1.5 Percent for Green Energy Technology in Public Buildings

Projects Reported Calendar Year 2016

Report to the Oregon Legislature

Chemeketa Community College – Applied Technology

OREGON DEPARTMENT OF ENERGY

1.5 % for Green Energy Technology in Public Buildings Annual Report

January 2017

Written by:

Ann Hushagen

550 Capitol St. NE, 1st Floor
Salem, OR 97301
503-378-4040 or 800-221-8035
www.oregon.gov/energy

TABLE OF CONTENTS

INTRODUCTION 2
HISTORY OF THE STATUTE 2
GREEN ENERGY TECHNOLOGY REQUIREMENTS 2
OUTREACH EFFORTS BY ODOE TO PUBLIC BODIES 3
PASSIVE SOLAR TECHNOLOGY PROJECTS 4
PROJECTS REPORTED TO ODOE 5
INCREASING COMPLIANCE WITH THE STATUTE 11
TECHNICAL REVIEW PANEL DETERMINATIONS 12
APPENDIX A: TECHNICAL REVIEW PANEL DOCUMENTATION 13

1.5 Percent for Green Energy Technology in Public Buildings

INTRODUCTION

Pursuant to ORS 279C.527 and 279C.528, the Oregon Department of Energy must deliver an annual report to the Legislative Assembly on or before the first date of the regular session summarizing the compliance of contracting agencies required to incorporate green energy technology in public improvement projects.

HISTORY OF THE STATUTE

In 2007, House Bill 2620 established the requirement for a public body to spend 1.5 percent of the total contract price of a building on solar technology. HB 2620 specified reporting requirements by the Oregon Department of Energy to the legislative assembly on two specific dates. In 2012, Senate Bill 1533 amended ORS 279C.527-528 to 1.5 percent for Green Energy Technology (GET), allowing geothermal technology to also meet the requirement. In the 2013 legislative session, House Bill 3169 further amended the law and updated the reporting requirements by the department to the legislature, making the reports due annually before the start of the session. House Bill 2987 in 2015 removed the requirement that public bodies identify an account where deferred funds were to be held, but maintained the requirement to spend the equivalent funds on the next appropriate building project. Also in 2015, House Bill 3329 lowered the minimum water source temperature from 140°F to 128°F for geothermal technologies in K-12 school projects.

GREEN ENERGY TECHNOLOGY REQUIREMENTS

The GET requirement applies to any new, public building with construction costs exceeding $1,000,000. It also applies to buildings being renovated when construction costs exceed $1,000,000 and 50 percent of the insured value of the building. A public body must own or control the building and use it for conducting public business or as space for its employees.

Public bodies include state agencies, cities, counties, local service districts, and special government bodies including school districts, education service districts, community college districts and public corporations created by state statute. Members of the Oregon University System are exempt from the requirement.

Green Energy Technology is defined as renewable energy technologies that employ:

- Solar technologies, which include photovoltaic, solar hot water, passive solar and day lighting.
- Geothermal systems that use geothermal source temperatures of 140° F or more to provide heating or make electricity, with the exception for K-12 school projects, which are allowed to use minimum geothermal source temperatures of 128°F. Ground source heat pumps do not comply with the definition.

To accommodate geothermal technologies, SB 1533 allows off-site installation of green energy technologies if certain requirements are met. These include cost-effectiveness, proximity of location and providing new generating capacity. As a result, the public body has the option to place a technology off-site if it considers the technology inappropriate at the building site. The energy produced at either location must be used at the building site.

If the public body plans to install green energy technology at an alternate site, it must have its plan reviewed by a technical review panel. The technical review panel includes a professional engineer or architect, a member of a public body, a solar or geothermal technical expert, and is chaired by ODOE staff. The public body must provide to the panel information about the site and the cost of the green energy technology system at each location.

If the public body considers green energy technologies inappropriate both on-and off-site, the public body must also submit its reasoning to the technical review panel. The panel reviews the analysis and provides its written recommendation to the public body. The public body makes a final determination whether the green energy technology is appropriate for the project. Both the public body's decision and the review panel's recommendation must be reported to ODOE.

If the public body determines green energy technology is inappropriate for the project, and no state funds are used for the construction/renovation of the public building, there is no further requirement. However, if state funds are included in the construction/renovation funding, the public body must spend an equivalent amount in the next project that it builds. This amount is in addition to the 1.5 percent of the future project cost used for green energy technology.

The law requires all public bodies with a building project subject to the green energy technology requirement to report the project information to the Oregon Department of Energy. After a public body makes a final determination whether green energy technology is appropriate and before construction of the system begins, it is required to report the project electronically, using a form located on the ODOE website. ODOE summarizes all reported projects and provides this report to the legislative assembly prior to the start of the regular session.

OUTREACH EFFORTS BY ODOE TO PUBLIC BODIES

Due to the few projects reported to the 1.5% GET database, it became apparent that some contracting agencies were not aware of the requirement to incorporate green energy technology into projects and were even less familiar with the requirement to report their projects to ODOE. In 2014, the Oregon Department of Energy began outreach efforts to public bodies by providing information about the requirements stipulated in ORS 279C.527 through ORS 279C.528. ODOE now conducts annual outreach via email to remind public bodies of the requirements. This outreach email is sent to the Association of Counties, League of Oregon Cities, Special Districts Association of Oregon, community colleges, state agencies, counties,

cities and K-12 school districts, amongst others. ODOE also maintains a frequently asked Questions and Answers document and has developed an informational brochure for distribution at public body conferences and gatherings, in the continued effort to expand outreach.

Between 2008 (the date the requirement went into effect) and up through 2013, 23 projects were reported to ODOE. For years from 2014 to 2016, during which ODOE has conducted outreach, 30 projects were reported. It appears that ODOE outreach efforts have improved the level of reporting by public bodies. ODOE has also seen a substantial increase in contact from public bodies with various questions about program requirements during the past year, indicating that the effort to increase awareness of the 1.5 percent GET requirement is reaping results.

