



Welcome to Inside ODOT for the month of September 2007

## Solar highways pave way to cleaner energy

---



*Solar panels on highways are common in Europe. The Office of Innovative Partnerships will test the possibility of using them in Oregon.*

Package." Some 25 energy-related bills were signed into law, including the Renewable Portfolio Standard. The RPS says that Oregon must supply 25 percent of its electricity needs from new renewable sources by 2025. Interim targets include meeting five percent by 2011; 15 percent by 2015; and 20 percent by 2020. Governor Kulongoski further directed Oregon government to become 100 percent powered by renewable resources.

**No, it's not something from the galactic future.** It's here and now — and could be in Oregon within a year.

Governor Kulongoski and the 2007 Oregon Legislature took several giant leaps toward making Oregon a leader in reducing greenhouse gases by passing the "Renewable Energy

These directives are especially important to ODOT, since in the

course of fulfilling its mission, the department contributes significantly to the state's greenhouse emissions. But there are many things we can do at ODOT in less carbon-intensive ways — while still accomplishing our goals. One possibility being considered: solar panels located on suitably situated highway rights of way.

"This could be a perfect way to take something we own (right of way) and realize multiple value out of it," said Allison Hamilton, project director with the Office of Innovative Partnerships. "It's also a great opportunity to help us reduce our carbon footprint."

### **Tried and true in Europe**

Transportation structures and rights-of-way, including shoulders, barriers, sound and retaining walls, abutments, pole mounts and even safety rest areas, have been used successfully for almost 20 years in Germany, Switzerland and other countries to provide space for solar panels. But this model has not been tested widely in the United States. ODOT is embarking on a project to test the viability of this approach, through one or more demonstration projects that will include the design, installation, operation and maintenance of roadside solar installations.

### **The potential is great**

To meet the Governor's goal of 100 percent renewable energy for state-owned facilities, state government needs to produce approximately 30 to 60 Megawatts. If solar energy was used to meet 20 percent of this goal — and half of that solar need was met by roadside solar panels — about 100 miles of roadway would be needed. ODOT currently maintains about 16,000 miles of shoulder right of way, so it's easy to see the potential. The challenge is to find the best locations, design the most proficient system, develop the most cost effective financing structure, plan the most efficient maintenance and operations program, and then, flip the switch — on clean, renewable, secure energy.

### **A smart move to cleaner energy**

In addition to meeting the Governor's objectives, ODOT's efforts comply with findings and recommendations from the 2006 Oregon Transportation Plan. Strategies under Policy 4.2 on Energy Supply include supporting efforts to move toward a diversified and cleaner energy supply and working with partners to develop a contingency plan for fuel shortages affecting passenger and freight transportation.

## Next steps

ODOT has posted a "Request for Information" to the industry seeking innovative information from private or public interested parties for the design, development and implementation of a project or projects to test options for the generation of clean, renewable energy through installation of solar photovoltaic panels on ODOT-owned property, including highway and freeway rights-of-way.

ODOT is also seeking *your* input. Do you have ideas about how solar panels on ODOT properties might, or might not, work? What about potential vandalism — how could we reduce that risk? Do you have some specialized knowledge that might help in defining, creating and implementing this new initiative? Submit your ideas, and if we use them, you'll win a Driving Force award!

"Tying together highway right of way and solar panels is unique, brand new in the states," said Hamilton. "We'd love to hear from anyone with any insights." Contact Hamilton at (503) 986-3732 or [allison.m.hamilton@odot.state.or.us](mailto:allison.m.hamilton@odot.state.or.us).

## Demonstration project proposal

A photovoltaic system mounted on the highway right of way in Switzerland has been delivering 1000 kWh (kilowatt-hour) per year of clean renewable energy to the local grid since 1989.

ODOT is proposing a similar demonstration project, and with expert solar advice provided by the Oregon Department of Energy, concept projects have initially been identified as:

- a rack-mounted sound wall retrofit (I-205); a pole-mounted array powering luminaries at a freeway interchange (Portland);
- a motor carrier port-of-entry facility;
- potentially, a pole-mounted array powering a traffic signal (Prineville); and
- potentially, a pole-mounted array powering lights in a tunnel (TBD).

Two operational models will be investigated:

- ODOT will purchase, own, operate and maintain the system, receive the green points, and serve its own energy needs; or
- ODOT is the host, providing the right of way or barrier infrastructure to a private party, who will purchase, own, operate and maintain the system and get the tax benefits and green points. ODOT will receive power at a guaranteed rate for a contracted number of years; excess power would be sold to the grid by the private party.

ODOT may also investigate a combination of these models or any other innovative financing/operating structure that shows potential. In any case, energy generated would count towards meeting the state's new renewable energy portfolio standard (25 percent by 2025).