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TARDAEWETHER Kellen * ODOE

From: Melanie Boozenny <mboozenny@co.lake.or.us>
Sent: Monday, July 20, 2020 2:58 PM
To: TARDAEWETHER Kellen * ODOE
Cc: kmoore@obsidianrenewables.com; Laurie Hutchinson; James Williams
Subject: Lake County - Obsidian Solar Center Project
Attachments: Obsidian Solar Center Project - Road Repair.pdf

Ms. Tardaewether,

Please find the attached letter in support of the conversations for road damage mitigation.

Best,

Melanie Boozenny

Melanie Boozenny

She/Her/Ms

PIO, Lake County Commissioner's Administrative Assistant

513 Center Street

Lakeview, Oregon 97630

(541) 947-6003

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Lake County Board of Commissioners

513 Center Street
Lakeview, Oregon 97630
(541) 947-6003
Fax: (541) 947-5775

Bradley J. Winters, Chair
James Williams, Vice-Chair
Mark Albertson, Commissioner

July 10, 2020

Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capital Street NE
Salem, OR 97301

via electronic mail:

Kellen.Tardaewether@oregon.gov

RE: Obsidian Solar Center, LLC project at Fort Rock

Ms. Tardaewether,

We are writing today to update the Oregon Department of Energy and Oregon Energy Facilities Siting Council as it pertains to the Lake County Road Department, regarding the Obsidian Solar Center project at Fort Rock. Managing the maintenance and repair of the Lake County roads is a challenging endeavor for our County Road Superintendent, with a limited budget to cover such a large geographic area. Any large construction projects that could cause damage to roads in the County are of high concern to us, him and the Road Department. That is why we are appreciative that Obsidian Renewables, LLC, the manager of Obsidian Solar Center, has reached out proactively to work with the County in coming up with a solution to any road maintenance and repair issues caused by the Project.

Obsidian has developed multiple solar projects in Lake County. On each of those projects, Obsidian has engaged Swinerton Renewable Energy as its general contractor. In our experience, Obsidian and Swinerton have consistently worked to maintain the roads around their projects in a satisfactory manner during the construction of their projects and have worked with us to repair any damage after completion of such projects.

Regarding the Project, We and our Road Superintendent have had multiple discussions with the Obsidian and Swinerton teams. We have begun outlining a plan for road maintenance and repair in connection with the Project. These discussions have been constructive. We are confident that Lake County, Obsidian and Swinerton will be able enter into a satisfactory Road Maintenance/Use and Repair Agreement that will ensure the roads are well maintained during the Project and repaired as necessary after the Project's completion.

Thank you.

Bradley J. Winters
Chair

James Williams
Vice-Chair

Mark Albertson
Commissioner

TARDAEWETHER Kellen * ODOE

From: Jon Germond <Jon.p.Germond@state.or.us>
Sent: Thursday, July 16, 2020 2:13 PM
To: TARDAEWETHER Kellen * ODOE; ESTERSON Sarah * ODOE
Cc: DONALD Erin L; MUIR Jonathan D; VAUGHAN Joy R; REIF Sarah J
Subject: Obsidian Solar DPO - ODFW Round 3 Comments
Attachments: Obsidian Solar DPO Comments - ODFW Round 3 - Final 7-16-20.pdf

Kellen – Sarah is out today, so I’m sending this comment letter over to you. Please include it in the Obsidian Solar record. Thanks!

Jon Germond
Habitat Resources Program Manager
Wildlife Division
Oregon Department of Fish & Wildlife
4034 Fairview Industrial Drive SE
Salem, OR 97302
503-947-6088 (w)
503-947-6330 (Fax)
Jon.P.Germond@state.or.us



Oregon

Kate Brown, Governor

Department of Fish and Wildlife

Wildlife Division

4034 Fairview Industrial Dr. S.

Salem, OR 97302

(503) 947-6301

FAX: (503) 947-6330

Internet: www.dfw.state.or.us

July 16, 2020

Kellen Tardaewether
Senior Siting Analyst
Oregon Department of Energy
550 Capitol Street NE
Salem, OR 97301



RE: Supplemental Comments on the Draft Proposed Order for Obsidian Solar Center

Dear Ms. Tardaewether,

The Oregon Department of Fish and Wildlife (ODFW) provides the following additional supplemental comments for the Obsidian Solar Center Draft Proposed Order (DPO; dated March 12, 2020). The purpose of this supplement is to address the Obsidian Renewables, LLC (Applicant) May 22, 2020 Draft Working Lands Improvement Program (WLIP) Agreement. The Habitat Mitigation Plan (HMP) identified the WLIP Agreement in Option 3 as the Applicant's primary mitigation action to achieve no net loss in habitat quantity. ODFW evaluated the WLIP Agreement specifically for its reliability and durability of the proposed mitigation, which is necessary to achieve the Energy Facility Siting Council (EFSC) Fish and Wildlife Habitat Standard (OAR 345-022-0060).

Again, ODFW appreciates the responsiveness of the applicant to ODFW's concerns and recommendations as stated in our previous comment letters. ODFW takes this opportunity to highlight several remaining issues in the Obsidian Solar Center's HMP and WLIP Agreement that need resolution to ensure consistency with the ODFW Fish and Wildlife Habitat Mitigation Policy (OAR 635-415-0025) and by extension the EFSC Fish and Wildlife Habitat Siting Standard. ODFW shared these recommendations with ODOE staff in advance:

- Incorporate the provisions within the Applicant's proposed WLIP Agreement into the HMP. This would provide EFSC with a direct link to enforcement of the Applicant's proposed mitigation. Since the proposed WLIP is an agreement between the Applicant and the landowner, ODOE staff tells ODFW that they believe the WLIP lacks a clear nexus to EFSC authority.
- Add enforcement language to the WLIP agreement and the HMP that requires periodic visits by ODOE (and ODFW by extension). This would provide EFSC with a solid nexus to ensure the durability of the proposed mitigation.

- Include language in the HMP about not only entering into the lease agreement, but also maintaining it for the life of the project. Currently, the HMP Option 3 reads as though the Applicant will meet their mitigation obligation when the Applicant enters into an agreement with the landowner, but leaves the continuity of that agreement unaddressed.
- In the event ownership of the mitigation property(ies) transfers during the life of the project, the HMP should require that Obsidian give notice to ODOE, and enter into/maintain a new agreement with the new landowner. This requirement should go into the HMP and the WLIP agreement. In addition, if there is a time gap between the loss of one mitigation site and the start of a new mitigation site (it may be difficult to find willing landowners), the Applicant is still obligated to meet their mitigation commitment. If there is a time gap, that time obligation maintains.
- Attach the finalized HMP to the WLIP agreement. Currently, the HMP is referenced in the WLIP, but not attached. Attaching the HMP to the WLIP would avoid a situation where the landowner might claim s/he was unaware of the wildlife habitat goals associated with the HMP in the event s/he were to use the land in a manner that conflicted with the wildlife habitat goals.
- Improve the list of allowable/prohibited uses in the WLIP, and include as conditions in the HMP.
 - All land uses, developments, and associated activities, which represent conflicting uses to wildlife habitat, are prohibited. This includes, but is not limited to:
 - Temporary or permanent residential, commercial or industrial development for private or public use.
 - Roads and associated infrastructure
 - Transmission lines and energy development
 - Land divisions
 - Exploration and mining activities
 - Airports, schools, churches
 - Recreation facilities, including golf courses, parks, campgrounds, youth camps, recreational vehicle parks, hunting and fishing preserves
 - Establishment of a feedlot
 - Remove the recreation, hunting access, and quiet enjoyment by the applicant sections from the WLIP agreement. These activities are beyond the goals of the HMP, and could conflict with the habitat goals.
- For allowable uses, exclude the landowner's desired buildable areas from the WLIP lease area
- Improve baseline information (prior to finalization of the HMP and WLIP agreement). The WLIP states the mitigation property(ies) shall not exceed existing thresholds for a variety of things, but there are no metrics associated with this statement. Providing EFSC with baseline data to compare against during future periodic visits by ODOE staff to monitor mitigation will help to ensure future land management activities remain consistent with the Fish and Wildlife Habitat Siting Standard.
 - Identify and map all existing structures
 - Identify and map all existing impervious surfaces or access road networks
 - Identify and map the final mitigation area
 - Identify the current grazing management practices (e.g., AUMs, pasture rotation schedule, etc.).

Again, ODFW extends its appreciation to the Oregon Department of Energy for the opportunity to provide technical assistance in the review of the Obsidian Solar Center. Should staff have any questions or require additional discussion with ODFW, please do not hesitate to contact Sarah Reif (Energy Coordinator) or Jon Muir (Lakeview District Wildlife Biologist). Thank you.

Sincerely,

Sarah Reif

Sarah Reif
Energy Coordinator
sarah.j.reif@state.or.us; 503-947-6082

TARDAEWETHER Kellen * ODOE

From: Rowe Patrick G <Patrick.G.Rowe@doj.state.or.us>
Sent: Monday, July 13, 2020 2:47 PM
To: CORNETT Todd * ODOE; TARDAEWETHER Kellen * ODOE; WOODS Maxwell * ODOE
Subject: Fwd: Public Notice of Rescheduled In-Person and Webinar/Teleconference Public Hearing and Request for Comments on Draft Proposed Order on the Application for Site Certificate for the Proposed Obsidian Solar Center

Please see below. Let's discuss when I'm back in town tomorrow.

Patrick

Begin forwarded message:

From: Aaron Noteboom <aaron@noteboomlaw.com>
Date: July 13, 2020 at 2:25:34 PM PDT
To: ROWE Patrick G <Patrick.G.ROWE@state.or.us>
Cc: "Albrich, Elaine" <ElaineAlbrich@dwt.com>, Mike Reeder <mreeder@oregonlanduse.com>
Subject: **RE: Public Notice of Rescheduled In-Person and Webinar/Teleconference Public Hearing and Request for Comments on Draft Proposed Order on the Application for Site Certificate for the Proposed Obsidian Solar Center**

Patrick,

I am assisting Mike Reeder in connection with the upcoming July 20, 2020 public hearing for a solar facility in Lake County. Mike is out of the office and asked that I follow up with you on the status of his July 1, 2020 request to postpone the July 20, 2020 public hearing as we have yet to hear a response. On behalf of our clients, I renew our prior request to postpone the upcoming, scheduled hearing.

As you may be aware, just this afternoon the Governor "sounded the alarm" on the pandemic spreading exponentially in Oregon unless immediate steps are taken. <https://www.oregonlive.com/coronavirus/2020/07/gov-kate-brown-holds-press-conference-to-discuss-the-state-of-coronavirus-in-oregon-watch-live.html> To that end, she announced that, beginning on July 15, 2020, she is imposing a statewide ban on indoor social gatherings of more than 10 persons (excluding businesses and churches) and imposing a requirement for wearing face masks outdoors when a 6 foot distance cannot be maintained. In imposing these requirements, she implored that, "We need to do absolutely everything we can to reduce transmissions in ways that do not require us to close down businesses again." Gov. Kate Brown, July 13, 2020.

Would you kindly advise as soon as possible as to the status of the July 20, 2020 hearing? If ODOE intends to move forward with the scheduled July 20, 2020 hearing, notwithstanding the Governor's orders, please provide me with the legal authority for doing so. Our understanding

is that Governor Brown's orders carry the force of law and supersede any inconsistent state law which may otherwise apply. If you have a different understanding, please let me know. Please forward a copy of this email to Ms. Tardaewether for inclusion into the record for the solar facility siting application.

Yours truly,

Aaron Noteboom | Attorney at Law
Noteboom Law LLC
375 W 4th Ave, Ste 204 | Eugene, Oregon 97401
Ph: (541) 513-2298 | aaron@noteboomlaw.com

From: Mike Reeder <mreeder@oregonlanduse.com>
Sent: Wednesday, July 1, 2020 10:17 PM
To: TARDAEWETHER Kellen * ODOE <Kellen.Tardaewether@oregon.gov>; rema.a.bergin@state.or.us
Cc: ROWE Patrick G <Patrick.G.ROWE@state.or.us>; CORNETT Todd * ODOE <Todd.Cornett@oregon.gov>; Irfarming@Irfarming@sagerat.com>; justluckyent@gmail.com; Albrich, Elaine <ElaineAlbrich@dwt.com>
Subject: RE: Public Notice of Rescheduled In-Person and Webinar/Teleconference Public Hearing and Request for Comments on Draft Proposed Order on the Application for Site Certificate for the Proposed Obsidian Solar Center

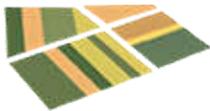
Dear Kellen Tardwether and Rema Bergin:

Please see the attached letter and enter into the record on this matter.

Thank you for your attention in this important matter.

Best,

Mike



Law Office of Mike Reeder
Oregon Land Use Law

Office: (458) 210-2845 | oregonlanduse.com
375 W. 4th Ave., Suite 205, Eugene, OR 97401

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From: TARDAEWETHER Kellen * ODOE <Kellen.Tardaewether@oregon.gov>
Sent: Wednesday, June 17, 2020 9:27 AM
To: Mike Reeder <mreeder@oregonlanduse.com>
Cc: ROWE Patrick G <Patrick.G.ROWE@state.or.us>; CORNETT Todd * ODOE <Todd.Cornett@oregon.gov>
Subject: FW: Public Notice of Rescheduled In-Person and Webinar/Teleconference Public Hearing and

Request for Comments on Draft Proposed Order on the Application for Site Certificate for the Proposed Obsidian Solar Center

Good morning Mr. Reeder,

As a courtesy, I'm forwarding the notice of the cancelation of the June 23 DPO hearing for the Obsidian Solar Center and rescheduling it for July 20, 2020. Let me know if you have any questions.

Kellen



Kellen Tardaewether
Senior Siting Analyst
550 Capitol St. NE Salem, OR 97301
P: 503-373-0214
C: 503-586-6551
P (In Oregon): 800-221-8035



Stay connected!

From: Oregon Department of Energy <ODOE@cd.energy.oregon.gov>
Sent: Wednesday, June 17, 2020 8:57 AM
To: TARDAEWETHER Kellen * ODOE <Kellen.Tardaewether@oregon.gov>
Subject: Description of Public Notice of Rescheduled In-Person and Webinar/Teleconference Public Hearing and Request for Comments on Draft Proposed Order on the Application for Site Certificate for the Proposed Obsidian Solar Center

▪

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Description of Public Notice of Rescheduled In-Person and Webinar/Teleconference Public Hearing and Request for Comments on Draft Proposed Order on the Application for Site Certificate for the Proposed Obsidian Solar Center

Description: The applicant, Obsidian Solar Center LLC (a wholly owned subsidiary of Obsidian Renewables, LLC) submitted an application for site certificate (ASC) to the Oregon Department

of Energy to construct and operate the proposed Obsidian Solar Center (proposed facility). The proposed facility, including related or supporting facilities, includes up to 400 megawatt alternating current (MWac) of photovoltaic solar energy generation equipment to be located within a site boundary of approximately 3,921 acres. The proposed facility is located within Lake County, approximately eight miles northwest of Christmas Valley.

The Department determined that the ASC was complete on October 17, 2019; the applicant filed the complete ASC on October 30, 2019. The Department posted additional information to the ASC submitted by the applicant to the project webpage and issued a Draft Proposed Order on the ASC on March 12, 2020. The Draft Proposed Order recommends the Energy Facility Siting Council (EFSC) approve the ASC and grant a site certificate, subject to the conditions presented in the Draft Proposed Order (see Attachment A).

Comment Period: The Oregon Department of Energy requests written comments on the Draft Proposed Order (staff's initial evaluation and recommendation) from March 12, 2020 through July 20, 2020. Written comments must be received by the comment deadline of Monday, July 20, 2020 at the close of the public hearing described below. Written comments must be submitted by mail, email, hand-delivery or fax per below before the close of the comment period:

Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capitol Street NE, 1st Floor
Salem, OR 97301
Email: Kellen.Tardaewether@oregon.gov
Fax: 503-373-7806

Public Hearing: A third-party hearings officer from the Oregon Office of Administrative Hearings, appointed by EFSC, will hold an in-person and remote webinar/teleconference public hearing on the Draft Proposed Order at an EFSC meeting, as described below, where members of the public may provide oral and written comments on the record of the Draft Proposed Order:

Date: July 20, 2020

Start Time: 5:30 p.m.

End Time: 7:00 p.m., or later based on public participation

Location: Christmas Valley Community Hall

87345 Holly Lane

Christmas Valley, OR 97641

Teleconference/Webinar Presentation:

<https://odoe.webex.com/odoe/onstage/g.php?MTID=e826a9a37cc8819eb15290118166d73cc>

Join by Phone: (408) 418-9388

Access Code: 711 028 400

ODOE strongly recommends joining the Webex meeting online, if possible. When you join, please use your full name to sign in to help staff manage public comments. Additional information will be provided at the hearing about how to provide an oral comment using Webex features.

Written or oral comments must be received by the close of the Public Hearing to be eligible to participate in a contested case on this ASC.

Hard copies of the proposed Obsidian Solar Center ASC and DPO are available or have been provided to be available for public inspection at the following locations at no cost. Hard copies will be provided at reasonable cost upon request to ODOE. Please contact the below locations to arrange viewing of hard copies of the ASC and DPO:

Kellen Tardaewether, Senior Siting Analyst
(Agency Representative)
Oregon Department of Energy
550 Capitol Street NE
Salem, OR 97301

Christmas Valley Branch Library
57338 Christmas Tree Ln
Christmas Valley, OR 97641
(541) 576-2336
Hours: Tuesday & Thursday: 10:30 AM – 6 PM
Saturday: 10:30 AM – 3 PM

Silver Lake Branch Library
65522 Hwy 31, Silver Lake OR 97638
(541) 576-2146
Hours: Monday : 10:30 AM – 6 PM

The public notice prepared in accordance with OAR 345-015-0220(2) is provided as an attachment to this email and provide via hyperlink below.

More information about the proposed facility including the ASC and DPO, the public notice, and updates on the review process, are available at no cost online at:

<https://www.oregon.gov/energy/facilities-safety/facilities/Pages/OSC.aspx>

Additional resources to help you participate in the state siting process can be found at:

<http://www.oregon.gov/energy/facilities-safety/facilities/pages/default.aspx>

You received this notice either because you previously signed up for email updates through GovDelivery/ClickDimensions related to specific siting projects, all Energy Facility Siting Council activities (the "General List") or Rulemaking activities. You may manage your subscriptions to updates on various ODOE and Energy Facility Siting Council projects by logging in to our ClickDimensions page at: <https://tinyurl.com/ODOE-EFSC>.

If you have any questions or comments about ClickDimensions please feel free to contact michiko.mata@oregon.gov

Oregon Department of Energy
Leading Oregon to a safe, equitable, clean, and sustainable energy future.

The Oregon Department of Energy helps Oregonians improve the energy efficiency of their homes, provides policy expertise to prepare for Oregon's future energy needs, staffs the Energy Facility Siting Council, provides technical and financial assistance to encourage investments in energy efficiency and renewable energy resources, promotes the cleanup of the Hanford nuclear site, and ensures state preparedness to respond to emergencies at energy facilities.



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TARDAEWETHER Kellen * ODOE

From: paul.hawkins@daimler.com
Sent: Tuesday, July 14, 2020 3:52 PM
To: TARDAEWETHER Kellen * ODOE
Subject: Why not a solar field?

Hi,

I know big companies don't always do the obvious thing first— because I work for one. I've seen the solar fields in Nevada and Owyhee County, Idaho seems like an ideal place for this technology.

I just had to ask.

Thank you,
Paul Hawkins
Milwaukie, Oregon

If you are not the addressee, please inform us immediately that you have received this e-mail by mistake, and delete it. We thank you for your support.

TARDAEWETHER Kellen * ODOE

From: Bill Richardson <brichardson@RMEF.ORG>
Sent: Thursday, July 16, 2020 11:51 AM
To: TARDAEWETHER Kellen * ODOE
Cc: Karie Decker; Dave Wiley (davewiley@wvi.com)
Subject: RMEF Comments: Obsidian Solar
Attachments: RMEF Comments_Obsidian Solar Draft Proposed Order.pdf

Please find attached RMEF comments on the Obsidian Solar Draft Proposed Order. Please let me know if you have any questions or if you need additional information.

Thank you,
Bill



Bill Richardson | Oregon and Washington Senior Lands Program Manager
Rocky Mountain Elk Foundation
541.929.3011 office | 541.760.5083 cell
866.399.6089 toll free
24550 Ervin Road, Philomath OR 97370
brichardson@rmef.org | www.rmef.org

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**ROCKY MOUNTAIN
ELK FOUNDATION**

July 16, 2020

Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capital Street NE
Salem, OR 97301
Email: Kellen.Tardaewether@oregon.gov

RE: Obsidian Solar Center LLC proposed solar photovoltaic energy generation facility

Dear Oregon Department of Energy,

The Rocky Mountain Elk Foundation's (RMEF) mission is to ensure the future of elk, other wildlife, their habitat and our hunting heritage. We represent more than 234,000 members nationwide and over 17,300 members in Oregon. Since its inception in 1984, RMEF has permanently protected or enhanced more than 7.9 million acres of North America's most vital habitat for elk and other wildlife, including over 830,000 acres in Oregon.

RMEF was made aware of an Oregon Department of Energy Draft Proposed Order for the Obsidian Solar Center LLC solar photovoltaic energy generation facility. Given the habitat fragmentation that may occur due to new fencing installed across the facility site of 3,921 acres, RMEF recommends continued, close coordination with the Oregon Department of Fish and Wildlife to ensure minimal impacts to movement of elk and other wildlife through the proposed facility area.

Thank you for the opportunity to provide comments on this project.

Sincerely,

Bill Richardson
Oregon & Washington Sr. Lands Program Manager
Rocky Mountain Elk Foundation

TARDAEWETHER Kellen * ODOE

From: Jim Walls <jim.walls@lcri.org>
Sent: Friday, July 17, 2020 11:06 AM
To: TARDAEWETHER Kellen * ODOE
Subject: Letter of support
Attachments: 2020 DOE Letter - Jim LCRI.pdf

Ms. Tardaewether,
Attached is a letter of support for the Obsidian Project in Christmas Valley and the July 20, 2020 public hearing.
Any questions, please give me a call.

--

James K. Walls
18337nPadget Rd
Lakeview, OR 97630

phone: (541) 219-1811

July 16, 2020

Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capital Street NE
Salem, OR 97301

Dear Ms. Tardaewether:

I am Chairman of the Board of Directors and former Executive Director of Lake County Resources Initiative (LCRI) and writing to endorse the Obsidian Renewables 400 MW photovoltaic solar energy project in Christmas Valley.

In 2013 LCRI completed a study that assessed what percent of Lake County's greenhouse gas emissions were being offset through renewable energy projects hosted in the County. The study found that 97% of Lake County's abiotic carbon emissions had been offset. Lake County Commissioners, the Town of Lakeview, and the City of Paisley endorsed this study and corresponding climate change mitigation plan. Today, we believe, with the addition of the Obsidian Renewables Christmas Valley solar project, Lake County will have offset both biotic and abiotic emissions, plus more. LCRI has contracted Oregon Institute of Technology (OIT) to have a graduate student update the 2013 study that will result in a peer reviewed and published report. This way, we'll know if our claims are correct or not. We hope this objective and peer reviewed study will show metropolitan areas that don't have the vast spaces we have in Eastern Oregon that they can invest here to help offset their climate change emissions. We fully realize this is not the complete answer to climate change, but it can be a big part.

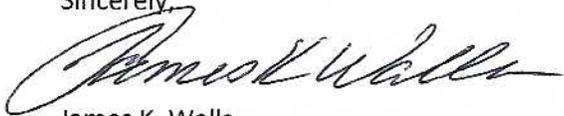
Please review the Renewable Energy and Climate Change pages on LCRI's webpage, www.lcri.org. Recently, another group has done a documentary on the renewable energy efforts in Lake, Sherman and Wallowa Counties in Eastern Oregon. There was a planned debut of the documentary in March 2020 but Covid-19 put it on hold. Here is a trailer for the documentary, <https://vimeo.com/403409317>.

The last point I would like to make is that Lake County consists of 78% government owned land and has a population density of less than 1 person per square mile. There is plenty of room for solar and other renewable energy projects without impacting prime agricultural land and wildlife habitat. As demonstrated by LCRI's opposition to a project that was going to be built on irrigated agricultural ground.

We need more projects like Obsidian's if we are going to get a handle on climate change.

Thank you for the opportunity to comment.

Sincerely,



James K. Walls
18337 Padget RD
Lakeview, OR 97630
541-219-1811

TARDAEWETHER Kellen * ODOE

From: Tonya Mobley <doglakeconst@gmail.com>
Sent: Monday, July 20, 2020 1:54 PM
To: TARDAEWETHER Kellen * ODOE
Subject: Comments for Obsidian Solar
Attachments: Letter in support of North Lake Solar.pdf

Kellen,

We would like to have this letter added to the comments for Obsidian Solar to build in North Lake County.

Thank you
Tonya Mobley

--

Dog Lake Construction, Inc
PO Box 702
Shop: 18225 Kadrmas Road
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Lakeview, OR 97630
Ph: 541-947-2265
Fax: 541-947-2260

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Cell: 541-219-1240

doglakeconstruction@hotmail.com

To whom it may concern, Oregon Department of Energy:

Re: Obsidian Solar

We have worked with Obsidian Solar and Swinerton Builders on many projects in Lake County, and they are both great companies to work with. They are a great team and have done some great work in Lake County.

The solar site in North Lake County that Obsidian and Swinerton are planning to build is an economic benefit to the community through taxes, these solar projects make the ground worth much more money per acre for property tax purposes, and this benefits all of Lake County. There are also some incentives to the North Lake Schools.

This project will employ many Lake County residents as well as some from each of those companies. Dog Lake will have 10 to 30 employees working at different stages of the project and we are just doing the dirt work. Along with Dog Lake there will be several other sub-contractors that have worked on the solar projects and all of them will be able to keep their employees working with this job available. All of us try to hire as many local residents as possible.

We all hope that the decision is to let this project happen. It would benefit all of Lake County, especially North Lake County.

Thank you for your time and consideration in this project.

A handwritten signature in blue ink, appearing to read 'Scott and Tonya Mobley'.

Scott and Tonya Mobley
Dog Lake Construction.

TARDAEWETHER Kellen * ODOE

From: Michael O'Casey <mocasey@trcp.org>
Sent: Monday, July 20, 2020 2:08 PM
To: TARDAEWETHER Kellen * ODOE
Subject: Theodore Roosevelt Conservation Partnership Comments on Obsidian Solar Project
Attachments: TRCP Comments Obsidian Solar_Final_07_20_20.pdf

Dear Mrs. Tardaewether,

Please find the attached comments submitted by the Theodore Roosevelt Conservation Partnership in regards to the Proposed Draft Order for the Obsidian Solar Project.

Do not hesitate to reach out with any questions.

Thanks,

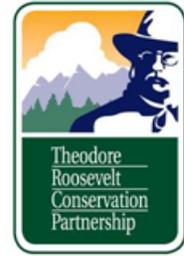
Michael

Michael O'Casey
Oregon Field Representative
Theodore Roosevelt Conservation Partnership
(541) 668-2316 (cell)
21122 Tumalo Road
Bend, OR 97703
trcp.org

July 20th, 2020

Kellen Tardaewether
Senior Siting Analyst
Oregon Department of Energy
550 Capital Street NE
Salem, OR 97301

Kellen.Tardaewether@oregon.gov



RE: Draft Proposed Order for the Obsidian Solar Facility – Theodore Roosevelt Conservation Partnership Comments

Dear Mrs. Tardaewether,

The Theodore Roosevelt Conservation Partnership is a national conservation organization working to guarantee all Americans quality places to hunt and fish. The TRCP works with 60 formal partners and represents over 100,000 individual members nationally and 4,000 throughout the state of Oregon. Given the significant increase in renewable energy development on public and private land throughout the West, the future management and siting decisions for these projects administered by the State of Oregon is of great interest to us, our partners, and all of Oregon’s hunters and anglers.

We appreciate this opportunity to submit comments on the Draft Proposed Order for the Obsidian Solar Project. **Our comments are regarding the habitat mitigation measures being proposed.** Your consideration and incorporation of our comments and recommendations into your decision-making process on this potential project is greatly appreciated.

Big Game Winter Range and Habitat Mitigation Planning:

The TRCP recognizes the need for responsible renewable energy development on public and private lands. However, proper siting and review of each proposed project is a critical component to ensure ‘no net loss’ and in many cases even ‘a net benefit’ to quality fish and wildlife habitat. This proposed facility is located entirely within a more than one million acre-area mapped by ODFW as known elk winter range and a large portion of the facility is located within mapped mule deer winter range.

According to the Draft Proposed Order (DPO), there are 3,587 acres of Category 2 habitat identified by the Oregon Department of Fish and Wildlife that will be permanently impacted within the proposed development zone of the project. As described from the DPO below;

*“Pursuant to OAR 635-415-0025(2), Category 2 habitat is defined as essential habitat for a fish or wildlife species, population, or unique assemblage of species and is limited either on a physiographic province or site-specific basis depending on the individual species, population or unique assemblage. **The mitigation goal if impacts are unavoidable, is no net loss of either habitat quantity or quality and to provide a net benefit of habitat quantity or quality.**”*

The impacts from this proposed project are unavoidable and as such, the Department should better ensure that any proposed mitigation plan is robust enough to provide not only no net loss, but also provide a net benefit. According to the DPO;

*“The applicant proposes acreage ratios to meet ODFW’s mitigation goal for Category 2 habitat impacts. **The applicant proposes to secure landowner agreements covering lands equivalent to 1.1 acre for every 1 acre of Category 2 habitat permanently impacted**, to meet the Category 2 mitigation goal of net loss in habitat quantity. Based on this proposed methodology, the land area included in WLIP sites for the proposed facility would include approximately 3,946 acres as mitigation for permanent habitat loss. “*

The TRCP is requesting that the council increase the acreage ratio for in kind mitigation to a standard that has been applied previously to other facilities mitigating for Category 2 habitat. Our request is **2 acres for every one acre of Category 2 habitat that is permanently impacted.**

In addition, the TRCP is concerned about the implementation of the proposed mitigation by the developer because of limited staff time and funding available from the Department necessary to monitor the projects progress once construction begins. Most importantly, the TRCP urges the Department to ensure the following requirement as stated in the DPO is carried out before any construction begins;

“Applicant will provide copies of the executed working lands leases to ODOE prior to construction of the Facility.”

Conclusion

We request that the Department ensures the projects direct and permanent loss of 3,500+ acres of Category two big game winter range is adequately mitigated for through a robust and fully implemented Habitat Mitigation Plan. The TRCP recommends that the council require a 2:1 ratio rather than 1.1:1 that is currently proposed.

Finally, we recommend that the Department works towards a solution for the growing effects of cumulative projects across a region such as is beginning to occur in Lake County. Currently, projects are reviewed on a case by case basis and the department does not analyze the cumulative effect of renewable energy projects. As more and more solar and wind projects are sited on public and private lands, the Department should consider convening a working group to address the impacts on fish and wildlife habitat from energy development in a proactive manner.

We greatly appreciate the opportunity to provide comments on this proposed solar facility. If you have any questions regarding these comments, please do not hesitate to contact us.

Respectfully,



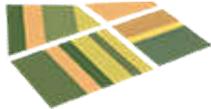
Michael O’Casey
Oregon Field Representative
Theodore Roosevelt Conservation Partnership
(541) 668-2316 (cell)
21122 Tumalo Road
Bend, OR 97703

Comment submitted via email to the following address Kellen.Tardaewether@oregon.gov.

TARDAEWETHER Kellen * ODOE

From: Mike Reeder <mreeder@oregonlanduse.com>
Sent: Monday, July 20, 2020 3:08 PM
To: TARDAEWETHER Kellen * ODOE
Cc: aaron@noteboomlaw.com
Subject: FW: Objection to ASC for Obsidian Solar Center
Attachments: Reeder to HO (Objection to Application) FINAL SUBMITTED - 07.20.2020.pdf

Resending as we have not heard confirmation that you received the earlier submission. There will be five follow on emails. Thanks.



Law Office of Mike Reeder
Oregon Land Use Law

Office: (458) 210-2845 | oregonlanduse.com
375 W. 4th Ave., Suite 205, Eugene, OR 97401

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From: Aaron Noteboom <aaron@noteboomlaw.com>
Sent: Monday, July 20, 2020 2:04 PM
To: TARDAEWETHER Kellen * ODOE <Kellen.Tardaewether@oregon.gov>
Cc: ROWE Patrick G <Patrick.G.ROWE@state.or.us>; Mike Reeder <mreeder@oregonlanduse.com>
Subject: Objection to ASC for Obsidian Solar Center

Dear Ms. Tardaewether,

I am forwarding for inclusion into the record the attached letter from Mike Reeder. Due to their large size, I will be sending in one or more separate emails the exhibits that accompany this letter. Please confirm receipt of this email and attachment.

Yours truly,

Aaron Noteboom | Attorney at Law
Noteboom Law LLC
375 W 4th Ave, Ste 204 | Eugene, Oregon 97401
Ph: (541) 513-2298 | aaron@noteboomlaw.com



Law Office of Mike Reeder
Oregon Land Use Law

July 20, 2020

Via Email and Certified Mail, Return Receipt Requested
Kellen.Tardaewether@oregon.gov

Hearing Official
c/o Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Captial Street NE
Salem, OR 97301

Re: Objection to Application for Site Certificate – Obsidian Solar Center

Dear Hearing Official:

I represent Jerald Simmons, LeeRoy and Nancy Horton, Patrick Barker, Larry Turnbow and Jeremiah and Mariam Thorsted, Dave Hogan and Aaron Borrer (“Ft Rock Neighbors” or “FRN”). I am writing on behalf of my clients to object to the application for site certificate for the proposed 3,921 acre Obsidian Solar Center renewable energy solar facility (“Facility”) in Lake County (“LC”), Oregon (the “Application” or “App.”) filed with the Oregon Department of Energy (“ODOE”) by Obsidian Solar Center, LLC (a wholly owned subsidiary of Obsidian Renewable, LLC)(the “Applicant” or “Developer”). My clients own property directly abutting or in the nearby vicinity of the proposed solar Facility and will be directly and adversely impacted by it. (See FRN Ex. A). As detailed in the attached testimony (FRN Ex. B) and FRN objections submitted herewith, the Application fails to comply with the applicable approval criteria. Further, the Developer has not sought alternate grounds for approval by demonstrating that the overall public benefits of the Facility outweigh the adverse effects on protected resources and interests including those of my clients.

Therefore, the Oregon Energy Facility Siting Council (“Council”) must DENY the Application. Should the Council nevertheless approve the Application over my clients’ objections, the Council should further condition the Application to require the Developer to fully mitigate its offsite impacts to surrounding resources and interests, including my clients’ property. Please include this letter, attached objections and the testimony submitted herewith as part of the record.

Sincerely,

/s/Micheal M. Reeder

Micheal M. Reeder

Cc: Clients (Email only)
Elaine Albrecht, Developer Attorney (Email only)

FORT ROCK NEIGHBOR OBJECTIONS

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I. BACKGROUND.

The Christmas Valley and Ft Rock Neighbors have resided and worked in rural north Lake County for decades. With several of the Ft Rock Neighbors raising crops and livestock on farms that either directly abut or are situated in the nearby vicinity of the proposed solar Facility. (See Exhibit A). Their agricultural activities stand to be irreparably harmed and their livelihoods adversely impacted by the Developer's proposal to develop over 3,900 acres of A-2 zoned land, removing much of its natural vegetative cover in the process, to install 1.74 million solar panels all encompassed by a 7-foot high chain link fence. What needs to be understood by all at the outset is just how massive the proposed Facility is. To put the size of the Facility in perspective, 3,921 acres is 6.12 square miles! That is nearly 2 times the size of the City of Burns, Oregon (3.57 sq. miles)¹ and over ½ the size of the Developer's home town of the City of Lake Oswego, Oregon (10.77 sq. miles).² If you are unfamiliar with either of those communities, the proposed Facility is the size of 2,265 football fields. It is enough space to construct 31,368 single family homes each on a standard 0.1-acre lot assuming standard 80% developable, 20% infrastructure.

