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

November 5, 2024

MEMORANDUM

TO: **Council Members**

FROM: **Tomás Morrissey, Senior Power Analyst**

SUBJECT: **Power Plan Global Assumptions: T&D Deferral Value**

BACKGROUND:

Presenters: Tomás Morrissey

Summary: The Council creates a set of global assumptions that feed into Power Plan analysis. One of these assumptions is the transmission and distribution (T&D) deferral value. This value is applied to resources, including energy efficiency, which help avoid or delay T&D investments by lowering loads on these systems.

This presentation outlines the draft T&D deferral value and next steps in finalizing this assumption for Power Plan analysis. Staff will discuss the methodology, data collection, and steps that have led to the draft value. The goal of this presentation is to inform Council members of the work to date and get feedback that will help shape the final approach used for the ninth power plan.

Relevance: Developing and documenting a common set of assumptions used across the analytical elements of the plan is critical for ensuring consistency in analysis.

Workplan: B.2.1. Prepare for the Ninth Power Plan, preparing models and inputs.

T&D deferral and the 9th Power Plan

November 2024

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

What's Included in Global Assumptions

Forecast Period

Financial Parameters

T&D deferral

Peak and Line Losses

Climate and Weather Assumptions

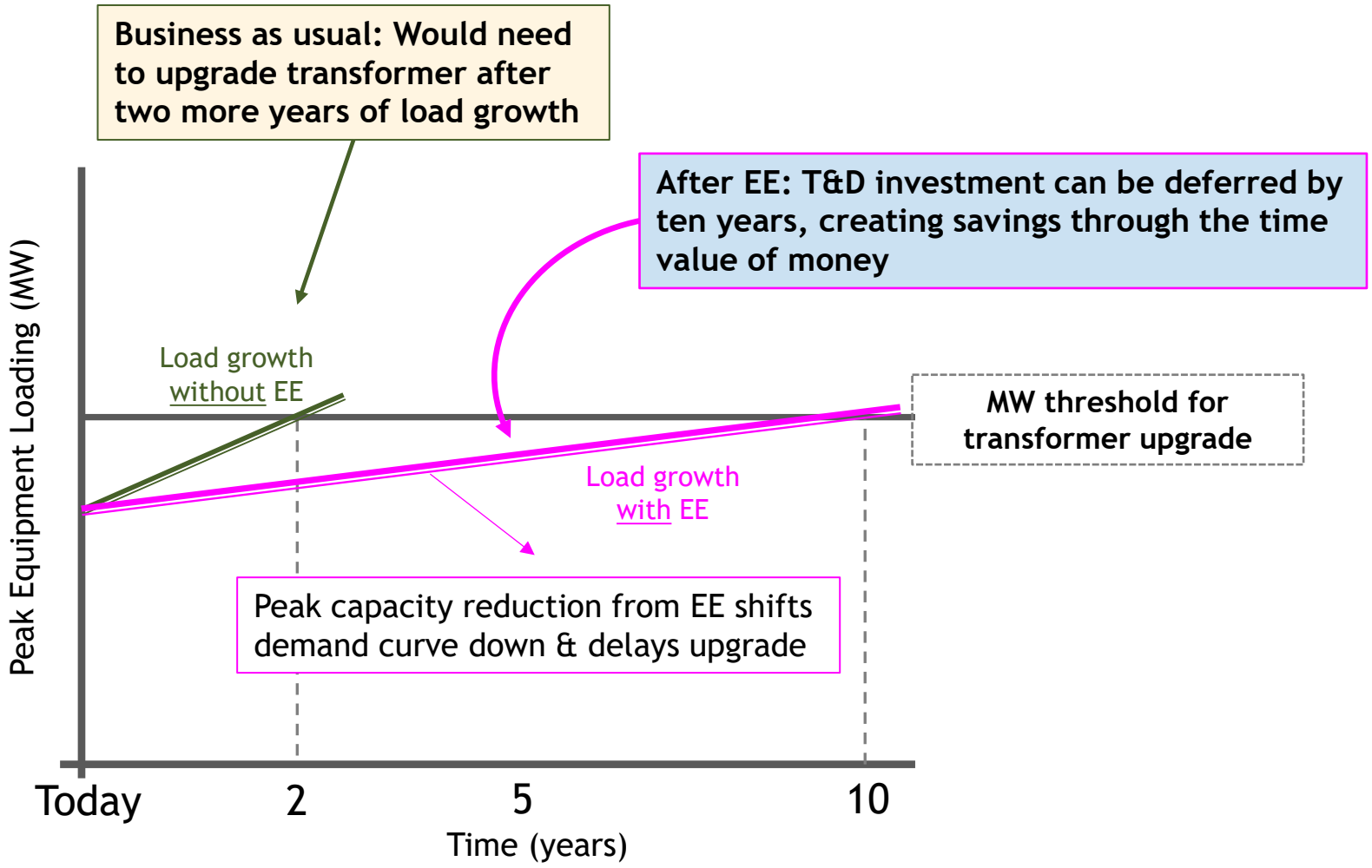
Stakeholder process

- **Spring/summer 2024:** outreach to various utilities & BPA to gather data, asked System Analysis Advisory Committee for data
- **August 2024:** Discussed with the Conservation Resources Advisory Committee
- **November 2024:** Discussing with System Analysis Advisory Committee and Demand Response Advisory Committee
- **November 2024:** Discussing with Council

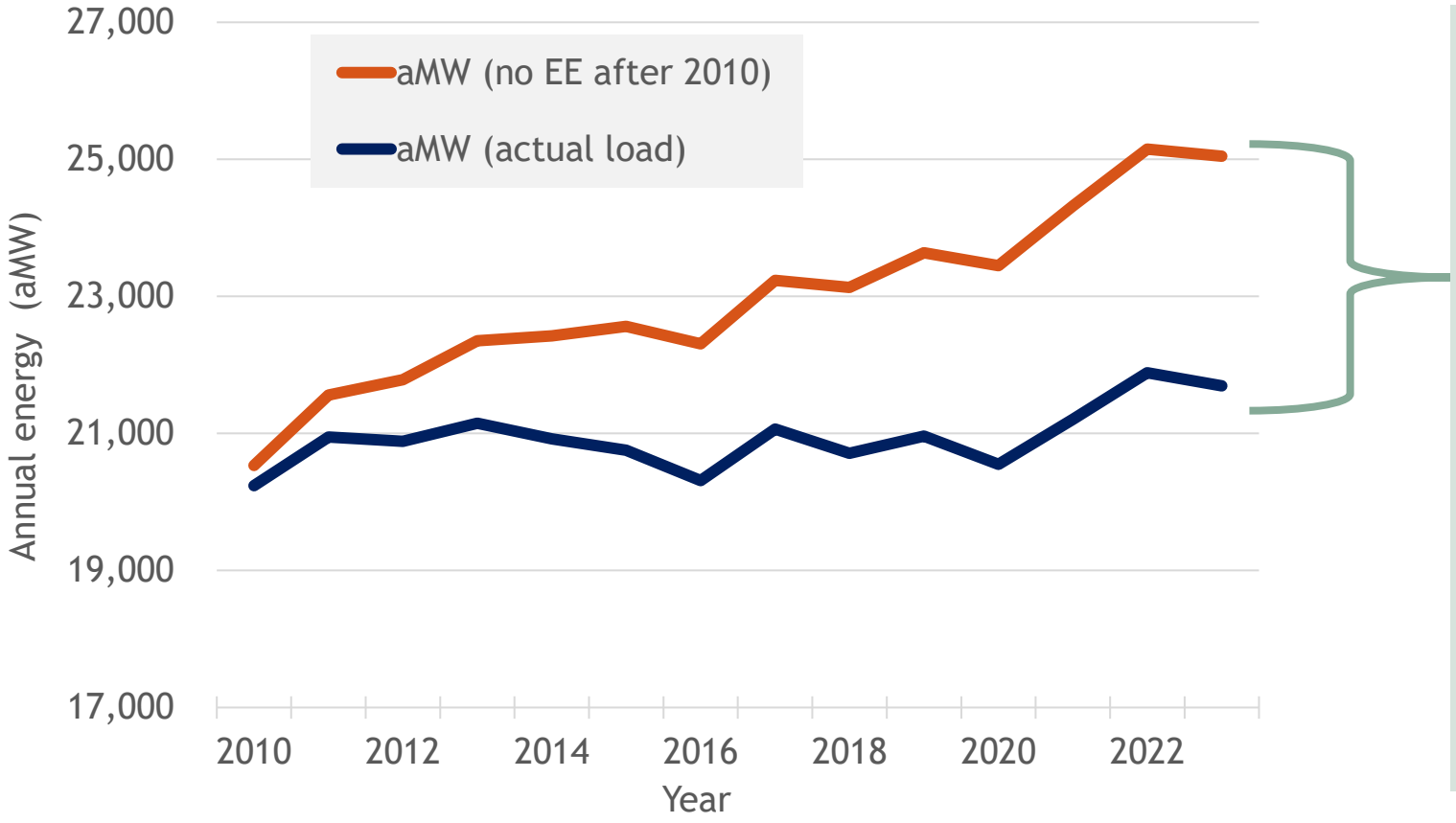
What is T&D deferral?

