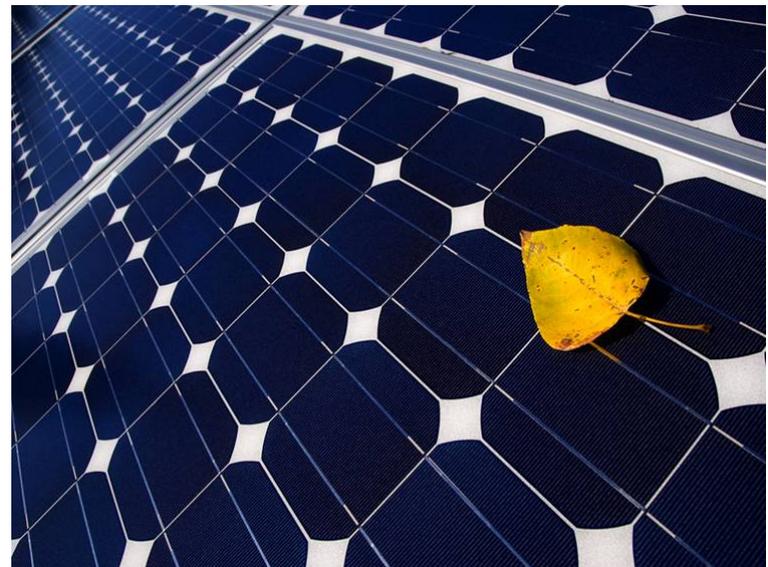


The  
**OREGON**  
Way

# The Oregon Solar Highway

## The **Oregon** Solar Highway

- Leading the Nation
- Jobs Today
- Renewable Energy Tomorrow
- The **Oregon** Way



Oregon Department of Transportation  
Oregon Innovative Partnerships Program

## The **Oregon** Solar Highway

In 2007, Oregon began an historic initiative to complete the nation's first solar highway demonstration project.



## The **Oregon** Solar Highway

Solar highway projects have been done in Europe for decades, but never before in America.



## We secured strategic allies...



U.S. Department  
of Transportation

**Federal Highway  
Administration**

*Your solar highway initiative is an exciting project that again demonstrates the innovation and creativity that ODOT brings to our Nation's transportation community.*

~ Phillip A. Ditzler, Division Administrator, Federal Highway Administration



OREGON  
DEPARTMENT OF  
ENERGY

*We would definitely like to help ODOT on this as much as we can. I think it's a great idea.*

~ Michael W. Graine, Director



*It is clear that the Energy Trust is keenly interested and ready to work with ODOT... (the ETO) has technical resources and funding available for solar, wind, and biopower electric generation projects.*

~ Steve Lacy, Director

We built an innovative public-private partnership...



Solar Way LLC

**Aadland Evans**  
constructors, Inc.

Emerging Small Businesses



...working with Oregon manufacturers...



Solar Panels from SolarWorld, Hillsboro



Inverter from PV Powered, Bend

**...so the Governor could unveil the nation's first solar highway installation...**  
August 7, 2009

“Before the year is over, this ground will hold the nation's first Solar Highway project, and Oregon will make history using the power of the sun to light this interchange...”



**...that would be completed just 134 days later**

America's first Solar Highway Project  
was placed in service December 19,  
2008 – harnessing the power of the sun  
to light the interchange



## The **Oregon** Solar Highway

Making the Power of the Future Possible Today

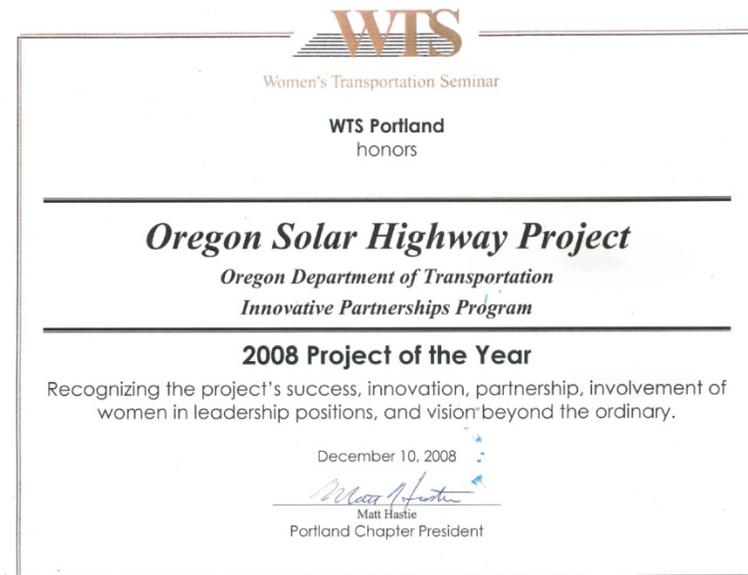
Oregon completed the nation's first solar highway demonstration project.