The scale of the proposed Facility is astounding by any measure. The proposal calls for up to 1.742 million solar modules erected on 246,444 posts and connected by up to 2 million miles of trenched and buried cable. Should the Facility include battery storage, up to 5.6 million gallons of electrolytes fluid will be used onsite – enough to fill nearly 8.5 Olympic sized swimming pools. The perimeter fence is approximately 18 miles around. There are nearly 50 miles of perimeter and internal dirt roads. Construction will take 2 years to complete with up to 150 workers a day onsite during peak construction. This is a supersized industrial facility located outside of any urban growth boundary. Yet, despite its enormous size, there is little, if any, recognition of or plan to mitigate the offsite impacts inevitable with such a development.

Developing nearly 6 square miles of desert including the removal, destruction and/or disturbance of natural vegetation/ground cover to install the 1.74 million solar arrays will allow the powerful winds that blow across Oregon's high desert to strip the remaining top soil down to the hardpan resulting in drifting sand dunes and airborne dust choking out neighboring fields, livestock and residents, setting the conditions for noxious weeds to thrive and hindering the return of the site to its current condition upon retirement; it is setting the conditions for a modern day dust bowl. Likewise, the planned removal (through mowing and crushing) of vegetation as part of the construction will force resident rodents and animals ("refugees") from the subject property onto adjacent properties (including the Fort Rock Neighbors') seeking asylum in search of food and habitat and wreaking havoc on commercial agricultural crops and fields of adjacent property owners in the process.

To facilitate the construction and ongoing cleaning of the solar arrays, the Developer proposes using groundwater (in a legislatively designated groundwater restricted area) through multiple wells competing with existing permitted and prior use agricultural operations. What water it cannot lawfully take from the ground (potentially millions of gallons), Developer proposes to truck in from as far away as La Pine, Oregon (90 miles roundtrip). The massive facility will also severely clutter and replace the pristine views of rural eastern Oregon High Desert with

¹ https://www2.census.gov/geo/docs/maps-data/data/gazetteer/2018_Gazetteer/2018_gaz_place_41.txt

² *Id.*

miles upon miles of large industrial development as well as nighttime light pollution where none currently exists. All of the foregoing will have substantial, adverse impacts to the environment and to the Ft Rock Neighbors and others. As discussed below, the Application fails to adequately account for and mitigate those impacts and to show compliance with the applicable approval criteria; the Application must therefore be DENIED.

II. OBJECTIONS – FAILURE TO COMPLY WITH APPLICABLE APPROVAL CRITERIA.

The Application fails to demonstrate compliance with the following approval criteria by a preponderance of the evidence as required by OAR 345-022-0000(1) and therefore must be DENIED. Developer does not seek alternate approval under OAR 345-022-0000(2) by demonstrating that the overall public benefits of the Facility outweigh any adverse effects on protected resources or interests.

While the Application is lacking across the board (as detailed below), there are two criteria for which no amount of new evidence or conditions can cause compliance and result in denial of the Application:

- a. Lack of Water. The Developer lacks the groundwater permits necessary to obtain 30.65 million gallons of water needed to complete the construction of the proposed project. Further, the water district that the Developer is relying upon to provide any shortfall in water is prohibited under its own permits from selling water to be used on property within Township 26S where Developer’s Facility will be located. See Section II, 2. a. and 2. b.
- b. Fort Rock Development Limitation. Developer proposes to build a portion (approx. half) of the Facility within the Fort Rock Planning Area. Under the LC Comprehensive Plan, all development in this area must be located within 600 ft of existing roads. The majority of the proposed development within the Ft Rock Planning Area is located *more than 600 ft* from existing roads (e.g. County Road 5-12, Connley Ln and County Road 5-10C) and is therefore, prohibited. See Section II, 3. c.

1. SOIL (EXHIBIT O)

Facts

The subject property comprises 3,921 acres of which approximately 3,700 acres will be developed (~94%). See App., Exhibit B. The entire property is covered by one of five different soil types all of which are classified as “Group 1 being the most susceptible to wind erosion.” App., Pg I-3. Winds of greater than 9 miles per hour are strong enough to create dust and displace soil. FRN Ex. C. During construction, the majority of the area within the site boundary will be mowed within 6 inches of the ground surface and driven on and “crushed” by construction vehicles. App., Pg I-8. Permanent soil disturbance, including excavation and grading, will occur for the construction of access roads, gravel/concrete pads for structures (e.g. operation and maintenance buildings), and inter-connection of equipment. *Id.* Upwards of 2 million miles of cable may be trenched and buried except where site conditions prohibit. App., Pg B-7. A careful

review of the Developer's site plan shows that the 200 acres not proposed for development generally consist of existing dunes and playas with little to no vegetative cover. No noxious weeds were observed on the subject property. App., Pg. I-12. It is expected by Developer, however, that noxious weeds will infiltrate following commencement of construction and require ongoing mitigation. App., Pg. I-12. Developer proposes to manage, but does not promise to eradicate, the problem it is creating through its Revegetation and Noxious Weed Control Plan. App., Pg. I-13.

Vehicle traffic will not be restricted to paved and/or graveled roads within the development site. Rather, Developer proposes "limiting" off road vehicle traffic to the entirety of the 3,921-acre site; in other words, no limit at all. App., Pg. I-13. Developer plans to mow to 6-inches in height and "crush" vegetation within the development area with vehicles. App., Pg. I-8. Developer proposes to clean the panels by use of a water tanker which will necessitate driving in between the 130 rows of solar modules. See App., Pg O-4. Developer's Erosion and Sediment Control Plan confirms that the areas between the rows of modules are designed and designated as "proposed compacted native soil, access road." App. Ex I, Appendix, I-1, Sheets EC-3 to EC-8. The Application acknowledges upwards of 50 miles of perimeter and internal road, which will consist almost entirely of "compacted native soil." See App. Appendix W-1; App. Pg B-8.

Developer does not propose a separate fugitive dust mitigation plan. Instead, Developer proposes a temporary Erosion and Sediment Control Plan which appears focused on protecting Developer's solar panels more than protecting soil. See App. Exhibit I, Appendix I-3. Aside from Developer's efforts to revegetate the site (discussed below), the most significant erosion control features proposed consist of the emplacement of: (a) "straw waddles" approximately 6 to 12 inches in height placed along various portions of the site to catch surface water erosion runoff of sediment, and (b) 30-inch high fabric screens along portions of the interior (but not exterior) of the site to protect the solar panels from the existing dunes and playas within the undeveloped portion of the site. No screens are proposed for the exterior of the site to protect adjacent property from drifting dust and sand caused by wind erosion. See Appendix I-1, Sheets EC-3 to EC-8.

To repair and stabilize the soil, the Developer intends to replant portions of the project site with a blend of ground cover vegetation. See App. Exhibit P, Appendix P-3. The Developer does not intend to irrigate the project site to help establish the ground cover but will rely on precipitation that averages 10.4 inches per year. See App., Pg I-10. The Developer purports that ground cover will be reestablished within two growing seasons.

Needless to say, the Ft Fork Neighbors are greatly concerned by Developer's plans and the significant and adverse impacts it will have on their properties, crops, livestock, health, soil, water, quality of life and livelihood. The Ft Rock Neighbors have seen firsthand the consequences of clearing land for development. The large sand/hardpan area shown in the attached FRN Ex D was cleared of vegetation over 30 years ago by prior owners in preparation for potential development. After more than 30 years the vegetative cover has largely failed to reestablish and thrive leaving instead a windswept, hard pan. Now, Developer proposes to follow a similar path on a supersized scale but expects a different outcome. Yet, recent solar facility RV development in the area (including some development associated with the Facility

site) has already resulted in large amounts of fugitive dust adversely impacting adjacent properties. See FRN Ex. E. The picture below shows sheep on the Horton property adjacent to the Facility after some work was conducted on the Facility site in or around December 2019. This area is where up to 5,000 sheep and 200 cattle are raised.



Objections

a. The Proposal Likely Results in Significant Adverse Impacts to Soils.

i. Applicable Criteria.

--

OAR 345-022-0022. Soil Protection. *“To issue a site certificate, the Council must find that the design, construction and operation of the facility, taking into account mitigation, are not likely to result in significant adverse impact to soils including, but not limited to, erosion and chemical factors such as salt deposition from cooling towers, land application of liquid effluent, and chemical spills.” (Emphasis added).*

ii. Response.

The proposed design, construction and operation, including mitigation measures, will result in significant adverse impacts to soils including wind erosion and soil compaction and therefore, must be denied. There is no doubt that the site will be substantially disturbed during construction and operation. The Developer has chosen to locate its project in Oregon’s high desert on soil that is classified as the most susceptible to wind erosion. The Developer then proposes to disturb upwards of 95% of the site through road building, erection of permanent structures or emplacement of 1.7 million solar panels and entrenchment of up to 2 million miles of cable.

The design of the Facility leads to increased soil erosion. For example, the Developer has elected to gravel a very small portion of roads while the vast bulk of roads will be “compacted native soil” access roads (not paved or graveled) and to trench and bury up to 2 million miles of cable (vs. bore/tunnel or place in trays mounted on the racking below the panels). Similarly, the Developer has chosen to leave existing sand dunes and playas generally untouched while developing areas with established vegetation. The mitigation features the Developer has included are nominal (straw waddles and 30-inch screens) and appear designed more to protect the Developer’s project rather than to prevent soil erosion or protect adjacent property. For example, the Developer proposes to use “straw waddles” around portions of the solar panels within the site to control sediment runoff from rain and snow (*after* erosion has occurred). Straw waddles typically extend only 6 inches or so above the ground. The Developer has also proposed a limited amount of 30-inch tall fabric screening presumably to mitigate potential water and wind erosion (again, *after* erosion has occurred). A review of the Developer’s Erosion and Sediment Control Plan shows that the fabric screening is placed *within the interior* of the project protecting the Developer’s panels from erosion generally coming from the undeveloped areas (e.g. existing dunes and playas). No fabric or other screening is proposed along the exterior of the project to protect adjacent property. See Appendix I-1, Sheets EC-3 to EC-8. Even then, a 30-inch fabric screen does little to stop fugitive dust once it is airborne. (See image hereinabove.)

The construction of the Facility leads to increased soil erosion and invasion of noxious weeds. During construction, the Developer plans to mitigate dust erosion by spraying upwards of 32.417 million gallons of water from water tankers with peak water usage of up to 60,000 gallons per day. App., Exhibit O, Pg O-2. Using a 4,000-gallon water tanker, this will require upwards of 8,104 heavy truck trips throughout the project site during construction. Beyond the issue of erosion and compaction, the problem for the Developer is that it only has the right to 5.45 million gallons of water total for construction (5,000 gallons x 265 days x 2 years) and that on any given day it cannot draw more than 5,000 gallons of groundwater. See discussion below at Section II, Para 2.a., “Failure to Seek Required Permits” and 2.b. “Lack of Need Water and Public

Utilities/Facilities.” That leaves the Developer 26.55 million gallons short of what is needed to effectuate its dust mitigation plan and on any given day as much as 55,000 gallons short for the day’s construction needs. Developer’s water consumption needs for construction and operations would be greatly reduced should it have chosen to gravel or pave the perimeter and interior roads. Instead, it is proposing to leave the vast majority (99.86%) as “compacted native soil.” Developer acknowledges that it only intends to use a paltry 110 tons of gravel for road construction during construction. See App., G-1. One cubic yard of washed gravel weighs roughly 1.35 tons. (See FRN Ex. F). In this case, the 110 tons of gravel proposed by Developer equates to roughly 81.5 cubic yards which is enough to construct a 367 ft long road that is 12-feet in width and has a six-inch base of gravel. *Id.* So, of the 50 miles of perimeter and internal roads, Developer will gravel just 367 feet or 0.069 miles (122 yards). That leaves the remaining roughly 49.931 miles as dirt! In other words, roughly 99.86% of the proposed road surfaces for the Facility are proposed to be dirt – without any gravel or paving.

The Developer plans to ultimately mitigate the dust it readily acknowledges it will create by first destroying the existing ground cover (i.e. mowing and crushing) and then replanting it. The Developer asserts that it will reestablish ground cover within two growing seasons without irrigation. Developer acknowledges that no noxious weeds are currently observed onsite but that as a result of construction activities, they will infiltrate the site. Developer intends to manage, but does not promise to eradicate, the problem of noxious weeds the project will create. Developer acknowledges that the establishment of noxious weeds where none exist is an adverse impact on soil quality. App., Pg I-12. Disturbing previously untouched soil will cause dormant seeds to grow where none had previously.

The operation of the Facility leads to increased erosion and further unnecessary compaction of the soil. “Soil compaction . . . is the increase in soil bulk density as a result of applied loads [e.g. driving a water truck] or pressure . . .[.]” App., Pg. I-9. During operation, Developer again proposes using a water tanker to clean the 1.74 million solar panels instead of using an automated no-water, low water or sprinkler system spraying upwards of 489,000 gallons per year on the panels. (See FRN Ex. G). This means the tanker (presumably 4,000-gallon) will make as many as 122 trips per year for 30 years throughout the site running between the solar modules (off the graveled strip of road) spraying both the solar panels and ground with water and in doing so will disturb the soil, crush the “reestablished” vegetation, if any, and compact the soil. In fact, the Developer’s Erosion and Sediment Control Plan shows “proposed compacted native soil access road[s]” crisscrossing back and forth between the rows of solar arrays. (See Appendix I-1, “Legend” for sheets EC 1 through EC 7). Notable, is that the areas between module rows will serve as “roads” made of “compacted” “native soil.”

Yet, Developer asserts that, “trucks will drive within the boundary, but will not likely affect underlying soils due to the physical conditions of the soils. Soils within the site boundary possess qualities that make them inherently resistant to soil compaction.” (emphasis added) App., I-9. Developer goes on to assert that this is so because the “vast majority of the soils within the site boundary are poorly graded” (emphasis added) while “[s]oils and soil horizon that are well graded (consisting of a mix of different-sized soil particles interspersed with each other), have limited organic matter, and are moist to saturated are generally more susceptible to compaction.” *Id.* Developer’s assertion that the vast majority of soils within the project site are “poorly graded” and consequently, inherently resistant to soil compaction is contrary to the field

survey and report made by Developer's own geotechnical consultant which found the opposite. From the Developer's geotechnical report:

"Laboratory analysis of soil samples collected in the field are also consistent with the soil units represented on the soil survey map. . . . Soil samples were collected at select locations in Area A. Sample locations are labeled on Figure 9 and described in Attachment A. Select laboratory index testing was performed on these samples." App., Appendix, H-1, Pg 5-6.

Of the nine samples taken from Area A and tested, only one of them was found to have "poorly graded" soil (i.e. not susceptible to compaction) while 5 were found to have "well graded" soil (i.e. susceptible to compaction). See App., Appendix, H-1, Figure 9, Pg 17-18. Stated differently, add the "well graded" soil found by Developer onsite, plus heavy water tanker driving same "native soil access road" over and over, plus water from the tanker = compacted soil. In sum, Developer fails to provide evidence sufficient to support a finding that based upon a preponderance of the evidence significant adverse impacts to soil are unlikely as required by OAR 345-022-0022 and OAR 345-022-0000.

2. WATER (EXHIBIT O)

Facts.

The proposed Facility will require between 17.15 million to 34.3 million gallons of water to construct over a period of two years and will require an additional 1.2 million to 1.36 million gallons of water annually to operate. App., Pg 0-2. During construction water will be used for: dust suppression, soil maintenance, equipment washing, fire suppression, drinking water. App. Table O-1. During operation (est. 30 years), water will be used for: panel washing, septic system. App. Table O-2. Developer proposes to periodically clean the solar modules by applying water (without cleaning solvents) via a tanker truck. App., Pg 0-4. Use of the spray tanker to clean the modules will necessitate driving the length of each of the 130 rows of modules. To support its water needs, Developer plans to drill two wells on the subject property and draw up to 5,000 gallons of groundwater per day from each well. App., Pg. 0-6. Developer asserts that it is exempt from obtaining groundwater permits. *Id.* As explained below, it is not. Developer proposes to obtain the remainder of its water needs from the local water district, the Christmas Valley Domestic Water Supply District, ("District") at a cost of \$.07 per gallon. App., Pg. 0-5. As explained below, the District is prohibited under its water permits/certificates from selling water to Developer to be used at the Facility. In the event the District was unable to provide water to Developer because of its own needs (e.g. domestic/fire suppression), Developer purported to have reached a "preliminary" agreement to acquire water from the City of La Pine public works located 45 miles to the northwest in Deschutes County. App., Pg 0-5.

No such agreement was included as part of the Application. Developer chose to site its Facility in one of only 14 designated groundwater restricted areas within Oregon – the Fort Rock Basin (OAR 690-513-0060(2)(n)) established to "avoid overdraft and protect existing rights." OAR 690-513-0060(1)(d). The Ft Rock Neighbors all rely on groundwater wells to irrigate their

existing farms, water their existing livestock and provide for their domestic needs. Their use is prior and paramount to Developer's proposed use. There is no surface water available in the area. Annual precipitation for the area averages 10.4 inches per year. App., Pg I-10.

Objections.

a. Failure to Seek and Obtain Required Permit.

i. Applicable Criteria.

LC Zoning Ordinance, Section 20.13(F) *"Compliance With and Consideration of State and Federal Agency Rules and Regulations. Approval of any use or development proposal pursuant to the provisions of this Ordinance shall require compliance with and consideration of all applicable State and Federal Agency rules and regulations. Specific rules and regulations which may affect any specific use or development proposal, and for which compliance is required for approval by the County include, but are not limited to, the following:*

F. Surface and Ground Water Withdrawals by WRD."

ORS 537.535 *"(1) No person or public agency shall use or attempt to use any ground water, construct or attempt to construct any well or other means of developing and securing ground water or operate or permit the operation of any well owned or controlled by such person or public agency except upon compliance with ORS 537.505 to 537.795 and 537.992 and any applicable order or rule adopted by the Water Resources Commission under ORS 537.505 to 537.795 and 537.992. (Emphasis added).*

(2) Except for those uses exempted under ORS 537.545, the use of ground water for any purpose, without a permit issued under ORS 537.625 or registration under ORS 537.605, is an unlawful appropriation of ground water." (Emphasis added).

ii. Response.

Developer has not sought or obtained permits necessary to use more than 5,000 gallons of groundwater per day. Developer claims that it is exempt from obtaining permits under ORS 537.545(1)(f) because the two wells it plans to drill will each not exceed 5,000 gallons per day usage and it will buy the rest of the water it needs from the Christmas Valley Domestic Water Supply District for \$.07 per gallon. Developer is wrong on all counts.

Contrary to Developer's contentions, ORS 537.545(1)(f) does not grant a blanket exemption on obtaining a groundwater permit so long as each well uses not more than 5,000 gallons per day. Rather, ORS 537.545(1)(f) provides that no permit is required for the use of groundwater (e.g. well water) for "[a]ny single industrial or commercial purpose in an amount not exceeding 5,000 gallons a day." (emphasis added). Here, the "single industrial or commercial purpose" is the proposed solar Facility. A well (or perhaps multiple wells) is allowed without

obtaining a permit so long as the total drawn from all wells for the industrial or commercial use is not more than 5,000 gallons per day. To read the exemption as Developer does, is to render the 5,000-gallon limitation meaningless because a party could side step the limitation (which Developer seeks to do) by drilling multiple wells on the property and drawing 5,000 per day per well to support its single industrial or commercial purpose. Under Developer's theory, Developer would be allowed to drill potentially dozens of wells each drawing up to 5,000 per day to support its single use and no permit is required. The plain language of the statute limits the use of 5,000 gallons of groundwater for a single use per day, not 5,000 gallons per well. At most, Developer is entitled to draw not more than 5,000 gallons of groundwater in total per day, regardless of whether Developer chooses to use one or more wells. To use more than 5,000 gallons of groundwater per day, Developer is required by law to obtain a water permit from the Oregon Water Resources Department, which it has not done and does not seek through this Application.

ODOE incorrectly asserts in the Draft Proposed Order ("DPO") that OAR 690-340-0010(1)(d) authorizes more than one well of up to 5,000 per day so long as they are on separate tax lots.³ Under rules of statutory interpretation, the implementing regulation is to be read consistent with the authorizing statute and cannot authorize a use greater than authorized by the statute. *Don't Waste Oregon Comm. v. Energy Facility Siting Council*, 320 Or. 132, 142 (1994)(agency interpretation of administrative rule is not plausible and will not be upheld where inconsistent with the rule itself, or with the rules context, or with any other source of law) The implementing rule provides that a, "commercial or industrial operation shall be allowed only one well system and exemption under ORS 537.545(1)(f) on each ownership or tax lot, whichever is larger." (Emphasis added). Here, the solar "operation" is solely owned by the Developer. ODOE's reading of the regulation is flawed in that: (1) it ignores the limitation that a single ownership is allowed a single well system, and (2) purports to allow usage greater than allowed under the statute (i.e. more than 5,000 gallons per day per single commercial or industrial use). At most, Developer is allowed one well under the implementing regulation. Developer has not sought approval to draw more than 5,000 gallons per day of groundwater from the subject property.

Without controls, Developer or its successor could inadvertently pump more than 5,000 gallons per day out of its wells should the Council approve its Application. That would violate Oregon law and any site permit authorization. To demonstrate continued compliance with any site permit approval, Council should condition any approval to require the installation of a self-regulating meter with automatic shut off valve to ensure that cumulatively not more than 5,000 gallons per day was drawn from all wells combined. Additionally, Council should require a condition mandating record keeping of all water purchased and annual production of those records for public inspection during the life of the permit. The record keeping requirements for exempt groundwater use imposed by OAR 690-190-0005 do not require records of daily usage and are therefore inadequate to ensure compliance with any approval. Without these conditions,

³ Tax lots are not the same thing as a legal lot. Unlike legal lots which are generally created through a partition or subdivision process, tax lots are created, modified, vacated and used by the tax assessor for purposes of taxation. They may also be created at the request the property owner. For example, a property owner may wish to establish multiple tax lots within a single legal lot for purposes of allocating taxes due between differing uses such as when a property owner wishes to establish a separate tax lot for a tenant's leased business premises within a greater legal lot.

it would be not be possible to determine whether Developer was complying with any siting approval limiting water usage during construction and its 30-year operating period.

b. Lack of Needed Water and Public Utilities/Facilities.

i. Applicable Criteria.

LC Zoning Ordinance. Section 1.08 *“Compliance with State and Federal Requirements and the Comprehensive Plan. No Zoning Permit or other permit under this Ordinance shall be issued or given final approval until compliance with the Comprehensive Plan and all applicable State and Federal regulations is established or assured.”* (Emphasis added)

LC Zoning Ordinance. Section 24.01(A) *“General Criteria. In determining whether or not a Conditional Use shall be approved or denied, it shall be determined that the following criteria are either met or can be met through the compliance with specific conditions.*

1. *The proposal is in compliance with the applicable Comprehensive Plan and Policies set forth thereby.*

....

4. *That no approval be granted for any use which is or is expected to be found to exceed resource and public service/facility carrying capacities, or for any use which is found to not be in compliance with applicable air, water, land, solid waste, or noise pollution standards.”* (Emphasis added)

LC Comprehensive Plan, Goal 11 – Policy 1 *“That development will be approved only where existing capacity or planned capability of public or private utilities and facilities can accommodate such, unless the development provides funding for the increased services which will be needed.”* (Emphasis added).

ii. Response.

The Application fails to comply with the applicable Comprehensive Plan Policy and General Criteria for a Conditional Use Permit set forth above which prohibit developments that exceed the resource or are not serviced by adequate public/private utilities or facilities. Under Developer’s plan, it is short up to 30,650,000 gallons of water needed to complete construction.⁴ To make up for that shortfall, Developer proposes purchasing water from the local water District. The water District is prohibited, however, under its water permits from selling water to Developer for commercial or industrial use at the solar Facility. See FRN Ex. H. The permits themselves (attached to App., Exhibit O) each define: (a) the allowed use of the water, and (b) the allowed place of use of the water. With respect to allowed use, the permits are limited on

⁴ 34,300,000 total gallons needed for construction – 5,000 gallons per day x 365 days x 2 years = 30,650,000.

their face to either “group domestic” use or “quasi-municipal use.” Neither of those allowed uses include private commercial generation of electrical power for resale. Regardless, even if such use could be consider allowed (which it cannot), its proposed location is not allowed. The permits expressly designate and limit the place of use. In this case, the permits provide that all water must be used on certain identified land lying within Township 27S east of the Willamette Meridian; whereas, the entire solar Facility in located in Township 26S east of the Willamette Meridian. (Compare water permits at App., Exhibit O to map at Exhibit F). Township 27S and Township 26S are not the same thing and the District is without lawful authority and would violate its water permits to sell water to be used outside of the place expressly designated for use in the permits.

In the event the District was not able to provide the water Developer needed because of the District’s own domestic or firefighting needs, Developer purported to have reached a “preliminary” agreement with the La Pine Public Works to serve as a secondary water source. Developer asserts that a “letter of commitment” and copy of La Pine’s water rights are attached as Appendix O-1 to the Application. They are not. Given what is known about the District, it is difficult to believe that the City of La Pine’s water permits would allow for the sale of water to be used on property outside the City of La Pine some 45 miles away.

Regardless, there is no evidence in the record to support Developer’s assertions that La Pine Pubic Works has contractually agreed to provide water and even if it did, the Lake County Comprehensive Plan, Goal 11, Policy 1 and General Criteria for CUP’s prohibits development where the proposed development exceeds the resource and the local public/private utilities and facilities needed to accommodate the development are inadequate or in this case, non-existent. Having water trucked in from up to 45 miles away is incontrovertible evidence that the local utilities are inadequate.

The fact is that the Developer is woefully short of the water it needs – as much as 30,650,000 gallons short. The proposed development exceeds the authorized groundwater available to Developer and Developer has not demonstrated the availability of local public or private facilities able to accommodate the shortfall.

c. Failure to Conserve Water.

i. Applicable Criteria.

LC Zoning Ordinance. Section 24.01(A) *“General Criteria. In determining whether or not a Conditional Use shall be approved or denied, it shall be determined that the following criteria are either met or can be met through the compliance with specific conditions.*

1. *The proposal is in compliance with the applicable Comprehensive Plan and Policies set forth thereby.*

LC Comprehensive Plan, Goal 5, Policy 5 *“That conservation of water resources and protection of municipal water shed will be encouraged.”*

LC Comprehensive Plan, Goal 13, Policy 13 *“Environmental Protection. In all cases the County’s support for renewable energy development shall be condition upon satisfactory evidence that sufficient environmental safeguards are provided. Environment concerns of the County shall include, but not be limited to: . . . water consumption . . .” (Emphasis added)*

LC Comprehensive Plan, Goal 13, Policy 14 *“In addition to Policy 13, in all casers the County’s support for renewable energy development shall also be conditioned upon a lack of adverse impacts to public facilities or services. In this regard, the County’s concerns shall include, but not be limited to: . . . water supply,” LCCP, Pg 52 (Emphasis Added).*

ii. Response.

The proposed Facility does not encourage the conservation of water or provide any safeguards against water consumption. It does the opposite. The Developer proposes using upwards of 34.3 million gallons of water in the construction of the Facility. The vast bulk of this (94.5%) will be used for dust abatement. The need for dust abatement is a function of the location (high desert with soil classes highly susceptible to wind erosion throughout site) and design chosen by the Developer. For example, rather than pave the access, utility and maintenance roads, the Developer has elected to gravel a small portion and leave the vast majority compacted dirt. That was a choice; the Developer chose to adopt a design that did not conserve water. Similarly, the Developer has chosen to trench and then burry some part of 2 million miles of cable rather than using boring to emplace the cable subsurface or placing them in trays mounted below the racking. Trenching will result in substantially more disturbed soil and consequently, substantially more dust requiring more water. Again, the Developer has elected a design that uses instead of conserves water. Finally, the Developer has elected to clean the panels by using a water tanker to spray the panels to a tune of up to 489,000 gallons of water each year for upwards or 14.67 million gallons over the 30-year life of the Facility. Again, the Developer is electing not to use available technology which utilizes no water or very little water to wash the panels. See FRN Ex. G. In each case, the Developer is opting for a proposal that unnecessarily consumes water over a design that conservers water in contradiction to the approval criteria. Beyond choosing a different location, there are a number of available design features and technology readily available to Developer that could be employed to conserve and safeguard against water consumption as required by applicable criteria.

d. Failure to Protect Existing Uses.

i. Applicable Criteria.

LC Comprehensive Plan, Goal 5 – Policy 16 *“Land use decision by the County shall avoid creating additional conflicts over inadequate supplies of water from all resources, and shall, wherever possible, ensure the perpetual availability of water resources by protecting the resource from the demands of future uses where necessary.” (Emphasis added).*

ii. Response.

Approving the Application would violate Goal 5, Policy 16 by placing existing uses, including those by the Ft Rock Neighbors, directly in conflict with the proposed future use. The Application creates additional conflicts over the inadequate supply of water available in the area (a designated ground water restricted area) pitting existing farms against future commercial use. The code is clear in that case. The existing use prevails and the future use is prohibited.

3. LAND USE (EXHIBIT K).*Facts*

In addition to the facts stated elsewhere in this objection, the proposed Facility is to be sited and developed upon 3,921 acres of largely undeveloped high desert zoned A-2 (Agriculture) and plan designated Agriculture. The western approximately ½ of the proposed Facility lies within the Fort Rock Planning Area. See FRN Ex I. The property abutting and adjacent to the west, east and south is generally currently employed for farm use, namely hay production and livestock husbandry with associated domestic use. The Facility lies within a legislatively-designated groundwater restricted area which limits the use of groundwater. There are limited to no public services or facilities available to support the site during construction or operation. Current development and use in the area is primarily served by groundwater wells. The area of the proposed Facility currently serves as a primary winter feeding ground for elk and deer. Applicant proposes fencing this area (7 ft high x 18 miles) to exclude big game from the Facility throughout the life of the project (est. 30 years). The proposed Facility and surrounding area sit at approximately the same elevation as the Cascade range to the west. During the spring and summer months, moist pacific area flows from the Pacific Ocean and over the Fort Rock area settling upon the ground as dew each night. This natural effect causes the hay produced in the area to have a uniquely soft quality making it highly sought after as feed hay. Large scale solar facilities are known to increase the ambient air temperature by as much as 3 to 4 degrees Celsius over the Facility and may interfere with the natural phenomenon that causes dew to form and settle each night.

Objections

ORS 469.504(1)(b) requires compliance, among other things, with the “applicable substantive criteria from the affected local government’s acknowledged comprehensive plan and land use regulations . . . in effect on the date the application is submitted . . . [.]” Under the Lake County Zoning Ordinance (“LCZO”), conditionally permitted uses, such as a renewable energy facility (LCZO Sect 24.18) may be allowed provided the applicant demonstrates compliance with, among other things, the applicable Comprehensive Plan and Policies.⁵

⁵ **LCZO Section 24.01(A).** *“General Criteria. In determining whether or not a Conditional Use shall be approved or denied, it shall be determined that the following criteria are either met or can be met through the compliance with specific conditions.*

a. Failure to Comply with LC Zoning Ordinance Conditional Use Permit Requirements.

i. Applicable Criteria.

LC Zoning Ordinance Section 24.19 *“Criteria for Nonfarm Uses, Excluding Farm Related or Accessory Uses, in an A-1 or A-2 Zone. Nonfarm uses, excluding farm related or farm accessory uses, may be approved in an A-1 or A-2 Zone upon finding that each such use:*

- A. Is compatible with farm uses described in ORS 215.203(2) and is consistent with the intent and purposes set forth in ORS 215.243;*
- B. Does not interfere seriously with accepted farming practices as defined by ORS 215.203(2)(c), on adjacent lands devoted to farm use;*
- C. Does not materially alter the stability of the overall land use pattern of the area; (Emphasis added).*

ii. Response.

As discussed in detail throughout this objection and the attached testimony, the proposed use is not compatible with existing farm uses, seriously interferes with accepted farming practices on adjacent farms and materially alters the stability of the overall land use patterns. To wit,

- The Facility will create fugitive dust that will substantially interfere with crop production and animal husbandry occurring on adjacent farms.
- The Facility will create invasive weeds that will escape offsite and infiltrate crops of adjacent farms.
- The Facility will compete with existing and priority farm uses for water in an area legislatively designative as groundwater restricted.
- The Facility will create fleeing rodents that will be pushed onto adjacent farms in search of food and habitat where they will impact crop and livestock production by eating crops and digging holes in fields which presents risk of injury to animals and reduces productivity for growing of crops and utilization of commercial vehicles for harvest (e.g. creates sink holes).
- The Facility will force big game from their traditional winter feeding ranges onto adjacent farms in search of food eating existing crops and stored crops in barns.
- The Facility will create a heat bloom that may affect the natural phenomena that

(1) The proposal is in compliance with applicable Comprehensive Plan and Policies set forth thereby.” (Emphasis added)

creates nightly dew which gives the hay crops their much sought after qualities.

When addressing this criterion, the Developer unduly defines “area” to be considered under LCZO 24.19 as the entirety of Lake County. That is an unreasonable and implausible interpretation of the *provision of the County zoning ordinance*. Clearly, the County was not intending the term “area” to mean the entirety of Lake County when it wrote its code. It would have simply used the term “County.” A more plausible reading of the term “area” is the site of the proposed Facility and surrounding area including those adjacent and nearby properties affected by the Facility.

The proposed Facility is incompatible with the intent and purposes of ORS 215.243 including, that “[e]xpansion of urban development into rural areas is a matter of public concern because of the unnecessary increases in costs of community services, conflicts between farm and urban activities and the loss of open space and natural beauty around urban centers occurring as the result of such expansion.” Developer ignores this provision. There is no question that the Facility will result in increased conflicts (as described throughout) and the loss of open space and natural beauty. The fact that this will happen for 32 years does not make it “consistent” or any less impactful to those properties and uses adjacent to the Facility. The Facility is inconsistent with the intent and purposes of ORS 215.243.

b. Failure to Comply with LC Comprehensive Plan Goal 1 – Citizen Participation.

i. Applicable Criteria.

LC Comprehensive Plan, Goal 1, Policy 2. *“That citizens will have an opportunity to participate in all phases of the planning process.” LCCP, Pg 25 (Emphasis added)*

LC Comprehensive Plan, Goal 1, Policy 3. *That opportunities will be provided for the public to respond to preliminary planning documents prior to their finalization. LCCP, Pg 25*

LC Comprehensive Plan, Goal 1, Policy 6. *“That broad participation in planning activities will be solicited to provide a cross-section of geographical and professional interests.” LCCP, Pg 25 (Emphasis added)*

ii. Response.

Many of the Ft Rock Neighbors are elderly/vulnerable persons (60+ years) as are their neighbors who they anticipate wishing to participate in this proceeding in person. In light of the COVID19 pandemic, the Ft Rock Neighbors have sought postponement of the scheduled in person public hearing until such time as the risk of contraction has subsided so as not to present a public health risk. To that end, I wrote to the assigned Hearing Official on May 21, June 3 and July 1, 2020 on behalf of the Ft Rock Neighbors objecting to holding an in person hearing under the current conditions and in light of the Governor’s order prohibiting the hearing. The objections and arguments raised in those letters (which are a part of this record) are adopted

and incorporated by reference herein.

