

Oregon Solar Energy Opportunities

The following are opportunities to increase the use of solar energy in Oregon as identified by the Oregon Solar Energy Working Group. The goal of this workgroup is to coordinate a statewide strategic plan for solar energy. This draft document contains the opportunities identified by the group. For more information go to www.oregon.gov/energy/renew/solar/sewg.shtml.

Each opportunity includes the following elements. Opportunities are not listed in any particular order.

- Description
- Barrier(s) addressed
- Who is best suited to make this happen
- What needs to be done (actions, steps, phases)
- What will it cost
- Critical path and timeline

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Oregon Solar Energy Potential

Bla bla great potential bla bla

- clean
- abundant
- jobs
- security/balance of trade
- happiness

Policy Infrastructure

Policy infrastructure covers all the elements of public rules, laws, and procedures that have an influence on the development of solar energy. Not only what the policies are but how they are implemented can have significant impact on early development of an industry. Many of the current policies that affect solar energy industry development have been significantly improved over the past six years such as net metering, incentive programs and specialty licenses. The following seven items are opportunities to further improve the rate of market development for solar energy in Oregon.

1. Extend property tax exemption to business owners

General Description: Oregon law currently provides a property tax exemption for residential solar energy equipment but not for commercial owned solar energy equipment. Solar energy's largest barrier is that its cost is nearly 100% up front capital investment. If property tax is assessed on this investment the payback becomes near infinite at current electricity rates. Unlike fossil fuel energy where the capital cost is small compared to the operating costs, solar energy systems have very high up front costs, no fuel costs and very small maintenance costs.

Property tax on commercial systems is show-stopper barrier for large scale commercial development and getting utilities interested in including solar power as part of their generation portfolio. If the same property tax exemption offered to residential systems were extended to business owners of solar energy systems the potential market for solar power would double.

Barrier(s) addressed: Property tax on commercial solar energy equipment is current assessed pre-incentive value.

Who: state legislature, solar energy industry, public interest groups

What: state property tax law must be modified

Cost: none

Critical Path: Introduce legislation for 2007 session

2. Simplify and streamline incentive programs

General Description: Residential incentive programs are currently offered by more than 6 different organizations, including: The Oregon Department of Energy, The Energy Trust of Oregon, Eugene Water and Electric Board, Federal Tax Credit, Central Electric Coop, green tags, etc. Navigating the overlap and various technical and administrative requirements of each program adds complexity to the sale and installation of solar energy equipment. This increases the cost of the system without necessarily improving the longevity or performance of the system.

Simplifying and streamlining residential incentive programs will not be simple, in large part because geographic separation of the program administrators and the varying goals of each organization.

Barrier(s) addressed: Complexity of incentive programs

Who: ODOE, ETO, Utility Incentives, Green Tag Programs

What: Conduct a series of coordinating meetings where program materials and processes are simplified and streamlined.

Cost:

Critical Path, Timeline:

3. Extend OPUC net metering policies statewide

General Description: Net metering is a cornerstone policy for solar photovoltaic and other small scale renewable energy generation equipment. It allows customers that install small renewable energy generation

equipment to offset their electric bill with generation from their renewable energy equipment regardless of when the generation occurs. The customer is only billed for their *net* energy consumption during a billing period or year.

The OPUC is current finalizing rules for PGE and PacifiCorp that will provide annualized net metering for systems up to 2,000,000 watts in size with clearly defined interconnection requirements, process and timelines that must be met. This policy is comparable to similar policies in Maryland, Connecticut, New Jersey, and Colorado. Several other states are currently adopting similar levels of support.

Barrier(s) addressed: Lack of uniformity of net metering policies throughout the state

Who: Solar Industry, Utilities, State Legislature, Governor's Office

What: State law

Cost:

Critical Path: Collaborative workshops Legislation

4. Allow solar specialty license holders to complete installations

General Description:

Barrier(s) addressed:

Who:

What:

Cost:

Critical Path:

5. Require utility resource planning to consider solar as peak resource

General Description:

Barrier(s) addressed:

Who:

What:

Cost:

Critical Path:

6. Establish a statewide solar access code

General Description:

Barrier(s) addressed:

Who:

What:

Cost:

Critical Path:

7. Standardize permitting and inspection

General Description:

Barrier(s) addressed:

Who:

What:

Cost:

Critical Path:

8. Clarify licensing rules regarding non-licensed required work

General Description:

Barrier(s) addressed:

Who:

What:

Cost:

Critical Path:

9. Require all new State-owned buildings to incorporate solar

General Description:

Barrier(s) addressed:

Who:

What:

Cost:

Critical Path:

Manufacturing Recruitment and Business Development

Solar energy equipment installed today in Oregon is almost entirely built outside the state. The state balance of trade implications of this means that solar does not dramatically reduce the net outflow of capital from the state's economy. To reverse this trend, Oregon needs to become a major manufacturer of both photovoltaics, and solar thermal equipment. Market growth rate for the solar energy sector has exceeded 35% for the past eight years and is expected to exceed 50% per year for the next 4 years before slowing down to a mere 35% per year thereafter.