- Resources that reduce peak transmission and distribution load can help defer growth-related upgrades; we are trying to capture the value of this deferral
- Past Power Plan's have applied this value to energy efficiency, demand response, and west-side natural gas resources
- These values are included in energy efficiency cost-effectiveness calculations for the RTF

T&D deferral example



Northwest loads since 2010, with and without EE



- Over 3,000 aMW of EE since 2010 *(nearly 8,000 aMW from 1978 - 2023)*
- Without that EE the region would have likely needed to acquire transmission throughout the last decade *(along with supply-side resources)*
- Additional distribution system investments would have been needed too
- Other resources have helped defer T&D investments as well

7th Plan approach

- The 7th Plan relied on a review of utility T&D values and used an average of those values
- The Council received comments about approach
  - The main recommendation was to update the vintage of these averages and focus on Northwest utilities

Distribution deferral	2012$/kW-Year
CPL	$49
KCP&L	$8
PG&E	$24
PSI	$6
PSE	$11
PacifiCorp	$84
PGE	$23
SnoPUD	$42
7th Plan Value (avg)	**$31**

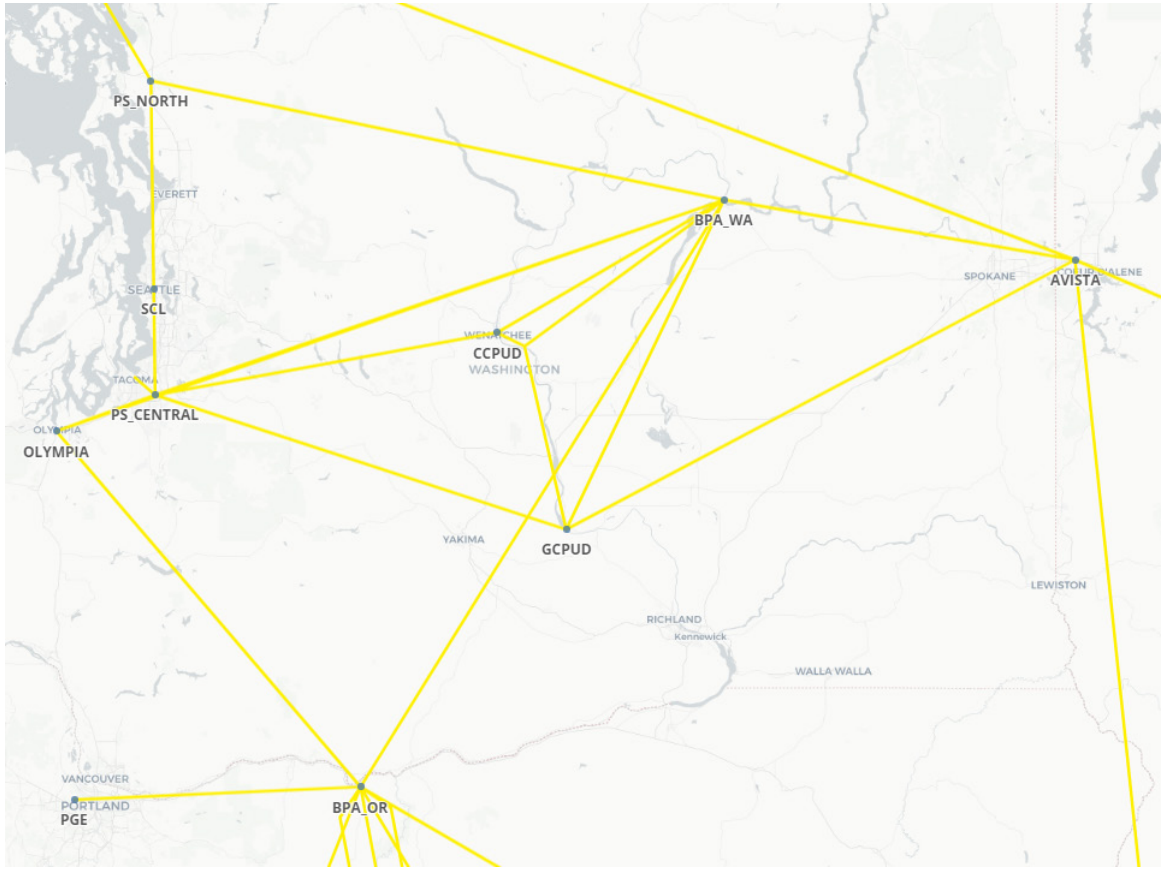
Transmission deferral	2012$/kW-Year
SDG&E	$21
SCE	$57
PG&E	$15
California avg.	$20
Southern CA avg.	$18
Northern CA avg.	$24
PacifiCorp	$33
PGE	$11
7th Plan Value (avg)	**$26**