While there is some disagreement between ODOE and the Fort Rock Neighbors regarding the scope of the Governor's orders and whether they act to prohibit the holding of this in-person hearing, even without those orders, this hearing is contrary to County's own Comprehensive Plan. Lake County (and therefore ODOE) is obligated under its Comprehensive Plan to ensure that citizens "have the opportunity" to participate in "all phases" of the planning process. The state statute includes the right to an in-person hearing. ORS 469.370(2). Holding an in-person hearing during a pandemic for a highly contagious and potentially fatal disease is a violation of Goal 1 of the LC Comprehensive Plan because it acts to discourage broad participation in all phases. Rural residents often lack the means (e.g. internet) to participate in remotely held hearings and must therefore attend in person. However, attending in person under these circumstances presents a risk of contraction discouraging attendance particularly amongst older and vulnerable populations.

Participation in this hearing is made by the Ft Rock Neighbors under protest and without prejudice to, but in reservation of, any and all rights, remedies, claims, privileges and defenses that they may have including the right to challenge the holding of this hearing.

c. Failure to Comply with LC Comprehensive Plan Goal 2 – Planning Process.

i. Applicable Criteria.

LC Comprehensive Plan, Goal 2, Policy 10. *"That the area designated on the Lane Use Plan map as "Fort Rock Planning Area," will be subject to those policy provisions specifically applicable to Fort Rock." LCCP, Pg 27 (Emphasis added)*

LC Comprehensive Plan, Goal 2, Policy 11. *"That additional development in Fort Rock be limited to a depth of 600 feet from the existing road system." LCCP, Pg 27 (Emphasis added)*

ii. Response.

Developer did not address these criteria in its Application. A close review of the LC Comprehensive adopted plan map for North Lake County shows that a substantial portion of the proposed Facility falls within the area designated "Fort Rock Planning Area." See FRN Ex. I. Under the Comprehensive Plan, no additional development may occur in that area unless it is within 600 feet of the existing road system. The only existing roads in the area of the Facility (including Gen-tie Transmission Line Corridor and Area D) within the Fort Rock Planning Area are Connley Ln, County Road 5-10C and County Road 5-12. A review of Developer's plans shows that the vast majority of development within the Fort Rock Planning Area is to occur more than 600 feet from the existing road systems and is therefore, prohibited. All development within the Fort Rock Planning Area that is outside the 600-foot development area must be denied. This appears to be just over ½ of the Facility. See FRN Ex. I.

iii. Applicable Criteria.

LC Comprehensive Plan, Goal 2, Policy 17. *“That development will be encouraged, providing it does not unduly diminish agricultural or forestry resources of the area, nor unduly increase related public service costs or taxes.” LCCP, Pg 27 (Emphasis added)*

iv. Response.

Agricultural resources in the area include existing farming operation (hay production) and livestock (cattle and sheep). Both of these resources will be unduly diminished by the proposed Facility. Lack of any fugitive dust mitigation plan combined with the large scale de-vegetation of the site will cause: (a) an infestation and spread of noxious weeds including to adjacent farming operations, where none currently exist, and (b) fugitive dust and sand to travel onto adjacent properties interfering with animal feeding and breeding causing undue stress to animals and affecting their ability to thrive and reproduce, (c) migration of rodents onto adjacent farms in search of food and habitat. Notable, is that the adjacent hay farming operation on the Horton property is certified organic. With the inevitable invasion of noxious weeds from the Facility, the operation will likely be required to switch to conventional farming in order to spray chemicals to control the spread of invasive weeds. This will result in loss of organic certification and revenue as conventional crops sell for less money than certified organic.

Additionally, the siting of a 3,921/6 square mile acre solar facility in the high desert can reasonably be assumed to increase ambient air temperatures creating a heat island effect. That is the conclusion that at least one group of researchers came to. FRN Ex. J. That increase in air temperature may affect the nightly process of dew condensing and settling on adjacent farm operations which results in a unique soft quality to the hay produced in the surrounding area making it highly desirable for feed hay. Interference with this process would unduly diminish the production of hay with this quality. Developer has not produced any evidence which would refute this potential impact to the Fort Rock Neighbors.

v. Applicable Criteria.

LC Comprehensive Plan, Goal 2, Policy 18. *“That private property investments will be protected from incompatible development which might likely diminish property value or unduly increase taxes.” LCCP, Pg 28 (Emphasis added)*

vi. Response.

While beauty is in the eyes of the beholder, it is reasonably safe to say that no person wants to look out of their house onto a 3,921-acre solar facility. Not surprisingly, the proposed incompatible Facility will have a substantial adverse effect on the value of nearby residential property estimated to be between 23-40% reduction in current residential value. FRN Ex. K.

Should the Council nevertheless approve the Application over Ft Rock Neighbor's objections, it is required then to adopt a condition of approval that requires payment by the Developer of the reduction in FMV caused to adjacent and nearby properties (including all Ft Rock Neighbors) to protect private property investments from the siting of the incompatible Facility. While this may seem like a large amount, in the context of the offsite impacts created by the use, this relief is roughly proportionate to its impact and flows directly from the siting of a Facility of this magnitude upon agriculturally zoned property amongst existing development. To be clear, this compensation would only account for the loss in residential resale value to adjacent and nearby properties and is required to demonstrate compliance with the Comprehensive Plan. It would not, however, act to compensate nor preclude those property owners from seeking relief for other losses resulting from impacts to their property or operations including from fugitive dust and sand. Fort Rock Neighbors expressly reserve and do not waive any and all claims, rights, remedies, privileges and defenses that they may have against Developer and its successors and assigns including damage claims and claims for trespass, nuisance and injunctive relief such as may be appropriate.

d. Failure to Comply with LC Comprehensive Plan Goal 3 – Agricultural Land.

i. Applicable Criteria.

LC Comprehensive Plan, Classification Description, Agriculture. *“In areas, designated Agriculture, such land shall be maintained for agricultural purposes in accord with the policies of this Plan.” LCCP, Pg 6.*

ii. Response.

Unless the Developer seeks and obtains an exception to Goal 3, it cannot use the property upon which the Facility is proposed except for permitted agricultural uses of which a renewable energy facility is not one. As discussed hereafter, Developer has failed to demonstrate a basis for granting a Goal 3 exception.

e. Failure to Demonstrate Basis for Goal 3 Exception.

i. Applicable Criteria.

LC Comprehensive Plan, Classification Description, Agriculture. *“According to State Planning Goal 3, all productive or potentially productive croplands (defined as all USDA Soil Capability Classes I-VI in Eastern Oregon), shall be maintained for agricultural activities, unless conversion of such land to other uses can be justified. When evaluating whether it is warranted to convert agricultural areas to non-agricultural uses, many factors should be considered in addition to actual need, including proximity to employment, schools, shopping, recreation and other activities, road access and potential maintenance costs, fire protection, availability and*

anticipated capacities of schools and various other public services, energy conservation, surrounding property uses and taxes, effects on wildlife and public and private investments for irrigation and similar improvements. LCCP, Pg 7 (Emphasis added).

ORS 469.504(2) *“The council may find goal compliance for a facility that does not otherwise comply with one or more statewide planning goals by taking an exception to the applicable goal. Notwithstanding the requirements of ORS 197.732 (Goal exceptions), the statewide planning goal pertaining to the exception process or any rules of the Land Conservation and Development Commission pertaining to an exception process goal, the council may take an exception to a goal if the council finds:*

....

(c)The following standards are met:

(A)Reasons justify why the state policy embodied in the applicable goal should not apply;

(B)The significant environmental, economic, social and energy consequences anticipated as a result of the proposed facility have been identified and adverse impacts will be mitigated in accordance with rules of the council applicable to the siting of the proposed facility; and

(C)The proposed facility is compatible with other adjacent uses or will be made compatible through measures designed to reduce adverse impacts.

ii. Response.

As cited above, Developer is required under both the LC Comprehensive Plan and State Statute to obtain an exception to statewide planning Goal 3. To the extent the Plan’s requirements conflict with state statute, Council is obligated to resolve the conflict consistent with the public interest. OAR 345-022-0000(1)(b). In this case, that means demonstrating compliance with the additional considerations under the Comprehensive Plan which are designed to protect the public’s interest. The Application fails to address the Comprehensive Plan requirements for an exception stated above and therefore, must be denied. Even if considered, the Application would still fail to justify an exception under the Comprehensive Plan. As discussed throughout, the Facility will have significant, adverse, and inadequately mitigated impacts on soil, water, wildlife, existing uses, residents, wildlife, and private investment in improvements.

Fails to Demonstrate “Reason” Justifying Exception

Additionally, the Facility fails to demonstrate a “reasons” exception warranting not applying Goal 3 in this case. Goal 3 acts to preserve and maintain agricultural lands. OAR 660-015-0000(3). Those lands include land used not just from raising crops but also for grazing such as the property upon which the Facility is to be located. The Developer ignores the grazing use or potential of the property.

Developer assumes that because the duration is limited and the property will be “returned” to agricultural use, that an exception is therefore warranted. This premises relies on the assumption that Developer or future operators will not seek amendments to the ASC permit seeking to continue the use beyond 30 years and that the land could be returned to its condition prior to construction. Neither of those outcomes is guaranteed. In fact, it is more likely than not that neither will occur. It is unreasonable and perhaps naïve to think that any developer will spend hundreds of millions and likely billions of dollars to erect a facility for 30 years and then spend millions of dollars to tear down an operational facility rather than simply replace equipment which has reached its useable life. That defies common sense. Notable is that Developer has not sought a condition to hold itself to the requirement that after 30 years it will decommission the Facility. The reality is that the Council is being asked to take this land out of agricultural use for an extended period of time with little assurance that it will ever be returned to agricultural use.

While the Developer identifies worthy State and County goals to promote renewable energy, those goals do not inherently trump the worthiness of Goal 3 to preserve and maintain agricultural land. The burden is on the Developer to demonstrate that “reasons” exist to warrant an exception with respect to the particular property. The fact that the State and County have adopted renewable energy policies generally while laudable is not a reason that justifies removing *this* property from Goal 3 property. If that were the case, a reasons exception would be meaningless because any property could be removed based on the fact that the County and State support renewable energy. Rather, the Developer is required to identify why this particular property should be excepted.

This property, like all property is unique. Unlike other solar facilities in Oregon, this property is unique in that it is situated: (a) on land abutting property on three sides that has largely been put into farm uses creating conflicts with the proposed facility, (b) on land whose soils are highly susceptible to wind erosion, (b) within a ground water restricted area, (c) upon pristine big game winter range, and (d) on ground that lacks permitted access to water needed to construct and operate the facility. While those characteristics make this property a poor candidate for a 3,921-acre solar facility, they do not necessarily make the property a poor candidate for all agricultural use. To the contrary, the property is suitable for grazing which is a recognized agricultural use.

The only other reasons offered by Developer as grounds warranting exception are that this facility will create temporary construction jobs and a few permanent jobs and it may attract out of state businesses interested in using clean energy, presumably produced by the Facility. The creation of jobs is a red herring. The Facility will create the same number of jobs if sited on property appropriately zoned for a solar facility. The Developer readily acknowledges that many of the jobs created will be held by people commuting from outside the County (e.g. Bend). The property will also create jobs if used for agricultural purposes. The speculative draw of out of state business is also circumspect. Developer offers no evidence that this will occur nor does Developer commit to sell its power solely to consumers within the State of Oregon. Presumably, Developer will seek to sell its power to the highest bidder wherever they may be.

Fails to Demonstrate that all Impacts have been Identified and Mitigated.

There is no serious question that a facility of this size will result in significant environmental, economic, social and energy consequences. As described herein, those impacts have not been mitigated to justify an exception. The Facility will not only destroy existing big game habitat, it will clear the site of most vegetation resulting in significant wind erosion and forcing rodent and animal populations onto adjacent farms in search of food and habitat. Drifting soil and dust and forced migration of animals will result in economic harm to adjacent farm operations. The Facility will lower home values of adjacent rural properties trading their view of pristine Eastern Oregon high desert for intense industrial development best measured not in acres but in square miles. While the facility may generate significant renewable energy (a laudable goal), it will also consume significant energy to construct, operate and tear down because of its remote location on agriculturally zoned property (rather than near urban development on appropriate zoned property). For example, a lack of necessary water means that the Developer will likely need to truck water in from as far away as La Pine (best case scenario) which is 90 miles round trip. Assuming a 4,000-gallon tanker that would equate to 7,662 round trips or 689,625 vehicles miles travelled to bring water to the site. The Application fails to consider that energy cost or the cost to maintain and upgrade the County roads Developer will utilize to make those trips. Nor does the Application calculate the enormous energy cost associated with constructing the facility in such a remote location including the additional energy needed to ship materials to a remote site and the additional energy consumed by a large portion of its work force commuting daily from distances as far away as Bend. The Application fails to identify and account for and mitigate all impacts associated with excepting this property for non-farm use.

Fails to Demonstrate that the Proposed Facility is or will be made Compatible with Adjacent Uses.

As discussed throughout this objection, the proposed Facility is not compatible with existing uses and the Developer has not offered any conditions to make it compatible. See arguments at Section II, 3. a. (Failure to Comply with CUP Requirements) and Section II, 3. g. (Failure to Comply with Goal 9) hereof, adopted and incorporated by reference herein

f. Failure to Comply with LC Comprehensive Plan Goal 6 – Air, Water and Land Resource Quality.**i. Applicable Criteria.**

LC Comprehensive Plan, Goal 6, Policy 5 *“That conservation of water resources and protection of municipal water shed will be encouraged.” LCCP, Pg 37 (Emphasis added).*

LC Comprehensive Plan, Goal 6, Policy 16 *“Land use decision by the County shall avoid creating additional conflicts over inadequate supplies of water from all resources, and shall, wherever possible, ensure the perpetual availability of water resources by protecting the resource from the demands of future uses where necessary.” LCCP, Pg 38 (Emphasis added)*

ii. Response.

See arguments at Section II, 2. c. (Failure to Conserve Water) and 2. d. (Failure to Protect Existing Uses) hereof, adopted and incorporated by reference herein.

iii. Applicable Criteria.

LC Comprehensive Plan, Goal 6, Policy 15. *“County planning programs shall function in such a manner as to encourage the involvement of county residents in decisions affecting water resources in the area.” LCCP, Pg 38 (Emphasis added).*

iv. Response.

To the extent that Developer intends to rely upon the District to obtain water, then the County (or ODOE to the extent Developer is seeking approval through ORS 469.504(1)(b)) is obligated under this provision to give notice of such use to the District’s current users so that they are encouraged to participate in decisions affecting their access to water. As it stands, they likely have no idea of Developer’s plan to use District water. Similarly, to the extent that the Developer intends to rely upon exempt groundwater within a designated groundwater restricted area (in this case, the Fort Rock basin), the County (or ODOE, as the case may be) is obligated under this provision to give notice to all properties within the affected groundwater restricted area. That is so because all users within the groundwater restricted area are affected by the addition of the proposed new use as they all draw groundwater from the same basin. It is axiomatic, that the County’s planning functions in evaluating and approving an application such as Developer’s cannot be said to “encourage involvement of county residents in decision affecting water resources” if the County never tells its affected citizens about the proposed use of resources. While it may seem burdensome to notify all affected users, the burden arises from the Developer’s choice to locate its Facility in a legislatively designated groundwater restricted area and to adopt design and operation plans that utilize excessive quantities of water rather than conserve and protect water.

g. Failure to Comply with LC Comprehensive Plan Goal 9 – Economic Development.**i. Applicable Criteria.**

LC Comprehensive Plan, Goal 9, Policy 1. *“That those employment opportunities will be accommodated that are compatible with existing and anticipated uses and will improve employment, providing desirable living conditions in the area are not diminished.” LCCP, Pg 42 (Emphasis added).*

ii. Response.

The proposed Facility is not compatible with existing farm uses and will diminish living conditions in the area. In addition to being a visual blight, the construction and operation of the Facility will result in fugitive dust escaping onto adjacent property and into adjacent homes that will confine those residents inside or risk respiratory illnesses or complications. See arguments at Section II, 3. a. (Failure Comply with LCZO CUP Requirements) and Section II, 3. C. v. (Failure to Comply with LLCP Goal 2, Policy 18) hereof, adopted and incorporated by reference herein.

h. Failure to Comply with LC Comprehensive Plan Goal 11 – Public Services and Facilities.**i. Applicable Criteria.**

LC Comprehensive Plan, Goal 11, Policy 1 *“That development will be approved only where existing capacity or planned capability of public or private utilities and facilities can accommodate such, unless the development provides funding for the increased services which will be needed.” LCCP, Pg 46 (Emphasis added).*

ii. Response.

The available public and private water cannot accommodate the proposed Facility. See arguments at Section II, 2.a. (Failure Obtain Required Permit) & 2.b (Lack of Needed Water) hereof, adopted and incorporated by reference herein.

i. Failure to Comply with LC Comprehensive Plan Goal 13 – Energy.**i. Applicable Criteria.**

LC Comprehensive Plan, Goal 13, Policy 9. *“The County supports utilization of renewable energy resources. However, such support is conditioned on a determination that the proposed use can be developed in a timely, orderly, and environmentally sound manner. . . .” LCCP Pg 51 (Emphasis added).*

LC Comprehensive Plan, Goal 13, Policy 13 *“Environmental Protection. In all cases the County’s support for renewable energy development shall be condition upon satisfactory evidence that sufficient environmental safeguards are provided. Environment concerns of the County shall include, but not be limited to: . . . water consumption . . . ” LCCP Pg 52 (Emphasis added)*

LC Comprehensive Plan, Goal 13, Policy 14 *“In addition to Policy 13, in all casers the County’s support for renewable energy development shall also be conditioned upon a lack of adverse impacts to public facilities or services. In this regard, the County’s concerns shall include, but not be limited to: . . . water supply, . . . [.]” LCCP, Pg 52 (Emphasis Added).*

ii. Response.

See arguments at Section II, 1.a. (Adverse Impacts to Soil) and Section II, 2.c. (Failure Conserve Water) hereof, adopted and incorporated by reference herein.

4. FACILITY RETIREMENT (EXHIBIT W)

Facts

Total cost of the proposed Facility is unstated but can reasonably be assumed to be enormous; it is likely Facility cost is in the hundreds of millions of dollars and perhaps in the billion dollar range given the size of the project: 1.74 million panels, 2 million miles of cable, 246,444 posts drilled, 5.6 million gallons of electrolytes fluid, 18 miles of 7-foot high chain link fence, 50 miles of compacted native soils roads, and 2 miles of transmission lines among other things. Developer submitted an estimate that the cost to return the site to a useful non-hazardous condition following the useful life will be \$19,851,000 in Q3 2018 dollars.

Objections

a. Failure to Demonstrate Total and Unit Cost to Restore Site to Useful, Non-Hazardous Condition.

i. Applicable Criteria.

OAR 345-021-0010(1)(w)(C) *“An estimate, in current dollars, of the total and unit costs of restoring the site to a useful, non-hazardous condition.” (Emphasis added)*

ii. Response.

Developer’s estimated cost is underinclusive and appears low. First, the Developer does not provide a “estimate, in current dollars.” The estimate is from Q3 2018 and is nearly 2 years old. This should be updated. Second, the estimate is not a “total” cost because it fails to include all costs necessary to restore the site to a useful, non-hazardous condition. Namely, a review of the Developer’s estimate shows that the Developer has failed to allocate any, or inadequate, cost to:

- contractor’s overhead and profit,

- labor costs,
- engineering costs,
- electrical costs,
- removal and disposal of 5.6 million gallons of electrolyte/battery removal,
- seeding of 50 acres of road area (50 miles x 12 ft wide = ~ 75 acres),
- plugging and abandoning wells,
- post retirement soil erosion (~2,500 acres) and invasive species mitigation,
- water cost for dust mitigation during Facility decommissioning,
- site restoration,
- septic system decommissioning, removal and site restoration.

It seems doubtful that what took 2 years and upwards of 150 men working full time year-round could be taken down in 6 months with 25 men. To do so, would likely entail the use of heavy machinery throughout the entirety of the 3,921-acre project site. Obviously, that would result in widescale destruction of the reestablished vegetation that would then need to be reestablished yet again. Yet, there is virtually no recognition of this with relatively minimal cost allocated to the physical restoration of the site. Allocated restoration costs are as follows:

Module Block	Unit Cost	Cost Estimate	Assumption
Restore site (per acre)(primarily re-seeding disturbed areas)	\$200	\$260,000	1300 acres
Battery System	Unit Cost	Cost Estimate	Assumption
Restore battery building site	\$1,500	\$201,000	134 buildings
Road Restoration	Unit Cost	Cost Estimate	Assumption
Internal service roads (per mile)	\$5,000	\$250,000	50 miles
Restore Additional Areas Distributed [sic] by Facility Removal	Unit Cost	Cost Estimate	Assumption
Restore and seed temporary disturbance areas	\$500	\$12,500	25 acres

TOTAL : \$723,500

Roughly 3.7% of the total cost is allocated to physical site restoration. That works out to about \$184 per acre. The vast majority of costs are principally allocated to the physical demolition of the proposed Facility. The Ft Rock Neighbor's question whether adequate resources have been allocated to sufficiently restore the site.

Finally, there appear to be basic computational errors in the estimate that call into question the overall trustworthiness of the estimate. For example, Developer claims that the unit cost to remove a panel is \$.0041 per panel. On its face that seems unlikely. Moreover, the Developer's "cost estimate" of \$2,786,372 for 1,742,572 panels (or a unit cost of \$1.59) suggests that number is wrong.

Having a complete and accurate estimate for Facility retirement is critical because it sets the value of the bond the Developer must obtain and maintain during the 2 year of construction and 30-years of operation of the Facility. The Council should not allow the Developer to proceed until it has submitted a cost estimate that complies with OAR 345-021-0010(1)(w)(C). Moreover, given that the cost estimate is calculated in today's dollars, the Council should

condition the bond to include an adjustment for inflation such that if called upon, the bond is sufficient to cover the cost of Facility retirement at any time during or post operation. The bond should then be periodically renewed (e.g. every five years) to the adjusted rate.

5. FINANCIAL CAPABILITY (EXHIBIT M)

Facts

To demonstrate that the Developer has the financial wherewithal to have “a reasonable likelihood of obtaining the proposed bond or letter of credit in an amount” equal to the Developer’s estimated cost of Facility retirement (~\$19M) as required by OAR 345-021-0010(1)(m)(C), Developer submitted a nearly two year old letter from its insurance broker, wherein the broker states:

“We have reviewed OSC’s proposal for the project and are confident that they will be able to obtain said decommissioning bond.

Should a bond be required from OSC, their surety will give favorable consideration after reviewing the contract terms, plans and specifications, proposed bond form and other pertinent factors at that time.” App. Appendix M-2

Developer did not provide any financial information as part of the Application. Other than its broker’s letter, Developer did not provide any evidence of financial history or capability, including whether it could obtain a bond.

To demonstrate that the Developer “has the legal authority to construct and operate the facility without violating its bond indenture provisions,” as required by OAR 345-021-010(1)(m)(A), the Developer has submitted a nearly two year old, unsigned legal opinion purported given by Tonkon Torp and dated September 14, 2018. App. Appendix M-1. In connection with given that opinion, the author (whoever that was) claims to have reviewed the Developer’s (a) articles of organization, including amendment, (b) certificate of existence as of September 7, 2018, (c) operating agreement, and (d) “such other documents and instruments as we have deemed necessary and appropriate for purposes of this opinion.” No copies of any of those documents were provided. The letter provides a qualified and limited opinion that the Developer, “has the authority to construct, own and operate the Project.”

Objections

a. **Failure to Demonstrate Reasonable Likelihood of Obtaining Bond/Letter of Credit.**

i. **Applicable Criteria.**



OAR 345-021-0010(1)(m) *“Information about the applicant’s financial capability, providing evidence to support a finding by the Council as required by OAR 345-022-0050(2).”*

OAR 345-022-0050(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.”*

OAR 345-021-0010(1)(m)(C) *“Evidence that the applicant has a reasonable likelihood of obtaining the proposed bond or letter of credit in the amount proposed in paragraph (B), before the beginning of construction of the facility.”*

ii. Response.

Developer is required to demonstrate with “evidence” that it has a “reasonable likelihood of obtaining” a bond or letter of credit for at least \$19M for the retirement of the Facility. The evidence provided by Developer falls well short of what would be required to show a reasonable likelihood of obtaining a bond/letter of credit. Developer’s letter is not even from the surety who would provide the actual bond or letter of credit but from Developer’s insurance broker. Developer’s broker offers no evidence to support its statement that they are “confident that they will be able to obtain said decommissioning bond.” For example, Developer could have offered audited financial statements, tax returns, profit and loss statements, assets schedules, capitalization charts, bank statements, loan preapproval letters or other similar evidence typically used to establish the financial wherewithal of a company. Instead, Developer offers only the unsupported speculation of its insurance broker about what a potential unnamed future surety may do. No reasonable person would rely on this type of evidence when making important decisions of this nature and magnitude and neither should the Council. Much more is required. The Council’s job is not to rubber stamp any application that comes before it but rather to thoughtfully and thoroughly consider the Application and ensure that the Developer prove up on the standards imposed by law upon it which are adopted to protect the public good.

b. Failure to Provide Required Legal Opinion.

i. Applicable Criteria.

OAR 345-021-0010(1)(m)(A) *“An opinion or opinions from legal counsel stating that, to counsel’s best knowledge, the applicant has the legal authority to construct and operate the facility without violating its bond indenture provisions, articles of incorporation, common stock covenants, or similar agreement.”*

ii. Response.

The Developer’s proffered “opinion letter” misses wide of the mark. First, it is unsigned and it is unknown who the author is. Whatever attorney is rendering the opinion ought sign the

letter for it to be considered an “opinion from legal counsel.” For all we know, the opinion letter is little a “draft”. No reputable bank would accept an unsigned attorney opinion letter when deciding whether to make a significant loan and neither should the Council when deciding whether to approve an Application of this magnitude.

Second, the opinion letter is stale. It was issued September 14, 2018, nearly two years ago. What may have been true then may not be true today. Any number of agreements or amendments to existing agreements may have been adopted since then. For this reason, in financial transactions, legal opinion letters are typically given the day of funding not two years in advance.

Finally, and most importantly, the legal opinion letter fails to address the mandates of the rule and the very reasons for providing the letter - to demonstrate that “the applicant has the legal authority to construct and operate the facility without violating its bond indenture provisions . . . or similar agreements[.]” OAR 345-021-0010(1)(m)(A). Nowhere within the proffered opinion letter can such a conclusion be found. The reason is obvious - Developer has yet to obtain a bond or letter of credit. As such, legal counsel is precluded from rendering an opinion on whether the Developer can construct and operate the Facility without violating an agreement Developer has yet to attain and counsel has yet to review.

The requirement to demonstrate that the Developer will construct and operate the Facility without violating its bond or letter of credit is critical and cannot simply be overlooked by the Developer or Council. Should the Developer financially collapse, ODOE may be called upon to retire the Facility. The bond or letter of credit then would serve as the source of funds to retire the Facility so long as Developer had the legal authority to construct and operate the Facility without violating the provisions of the indenture. If not, the sureties will undoubtedly deny any claim made against the bond or letter of credit leaving ODOE (and the taxpayers) left to foot the bill. Developer has chosen not to provide any documentation that would allow the Council to verify for itself whether the requirements of OAR 345-021-0010(1)(m)(A) are met; consequently, the Council is completely reliant on the legal opinion provided by Developer’s counsel to demonstrate compliance. That legal opinion is wholly inadequate to do so.

6. PUBLIC SERVICES (EXHIBIT U)

Facts

During construction, Developer plans to have as many as 150 workers on site for a period of two years. App. Pg U-2. A portion of the workers will be from Bend, La Pine, Lakeview and possible out outlying areas. *Id.* Developer expects up to 2/3 (100) of it worker force to live more than 15 miles away from the site including as far away as Bend, Oregon. App., Pg U-3. During construction, Developer plans to have an emergency medical technician onsite with transport offsite for minor and major medical injuries. App. Pg U-7. The closest available Level II trauma center is St. Charles, in Bend, Oregon (83 miles). App., Pg U-9.

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Objections

a. Lack of Adequate Medical Facility and Services

i. Applicable Criteria.

OAR 345-021- 0010(1)(u): *“Information about significant potential adverse impacts of construction and operation of the proposed facility on the ability of public and private providers in the analysis area to provide the services listed in OAR 345-022-0110, providing evidence to support a finding by the Council as required by 345-022-0110.”*

ii. Response.

At the time this Application was submitted, the COVID19 pandemic had not occurred. Consequently, the Application fails to address the provision of medical facilities and personnel in light of the pandemic. That pandemic has placed significant stress on medical facilities and rural communities alike. It cannot be simply taken for granted that there are adequate medical facilities and personnel to handle an outbreak amongst construction workers. There is not. The nearest medical facility is the La Pine Community Clinic (45 miles away),⁶ which is an outpatient facility. The closest level II facility is St Charles in Bend, Oregon. There is good reason why government health officials across the State and country have been cautioning against the risks associated with a COVID19 outbreak in a rural area such as northern Lake County. The Council should not authorize a project where there are inadequate facilities to handle an outbreak as in the case here. Bear in mind that the Developer plans for a large portion of its crew to travel daily between Bend (as well as other outlying communities) and the site exponentially increasing the risk of contraction and spread of disease. Similarly, the job site will be the subject of numerous receipts of goods from across the country/globe on a daily basis. At present, the Developer has not submitted any plan to isolate workers or materials to ensure their safety or the safety of the surrounding community. Should the Council approval this Application, it ought to require the Developer to adopt a plan sufficient to mitigate the potential contract and spread of COVID19 within rural northern Lake County.

III. PROPOSED CONDITIONS OF APPROVAL.

LCZO 24.01(B) grants the County (and Council) broad discretionary authority to craft and impose conditions of approval “which are found to be necessary to avoid a detrimental impact on adjoining properties, the general area or the County . . . [.]” Astoundingly, Developer asserts that “no conditions are warranted under this section.” App., K-16. While the Ft Rock Neighbors are strongly opposed to the proposed Facility, should the Council nevertheless elect to approve the Application of their objections, at a minimum the following conditions of approval (in addition to those recommended by Developer, ODOE and Council) should be imposed to mitigate the significant and adverse offsite impacts.

⁶ Application mistakenly lists distance as 16 miles from Facility.

1. Within the Fort Rock Planning Area, Developer shall not construct any development unless it is within 600 ft of existing roads.
2. All perimeter and interior roads for the Facility must be either gravel (with a minimum width of twelve feet and a base of 6 inches of crushed and washed gravel) or paved.
3. No construction activity will occur on days with sustained winds of 9 miles per hour or greater.
4. All cables will be in trays mounted below the solar arrays. No cable will be buried except upon demonstrated safety need and no reasonable alternative to burying exists. In no case will more than 50,000 feet of cable be permitted to be buried.
5. All existing vegetation beneath the proposed solar arrays shall remain and shall not be mowed, crushed or otherwise removed.
6. Developer shall install and use a “no water” or “low water” system to clean solar arrays. No tanker or spray truck shall be used for cleaning solar arrays. A “low water” system is one that uses less water than manually washing the solar arrays by hand.
7. Developer shall be permitted one well that shall not use more than 5,000 gallons per day. Developer shall install a self-regulating meter with automatic shut off valve to ensure that not more than 5,000 gallons per day is drawn. Developer shall keep a record of all water drawn, purchased and used and make quarterly production of those records available for public inspection during the life of the permit.
8. In addition to Developer’s Erosion and Sediment Control Plan and prior to commencement of any construction activities, Developer shall create and submit for approval by the Council a fugitive dust mitigation plan encompassing the construction, operation and retirement of the Facility. The plan will include windscreens and/or other mitigation features to prevent wind erosion and escape of fugitive dust/soil onto adjacent or nearby property. Prior to adoption, the plan will be subject to public review, input, hearing and appeal to the Supreme Court similar to the Application.
9. Developer shall take remedial steps as required from time to time to prevent fugitive dust/soil from escaping the project site whether by wind or by water erosion.
10. Prior to commencement of any construction activities, Developer shall modify its noxious weed plan to provide for mitigation and eradication, at Developer’s cost, of all noxious weeds on all abutting property to the Facility who request it. Such measures shall extend during the construction and operating life of the Facility and for a period of 5 years thereafter.
11. If battery houses are constructed, they will be designed and constructed in such a manner as to prevent visible light from being seen from adjacent properties.

12. Property owners within 750 of the Facility are intended third party beneficiaries of these conditions and may privately enforce them.
13. Developer shall submit a revised estimated cost of Facility retirement to Council for approval which encompasses the total cost of retirement. Prior to any construction, Developer shall obtain a bond in an amount not less than the approved estimated cost of Facility retirement. Every 5 years Developer shall renew the bond in an amount not less than 110% of the previous bond.
14. Prior to commencement of construction, Developer shall compensate all affected adjacent and nearby residents for any loss in fair market value of their residential real property as a result of the Facility as demonstrated by appraisal. Developer shall reimburse the affected property owners for their costs and reasonable fees incurred in connection with this condition. Disputes over reduction in value shall be settled by binding arbitration.
15. None of the conditions herein shall prejudice or preclude any party from bringing or asserting a claim against Developer or its successors or assigns for any matter arising from or related to the Facility including claims for trespass or nuisance and including claims seeking money damages or injunctive relief.
16. Developer will create and submit for Council's approval a material receipt/handling and work plan that addresses COVID19 and adopts appropriate mitigation measures. The plan will be prepared by qualified health professionals. At a minimum the plan will require that while the COVID19 pandemic is active and no vaccine is available, all workers will reside onsite during the entirety of the construction. Each worker will be provided his/her own room. Any worker residing on site who leaves the site, will be prohibited from returning unless quarantined for a period of 14 days. All materials will likewise be quarantined prior to their acceptance into and use on site. Once a vaccine is available, all workers and delivery personnel will be required to promptly obtain a vaccine.

Please include this objection in the record for this Application.

