EXH. PAH-7C
DOCKETS UE-240004/UG-240005
2024 PSE GENERAL RATE CASE
WITNESS: PHILIP A. HAINES

BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION, **Complainant,** **v.** **PUGET SOUND ENERGY,** **Respondent.**	**Docket UE-240004** **Docket UG-240005**

SIXTH EXHIBIT (CONFIDENTIAL) TO THE PREFILED DIRECT TESTIMONY OF

PHILIP A. HAINES

ON BEHALF OF PUGET SOUND ENERGY

REDACTED VERSION

FEBRUARY 15, 2024


Cost-Benefit of Joining WRAP
(Western Regional Adequacy Program)
Philip Haines
Director, Energy Supply Merchant
November 2022
PSE
PUGET SOUND ENERGY

Background

Resource adequacy (RA) means having sufficient resources to provide customers with a continuous supply of electricity virtually all of the time[1]

- RA involves a lot of acronyms, please refer to the Appendix for a quick reference guide (switch to Slide Show mode to access link)
- RA includes generation, transmission and demand-response programs
- The Western Regional Adequacy Program (WRAP) is a compliance framework designed to increase regional reliability at a potentially reduced cost across the entire footprint
  - The first regional reliability planning and compliance program in the West
  - Offers a widely accepted representative governance structure
- 26 regional entities are participating with the Western Power Pool (WPP) in the WRAP design effort
- Participants have the option to enter a binding program between Summer 2025 and Summer 2028

[1] https://www.nerc.com/AboutNERC/Documents/NERC%20FAQs%20AUG13.pdf

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As the grid moves toward decarbonization, the Western region is integrating new variable energy resources (VER) and retiring baseload resources

- Unlike most regions in the US, much of the West lacks a central capacity planning organization such as an RTO or ISO
- Maintaining RA in the West will require more regional planning and coordination as PSE and others move toward Beyond Net Zero Carbon or similar initiatives
- Participating in WRAP means a change in our resource planning and acquisition processes, which could mitigate Regulatory Framework risk and Clean Energy Transformation Act (CETA) Rulemaking risk, both of which are identified as 2021 Enterprise Risks
- PSE's participation in WRAP was approved by the Energy Risk Management Committee (ERMC) in September, 2022
- This is an informational presentation to the Board to highlight the issues, costs and benefits related to WRAP participation

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WRAP addresses regional adequacy issues and challenges

A regional planning approach offers benefits that historical planning methods would miss

- Regional studies show that wide-spread thermal retirements and adoption of VERs are increasing reliability risk in the West in the near term (see Appendix)
- Compared to Load Serving Entities' (LSEs) historical stand-alone approach to RA planning, the standardized approach offered by WRAP promotes confidence that the region will meet RAtargets
- WRAP will help unlock the benefits of load and resource diversity across the entire footprint through reduced planning targets
- Participation in WRAP will change the way PSE plans for and acquires capacity
- PSE will continue to produce an IRP subject to regulatory oversight
- Decisions on which resource mix to acquire will remain with LSEs and their regulators

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The treatment of RA metrics will vary under the two alternatives

RA Metric	If PSE stands alone	If PSE is in WRAP
Peak load	PSE uses historical weather data, applies econometric analysis and climate change data to forecast peak load	Long range forecasting remains the same, but for Forward Showing, all participants provide historical load data with a growth factor assumption, using the same statistical methods
Reliability	PSE models PRM, with approval from state regulators	PSE uses WRAP's regional metric, state regulators would need to buy-in
Capacity credit	PSE determines how to model capacity accreditation based only on PSE's footprint	WRAP determines standardized capacity credits by resource type and zone for the entire footprint
Transmission	No minimum firm transmission requirement	All participants must demonstrate they meet the 75% minimum threshold of firm transmission capacity in the Forward Showing program
Resource mix	PSE determines optimal resource mix to meet least cost and climate goals	No change

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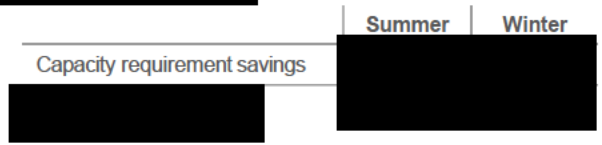
Joining WRAP offers quantitative and qualitative benefits

We engaged Energy GPS Consulting to perform a Cost-Benefit analysis of joining WRAP

- We compared two alternatives, WRAP-In and WRAP-Out, for a 2026 test year
  - WRAP-In assumes PSE is a participant and uses WRAP's capacity planning methodology
  - WRAP-Out assumes WRAP is launched, PSE is not a participant, and PSE uses the 2023 Electric Progress Report (EPR) capacity planning methodology
- O[redacted]ws that WRAP participation would result in [redacted] for the 2026 test year



- Other less tangible benefits include risk mitigation across several risk categories

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A regional capacity planning effort informs better decision making and mitigates risk

Reliability Risk

- Forward Showing program ensures that participants have adequate capacity and transmission well in advance of delivery
- Operations program allows participants to efficiently share capacity in the Day Ahead market

Modeling Risk

- The Program Operator, Southwest Power Pool (SPP) offers robust modeling based on regional studies of load, resource and transmission attributes
- Active engagement of stakeholders leads to continuous refinement and validation of planning standards