There are two reasons why bold action must be taken now. First, worldwide demand for solar energy equipment current exceeds product availability. This means that companies are currently experiencing higher margins than have been experienced since the early 1980's and as a result are looking for places to invest in new capacity. This situation will not last long. Capacity constraints are not likely to exist past 2009 which leaves a short window of opportunity.

Secondly, the price of conventional energy has increased substantially and the cost of solar energy equipment continues to decline. Over the past 30 years, the cost of manufacturing photovoltaic equipment has consistently declined by roughly 20 percent with each doubling in manufacturing capacity. New advances and improvements in manufacturing scale means that cost parity with fossil fuel energy sources means that cost parity will be achieved in 2-4 doublings, or 6-12 years.

Oregon's existing semiconductor and aluminum industries well suited for manufacturing solar energy equipment. By positioning Oregon as a net exporter of solar energy equipment, our energy balance of trade can be shifted positive.

1. Establish a photovoltaic manufacturing cluster by 2010.

General Description: Oregon Economic and Community Development Department in conjunction with the Oregon Department of Energy and local economic development organizations will identify the needs of the solar energy industry (land, labor, capital, etc.), and begin direct recruitment of companies that are either or both market leaders or have a technological advantage.

Barrier(s) addressed: Lack of PV manufacturing in Oregon

Who: OECDD, ODOE, local economic development organizations

What:

Cost: \$100,000

Barrier(s) addressed:

2. Establish a business incubator/center of excellence for solar companies.

General Description:

Barrier(s) addressed:

Who:

What:

Cost:

Critical Path:

3. Get utilities involved through targeting peak capacity value

General Description:

Barrier(s) addressed:

Who:

What:

Cost:

Critical Path:

Local Market and Public Education (Demand Side Development)

Increasing the number of sales and installations of solar equipment in Oregon requires identifying and targeting local market opportunities along with developing and delivering effective consumer messages through information and education. Opportunities in this sector can be both global/macro as well as specific/micro.

1. Convince developers to incorporate solar in new construction

General Description: Developers are in the best position to integrate solar components into new construction and transform building construction norms.

Barrier(s) addressed: Currently, there is no real financial incentive for developers to integrate solar components into new construction aside from potential trade on reputation, such as for “green” or progressive building.

Who:

What:

Cost:

Critical Path:

2. Capture market for water heater failure/replacement.

General Description: Conventional water heaters have a life cycle of approximately 10(?) years at which time they are typically replaced with another conventional water heater. Targeting consumers of replacement water heaters with information and incentives to consider the purchase of solar water heating systems can advance this industry.

In Oregon, approximately XX replacement water heaters are installed every year.

Barrier(s) addressed: No mechanism exists to identify replacement water heater purchasers to solar contractors for purposes of educating and selling. Purchase of replacement water heaters is generally off-the-shelf, such as from home improvement stores, or through private contractors – neither of whom have incentive to educate or direct the purchaser about solar (unless the contractor also does solar installations).

Who:

What:

Cost:

Critical Path:

3. Pool market/retrofit – increase awareness of value/savings/payback.

General Description: Using electricity or natural gas to heat water for pool use can seem extravagant in this time of increasing fuel prices and concern about resulting greenhouse gases. Solar heating of swimming pools generally has the fastest payback of solar installations, and is comparatively simple in construction and technology.

Barrier(s) addressed: Pool owners are unknowledgeable about the financial and other benefits of solar pool water heating. Pool owners may not know or feel comfortable about soliciting contractors for information about solar pool heating. Pool owners may not recognize the solar resource available in Oregon for pool heating. Tax credits and other incentives for solar pool heating may be poorly understood.

Who:

What:

Cost:

Critical Path:

4. Expand utilization of solar in existing buildings.

General Description: Retrofitting or renovating existing buildings to integrate solar systems can largely change the future of building energy delivery and consumption. As with most remodels, this can be more costly than integrating into new construction. However, there are some installations for which solar addition to existing buildings can be especially effective, such as with roof tear-offs and replacements.

Barrier(s) addressed: Cost of renovation.