Respectfully,

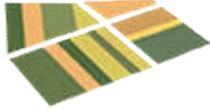
/s/Micheal M. Reeder

Micheal M. Reeder

Cc: Developer, c/o Elaine Albrich, Legal Counsel

TARDAEWETHER Kellen * ODOE

From: Mike Reeder <mreeder@oregonlanduse.com>
Sent: Monday, July 20, 2020 3:09 PM
To: TARDAEWETHER Kellen * ODOE
Cc: aaron@noteboomlaw.com
Subject: FW: Objection to ASC for Obsidian Solar Center (Exhibits Email 1)
Attachments: FRN - Combined Exhibits Part 1 of 3 - 07.20.2020.pdf



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Oregon Land Use Law

Office: (458) 210-2845 | oregonlanduse.com
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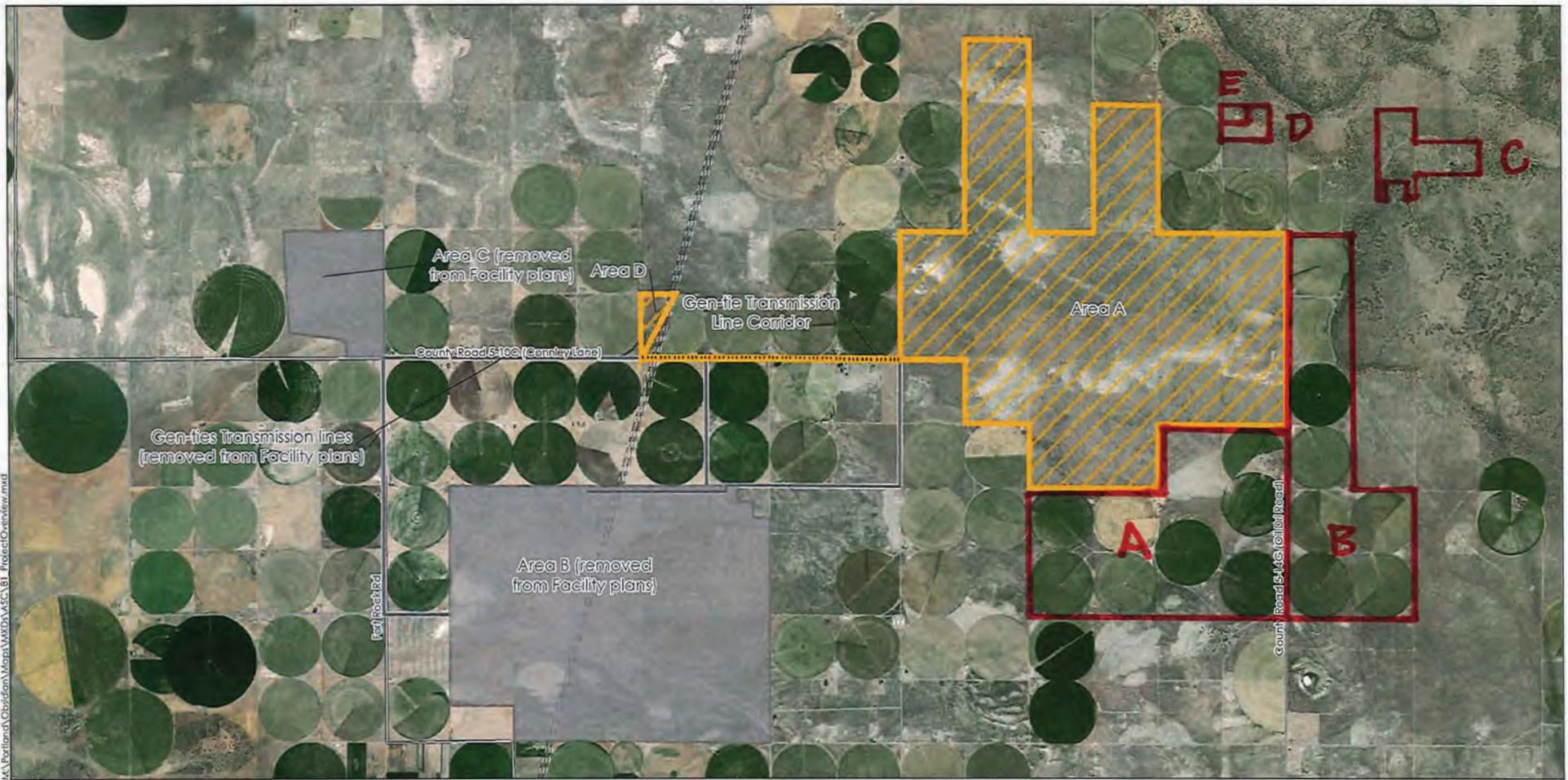
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From: Aaron Noteboom <aaron@noteboomlaw.com>
Sent: Monday, July 20, 2020 2:09 PM
To: TARDAEWETHER Kellen * ODOE <Kellen.Tardaewether@oregon.gov>
Cc: Mike Reeder <mreeder@oregonlanduse.com>; ROWE Patrick G <Patrick.G.ROWE@state.or.us>
Subject: Objection to ASC for Obsidian Solar Center (Exhibits Email 1)

Sending Exhibits Email 1.

Aaron Noteboom | Attorney at Law
Noteboom Law LLC
375 W 4th Ave, Ste 204 | Eugene, Oregon 97401
Ph: (541) 513-2298 | aaron@noteboomlaw.com

A- HORTON B- HOGAN C - TURNBOW D- SIMMONS E - BARKER



- Site Boundary
 - Facility
 - Areas removed from Facility plans
 - Gen-tie Transmission Line
 - Gen-tie Transmission Lines (removed from Facility plans)
 - Bonneville Power Administration Transmission Line (500kV)
 - PGE Transmission Line (500kV)
- Note: Area B, Area C, and their associated gen-tie transmission lines are no longer being considered for development

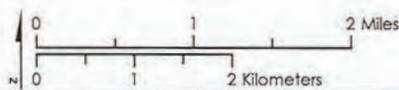


Figure B-1
Facility Overview

Obsidian Solar Center
October 2019

Obsidian Solar Center LLC

Sources: Esri 2019

(I give permission for Mike Reeder to present this for me.) My name is Larry Turnbow, a resident of Christmas Valley and Lake county since 1965. I am against this proposal mainly because of the effects it will have on the wildlife. Animals like elk, deer, antelope, eagles, hawk, and many more will have their habitat destroyed. I own property off of North Oil Dry, which I have owned over twenty years that is close to the proposed site. I built a new home recently and with that I am not in favor of seeing scenery like solar panels everyday. The elk in our area pass through the sagebrush where the panels are to go, yearly. I have personally seen hundreds of elk on the property very often. I am thinking that the elk and deer will be forced to go around, using the farmer's fields. A herd of one-hundred head of elk can and will do a lot of damage to a field that is newly seeded, hay stacks, fences, and the crops in general. The elk in our area also use the proposed property to escape the pressure of hunters. The idea of seeing areas where the wildlife should be and are comfortable be turned into solar panels is very undesirable! I know solar has been around for a long time, but what effects will it have on the environment and wildlife? Does anybody really know? The wind blows a lot out here when you disturb the ground it will be a dust bowl for sure.

To: Oregon Department of Energy

Though we understand the benefits of a project such as this, from our stand point we have several valid concerns.

We are landowners who border the project and we are farmers who care for the land to produce high quality forages for our dairy herd of cattle. One of the bigger challenges of farming the land in Christmas Valley and the surrounding area is damages by rodents including sage rats and rabbits. If the surrounding acreage of our farmland was consumed by solar panels this would alter the wildlife habitat substantially. It would encourage the rabbits and rats to move onto adjacent lands such as ours and it would force the coyote population to relocate. So we would potentially see an influx of rodents and a decrease of coyotes who are a natural way of controlling the rodent population and in turn the damages they create. We do not want to see the coyotes move out of our land and the lands near us. We fear this will create a higher sage rat population on our land.

We are also concerned about the space/acreage this solar operation will be consuming. This project would be eliminating what is current ground used for farming practices. Even though this is non-irrigated ground, it is still valuable in the farming world and eliminates the growth of standing industries.

The dust that will be created if this project proceeds is maybe our most immediate concern. Our hay ground is directly bordering the project and the dust created would suffocate our current crop. Some of these are new stands or young stands and the economic damages of this loss and reduction of yield would be felt by us for the years to come.

Lastly we are concerned if the local area of Christmas Valley/Fort Rock has the infrastructure in place or the ability to do so to support a project and business of this size. Again our concerns are current farm land being used for other purposes and the competition of a reliable workforce.

We appreciate you and the committee considering our opinions and thoughts and would like to further echo views and opinions of LeeRoy Horton, our farm manager, neighbor and friend.

Please keep us abreast of the conversation and if there are further opportunities to express our viewpoints.

Dave and Rita Hogan
Golden Acres
503-842-3166

ENERGY FACILITY SITING COUNCIL

MAY 19,2020

OREGON DEPARTMENT OF ENERGY

550 CAPITOL STREET NE

SALEM, ORGON 97301

Attention Siting Council,

My wife and I are opposed to the Obsidian Solar Center Facility of 3,921 acres that will be built near our home.

I ask a real estate agent to give us an assment of what this site could do to the value of our property. We have included that report in our presentation. As you can see it would be devastating to us as this is our retirement home.

I also do not see how this would not interfere with the wild life with 18 miles of a 7 foot tall fence surrounding the project.

This solar farm will create visual clutter .

The battery houses with their lights will create nighttime light pollution, which our desert has very little if any at this time.

We feel if this project is so important to the state and the federal governments that they should make some of their land available to this project.

Respectfully submitted by:

Jerald Simmons

Verlinda Simmons

Dear Department of Energy,

Hello, My name is Mariam Thorsted. I am writing you this letter to state my opinions and concerns regarding the proposed solar site installation on North Oil Dry in Christmas Valley. I have lived on this road for all of my life except for my college years. Regardless, I plan on taking over my father's farm and I currently own and run all of our livestock, which includes 2,000+ ewes plus their lambs, and 100 head of high quality registered Angus cattle. My husband and I live in a house that is adjacent to the east of the proposed solar site. Now that you know a little more about me I would like to go into my concerns.

1. My greatest concern is my livestock. As a young producer who chose to come back to the ranch after college I believe that I am a black sheep if you will. Many of my classmates were venturing off into other jobs while I was one of the only ones wanting to go back to my family's farm/ranch. With this in mind, I am young and still learning a lot! I am very grateful for all the help that the locals have given me, but I am very scared for what may happen to my animals. Will the dust cause them respiratory problems? Will my employees have allergic reactions to the dust? Will my lambs have problems getting started in life? Will there be a large amount of light pollution, causing my animals to not rest in the night and lose weight? How will livestock guard dogs guard my sheep if the construction of this facility distracts them? Where will the coyotes go that reside in the property? Will the coyotes move closer to my animals?
2. I attended college at Kansas State University. This allowed me to study the affects of the up and coming drought and the dust bowl as well. In Kansas, the aquifer is being depleted and the farmers are either selling their land or trying to switch back over to dry land farming. I would say that they are semi lucky in their situation, because they have the weather and soil type to do dry land farming. Unfortunately, this is not an option in South Central Oregon. Our top horizon of soil is sand. This sandy horizon will blow away with out the cover of vegetation such as brush or crops. This can be observed on any windy day in our valley. I know that there are no new water rights given out in North Lake county, so if the project plans on watering their facility, they will have to buy water from other people and this is not right! The water here is for farmers and for farming or ranching! Solar panels are not agricultural. Did you know that the Natural Resources Conservation Service (NRCS) was created after the dust bowl disaster in Kansas and surrounding states? This was to ensure that nothing like the dust bowl would happen again. In Christmas Valley you can see the affects of improper farming and what the wind will do to open fields or areas. There have been numerous car crashes due to poor visibility. Also many sand dunes have been created. One is even on my father's property (which was created by the previous owner in the 80s). The sand dune on our property is directly next to the proposed solar panel site.
3. I hope to raise my family on my father's farm (or my farm one day in the future). I hope to not see solar panels as our neighbors forever and ever. This

is an eye sore of light reflection, light pollution, and a horrible looking landscape. I want my children to grow up in the country and feel safe like I did out here. I am wondering what kind of people will be hired to move out here to work on the site? Will my family be safe? Will my employees be safe? I hope none of our property is stolen or messed with. We own property far out in the country so that we can feel safe and farm with out disturbing other people. I would hate for this company to come in and disturb us. We are very peaceful out here and everyone seems to mind their own business, but this project has really turned neighbors on neighbors and has been a great stress in our life! A great stress!

Thank you for hearing my concerns.

Mariam Thorstad 5-19-20

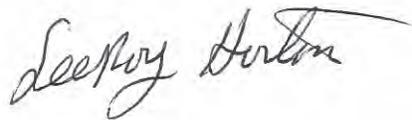
To: Oregon Department of Energy

My name is LeeRoy Horton, owner/operator of LR Farming. I have farmed and ranched here in North Lake County, Christmas Valley on North Oil Dry road for 28 years. The proposed solar facility will border a total of 1,400 acres or 2 ½ miles of my property. My concerns involve the very real threat of a huge amount of soil erosion to our farm and the extreme dust blows for us, during and after installment. This will effect our 4,000 sheep operation and 100-cow/calf pair facility. The solar install involves scraping/bulldozing off the natural ground cover holding the sandy soil in place. Our high winds will pick up any uncovered sandy soil and dust and throw it around the county. It can be impossible to farm under these conditions. A sand blow can scrape across new seedlings, stripping it bare. A dust blow can also make it impossible to see. After the wind dies down dirt covers everything like hay, barns, and our livestock pastures. Large amounts of uncovered land will be devastating to our sheep, lambs, and cattle trying to endure these blows. The solar project alone will produce 50 miles of dirt roads and not to mention 4000 acres of uncovered land.

Removing 4,000 acres of ground cover will displace many, many ground squirrels, rabbits, and field mice, driving them onto our fields. Since these animals do not migrate they will end up moving into our fields, depleting our crops. Imagine the crop damage done to our fields by 1,000's of rodents moving onto our farm to live and feed. Economic damage to our farming operation will be massive due to loss of thousands of area production equaling \$885,000 in hay sales every year. This is world-class high quality hay that is frequently exported to Japan and South Korea. We could also loose \$500,000 in livestock production and the loss of jobs to our twenty employees. If we leave, who will want to purchase a farm next to such a monstrosity?

What is the effect of 650,000 solar panels on the immediate climate that surrounds our fields? Will the solar panels affect the humidity and moisture in the night that we NEED to bale our hay? Will there be dew in the mornings? We really need the dew to farm.

These are questions no one seems able to answer! We invite you to come see our operation and damaging effect this will have on our farm and livelihood and the livelihood of our employees.





How Dust Storms Work

BY [VICKI M. GIUGGIO](#)

How Does Dust Become Airborne?

PREV NEXT



A breeze blowing at 9 miles per hour (14.5 kilometers per hour) can stir up dust on the ground. If the particles are small enough, they may become airborne.

ISTOCKPHOTO/[THINKSTOCK](#)

Without wind, dust will generally remain on the ground. While wind is unquestionably the force that causes dust to rise, additional physical and electrical forces accelerate the process.

When wind passes over a dust source, the loosely held sand and dust particles move. When the soil is dry, it doesn't take much to get them moving; the threshold wind velocity only needs to be at about 9 miles per hour (14.5 kilometers per hour) to disrupt the surface [source: [United Nations](#)]. Of course, wind speeds this low don't necessarily create a storm, but it gives you an idea of how little force is needed to stir things up.

The way wind moves particles depends on their size and weight. The smallest particles (less than 0.002 millimeters in diameter) are easily suspended in air and the largest particles (greater than 0.5 millimeters) roll along the surface of the ground, a movement that's called **creeping**. It's the movement of particles between these two sizes that have the biggest impact on dust emission, however. These particles are lifted temporarily and bounce back onto the surface upwind. When they hit the surface, they bounce back up. They also cause a chain reaction to the particles around them.

Think of the particles on the surface as ping-pong balls. When one ball, propelled by a wind force, bounces onto the others it causes the other balls to bounce. Every time a ping-pong ball hits the surface, additional balls become airborne, regardless of whether wind is there or not. Of course, once airborne, the balls are susceptible to wind forces. This collective action is called **saltation**. Saltating particles will be lifted higher into the air depending upon their size. Dust particles, also called silt, are between 0.002 and 0.05 millimeters in diameter.

RELATED

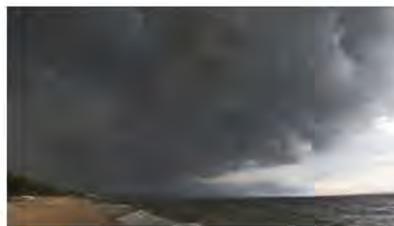


[How \(and Why\) Hurricanes Get Their Names](#)

Although very small particles in suspension create their own problems, dust particles are what make most storms so hazardous. Dust can be lifted more than 700 meters (2,296 feet) into the air [source: [United Nations](#)].

The physical forces described above increase the amount of airborne dust at a given wind speed, but the effects of saltation don't stop there. Saltating particles also generate electrical energy, which increases the number of saltating particles even more. As particles hit each other and the surface, they acquire a negative charge. The surface, however, acquires a positive charge -- essentially generating a **static electric field**. Anyone who has rubbed a balloon against his or her head knows how hair will, without wind, fly about in suspension. A similar principle is at work here. The electrification of particles reduces the amount of wind force needed to initiate further saltation. In fact, it can directly lift particles from the surface.

Now that the dust is airborne, how high will it be suspended, where will it go and how long will it remain in the air? In the next section, we'll learn how weather systems determine what a storm will look like.



[Monsoons Bring Rain and More Rain](#)

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What Does It Mean to "Take It With a Grain of Salt"?

by Taboola

Remembering Israel 'IZ' Kamakawiwo'ole, the Voice of Hawaii

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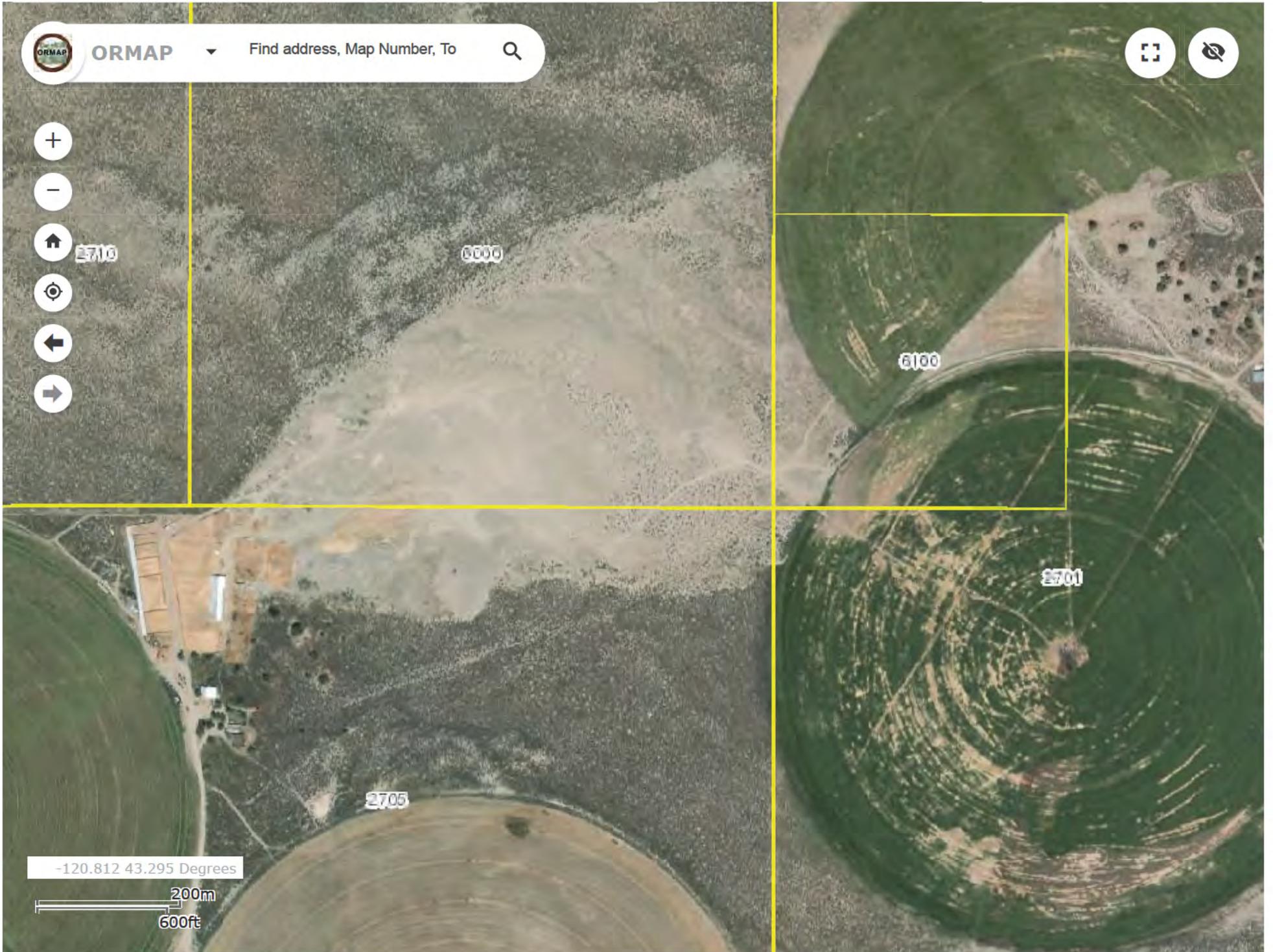
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Drifting Sand



Plowed sand dune
– Facility Work



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Bulk Material Calculator (Sand, Gravel, Soil and Mulch)

Please enter the measurements below and press "Calculate" to receive the approximate number of cubic yards needed for the specified area. This calculator can be used to calculate the amount of sand, soil, gravel or mulch needed for your project.

Length (in Feet)

Width (in Feet)

Depth (in Inches)

Cubic Yards

How much does a cubic yard weigh?

Most of our bulk materials, with the exception of mulch, are sold by the weight. The following are approximate weights for most of our bulk materials.

Sand 1.10 - 1.25 tons (2,200 - 2,500 lb.) per cubic yard

Planting Mix 1 ton (2,000 lb.) per cubic yard

Lawn Dressing .90 tons (1,800 lb.) per cubic yard

Compost .40 tons (800 lb.) per cubic yard

Landscape Gravels 1.20 - 1.35 tons (2,400 - 2,700 lb.) per cubic yard

Washed Gravel 1.35 tons (2,700 lb.) per cubic yard

Washed Limestone 1.20 tons (2,400 lb.) per cubic yard

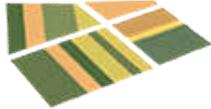
Limestone Base 1.35 tons (2,700 lb.) per cubic yard



MATA Michiko * ODOE

From: TARDAEWETHER Kellen * ODOE
Sent: Monday, July 20, 2020 3:58 PM
To: MATA Michiko * ODOE
Subject: FW: Objection to ASC for Obsidian Solar Center (Exhibits Email 2)
Attachments: FRN - Combined Exhibits Part 2 of 3 - 07.20.2020.pdf

From: Mike Reeder <mreeder@oregonlanduse.com>
Sent: Monday, July 20, 2020 3:09 PM
To: TARDAEWETHER Kellen * ODOE <Kellen.Tardaewether@oregon.gov>
Cc: aaron@noteboomlaw.com
Subject: FW: Objection to ASC for Obsidian Solar Center (Exhibits Email 2)



Law Office of Mike Reeder
Oregon Land Use Law

Office: (458) 210-2845 | oregonlanduse.com
375 W. 4th Ave., Suite 205, Eugene, OR 97401

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From: Aaron Noteboom <aaron@noteboomlaw.com>
Sent: Monday, July 20, 2020 2:10 PM
To: TARDAEWETHER Kellen * ODOE <Kellen.Tardaewether@oregon.gov>
Cc: ROWE Patrick G <Patrick.G.ROWE@state.or.us>; Mike Reeder <mreeder@oregonlanduse.com>
Subject: Objection to ASC for Obsidian Solar Center (Exhibits Email 2)

Sending Exhibits Email 2

Aaron Noteboom | Attorney at Law
Noteboom Law LLC
375 W 4th Ave, Ste 204 | Eugene, Oregon 97401
Ph: (541) 513-2298 | aaron@noteboomlaw.com

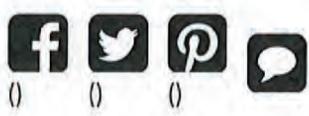
(/) Technology (/technology/) / Clean Technology (/clean-technology/)

Robots clean solar panels in Israel without using water



(/author/megan-treacy/)

Megan Treacy (/author/megan-treacy/)
mtreacy (https://twitter.com/mtreacy)
April 2, 2014



(mailto:?subject=Robots clean solar panels in Israel without using water - Treehugger&body=Robots clean solar panels in Israel without using water%0D%0A%0D%0Ahttps%3A%2F%2Fwww.treehugger.com%2Fclean-technology%2Frobots-clean-solar-panels-without-using-water.html)



© Ecoppia (<http://www.ecoppia.com/sources-press/media-kit>)

At Ketura Sun, a large commercial solar field in Israel, the solar panels are being cleaned in a unique way: by robots. That's not the most unique part. These robots don't use any water in the cleaning process, making them a great match for the Negev desert where the solar plant is located. Even better, the robots could go a long way toward making solar power plants less dependent on water.

According to Gizmag (<http://www.gizmag.com/ecoppia-e4-ketura-sun/31428/>), the Ecoppia E4 (<http://www.ecoppia.com/ecoppia-announces-world's-first-completely-autonomously-cleaned-solar-energy-park>) robots are "mounted on a frame that moves laterally along the panels and the robots themselves move up and down the panels. They use a rotating brush made up of soft microfiber in conjunction with air blowers to remove what Ecoppia says is 99 percent of dust build-up." No water required.

Other solar panel cleaning robots (<https://www.treehugger.com/clean-technology/robot-wash-solar-panels-among-winning-student-inventions.html>) have been developed, even some that don't use water (<https://www.treehugger.com/clean-technology/robots-could-keep-solar-panels-clean-without-using-water.html>), but those are not being commercially used yet.

Keeping solar panels clean is a major necessity because dust covered panels don't produce as much energy (up to 35 percent less), but non-automated processes require a lot of manpower, time and money. The robots make it so that the panels are automatically cleaned nightly and are always operating at maximum output.

Check out the video of the robots in action below.

SunPower® Helix™ Tracker



Greater lifetime energy production

The SunPower® Helix™ Tracker system combines high performance, high-efficiency panel technology, single-axis tracking, comprehensive warranties and O&M services to maximize energy production. That means more savings on your electric bill today, and in the decades to come.

Flexible design and layout

Building on SunPower's extensive experience with large-scale power plant installations, The Helix Tracker system's flexible design can help maximize energy density via multiple array configurations, string inverter options and variable row spacing.

Innovative robotic cleaning

Manual panel cleaning is a laborious and inefficient process. SunPower's robotic panel cleaning service can accomplish the task 10x faster while using 75% less water than manual methods—delivering up to 15% more annual energy production.¹

Anatomy of SunPower® Helix™ Tracker

Industry-leading solar panels

High efficiency SunPower® panels maximize energy production



Connectorized electrical balance of system

Plug-and-play design reduces field wiring and improves installation efficiency

Powerful EnergyLink® Monitoring Software

Gather real-time insights for intuitive energy management



Innovative panel cleaning robot

Add-on O&M service. Increases annual energy production while conserving water and reducing labor costs.

Features

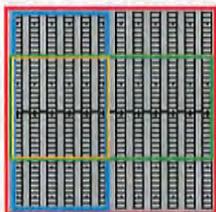
- Helix Tracker block: panels, inverter, system and foundations and DC & AC cabling within array
- Parts delivery
- System commissioning
- O&M services
- System warranty

Warranties

- SunPower panels, combined..... 25 years power and product warranty
- Tracker mechanical BOS 5 years
- Tracker electrical BOS 10 years
- Plug-and-play inverter² 10 years
- EnergyLink Monitoring hardware 10 years

Configuration Options

Array configuration



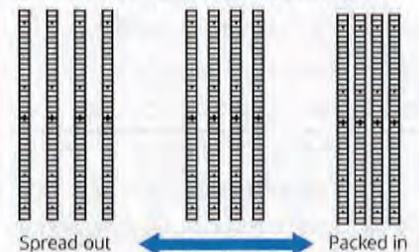
- 6 rows x 20 modules
- 6 rows x 40 modules
- 12 rows x 20 modules
- 12 rows x 40 modules

String inverter



20kW
24kW

Variable row spacing



¹ Based on experience with robotic cleaning at actual SunPower sites, compared to data tracked by subcontracted manual cleaners utilized at a SunPower project.

² Manufacturer pass-through warranty. Warranties of 15 or 20 total years are available directly through manufacturer.



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Solar Robotic Cleaning System

Product Overview

We ensure of maximizing energy production from PV panels. We design and manufacture automatic, self-powered, water less Solar PV cleaner robots for decentralized, rooftop, and utility scale solar power plants.

Our Vision

Enabling greater energy production and lower operating costs to solar PV plant owners.

Technology

PV panels produce less than optimal power when not clean. Water based manual cleaning is expensive, incurs recurring cost and environmentally NOT friendly. Apart from posing an electrical hazard, water based cleaning leaves residues, and causes scratches due to scrubbing of panels. With manual cleaning, there is a risk of damaging the AR coating on the panels. Our cleaners employ soft nylon bristled brushes causing no damage to the panels during cleaning operation. NO weight or stress is exerted on the main panels. Automatic and Water Less Cleaner Robots are self-powered, and automatic. AT preset times, the cleaner robot traverses length wise on a rail tube till very end of the panel row and returns to home docking position, completing one cycle. Cleaning is done using specially designed brushes rotating at high speed, lifting the dust away from the panels.



Customized Solutions

The cleaner robots can be retrofitted to suit existing or custom designed for new layouts. We work with our customers and

partners from the very beginning of the project life cycle to provide the most cost effective solution for cleaning and O&M.

Products

Power generation from PV panels is adversely affected with soiling and dust. Research suggests that more than 35% of power is lost if the PV panels are not cleaned regularly. Our cleaner's unique design ensures that the panels produce optimum power every day. We deliver higher energy production at lower operating costs for PV plant owners, with maximized ROI.

Our patent (Applied) automatic cleaner robotic system is suitable for PV plants ranging from a few hundred KW onward to multi MW scale. Our cleaners deliver assured improvement in power production from solar panels. Designed for on-the-field and easy maintenance.



Waterless

Water based cleaning can be hazardous and can result in salt deposition on the panels, if the water is not treated using an RO plant. Scrubbing or wiping can cause abrasion, leaving scratches and even develop micro-cracks on the panel surface. Chances of electrical hazard issues and physical damage are eliminated with our cleaners.

Automatic Cleaning

Completely automatic in operation and starts one cycle at the set time every day or on certain days in a week. One cycle of cleaning comprises of one forward and a reverse traversal of the cleaner robot. The Robot can be operated for ad hoc cleaning, through manual mode as well.

Scratch Free

The cleaner uses high speed, soft, helically wound nylon brushes to swiftly push away the dust from the panels and is 100 % scratch free. The dust is driven away between inter-panel gaps and to the sides of the panels.

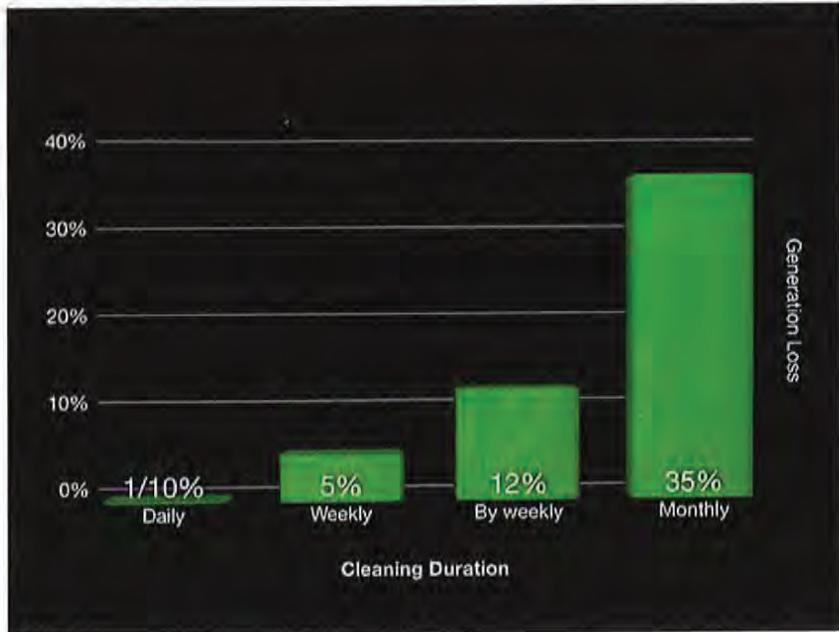
Installation

Products are designed for easy field installation with best-in-class engineering practices.

Cost Effective

Attractive ROI compared with water

based manual cleaning and other automatic cleaners. The extra amount of energy produced due to daily cleaning ensures maximum energy conversion for your PV plant. The cleaner also features remotely operated ad hoc cleaning that may be needed in desert/very dusty conditions requiring more than one cycle of cleaning per day.



Features

- Water-less, automatic, daily cleaning
- Can clean PV arrays with 2 to 6 Meter cleaning widths
- Does not exert any mechanical stress on the panel surface
- Maximum power generation with zero soiling losses
- Uniform cleaning of every panel
- Remote operated on-demand cleaning
- Cleans dried particles and also dew condensation
- Water-less, automatic, daily cleaning
- Powered by Rechargeable Li Ion batteries charged by its own PV panels
- Exerts no mechanical stress/load on the panels
- Eliminates plumbing and recurring water related costs
- Has the same life time as that of the plant with maintenance and replacement of certain components
- Fixed operational costs for the lifetime of PV plant
- Covered by Standard product Warranty and AMC contracts after warranty period
- Driven by high torque DC Motor
- Docked at home position extending beyond the panels, thus not casting shadow on the main panels
- High speed helical rotary brush
- Non- abrasive and electrically safe compared to manual and water based cleaning
- Can be configured to suit tracking or fixed arrays
- Power optimized electronic controller with SCADA and reporting capability
- PC/laptop based application software for SCADA
- Operates using radio frequency for operation and control of individual robots in the solar farm
- Cloud storage and dashboard presentation capability

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STATE OF OREGON
COUNTY OF LAKE

CERTIFICATE OF WATER RIGHT

This Is to Certify, That CHRISTMAS VALLEY MUTUAL WATER IMPROVEMENT DISTRICT

of Christmas Valley Rural Station, Silver Lake, State of Oregon, has made proof to the satisfaction of the STATE ENGINEER of Oregon, of a right to the use of the waters of Well No. 3

is tributary of Christmas Valley Basin for the purpose of group domestic

under Permit No. G-2440 of the State Engineer, and that said right to the use of said waters has been perfected in accordance with the laws of Oregon; that the priority of the right hereby confirmed dates from June 13, 1963

that the amount of water to which such right is entitled and hereby confirmed, for the purposes aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed 0.25 cubic foot per second

or its equivalent in case of rotation, measured at the point of diversion from the stream. The point of diversion is located in the NW 1/4 NE 1/4, Section 17, T. 27 S., R. 17 E., W. N. Well located: 1180 feet South and 610 feet East from the NW Corner, Section 17.

The amount of water used for irrigation, together with the amount secured under any other right existing for the same lands, shall be limited to - - - - - of one cubic foot per second per acre.

and shall conform to such reasonable rotation system as may be ordered by the proper state officer.

A description of the place of use under the right hereby confirmed, and to which such right is appurtenant, is as follows:

SW 1/4	NE 1/4
SE 1/4	SW 1/4
Section 9	NE 1/4
All	SW 1/4
Section 10	NE 1/4
SW 1/4	Section 16
Section 11	NE 1/4
SW 1/4	SW 1/4
Section 13	NE 1/4
SW 1/4	SW 1/4
Section 14	Section 17
	All
	Section 18

T. 27 S., R. 17 E., W. N.

The right to the use of the water for the purposes aforesaid is restricted to the lands or place of use herein described.

WITNESS the signature of the State Engineer, affixed

this date. June 16, 1970

Clara T. ...
State Engineer

Recorded in State Record of Water Right Certificates, Volume 28, page 36770

STATE OF OREGON

COUNTY OF LAKE

PERMIT TO APPROPRIATE THE PUBLIC WATERS

THIS PERMIT IS HEREBY ISSUED TO

CHRISTMAS VALLEY DOMESTIC WATER SUPPLY DISTRICT
PO BOX 142
CHRISTMAS VALLEY, OREGON 97641

(541) 576-2665

The specific limits for the use are listed below along with conditions of use.

APPLICATION FILE NUMBER: G-12865

SOURCE OF WATER: WELL 3 IN FORT ROCK VALLEY BASIN

PURPOSE OR USE: QUASI-MUNICIPAL USE

RATE OF USE: 0.31 CUBIC FOOT PER SECOND

PERIOD OF ALLOWED USE: YEAR ROUND

DATE OF PRIORITY: APRIL 6, 1992

POINT OF DIVERSION LOCATION: NW 1/4 NE 1/4, SECTION 17, T27S, R17E, W.M.; 1180 FEET SOUTH & 610 FEET EAST FROM N 1/4 CORNER, SECTION 17

THE PLACE OF USE IS LOCATED AS FOLLOWS:

N 1/2 SW 1/4
SECTION 8
E 1/2 NE 1/4
SW 1/4
SECTION 9
ALL
SECTION 10
SW 1/4 NW 1/4
SW 1/4
SE 1/4
SECTION 11
SW 1/4 SW 1/4
SECTION 12
NW 1/4
SECTION 13
N 1/2
N 1/2 SW 1/4
SW 1/4 SW 1/4
SECTION 14

Application G-12865 Water Resources Department

PERMIT G-12659

STATE OF OREGON

COUNTY OF LAKE

PERMIT TO APPROPRIATE THE PUBLIC WATERS

THIS PERMIT IS HEREBY ISSUED TO

CHRISTMAS VALLEY DOMESTIC WATER SUPPLY DISTRICT
PO BOX 142
CHRISTMAS VALLEY, OREGON 97641

(541)576-2665

The specific limits for the use are listed below along with conditions of use.

