NW Energy Coalition Webinar

Resource Adequacy in the Northwest

May 7, 2020
About the NW Energy Coalition

The NW Energy Coalition leads the Northwest's broadest alliance of energy interests in designing, promoting, and implementing clean, affordable, and equitable energy policy grounded in analytical expertise.

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NW Energy Coalition
for a clean and affordable energy future.
NW Energy Coalition Webinar

Resource Adequacy in the Northwest

May 7th, 2020

Panelists:

Ben Kujala
NW Power and Conservation Council

Elaine Hart
Portland General Electric

Therese Hampton
Public Generating Pool

Moderated by:

Fred Heutte
NW Energy Coalition
First speaker:

Ben Kujala
NW Power and Conservation Council
Regional Hydro Power Depends on Water Runoff
Check out the Power Supply Source Data
Integrated Solar affects both Hydro and Thermal Resources

Change in Resource Dispatch
- Megawatts
- Hour of Day

Hydro
Thermal
Planned retirements based on agreements, announcements, IRPs; subject to change
Idaho Power intends to end its participation in North Valmy 1 in 2019
Uncertainty remains over timing of Jim Bridger 1,2 potential accelerated retirements
Hardin Generating Station was sold to an out-of-region cryptocurrency company; therefore no longer “counts” towards the region
Colstrip 3,4 should be considered very tentative

Updated Mar 2020

Data source: Council’s project database
WECC coal units in operation, decreasing over time

WECC Coal Units in Operation - By State/Province

Overall, coal operating in the WECC falls from about ~34GW in 2019, to ~15GW in 2030 and ~13GW in 2032 (and thereafter)

Data source: Council’s project database and coal unit retirements database/map
Questions?
Next speaker:

Elaine Hart
Portland General Electric
Resource Adequacy in Utility IRPs

- Every utility in the region develops their own assessment of resource adequacy needs within their planning process.
- Portland General Electric (PGE) uses a probabilistic model that considers how electricity demand and resource availability change over time.
- PGE plans to a standard of 2.4 loss of load hours per year.
Resource Adequacy in Utility IRPs

- Traditional, centralized, dispatchable resources have long supported resource adequacy and continue to play an important role.

*Figures are approximate, load is adjusted for energy efficiency, DER = Distributed Energy Resource*
Resource Adequacy in Utility IRPs

- Traditional, centralized, dispatchable resources have long supported resource adequacy and continue to play an important role.

- Going forward, capacity needs will be met with larger shares of non-emitting resources, including renewables, energy storage, and demand response.

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Resource Adequacy in Utility IRPs

- Traditional, centralized, dispatchable resources have long supported resource adequacy and continue to play an important role.
- Going forward, capacity needs will be met with larger shares of non-emitting resources, including renewables, energy storage, and demand response.
- This transition will require more sophisticated models and improved regional coordination.

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PGE’s IRP Stakeholder Process

We are getting started on our next Integrated Resource Plan.

If you’re interested in participating, visit www.portlandgeneral.com/IRP

or email us at IRP@pgn.com.
Questions?
Next speaker:

Therese Hampton
Public Generating Pool
Resource Adequacy Study Summary

- PGE & E3 2018
- NWPCC
- BPA Whitebook
- PNUCC Forecast
- E3 2019

Capacity Surplus / (Deficit) (MW)

- 2020
- 2021
- 2022
- 2023
- 2024
- 2025
- 2026
- 2027
- 2028
Resource Adequacy Program Options

**Bilateral Resource Adequacy Program**
- CAISO
- SPP

**Voluntary Central Capacity Market**
- MISO

**Central Capacity Market**
- PJM
- NYISO
- ISO-NE
REGIONAL PLANNING RESERVE SHARING HAS THE POTENTIAL TO RESULT IN SIGNIFICANT BENEFITS

- Provides an independent means for determining the quantity of capacity that is needed for regional resource adequacy
- Takes advantage of load and resource diversity that exists across regions
  - Planning to meet regional coincident peak loads requires less capacity than meeting each individual utility’s peak loads
  - Resources that are surplus in one area could be utilized to meet a deficit in a neighboring area
- May enable a lower reserve margin because large systems are less vulnerable to individual, large contingencies

<table>
<thead>
<tr>
<th>Potential Benefits</th>
<th>BPA+ Area</th>
<th>NWPP (US)</th>
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</thead>
<tbody>
<tr>
<td>Individual Utility Peak + 15% PRM</td>
<td>33,574</td>
<td>46,398</td>
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<tr>
<td>Regional Peak + 15%</td>
<td>32,833</td>
<td>42,896</td>
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<tr>
<td>Reduction (MW)</td>
<td>741</td>
<td>3,502</td>
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<tr>
<td>Regional Peak + 12%</td>
<td>31,977</td>
<td>41,777</td>
</tr>
<tr>
<td>Reduction (MW)</td>
<td>1,597</td>
<td>4,621</td>
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</tbody>
</table>

Note: Capacity reductions calculated as the difference between the sum of non-coincident peaks for all Northwest Balancing Areas and the coincident peak for the US portion of the Northwest Power Pool footprint.
BENEFITS OF DIVERSITY AND EXPANSION

• PRM requirements reliably reduced due to increased load and resource diversity facilitated through regional transmission planning and market operation

• Regional footprint expansion has created further opportunities to reduce PRM requirements

Reduction of PRM requirement from 13.6 to 12.0% is expected to save region $90 million annually in deferred capacity investment!
Overview of Project Timeline

- **Phase 1:** Information Gathering (concluded Oct. 2019)
- **Phase 2A:** Preliminary Design Phase (Early 2020)
- **Phase 2B:** Detailed Design (Late 2020)
- **Phase 3:** Begin Work to Implement Program (2021)
Questions?
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NW Power and Conservation Council

Elaine Hart
Portland General Electric

Therese Hampton
Public Generating Pool

Moderated by:

Fred Heutte
NW Energy Coalition
Thank you!

Questions or Feedback?

Email: kat@nwenergy.org

We will post the recording on our website:

www.nwenergy.org