PASSIVE SOLAR TECHNOLOGY PROJECTS

Passive solar is one technology that meets the 1.5 percent GET requirement, provided that the passive components reduce whole building energy use by 20 percent compared to a code level building. The 20 percent savings is a significant challenge and few projects have used passive solar technologies to meet the requirement. Designing passive components into a building requires a high level of analysis and substantial design time to determine if the 20 percent energy reduction goal will be met. Public bodies have been reluctant to invest the resources knowing the possible outcome might be that the 20 percent threshold will not be met and they then must return to the drawing board.

Chemeketa Community College contacted ODOE and requested that the use of passive cooling strategies via natural ventilation in their Applied Technology Building be allowed to count towards the 20 percent savings requirement. ODOE agreed to consider it as a pilot project to determine what level of savings is achievable through passive strategies. The design resulted in total savings of 28 percent, including the savings contribution from the passive cooling strategy and achieved 24 percent whole building energy use reduction from the passive elements alone.

Multnomah County wanted to pursue the passive solar route in the new nine story Multnomah County Health Department building in downtown Portland. Due to project site and surrounding constraints, the building was not a good candidate for photovoltaics. The design team contacted ODOE early in 2016 and presented a passive design, which would allow them to incorporate more energy efficient HVAC systems. The county requested permission to count the contributions from the efficient HVAC systems towards the 20 percent savings requirement. ODOE agreed to allow this as a pilot project, provided that the savings from the passive systems and the efficient HVAC systems be analyzed separately so the contributions of each would be known. The resulting analysis showed a 12.6 percent whole building savings

from the passive elements and 18.4 percent savings from the efficiency measures for a total 31 percent better than code result.

A subsequent request for a third pilot project for the Multnomah County Courthouse was not accepted since the building was to be a seventeen story project and already intended to install the maximum amount of PV that the roof size would allow, using 2/3 of the required budget. The request was to use the remaining 1/3 of the funds to install passive features. ODOE did not feel that this met the criteria for a pilot project, however responded that their plan to install as much PV as they could met the intent of the statute and that using the remaining funds for passive and energy efficiency technologies could be determined appropriate by the public body.

The Reynolds School District is planning to construct a zero net energy ready elementary school and requested that their project be considered as a passive pilot project. The concept of the zero net energy ready building is that energy use loads are designed to be low enough that with the addition of renewable (PV) technologies, annual energy use is offset by annual on-site energy production. Preliminary analysis shows that the school will use 32 percent less energy than a code elementary school, including the energy credit for the efficient lighting and HVAC systems. The design will be repeated for two additional elementary schools in the district. ODOE has agreed that the project will be the third passive pilot project.

PROJECTS REPORTED TO ODOE

Eight projects for which green energy technology was deemed appropriate were reported in 2016. One project for which green energy technology was determined to be inappropriate was reported during the year. The projects, as reported to ODOE, are listed beginning on the next page.

1.5 Percent for Green Energy Technology in Public Buildings

Projects in which Green Energy Technology has been installed:

Project Owner, Project Name and Location	Chemeketa Community College Applied Technology Bldg, Machining, Engineering, Drafting 4000 Lancaster Drive NE Salem, OR
Project Start Date	7/1/2014
Occupancy Date	9/1/2015
Total Contract Price	$12,100,000
Minimum GET Budget	$181,500
GET Description	Study was submitted to ODOE by PAE for approval. Modeled features include a high performance building envelope, window overhang and shading fins as well as reflectors, day lighting sensors above and beyond code, and passive cooling through cross and stack ventilation. Reported Btu savings include Electrical at 76,046 kWh, and Natural Gas at 3,143 therms Savings exceed 1.5 percent the requirements by 161MMBtu (all info from PAE).
Est. Annual Production	574 Million Btus
Est. Annual Value	Not provided
Total GET Expenditures	$463,000

Project Owner, Project Name and Location	City of Hillsboro Public Works Facility 2201 NE F Street Hillsboro, OR
Project Start Date	6/25/2015
Occupancy Date	12/31/2016
Total Contract Price	$10,900,000
Minimum GET Budget	$163,500
GET Description	Solar World PV array Model #SW 285 MONO , 30.78kW with CPS inverter Model # SCA28KTL-DO/US-480
Est. Annual Production	Not provided
Est. Annual Value	Not provided
Total GET Expenditures	Not provided

1.5 Percent for Green Energy Technology in Public Buildings

Project Owner, Project Name and Location	City of Albany Albany Fire Station 110 SE 6th Avenue Albany, OR
Project Start Date	7/25/2016
Occupancy Date	6/30/2017
Total Contract Price	$7,666,667
Minimum GET Budget	$115,000
GET Description	PV System with output capacity of 36kW connected to the utility electric grid through a grid-interactive power.
Est. Annual Production	30,780 kWh
Est. Annual Value	$2,770
Total GET Expenditures	Not provided

Project Owner, Project Name and Location	City of Albany Albany Police Station 2600 Pacific Boulevard SW Albany, OR
Project Start Date	7/25/2016
Occupancy Date	6/30/2017
Total Contract Price	$12,553,533
Minimum GET Budget	$188,303
GET Description	PV system with output capacity of 33kW connected to the utility grid through a grid-interactive power conditioner.
Est. Annual Production	28,215 kWh
Est. Annual Value	$2,540
Total GET Expenditures	Not provided

1.5 Percent for Green Energy Technology in Public Buildings

Project Owner, Project Name and Location	Oregon Youth Authority Grover Cottage Renovation 2630 North Pacific Highway Woodburn, OR
Project Start Date	6/01/2016 3/01/2016
Occupancy Date	6/01/2017 1/31/2017
Total Contract Price	$1,678,600
Minimum GET Budget	$25,179
GET Description	Per 330-135-0035-5: Automatic controls, overhangs, skylights, windows higher than 7'-0" above finish floor and modeling of energy performance.
Est. Annual Production	41,000 kWh
Est. Annual Value	$2,500
Total GET Expenditures	$35,185