APPLICATION FILE NUMBER: G-12864

SOURCE OF WATER: WELL 4 IN CHRISTMAS LAKE VALLEY BASIN

PURPOSE OR USE: QUASI-MUNICIPAL USE

RATE OF USE: 1.25 CUBIC FEET PER SECOND

PERIOD OF ALLOWED USE: YEAR ROUND

DATE OF PRIORITY: APRIL 6, 1992

POINT OF DIVERSION LOCATION: NW 1/4 NE 1/4, SECTION 14, T27S, R17E, W.M.; 1260 FEET SOUTH & 80 FEET EAST FROM N 1/4 CORNER, SECTION 14

THE PLACE OF USE IS LOCATED AS FOLLOWS:

N 1/2 SW 1/4
SECTION 8
NE 1/4
SW 1/4
SECTION 9
ALL
SECTION 10
SW 1/4 NW 1/4
SW 1/4
SE 1/4
SECTION 11
SW 1/4 SW 1/4
SECTION 12
NW 1/4
SECTION 13
NE 1/4
NW 1/4
N 1/2 SW 1/4
SW 1/4 SW 1/4
N 1/2 SE 1/4
SECTION 14
NE 1/4

Application G-12864 Water Resources Department

PERMIT G-12660



STATE OF OREGON

County of LAKE

PERMIT TO APPROPRIATE THE PUBLIC WATERS

This is to certify that I have examined APPLICATION G-11581 and do hereby grant the same SUBJECT TO EXISTING RIGHTS and the following limitations and conditions:

This permit is issued to Christmas Valley Domestic Water Supply District of P.O. Box 142, Christmas Valley, Oregon 97641, for the use of water from one well,

for the PURPOSE of quasi-municipal.

that the PRIORITY OF THE RIGHT dates from September 11 1986,

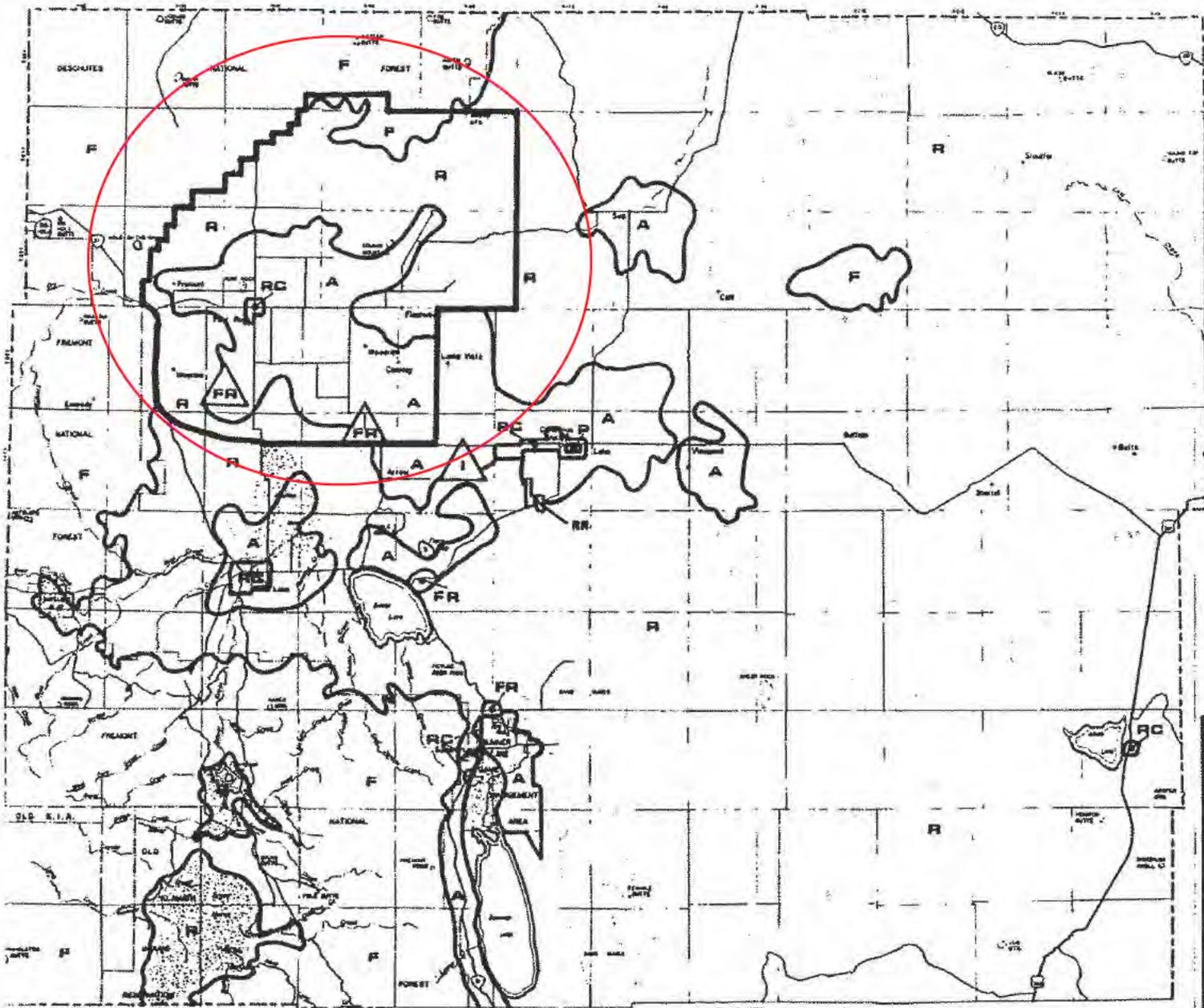
and is limited to the amount of water which can be applied to beneficial use and shall not exceed 1.5 cubic feet per second

measured at the point of diversion from the well, or its equivalent in case of rotation with other water users.

The well is to be LOCATED: 400 feet North and 50 feet West from the center of Section 13, being within the SE1/4 NW1/4 of Section 13, Township 27 South, Range 17 East, W.M., in the County of Lake.

A description of the PLACE OF USE under the permit, and to which such right is appurtenant, is as follows:

Township 27 South,	Range 17 East, W.M.,	Section 8	W1/2 SW1/4	Quasi-municipal
		Section 9	E1/2 NE1/4 S1/2	
		Section 10	All	
		Section 11	SW1/4 NW1/4 S1/2	
		Section 12	SW1/4 SW1/4	
		Section 13	NW1/4	
		Section 14	N1/2 NE1/4 SW1/4 W1/2 SW1/4 N1/2 SE1/4	
		Section 15	N1/2 N1/2 SE1/4 SE1/4 SE1/4	
		Section 16	N1/2 W1/2 SW1/4	
		Section 17	All	
		Section 18	All	



AMENDED
7-15-81
4-7-82

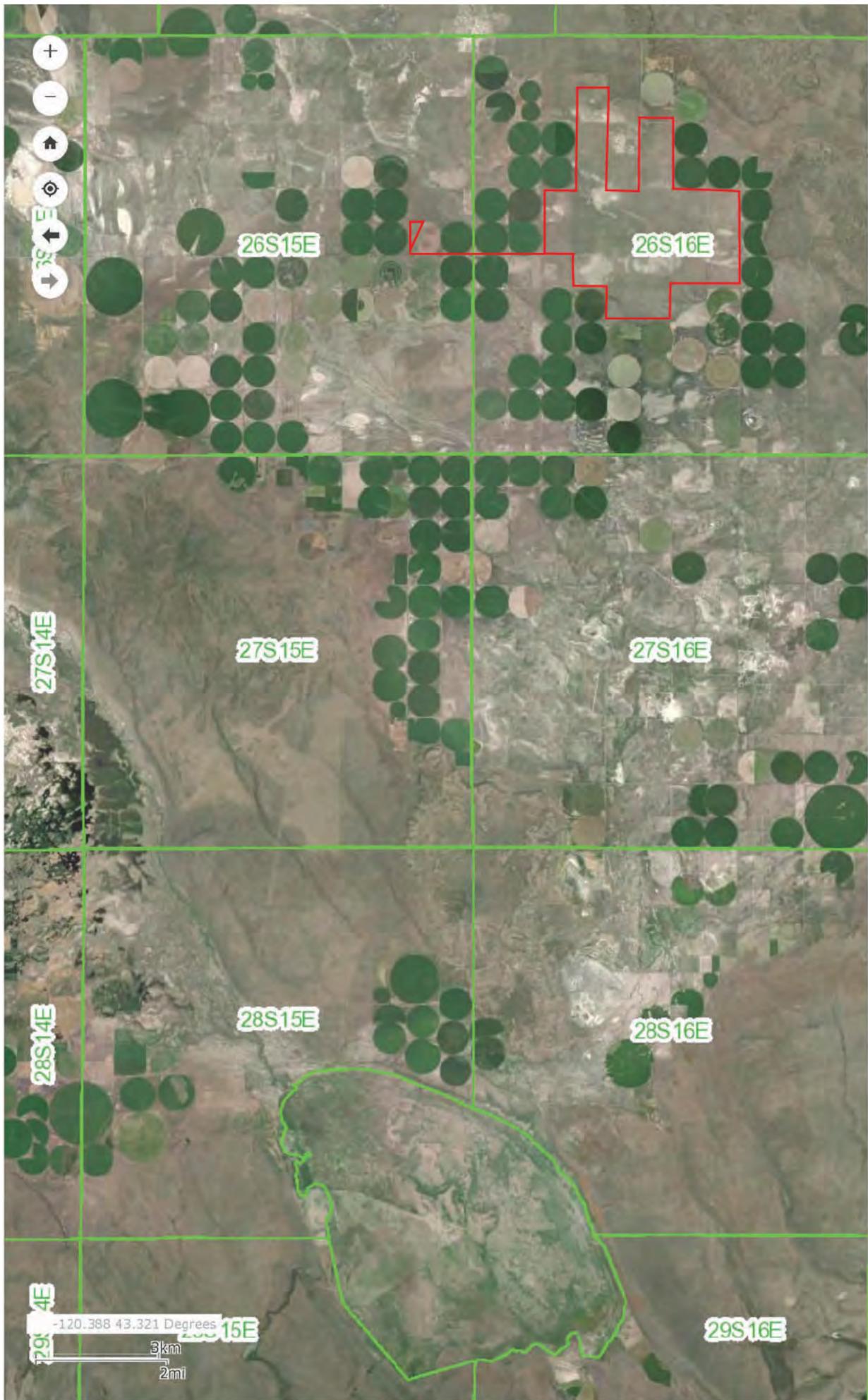
- I INDUSTRIAL
- RC RURAL COMMUNITY
- P PUBLIC
- RR RURAL RESIDENTIAL
- FR FARM RESIDENTIAL
- A AGRICULTURE
- F FOREST
- R RANGE
- △ POSSIBLE FUTURE USE
- ▭ FORT ROCK PLANNING AREA

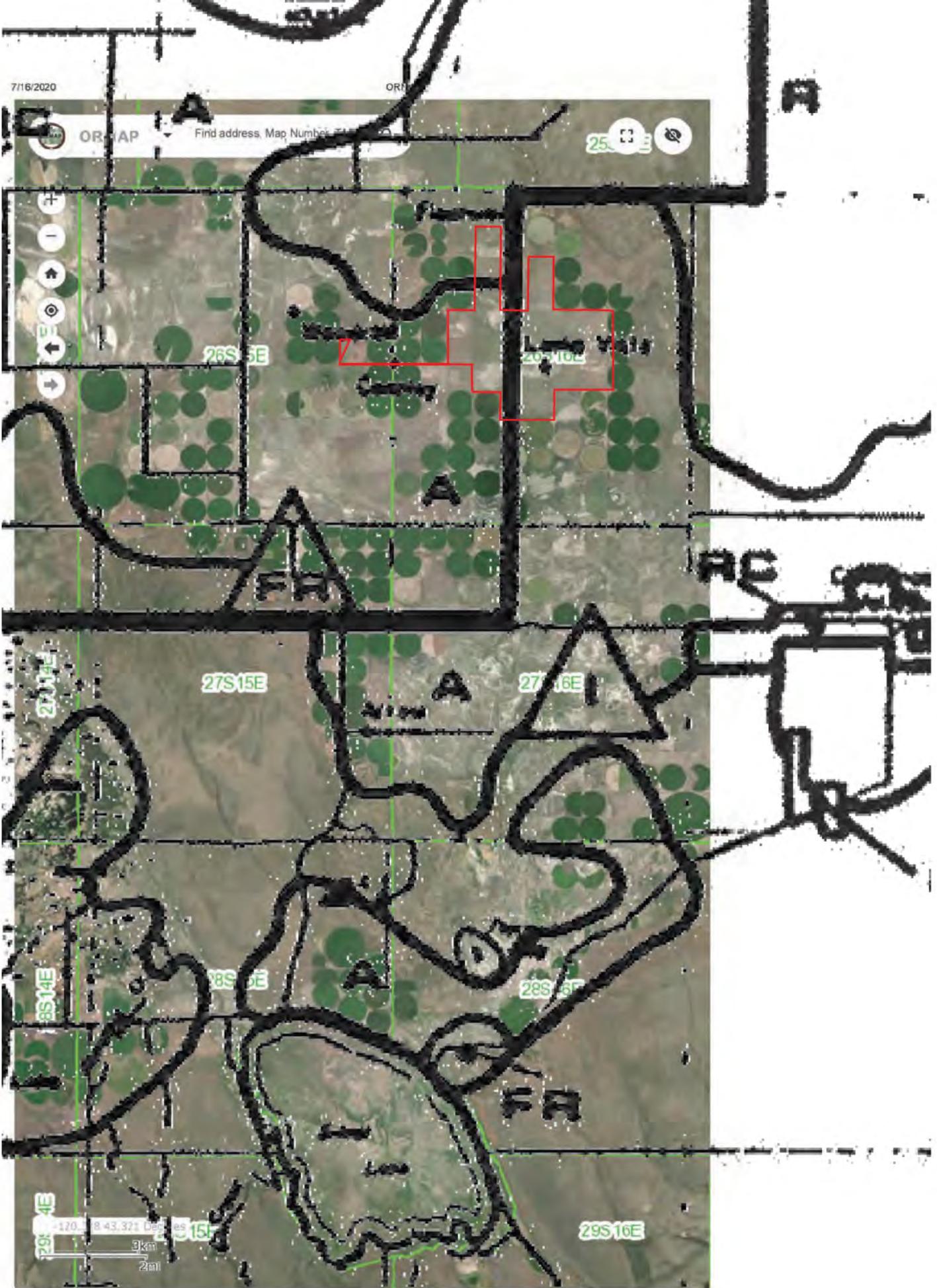
EFFECTIVE 7-1-80

LAND USE PLAN

NORTH LAKE COUNTY OREGON

north  scale in miles 





SCIENTIFIC REPORTS



OPEN

The Photovoltaic Heat Island Effect: Larger solar power plants increase local temperatures

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While photovoltaic (PV) renewable energy production has surged, concerns remain about whether or not PV power plants induce a “heat island” (PVHI) effect, much like the increase in ambient temperatures relative to wildlands generates an Urban Heat Island effect in cities. Transitions to PV plants alter the way that incoming energy is reflected back to the atmosphere or absorbed, stored, and reradiated because PV plants change the albedo, vegetation, and structure of the terrain. Prior work on the PVHI has been mostly theoretical or based upon simulated models. Furthermore, past empirical work has been limited in scope to a single biome. Because there are still large uncertainties surrounding the potential for a PHVI effect, we examined the PVHI empirically with experiments that spanned three biomes. We found temperatures over a PV plant were regularly 3–4 °C warmer than wildlands at night, which is in direct contrast to other studies based on models that suggested that PV systems should decrease ambient temperatures. Deducing the underlying cause and scale of the PVHI effect and identifying mitigation strategies are key in supporting decision-making regarding PV development, particularly in semiarid landscapes, which are among the most likely for large-scale PV installations.

Electricity production from large-scale photovoltaic (PV) installations has increased exponentially in recent decades^{1–3}. This proliferation in renewable energy portfolios and PV powerplants demonstrate an increase in the acceptance and cost-effectiveness of this technology^{4,5}. Corresponding with this upsurge in installation has been an increase in the assessment of the impacts of utility-scale PV^{4,6–8}, including those on the efficacy of PV to offset energy needs^{9,10}. A growing concern that remains understudied is whether or not PV installations cause a “heat island” (PVHI) effect that warms surrounding areas, thereby potentially influencing wildlife habitat, ecosystem function in wildlands, and human health and even home values in residential areas¹¹. As with the Urban Heat Island (UHI) effect, large PV power plants induce a landscape change that reduces albedo so that the modified landscape is darker and, therefore, less reflective. Lowering the terrestrial albedo from ~20% in natural deserts¹² to ~5% over PV panels¹³ alters the energy balance of absorption, storage, and release of short- and longwave radiation^{14,15}. However, several differences between the UHI and potential PVHI effects confound a simple comparison and produce competing hypotheses about whether or not large-scale PV installations will create a heat island effect. These include: (i) PV installations shade a portion of the ground and therefore could reduce heat absorption in surface soils¹⁶, (ii) PV panels are thin and have little heat capacity per unit area but PV modules emit thermal radiation both up and down, and this is particularly significant during the day when PV modules are often 20 °C warmer than ambient temperatures, (iii) vegetation is usually removed from PV power plants, reducing the amount of cooling due to transpiration¹⁴, (iv) electric power removes energy from PV power plants, and (v) PV panels reflect and absorb upwelling longwave radiation, and thus can prevent the soil from cooling as much as it might under a dark sky at night.

Public concerns over a PVHI effect have, in some cases, led to resistance to large-scale solar development. By some estimates, nearly half of recently proposed energy projects have been delayed or abandoned due to local opposition¹¹. Yet, there is a remarkable lack of data as to whether or not the PVHI effect is real or simply an issue

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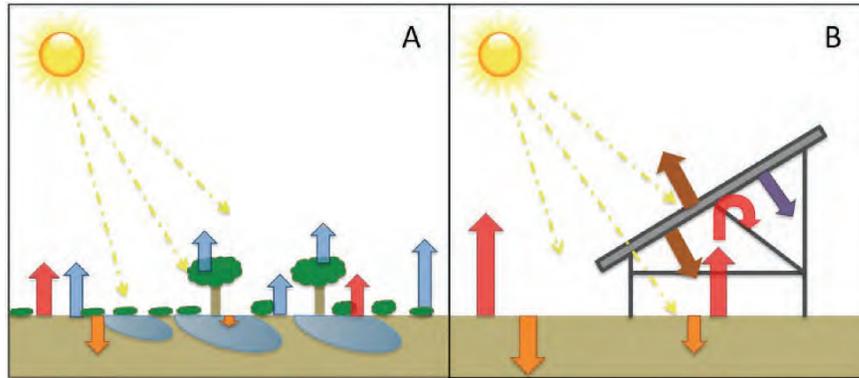


Figure 1. Illustration of midday energy exchange. Assuming equal rates of incoming energy from the sun, a transition from (A) a vegetated ecosystem to (B) a photovoltaic (PV) power plant installation will significantly alter the energy flux dynamics of the area. Within natural ecosystems, vegetation reduces heat capture and storage in soils (orange arrows), and infiltrated water and vegetation release heat-dissipating latent energy fluxes in the transition of water-to-water vapor to the atmosphere through evapotranspiration (blue arrows). These latent heat fluxes are dramatically reduced in typical PV installations, leading to greater sensible heat fluxes (red arrows). Energy re-radiation from PV panels (brown arrow) and energy transferred to electricity (purple arrow) are also shown.

associated with perceptions of environmental change caused by the installations that lead to “not in my backyard” (NIMBY) thinking. Some models have suggested that PV systems can actually cause a cooling effect on the local environment, depending on the efficiency and placement of the PV panels^{17,18}. But these studies are limited in their applicability when evaluating large-scale PV installations because they consider changes in albedo and energy exchange within an urban environment (rather than a natural ecosystem) or in European locations that are not representative of semiarid energy dynamics where large-scale PV installations are concentrated^{10,19}. Most previous research, then, is based on untested theory and numerical modeling. Therefore, the potential for a PVHI effect must be examined with empirical data obtained through rigorous experimental terms.

The significance of a PVHI effect depends on energy balance. Incoming solar energy typically is either reflected back to the atmosphere or absorbed, stored, and later re-radiated in the form of latent or sensible heat (Fig. 1)^{20,21}. Within natural ecosystems, vegetation reduces heat gain and storage in soils by creating surface shading, though the degree of shading varies among plant types²². Energy absorbed by vegetation and surface soils can be released as latent heat in the transition of liquid water to water vapor to the atmosphere through evapotranspiration – the combined water loss from soils (evaporation) and vegetation (transpiration). This heat-dissipating latent energy exchange is dramatically reduced in a typical PV installation (Fig. 1 transition from A-to-B), potentially leading to greater heat absorption by soils in PV installations. This increased absorption, in turn, could increase soil temperatures and lead to greater sensible heat efflux from the soil in the form of radiation and convection. Additionally, PV panel surfaces absorb more solar insolation due to a decreased albedo^{13,23,24}. PV panels will re-radiate most of this energy as longwave sensible heat and convert a lesser amount (~20%) of this energy into usable electricity. PV panels also allow some light energy to pass, which, again, in unvegetated soils will lead to greater heat absorption. This increased absorption could lead to greater sensible heat efflux from the soil that may be trapped under the PV panels. A PVHI effect would be the result of a detectable increase in sensible heat flux (atmospheric warming) resulting from an alteration in the balance of incoming and outgoing energy fluxes due to landscape transformation. Developing a full thermal model is challenging^{17,18,25}, and there are large uncertainties surrounding multiple terms including variations in albedo, cloud cover, seasonality in advection, and panel efficiency, which itself is dynamic and impacted by the local environment. These uncertainties are compounded by the lack of empirical data.

We addressed the paucity of direct quantification of a PVHI effect by simultaneously monitoring three sites that represent a natural desert ecosystem, the traditional built environment (parking lot surrounded by commercial buildings), and a PV power plant. We define a PVHI effect as the difference in ambient air temperature between the PV power plant and the desert landscape. Similarly, UHI is defined as the difference in temperature between the built environment and the desert. We reduced confounding effects of variability in local incoming energy, temperature, and precipitation by utilizing sites contained within a 1 km area.

At each site, we monitored air temperature continuously for over one year using aspirated temperature probes 2.5 m above the soil surface. Average annual temperature was $22.7 \pm 0.5^\circ\text{C}$ in the PV installation, while the nearby desert ecosystem was only $20.3 \pm 0.5^\circ\text{C}$, indicating a PVHI effect. Temperature differences between areas varied significantly depending on time of day and month of the year (Fig. 2), but the PV installation was always greater than or equal in temperature to other sites. As is the case with the UHI effect in dryland regions, the PVHI effect delayed the cooling of ambient temperatures in the evening, yielding the most significant difference in overnight temperatures across all seasons. Annual average midnight temperatures were $19.3 \pm 0.6^\circ\text{C}$ in the PV installation, while the nearby desert ecosystem was only $15.8 \pm 0.6^\circ\text{C}$. This PVHI effect was more significant in terms of actual degrees of warming ($+3.5^\circ\text{C}$) in warm months (Spring and Summer; Fig. 3, right).

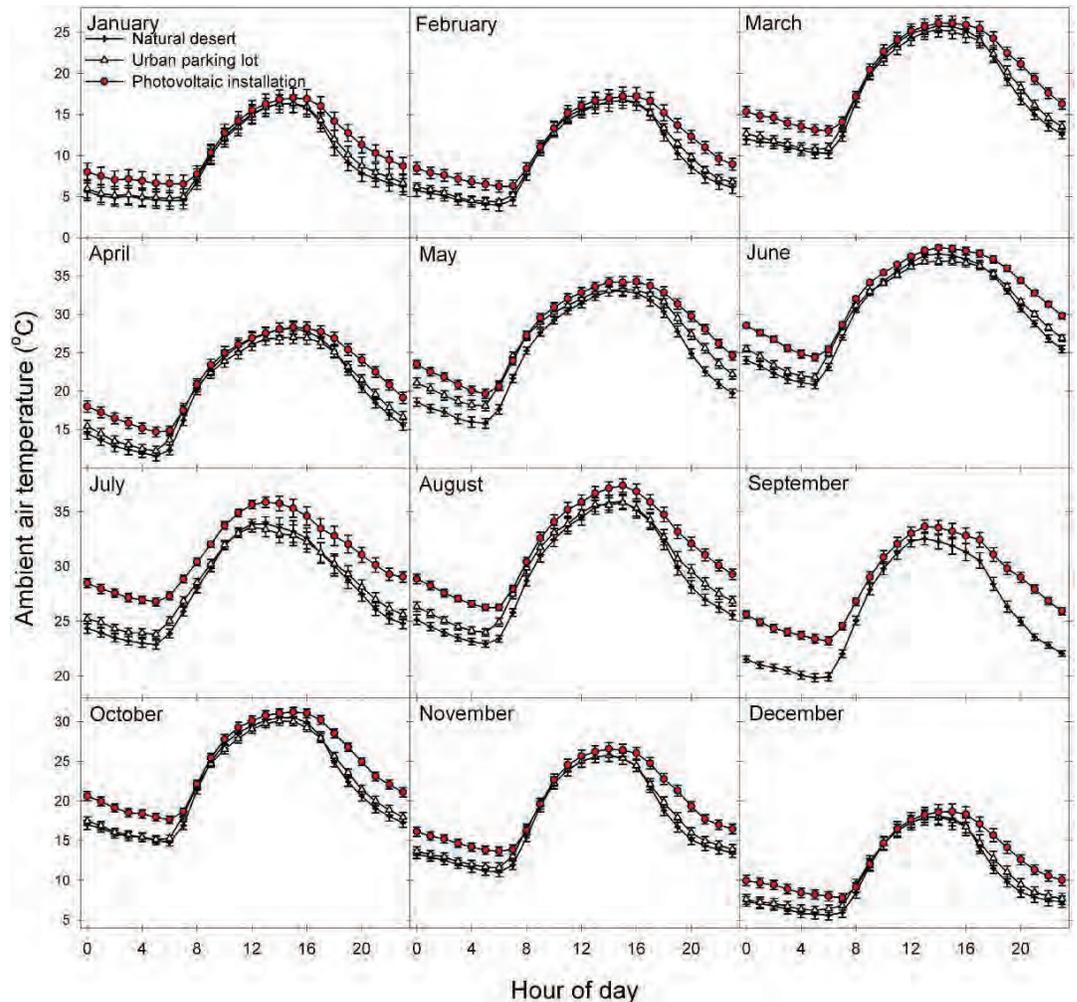


Figure 2. Average monthly ambient temperatures throughout a 24-hour period provide evidence of a photovoltaic heat island (PVHI) effect.

In both PVHI and UHI scenarios, the greater amount of exposed ground surfaces compared to natural systems absorbs a larger proportion of high-energy, shortwave solar radiation during the day. Combined with minimal rates of heat-dissipating transpiration from vegetation, a proportionally higher amount of stored energy is reradiated as longwave radiation during the night in the form of sensible heat (Fig. 1)¹⁵. Because PV installations introduce shading with a material that, itself, should not store much incoming radiation, one might hypothesize that the effect of a PVHI effect would be lesser than that of a UHI. Here, we found that the difference in evening ambient air temperature was consistently greater between the PV installation and the desert site than between the parking lot (UHI) and the desert site (Fig. 3). The PVHI effect caused ambient temperature to regularly approach or be in excess of 4 °C warmer than the natural desert in the evenings, essentially doubling the temperature increase due to UHI measured here. This more significant warming under the PVHI than the UHI may be due to heat trapping of re-radiated sensible heat flux under PV arrays at night. Daytime differences from the natural ecosystem were similar between the PV installation and urban parking lot areas, with the exception of the Spring and Summer months, when the PVHI effect was significantly greater than UHI in the day. During these warm seasons, average midnight temperatures were 25.5 ± 0.5 °C in the PV installation and 23.2 ± 0.5 °C in the parking lot, while the nearby desert ecosystem was only 21.4 ± 0.5 °C.

The results presented here demonstrate that the PVHI effect is real and can significantly increase temperatures over PV power plant installations relative to nearby wildlands. More detailed measurements of the underlying causes of the PVHI effect, potential mitigation strategies, and the relative influence of PVHI in the context of the intrinsic carbon offsets from the use of this renewable energy are needed. Thus, we raise several new questions and highlight critical unknowns requiring future research.

What is the physical basis of land transformations that might cause a PVHI?

We hypothesize that the PVHI effect results from the effective transition in how energy moves in and out of a PV installation versus a natural ecosystem. However, measuring the individual components of an energy flux model remains a necessary task. These measurements are difficult and expensive but, nevertheless, are indispensable in identifying the relative influence of multiple potential drivers of the PVHI effect found here. Environmental

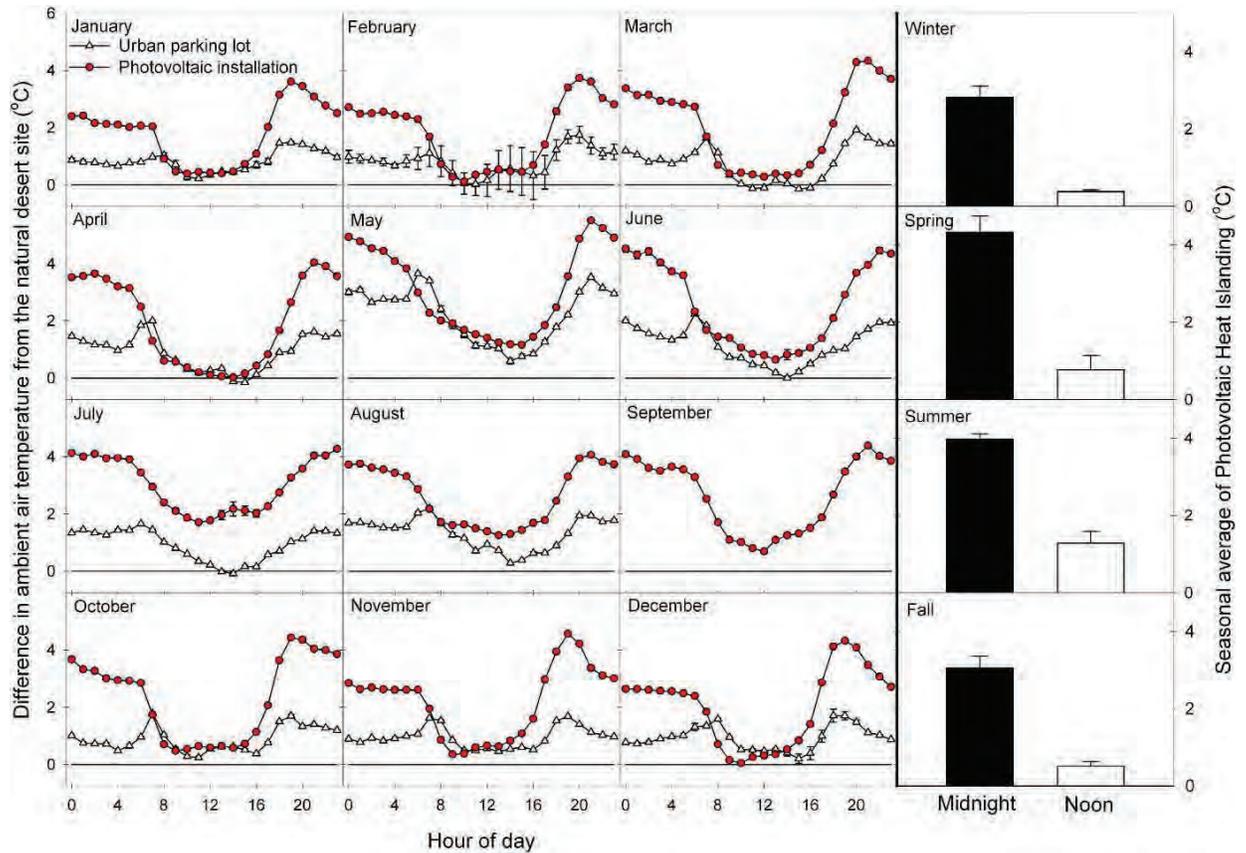


Figure 3. (Left) Average monthly levels of Photovoltaic Heat Islanding (ambient temperature difference between PV installation and desert) and Urban Heat Islanding (ambient temperature difference between the urban parking lot and the desert). (Right) Average night and day temperatures for four seasonal periods, illustrating a significant PVHI effect across all seasons, with the greatest influence on ambient temperatures at night.

conditions that determine patterns of ecosystem carbon, energy, and water dynamics are driven by the means through which incoming energy is reflected or absorbed. Because we lack fundamental knowledge of the changes in surface energy fluxes and microclimates of ecosystems undergoing this land use change, we have little ability to predict the implications in terms of carbon or water cycling^{4,8}.

What are the physical implications of a PVHI, and how do they vary by region?

The size of an UHI is determined by properties of the city, including total population^{26–28}, spatial extent, and the geographic location of that city^{29–31}. We should, similarly, consider the spatial scale and geographic position of a PV installation when considering the presence and importance of the PVHI effect. Remote sensing could be coupled with ground-based measurements to determine the lateral and vertical extent of the PVHI effect. We could then determine if the size of the PVHI effect scales with some measure of the power plant (for example, panel density or spatial footprint) and whether or not a PVHI effect reaches surrounding areas like wildlands and neighborhoods. Given that different regions around the globe each have distinct background levels of vegetative ground cover and thermodynamic patterns of latent and sensible heat exchange, it is possible that a transition from a natural wildland to a typical PV power plant will have different outcomes than demonstrated here. The paucity in data on the physical effects of this important and growing land use and land cover change warrants more studies from representative ecosystems.

What are the human implications of a PVHI, and how might we mitigate these effects?

With the growing popularity of renewable energy production, the boundaries between residential areas and larger-scale PV installations are decreasing. In fact, closer proximity with residential areas is leading to increased calls for zoning and city planning codes for larger PV installations^{32,33}, and PVHI-based concerns over potential reductions in real estate value or health issues tied to Human Thermal Comfort (HTC)³⁴. Mitigation of a PVHI effect through targeted revegetation could have synergistic effects in easing ecosystem degradation associated with development of a utility scale PV site and increasing the collective ecosystem services associated with an area⁴. But what are the best mitigation measures? What tradeoffs exist in terms of various means of revegetating degraded PV installations? Can other albedo modifications be used to moderate the severity of the PVHI?



Figure 4. Experimental sites. Monitoring a (1) natural semiarid desert ecosystem, (2) solar (PV) photovoltaic installation, and (3) an “urban” parking lot – the typical source of urban heat islanding – within a 1 km² area enabled relative control for the incoming solar energy, allowing us to quantify variation in the localized temperature of these three environments over a year-long time period. The Google Earth image shows the University of Arizona’s Science and Technology Park’s Solar Zone.

To fully contextualize these findings in terms of global warming, one needs to consider the relative significance of the (globally averaged) decrease in albedo due to PV power plants and their associated warming from the PVHI against the carbon dioxide emission reductions associated with PV power plants. The data presented here represents the first experimental and empirical examination of the presence of a heat island effect associated with PV power plants. An integrated approach to the physical and social dimensions of the PVHI is key in supporting decision-making regarding PV development.