- At the I-5/I-205 interchange
- Highly visible statement of Oregon's commitment to renewable energy resources
- Supplies 112,000 kilowatt hours annually – about 28% of lighting load

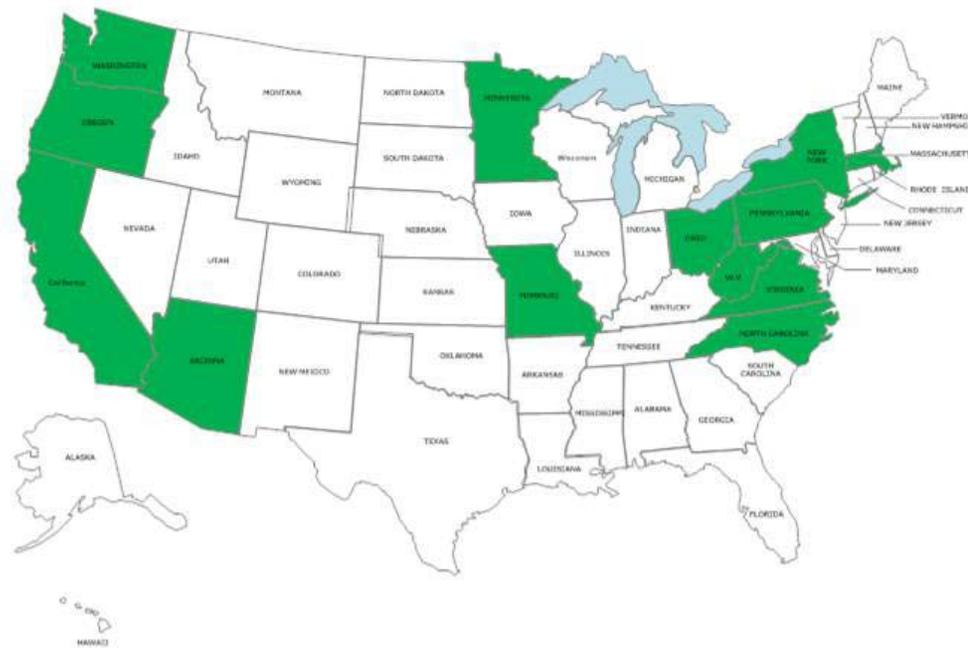


## Recognized by WTS as 2008 Project of the Year

“Seldom do we see projects as transformative as this year’s selection, the Oregon Department of Transportation’s Solar Highway Project...it has propelled Oregon as a national leader for innovative sustainable technology, garnering international recognition as well.”



States across the nation have expressed interest in the solar highway



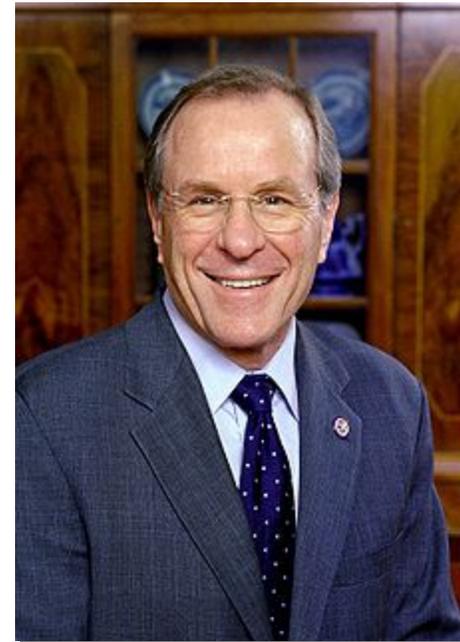
## American Solar Energy Society's Report to the 111th Congress

“One of the highest priority transportation activities initiated in 2009 should be the creation of a full-scale federal transportation program aimed at making alternative solar-based transportation (the “solar highway”) a realistic option in the near future. Planners can build this effort on the solar highway demonstration projects already underway, such as the current solar highway project in Oregon.”



The **Oregon** Way  
Governor Ted Kulongoski, February 11, 2009

“Oregon already launched the nation’s first solar highway, using Oregon manufacturers like SolarWorld for the solar panels, PV Powered from Bend for the inverters and a consortium of small Oregon businesses installed the solar system supplying jobs today and renewable energy for decades to come...Oregon should compete...to help us expand our solar highways to other parts of the state and perhaps even build the world’s largest solar highway.”





