



# **Edmonds New Energy Cities Workshop**

**Presentation on Snohomish PUD by  
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# PUD Climate Policy

- **Climate Change is a serious global problem** and we believe it should be addressed through development of thoughtful and forward-looking legislation that actually results in the reduction of greenhouse gas emissions in a workable and cost-effective manner
- Using our natural resources more efficiently and wisely makes good environmental and economic sense.

# PUD Climate Principals

- **Legislative action** to address climate change should involve all sectors of the economy and all sources of greenhouse gases
- Any actions should consider the economic impacts on consumers, especially those who are financially challenged
- We prefer a single, comprehensive national approach to addressing climate change; however, if states or other local jurisdictions create related legislation it should be compatible with other climate initiatives in order to facilitate implementation and ensure reasonable certainty

# PUD Climate Strategies

- Reduce energy use by improving the energy efficiency of our own utility generation, transmission, distribution and administrative facilities
- Monitor emerging technologies and best practices for local application where appropriate
- Support the creation and location of innovative industries in our service territory that manufacture products or offer services that reduce greenhouse gas emissions

# Strategic Plan – Critical Planning Assumptions

- Our customers want the District to remain a sensitive and prudent steward of the environment and to be socially responsible
- The District will address its resource needs through an IRP process that recognizes conservation and renewables as the preferred approach, in that it is the least risk/least cost option over the long-term
- The District will continue to be recognized as a leader in conservation and renewables resulting in receipt of grants, credits and appropriations to defray portions of the costs associated with development of these critical resources

# Strategic Plan – Critical Planning Assumptions (2)

- A growing number of wind projects in the Northwest, combined with natural gas supply dynamics will result in increased volatility in short-term wholesale energy markets. At the same time, the costs associated with building new renewable resources will continue to rise
- Weak or even negative pricing in the wholesale market will be an increasing financial and operational problem
- The ongoing addition of intermittent and variable renewable energy sources to the region's power supply mix will drive more interest and investment in the development and application of storage technologies and demand response
- The move toward electrification of transportation will accelerate

# Strategic Plan – Social & Environmental Responsibility

- Implement the Climate Change Policy adopted by the Board in March 2007 and, in doing so, educate our customers and promote public awareness on climate change issues
- Seek to reduce greenhouse gas emissions resulting from non-generation activities by modifying activities where it can be accomplished at a reasonable cost while maintaining satisfactory levels of customer service

# Strategic Plan – Resource Portfolio

- The Northwest's investments in energy efficiency and renewable hydroelectricity have yielded substantial environmental and economic benefits and we will continue this proven legacy of conservation and renewables
- We will be a recognized leader and innovator in energy efficiency and renewables. We believe that interest in conservation and renewables is not a passing fad but represents societal values, political and economic realities as well as regulatory and legal requirements

# Strategic Plan – Resource Portfolio (2)

- We will meet load growth first through conservation and then a diverse mix of renewable resource technologies with an emphasis on those located within our own service territory. We prefer owning and operating new renewable energy resources not only to control our own destiny and avoid risk and volatility, but also to promote local economic development, livable wage jobs and provide educational opportunities in partnership with local schools' science, engineering and environmental programs

# Strategic Plan – Technology & Innovation

- Support the development of distributed generation within Snohomish County including but not limited to solar, solar thermal and biomass
- Smart Grid – We will provide robust communications to our modernized/automated substations and implement the necessary components, including Advanced Metering Infrastructure (AMI), and IT hardware and systems within the next 10 years, at a pace that considers factors such as impact to rates, capital requirements, regulation, technology and customer needs

# New Renewables in Our Portfolio

- Wind (over 8 %)
- Low Impact / Small Hydro
- Biomass / Dairy – Digester/ Landfill Gas
- Solar

