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

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

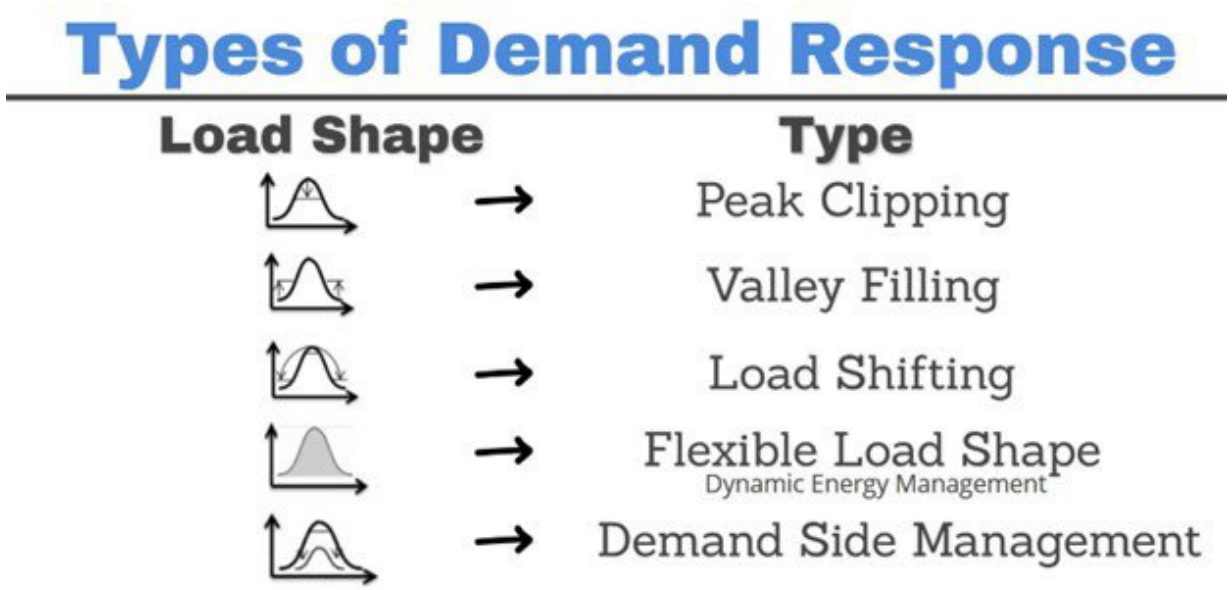
What is Demand Response?

Technology and Purpose

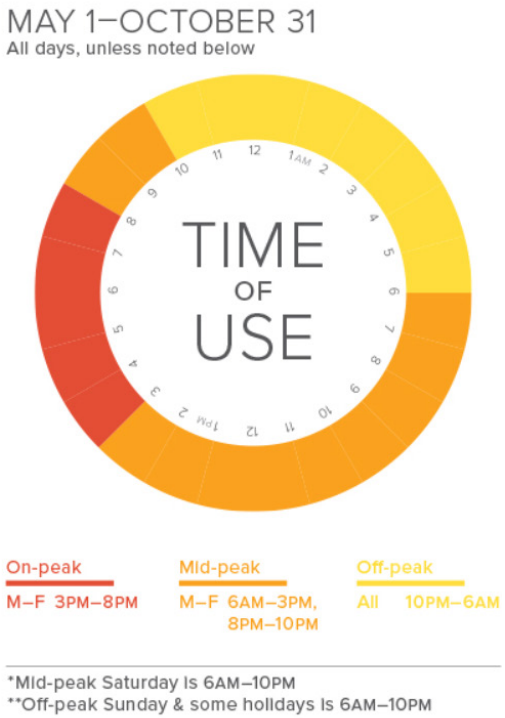
What is demand response?

"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



Demand Response in the 2021 Plan

Bonneville
POWER ADMINISTRATION

DR in the Resource Strategy

Bonneville
POWER ADMINISTRATION

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.