The Oregonian  
February 16, 2009

The president has made it clear his administration will promote economic 2009 recovery in part by emphasizing investment in a so-called "green" economy.

For Oregon, according to Kulongoski, that could mean building something like "the largest solar highway in the world..."

Those are the right kind of ideas...

*Bob Caldwell, editorial page editor*

The **Oregon** Way – Governor Kulongoski’s Vision  
Expand the Oregon Solar Highway Across the State and Build the World’s Largest Solar Highway Project – supplying jobs today and renewable energy tomorrow

Oregon Solar Highway Projects

<u>Project</u>	<u>Budget</u>	<u>Annual kWhs</u>
World’s largest solar highway project	\$20,000,000	3,216,000
Expand the initial project	\$1,600,000	214,400
Build a Southern Oregon site	\$15,000,000	2,144,000
<u>Baldock Rest Area site with Interpretive Disq</u>	<u>\$12,000,000</u>	<u>1,715,200</u>
TOTAL estimated project cost	\$48,600,000	7,289,600

## The **Oregon** Way Criteria

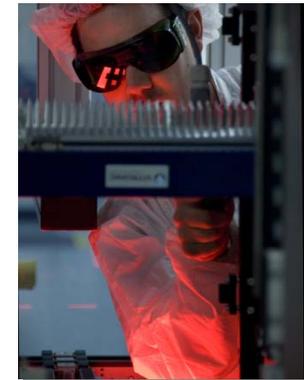
- Immediate job creation for Oregonians
- Use of Oregon companies and sourcing of local materials to keep stimulus funds in Oregon
- Green jobs training that accompanies projects
- Promotion of Oregon's sustainability, renewable energy, carbon reduction, energy efficiency and green development goals
- Innovative approaches in technology, partnership, process and life cycle optimization
- Potential to attract additional federal money through block grants and other sources

## The Oregon Way

- Immediate job creation for Oregonians
- The **Oregon** Solar Highway projects will create and sustain jobs for Oregonians in 2009 and 2010.

### Oregon Solar Highway Projects

<u>Project</u>	<u>Jobs*</u>	<u>Start</u>
World's largest solar highway project	140-150	2009
Expand the initial project	30-35	2009
Build a Southern Oregon site	70-80	2010
<u>Interpretive Display and Baldock Rest Area</u>	<u>60-70</u>	2009
TOTAL estimated jobs created	300-335	



*\*Source: Oregon Economic and Community Development Department's (OECD)*

## The **Oregon** Way

- Use of Oregon companies and sourcing of local materials to keep stimulus funds in Oregon
- The **Oregon** Solar Highway projects will rely on Oregon companies to manufacture and install the solar arrays – just as it did for the first solar highway project
  - Oregon solar panel manufacturing
  - Oregon inverter manufacturing
  - Oregon solar project engineering
  - Oregon structural fabrication
  - Oregon installation
  - Oregon Jobs



## The **Oregon** Way

- Green jobs training that accompanies projects
- The **Oregon** Solar Highway projects will support green technology training for Oregonians.



**“As a result of working with SolarWorld, PCC developed the new photovoltaic technology associate's degree and is establishing a scholarship for the students in it. ”**



## The **Oregon** Way

- Green jobs training that accompanies projects
- The **Oregon** Solar Highway projects will provide opportunities for minority-owned, women-owned and emerging small businesses – just as it did for the first solar highway project when it gave opportunities to the following emerging small businesses:

### Emerging Small Businesses



## The Oregon Way

- Promotion of Oregon's sustainability, renewable energy, carbon reduction, energy efficiency and green development goals
- The **Oregon** Solar Highway projects will produce renewable energy powering the transportation system of the future:

### Oregon Solar Highway Projects

	<u>Annual kWhs</u>
World's largest solar highway project	3,216,000
Expand the initial project	214,400
Build a Southern Oregon site	2,144,000
<u>Interpretive Display and Baldock Rest Area</u>	<u>1,715,200</u>
<b>Total</b>	<b>7,289,600</b>



## The Oregon Way

- Promotion of Oregon's sustainability, renewable energy, carbon reduction, energy efficiency and green development goals
- The **Oregon** Solar Highway projects will reduce carbon emissions:

