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November 6, 2018

MEMORANDUM

TO: Council Members

FROM: Kendall Farley

SUBJECT: Snohomish County PUD on solar/EV/and demand response.

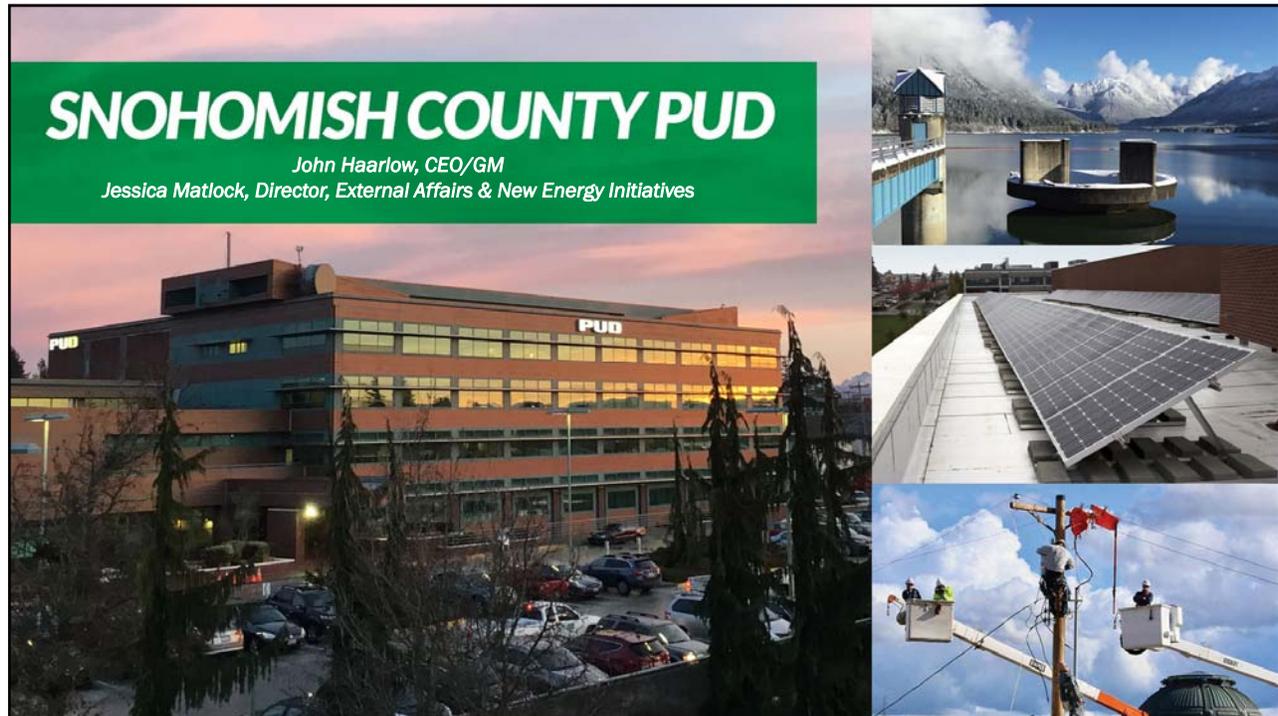
BACKGROUND:

Presenter: John Haarlow, CEO and Jessica Matlock, Government Relations Manager
Snohomish County PUD

Summary: This presentation will be Mr. Haarlow's introduction to the Council as the new CEO of SnoPUD. He will discuss his plans for SnoPUD and new collaborations they are embarking on. He will present on the Utility of the Future as well as further developments on their solar, EV and demand response programs.

Background: The Board of Commissioners appointed John Haarlow to serve as CEO/General Manager beginning October 8, 2018. He joined the Snohomish County PUD in February 2017 as Assistant General Manager of Distribution & Engineering Services, bringing nearly 30 years of experience in the electric utility industry. In that role, he was responsible for construction, engineering, operations and maintenance of the utility's transmission, substation and distribution assets. He also oversaw fleet, real estate and environmental functions.