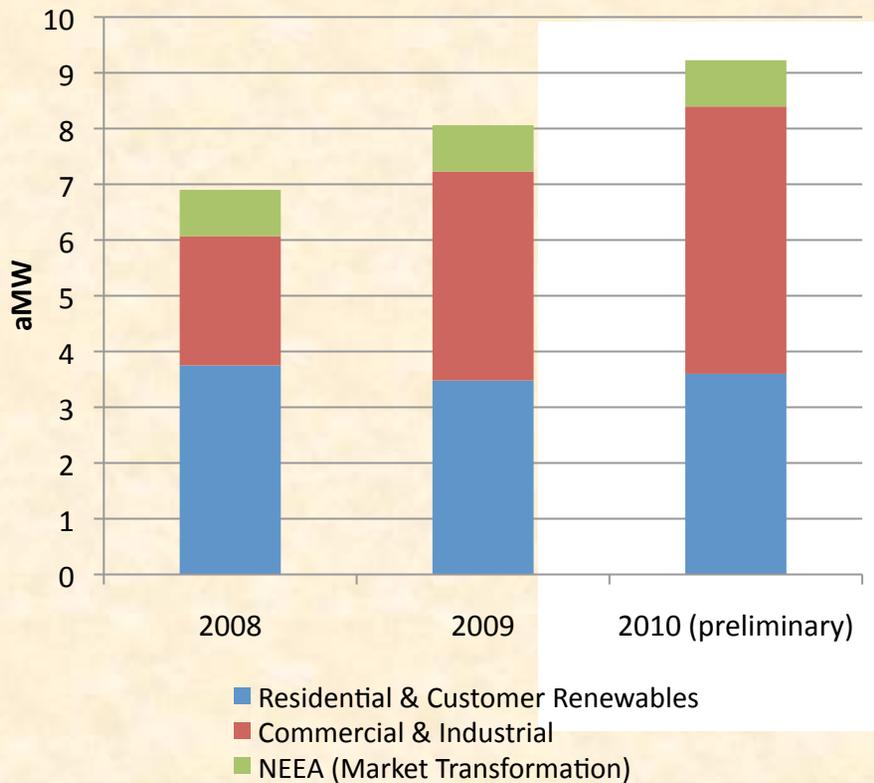


# Community Energy Efficiency

- Energy efficiency initiative will help 3,000 homes, 100 small businesses in 2010/2011
- Partnership between PUD, City of Everett and Snohomish County
- Specific neighborhoods and communities identified for weatherization/efficiency efforts
- Projects are supported by \$2.2 million in federal stimulus matching funds



# 2010 - Another Record Year



	2008	2009	2010 (preliminary)
<b>Residential &amp; Customer Renewables</b>	3.8	3.5	3.6
<b>Commercial &amp; Industrial</b>	2.3	3.8	4.8
<b>NEEA (Market Transformation)</b>	0.8	0.8	0.8
<b>Total</b>	<b>6.9</b>	<b>8.1</b>	<b>9.2</b>

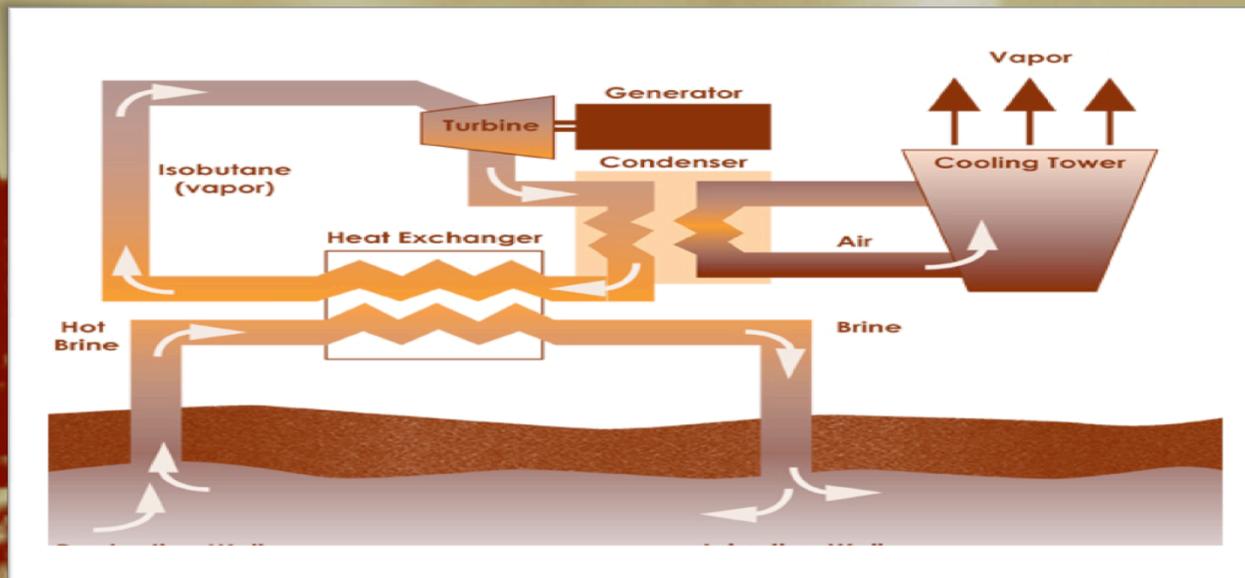
# Tidal Energy

- **Researching several sites in Puget Sound – potentially enough energy for up to 70,000 homes**
- **Pilot project west of Whidbey Island installed in next two years**
- **Innovative turbine design by OpenHydro, Irish technology firm**
- **Conducting range of studies on economic, environmental and technical feasibility**
- **Over \$12 million in federal grant dollars secured**



# Geothermal

- Assessing geothermal resources in Cascade Mountain range
- Long-term energy potential for 60,000 homes or more
- Five temperature gradient wells drilled this year
- Planning for land acquisition, permitting and further test drilling in coming years
- Nearly \$500,000 in Department of Energy grant funds
- \$1.2 million federal appropriation under consideration