Methods

Site Description. We simultaneously monitored a suite of sites that represent the traditional built urban environment (a parking lot) and the transformation from a natural system (undeveloped desert) to a 1 MW PV power plant (Fig. 4; Map data: Google). To minimize confounding effects of variability in local incoming energy, temperature, and precipitation, we identified sites within a 1 km area. All sites were within the boundaries of the University of Arizona Science and Technology Park Solar Zone (32.092150°N, 110.808764°W; elevation: 888 m ASL). Within a 200 m diameter of the semiarid desert site’s environmental monitoring station, the area is composed of a sparse mix of semiarid grasses (*Sporobolus wrightii*, *Eragrostis lehmanniana*, and *Muhlenbergia porteri*), cacti (*Opuntia* spp. and *Ferocactus* spp.), and occasional woody shrubs including creosote bush (*Larrea tridentata*), whitethorn acacia (*Acacia constricta*), and velvet mesquite (*Prosopis velutina*). The remaining area is bare soil. These species commonly co-occur on low elevation desert bajadas, creosote bush flats, and semiarid grasslands. The photovoltaic installation was put in place in early 2011, three full years prior when we initiated monitoring at the site. We maintained the measurement installations for one full year to capture seasonal variation due to sun angle and extremes associated with hot and cold periods. Panels rest on a single-axis tracker system that pivot east-to-west throughout the day. A parking lot with associated building served as our “urban” site and is of comparable spatial scale as our PV site.

Monitoring Equipment & Variables Monitored. Ambient air temperature (°C) was measured with a shaded, aspirated temperature probe 2.5 m above the soil surface (Vaisala HMP60, Vaisala, Helsinki, Finland in the desert and Microdaq U23, Onset, Bourne, MA in the parking lot). Temperature probes were cross-validated for precision (closeness of temperature readings across all probes) at the onset of the experiment. Measurements of temperature were recorded at 30-minute intervals throughout a 24-hour day. Data were recorded on a data-logger (CR1000, Campbell Scientific, Logan, Utah or Microstation, Onset, Bourne, MA). Data from this

instrument array is shown for a yearlong period from April 2014 through March 2015. Data from the parking lot was lost for September 2014 because of power supply issues with the datalogger.

Statistical analysis. Monthly averages of hourly (on-the-hour) data were used to compare across the natural semiarid desert, urban, and PV sites. A Photovoltaic Heat Island (PVHI) effect was calculated as differences in these hourly averages between the PV site and the natural desert site, and estimates of Urban Heat Island (UHI) effect was calculated as differences in hourly averages between the urban parking lot site and the natural desert site. We used midnight and noon values to examine maximum and minimum, respectively, differences in temperatures among the three measurement sites and to test for significance of heat islanding at these times. Comparisons among the sites were made using Tukey's honestly significant difference (HSD) test³⁵. Standard errors to calculate HSD were made using pooled midnight and noon values across seasonal periods of winter (January-March), spring (April-June), summer (July-September), and fall (October-December). Seasonal analyses allowed us to identify variation throughout a yearlong period and relate patterns of PVHI or UHI effects with seasons of high or low average temperature to examine correlations between background environmental parameters and localized heat islanding.

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Author Contributions

G.A.B.-G., R.L.M. and N.A.A. established research sites and installed monitoring equipment. G.A.B.-G. directed research and R.L.M. conducted most site maintenance. G.A.B.-G., N.A.A., A.D.C. and M.A.P.-Z. led efforts to secure funding for the research. All authors discussed the results and contributed to the manuscript.

Additional Information

Competing financial interests: The authors declare no competing financial interests.

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MATA Michiko * ODOE

From: TARDAEWETHER Kellen * ODOE
Sent: Monday, July 20, 2020 4:00 PM
To: MATA Michiko * ODOE
Subject: FW: Objection to ASC for Obsidian Solar Center (Exhibits Email 3)
Attachments: FRN - Combined Exhibits Part 3 of 3- 07.20.2020.pdf

From: Mike Reeder <mreeder@oregonlanduse.com>
Sent: Monday, July 20, 2020 3:10 PM
To: TARDAEWETHER Kellen * ODOE <Kellen.Tardaewether@oregon.gov>
Cc: aaron@noteboomlaw.com
Subject: FW: Objection to ASC for Obsidian Solar Center (Exhibits Email 3)



Law Office of Mike Reeder
Oregon Land Use Law

Office: (458) 210-2845 | oregonlanduse.com
375 W. 4th Ave., Suite 205, Eugene, OR 97401

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From: Aaron Noteboom <aaron@noteboomlaw.com>
Sent: Monday, July 20, 2020 2:12 PM
To: TARDAEWETHER Kellen * ODOE <Kellen.Tardaewether@oregon.gov>
Cc: ROWE Patrick G <Patrick.G.ROWE@state.or.us>; Mike Reeder <mreeder@oregonlanduse.com>
Subject: Objection to ASC for Obsidian Solar Center (Exhibits Email 3)

Sending Exhibits Email 3

Aaron Noteboom | Attorney at Law
Noteboom Law LLC
375 W 4th Ave, Ste 204 | Eugene, Oregon 97401
Ph: (541) 513-2298 | aaron@noteboomlaw.com

May 18, 2020

Dear Mr. Simmons,

Per our conversation please find the attached Letter of opinion based on comparative valuation. Due to the lack of like kind homes in your immediate area it was necessary to extrapolate values from like use properties within a roughly 55 mile radius, having similar Gross Living Area (GLA), room count, build features and/or recent updates as well as additional acreage above and beyond the immediate home site. All of these homes have similar rural locations, and primary use is residential.

Purpose and Intent: This letter of opinion is provided in the normal course of the undersigned real estate licensee's, business and is intended to express only the licensees' recommended listing, selling or purchase price for the specific property described below. As requested a current day value without the environmental obsolescence of the solar farm will be provided as well as an impact statement

This letter of opinion has been made only in pursuit of the normal course of business to obtain a listing or to assist a potential buyer in formulating an offer. It has not been made for the purpose of submission as evidence of value to a court or administrative body.

THIS LETTER OPINION IS NOT INTENDED AS AN APPRAISAL.

If an appraisal is desired, the services of a competent professional licensed appraiser should be obtained. The undersigned licensee is not licensed by the Appraisal Certification and Licensure Board and this report is not intended to meet the requirements set out in the Uniform Standards of Appraisal Practice.

Description of the Subject Property:

Tax Map/Lot: 26S-16E-00-00/02902, AP Acct# 1160, in Lake County, Oregon; commonly known as 61040 Oil Dri Rd., Silver Lake, OR 97638.

Sited to take in the territorial views, Subject is located on the hillside overlooking agricultural fields and mature sage below it. The Subject property is a 2015/16 custom built Pacific Northwest ranch style home with lodge style accents. Built using energy saving green design and features, the home is comprised of double wall construction with added insulation and wood batt-n-board siding as well as a heavy duty composition shingle roof. The oversize windows are dual pane low-e windows for added energy savings and efficient heating and cooling. The exterior of the home offers pave stone and stamped concrete porch and an expansive rear patio to take in the territorial views. There is a detached 1728 Sq Ft shop that is completely insulated and heated and offers a bathroom to wash up in when mid project as well as an office/hobby area that takes in the surrounding views. There is an additional 12' wide lean to along the side of the shop that allows for RV storage.

Inside the home, there is approximately 2300+/- square feet of living area in the main dwelling which has been positioned for maximum enjoyment of the views. From the front door step into an open great

room with vaulted ceilings, wood beam accents, solid wood doors and trim as well as wood wrapped windows and doors and a LP gas fireplace. Across the room a wall of windows provides a full unobstructed view of the fields below to Table Rock. . The kitchen has solid surface countertops, full tile backsplash, custom knotty alder cabinetry and state of the art appliances with a spacious dining area. Oversized glass doors between the dining area and great room open to the rear patio. The Master suite offers a like view, has an ensuite bath with custom tile shower and generous walk-in closet.

Functional, Economic, or Environmental conditions that may impact the value of the property.

Broker has noted an increase in demand for parcels outside of urban and suburban areas recently due to health concerns created by denser living conditions in more developed City Centers. It is possible that a future trend will be people moving to more rural areas and adopting tele-commuting/work from home as a course of normal business. This trend would cause increased demand for properties such as the subject and increase the potential realized value. However, the proposed large scale solar site below the subject has the potential to create a negative environmental and economic impact on the subject both during and after development.

The planned solar site is a “Mega” site over 3000 acres and of the largest proposed in the Nation at this time. Current solar sites in the state have been less than 500 acres and have had a less visible footprint. During the construction phase, the ongoing disturbance will include, dust, noise and work lighting. Solar sites are often a 24 hour/day development with workers coming and going in shifts due to the rural location and the lack of city limitations on stop and start times for noise and construction. The proposed project is not short term and this negative impact will continue for years creating a visual and audible blight on the subject property. While, there are no studies or existing documentation for the potential environmental and economic impact created by millions of solar panels and their corresponding battery storage buildings, (which are literally the size of a 2 story single family residence) there are impact and perception studies for smaller less overt projects; all of which indicate a perceived notion of decreased value and desirability for those homes located near solar sites. The proposed solar site is not capable of being screened and the subject property will experience negative and irrevocable environmental obsolescence from the loss of the views the home was designed and sited for. Additionally, the lighting required to secure these fields and battery storage houses is not dark sky compliant and will create a visual blight at night from the subject property. The loss in value will of course be a negative economic impact and the realized sales value due to this cannot easily be calculated. Studies of other smaller sites have seen losses the equivalent of 23-40% of the pre-site development value. Regardless of stage of development the proposed site should be disclosed to any future buyer and will weigh in on their purchase decision. The Disclosure of the site and any visible development will usually add to project Days on Market as well. .

Basis of Reasoning and Price Conclusion: There were limited comparable properties in the immediate vicinity of the subject, therefore the probable sales value of the subject was calculated using the sales comparison/market value approach using similar rural properties of a primary residential use, within a 55 mile radius. Comparable properties were selected based on similar gross living area, (not exceeding a 20% variance), having a similar room count, of custom or individualized build and with similar build components, and having been built of a like age or updated in the past 5-10 years. All comparable properties offer a similar detached shop or general purpose building. While this value is based on

recent past sales, current economic and area trends can impact these estimates and cannot always be reflected herein.

Limiting Conditions

Any “value” or price statement in this letter is the estimated worth of or price for the specific property described above and is given only in the context of advising a potential seller or buyer. Such statements are not intended to mean or imply the “value” was arrived at by any method of appraisal. Again the impact of current health safety and economic conditions have not been addressed in this valuation and can have immediate and future impact. Additionally, the value provided herein is based on the current condition of the subject and it’s placement to maximize the views and vistas of its location. Please note the statement of opinion regarding environmental obsolescence as it relates to possible future impact to this property.

Statement of Personal Interest

The undersigned real estate licensee has no existing or contemplated interest in the subject property. However, it is not unheard of for new clients/buyers to be obtained that may have an interest and licensee will disclose those interests should they become viable.

DocuSigned by:

_____, 5/18/2020
Catherine “Cat” Zwicker OR lic. # 200110190
64CD7BF6CB6D4BE...

VALUATION WORKBOOK

61040 Oil Dri Rd, Silver Lake, OR 97638



Photo from Cat Zwicker



Presented by

Cat Zwicker | REALTOR® | ABR, CRS

Oregon Real Estate License: 200110190

Oregon Appraiser License: 200110190

File ID: 61040 Oil Dri Rd, Silver Lake, OR 97638



Work: (541) 410-9592 Mobile: (541) 410-9592

Mail: Catz.dsre@gmail.com

Office: <http://www.DesertSkyRealEstate.com>

Desert Sky Real Estate, LLC
1655 SW High and Ave
Suite 1
Redmond, OR 97756

61040 Oil Dri Rd, Silver Lake, OR 97638

Listing Date: -
MLS Name: -
MLS Listing ID: -



Legend: ★ Subject Property

OFF MARKET • Public Record

Result of Sales Comparison Analysis

\$683,585 (or \$297 / sq ft)

Last Analysis Update: 5/19/2020

\$376,500 – \$930,000

(or \$164 – \$404 / sq ft)

Number of Comps Chosen

5

Comps Range

\$359,000 – \$965,000

This report contains data and information that is publicly available and/or licensed from third parties and is provided to you on an "as is" and "as available" basis. The information is not verified or guaranteed. Neither this report nor the estimated value of a property is an appraisal of the property. Any valuation shown in this report has been generated by use of proprietary computer software that assembles publicly available property records and certain proprietary data to arrive at an approximate estimate of a property's value. Some portions of this report may have been provided by an RPR user; RPR is not responsible for any content provided by its users. RPR and its information providers shall not be liable for any claim or loss resulting from the content of, or errors or omissions in, information contained in this report.

Homeowner Facts

Owner Name (Public)

Simmons Jerald N & Verlinda J

Mailing Address

Po Box 88 Christmas Valley OR 97641-0088

61040 Oil Dri Rd, Silver Lake, OR 97638

Lst ng Date: -
MLS Name: -
MLS Lst ng ID: -

Home Facts	Pub c Facts	L st ng Facts	Ref nements
Sample/Finance Concession	-	-	-
Property Type	Single Family Residence		-
Property Subtype	Single Family Residential (Assumed)		-
Total Rooms	6	-	-
Total Rooms Above Grade	-	-	-
Bedrooms	4	-	-
Bedrooms Above Grade	-	-	-
Living Area sq ft range (low)	-	-	-
Living Area sq ft range (high)	-	-	-
Total Baths	2.1	-	-
Total Baths Above Grade	-	-	-
Full Baths	2	-	-
Full Baths Above Grade	-	-	-
Partial Baths	1	-	-
Partial Baths Above Grade	-	-	-
Living Area (sq ft)	-	-	2,300
Living Area Above Grade (sq ft)	-	-	-
Basement (sq ft)	-	-	-
Finished Rooms Below Grade	-	-	-
Lot Size	45 acres	-	-
Lot Dimensions	45.000 AC	-	-
Garage	-	-	Yes
Garage (sq ft)	-	-	578
Pool	-	-	-
Location	-	-	Rural
Tenure	-	-	Fee Simple
View	-	-	Beneficial
View Factors	-	-	Territorial / Terrain
Style	-	-	Northwest Lodge
Quality of Construction	-	-	Q2
Year Built	-	-	2015
Age	-	-	5
Condition	-	-	C2
Functionality	-	-	Excellent
Heating Features	-	-	Radiant in floor, propane, electric
Cooling Features	-	-	wired for heat pump
Energy Efficient Items	-	-	elevated R-values, double wall construction
Porch/Patio/Deck	-	-	Concrete patios and porches.
Roofing Features	-	-	-
Repairs	-	-	-
Basement Features	-	-	-
Foundation Features	-	-	-
Construction Features	-	-	-
Exterior Wall Features	-	-	-
Number of Buildings	-	-	2
Number of Units	-	-	-
Number of Stories	1	-	-
Detached Shop Bldg.	-	-	1728 sq ft Shop Bldg
Lean to for RV storage	-	-	672 sq ft

Property History

Legal Description

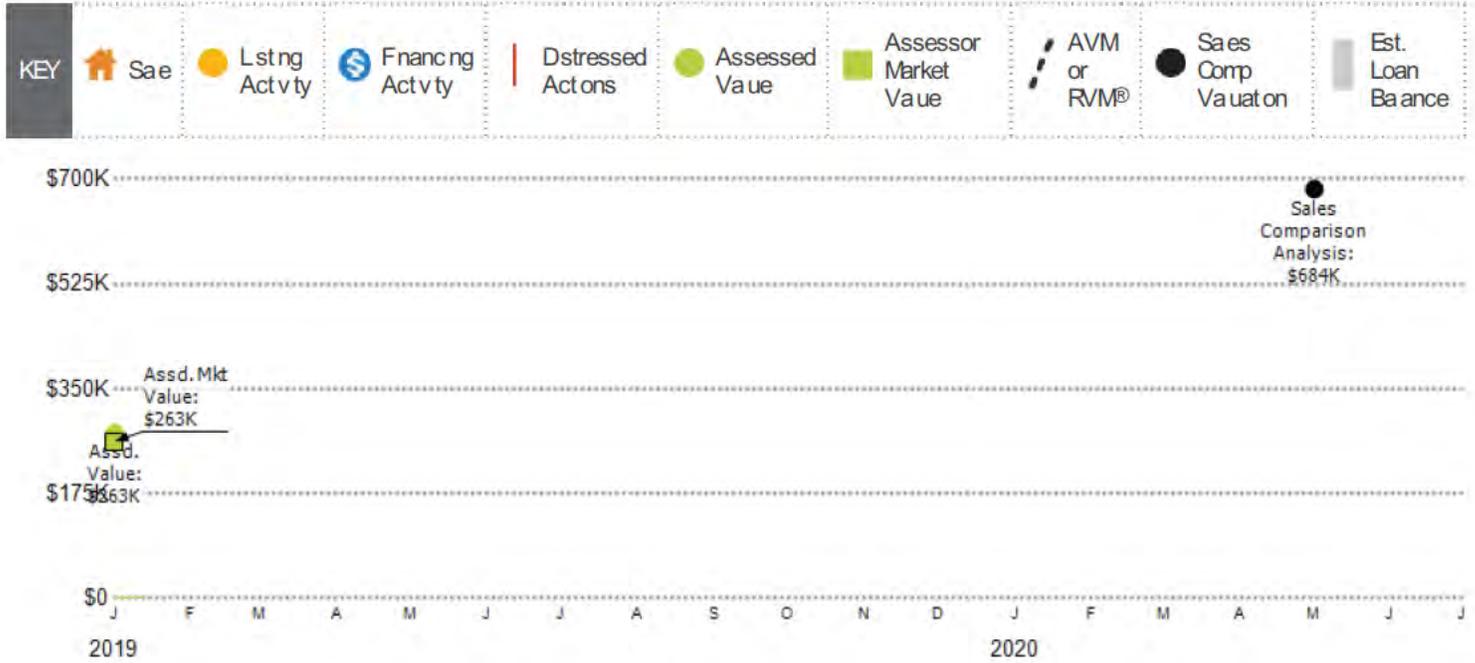
APN:	26S16E000002902
Tax ID:	1160
Zoning:	—
Abbreviated Description:	—
Census Tract:	410379601.001241
City/Municipality/Township:	—

Tax and Assessed Values

Date	Improvements	Land	Total	Tax
2019	— +	—	\$262,540	\$3,024
2018	— +	—	—	—
2017	— +	—	—	—
2016	— +	—	—	—
2015	— +	—	—	—
2014	— +	—	—	—
2012	— +	—	—	—
2011	— +	—	—	—
2010	— +	—	—	—
2009	— +	—	—	—

Sales and Financing Activity

This chart shows a property's sales and financing history. It can be used to compare the value of the property as seen by public records, such as deeds and tax records, with the estimated home value. Actions taken against the owner, such as the issuance of a Notice of Default, are noted. Sales activity, such as listing date and price reductions, are highlighted.



Data Source: Public records and proprietary data; listing data from on- and off-market listings sources

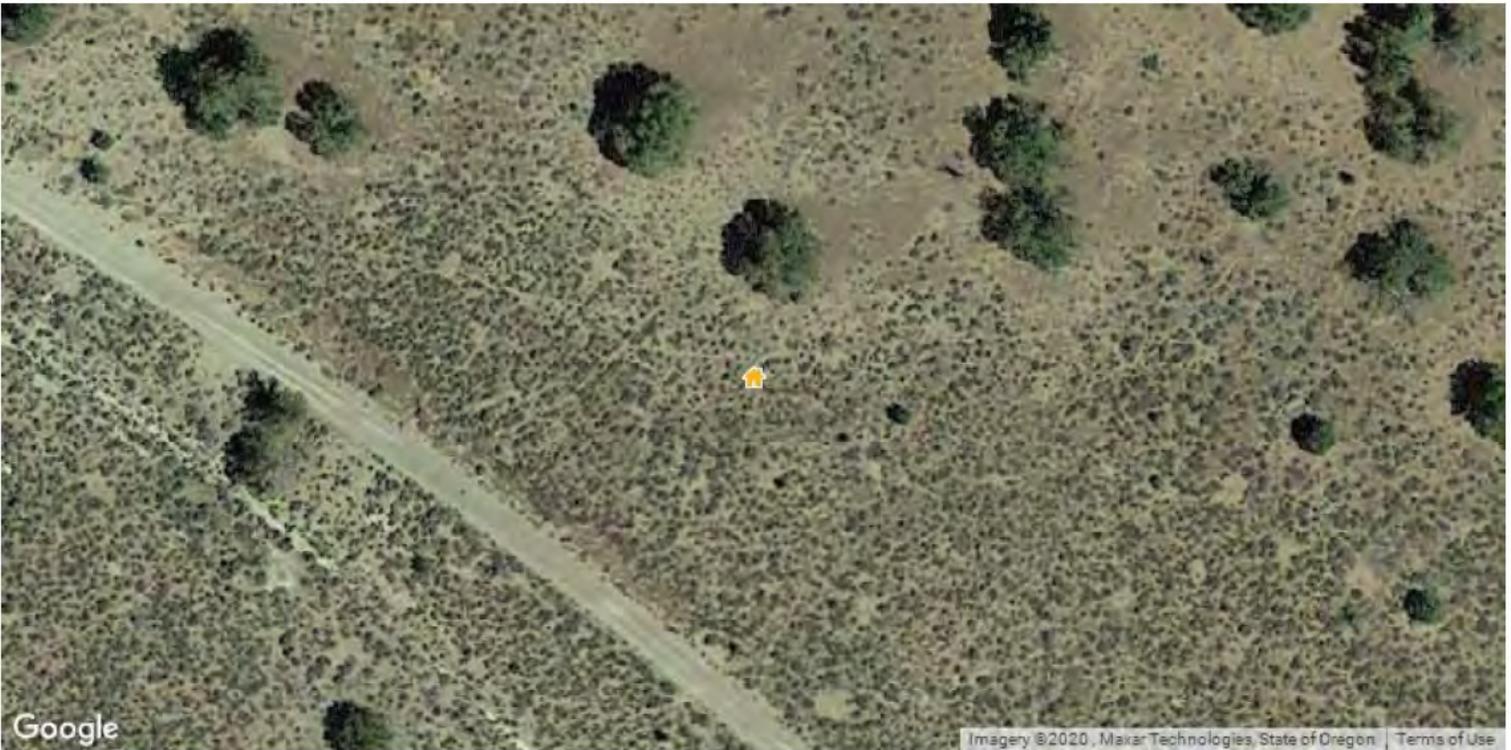
Update Frequency: Valuations are updated twice monthly; actions on the home, such as listing activity or distressed property notices, are updated daily as made available from public records sources

Aerial Map



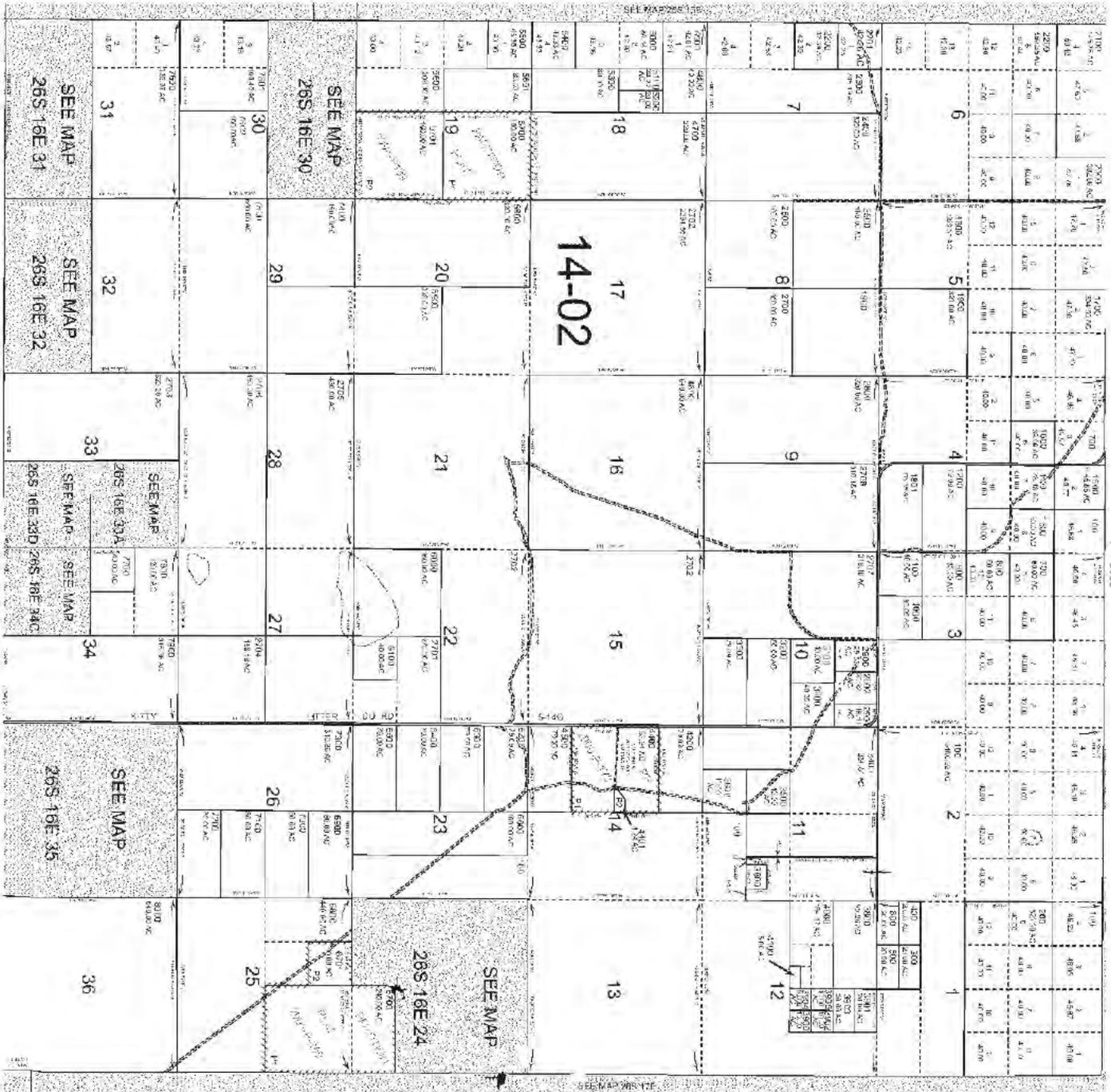
Legend: 🏠 Subject Property

Birdseye Map



Legend: 🏠 Subject Property

Plat Map



THIS MAP WAS PREPARED FOR
ASSESSMENT PURPOSE ONLY

T26S R16E W.M.
LAKE COUNTY
- 2000

26S16E

LOA T26S R16E W.M. - 2000

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26S16E

Sales Comparables Analysis Summary

Result of Sales Comparison Analysis

\$683,585 (or \$297 / sq ft)

Last Analysis Update: 5/19/2020

\$376,500 – \$930,000

(or \$164 – \$404 / sq ft)

Number of Comps Chosen

5

Comps Range

\$359,000 – \$965,000

Current Range of Comparable Homes

Compares the estimated value of the subject property with the comps selected in the Sales Comparison Analysis.

Comps:

- Subject Property (Appraisal Price)
- For Sale (List Price)
- Pending (List Price)
- Recently Sold (Sold Price)
- Distressed (List Price)
- Pending Distressed (List Price)
- Off Market (Estimate)

Historical Range of Comparable Homes

Compares the estimated value of the subject property with the highest, median and lowest comps selected in the Sales Comparison Analysis.



Comps and Adjustments Map

61040 Oil Dri Rd, Silver Lake, OR 97638

OFF MARKET
Public Record



Price: **—**

4 bed
2.1 bath
2,300 sq ft

24395 Dodds Rd, Bend, OR 97701

RECENTLY SOLD
Sold Date: 3/17/2020 - MLS Listing 201911060: 12/30



Price: **\$640,000**
Adjusted: **\$572,500**

3 bed
2.0 bath
2,211 sq ft

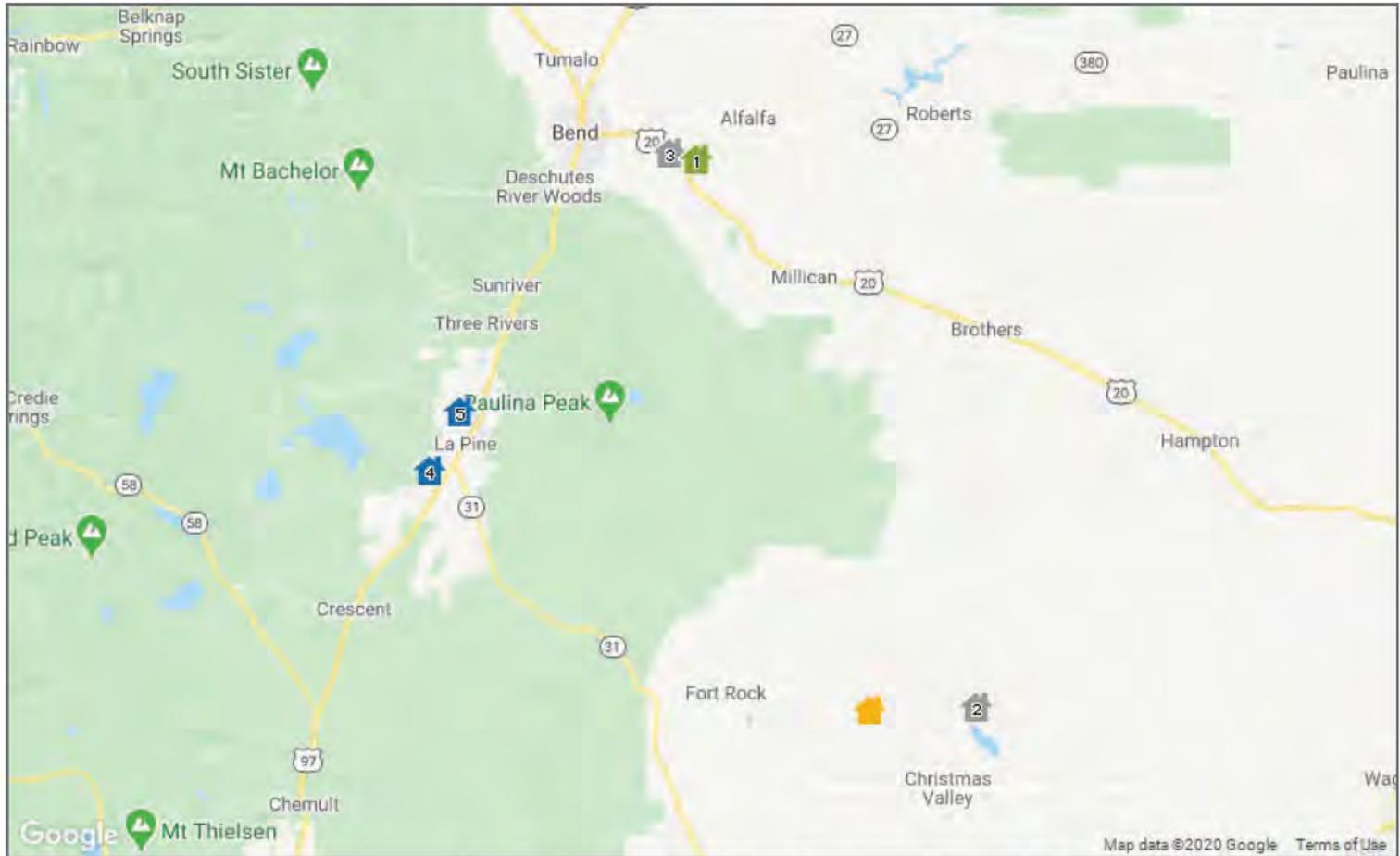
60282 Millican Rd, Christmas Valley, OR 97641

GOLD
Sold Date: 3/29/2019 - MLS Listing 201900984: 2/12/20



Price: **\$359,000**
Adjusted: **\$376,500**

3 bed
2.1 bath
2,688 sq ft



23549 Highway 20, Bend, OR 97701

SOLD
Sold Date: 4/17/2019 - MLS Listing 201805258: 5/29/20



Price: **\$799,900**
Adjusted: **\$724,900**

3 bed
3.0 bath
2,458 sq ft

50552 Deer Forest Dr, La Pine, OR 97739

FOR SALE
Active: 1/28/2019



Price: **\$925,000**
Adjusted: **\$880,000**

3 bed
2.1 bath
2,610 sq ft

52518 Meadow Ln, La Pine, OR 97739

FOR SALE
Active: 3/14/2020



Price: **\$965,000**
Adjusted: **\$930,000**

3 bed
2.1 bath
2,408 sq ft

Comps Selected In Analysis

Comps Selected In Analysis			
Address	61040 O Dr Rd Silver Lake, OR 97638	24395 Dodds Rd Bend, OR 97701	60282 Mountain Rd Christmas Valley, OR 97641
Status	 Subject Property	 Recently Sold	 Sold
MLS Name	—	MLS of Central Oregon Association of REALTORS®	MLS of Central Oregon Association of REALTORS®
MLS Listing ID	—	201911060	201900984
Proximity	—	49.91 Miles NW	9.27 Miles E
Value	\$683,585	\$640,000	\$359,000
Price Per Sq. Ft.	\$297	\$289	\$134
Sales/Finance Concession	—	—	—
Property Type	Single Family Residence	Single Family Residence	Single Family Residence
Property Subtype	Single Family Residential (Assumed)	Single Family Residence	Single Family Residence
Total Rooms	6	7	7
Total Rooms Above Grade	—	7	7
Bedrooms	4	3	3
Bedrooms Above Grade	—	3	3
Living Area sq ft range (low)	—	—	—
Living Area sq ft range (high)	—	—	—
Total Baths	2.1	2.0	2.1
Total Baths Above Grade	—	2.0	2.1
Full Baths	2	2	2
Full Baths Above Grade	—	2	2
Partial Baths	1	—	1
Partial Baths Above Grade	—	0	1
Living Area (sq ft)	2,300	2,211	2,688
Living Area Above Grade (sq ft)	—	2,211	2,688
Basement (sq ft)	—	0	0
Finished Rooms Below Grade	—	0	0
Lot Size	45 acres	40 acres	20 acres
Lot Dimensions	45.000 AC	39.620 AC	20.000 AC
Garage	Yes	Yes	Yes
Garage (sq ft)	578	676	926
Pool	—	No	No
Location	Rural	Rural	Rural
Tenure	Fee Simple	Fee Simple	Fee Simple
View	Beneficial	Beneficial	Beneficial
View Factors	Territorial / Terran	Mountain View, Territorial	Territorial / Terran
Style	Northwest Lodge	Contemporary Ranch	Traditional 2 story
Quality of Construction	Q2	Q3	Q3

Comps Selected In Analysis



Address	61040 O Dr Rd S ver Lake, OR 97638	24395 Dodds Rd Bend, OR 97701	60282 Mountain Rd Christmas Valley, OR 97641
Status	🏠 Subject Property	🏠 Recently Sold	🏠 Sold
Year Built	2015	2001	2000
Age	5	19	20
Condition	C2	C3	C3
Functionality	Excellent	Good	Good
Heating Features	Radiant in floor, propane, electric	Electric, Forced Air, Heat Pump	Heat Pump, Pellet Stove
Cooling Features	wired for heat pump	Heat Pump(S)	Heat Pump(S)
Energy Efficient Items	insulated R-values, double wall construction	-	-
Porch/Patio/Deck	Concrete patios and porches	-	Pave stone patios and porch
Roofing Features	-	Composition	Composition
Fireplaces	-	1	Living Room
Basement Features	-	None	None
Foundation Features	-	Stemwall	Stemwall
Construction Features	-	Frame	Frame
Exterior Wall Features	-	Wood/ Siding	Wood / Lap siding
Number of Buildings	2	2	2
Number of Units	-	-	-
Number of Stories	1	1	2
Detached Shop Bldg.	1728 sq ft Shop Bldg	1152 Sq Ft Shop Bldg	1728 Sq Ft Shop Bldg.
Lean to for RV storage	672 sq ft	1600 Sq Ft Hay cover	252 Sq Ft Shed, 168 sq ft pump house
Net Adjustments (%)		-10.55%	+4.87%
Gross Adjustments (%)		12.89%	4.87%
Net Adjustments		-\$67,500	+\$17,500
Net Adjustments Per Sq. Ft.		-\$30	+\$6
Net Adjusted Value		\$572,500	\$376,500
Net Adjusted Value Per Sq. Ft.		\$259	\$140
Comp Weighting		35%	15%
Notes from Cat Zwickler		Most similar to subject in overall Gross Living Area (GLA), room count, similar outdoor building configuration and acreage and rural location. Superior on y due to accessibility to Bend amenities and infrastructure, Comparable was bank-Real Estate Owned (REO) sale. Inferior quality due to deferred maintenance and normal wear and tear based on age. Superior 9.64 Acres of Irrigation not confirmed as active right at time of sale.	Like Subject, comparable is a custom home with views offering an abundance of peace & quiet. Similar room counts spread over 2 floors, New appliances, 36x48 4 bay shop, plus superior attached & insulated double car garage with RV parking and 50 Amp service. Backs up to BLM on 3 sides. Age of amenities in sheds somewhat date this comparable making it inferior to the subject in both condition and functionality to the subject.

