Energy 101 A Presentation to the House Energy and Environment Committee

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OPUC Mission

Ensure that safe and reliable utility services are provided to consumers at just and reasonable rates through regulation and promoting the development of competitive markets.

The PUC receives no General or Lottery funds. Commission responsibilities are funded through a per month charge on regulated natural gas, electric, telecommunication, and water utility bills (approximately \$0.16 per residential bill).

ODOE Mission

The Oregon Department of Energy reduces the long-term costs of energy for Oregonians.

The agency's primary program goals include:

- Encouraging conservation, efficiency, and renewable energy resources;
- Siting energy facilities;
- Nuclear safety and emergency preparedness

We are supported by federal funds, fees for service and an Energy Supplier Assessment. ODOE receives no general funds.

Presentation Overview

Oregon's Energy Profile Major Regional Energy Players State Regulatory Framework Market and Policy Drivers

Oregon's Energy Use Profile



Oregon's 2010-2012 Electricity Consumption Portfolio



Oregon's Heating Portfolio

TABLE 1: Oregon's Thermal Energy Consumption (TBTU) In The Year 2009

Sector	Thermal Energy (TBTU) ^A	% By sector of Oregon's thermal load	Thermal energy as % of total energy consumption in the sector ^B
Residential	84.2	32%	30.7%
Commercial	45.3	17%	21.8%
Industrial	133.8	51%	53.1%
Oregon Total	263.4	100%	24.7%

^AThermal energy in trillion BTU (TBTU) aggregated from estimates made by sector and by fuel type; data sources to be discussed ^B Calculated from data from the EIA: "EIA - U.S. States - Oregon - Data." Energy Information Administration, n.d. http://www.eia.gov/state/state-energy-profiles-data.cfm?sid=OR#Consumption.

Source: Estimating Renewable Share of Oregon's Thermal Energy				
<i>Consumption</i> , Sustainable Northwest and ODOE joint project, August 2012				

Oregon's Transportation Portfolio

2013 Transportation Fuel Use by Gallons and Percentage*



*All fuels represented as a Gasoline Gallon Equivalent.





Electric Utility Type	Number in Oregon	Percentage of Sales	Percentage of Customers
Investor-Owned Utilities	3	66.4	73.9
Municipal-Owned	12	10.5	9.6
Cooperatives	19	10.5	9.6
People's Utility Districts	6	8.8	6.0
TOTAL	40 UTILITIES	47 million MWH	1.9 million CUSTOMERS

OREGON DEPARTMENT OF ENERGY Oregon Natural Gas Utilities Service Territories





Northwest Power and Conservation Council

The Council issues a regional power plan to ensure an adequate, efficient, economical, and reliable power supply for the Pacific Northwest.



The region's 6th Power Plan was released in 2010.

"The plan finds enough conservation to be available and costeffective to meet 85 percent of the region's load growth for the next 20 years. If developed aggressively, this conservation, combined with the region's past successful development of energy efficiency could constitute a resource comparable in size to the Northwest federal hydroelectric system."



The 7th Power Plan is scheduled for release in late 2015.

STATE REGULATORY FRAMEWORKS

Resource Planning Energy Efficiency Clean Energy Policies

Integrated Resource Planning (IRP)

PUC requires investor-owned utilities (PGE, PacifiCorp, Idaho Power Company, Northwest Natural, Avista, and Cascade) to prepare long-term plans for energy supply, energy efficiency, and associated transmission.

- Public process open to all stakeholders;
- Forecast the expected load over 20 years;
- All resource options must be evaluated on equal basis;
- Action Plan: the short term plan to identify the specific resource needs;
- The Commissions "Acknowledges" the IRP;
- Goal: Find the best combination of resources to meet customer needs on a least-cost and least-risk basis.

Planning for Future Electricity Needs



Energy Efficiency

- Costs about 3¢ per kilowatt-hour compared to 6-9¢ per kilowatthour to build or buy from power plants.
- Wide variety of applications like insulation, industrial processes, lighting, refrigeration, and irrigation processes.
- Energy Trust runs energy efficiency programs for large electric and natural gas utilities in Oregon.
- BPA has policies to help fund and manage energy efficiency programs its customer utilities.
- These programs complement the statewide energy efficiency incentives offered at ODOE.

Clean Energy Policies

Renewable Energy Development Standards

- Renewable Portfolio Standard (RPS) SB 838 (2007)
- Solar Capacity Standard HB 3039 (2009)

• Solar and Renewable Incentives

- Net Metering- HB 3219 (1999) & SB 84 (2005)
- "Public Purpose Charge" related incentives SB 1149 (1999)
- Volumetric Incentive Rates (Feed-in-Tariffs) HB 3039 (2009)

• Voluntary Renewable Energy Programs

- Residential Voluntary Green Power SB 1149 (1999) & SB 838 (2007)
- Non-Residential Voluntary Green Tariffs HB 4126 (2014)

Greenhouse Gas Reductions

- Emissions Performance Standard SB 101 (2009)
- Voluntary Greenhouse Gas Program for Natural Gas SB 844 (2013)

MARKET AND POLICY DRIVERS

Natural Gas Prices Environmental Requirements Integrating Renewable Energy Energy Storage Resilient Systems

Low Natural Gas Prices



Environmental Requirements

- Clean Air Act (CAA)
 - Mercury and haze regulation
- CAA Section 111(d) regulation of CO2 emissions from existing electricity generating units
 - EPA draft rule relies on transition from coal to gas, renewable energy, and energy efficiency
 - DEQ, ODOE, and PUC collaborated on analysis and outreach to stakeholders and comments to EPA were submitted in mid-October
 - Final rule expected in Summer 2015
 - State Compliance Plans by Summer 2016

Renewable Energy Integration

- Energy Imbalance Market (EIM): increases supply of available flexible resources to integrate variable energy resources.
 - Market incentive to dispatch resources through an automated system that efficiently balances supply and demand
 - Broadens the pool of lowest cost resources that can be used to balance the system
- PacifiCorp joined an EIM with California Independent System Operator in 2014.
- Northwest Power Pool is assessing the viability of a Security Constrained Economic Dispatch (SCED) that would cover utilities in the Northwest



Resilient Energy Systems

Examples of Clean Energy Investments with Resiliency Benefits

- Distributed generation
- Locally-made alternative fuels for emergency fleets
- Energy storage



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