Before joining the PUD, John worked for the Public Service Company of New Mexico, serving as both Director of Safety and Transmission and Distribution Engineering and Operations. He began his career at the Central Illinois Light Company where he was an IBEW journeyman for 10 years. Haarlow also worked as Vice President of Power Delivery for the Indianapolis Power and Light Company. He attended University of Illinois and holds a Bachelor of Arts degree in accounting.



PUD Quick Facts

- Began operations in 1949 following a public vote
- Second largest public utility in the Northwest and 12th largest in the United States
- Governed by three-member elected Board of Commissioners from the community
- Not for profit



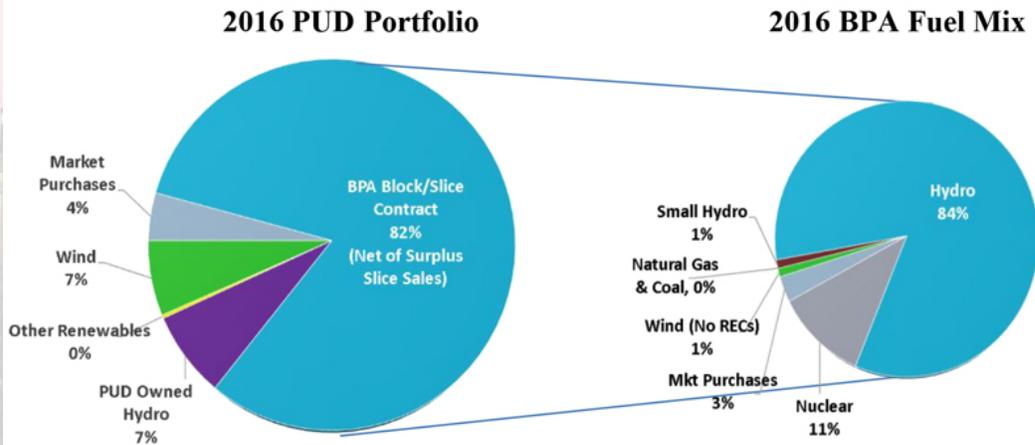
PUD Quick Facts (cont.)

- Covers 2,200 square mile area in Snohomish County/Camano Island
- Serves nearly 360,000 electric customers and 20,000 water customers in one of the fastest-growing counties in the Pacific Northwest

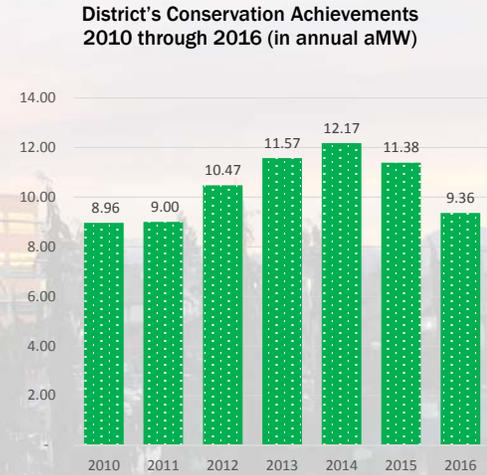
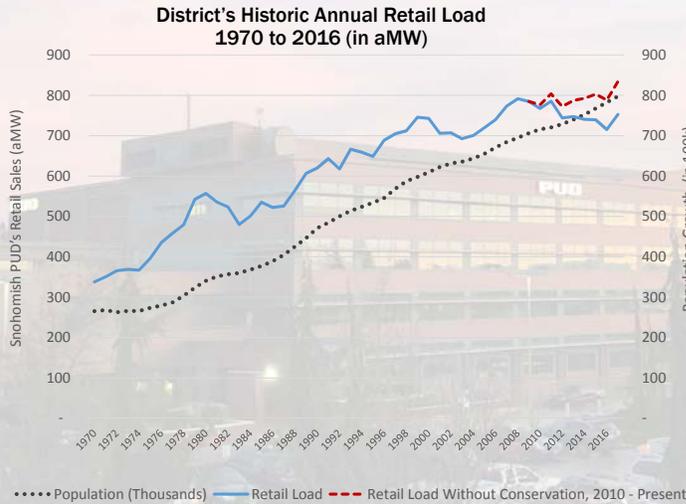


PUD Fuel Mix

2016 Snohomish PUD Power Supply Portfolio & 2016 BPA Fuel Mix

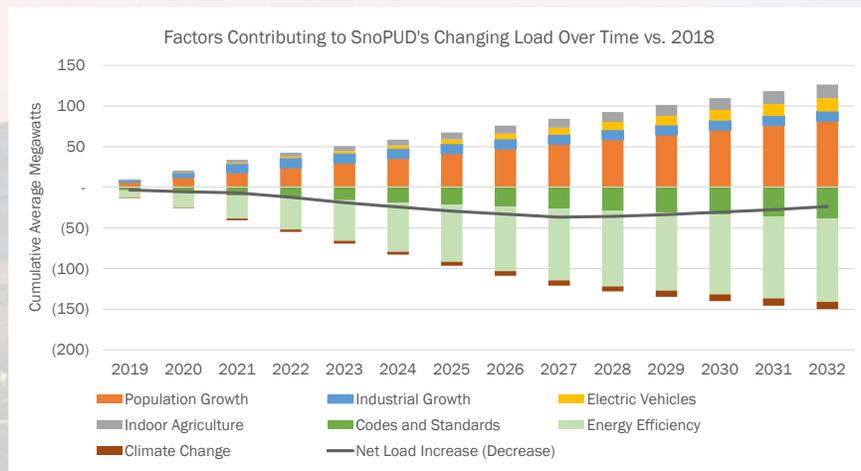


PUD's Actual Retail Load & Population Growth



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Driving Factors



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Utility of the Future

- Changing the way we do things at the PUD
 - Increase awareness of safety, leading to increased morale and productivity
 - Breaking down silos and creating cross function teams to diversify ideas
 - Looking for ways to improve processes
 - Increase value proposition for customers
 - Increasing customer input and choice, making them feel a part of the utility
 - Increasing engagement with key stakeholders



Utility of the Future

- Launching a holistic distribution system planning and optimization effort to coordinate effective utilization of all resources including customer-sited (DER/DR)
 - Enabled by Advanced Meters
 - Examine more distributed generation options
 - Evaluate and quantify the value of distributed resources based on location, time, and grid services provided
 - Pilot demand response programs (waste-water, water heaters)
 - Leverage existing battery storage projects and examining other capabilities of storage (ex. V2G)
 - Develop system heat map to understand capacity constrained areas to better plan efficiency and impact of Evs
 - Examine power market value of capacity

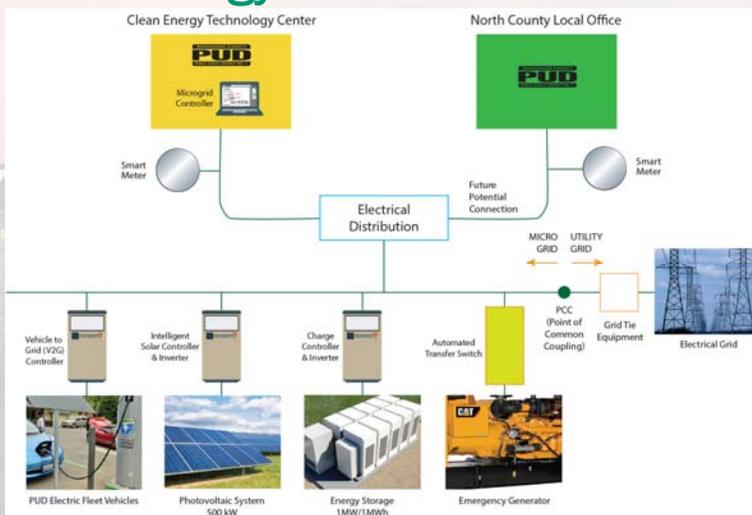


Energy Storage

- Energy-storage systems based on the innovative Modular Energy Storage Architecture (MESA), which aims to accelerate the growth of the energy storage industry and improve reliability.
- Two separate battery storage projects installed (Li-Ion and Vanadium Flow).
- The installations are designed to improve reliability and the integration of renewable energy sources. A third energy storage system is being designed for the new Arlington Solar/Microgrid and Clean Energy Technology Center.

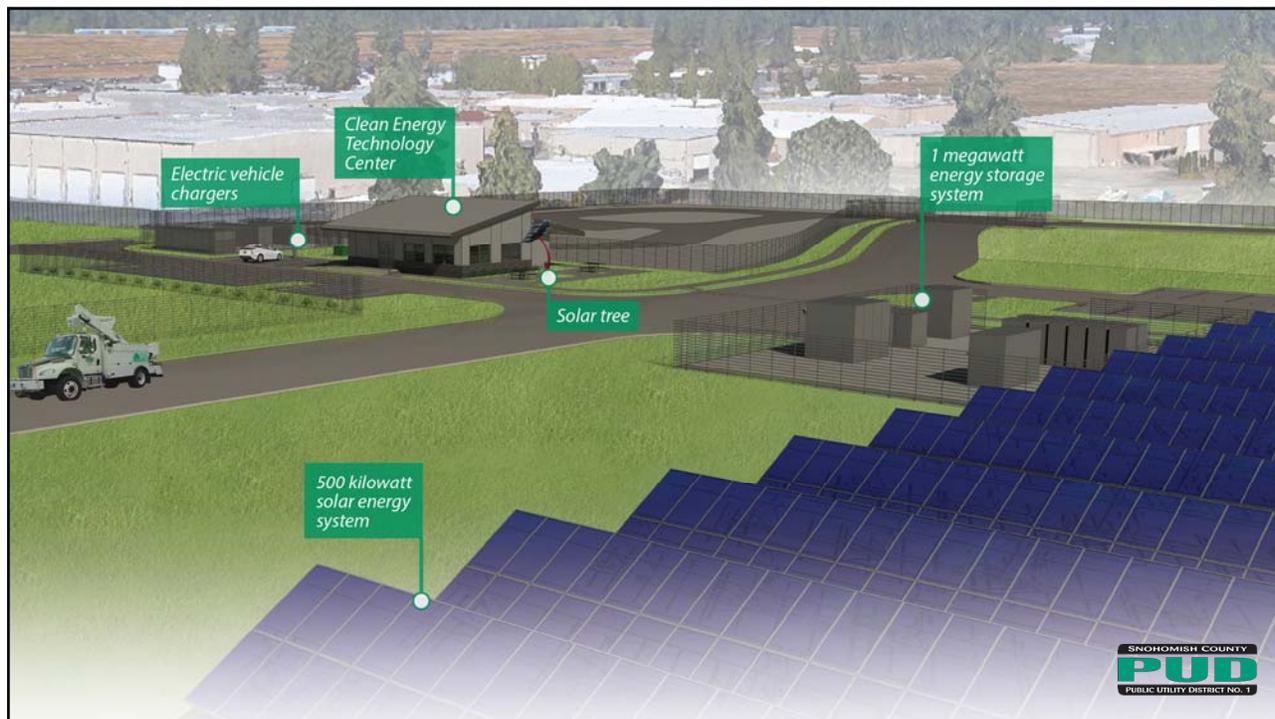


Arlington Solar/Microgrid and Clean Energy Technology Center



- Solar project will offer Community Solar Shares
- Project offers grid resiliency and renewable energy integration.
- Project will include a 500-kW solar array, 500-kW/1,000 kWh lithium-ion battery storage system and vehicle-to-grid charging stations for PUD fleet





Customer Choices

Renewable Choices Energy Program



Continue to offer Net Metering past State mandate. Looking to develop more options for net metering above 100kW.



Carbon Solutions allows customers to purchase Renewable Energy Credits (RECs) on a flexible schedule.



PUD Solar Shares – pay to rent a share of a solar panel for the life of that panel

- Purpose of program is to offer participation into a solar program for interested customers.

Electric Vehicles

- Investigating pilot programs with community partners to test out managed charging and cost-sharing mechanisms
- Working to streamline the design and installation process for charging stations
- Increased efforts to proactively work with communities/municipalities to think about the future of electrification
 - Engage in fleet electrification plans
 - Assist with EV charger siting



Questions?