Comps Selected In Analysis



Address	23549 Highway 20 Bend, OR 97701	50552 Deer Forest Dr La Pine, OR 97739	52518 Meadow Ln La Pine, OR 97739
Status	3 So d	4 For Sa e	5 For Sa e
MLS Name	MLS of Centra Oregon Assoc at on of REALTORS®	MLS of Centra Oregon Assoc at on of REALTORS®	MLS of Centra Oregon Assoc at on of REALTORS®
MLS Listing ID	201805258	201900558	202002221
Proximity	51.17 M . NW	43.58 M . W	43.99 M . NW
Value	\$799,900	\$925,000	\$965,000
Price Per Sq. Ft.	\$325	\$354	\$401
Sale/Finance Concession	-	-	-
Property Type	Single Family Residence	Single Family Residence	Single Family Residence
Property Subtype	Single Family Residence	Single Family Residence	Single Family Residence
Total Rooms	8	8	8
Total Rooms Above Grade	8	8	8
Bedrooms	3	3	3
Bedrooms Above Grade	3	3	3
Living Area sq ft range (low)	-	-	-
Living Area sq ft range (high)	-	-	-
Total Baths	3.0	2.1	2.1
Total Baths Above Grade	3.0	2.1	2.1
Full Baths	3	2	2
Full Baths Above Grade	3	2	2
Partial Baths	-	1	1
Partial Baths Above Grade	0	1	1
Living Area (sq ft)	2,458	2,610	2,408
Living Area Above Grade (sq ft)	2,458	2,610	2,408
Basement (sq ft)	0	0	0
Finished Rooms Below Grade	0	0	0
Lot Size	40.18 acres	25.02 acres	36.92 acres
Lot Dimensions	40.180 AC	25.02 AC	36.92 AC
Garage	Yes	Yes	Yes
Garage (sq ft)	528	636	840
Pool	No	No	No
Location	Rural Bend -\$75,000	Rural/Forest -\$45,000	Rural La Pine -\$35,000
Tenure	Fee Simple	Fee Simple	Fee Simple
View	Beneficial	Neutral	Beneficial
View Factors	Mountain View, Mountainous	Trees/Terrain	Mountain View, Mountainous, Territorial
Style	Traditional 2 story	NW Lodge/ranch with loft	NW Ranch
Quality of Construction	Q3	Q2	Q3

Comps Selected In Analysis



Address	23549 Highway 20 Bend, OR 97701	50552 Deer Forest Dr La P ne, OR 97739	52518 Meadow Ln La P ne, OR 97739
Status	3 So d	4 For Sa e	5 For Sa e
Year Bu t	1995	2000	1987
Age	25	20	33
Cond t on	C2	C2	C3
Funct ona Ut ty	Good	Exce ent	Good
Heat ng Features	Forced A r, Heat Pump, Propane, Wa Fumace	E ectrc, Heat Pump	E ectrc, Forced A r, Heat Pump
Coo ng Features	Centra A r, Heat Pump(S), Who e House Fan	Heat Pump(S)	Heat Pump(S)
Energy Eff c ent Items	-	-	-
Porch/Pat o/Deck	Wood decks and porch	Concrete porch, wood deck	concrete porch and pave stone pat o
Roof ng Features	Compost on	Compost on	Meta
F rep aces	1	L v ng Room	1
Basement Features	Basement	None	None
Foundat on Features	Stemwa	Stemwa	Stemwa
Construct on Features	Frame	Frame	Frame
Exter or Wa Features	Wood	Wood ap	Wood T1-11
Number of Bu d ngs	3	2	2
Number of Un ts	-	-	-
Number of Stor es	2	1.5	2
Detached Shop B dg.	2220 SQ Ft Shop, GP B dg	3240 Sq Ft Shop B dg	900+/- sq ft - bam/shed
Lean to for RV storage	-	-	-
Net Adjustments (%)	-9.38%	-4.86%	-3.63%
Gross Adjustments (%)	9.38%	4.86%	3.63%
Net Adjustments	-\$75,000	-\$45,000	-\$35,000
Net Adjustments Per Sq. Ft.	-\$30	-\$17	-\$15
Net Adjusted Va ue	\$724,900	\$880,000	\$930,000
Net Adjusted Va ue Per Sq. Ft.	\$295	\$337	\$386
Comp We ght ng	15%	15%	20%
Notes from Cat Zw cker	Extens ve y remode ed and updated to current des gn and nter or feature standards to be equa to qua ty of Subject property. Super or outbu d ngs due to size and use of sma or g na 1925 farm dwe ng as guest house/stud o. There s no act ve ktoehn due to zon ng restr ct ons n the guest house. Super or -10 Acres r r gat on water from cana .	S m ar to subject n ntended use as pr vate fu t me residence w th m ted outs de mp ngement on enjoyment. On y 25 acres w th water r ghts used for awn r r gat on. Property s deemed to be equa to subject n use, overa room count, s ght y super or outbu d ng at comparab e.	O der 2 story home w th trad t on a f ow on ma n eve and 2 bedrooms p us master and pr vate rec room up sta rs. Exter or s t1-11 s d ng, n need of pa nt and shows faded and wom off n h gh sun areas. Infer or overa to the subject due to cond t on, ack of updates and out bu d ngs.

24395 Dodds Rd, Bend, OR 97701

MLS Name: MLS of Central Oregon Association of REALTORS®
 MLS Listing ID: 201911060

Listing Facts	Adjustments
Status	Recently Sold
Proximity	49.91 Miles NW
Value	\$640,000
Price Per Sq. Ft.	\$289
Sale/Finance Concession	-
Property Type	Single Family Residence
Property Subtype	Single Family Residence
Total Rooms	7
Total Rooms Above Grade	7
Bedrooms	3
Bedrooms Above Grade	3
Living Area sq ft range (low)	-
Living Area sq ft range (high)	-
Total Baths	2.0 +\$7,500
Total Baths Above Grade	2.0
Full Baths	2
Full Baths Above Grade	2
Partial Baths	-
Partial Baths Above Grade	0
Living Area (sq ft)	2,211
Living Area Above Grade (sq ft)	2,211
Basement (sq ft)	0
Finished Rooms Below Grade	0
Lot Size	40 acres
Lot Dimensions	-
Garage	-
Garage (sq ft)	676
Pool	No
Location	Rural -\$75,000
Tenure	Fee Simple
View	Beneficial
View Factors	Mountain View, Territorial
Style	Contemporary Ranch
Quality of Construction	Q3
Year Built	2001
Age	19
Condition	C3
Functional Utility	Good
Heating Features	Electric, Forced Air, Heat Pump
Cooling Features	Heat Pump(S)
Energy Efficient Items	-
Porch/Patio/Deck	-
Roofing Features	Composition
Finishes	Great Room, Wood Burning
Basement Features	None
Foundation Features	Stemwall
Construction Features	Frame
Exterior Wall Features	Wood/ Siding



LEGEND: 🏠 Subject Property 🌿 This Property

RECENTLY SOLD

- Sold Date: 3/17/2020
- MLS Listing 201911060: 12/30/2019

Sold Price

\$640,000

Adjusted Price

\$572,500

Net Adjustments (\$ / %)

-\$67,500 / -10.55%

Gross Adjustments (\$ / %)

\$82,500 / 12.89%

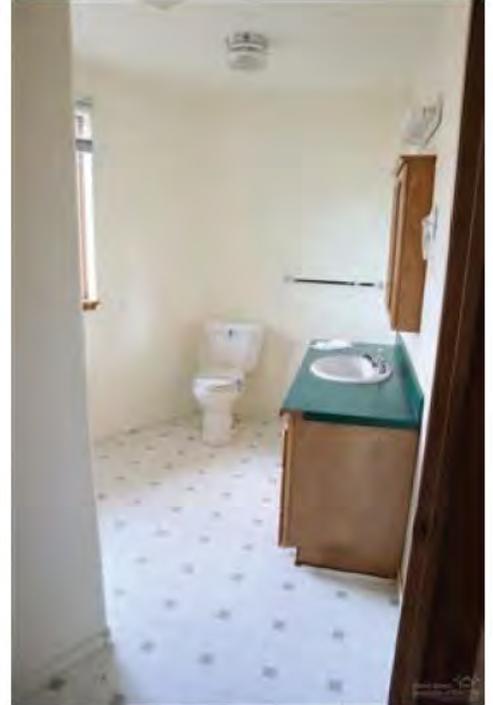
Notes from Cataloger

Most similar to subject in overall Gross Living Area (GLA), room count, similar outdoor building configuration and acreage and rural location. Superior due to accessibility to Bend amenities and infrastructure, Comparable was bank-Real Estate Owned (REO) sale. Inferior quality due to deferred maintenance and normal wear and tear based on age. Superior 9.64 Acres of Irrigation not confirmed & he p;

Number of Buildings	Listing Facts	Adjustments
Number of Units	-	
Number of Stores	One	
Detached Shop Bldg.	-	1152 Sq Ft Shop Bldg
Lean to for RV storage	-	1600 Sq Ft Hay cover

Property Photos: 24395 Dodds Rd, Bend, OR 97701





2 60282 Millican Rd, Christmas Valley, OR 97641

MLS Name: MLS of Central Oregon Association of REALTORS®
MLS Listing ID: 201900984

Listing Facts	Adjustments
Status	Sold
Proximity	9.27 M . E
Value	\$359,000
Price Per Sq. Ft.	\$129
Sale/Finance Concession	-
Property Type	Single Family Residence
Property Subtype	Single Family Residence
Total Rooms	7
Total Rooms Above Grade	7
Bedrooms	3
Bedrooms Above Grade	3
Living Area sq ft range (low)	-
Living Area sq ft range (high)	-
Total Baths	2.1
Total Baths Above Grade	2.1
Full Baths	2
Full Baths Above Grade	2
Partial Baths	1
Partial Baths Above Grade	1
Living Area (sq ft)	2,780
Living Area Above Grade (sq ft)	2,780
Basement (sq ft)	0
Finished Rooms Below Grade	0
Lot Size	40 acres
Lot Dimensions	20 acres
Garage	Yes
Garage (sq ft)	926
Pool	No
Location	Rural
Tenure	Fee Simple
View	Beneficial
View Factors	Territorial / Territorial
Style	Traditional 2 story
Quality of Construction	Q3
Year Built	2000
Age	20
Condition	C3
Functional Utility	Good
Heating Features	Heat Pump, Pellet Stove
Cooling Features	Heat Pump(S)
Energy Efficient Items	-
Porch/Patio/Deck	Pave stone patios and porch
Roofing Features	Composition
Repairs	Living Room
Basement Features	None
Foundation Features	Stemwall
Construction Features	Frame
Exterior Wall Features	Wood / Lap siding



LEGEND: 🏠 Subject Property 🏠 This Property

SOLD
• Sold Date: 3/29/2019
• MLS Listing 201900984: 2/12/2019

Sold Price
\$359,000

Adjusted Price
\$376,500

Net Adjustments (\$ / %)
+\$17,500 / +4.87%

Gross Adjustments (\$ / %)
\$17,500 / 4.87%

Notes from Cataloger

Like Subject, comparable is a custom home with views offering an abundance of peace & quiet. Similar room count is spread over 2 floors. New appliances, 36x48 4 bay shop, plus superior attached & insulated double car garage with RV parking and 50 Amp service. Backs up to BLM on 3 sides. Age of amenities especially shows somewhat dated this comparable making it inferior to the subject in both condition and health;

Number of Buildings	Listing Facts	Adjustments
Number of Units	-	
Number of Stores	Two	
Detached Shop Bldg.	-	1728 Sq Ft Shop Bldg.
Lean to for RV storage	-	252 Sq Ft Shed, 168 sq ft pump house

2 Property Photos: 60282 Millican Rd, Christmas Valley, OR 97641



Primary Photo



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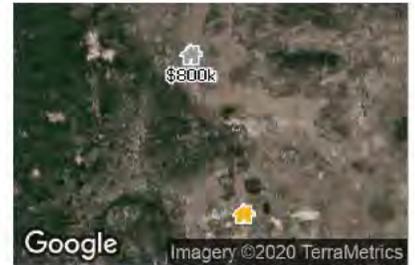


Add to Photo

3 23549 Highway 20, Bend, OR 97701

MLS Name: MLS of Central Oregon Association of REALTORS®
MLS Listing ID: 201805258

Listing Facts	Adjustments
Status	Sold
Proximity	51.17 M. NW
Value	\$799,900
Price Per Sq. Ft.	\$325
Sale/Finance Concession	-
Property Type	Single Family Residence
Property Subtype	Single Family Residence
Total Rooms	8
Total Rooms Above Grade	8
Bedrooms	3
Bedrooms Above Grade	3
Living Area sq ft range (low)	-
Living Area sq ft range (high)	-
Total Baths	3.0
Total Baths Above Grade	3.0
Full Baths	3
Full Baths Above Grade	3
Partial Baths	-
Partial Baths Above Grade	0
Living Area (sq ft)	2,458
Living Area Above Grade (sq ft)	2,458
Basement (sq ft)	0
Finished Rooms Below Grade	0
Lot Size	40.18 acres
Lot Dimensions	-
Garage	-
Garage (sq ft)	528
Pool	No
Location	Rural Bend -\$75,000
Tenure	Fee Simple
View	Beneficial
View Factors	Mountain View, Mountainous
Style	Traditional 2 story
Quality of Construction	Q3
Year Built	1995
Age	25
Condition	C2
Functional Utility	Good
Heating Features	Forced Air, Heat Pump, Propane, Water Furnace
Cooling Features	Central Air, Heat Pump(S), Whole House Fan
Energy Efficient Items	-
Porch/Patio/Deck	Wood decks and porch
Roofing Features	Composition
Finishes	Great Room, Propane
Basement Features	-
Foundation Features	Stemwall



LEGEND: ★ Subject Property ☆ This Property

SOLD
• Sold Date: 4/17/2019
• MLS Listing 201805258: 5/29/2018

Sold Price
\$799,900

Adjusted Price
\$724,900

Net Adjustments (\$ / %)
-\$75,000 / -9.38%

Gross Adjustments (\$ / %)
\$75,000 / 9.38%

Notes from Cataloger

Extensively remodeled and updated to current design and interior feature standards to be equal to quality of Subject property. Superior outdoorings due to size and use of smaller gna 1925 farm dwelling as guest house/studio. There is no active kitchen due to zoning restrictions in the guest house. Superior -10 Acres irrigation water from canal.

Construction Features	Existing Facts	Adjustments
Exterior Wall Features	-	Wood
Number of Buildings	-	3
Number of Units	-	
Number of Stories	Two	2
Detached Shop Building	-	2220 SQ Ft Shop, GP Building
Lean to for RV storage	-	

Property Photos: 23549 Highway 20, Bend, OR 97701



Primary Photo



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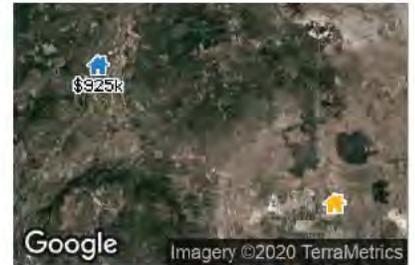


Add to Photo

4 50552 Deer Forest Dr, La Pine, OR 97739

MLS Name: MLS of Central Oregon Association of REALTORS®
MLS Listing ID: 201900558

Listing Facts	Adjustments
Status	For Sale
Proximity	43.58 Miles W
Value	\$925,000
Price Per Sq. Ft.	\$354
Sale/Finance Concession	-
Property Type	Single Family Residence
Property Subtype	Single Family Residence
Total Rooms	8
Total Rooms Above Grade	8
Bedrooms	3
Bedrooms Above Grade	3
Living Area sq ft range (low)	-
Living Area sq ft range (high)	-
Total Baths	2.1
Total Baths Above Grade	2.1
Full Baths	2
Full Baths Above Grade	2
Partial Baths	1
Partial Baths Above Grade	1
Living Area (sq ft)	2,610
Living Area Above Grade (sq ft)	2,610
Basement (sq ft)	0
Finished Rooms Below Grade	0
Lot Size	25.02 acres
Lot Dimensions	25.02 AC
Garage	Yes
Garage (sq ft)	636
Pool	No
Location	Rural/Forest -\$45,000
Tenure	Fee Simple
View	Neutral
View Factors	Trees/Terrain
Style	NW Lodge/ranch w/ loft
Quality of Construction	Q2
Year Built	2000
Age	20
Condition	C2
Functional Utility	Excellent
Heating Features	Electric, Heat Pump
Cooling Features	Heat Pump(S)
Energy Efficient Items	-
Porch/Patio/Deck	Concrete porch, wood deck
Roofing Features	Composition
Finishes	Living Room
Basement Features	None
Foundation Features	Stemwall
Construction Features	Frame
Exterior Wall Features	Wood Siding



LEGEND: 🏠 Subject Property 🏠 This Property

FOR SALE
Active: 1/28/2019

List Price
\$925,000

Adjusted Price
\$880,000

Net Adjustments (\$ / %)
-\$45,000 / -4.86%

Gross Adjustments (\$ / %)
\$45,000 / 4.86%

Notes from Cataloger

Similar to subject intended use as private full time residence with limited outside management on enjoyment. On 25 acres with water rights used for lawn irrigation. Property is deemed to be equal to subject in use, overall room count, sightly superior outdoor living at comparable.

	Listing Facts	Adjustments
Number of Buildings	-	2
Number of Units	-	
Number of Stores	Two	1.5
Detached Shop Bldg.	-	3240 Sq Ft Shop Bldg
Lean to for RV storage	-	

4 Property Photos: 50552 Deer Forest Dr, La Pine, OR 97739



Aerial Property View



Front Exterior and Pond



Pond



Water Feature



Shop



Front Exterior of Deer Forest Home



Map View of Property



Great Room



Great Room



Kitchen



Kitchen



Dining Room



Dining Room



Living Area



Entry



Loft



Bedroom 1



Bedroom 1



Bathroom



Entry

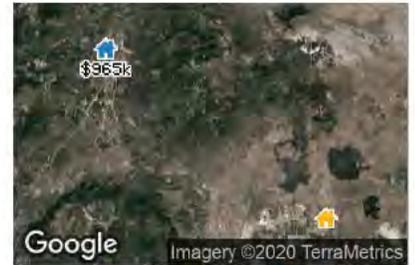


Bedroom

52518 Meadow Ln, La Pine, OR 97739

MLS Name: MLS of Central Oregon Association of REALTORS®
MLS Listing ID: 202002221

Listing Facts	Adjustments
Status	For Sale
Proximity	43.99 Miles NW
Value	\$965,000
Price Per Sq. Ft.	\$401
Sale/Finance Concession	-
Property Type	Single Family Residence
Property Subtype	Single Family Residence
Total Rooms	8
Total Rooms Above Grade	8
Bedrooms	3
Bedrooms Above Grade	3
Living Area sq ft range (low)	-
Living Area sq ft range (high)	-
Total Baths	2.1
Total Baths Above Grade	2.1
Full Baths	2
Full Baths Above Grade	2
Partial Baths	1
Partial Baths Above Grade	1
Living Area (sq ft)	2,408
Living Area Above Grade (sq ft)	2,408
Basement (sq ft)	0
Finished Rooms Below Grade	0
Lot Size	36.92 acres
Lot Dimensions	36.92 AC
Garage	-
Garage (sq ft)	840
Pool	No
Location	Rural La Pine -\$35,000
Tenure	Fee Simple
View	Beneficial
View Factors	Mountain View, Mountainous, Territorial
Style	NW Ranch
Quality of Construction	Q3
Year Built	1987
Age	33
Condition	C3
Functionality	Good
Heating Features	Electric, Forced Air, Heat Pump
Cooling Features	Heat Pump(S)
Energy Efficient Items	-
Porch/Patio/Deck	concrete porch and pave stone patio
Roofing Features	Meta
Fireplaces	1 Living room
Basement Features	None
Foundation Features	Stemwall



LEGEND: 🏠 Subject Property 🏠 This Property

FOR SALE
Active: 3/14/2020

Listing Price
\$965,000

Adjusted Price
\$930,000

Net Adjustments (\$ / %)
-\$35,000 / -3.63%

Gross Adjustments (\$ / %)
\$35,000 / 3.63%

Notes from Cataloger

Order 2 story home with traditional flow on main level and 2 bedrooms plus master and private rec room upstairs. Exterior st-11 siding, in need of paint and shows faded and worn off in high sun areas. Inferior overall to the subject due to condition, lack of updates and outbuildings.

Construction Features	Existing Facts	Adjustments
Exterior Wall Features	-	Wood T1-11
Number of Buildings	-	
Number of Units	-	
Number of Stories	Two	
Detached Shop Building	-	900+/- sq ft - barn/shed
Lean to for RV storage	-	

Property Photos: 52518 Meadow Ln, La Pine, OR 97739



Primary Photo



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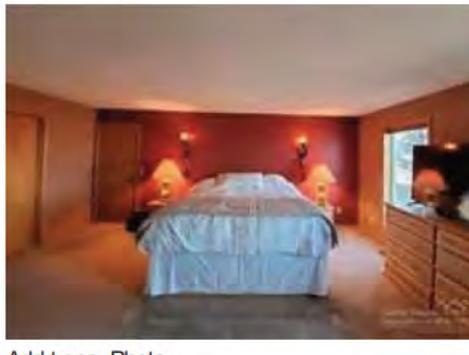
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Property Attributes	Minimum	Maximum	Average
Year Built	-	-	-
Living Area (sq ft)	-	-	-
Lot Size	-	-	-
# Samples	-	-	-

General Market Health Charts

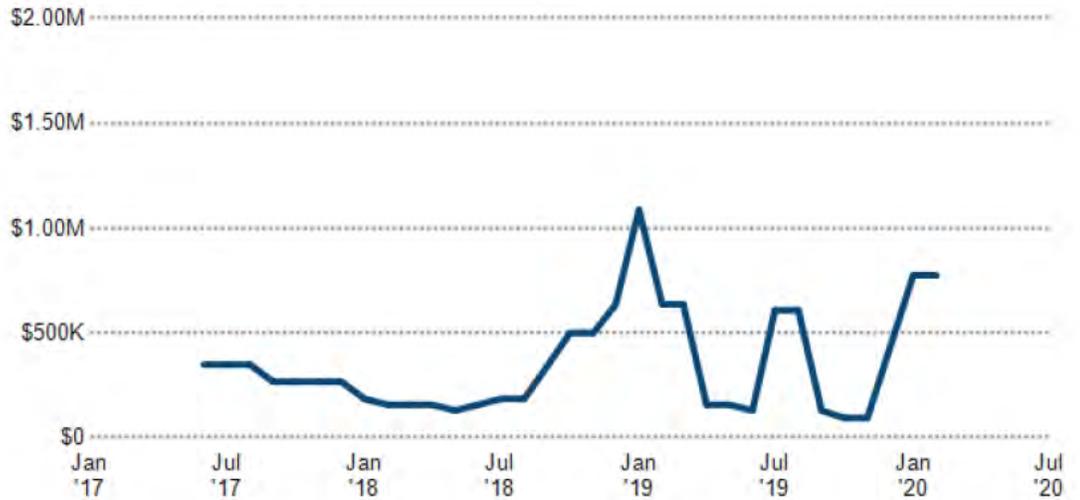
Median Estimated Home Value vs. Median Listing Price

This chart compares a ZIP code's median estimated home value with its median listing price. Estimated home values are generated by a valuation model and are not formal appraisals.

Data Source: Public records data; listing price data from on- and off-market listings sources

Update Frequency: Monthly

■ Median List Price



Median Listing Price vs. Listing Volume

This chart compares the listing price and listing volume for homes in an area. Listing prices often follow listing volume, with a time lag, because supply can drive price movements.

Data Source: On- and off-market listings sources

Update Frequency: Monthly

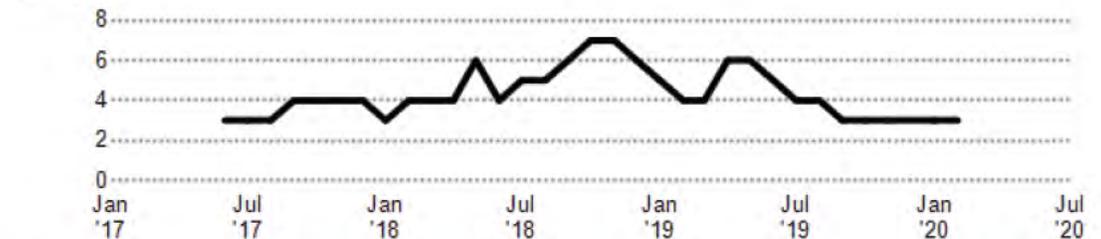
■ Median List Price

■ Listing Volume

Median List Price



Listing Volume



Listing Inventory

This chart shows the number of For Sale listings in a ZIP code.

Data Source: On- and off-market listings sources

Update Frequency: Daily

■ ZIP Count Listings by Property Type



Age Range of Homes Sold

5 yrs **1**

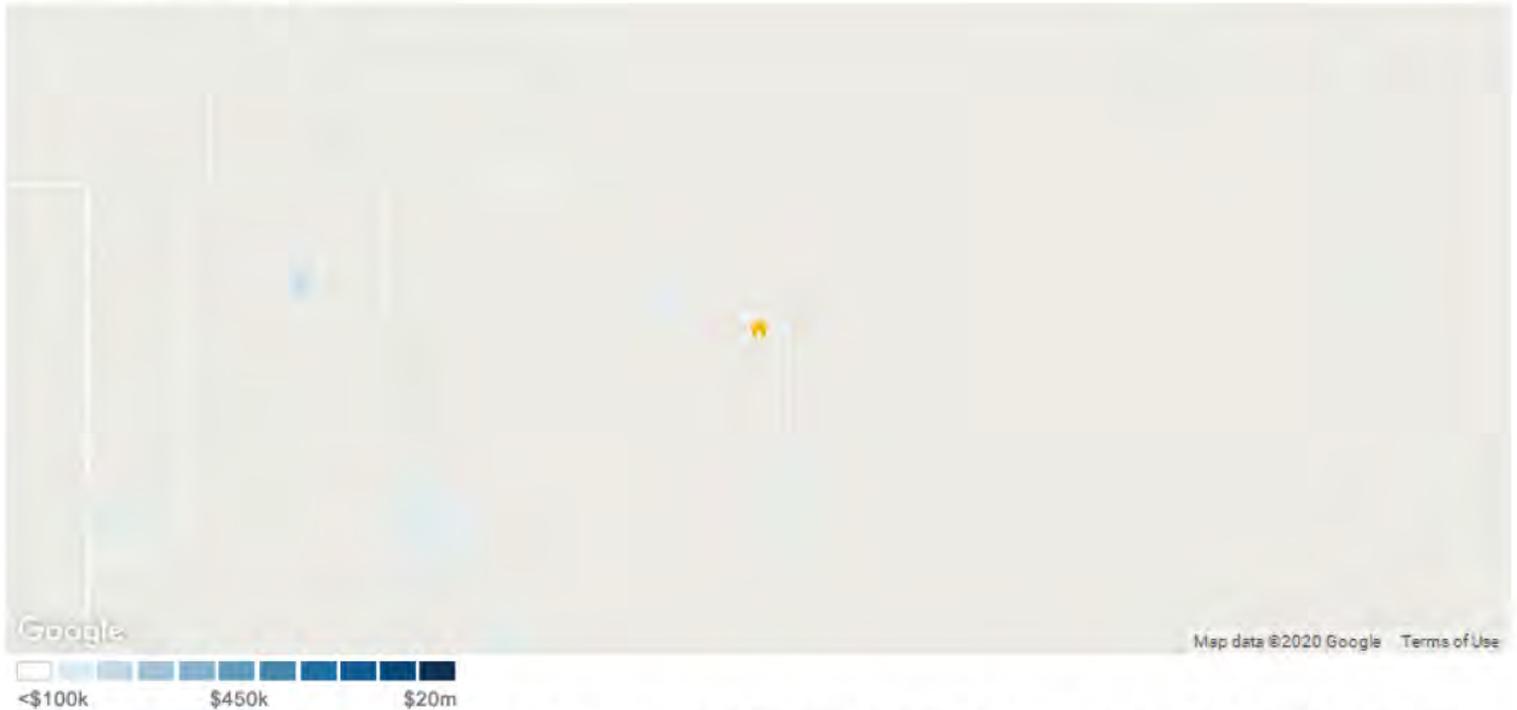
This chart shows the distribution of homes reported sold in the past six months of different age ranges in the area of your search.

Data Source: Public records data

Update Frequency: Monthly

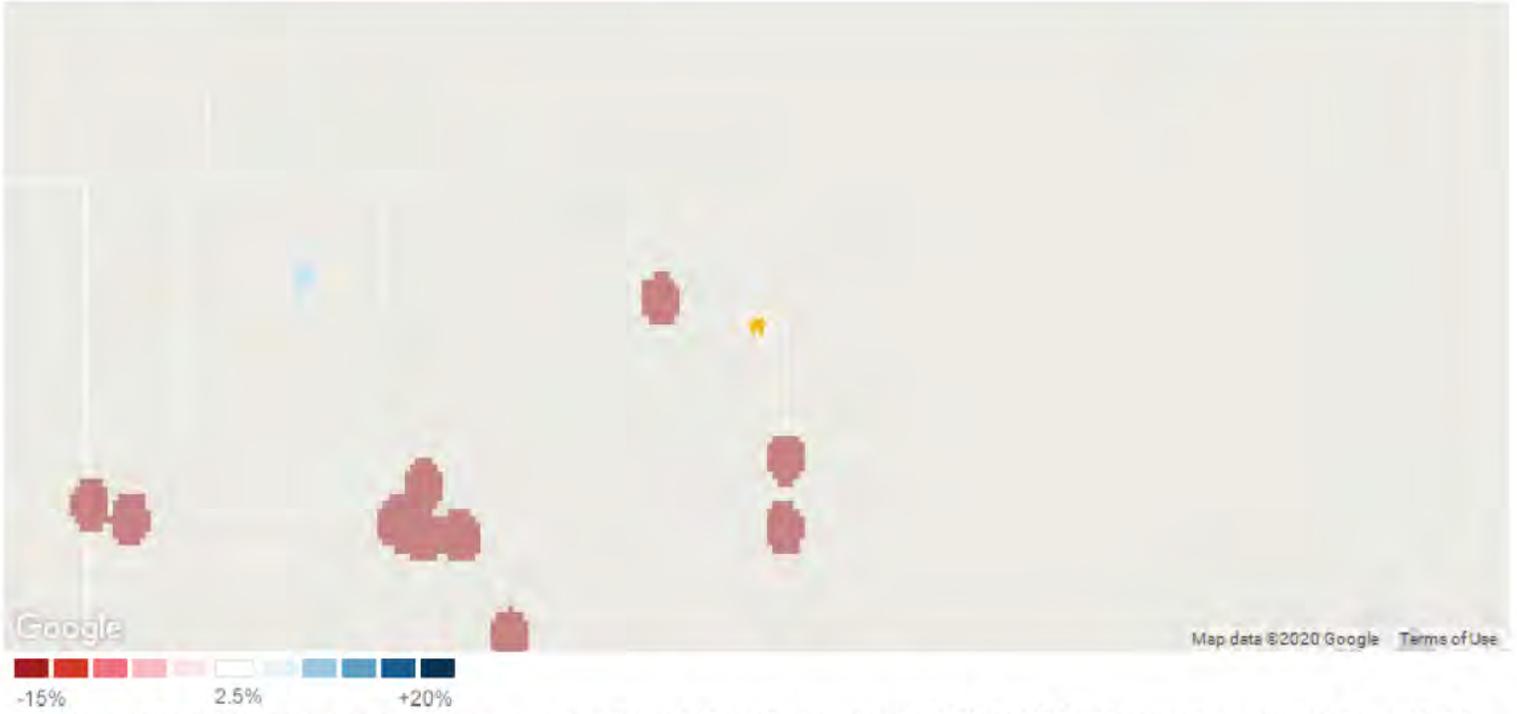
This House

Estimated Home Values



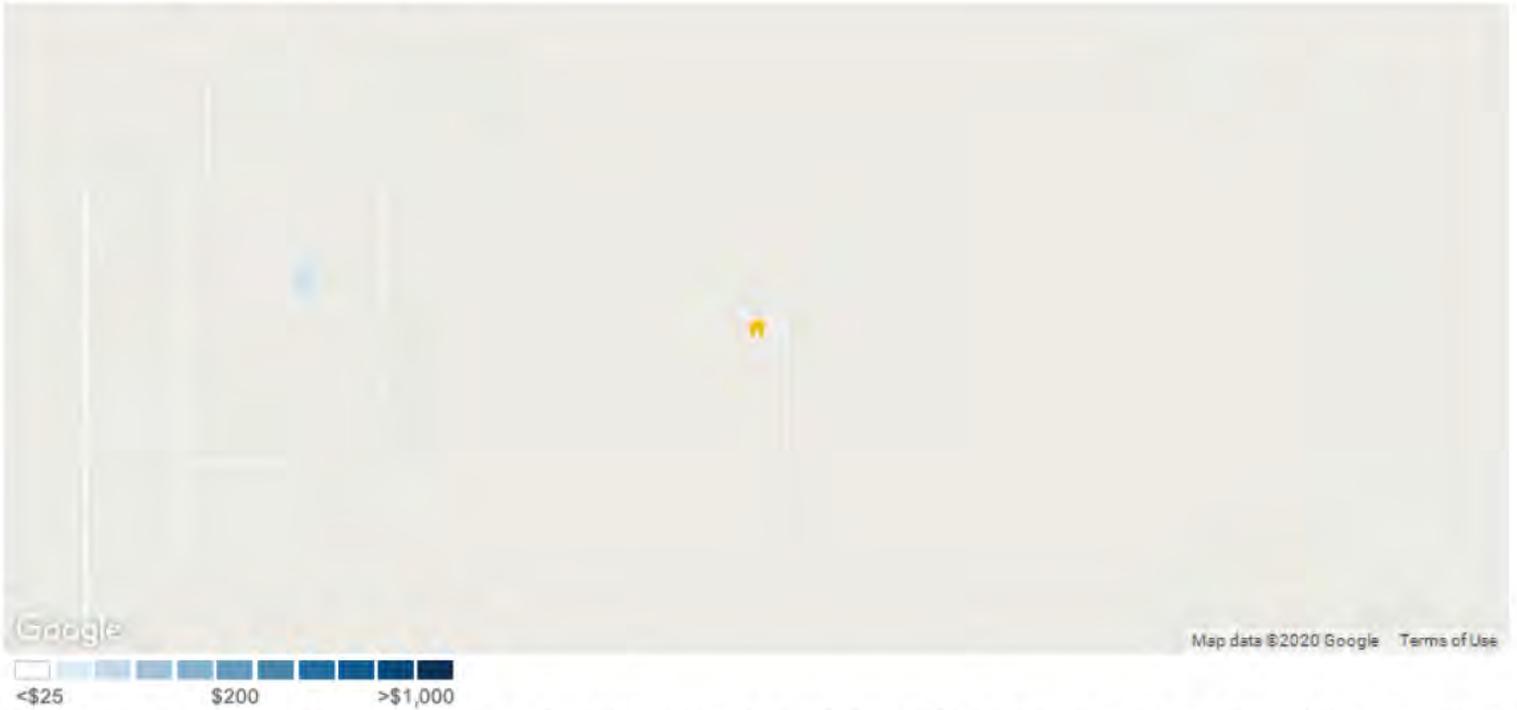
This map layer shows the average estimated home values, based on the AVMs and RVMS® for properties in an area. Source(s): Public records and MLS data where licensed; updated Quarterly.