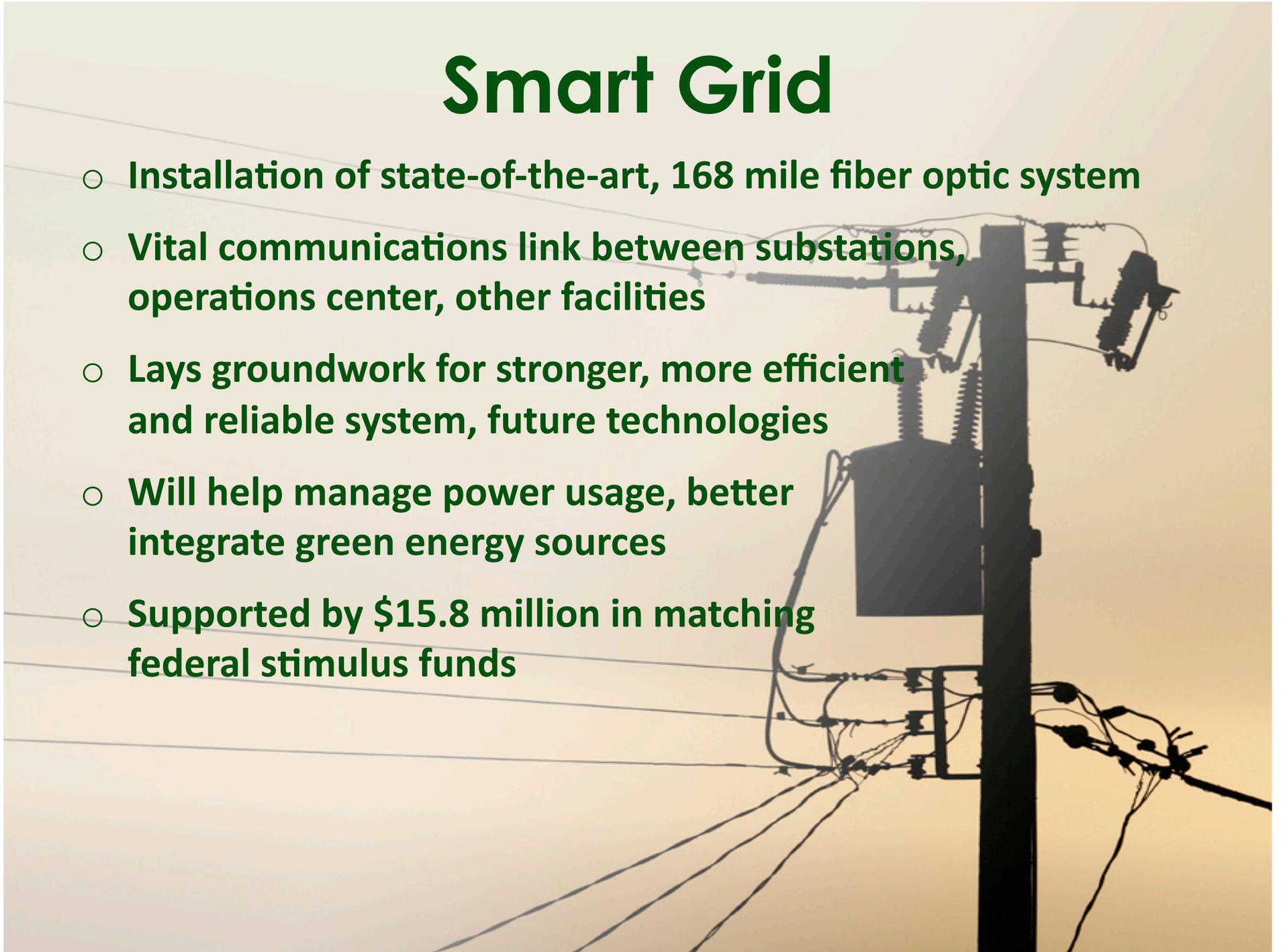
# Rucker Hill Hydroelectric Project

- 250-400kW (up to 400 homes) of clean renewable energy by adding turbine/generator to capture wasted energy from Everett's water supply pipe
- No environmental/fish issues
- Received \$154K grant from State Department of Commerce



# Smart Grid

- Installation of state-of-the-art, 168 mile fiber optic system
- Vital communications link between substations, operations center, other facilities
- Lays groundwork for stronger, more efficient and reliable system, future technologies
- Will help manage power usage, better integrate green energy sources
- Supported by \$15.8 million in matching federal stimulus funds



# Chapter 6: Generating Resources and Energy Storage Technologies Sixth Power Plan

Figure 6-1A: Levelized Lifecycle Electricity Cost for Generating Options Available in the Near-term (2010-14) <sup>11</sup>