Project Owner, Project Name and Location	Multnomah County Multnomah County Health Department Corner of NW Hoyt and NW 6th Ave Portland, OR
Project Start Date	1/01/2017
Occupancy Date	11/01/2018
Total Contract Price	$62,200,000
Minimum GET Budget	$933,000
GET Description	Project is pursuing a pilot project using passive systems. This has been reviewed by ODOE and approved (See Appendix X for detailed description).
Est. Annual Production	N/A
Est. Annual Value	N/A
Total GET Expenditures	$1,217,001

1.5 Percent for Green Energy Technology in Public Buildings

Project Owner, Project Name and Location	City of Canby New Public Library and Civic Offices 222 NE 2nd Ave Canby, OR
Project Start Date	10/05/2016
Occupancy Date	10/03/2016
Total Contract Price	$7,000,000
Minimum GET Budget	$105,000
GET Description	Installed photovoltaic solar panels on the roof. 28,160 watts x 1.08 (production capacity) X 89 percent TSRF (91 percent TOF * shading estimate (2 percent)= 27,000 kWhs.
Est. Annual Production	27,000 kWh
Est. Annual Value	$3,240
Total GET Expenditures	$115,060

Project Owner, Project Name and Location	Oregon Youth Authority RVYCF New Bridge High School 2201 NE F Street Grants Pass, OR
Project Start Date	9/30/2016
Occupancy Date	1/31/2018
Total Contract Price	$7,467,468
Minimum GET Budget	$112,012
GET Description	Solar photovoltaic system will consist of six strings of twenty 185-watt PV panels. Panels will feed into a 22.5 kW inverter, efficiency is 96percent. Photovoltaic panels will be mounted facing due south with 20 degree tilt. The array capacity will be 22.0 kW
Est. Annual Production	30338 kWh
Est. Annual Value	$2,730
Total GET Expenditures	$112,012

1.5 Percent for Green Energy Technology in Public Buildings

Reported projects for which green energy technology was determined to be inappropriate:

Project Owner, Project Name and Location	Deschutes County The Pavilion 1001 Bradbury Way Bend, OR
Project Start Date	Not provided
Occupancy Date	Not provided
Total Contract Price	$9,112,578
Minimum GET Budget	$136,689
Public Body explanation as to why GET was determined to be inappropriate for the project	The District investigated the potential for incorporating solar technologies during the initial design of the new covered outdoor recreation facility the District has named The Pavilion. The Pavilion is located at 1001 SW Bradbury Way in Bend, Oregon 97702. The constructed cost of the Pavilion at this time is $9,080,193.65. The Green Energy requirement of 1.5 percent would require $136,202.90 to be spent on Green Energy sources. Geothermal technologies were not available at this site. The District employed Sunlight Solar Energy, Inc. at 50 SE Scott Street, Building #13, Bend, Oregon 97702 to assist in the assessing the feasibility of incorporating solar energy into the Pavilion. Several mitigating factors led the District to determine that solar technologies were not compatible or appropriate for this development as well. 1. The location and zoning for this facility resulted in a land use decision that imposed several conditions of approval that influenced the design of the structure and made the incorporation of solar panels difficult. To meet land use conditions limiting noise and light pollution from the facility into adjacent residential neighborhoods the roof of the structure slopes from the south (high point) to the north (low point) which is not conducive to placement of solar panels. 2. The additional structure required to gain solar access placed significantly increased loads on the roof and required extensive reinforcement not otherwise needed in the design. 3. The addition of solar panels and required racking would have had a negative effect on the appearance to the building. 4. In order to install sufficient solar panels (1218 – see exhibit 3) to achieve a yearly average of 27 percent in electrical usage from solar production Sunlight Solar, Inc.'s construction estimate was $763,686.00 (exhibits 1 and 2). This type of

	installation required 26.1 years for simple payback. This cost greatly exceeded the 1.5percent investment amount of $136,202.90. The 1.5percent investment alone would have had minimal impact on the power usage of the facility. (see exhibits from Sunlight Solar, Inc. attached) 5. There is no additional room on site for the placement of ground mounted panels. 6. The District invested approximately $5,000 to design and install additional conduit and create panel and equipment space for future solar installation should panel and control technology improve to a point where significant changes in the building design are not necessary to the installation of solar technology. 7. Transferring this cost to another project or other site would place unreasonable burdens on the District's ability to serve its users
Technical Review Panel Findings	Oregon Department of Energy solicited comments from the Technical Review Panel who found that there was not adequate evidence presented to declare solar inappropriate at this site. In specific the Panel found: 1. The solar resource on the rooftop meets the minimum technical requirements for solar installations in the program. 2. Program rules allow design and structural enhancements to be included in the 1.5 percent project costs. 3. No evidence was provided to demonstrate that a system located on site but not on the rooftop, such as covered parking, was fully considered.
Est. Annual Production	N/A
Est. Annual Value	N/A
Total GET Expenditures	N/A

COMPLIANCE WITH THE STATUTE

The Oregon Department of Energy's role includes writing program rules, conducting outreach to public bodies and summarizing the public bodies' reporting efforts in the annual report to the legislature. The decision to determine whether green energy technology is appropriate or inappropriate remains with the public body. Public bodies that determine green energy technology to be inappropriate are directed to submit their reasoning for a Technical Panel Review. ODOE will continue to inform public bodies that they must request a review when making a determination that the green energy technology is inappropriate and that regardless of which determination they make, all projects must be reported to the 1.5 percent GET reporting form.

TECHNICAL REVIEW PANEL DETERMINATIONS

Seven projects were sent to the Technical Review Panel to determine appropriateness. The correspondence and determinations are included in Appendix A.

APPENDIX A: TECHNICAL REVIEW PANEL DOCUMENTATION

Chemeketa Community College Request:

January 11, 2016

Rob Del Mar
Oregon Department of Energy
1011 SW Emkay Drive, Suite 108
Bend, OR 97702

Re: Technical Panel Review of Solar Requirements for Public Building Construction.

