



## ***Oregon Solar Highway Demonstration Project***

### **Frequently Asked Questions**

*ODOT is an agency on the move* – to renewable energy. It takes 45 million kilowatt-hours of electricity annually to run Oregon's state transportation system, energy used for signals, illumination, buildings, ramp metering, and more. Today this energy comes from mostly non-renewable sources. Oregon's Governor Ted Kulongoski has directed state agencies to secure 100 percent of their electricity from renewable sources and ODOT is responding by developing the nation's first Solar Highway project. This demonstration project is part of a public-private partnership with Portland General Electric (PGE), to benefit Oregon and Oregonians.

#### ***What is the project?***

The project is a 104 kilowatt (kW) solar photovoltaic system, made up of 594 solar panels, about two football fields long, located at the intersection of the I-5 and I-205 freeways.

#### ***Why is the solar photovoltaic installation a proof-of-concept project?***

While solar technology is well understood and solar arrays have been installed along highways in Europe and Australia over the past two decades, no solar arrays have been installed in the operating highway rights-of-way in the United States. This proof-of-concept project will demonstrate that solar arrays installed on the right-of-way can complement – not compromise the transportation system. With over 16,000 lane-miles of right-of-way and many other properties under its ownership, ODOT lands provide a ready opportunity for development of solar energy, adding value to the public's transportation system.

#### ***Why is ODOT partnering with PGE on the proof-of-concept project?***

PGE supplies electricity to light the interchange, can facilitate interconnection, is committed to the development of renewable resources and has the resources to ensure that this prototype project is done well.

#### ***Why use a public-private partnership to build the project?***

Through the public-private partnership, the project will take advantage of state and federal solar tax credits that ODOT cannot claim, making it possible for ODOT to receive power at no greater cost than it would otherwise pay PGE. PGE has formed SunWay 1, LLC with UFA Energy Fund to build the project and secure the tax credits. US Bank is the tax equity investor in the fund. SunWay 1, LLC has contracted with SolarWay, a solar energy Engineer/Procure/Construct (EPC) consortium to build and commission the project and secure the tax credits. This project would not have been possible without the tax credits, including:

- 50% Oregon Business Energy Tax Credit (BETC) adopted by the 2007 Oregon Legislature at the request of Governor Ted Kulongoski,
- 30% federal solar Investment Tax Credit (ITC).

#### ***Why solar energy?***

The sun offers an abundant, secure, renewable energy resource capable of supplying all of the electricity needs of Oregon's transportation system.



### ***Does Oregon have enough sunshine for solar to work?***

Yes, solar energy is the most abundant renewable energy resource in Oregon. According to the *Renewable Energy Atlas of the West*, Oregon has a 68 million megawatt-hour solar generation potential and could generate its annual energy use of 48 million megawatt-hours with partial development of these resources. *Solar Oregon* reports that “Germany is installing more new solar energy systems per capita than any other country, yet its capital, Berlin, receives less sun than the cloudiest location in Oregon, near Astoria.” For more information, see: <http://www.solaroregon.org/learn/oregon-solar-resource>

### ***The sun shines during the day – how will the lights be lit at night?***

The solar panels will produce electricity during the day, supplying power to PGE, and PGE will return equivalent power at night to light the interchange. This method eliminates the need for batteries.

### ***How much electricity will the project produce?***

The 594 solar panels, rated at 104 kilowatts and covering about 8,000 square feet, will produce an estimated 112,000 kilowatt-hours annually – about 28% of the 400,000 kilowatt-hours used to light the interchange.

### ***Why is using solar electricity for power better than using electricity from the utility’s grid mix?***

Solar electricity generation produces zero greenhouse gas emissions. When solar electricity (or renewable energy) is produced in Oregon, it displaces electricity in the Pacific Northwest Regional Energy Grid that would have been produced from a mix of power plants including hydropower and renewable sources (55%), coal (34%) and natural gas (11%). Hydropower, like solar generation, releases zero global warming emissions. However, electricity produced from coal and natural gas produces 2.10 and 1.32 pounds of global warming emissions per kilowatt-hour respectively. By replacing energy from the grid, the solar electricity produced by this demonstration project will avoid the production of nearly 43 metric tons of carbon dioxide equivalent (MT CO<sub>2</sub>) emissions annually.

### ***How much will the project cost?***

The total budget is about \$1.3 million. SunWay 1, LLC will be funding the project, and ODOT will buy the electricity produced from the installation. In addition, the Energy Trust of Oregon will provide utility incentive funding to the project and in return will receive the renewable energy certificates which will eventually be retired on behalf of PGE’s customers. The utilization of tax credits allows this project to become a cost efficient resource for both ODOT and PGE.

### ***How much will ODOT pay for electricity from the solar project?***

ODOT will pay no more for the energy than it would otherwise pay PGE for power to light the interchange, which is now about \$0.06 per kilowatt-hour. ODOT will continue to pay other monthly charges for connection to the grid.

### ***How long will the Solar Highway Project operate?***

ODOT will have a 20-year solar Power Purchase Agreement (PPA) with SunWay 1, LLC and PGE with the option to renew the agreement, purchase the system or have the system removed and the site restored. The system is anticipated to begin operations by the end of this year.



### **Who will maintain the Solar Highway Project?**

PGE will be the managing member of SunWay 1, LLC, which will maintain the solar photovoltaic system. ODOT will continue to maintain the property outside of the fenced array.

### **What about theft and vandalism?**

SunWay 1, LLC will be responsible for the system and will have security fencing and 24/7 monitoring systems.

### **Why is the array on the right-of-way rather than rooftops?**

ODOT plans to install solar on rooftops, but those opportunities are limited. ODOT has about 16,000 lane-miles of right-of-way. Of these, less than 120 lane-miles could potentially host solar arrays supplying all of the 45 million kilowatt-hours ODOT uses annually.

### **How are Oregon businesses involved?**

The solar panels will be supplied by SolarWorld AG of Hillsboro, and the inverter will be supplied by PV Powered, Inc. of Bend. The project will be designed, constructed and installed by SolarWay, a “turn-key” solar energy Engineer/Procure/Construct (EPC) consortium consisting of four Oregon firms: Aadland Evans Constructors, Inc. of Portland as the EPC contractor; Moyano Leadership Group, Inc. of Salem as the project manager and design leader; Advanced Energy Systems of Eugene as the solar power specialty designer and installer; and Good Company of Eugene as the community and sustainability specialist.

Good Company, Moyano Leadership Group, and Advanced Energy Systems are certified as emerging small businesses in Oregon, and Moyano Leadership Group is further certified as a woman-owned business.

### **Will other Oregon solar businesses have an opportunity to work with ODOT?**

In 2009, ODOT will issue a Request for Proposal for the installation of solar projects that will produce 2 million kilowatt-hours annually. Oregon businesses will be invited to respond.

For more information, please visit [OregonSolarHighway.com](http://OregonSolarHighway.com)



Portland General Electric