### Oregon Solar Highway Projects

	Nameplate Capacity (megawatts)	Total 20-year avoided emissions MT CO <sub>2</sub> e*		Equivalent Benefits	
		(low scenario)	(high scenario)	Pine Forest Acres Sequestered*	CO <sub>2</sub> e from X passenger vehicles annually*
World's largest solar highway project	3.00	21,636	22,239	897	14,496
Expand the initial project	0.20	1,442	1,483	60	966
Build a Southern Oregon site	2.00	14,424	14,826	598	9,664
<u>Interpretive Display and Baldock Rest Area</u>	<u>1.60</u>	<u>11,539</u>	<u>11,861</u>	<u>478</u>	<u>7,731</u>
<b>Total</b>	<b>6.80</b>	<b>49,042</b>	<b>50,408</b>	<b>2,033</b>	<b>32,858</b>

\*Source: Good Company

## The **Oregon** Way

- Promotion of Oregon's sustainability, renewable energy, carbon reduction, energy efficiency and green development goals
- The **Oregon** Solar Highway projects will increase energy efficiency by generating energy where it is needed, reducing transmission and distribution line losses.

### Oregon Solar Highway Projects

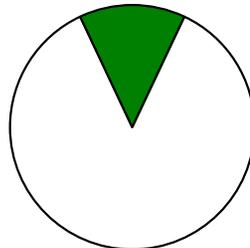
Energy Savings for Reduced Line Losses (7.2%)	524,851 kwhs
Average Oregon Home Electricity Use	19,164 kwhs
Equivalent All Electric Oregon Homes	27

## The **Oregon** Way

- Promotion of Oregon's sustainability, renewable energy, carbon reduction, energy efficiency and green development goals
- The **Oregon** Solar Highway projects will further green development goals, producing green energy equivalent to ODOT's 2008 electricity use in:

**PacifiCorp's  
Service Area**

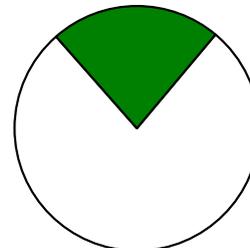
14%



86%

**PGE's  
Service Area**

22%



78%

## The **Oregon** Way

- Innovative approaches in technology, partnership, process and life cycle optimization
- The **Oregon** Solar Highway projects will build innovative public-private partnerships – just as we did for the demonstration project.



Solar Way LLC

**Aadland Evans**  
constructors, Inc.

Emerging Small Businesses



## The **Oregon** Way

- Innovative approaches in technology, partnership, process and life cycle optimization
- The **Oregon** Solar Highway projects will partner with Oregon manufacturers – just as we did for the demonstration project.



## The **Oregon** Way

- Innovative approaches in technology, partnership, process and life cycle optimization
- The **Oregon** Solar Highway projects will build on state and federal partnerships.



U.S. Department  
of Transportation

**Federal Highway  
Administration**



U.S. DEPARTMENT OF  
**ENERGY**



OREGON  
DEPARTMENT OF  
ENERGY

## The **Oregon** Way

- Innovative approaches in technology, partnership, process and life cycle optimization
- The **Oregon** Solar Highway projects will require solar panel recycling at the end of their useful life – just as we did on the demonstration project.

### **Solar Cell Recycling World Leader**

“With recycling, the SolarWorld Group brings the value chain full circle -- from silicon and wafer production, through the manufacture of solar cells and modules to recycling...the cells are removed from the laminate and treated in an etching process resulting in clean wafers, enabling them to be used in the production of new cells and modules.”



## The **Oregon** Way

- Innovative approaches in technology, partnership, process and life cycle optimization
- The **Oregon** Solar Highway projects affirm Oregon's world-class leadership.

### **The World's Largest Solar Highway Project**

The 3 megawatt solar installation will surpass the 2.8 megawatt installation being completed in Germany – and a second phase could expand the project to 6 megawatts.



## The **Oregon** Way

- Potential to attract additional federal money through block grants and other sources
- The **Oregon** Solar Highway projects have already received a Congressionally Directed Appropriation for fiscal year 2009 to be used for project and site development on these projects.

### **Congressionally Directed Appropriation**

Oregon Solar Highway: \$951,500 to fund ODOT's Solar Highway initiative which hopes to demonstrate the technical and financial feasibility of large-scale deployment of solar photovoltaic technology along highways.

President Barack Obama called for investment in energy independence, saying *I've called for a replication of what's being done right here in Oregon.*

May 13, 2008





...now is the time.

~ Matthew Garrett, Director  
Oregon Department of Transportation  
February 5, 2009

# The Oregon Solar Highway

For more information: [www.oregonsolarhighway.com](http://www.oregonsolarhighway.com)

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