The college is submitting a request to the Technical Review Committee to defer the 1.5% obligation pertaining to building 21 to the next building project, building 20. The work accomplished in building 21 consisted of an extensive remodel of the existing building and the construction of a new fabrication shop on the north end of the building with a roof sloping down to the north, resulting in the largest roof section being unsuitable for active solar. The small basically flat roof of the existing building is compromised by a large solar overhang on the new section that shades the north section of the flat roof area, and more relevantly, by large roof top mounted exhaust, ventilation, makeup and heating equipment necessary to support the welding activities that occur within the building. Due to the equipment location conflicts and potential shading by mechanical equipment, mounting solar panels on this section of roof is also not feasible.

The building was, however, constructed using passive solar cooling techniques and incorporates large vents and operable windows with programed actuated controls, which required a substantial investment, but due to other building characteristics, the building could not meet the energy saving provisions of OAR 330-135-0045 to comply with the 20% savings requirement over a n Oregon Energy Code building using passive strategies.

The college deferred on writing this deferral request until there was confidence that building 20 would meet the 1.5% passive alternate requirements and therefor allow deferring the investment in building 21 to that project. PAE, our mechanical engineering consultant, prepared a specific model to demonstrate the savings of building 20, and worked with the ODOE during the summer and fall to verify the requirements were satisfied. The application for that building has been submitted to the ODOE.

The passive investment in Building 20, which has reached substantial completion, but not final completion, is $463,000. The required investment to meet the provision OAR 330-135-0045 for this building is $181,500. The required investment in building 21 is $41,308.85.

The investment in buildings 21 and 20 were part of the College's bond commitment to provide state of the art space for applied technology, specifically welding, fabrication, machining, drafting and engineering. A strategy was developed to remodel and add onto building 21 to serve welding and fabrication, and to construct a new building to house the machining, drafting, and engineering programs. The buildings are architecturally very closely related, and from a programmatic standpoint, considered as a single project. The similar architecture is apparent in the attached photos, and the offices and classroom used by building 21 staff and students are located in building 20.

Chemeketa Community College chemeketa.edu

Discover Chemeketa Community College

Further support for this request is contained within the passive report prepared by PAE. To qualify under the passive provisions of that stautute, building 20 was required to save 20% of energy due to the passive qualities of the building. The study shows that when all the passive strategies are considered, including passive cooling, the building will save 28% over an Oregon Energy Code building.

Based on the unsuitability for mounting solar equipment on building 21, an earnest investment in passive cooling in that building, and the modeled performance due to passive strategies of building 20, which required a very sizeable investment, the college respectfully request, that the obligation of investing $41,308.85 to meet the requirements of OAR 330-135-0045 be deferred to the next building project, specifically, building 20.

Please feel free to contact me if you have any questions regarding this request. I can be reached via email at phillip.wright@chemeketa.edu or by phone at 503.584.7261.

Respectfully,

Phil Wright,
Director of Facilities & Operations and Capital Projects

Building 21, North to the right

Builidng 21, Building 20 to the right

Location: 4000 Lancaster Drive NE, Salem, OR
Mailing Address: PO Box 14007, Salem, OR 97309-7070
General Information: 503.399.5000

chemeketa.edu

Response to Chemeketa:

March 8, 2016

Phil Wright
Director of Facilities and Operations and Capital Projects
Chemeketa Community College
400 Lancaster Drive NE
Salem, Oregon 97309

RE: Request for technical review of 1.5percent Green Energy Technology requirements for buildings 20 and 21.

Dear Mr. Wright,
This letter is in response to a request for a technical panel review of the 1.5percent Green Energy Technology requirement for building 21 at Chemeketa Community College that you submitted to ODOE on January 14, 2016. In that letter you propose to use the passive solar expenditures in building 20 to comply with the 1.5percent Green Energy Technology requirements in buildings 20 and 21. The technical review panel believes deferment of the building 21 funds to the building 20 passive solar measures is appropriate. The committee believes that Chemeketa Community College is demonstrating a strong commitment to showcasing passive solar design strategies on campus.
The program rules provide for a recommendation from the technical review panel but that the final determination regarding siting of the project is to be made by the contracting agency. The rules also require that building 21 and the decision to defer funds be submitted into the green energy technology database. The program rules and database reporting form can be found on the Oregon department of Energy Web page at
http://www.oregon.gov/ENERGY/CONS/pages/publicsolar.aspx.
Please note that if the college wishes to submit a deferment request in the future it is advisable to submit the request during the design phase of a project before the projects are constructed.
Feel free to contact me if you have any questions.

Sincerely,

Robert Del Mar
Chair of Technical Review Committee
503-302-7027

LaGrande School District Request:

BOARD OF EDUCATION
Merle Comfort, Chairman
Joe Justice, Vice Chairman
Greg Blackman
Dayneen Koopman
Robin Maille
Danelle Wilson
Chris Woodworth
SUPERINTENDENT
Larry Glaze

September 9, 2016

Oregon Department of Energy
Technical Review Panel
625 Marion St. NE.
Salem Oregon 97301-3737

Dear Mr. Del Mar,

I am writing this letter on behalf of La Grande School District (LGSD) as we are seeking approval from the Technical Review Panel for greater flexibility in how the 1.5% Green Energy allocation is utilized in our District. We passed a $31.5 million bond in November of 2014 and it is estimated that the 1.5% of subject construction projects will generate between $325,000 and $350,000.

As you review this proposal, it is our hope you will take into serious consideration the fact our District does not qualify for SB 1149 monies or Oregon Energy Trust incentives and/or technical assistance.
The solar design companies we have been working with have estimated the above 1.5% would be sufficient to build a 75 kw to 100 kw solar array on the new elementary school we are building. When approached about this size array, our local utility, Oregon Trail Electric Coop (OTEC), has made it clear that they will only net meter up to 25 kw of solar generated power per meter and that any additional power beyond the 25 kw will be purchased at the "avoidable cost", which is about 50% of what we pay for power. Jim Henry, our Bond Architect, has worked with the solar design company and they calculate the payback period for this array would be around 42 years based on the current value of the power at the avoidable cost. Since the estimated life of the solar array is 20 to 25 years, it appears this is a less desirable investment of our tax payer dollars when compared with other ways we could use the funds to conserve energy.