2021 Plan methodology

- Staff reviewed many T&D deferral value methodologies, none were perfect
- Staff chose an approach based on PacifiCorp's methodology for the 2021 Plan
- A survey was sent to utilities to fill out using PacifiCorp's methodology
  - 5 responses for avoided transmission
  - 4 responses for avoided distribution
  - Responses were weighted by load and combined into one regional value
- 2021 Plan values ($2016): **$6.85/kw-year (D), $3.08/kw-year (Tx)**

Ninth Plan approach

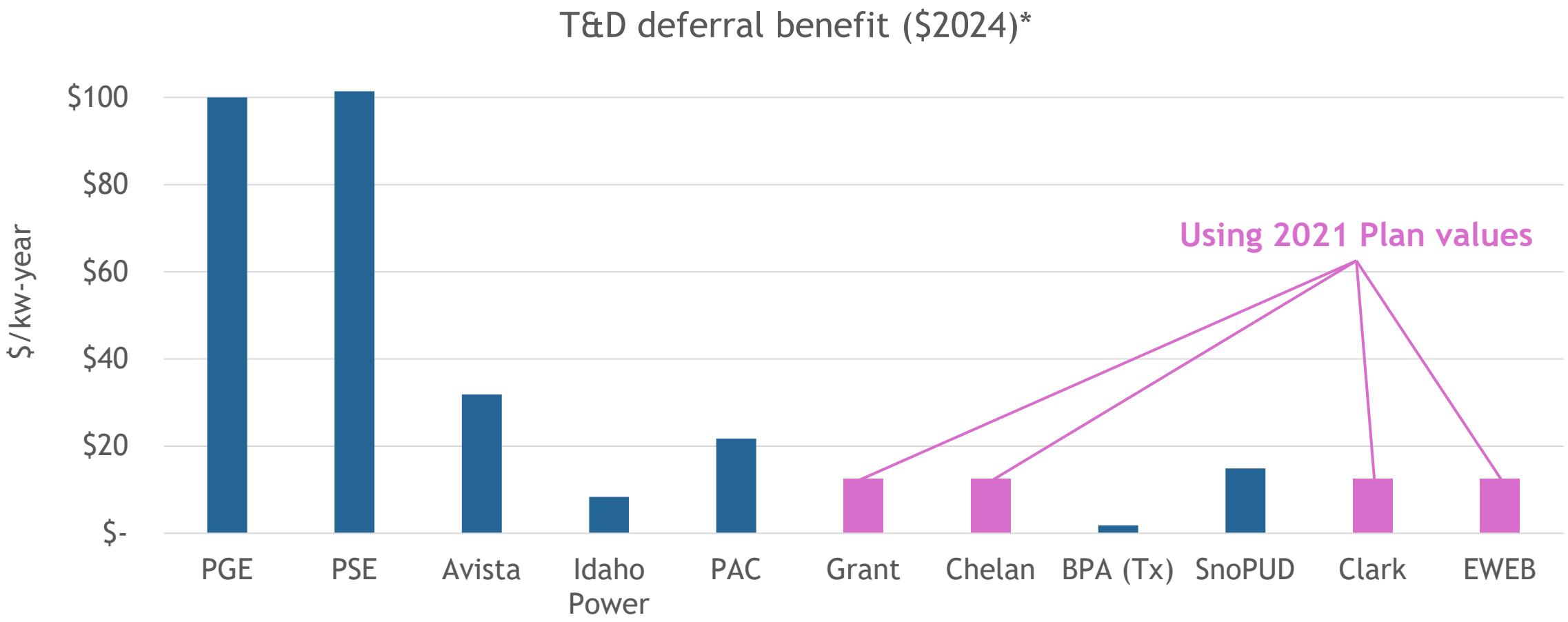
- Using similar survey instrument to the 2021 Plan
- Also using utility calculated values from IRPs, CPAs, and other documents
- Ninth Plan can use T&D deferral values specific to areas (new model has multiple zones) rather than one value



Data collection process

Utility	New data available	Using data from 2021 Plan process	Uses 2021 Plan value
PGE	Yes (utility docs)		
PSE	Yes (utility docs)		
Avista		Yes (survey)	
Idaho Power	Yes (utility docs)		
PAC	Yes (from survey)		
Grant			Yes
Chelan			Yes
BPA		Yes (survey)	
Clark			Yes
Snohomish		Yes (survey)	
EWEB			Yes

T&D deferral values collected



Values include 5% Tx adjustment (see later slides)

Challenges and creating rates by characteristics

- We did not get values from all utilities with BAs, and we are not planning to use values that are directly from the 2021 Plan
- There is not a commonly accepted best methodology for calculating the avoided T&D deferral value
- To address the issues above, and reduce the number of resource options for modeling, we made three load weighted T&D deferral values:
  1) a regional value,
  2) a west-of-the-Cascades value,
  3) and an east-of-the-Cascades value

These are load weighted values for use in the capital expansion model, they do not represent specific utility values

Draft results by T&D split

All utilities load weighted together

Weighted average of Avista, Idaho Power, BPA, and PacifiCorp

Weighted average of PGE, Puget, Snohomish, BPA, and PacifiCorp

DRAFT *Deferral value in $/kw-year*

Area	Transmission	Distribution	Combined
Region	$19	$27	$46
East	$4	$14	$18
West	$22	$33	$55

*Values may change slightly with final inflation adjustment numbers are available

Draft results compared to past Plans

Combined T&D deferral value

Vintage ($2024/kw-year)*	Regional	West	East
9th Plan (DRAFT)	**$ 46**	**$ 55**	**$ 18**
2021 Plan	$ 13		
7th Plan	$ 78		

Potential issues

- BPA Oregon and Washington span the Cascades (the east/west split line)
  - Might have to break up BPA by Cascade split; this would lead to two sets of resource inputs for some resource types

- Big wires vs. little wires question
  - We want to capture the transmission deferral value within balancing areas
  - The value of increasing transfer capability between balancing areas will hopefully be captured by the capital expansion model (SDDP / Optgen)
  - Three utilities we spoke with noted that the bulk of their deferred T&D value (90%+) was inside the BA. We are derating the deferred transmission value by 5% to account for this.

Next steps

- Bring methodology recommendation to various advisory Committee's (earlier this month/year)
- Bring methodology recommendation to November Council meeting (today)
- Finalize value, including direction on BPA east/west split question
  - We may still receive utility data which could impact final value
- **Apply values to resources** (via the resource team)
  - Value will get derated for most resources, goal is to value persistent peak reductions

Extra slides

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Assigning values to zones

BA/Zone	Area
Avista	East
Idaho Power	East
PacifiCorp East	East
Northwestern Energy	East
Grant PUD	East
Chelan PUD	East
Douglas PUD	East
BPA east	East
BPA OR	Region or east/west split
BPA WA	Region or east/west split
Portland General	West
Puget (North)	West
Puget (South)	West
Puget (Central)	West
Tacoma Power	West
Seattle City Light	West
PacifiCorp West	West

We may try to break BPA OR and WA into east/west, or use the regional value