12-Month Change in Estimated Value



This map layer shows the change in estimated home values over the past 12 months, based on the AVMs and RVMs® for properties in an area. Source(s): Public records and MLS data where licensed; updated Quarterly.

Estimated Value per Square Foot



This map layer shows average estimated value per square foot of homes, based on the AVMs and RVMs® for properties in an area. Source(s): Public records and MLS data where censed; updated Quarterly.

Property Photos from Cat Zwicker

Added on 5/18/2020



About RPR (Realtors Property Resource)

- Realtors Property Resource® is a wholly owned subsidiary of the National Association REALTORS®.
- RPR offers comprehensive data – including a nationwide database of 164 million properties – as well as powerful analytics and dynamic reports exclusively for members of the NAR.
- RPR's focus is giving residential and commercial real estate practitioners, brokers, and MLS and Association staff the tools they need to serve their clients.
- This report has been provided to you by a member of the NAR.



About RPR's Data

RPR generates and compiles real estate and other data from a vast array of sources. The data contained in your report includes some or all of the following:

- **Listing data** from our partner MLSs and CIEs, and related calculations, like estimated value for a property or median sales price for a local market.
- **Public records data** including tax, assessment, and deed information. Foreclosure and distressed data from public records.
- **Market conditions and forecasts** based on listing and public records data.
- **Census and employment data** from the U.S. Census and the U.S. Bureau of Labor Statistics.
- **Demographics and trends data** from Esri. The data in commercial and economic reports includes Tapestry Segmentation, which classifies U.S. residential neighborhoods into unique market segments based on socioeconomic and demographic characteristics.
- **Business data** including consumer expenditures, commercial market potential, retail marketplace, SIC and NAICS business information, and banking potential data from Esri.
- **School data and reviews** from Niche.
- **Specialty data sets** such as walkability scores, traffic counts and flood zones.



Update Frequency

- Listings and public records data are updated on a continuous basis.
- Charts and statistics calculated from listing and public records data are refreshed monthly.
- Other data sets range from daily to annual updates.

Learn more

For more information about RPR, please visit RPR's public website: <http://blog.narpr.com>



TARDAEWETHER Kellen * ODOE

From: Brian Meiering <brian@wetlandsandwildlifellc.com>
Sent: Monday, July 20, 2020 3:51 PM
To: TARDAEWETHER Kellen * ODOE
Cc: aaron@noteboomlaw.com; Mike Reeder; lrfarming
Subject: [Fortimail Spam Detected] Obsidian Solar Center
Attachments: WWLLC_comments.pdf; Resume_Meiering2019.pdf

Kellen,

Please find an attached comment to add to the record pertaining to the Obsidian Solar Center proposal.

I look forward to digitally joining the meeting today.

Have a great afternoon!

Sincerely,

Brian

Brian Meiering
Wetlands and Wildlife LLC
541.214.6051

July 15, 2020

Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capital Street NE
Salem, OR 97301
Email: Kellen.Tardaewether@oregon.gov

Re: Obsidian Solar Center LLC (“Obsidian”)

Dear Mrs. Tardaewether,

I have been asked to evaluate the effect of the proposed facility on the abutting farm operations, native wildlife, and the proposed mitigation for loss of ODFW designated Big Game Range. In doing so, I evaluated the current proposal and all supplemental materials provided (up to July 19, 2020) to the Oregon Department of Energy for consideration in their review.

The project proposes developing a fully fenced solar array across up to 3,921 acres (approximately 6 square miles). There have been several modifications to the original proposal to arrive at this offered footprint. Most of the footprint would be used to install solar arrays, while a proposed substation(s) and overhead transmission lines would connect the facility to an existing 500 kV transmission line. Avoidance areas within the fenced perimeter of the site have been proposed by the applicant. These measures have been proposed primarily to avoid direct impact to sensitive resources, particularly species-specific habitats. These measures do not assure that indirect impacts will be inconsequential, although it is reasonable and prudent in lieu of direct impacts.

The applicant proposes off-site mitigation to compensate for loss of the fenced facility from usable big game range. Juniper removal is the primary proposed method to compensate for the loss of habitat within the solar facility. The applicant proposes a ratio of 1.2 acres of off-site juniper removal for every 1 acre of impact. ODFW comments regarding the proposed mitigation suggest that at least 2 acres of juniper removal for every one acre (2:1) of fenced project area would be more appropriate to assure no net loss in big game range. It is common for projects to require a greater than 1:1 ratio to increase the likelihood that mitigation will succeed overall, with some allowances for failure. Mitigation ratios are an important factor when evaluating how robust a mitigation plan will be to address the direct loss of habitat function and value proposed within any project. Depending on mitigation timing, temporal losses of big game range would also be expected unless successful mitigation was completed before the primary project (Obsidian Solar Center) breaks ground. A 1:1.2 mitigation ratio does not appear to be consistent with the ODFW mitigation policy. The applicant maintains that the mitigation site has “good value”. A site which already maintains “good value” will not provide the same level of potential “enhancement” as a mitigation site with “poor value”. The mitigation ratio should reflect a “net benefit to habitat quantity or quality”. This net benefit needs to be measured against the “habitat quantity or quality” assigned to all portions of the proposed facility footprint. Due to the proposed facility size, an argument could also be made to increase the big game range land base which will be affected by the project due to animal avoidance. Given the proposed direct impacts of the solar facility on big game range function and value, it is reasonable to expect at least a 2:1 mitigation ratio.

According to Lake County, Christmas Valley is largely an alfalfa farming community. Obsidian proposes siting the fenced facility abutting substantial farm uses. There are several potential effects the facility could have on farming operations, primarily due to the proposed size of the facility and the current soils, food, cover and space which will be modified within the fenced perimeter (and excluded from ungulates). The most reasonable expectation for farmers should include the 1) effects of increased herbivory on adjacent farmed fields and harvested stockpiles, 2) increased migration of big game through farmed fields and, 3) increased sand/ash deposits from facility wind/water.

Wetlands and Wildlife LLC

Tel 541.214.6051

P.O. Box 50878
Eugene, OR 97405

www.wetlandsandwildlifeLLC.com
brian@wetlandsandwildlifeLLC.com



The fenced perimeter of the facility would be approximately 15 miles. This amount of land base will exclude all large mammals. This displacement of large mammals will create more movement of animals through farmed fields and hay stockpiles. This will directly impact farming operations and lead to financial losses, although the amount of the impacts is not known. Formal concessions need to be made to mitigate the effect on farmers abutting the proposed facility.

Other species may be displaced from modified habitat within the fenced perimeter. Lagomorphs and rodents are known to cause damage to farmed fields and stockpiles based on current conditions. Formal concessions need to be made to mitigate the effect on farmers abutting the proposed facility.

Erosion of cleared lands is an issue, particularly due to the sandy/ashy soils coupled with dry, windy conditions. It is not uncommon for natural dunes to form in the area, leaving disturbed soils particularly vulnerable. Although Obsidian appears to have addressed this issue in their application and supplemental materials, formal concessions need to be made to mitigate the effect on farmers abutting the proposed facility.

Again, thank you for the opportunity to engage the applicant and review agencies.

Sincerely,



Brian Meiring, Environmental Specialist (Environmental Specialist, PWS)
Wetlands and Wildlife LLC
P.O. Box 50878
Eugene, OR 97405

Email | <http://www.wetlandsandwildlifeLLC.com>
p. 541.214.6051 | brian@wetlandsandwildlifeLLC.com

Wetlands and Wildlife LLC

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Brian Meiring
Environmental Specialist
Wetlands and Wildlife LLC

Education

- Bachelor of Science, Wildlife Biology, *University of Montana*, 1998
- Masters Certificate, Fisheries Management, *Oregon State University*, 2015

Professional Affiliation

- Member, Certified PWS, Society of Wetlands Scientists

Professional Experience

- 2016-present, Environmental Specialist, *Wetlands and Wildlife LLC*, Eugene, Oregon
- 2011-2015, Environmental Specialist, *Schirmer Satre Group*, Eugene, Oregon
- 2006-2011, Environmental Specialist, *Satre Associates, P.C.*, Eugene, Oregon
- 2002-2015, Biologist, *Oregon State University*, Corvallis, Oregon
- 2003-2005, Fisheries Biologist, *Oregon Department of Fisheries and Wildlife*; Newport, OR
- 2001-2002, Biological Science Technician, *United States Forest Service*, Ogden, UT
- 2000-2001 Park Ranger (Endangered Species Protection), *Bureau of Land Management*, Palm Springs, CA
- 1999-2001, Biological Science Technician, *National Parks Service*; Grand Canyon, AZ
- 1999, Biological Field Technician, *Hawkwatch International, Inc*; Salt Lake, UT

Supplemental Coursework

- 2015 Graduate Cert. in Fisheries Management
- 2008, Fish Survey / Electrofishing, Correspondence (DOI)
- 2006-2007, Wetland Studies, *Portland State University*
 - Professional Certifications
 - Wetland Delineation
 - Plants of the Pacific Northwest
 - Advanced Soils and Hydrology for Delineators
 - Wetland Mitigation, Installation, and Construction
 - Grasses and Sedges and Rushes of the Pacific Northwest
- 2003, Geographic Information Systems, *Oregon State University*
- 2003, Remote Sensing and Cartography graduate level training, *University of Oregon*

Volunteer Activities

- 2006-present, Northern Spotted Owl demography study, Corvallis, OR
- 1999-2003, *Goshute Mountains raptor migration monitoring*, Wendover, UT
- 1990-1992, *United States Fish and Wildlife Service Ecological Services Division*, Albuquerque, NM



Brian brings extensive skills and diverse expertise in environmental services to Wetlands and Wildlife LLC clients. With 20 years of experience throughout the Western United States, Brian can help clients with regulatory compliance regarding aquatic and terrestrial environments.

Whether wetland or upland, rare or common species, site-specific or watershed scale, Brian's field-based science, expert documentation and agency relationships help clients achieve their goals.

Services include:

- Complete Clean Water Act scoping and compliance permitting
- Wetland delineation, mitigation, permitting, and monitoring
- Rare species, natural resources due diligence.
- FEMA Endangered Species Act compliance for CLOMR, CLOMR-F
- Terrestrial and aquatic species surveys
- Flora and fauna isolation, salvage
- Geographic Information Services
- Mapping and Spatial Analysis
- Trail Corridor analysis and design
- Habitat type mapping and analysis
- Viewshed and watershed interpretation, mapping and analysis
- Aerial photography interpretation
- Soils, geomorphology

Wetlands and Wildlife LLC



July 15, 2020

Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capital Street NE
Salem, OR 97301

via electronic mail:
Kellen.Tardaewether@oregon.gov

RE: Obsidian Solar Center, LLC project at Fort Rock

Ms. Tardaewether,

I am the Lake County Noxious Weed Supervisor and Program Coordinator for the Lake County Cooperative Weed Management Area (CWMA). This letter is to express support for the weed control and revegetation plans proposed in connection with the development of the Obsidian Solar Center and to confirm that the Lake County CWMA will be working with Obsidian during and after construction of the project. I provided Obsidian with the Lake County Noxious Weed List and the Lake County Noxious Weed Plan for reference, as well as our Weed Prevention Area Map and Corresponding Key. I understand Obsidian used these resources in developing its weed control plans for both the development site as well as the mitigation areas. In addition, I provided input on the seed mixture and best practices included in the project's revegetation plan.

By way of background, here is additional information on the operations and practices of the Lake County CWMA.

When we select a species for treatment we without exception do follow up monitoring and report the results (dependent on the type of grant funding used for the specific treatment) not only to the Lake County Commissioners, but to Oregon Department of Ag., Oregon Watershed Enhancement Board, Oregon Department of Fish and Wildlife, the Bureau of Land Management, and the US Forest Service. This is mostly due to the intertwined nature of our program. When we do our effectiveness monitoring, we use photos and acreage metrics to account for treatment and use those metrics to measure success or failures of treatment.

When we decide what species to start treating, we take a multi-pronged approach. First, we look at the Oregon State Noxious Weed list and identify species that are present in our area and take into account the state priority ranking. We then move to our local Lake County Noxious weed list and again relate that back to our Lake County Noxious Weed Plan (which is reviewed by the Lake County Noxious Weed Board). Once we determine the species and areas that are slated for treatment, we then ask our local federal and state partners what their treatment strategy and priorities are for the year. After taking all these factors into the decision making process, we then select areas for treatment.

Lake County CWMA looks forward to continuing to advise and work with Obsidian on this facility.

Sincerely,



Jason C. Jaeger-Lake County CWMA

TARDAEWETHER Kellen * ODOE

From: David Kerr <dkerr@nlake.k12.or.us>
Sent: Monday, July 20, 2020 10:10 AM
To: TARDAEWETHER Kellen * ODOE
Subject: [Fortimail Spam Detected] Letter from North Lake Education Foundation
Attachments: Obsidian ltr of rec 7.15.2020.doc

David Kerr
541-420-0242

Historic
Fort Rock



North Lake Education Foundation

57566 Fort Rock Road • Silver Lake • OR 97638 • 541-576-2121 • Fax: 541-576-2705

July 15, 2020

To whom it may concern;

I served as the Superintendent of North Lake School District for over seven years and just recently retired from that position.

One of our greatest accomplishments during this time was the passing of a \$4 million bond/construction project in May, 2019 with an additional \$4 million in matching state funds. This total \$8 million project was passed overwhelmingly by North Lake voters. I believe that our constituents saw this as a good educational decision as well as a smart business move.

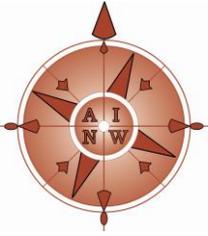
Among the many questions asked during the election campaign was the effect that the Obsidian Renewables project would have on taxes in North Lake. Based on data from the Lake County Assessor's office the Obsidian project would drop our bond tax rate from \$1.09 per thousand to \$0.92 per thousand (a nearly 15% reduction). Once again, I believe our constituents saw this cost savings as a benefit to North Lake education and another smart business move. Perhaps another reason they supported our bond so well.

While I have retired as the Superintendent, I still serve as the Executive Director of the North Lake Education Foundation (NLEF) a 501 (c) (3) organization. Obsidian has committed to donating up to \$4 million to the North Lake Education Foundation when this project is completed for educational enhancement and enrichment activities.

I believe that the Obsidian Renewables project has already paid dividends to the North Lake area and support their continued development of this project.

Respectfully,

David Kerr
Former North Lake School Superintendent
Executive Director, NLEF



Archaeological Investigations Northwest, Inc.

3510 N.E. 122nd Ave. • Portland, Oregon 97230
Phone (503) 761-6605 • Fax (503) 761-6620

Vancouver Phone (360) 696-7473
E-mail: ainw@ainw.com
Web: www.ainw.com

Public Hearing
Obsidian Solar Center – Draft Proposed Order, Energy Facility Siting Council (EFSC)
Christmas Valley, Oregon
Monday, July 20, 2020, 5:30 to 7:00 pm (virtual via WebEx)

Terry Ozbun, Senior Archaeologist, Archaeological Investigations Northwest, Inc. (AINW)
Registered Professional Archaeologist (RPA #12297)
Practicing professional archaeology in Oregon for 33 years

1. What is the EFSC standard for historic, cultural, and archaeological resources?

The Oregon Administrative Rules for the Department of Energy, Energy Facility Siting Council (OAR 345-022-0090) identify a standard for protection of cultural resources during development of energy facilities. The standard states “...the Council must find that the construction and operation of the facility, taking into account mitigation, are not likely to result in significant adverse impacts to ... Historic, cultural or archaeological resources that have been listed on, or would likely be listed on the National Register of Historic Places.”

The National Register of Historic Places (NRHP) is a list of historic buildings and structures, archaeological sites, and other cultural resources that meet certain criteria for historical significance. Protection of significant historic, cultural or archaeological resources involves avoiding impacts to them altogether, minimizing necessary impacts, or mitigation through scientific collection of information prior to impacts. Obsidian Solar Center has developed plans employing all three aspects of protection – avoidance, minimization, and mitigation.

2. How has Obsidian Solar Center met the EFSC standard?

The first step in meeting the standard is to see what cultural resources are present in the project area. Obsidian Solar Center hired professional cultural resource management firm Heritage Research Associates, Inc., out of Eugene, Oregon, to survey the nearly four thousand-acre project area. HRA found both Native American artifacts thousands of years old and historic artifacts associated with homesteading and ranching dating from the late 1800s and early 1900s. In total, 114 archaeological sites and 241 isolated artifact finds were identified in the project area. Archaeological sites have ten or more artifacts or an archaeological feature such as a fire hearth or storage pit. Archaeological isolates have fewer than ten artifacts and no archaeological features.

Next, Obsidian Solar Center consulted with Native American tribes on the survey findings. The Klamath Tribes recommended setting aside certain areas thought to potentially contain human burials so that project construction would not disturb the dead. In addition, another area with dense archaeological resources was set aside for no development. Obsidian Solar Center agreed to set these areas aside to avoid impacting human remains and the archaeological sites in those areas. They also agreed to hire tribal monitors to observe construction in the remaining development areas to help avoid inadvertent impacts to important cultural resources. This is one way that Obsidian Solar Center will protect important resources by minimizing and avoiding impacts to them.

Obsidian Solar Center also coordinated with the Oregon State Historic Preservation Office (SHPO) on which of the archaeological resources might be significant and eligible for listing in the National Register. SHPO recommended treating all of the archaeological resources as parts of a potentially significant archaeological district instead of evaluating each archaeological site or isolate individually. This approach allows holistic consideration of archaeological resources in the path of planned construction impacts, regardless of their individual significance and treating them all in a systematic way to mitigate the impacts by collecting archaeological information prior to construction. Obsidian Solar Center agreed to this approach and worked with the SHPO to specify how the archaeological mitigation would be done. This is another way that Obsidian Solar Center will protect important archaeological resources by mitigating impacts.

Archaeological Investigations Northwest, Inc. (AINW), the company that I work for, was hired by Obsidian Solar Center to develop detailed specifications for the approach suggested by SHPO. The specified methods were customized for the known resources and expected construction impacts. These methods addressed different types of impacts (trenching or other excavations) on different types of archaeological resources (pre-contact, historic, sites, isolates) and identified what would be done in each case. Obsidian Solar Center worked with the tribes and state agencies so that everyone was on-board with these mitigation plans.

Oregon law requires permits for any work that impacts archaeological sites, so Oregon SHPO collaborated with sister agency Oregon Department of Energy, to make sure the permits would be compatible with both agency's processes. Since archaeological permits are only issued to qualified archaeologists, I applied for the permits, on behalf of Obsidian Solar Center, using a research design incorporating the detailed specifications to which all the stakeholders had agreed. Four permits, one for each landowner, were issued earlier this year.

3. What happens next?

If EFSC grants the site certificate, then the next step is to apply the specified methods in the permits to the final Obsidian Solar Center design layout. This requires archaeological excavations in the locations of solar facility construction impacts to verify resource boundaries and to recover samples of artifacts along with the vital context of the artifacts needed to interpret the history of the Fort Rock Valley. The artifacts can tell us a lot about what happened in the past, but only if they are recovered using scientific methods to preserve data on the spatial relationships between the artifacts and the sedimentary deposits containing them. The specifications in the permits include detailed three-dimensional mapping of artifact find locations along with collection of information about soils, sediments, and other associated materials useful for determining the age of the artifacts and how they were used.

Once the archaeological fieldwork is completed a variety of analyses will be conducted to interpret what the artifacts and archaeological data tell us about the past. These results will be compiled into a report that helps to preserve these data while the artifacts and archaeological records of fieldwork will be curated in a repository for potential future research and public display. In addition, tribal monitors with archaeological training will observe construction to identify and recover artifacts and information not represented in the samples collected archaeologically and to make sure that human remains or other sensitive materials are protected.

4. Summary and Conclusion

Obsidian Solar Center has worked with agencies, tribes, landowners, and the public to develop plans to meet the EFSC standard for protecting important historic, cultural, and archaeological resources. These plans include avoidance and minimization of impacts through setting aside some areas where no development will occur. They also include mitigation through agreements with the SHPO and tribes for archaeological data recovery and construction monitoring.

TARDAEWETHER Kellen * ODOE

From: Sue Anderson <celastrinasue@gmail.com>
Sent: Monday, July 20, 2020 7:50 PM
To: TARDAEWETHER Kellen * ODOE
Subject: Re : Obsidian Solar Project

Dear Kellen,

Regarding the Obsidian Solar Project planned near Christmas Valley, my husband Jim and I would like to state that the project is located very near a Golden Eagle nest that has been monitored for over 30 years. Not only would the eagles be disturbed while the project was under construction but their hunting area would be seriously impacted by the array of collectors on the ground. We have been studying the Golden Eagle population in this area since the late sixties. They are suffering a decline in the Christmas Valley/Ft Rock/Silver Lake area. Any more disturbance would be harmful to their survival in this, their ancestral nesting and hunting habitat. A summary of the nesting history of the eagles near the proposed project, namely the Gerkin Rim nest, can be had by contacting the Oregon Eagle Foundation, Frank Isaacs, 24178 Cardwell Hill Dr., Philomath, OR 97370. We remind the project managers that any disturbance to a federally protected species, such as an eagle, is a federal offence.

Respectfully submitted,

Sue Anderson
P.O. box 1513
Sisters, Oregon 97759
541-480-0330
celastrinasue@gmail.com

Submitted July 20, 2020

We are Aaron and Rebecca Borrer, and we are cattle ranchers in the Fort Rock area. We have spent our entire life building up the ranch and cowherd we have.

We have several concerns about the proposed Obsidian Solar Project.

Dust: This desert soil is protected by plants adapted to this desert environment. Removing or damaging these plants will leave the fragile soil to blow in the wind. We attached two photos of a dust storm caused by the initial phase of the Obsidian Solar Project: clearing just two miles of road early this year. The photos were taken February 23, 2020. How bad will this dust be when there are many more miles of roads, and thousands of acres of disturbed lands on this project? The dust will make using the main road from our ranch into Christmas Valley (North Oil Dri Road) impassable during windy days.

Roads:

Our ranch connects to Oil Dri Road via a gravel county road about 5 miles long. This same road will be used by ~~hundreds of~~ workers and ~~countless~~ vehicles, including heavy trucks, going to and from the job site. The gravel road as it is today will not stand up to this use. The DPO states there will be 250 cars and 60 trucks per day using this road. The DPO says nothing about what will have to be done to maintain this road. As it is now, the dust created on this road makes it hazardous. Obsidian should pave this road before any work starts on the project.

Elk:

This area is known for herds of several hundred elk. In particular, the project area is sited on a direct migration path from Green Mountain to the Connley Hills. The project fences will block this migration. No mitigation will help the elk get around the solar project property. The elk will end up on Oil Dri Road trying to find a way around the fence. This will create a safety issue for motorists. At minimum, the project boundary fence should be moved back away from the road 100 yards.

Rodents:

Activities and habitat degradation will cause thousands of rodents to migrate away and into neighboring fields. We have 310 acres of farmland north of the project. Will we have hay left to harvest when this rodent migration occurs?

Disposal and Reclamation:

Solar Panels have a finite lifespan. Who will own this project at the end of its life? Will the owner of the solar project spend the time and money necessary to dispose of the panels and reclaim the land, or will

the owner find a way to walk away, even forfeiting their bond? Will there be 3900 acres of decaying rubble left as a legacy to our future generations?

Arable Land:

The public notice claims that the Obsidian Solar Project is to be built on approximately 3900 acres of non arable land in the Christmas Valley area. This land is currently not irrigated, but most is highly suited to growing alfalfa. We would not classify this solar project land as non arable.

Conflict of Interest: State of Oregon owns 640 acres within project and will get lease \$ from Obsidian, State's EFSC board will OK project ⇒
Not Unbiased ~~review~~ review,

A handwritten signature in black ink, appearing to be 'L. B. R.', written in a cursive style.





7-20-20

EFSC

I'm apposed to any approval that includes battery houses, without first our Elected officials explaining battery houses in public meetings in the AREA where the development takes place (North Lake County)

— ALSO —

I'm disappointed with the process the County used, OR let be used in this the Largest, monetarily, development in the County's history without full disclosure of what this SOLAR FARM will be when completed. We ARE NOT going to know that without being able to first view what some call a plot PLAN. — AND with that said — I think Obsidian has missed a great opportunity to quell some of the concerns by

NOT MAKING THIS PAPERWORK
AVAILABLE.

Luba is correct, Lake
County failed in this
PLANNING PROCESS FOR OBSIDIAN

Carl Shumway
P.O. Box 3
Christmas Valley 97641

ENERGY FACILITY SITING COUNCIL
OREGON DEPARTMENT OF ENERGY
550 CAPITOL STREET NE
SALEM, ORGON 97301

MAY 19,2020

Attention Siting Council,

My wife and I are opposed to the Obsidian Solar Center Facility of 3,921 acres that will be built near our home.

I ask a real estate agent to give us an assment of what this site could do to the value of our property. We have included that report in our presentation. As you can see it would be devastating to us as this is our retirement home.

I also do not see how this would not interfere with the wild life with 18 miles of a 7 foot tall fence surrounding the project.

This solar farm will create visual clutter .

24 Paulusson

The battery houses with their lights will create nighttime light pollution ,
w which our desert has very little if any at this time.

Respectfully submitted by:

Jerald Simmons

Verlinda Simmons

*Tax ID #1160
26516E 000062902
541 513 2298
Aaron Noto brown*

2nd
Commit

David Hagan
Golden Acres
7/20/20

Copy

Horton Testimony

2614
First St.
Tillamook,
OR
97141

To: Oregon Dept. of Energy

My name is LeeRoy Horton and I am speaking with you today on behalf of my wife, Nancy, and myself as owner/operator of LR Farming. We have farmed and ranched here in North Lake County, Christmas Valley on North Oil Dry road for 28 years. The proposed solar facility will border a total of 1,400 acres or 2 1/2 miles of our property. Our concerns involve the very real threat of a huge amount of soil erosion blowing onto our farm and crops. Our crops being eaten by displaced refugee rodents and the extreme dust blows across our 1,400 acres during and after the installment phase of the solar facility. This also effects our 3,500 sheep operation and 100 cow/calf pair facility. The solar install involves scraping/bulldozing off the natural ground cover holding the sandy soil in place. Our high winds will pick up any uncovered sandy soil/dust and throw it around the area contaminating the feed and suffocating the animals. High winds and air-born dust and dirt it will be impossible to farm or live under these conditions. A sand blow can scrape across new seedlings, stripping the field bare.

Stripping the soil down to the alkali layer and this soil becomes easily air-born covering our cropland with alkali soil, changing the PH of the soil causing a reduction in yields. We would then be forced to buy tons of soil amendment per field to correct these conditions. After the wind dies down dirt covers everything like hay, barns and our livestock pastures. Large amounts of uncovered land will be devastating to our sheep, lambs and cattle trying to endure these blows.

Removing 3,921 acres of soil and ground cover will displace 1,000s of ground squirrels, rabbits and field mice driving them into our fields to become refugee rodents . Since these animals

do not migrate they will end up moving into our fields, depleting our crops. Imagine the crop damage done to our fields by 1000s of rodents moving onto our farm all at the same once to live and feed. These refugee rodents are non-game animals. Oregon Dept of Fish and Wildlife cannot mitigate the refugee rabbit. Any mitigation will have to use the Friends of Ft. Rock/Christmas Valley. Jack rabbits, are not rabbits but properly named hares. They do not dig a burrow but live their life on the surface. Hares feed on, what we call rabbit brush in the winter.

The solar project calls for chopping and removing 3,921 acres of their primary feed, leaving them no place to hide from the elements and no native feed. The hares will be forced to move onto our cropland and into our hay barns and livestock feeding areas. This damages our stored hay crops, making them unsellable as the bales fall literally apart.

LR Farming is an organic certified farm through Oregon Tilth. Let's talk about weed seeds. The install will stir the soil causing the dormant, not actively growing, seeds to grow. Normally they could have lain dormant for years. Now they will grow, seed-out, blow into our fields causing extensive economic damage to our organic crops. We raise world class organic hay which is sold to S. Korea and to certified organic farms in USA. If our hay becomes super choked with weeds it becomes unacceptable and the economic damage will be revenue losses, jobs lost and we lose our livelihood.

What will be the effect of 1/74 million solar panels on the immediate climate that surrounds our hay fields? The massive amount of solar panels could raise the ambient temp? Could large amounts of solar panels cause humidity and moisture changes in the early mornings so that we will be unable to bale our hay? These are questions no one seems able to answer! We really need early morning dews to bale the world class hay.

When you get right down to it, solar panels produce mainly toxic waste. Cheaply made Chinese solar panels break down in as little as 5 yrs. Also well-built panels may last 20-25 yrs becoming ineffective and maybe only producing half or 10% of the energy compared to new panels. When the glass of the solar panels erodes or is smashed the toxic components of lead, cadmium and chromium will leach into the soil and water but never decay! No half-life. Eroding increases in Christmas Valley as our wind carries abrasive sand and soil as it blows. Solar panels only produce energy 30% of the time. However a small amount is produced 75% of the time.

On a closing note, We find it quite ironic that by installing solar panels, they destroy huge swaths of the natural world they are intended to save.

Dear Department of Energy,

Hello, My name is Mariam Thorsted. I am writing you this letter to state my opinions and concerns regarding the proposed solar site installation on North Oil Dry in Christmas Valley. I have lived on this road for all of my life except for my college years. Regardless, I plan on taking over my father's farm and I currently own and run all of our livestock, which includes 2,000+ ewes plus their lambs, and 100 head of high quality registered Angus cattle. My husband and I live in a house that is adjacent to the east of the proposed solar site. Now that you know a little more about me I would like to go into my concerns.

1. My greatest concern is my livestock. As a young producer who chose to come back to the ranch after college I believe that I am a black sheep if you will. Many of my classmates were venturing off into other jobs while I was one of the only ones wanting to go back to my family's farm/ranch. With this in mind, I am young and still learning a lot! I am very grateful for all the help that the locals have given me, but I am very scared for what may happen to my animals. Will the dust cause them respiratory problems? Will my employees have allergic reactions to the dust? Will my lambs have problems getting started in life? Will there be a large amount of light pollution, causing my animals to not rest in the night and lose weight? How will livestock guard dogs guard my sheep if the construction of this facility distracts them? Where will the coyotes go that reside in the property? Will the coyotes move closer to my animals?
2. I attended college at Kansas State University. This allowed me to study the affects of the up and coming drought and the dust bowl as well. In Kansas, the aquifer is being depleted and the farmers are either selling their land or trying to switch back over to dry land farming. I would say that they are semi lucky in their situation, because they have the weather and soil type to do dry land farming. Unfortunately, this is not an option in South Central Oregon. Our top horizon of soil is sand. This sandy horizon will blow away with out the cover of vegetation such as brush or crops. This can be observed on any windy day in our valley. I know that there are no new water rights given out in North Lake county, so if the project plans on watering their facility, they will have to buy water from other people and this is not right! The water here is for farmers and for farming or ranching! Solar panels are not agricultural. Did you know that the Natural Resources Conservation Service (NRCS) was created after the dust bowl disaster in Kansas and surrounding states? This was to ensure that nothing like the dust bowl would happen again. In Christmas Valley you can see the affects of improper farming and what the wind will do to open fields or areas. There have been numerous car crashes due to poor visibility. Also many sand dunes have been created. One is even on my father's property (which was created by the previous owner in the 80s). The sand dune on our property is directly next to the proposed solar panel site.
3. I hope to raise my family on my father's farm (or my farm one day in the future). I hope to not see solar panels as our neighbors forever and ever. This

is an eye sore of light reflection, light pollution, and a horrible looking landscape. I want my children to grow up in the country and feel safe like I did out here. I am wondering what kind of people will be hired to move out here to work on the site? Will my family be safe? Will my employees be safe? I hope none of our property is stolen or messed with. We own property far out in the country so that we can feel safe and farm with out disturbing other people. I would hate for this company to come in and disturb us. We are very peaceful out here and everyone seems to mind their own business, but this project has really turned neighbors on neighbors and has been a great stress in our life! A great stress!

Thank you for hearing my concerns.

Mariam Thorsted 5-19-20

This statement is also signed by my husband,

Jeremiah Thorsted

July 20, 2020

Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capital Street NE
Salem, OR 97301

via electronic mail:
Kellen.Tardaewether@oregon.gov

RE: Obsidian Solar Center, LLC project at Fort Rock

Ms. Tardaewether,

I am the current or former property owner of 2,713 of the approximately 3,900 acres proposed for the Obsidian Solar Center Project. I write this letter in support of the pending Site Certificate for the project.

My land is zoned Agricultural but there are no water rights on the property and, due to the water moratorium, no water is available for irrigation. The soil is of variable quality and most of it low value for agricultural production or grazing forage. It is not feasible to establish a commercial agricultural operation on the property and while I have grazed some cattle on it in the past, the land is inadequate, in my opinion, to support a viable commercial grazing operation.

Sincerely,



Richard Morehouse



IBEW Local 125

International Brotherhood of Electrical Workers

RECEIVED

JUL 22 2020

Department of Energy

July 20 , 2020

Kellen Tardaewether, Senior Siting Analyst
Oregon Department of Energy
550 Capital Street NE
Salem, OR 97301

Dear Mr. Tardaawether:

On behalf of the approximately 3,600 members of the International Brotherhood of Electrical Workers (IBEW) Local 125 who work in the utility industry throughout the Pacific Northwest, I offer comments in support of the Obsidian Solar Project.

This large-scale solar and storage project does not sit within IBEW Local 125's jurisdiction but like any renewable project in Oregon there will be impact on our membership. While the construction jobs are important, and there are only expected to be less than 10 permanent operation and maintenance positions, we support this project because it meets Oregon's future energy needs while answering demands from Oregonians to provide the cleanest energy possible for our state. The Obsidian Solar Project does just that. However, we recognize there are issues which will be raised from stakeholders and the public at large. While we do not minimize those concerns, we believe that the greater good of this project outweighs adverse impact.

Landowners will be concerned about the impact to their property, rightfully so. Issues around property damage or effects should be mitigated with Obsidian Renewables. Studies on noise, dust, erosion, etc. are commonly conducted, and we believe these temporary construction issues will be adequately addressed. The Energy Facility Siting Council has requirements which mitigate wildlife impacts, so that should get handled since EFSC routinely works with other agencies such as Oregon Department of Fish and Wildlife on mitigation issues. The IBEW Local 125 along with IBEW Local 659 are available for comment on specific issues related to project construction and operation. It is certainly our position that this project should be constructed using union workers who have the skill, knowledge, and ability to construct this project safely and on time.

IBEW Local 125 believes that the overall public benefits of this facility outweighs any adverse effects. This project supports Oregon's energy policy as described in ORS 69.010 and meets the need standard in OAR 345-023-0005. Please contact me at travis@ibew125.com or 503-262-9125 if I can provide any additional information related to the construction or operation of this solar project. Thank you for your consideration.

Respectfully,

Travis Eri
Business Manger
IBEW Local 125