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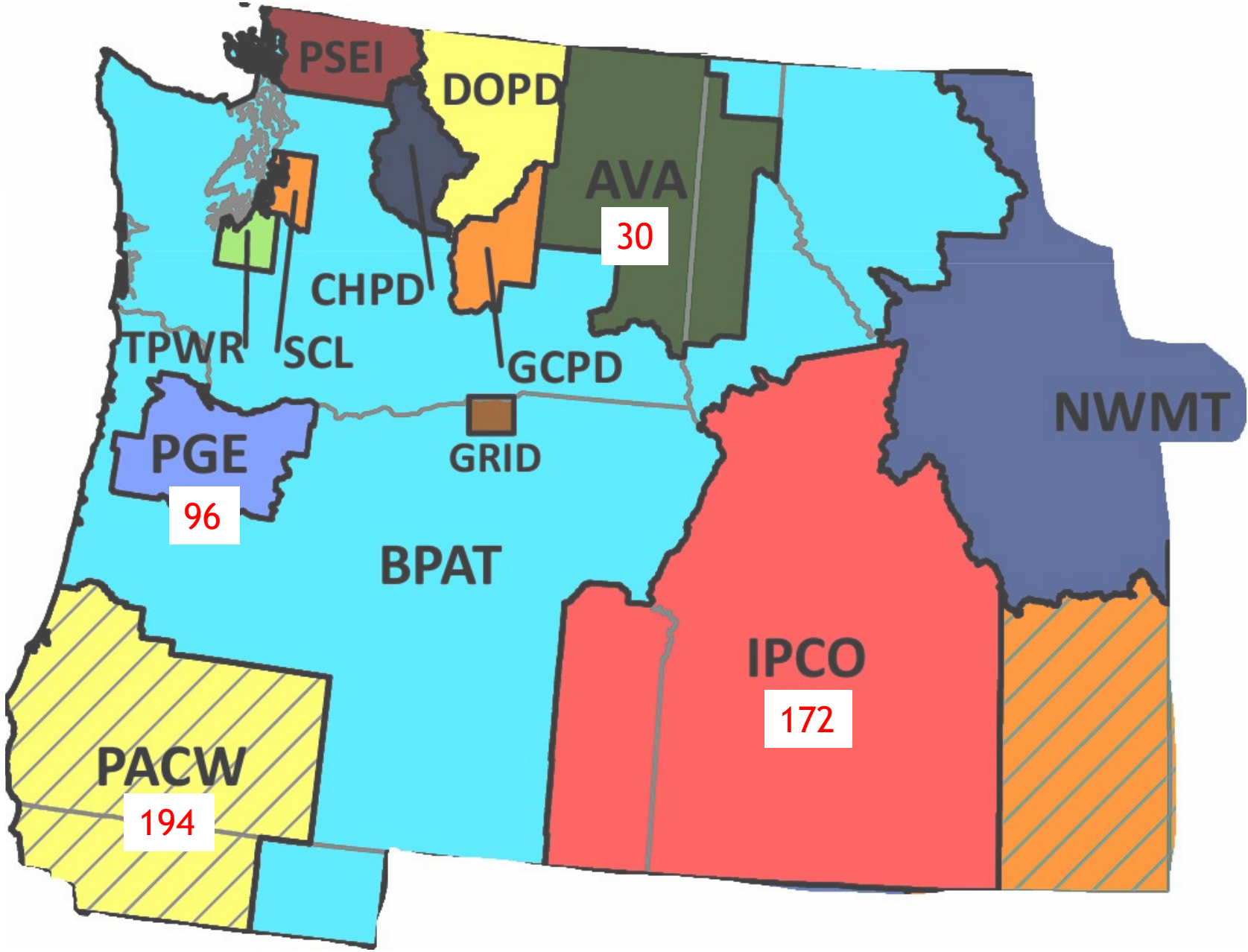
Regional Update

Current average deployable Peak Demand Response in MW

Utility	Product	Sector	Pilot or Commercialized
Avista	Peak	COM	Commercialized
Avista	TOU	RES	Pilot
Avista	WH	RES	Pilot
BPA	DVR	RES	Pilot
Flathead Electric	TOU	RES	Commercialized
Idaho Power	DLC	AG	Commercialized
Idaho Power	DLC	RES	Commercialized
Idaho Power	TOU	COM	Commercialized
PacifiCorp	DLC	AG	Commercialized
PacifiCorp	DLC	AG	Pilot
PacifiCorp	DLC	RES	Pilot
Portland General Electric	DLC	COM	Pilot
Portland General Electric	DLC	RES	Pilot
Portland General Electric	Peak	COM	Pilot
Portland General Electric	TOU	RES	Pilot
Portland General Electric	WH	RES	Pilot
Puget Sound Energy	DLC	RES	Commercialized
Puget Sound Energy	Peak	COM	Commercialized
Seattle City Light	DLC	RES	Commercialized
Seattle City Light	TOU	COM	Pilot
SnoPUD	DLC	RES	Pilot
SnoPUD	TOU	RES	Pilot
Tacoma Power	TOU	COM	Commercialized
Tacoma Power	TOU	RES	Pilot



*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