Who:

What:

Cost:

Critical Path:

5. Enable Do-it-yourselfers to take advantage of solar incentives.

General Description:

Barrier(s) addressed:

Who:

What:

Cost:

Critical Path:

6. Provide low-cost financing for installations

General Description:

Barrier(s) addressed:

Who:

What:

Cost:

Critical Path:

7. Make it understandable – education opportunities for consumers:

General Description:

Barrier(s) addressed:

Who:

What:

Cost:

Critical Path:

8. Website info

General Description:

Barrier(s) addressed:

Who:
What:
Cost:
Critical Path:

9. Workshops – regional/city

General Description:

Barrier(s) addressed:
Who:
What:
Cost:
Critical Path:

10. Flowsheet/Diagram

General Description:

Barrier(s) addressed:
Who:
What:
Cost:
Critical Path:

11. Educate the students and their parents

General Description: Oregon's children will know an even greater need for energy, and will have to develop ever more innovative, productive and environmentally-sound energy sources. Educating children in other issues, such as public littering and some healthcare topics, has been successful in bringing the message home to families. Developing an energy and specifically solar energy curriculum for students can result in educating parents and families.

Barrier(s) addressed: Elementary and secondary school curriculum does not generally include energy science. Solar energy benefits and technologies are not routinely covered in the classroom.

Who:
What:
Cost:
Critical Path:

12. Establish third party ownership models

General Description:

Barrier(s) addressed:
Who:
What:
Cost:
Critical Path:

13. Create solar loan financing packages

General Description:

Barrier(s) addressed:

Who:

What:

Cost:

Critical Path:

Workforce Development Opportunities

Ensure there is an adequate amount of adequately trained people to build, distribute, sell, install, inspect and service solar energy equipment. Solar industry sectors offer excellent job growth opportunities. From a report in EMagazine (March/April 2007), a University of California study found that PVs create more jobs per installed megawatt than any other energy technology, including 20 manufacturing and 13 installation or maintenance jobs; another study concluded that solar PV creates 55 to 80 times more jobs as natural gas, and solar heating two to eight times more than conventional power plants. Currently, there are estimated to be 20,000 jobs nationwide in solar, with a 35% annual growth expected. Oregon's solar industries' expansion will be hindered without sufficient numbers of trained workers. Already, there is some indication of too few trained solar thermal installers, slowing the potential for installation. In addition, workers in these sectors also act as consumer educators and market transformers – the more they are out there, the more the public has access to solar applications and information and accepts solar as the norm.

1. Standardization of training between electrical/plumbing and solar

General Description: Provision of disparate training programs, without professional industry and regulatory oversight or standardized certifications, risks delivery of inadequately trained workers and is potentially harmful to the industry.

Barrier(s) addressed:

Who:

What: NABCEP certification;

Cost:

Critical Path:

2. Incentivize trades workers to learn how to do solar

General Description: As solar is a relatively new industry, workers in the trades have seldom had the opportunity to learn solar in their coursework or apprenticeships. The construction boom of the past several years has ensured fairly steady employment in conventional trades without the need or incentive to learn additional skills. And, demand for solar to this point has been mostly adequately met by those vendors specializing in the field.

Barrier(s) addressed: Lack of incentives for workers to learn solar.

Who:

What:

Cost:

Critical Path:

3. Review ratio requirements for solar installers

General Description: Too few new solar-trained contractors are being prepared for market demand in Oregon. While it is important to ensure trainees are appropriately and adequately prepared, it is also important to ensure workforce meets demand. Both of these objectives need to be met if Oregon is to benefit from opportunities in solar workforce growth and maintain a viable industry. Currently, training agents can absorb only about one in ten trainee applicants. Many professionals in the industry believe that the established 1:1 trainer to trainee ratio is unnecessarily low for this technology and that a higher number of trainees per training agent can effectively prepare installers, including ensuring adequate and appropriate safety standards and quality of work.

Barrier(s) addressed: Current licensure rules, requiring a 1:1 ratio of training agents to trainees, along with a limited number of training agents available in Oregon, restricts the number of trainees being prepared for the workforce. The licensure rules are based upon historical models and do not accurately reflect the needs of this particular industry. Oversight bodies are concerned that safety training and work quality training requires this ratio.

Who: BOLI;

What:

Cost:

Critical Path:

4. Centralized guide for training and employment opportunities.

General Description:

Barrier(s) addressed:

Who:

What:

Cost:

Critical Path:

5. Provide Distance learning programs.

General Description: Oregon can encourage entrants into solar industries and build its solar workforce by making solar educational opportunities more readily available.

Barrier(s) addressed: Too few opportunities exist to develop and deliver workforce training.

Who: Grant organizations; Oregon higher education facilities;

What:

Cost:

Critical Path:

6. Make \$100K/yr. available to bring Ryan Mayfield on full time.

General Description:

Barrier(s) addressed:

Who:

What:

Cost:

Critical Path: