Northwest **Power** and **Conservation** Council

March 5, 2019

MEMORANDUM

TO: **Council Members**

FROM: **Gillian Charles**

SUBJECT: **Briefing on Portland General Electric's Wheatridge Renewable Facility**

BACKGROUND:

Presenter: Brendan McCarthy, State Environmental Policy Manager, Portland General Electric and other PGE staff

Summary: Last month, Portland General Electric (PGE) announced its plans to develop a new combination renewable plus energy storage facility with NextEra Energy. The Wheatridge Energy Facility, located in Morrow county, Oregon, will combine 300 megawatts of wind power, 50 megawatts of solar photovoltaic, and 30 megawatts of battery storage. The magnitude of this project – and the unique combination of resources – makes it a milestone development in the United States. The wind portion of the facility is expected to begin commercial operation in 2020 (to take full advantage of expiring tax credits), while the solar and battery components are slated for operation in 2021.

The Wheatridge Energy Facility was selected in response to a request for proposals released by PGE in mid-2018. During its 2016 integrated resource planning process, PGE identified the need for 100 average megawatts of clean power to help meet a looming capacity need (PGE's Boardman coal plant is scheduled to cease coal-fired generation in 2020) as well as long-term renewable portfolio standard requirements.

Relevance: As the Council develops its 2021 Power Plan, staff will be assessing resource alternatives for future development in the Northwest, including combination renewable + storage projects.

More Info: PGE fact sheet on Wheatridge Energy Facility (attached)

PGE press release, 2/12/19
https://www.portlandgeneral.com/our-company/news-room/news-releases/2019/02-13-2019-portland-general-electric-and-nextera-energy-resources-to-develop-en

NEXTera ENERGY RESOURCES

Portland General Electric

Wheatridge Renewable Energy Facility

Wheatridge Renewable Energy Facility will be the first major renewable energy project in North America to co-locate wind, solar and battery storage.

About Portland General Electric Company

- A fully-integrated energy company based in Portland, Oregon, with 130 years' experience delivering safe, affordable and reliable energy to customers – currently more than 885,000 in 51 cities
- PGE has had the No. 1 voluntary renewable energy program in the U.S. for the past nine years, with more than 200,000 customers now enrolled
- Once the Wheatridge project is online, PGE will have 1,000 megawatts of owned and contracted wind energy from five Northwest wind farms available to serve customers.
- PGE is working to dramatically increase its renewable energy portfolio while reducing greenhouse gas emissions to meet Oregon's climate goals and help drive the state's transition to a clean energy economy

PortlandGeneral.com/CleanVision

Wind Overview

- Located in Morrow County, Oregon
- Expected maximum capacity of 300 megawatts produced by approximately 120 GE turbines
- Each turbine will be up to 90 meters tall from the ground to the hub in the center of the blades
- Expected to begin commercial operation in 2020
- 200 megawatts owned and operated by a subsidiary of NextEra Energy Resources, LLC
- 100 megawatts owned by Portland General Electric Company

Wind Benefits

- Creates up to 10 full time operations jobs
- Creates up to 300 construction jobs
- Adds property taxes benefiting schools and local services
- Supports economy through purchases of regional goods and services
- Provides landowner payments
- Increased local spending for goods and services during construction
- Allows land to remain in agricultural use
- Creates no air or water pollution
- Uses no water in power generation

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NEXTera ENERGY RESOURCES

About NextEra Energy Resources, LLC

- A leading clean energy provider operating wind, natural gas, solar and nuclear power plants
- A portfolio of power generating facilities across the United States and in Canada
- The world's largest generator of wind and solar energy
- A subsidiary of NextEra Energy, Inc., with headquarters in Juno Beach, Florida
- Approximately 99 percent of the electricity we generate comes from clean or renewable sources

NextEraEnergyResources.com

Solar and Storage Overview

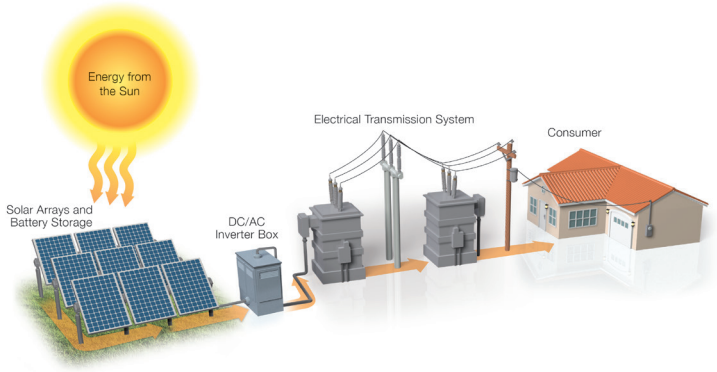
- A 50-megawatt photovoltaic solar energy generating facility
- A battery facility will charge using energy from the solar field and provide 30 megawatts of continuous power for 4 hours
- Expected to begin commercial operation in 2021
- Owned and operated by a subsidiary of NextEra Energy Resources, LLC

Solar Benefits

- Delivers safe, low-cost, clean renewable energy
- Creates up to 175 construction jobs
- Adds property taxes benefiting schools and local services
- Creates no air or water pollution
- Uses no water to generate electricity

Energy Storage Benefits

- Allows energy to be delivered instantly to grid operators
- Can help balance the load on the power grid by moving energy when demands are low to times when demands are high
- Helps to bridge inefficiencies in the supply and demand of electricity



How the Wheatridge Renewable Energy Facility will work

As sunlight hits the solar panels, the photovoltaic energy is converted into direct current electricity (DC). The direct current flows from the panels through inverters and is converted into alternating current (AC). From the inverter, some of the emissions-free energy goes into a battery system to be stored for use at a later time while the rest of the energy travels through the power grid for delivery to homes and businesses.

Overview: Wheatridge Renewable Energy Facility

Presentation to the Northwest Power and Conservation Council

Brendan McCarthy
Brian Faist
Jimmy Lindsay

March 12, 2019

How did we get here?

Two Oregon Public Utility Commission processes:

- PGE's Integrated Resource Plan – LC 66
- PGE's Request for Proposal – UM 1934

Details of PGE IRP and PGE RFP

IRP Docket number LC 66:

- PGE submitted initial action plan calling for 175 MWa of renewable energy acquisition
- Need driven by expiration of PTCs
- Order number 17-386 acknowledged all actions *EXCEPT* the renewable energy acquisition
- Order number 18-044 acknowledged revised action plan for new renewable resources of approximately 100 MWa
- 18-044 required PGE to address RFP design and scoring elements relevant to Montana wind resources in bidder and stakeholder workshops

RFP Docket number UM 1934:

- Adopts staff recommendation to acknowledge PGE's shortlist of bidders in the 2018 RFP
- Staff recommended acknowledgement because independent evaluator found process fair and transparent and bids on shortlist were competitive.
- PUC noted that transmission deliverability requirements limited short list and transmission will be an issue in upcoming workshops and RFPs
- Short list of three projects:
  - Two in Oregon, one in Montana
  - Mixes of PPAs and ownership

Wheatridge Renewable Energy Facility

The Wheatridge Energy Facility is the first major renewable energy project in North America to co-locate wind, solar and battery storage.

The Wheatridge Renewable Energy Facility is a 350 MW wind and solar farm combined with 30 MW additional battery energy storage.

- 300 MW Wind
- 50 MW Solar
- 30 MW Battery Storage

Located in Morrow County, Oregon

PGE will own 100 MW of the wind resource, and purchase the balance of project output via PPA with a subsidiary of NextEra Energy Resources, which will operate the facility.

Wind facility overview

300MW produced by approximately 120 GE turbines

200 megawatts owned and operated by a subsidiary of NextEra Energy Resources

100 megawatts owned by PGE

10 full time operations jobs, approximately 300 construction jobs.

Expected to begin commercial operation in 2020

Solar facility overview

50-megawatt photovoltaic solar energy generating facility

Power from solar farm will be used to charge the battery storage facility

Owned and operated by a subsidiary of NextEra Energy Resources

Expected to begin commercial operation in 2021

Battery facility overview

Battery storage facility will charge using power from the solar farm and provide 30 megawatts of continuous power for 4 hours

Can help balance load on the power grid by moving energy from when demands are low to times when demands are high

Expected to begin commercial operation in 2021

Dispatched by PGE but owned and operated by a subsidiary of NextEra Energy Resources


Thank you!
Electric Vehicle Charging Station.
Powered by 100% Renewable Energy.
2 HOURS
P
2 HOURS