As an alternative to the large array, LGSD proposes that we install a 25 kw solar array on the new elementary school in order to maximize the net metering benefit and then utilize the remainder of the funds for energy efficiency upgrades which are beyond the reach of available bond funds. The two projects we have in mind are replacement of steam uninvent heaters at Greenwood Elementary School with either a hot water system or multiple electrical split system heat pumps (zoned), a project which has an estimated cost of approximately $500,000. The other project that would be considered is the conversion of the existing heating system at Island City Elementary from electric to gas. We are adding several classrooms to this building and will heat the new classrooms with gas since it so much more efficient. If additional funds were available, we would install hot water coils in the existing air handlers in place of the existing electric coils. The cost for this project has not been estimated, but it is assumed the cost would exceed $250,000.

La Grande School District has a history of being proactive in the areas of energy efficiency, in spite of the fact we do not receive any SB 1149 funding or assistance from Oregon's Energy Trust. In 2008 the District hired

OPPORTUNITY & EXCELLENCE
Union County School District Number One
1305 North Willow Street
La Grande, OR 97850-1392
(541) 663-3202 Fax (541) 663-3223
www.lagrandesd.org

an ESCO and spent just under $1 million on energy improvements utilizing borrowed funds which are being still being repaid from our general fund resources. Last year all exterior and exit lights were upgraded to LED lamps utilizing grant funds from ODOE and OTEC.

We would like to continue with our energy upgrades utilizing the funds from the 1.5% Green Energy allocation (beyond the cost of a 25 kw array) as the investment in solar simply does not make sense from an economic perspective. Your expedited approval of this action would be appreciated as construction on the new elementary is already underway and we are trying to establish a priority list of those projects that can be funded with the remaining resources. Unfortunately, the two projects I have listed will most likely not make the cut without the infusion of additional resources.

Please feel free to contact myself or Joseph Waite, the LGSD Bond & Facilities Manager (541-663-3204) if you need additional information.

Sincerely,

Chris Panike
Business Director
La Grande School District
541-663-6306
chris.panike@lagrandesd.org

cc: Superintendent Larry Glaze
Joseph Waite
Jim Henry

1.5 Percent for Green Energy Technology in Public Buildings

Response to LaGrande:

Chris,

We received your letter requesting flexibility in the spending of the 1.5percent Green Energy Technology (GET) funds for the new elementary school in La Grande. Your letter explained that due to net metering limitations from your utility, Oregon Trail Electric, spending the full 1.5percent of the total contract cost on PV would make the project payback 42 years on a 20-25 year solar array. You stated that you felt this not to be a good use of tax payer dollars. Your letter states your intention to install a 25 kW array and utilize the remaining funds for energy conservation. You requested that ODOE allow the remaining funds to be used in this way.

The Department of Energy does not have the authority (per ORS 279C.527-528) to give approval for the additional funds to be spent in this way. However, the final determination for finding green energy technology appropriate for your project lies with the public body, your school district. The explanation that you have provided in your letter details your intent to comply with the law as much as is practical and that it is not the school district's intent to circumvent the 1.5percent Green Energy Technology requirement. That explanation should be provided when you report this project to the 1.5percent GET database. ODOE provides an annual report on green energy technology projects to the legislature and will report on the information that is entered in the database. I have included the link to the reporting form for your convenience: http://greenenergytechnology.odoe.state.or.us/

Regarding the energy efficiency and conservation projects that you are considering for your other elementary schools, ODOE is happy to provide technical input as you consider your options. We also recommend that you discuss any possible incentives for energy efficiency with the utilities that serve your district.

Thank you,

Ann Hushagen

Energy Analyst

Energy Planning & Innovation

Oregon Department of Energy

1.5 Percent for Green Energy Technology in Public Buildings

Multnomah County Courthouse Request:

Ann,

Thanks again for your help in navigating the GET Funding process for the Multnomah County Courthouse. As we have further developed the design, we have a quick question regarding how we utilize the energy that is being generated by our roof-mounted photovoltaic system.

As you know, the Courthouse project is located in downtown Portland, meaning that the building will be connected to the downtown power grid. Due to the scale and sensitivity of the infrastructure supplied by the downtown network, the utility has a strict policy against backfeeding any solar generated power that is produced within the downtown boundary. There are multiple implications of this policy that will adversely impact both the first cost and long term effectiveness of the photovoltaic system that we will be installing on the courthouse. In order for the energy generated by the roof mounted PV's to be applied to the new service load of the building, we will be required to install costly network protection. This is due to the fact that, given the typical occupancy schedule of the courthouse, there will likely be times over the weekend and on holidays where the onsite generation will exceed the load demand of what will essentially be a vacant building. During these weekend and holiday periods, network protection will lead to a number of our panels to be completely disconnected from the grid, meaning that any energy generated exceeding the buildings running loads will be entirely lost.

Fortunately, due the unique position of our site, we believe that there is a viable path forward to both eliminate network protection from our photovoltaic system and also dramatically increase the utilization of our on-site production, all while continuing to power a county structure from the Courthouse's renewal energy source. Our building is situated directly adjacent to the Madison Avenue on-ramp to the north and the Hawthorne Bridge to the northeast, all of which is located on contiguous Multnomah County owned property. The bridge is served by a separate radial power network that is located directly across Naito Avenue to the east which, unlike the downtown network, can accommodate backfeeding from a photovoltaic power source. Through preliminary conversations between the design team, Multnomah County, and PGE, the utility stated that it would be comfortable with the county connecting it's PV's to this adjacent radial network, provided that there is an associated structure to which we would be supplying this energy. In this case, the opportunity would be for the energy generated by the roof mounted photovoltaics on the Courthouse to offset the energy used by the Hawthorne Bridge.

We think this is an exciting synergy for a variety of reasons. First, it allows us to eliminate the first cost of network protection and reallocate those funds to other previously approved eligible green energy technologies such as thermal mass and our improved glazing and insulation values. In addition, it will ensure that any excess energy generated by our PV array gets fed back into the radial grid – as opposed to going unused if we were to connect to the downtown network. Finally, upon examining the annual utility bills of the Hawthorne Bridge, it appears that the anticipated energy production of our building PV array can almost entirely offset the energy use of an adjacent county structure located on contiguous county-owned property.

