:25 am

Your document is very effective to us.

Thank you.

Reply

Charlie says:

September 15, 2013 at 2:55 pm

I have booked an apartment and yet to take possession. The distance between the flat and HT Line is 18Meters away. Is it advisable to proceed?

Reply

Bhagyaman Chettri says:

October 8, 2013 at 2:23 am

Sir Please advise me that what is that safe distance between high tension line 400kv and humam

Reply

Jignesh.Parmar says:

October 8, 2013 at 3:01 pm

Already given in the Blog

Reply

othman hasnaoui says:

November 4, 2013 at 9:05 pm

dear sir

I'm a phd student, my research is about the EMF Effects Human and plants and i want to know if there are a scientific studies who demonstrate if really there is a damage for human and plants.

Plz let me know

Reply

Peter Yougha says:

November 5, 2013 at 9:07 am

I'm a MSc GIS student, I am researching on effect on overhead power transmission lines near residential buildings in UK. I need contribution on EMF radiation from the power lines to the environment.

Reply

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The Enterprise Theme.

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ESTERSON Sarah * ODOE

From: catherine hancock <attyhancock@aol.com>
Sent: Tuesday, August 20, 2019 11:27 AM
To: B2H DPOComments * ODOE
Subject: Idaho Power Application
Attachments: fish.letter

Please see attached.

Attorney Catherine M. Hancock
25 Main Street
Easthampton, MA 01027
tel: 413-527-1400
fax: 413-529-0107

ESTERSON Sarah * ODOE

From: catherine hancock <attyhancock@aol.com>
Sent: Tuesday, August 20, 2019 11:31 AM
To: B2H DPOComments * ODOE
Subject: Idaho Power Application
Attachments: fish2.let

Please see attached.

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