



Oregon Solar Programs

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Recent PUC Reports on Solar

- Investigation into the Effectiveness of Solar Programs in Oregon
 - July 1, 2014
 - Required by HB 2893 (2013)
- Solar Photovoltaic Volumetric Incentive Program
 - January 1, 2015 (and every other year)
 - Required by HB 3039 (2009)

Solar Overview

- **Installation sizes:** 1-10 kw for small residential units or 100 or more MWs for central station projects
- **Solar generation is less than 1% of all generation** – while a small part of Oregon’s total electric generating landscape, it is growing quickly.
 - **Number of systems** increased from about 1000 in 2009 to about 10,000 now
- **Benefits of solar** can include:
 - Customer avoiding utility energy costs
 - Environmental benefits
 - Potential reduced transmission line losses
 - Potential avoided transmission and distribution system costs
- **Cost of solar installations** can depend on:
 - Geographic location
 - Size of the installation

Solar Overview

- **Solar systems continue to drop in price.**
 - Average installed cost dropped from about \$6/watt in 2010 to about \$3.30/Watt in 2013 and continues to fall.
 - Decrease of about 40 cents/kwh in 2010 to under 20 cents/kwh at now.
 - To compare, wholesale electric power is about 4 cents per kwh and retail rate is about 10 cents per kwh.
 - Large systems are more cost-effective than small systems, offering the same energy output for about 25% less cost.
- **Costs:** Most of the dramatic cost drop has to do with hardware and panel costs themselves, which have fallen in price from \$3 per watt to about \$1 per watt. The other costs are primarily labor costs.
 - **US Dept of Energy goal:** installed cost of \$2 per watt total by 2020

Solar Programs in Oregon

- **Net Metering**
- **Energy Trust of Oregon's Solar Rebates**
- **Consumer Owned Utility Rebates**
- **Renewable Portfolio Standard**
- **Solar Capacity Standard**
- **Volumetric Incentive Rate (VIR) Pilot Program**
- **Oregon state income tax credits and grants**
- **Other Tools used in Oregon**
 - **Utility System Resources through Integrated Resource Planning**
 - **Federal Public Utility Regulatory Policy Act (PURPA)**
 - **Federal Investment Tax Credit (ITC)**
- **Other Approaches**
 - **Community Solar**
 - **Value of Solar Tariff**

Effectiveness

- **Size Matters:** Larger systems result in lower cost of energy
- **Residential programs:** not much difference in cost of energy
- **Benefits vary based on system size & type.** For example, job creation varies:
 - Small residential & commercial PV projects support local installers.
 - Programs that promote large projects create construction jobs.
- **No single solar program more effective at promoting solar or lowering solar costs than others.** For example:
 - Tax programs help alleviate tax liability;
 - ETO programs provide cash upfront;
 - VIR provides greater overall incentive, but spread over time and depends on the amount of generation that results from panels.

Solar Programs: Next Steps

- Recommendations/Next Steps:
 - PUC opened Value of Solar proceeding
 - Determine Resource Value of Solar
 - Determine Cost Shifting from Net Metering (if any)
 - Evaluate Reliability and Operational Impacts
 - PUC workshops to examine use of smart inverters and track national efforts to change interconnection standards.

Questions?