We would like to confirm with your team at ODOE that this approach is consistent with the intent of the 1.5percent GET Requirement and can be pursued by the design team at this time.

Attached is a diagram of the proposed PV utility connection (clouded) and below is a comparison of estimated PV production compared with the monthly usage of the Hawthorne Bridge:

Month	Est. PV Production (kWh)	billing start date	PGE Monthly Usage (kWh)
January	5,202	1/10/2016	13,860
February	6,835	2/8/2016	12,660
March	12,238	3/8/2016	11,880
April	15,431	4/6/2016	10,380
May	21,109	5/5/2016	10,200
June	21,400	6/7/2016	8,760
July	23,775	7/6/2016	9,060
August	19,431	8/6/2015	11,760
September	14,497	9/8/2015	11,400
October	10,007	10/7/2015	12,660
November	5,194	11/5/2015	16,440
December	3,723	12/9/2015	16,380
Annual	158,842		145,440

Multnomah County as the Public Body responsible for the project fully supports this plan since it is in alignment with the County's goals and values around sustainability.

Any thoughts you have would be appreciated and feel free to let me know if you have any questions.

Thanks,

Scott

SCOTT MOONEY, AIA

ASSOCIATE

LEED AP BD+C

SRG PARTNERSHIP, INC

DIRECT 503 548 9428
OFFICE 503 222 1917
SRGPARTNERSHIP.COM

ODOE Responses to Multnomah County:

Scott,

Your email description will be presented to the Technical Review Panel (TRP) for consensus opinion.

Thank you,
Ann Hushagen
Energy Analyst
Energy Planning & Innovation
Oregon Department of Energy

November 4, 2016

Scott Mooney, AIA
SRG Partnership Inc.
621 SW Morrison St #200
Portland, OR 97205

RE: Request for technical review of 1.5percent Green Energy Technology requirements for the Multnomah County Courthouse

Dear Mr. Mooney,
This letter is in response to a request for a technical panel review of the 1.5percent Green Energy Technology requirement for the Multnomah County Courthouse that you submitted to ODOE on September 6, 2016. In that email you propose to interconnect the solar PV array to an adjacent load to avoid costly network protection requirements and maximize the annual production of the system. The technical review committee believes this approach is appropriate and a creative solution to the problem. Department staff and the technical committee believe that the Multnomah County Courthouse project is demonstrating a strong commitment to showcasing creative solar design strategies. The technical review committee also brought up onsite battery storage and smart inverters programmed to track loads as potential alternative solutions depending on the costs associated with interconnection to the Hawthorne Bridge.

The program rules provide for a recommendation from the technical review panel but that the final determination regarding siting of the project is to be made by the contracting agency. The rules also require that the project be submitted into the green energy technology database. The program rules and database reporting form can be found on the Oregon department of Energy Web page at http://www.oregon.gov/ENERGY/CONS/pages/publicsolar.aspx.

Feel free to contact me if you have any questions.

Sincerely,

Robert Del Mar
Chair of Technical Review Committee
503-302-7027

Tillamook County Request:

TILLAMOOK BAY
COMMUNITY COLLEGE

April 8, 2016

Rob Del Mar
Oregon Department of Energy
1011 SW Emkay Drive, Suite 108
Bend, OR 97702

Re: Tillamook Bay Community College deferral of Green Technology investment

Tillamook Bay Community College is constructing a new building, the Partners for Rural Innovation Center, consisting of 11,192 square feet with a total contract price, as defined in 330-135-0010 of $3,088,988. The college's obligation under this same OAR to invest in green technology is $46,334. Due to significant financial constraints and a belief that combining this budget figure with the figure that will result from the next, much larger construction project, will result in a more cost-effective solar project, the college has elected to defer the current obligation as provided in 330-135-0050 (3). The college is providing project information, as well as further detail about the factors affecting the decision to defer that has been reached by the college as is required by the OAR.

The college was awarded $2,000,000 towards construction of a new building by the State of Oregon. The $2,000,000 requires a 100% match by the college. The college had $1,000,000 available from a prior bond. The money from the state is available on a "use it or lose it" basis.

Through the design process, in the current climate of escalating construction costs, and a determination that this project was too modest to occupy a large remaining portion of the existing campus, requiring expenditures of over $639,000 for a new smaller parcel close to the existing campus, it became apparent that a minimum required budget of $4,000,000 would not be adequate to provide a facility to meet programmatic needs. Further strain was introduced into the project budget by significant off-site improvements to provide water and a storm water system to the site, and to make improvements on Third Street. The current project budget is now over $5,000,000.

The college has the money to cash flow the project, but this will require complete depletion of capital maintenance reserves. The college has been aggressively pursuing every grant and donation possibility that the college can identify. At the time of project approval by the Board in February of 2016, there was a $1,000,000 gap between available funds, without tapping the reserves, and budget. Even with aggressive pursuit of grants and donations, and firming up of possible grants and donations that were not firm at the time of the Board meeting, the college is still needing $500,000 to fund the project without impacting the capital maintenance reserves. With this knowledge, the Board approved a budget that included deferral of the 1.5% Green Technology investment.

While solar will not be incorporated into the project at this time, with exception of a solar powered pedestrian crossing signal, the college wants very much for the Committee to know that the broader concern of energy consumption and sustainability has been addressed in the building design. Floor slab insulation exceeds code and permits a smaller HVAC system, and that system is a Variable Flow Refrigerant system, which was selected to reduce energy consumption. Energy consumption was considered in other building systems, details and product selection. In addition, the new solar powered pedestrian crossing signal that will be installed on Third St. is at a cost of $24,000.

This project has been acknowledged as very important to the economic viability of the area by the significant amount of donations that have been secured in this relatively small community. The facility will house the OSU Extension Services, Economic Development, and Tourism, as well as community college classes. The industries these entities and the college serve are absolutely vital to the Tillamook area, and the college has had to make many difficult decisions, including the decision to defer the Green Technology investment triggered by this project, in order to make sure this project comes to reality and the opportunity to leverage the $2,000,000 in state money is not lost. With the completion of this project, it is realistic to expect that for the first time, area residents will be able to obtain four year degrees, starting with the Natural Resources program offered through Oregon State University.

Floor plans and a front elevation rendering have been included as part of this review request, but as has been hopefully adequately described, the heart of the deferral decision lies in the strong desire to provide important programs to the community while struggling with a budget that requires tapping into capital maintenance reserves, and also believing that a more cost effective solar installation can be obtained if these funds are combined with the requirement that will be generated by the next, larger building. I hope we have provided adequate information, and would certainly provide any additional information the committee determines is necessary.

Respectfully,

Connie Green
President
Tillamook Bay Community College

1.5 Percent for Green Energy Technology in Public Buildings

Response to Tillamook:

Dear President Green,

Thank you for the letter dated April 8, 2016 regarding your plans to defer the 1.5percent green energy technology funds from the Partners for Rural Innovation Center to a future project. As indicated in the letter the final determination to defer funds rests with the contracting agency of the project as provided in OAR 330-135-50. Because your letter described a referral based solely on economic drivers and not technical limitations we did not present the letter to the Technical Review Committee. Normally that committee is reserved for determining the appropriateness of deferrals based on technical reasons such as lack of onsite solar or geothermal energy resources. Please note that the project must still be entered into the project reporting database including your decision to defer funds to a future project. The database is used to compile an annual report for the legislature and can be accessed on the Oregon Department of Energy Website at http://greenenergytechnology.odoe.state.or.us/ .

In the letter you mention that the college has elected to defer the funds to a future "much larger construction project". Can you provide an estimated schedule and description of the future project?

Thanks for keeping us up to date and I apologize for the slow response to your letter.

Regards,

Rob

Rob Del Mar
Central Oregon Field Energy Analyst
Oregon Department of Energy

1.5 Percent for Green Energy Technology in Public Buildings

City of Portland Request:

Hi Rob,

I am writing today in regards to the Oregon DOE's 1.5percent for Green Energy Technology in Public Buildings requirement. The City of Portland is beginning a major reconstruction project on The Portland Building at 1120 SW 5th Avenue in Portland. A solar feasibility report was conducted by EC Company (attached). Based upon the report's findings, the City is requesting a review of the report to determine whether the building may be exempted from the 1.5percent GET requirement.

In addition to the contents of the report, an additional two factors that we request be considered are the following:

1. The Portland Building is a Landmark building on the National Historic Register. As such, the City is responsible for protecting the historic characteristics of the building, and must have approval of changes to the historic elements by the Landmarks Commission. The addition of solar panels would change the historic character of this iconic post-modern building, and may not be approved.
2. There is an existing ecoroof on the entire roof that will be maintained in order to comply with the City's Green Building Policy (2015; Section 1.1.H), which states that "Occupied City-owned buildings over 20,000 square feet and/or with a total construction budget over $5 million will… Cover the entire roof, minus skylights, mechanical systems, and fire and access routes, with an ecoroof."

The City asks that the Review Committee works expeditiously to provide a recommendation to ODOE so that the exemption decision is known in the soonest possible timeframe in order for the Design/Build team to incorporate the decision into its current planning and budgeting efforts, which are currently underway.

Please contact me for any additional information. Thank you!

Regards,

Danny Grady

Response to City of Portland:

September 6, 2016
Danny Grady
Senior Energy Specialist
City of Portland Bureau of Planning and Sustainability

Dear Mr. Grady

This letter is in response to your request emailed on August 16, 2016 for a technical panel review of the 1.5percent solar requirement for The Portland Building in Portland. The Department has solicited comments from the Technical Review Panel. The panel acknowledges that the rooftop has a marginal solar resource and that installing a solar energy project would pose challenges. However the panel also believes there was not adequate evidence presented to declare solar inappropriate at this site under the rules of the program.

Specifically:

- A primary consideration in the feasibility assessment was regarding cost effectiveness. While cost effectiveness is an allowable consideration for choosing to install a green energy technology project away from the building site it is not an allowed exemption from the law.
- The ecoroof may not present an insurmountable technical challenge. There are other ecoroofs in Portland that include solar installations.
- The building's classification as a landmark on the national historic register is an allowable consideration however no evidence was provided that a solar installation would impact the historical nature of the building or that a historical committee review was requested.
- The solar resource on the rooftop is marginal but meets the minimum technical requirements for solar installations in the program.

Please note that the law provides for a recommendation from the review panel but that the final determination regarding appropriateness of a Green Energy Technology is to be made by the contracting agency. OAR 330-135-0052 (6) states*: After receiving the technical review panel's recommendation, the contracting agency must make a final determination about whether installing green energy technology is appropriate either at the public building site or away from the public building site. The contracting agency must enter its final determination and the technical panel's recommendation into the green energy technology database described in OAR 330-135-0055.* *http://greenenergytechnology.odoe.state.or.us/*

Please note that the requirement to defer 1.5percent GET funds to a future project only applies to projects utilizing state funds. Feel free to contact the Department if you have any questions regarding this letter.

Sincerely,

Robert Del Mar
Chair of 1.5percent for Solar Technical Review Panel

1.5 Percent for Green Energy Technology in Public Buildings

Clackamas Community College Request:

Mr. Del Mar:

My name is Bob Cochran and I am the Dean of Campus Services for Clackamas Community College. In November of 2014 the voters within our district approved a $90 capital bond. The proceeds from this bond (plus a $16 million dollar state match) will provide the college with four new buildings and address many deferred maintenance issues on our three campuses. Our first building is our Harmony Phase II facility located at our Harmony Community Campus (Milwaukie). The construction of this project will begin in August of this year. The project incorporates the 1.5percent for green energy.

The remaining building projects are on the Oregon City campus. The second building is our Industrial Technical Center (ITC). The ITC will house our manufacturing and renewable energy programs. This project is currently in design development and incorporates the 1.5percent for green energy. It is anticipated that construction will begin in the spring 2017. The college's third facility will be an expansion of our science facility. The DeJardin Phase II project will add approximately 20,000 square feet of science laboratories and classrooms at an estimated cost of $10,000,000. The fourth and final building will be a $25 million Student Services-Community Commons facility.

As stated above, we are currently in Design Development of the ITC. Since the facility is "manufacturing" in nature and will house our renewable energy program we would like to add additional solar panels to the facility (beyond the 1.5percent requirement). Clackamas Community College is requesting that the Oregon Department of Energy's technical committee waive OAR 330-1352_010116 for 330-135-0050/Requirements for Deferral of Expeditors/(3); specifically,

"Any amount spent on green energy technology in excess of 1.5percent of the total contract price may not be credit to other current or future projects"

As the college is working toward the completion of the three remaining facilities we see value and efficiencies in combining green technology (specific solar in this case) from the DeJardin Phase II and the Student Services-Community Commons to one building; specifically the Industrial Technical Center. In addition, as we reviewed the conceptual plans for the future facilities, the ITC lends itself to solar arrays with the saw-tooth roof design and the north-south layout of the building favoring solar collection.

Thank you in advance for considering the request to waive the OAR rules and allowing Clackamas Community College to combine the 1.5percent from future buildings to the ITC.

Please let me know if there is additional information I can provide or if you have questions or comments concerning this request.

Bob Cochran

Bob Cochran, P.E.
Dean of Campus Services
Clackamas Community College
19600 Molalla Ave, Oregon City, OR 97045
503-594-6790 • bobc@clackamas.edu

Response to Clackamas Community College:

September 20, 2016

Bob Cochran, P.E.
Dean of Campus Services
Clackamas Community College
19600 Molalla Ave,
Oregon City, OR 97045

RE: Request for technical review of 1.5percent Green Energy Technology requirements for the DeJardin, Student Services-Community Commons and Industrial Technical Center buildings.

Dear Mr. Cochran,

This letter is in response to a request for a technical panel review of the 1.5percent Green Energy Technology requirement for the DeJardin, Student Services-Community Commons and Industrial Technical Center (ITC) buildings associated with Clackamas Community College that you submitted to ODOE on June 23, 2016. In that email you propose to consolidate the 1.5percent funds from all three buildings onto the ITC. The technical review panel believes consolidation of the funds as described is appropriate.

Oregon Department of Energy Staff have also considered your request to waive the ORS 330.135.0050 (3) which states: Any amount spent on green energy technology in excess of 1.5percent of the total contract price may not be credited to other current or future projects. We would like to clarify that this section of rule does not apply to projects that have identified a specific site to consolidate funds and have completed a review from the technical review panel. Department staff and the technical committee believe that Clackamas Community College is demonstrating a strong commitment to showcasing solar design strategies on campus with the innovative ITC building.

The program rules provide for a recommendation from the technical review panel but that the final determination regarding siting of the project is to be made by the contracting agency. The rules also require that the project be submitted into the green energy technology database. The program rules and database reporting form can be found on the Oregon department of Energy Web page at http://www.oregon.gov/ENERGY/CONS/pages/publicsolar.aspx.

Feel free to contact me if you have any questions.

Sincerely,

1.5 Percent for Green Energy Technology in Public Buildings

Portland Parks & Recreation Request:

Robert & Ann:

I am writing today regarding Oregon DOE's *1.5percent for Green Energy Technology in Public Buildings* (1.5percent GET) requirement. The two referenced projects are replacement maintenance & storage facilities for Urban Forestry Maintenance Yard at Delta Park at 10910 N. Denver Ave., Portland, and Mt. Tabor Maintenance Yard at 6437 SE Division St., Portland. Please find attached solar feasibility reports for both projects by EC Company.

In November 2015, Portland voters approved a $68M bond measure focused on repairing and improving Portland's parks. Phase I includes 33 projects for a $48M expenditure. Although the majority of the projects are maintenance and repair, the maintenance buildings currently housing workers and equipment at Mt. Tabor and Delta Park need to be replaced in order to provide adequate worker safety.

Because the solar resource potential is "not ideal" per the report at the Delta Park site, and because the required 1.5percent GET contribution is relatively low ($20,707), our proposal is to combine the Delta Park funds with the Mt. Tabor Yard funds (equaling $90,361) for a more robust PV installation at Mt. Tabor Yard, which per the report has much better potential resource and energy use requirement.

Portland Parks & Recreation asks that the Review Committee works expeditiously to provide a recommendation to ODOE so that a decision to combine the 1.5percent GET funds for the two projects at one site is approved in the soonest possible timeframe. The design team is entering Schematic Design this month and this information is critical for efficient project delivery.

Please don't hesitate to contact me for additional information. I submitted your on-line form earlier this afternoon.

Thank you.

Connie S. Johnson, LEED Accredited Professional
Bond Project Manager | Bond Team
Portland Parks & Recreation
1120 SW Fifth Ave., Suite 1302
Portland, Oregon 97204
503-823-5571 (office)

Response to Portland Parks & Recreation:

October 20, 2016

Connie S. Johnson
Bond Project Manager | Bond Team
Portland Parks & Recreation
1120 SW Fifth Ave., Suite 1302,
Portland, OR 97204

RE: Request for technical review of 1.5percent Green Energy Technology requirements for the Delta Park and Mt. Tabor Maintenance Yard projects

Dear Ms. Johnson,

This letter is in response to a request for a technical panel review of the 1.5percent Green Energy Technology requirement for the Delta Park and Mt. Tabor Maintenance Yard projects that you submitted to ODOE on September 1, 2016. In that email you propose to consolidate the 1.5percent funds from both sites into a single installation at the Mt. Tabor site. The technical review panel believes consolidation of the funds as described is appropriate.

The program rules provide for a recommendation from the technical review panel but that the final determination regarding use of 1.5percent funds is to be made by the contracting agency. The rules also require that the projects be submitted into the green energy technology database. The program rules and database reporting form can be found on the Oregon department of Energy Web page at http://www.oregon.gov/ENERGY/CONS/pages/publicsolar.aspx.

Feel free to contact me if you have any questions.

Sincerely,

Robert Del Mar
Chair of Technical Review Committee
503-302-7027