December 5, 2023

MEMORANDUM

TO: Power Committee Members
FROM: Dylan Dsouza, Energy Analyst
SUBJECT: Report on Regional Demand Response Efforts

BACKGROUND:

Presenter: Dylan DSouza

Summary: The 2021 Power Plan included a potential assessment for Demand Response (DR) that assessed DR alongside generating resources and energy efficiency. The plan concluded that low-cost, regularly deployable DR is needed and can provide grid flexibility especially during ramping and peaking periods. This presentation will be essentially a “regional round-up” that will showcase the progress made across the region to develop demand response programs and how they support either regional or individual utility needs. The results of this roundup will provide input to the Council’s mid-term assessment and the next regional power plan.

Relevance: The 2021 Power Plan recommended that Bonneville and the region’s utilities pursue demand response, especially low-cost DR that provides benefit during the morning and evening ramping periods. In addition, the Plan provided several research and development recommendations.

Workplan: A.1.2 Track demand response efforts throughout the region and provide periodic updates to the Council.

Background: In the 2021 Power Plan the Council developed a demand response potential assessment, and then resource strategy recommendations for regional utilities and regulators, as well as specific recommendations to Bonneville Power Administration.
Regional Round-up of Demand Response Efforts

December 12th, 2023

Dylan Dsouza

Northwest Power and Conservation Council
Agenda

- Background
- DR in the 2021 Plan
- Regional Round-Up
What is Demand Response?

Technology and Purpose
What is demand response?

"Demand response is a non-persistent intentional change in net electricity usage by end-use customers from normal consumptive patterns in response to a request on behalf of, or by, a power and/or distribution/transmission system operator. This change is driven by an agreement, potentially financial, or tariff between two or more participating parties"

- Capacity Reduction
- Flattening the Demand Curve
Technology and Programs

- **MAY 1–OCTOBER 31**
  - All days, unless noted below

  - **TIME OF USE**
    - **On-peak**: M-F 3PM–8PM
    - **Mid-peak**: M-F 6AM–3PM, 8PM–10PM
    - **Off-peak**: All 10PM–6AM

- **NOVEMBER 1–APRIL 30**
  - All days, unless noted below

  - **TIME OF USE**
    - **On-peak**: M-F 6AM–10AM, 5PM–8PM
    - **Mid-peak**: M-F 10AM–5PM, 8PM–10PM
    - **Off-peak**: All 10PM–6AM

  *Mid-peak Saturday is 6AM–10PM
  **Off-peak Sunday & some holidays is 6AM–10PM

Northwest Power and Conservation Council
Demand Response in the 2021 Plan
The Council recommends deploying products that are frequently deployable, low cost, and with minimal customer impact. Two products recommended to fit these needs are: Residential Time-of-Use (TOU) rates and Demand Voltage Regulation (DVR).

Bonneville and regional utilities should consider the value of adequacy, capacity, and emissions reduction when evaluating demand response in integrated resource plans and other analyses.

Bonneville, regulators, and utility leadership should encourage investment in AMI architecture as a tool to encourage the most efficient use of grid resources.

Bonneville should work to enable and encourage its customer utilities to pursue these and other low-cost and high-value demand response.
Current average deployable Peak Demand Response in MW

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*peak demand either deployable or proven as deployed by the utility
Some Regional Program Mentions

- **BPA** - DVR Pilot program
- **Avista** - Bilateral agreement (30 MW)
- **Clark PUD** - EV Charging Pilot
- **Idaho Power and Flathead Electric** - TOU
- **Puget Sound Energy** - expects 40% enrollment in FlexSmart by 2024
- **PacifiCorp** - WattSmart and BYOT
- **Seattle City Light** - DLC programs and pilots
- **Snohomish PUD** - $30M grant from DOE for Smart Grid
- **Tacoma Power** - Water Heater Pilot Program
Regional Insights and Lessons Learned

- It takes about 3 years for a DR program to mature.

- Supply chain and installation issues have resulted in delayed AMI deployment.

- Shifting peak times can reduce customer participation in an established DR program.

- Bilateral agreements are a low-cost way to reduce peak demand, e.g. 200MW data center peak event.
Looking Forward: Demand Response in IRPs

- Avista – planning to add 71 MW by 2035
- Clark PUD – approved $30M for AMI rollout to begin by 2025
- Idaho Power – 160 MW within 20-years as per 2023 IRP
- Puget Sound Energy – 183 MW in DR additions
- Portland General Electric – 228 MW Summer and 174 Winter additions by 2030
- PacifiCorp – seeks to add 372 MW by 2026
- Seattle City Light – addition of response shift of 47 MW in Summer and 79 MW in Winter by 2030
- Tacoma Power – 10 MW in 2024
Summary

01 BPA DVR Pilot

02 BPA Resource Program and IRPs

03 Bring Your Own Thermostat

04 AMI infrastructure
   • 2022 -> 72%
Fin!
Thanks Everyone