Regulatory/CETA Risk

- PSE's CETA risk mitigation strategy is to engage stakeholders in development of the Clean Energy Implementation Plan (CEIP) and ensure resource and financial strategies lead to cost-effective CETA implementation
- WRAP governance engages regulatory bodies through the Committee of State Representatives, giving them a voice in the design process
- Transparency of methodology and planning process promotes buy-in from regulators and reduces cost recovery risk

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Appendix

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Acronyms

Acronym	Definition	Link
CEIP	Clean Energy Implementation Plan	https //www.cleanenergyplan.pse com/
CETA	Washington Clean Energy Transformation Act	https //www.commerce.wa.gov/growing-the-economy/energy/ceta-overview/
EPR	Energy Progress Report	https //www.pse.com/IRP
ERMC	Energy Risk Management Committee	
IRP	Integrated Resource Plan	https //www.pse.com/IRP
ISO	Independent System Operator	https //www.ferc.gov/power-sales-and-markets/rtos-and-isos
LSE	Load Serving Entity	
OATT	Open Access Transmission Tariff	https://www.ferc.gov/power-sales-and-markets/open-access-transmission-tariff-oatt-reform
PRM	Planning Reserve Margin	
QCC	Qualified Capacity Credit	
RA	Resource Adequacy	
RTO	Regional Transmission Organization	https://www.ferc.gov/power-sales-and-markets/rtos-and-isos
SPP	Southwest Power Pool	https://www.spp.org/western-services/western-resource-adequacy-program/
VER	Variable Energy Resource	
WPP	Western Power Pool	https://www.westernpowerpool org/about/programs/western-resource-adequacy-program

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Regional studies show that thermal retirements and adoption of VERs increase risk to reliability in the West

PNUCC	NERC	WECC
"The annual energy picture reveals a regional resource deficit by next year (2023), which is three years earlier than last year's estimate."	"The two largest U.S. assessment areas in the Western Interconnection—California/Mexico and the Northwest-Rocky Mountain—have potential for high load-loss hours and energy shortfalls for 2022 and beyond."	"As early as 2025, all sub regions will be unable to maintain 99.98% reliability."

Sources:
https://www pnucc.org/wp-content/uploads/2022-PNUCC-Northwest-Regional-Forecast-final.pdf
https://www nerc com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_LTRA_2021 pdf
https://www.wecc org/Administrative/WARA%202021.pdf

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WRAP governance structure is designed to give stakeholders a voice in decision-making

Body	Acronym	Authority / Purpose
Board of Directors	BOD	• Independent Board • Ultimate authority over all aspects of the WRAP as established under this Tariff • Limitations: Control of Participants' generation or transmission assets, OATT service, creating organized market, imposition of penalties beyond those in WRAP tariff, modification of BOD authority or voting procedures/thresholds
Participants' Committee	RAPC	• The highest level of authority for representation by Participants in the WRAP governance structure, and shall represent the interests of Participants directly to the WPP Board of Directors
Program Review Committee	PRC	• A stakeholder sector-representative group responsible for receiving, considering, and proposing design modifications to the WRAP
Committee of State Representatives	COSR	• The COSR is a committee composed of one representative from each state or provincial jurisdiction (either public utility commission or state/provincial energy office) that regulates at least one Participant
Independent Evaluator	IE	• WPP shall engage an Independent Evaluator to provide an independent assessment of the performance of the WRAP and any potential beneficial design modifications

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VERs are variable, uncertain and not dispatchable, so they have lower QCC than dispatchable resources

QCC by Resource Type

VER resources
- Solar
- Wind
- Hydro-Run of River

Dispatchable resources
- Hydro-Storage
- Coal
- Natural Gas

Sources:
Renewable data is annual weighted average for entire WRAP footprint, adapted from WRAP Presentation 07-28-22
Thermal data is annual weighted average for PSE resources, provided by WRAP for Winter '22-'23 and Summer '23 Forward Showing programs

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Planning to WRAP standards results in reduced PRM and lower capacity costs for 2026 test year

- The benefit of participating in WRAP is defined as the cost to procure needed capacity for WRAP-Out less the cost to procure for WRAP-In
- We varied some of the key inputs to perform sensitivity analyses in the three scenarios listed below
- The benefits of participating in WRAP were positive in all three scenarios

Scenario	WRAP-In Summer benefit	WRAP-In Winter benefit	WRAP-In Annual benefit
[redacted]			

See following slides for more detail

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Planning to WRAP standards results in reduced PRM and lower capacity costs of $[redacted] for 2026 test year

	Summer 2026			Winter 2026-2027		
	WRAP-Out (2023 EPR)	WRAP-In (WRAP)	Wrap-In less WRAP-Out	WRAP-Out (2023 EPR)	WRAP-In (WRAP)	Wrap-In less WRAP-Out
[redacted]						

[1]Rounded up to nearest whole month. Summer season is Jun 1 – Sep 15, winter season is Nov 1 – Mar 15.

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Changing the WRAP-In load assumption to match PSE's 2023 EPR results in $[redacted] in capacity cost savings for 2026, a reduction of $[redacted]

	Summer 2026			Winter 2026-2027		
	WRAP-Out (2023 EPR)	WRAP-In (WRAP)	Wrap-Inless WRAP-Out	WRAP-Out (2023 EPR)	WRAP-In (WRAP)	Wrap-Inless WRAP-Out
[redacted]						

[1]Rounded up to nearest whole month. Summer season is Jun 1 – Sep 15, winter season is Nov 1 – Mar 15.

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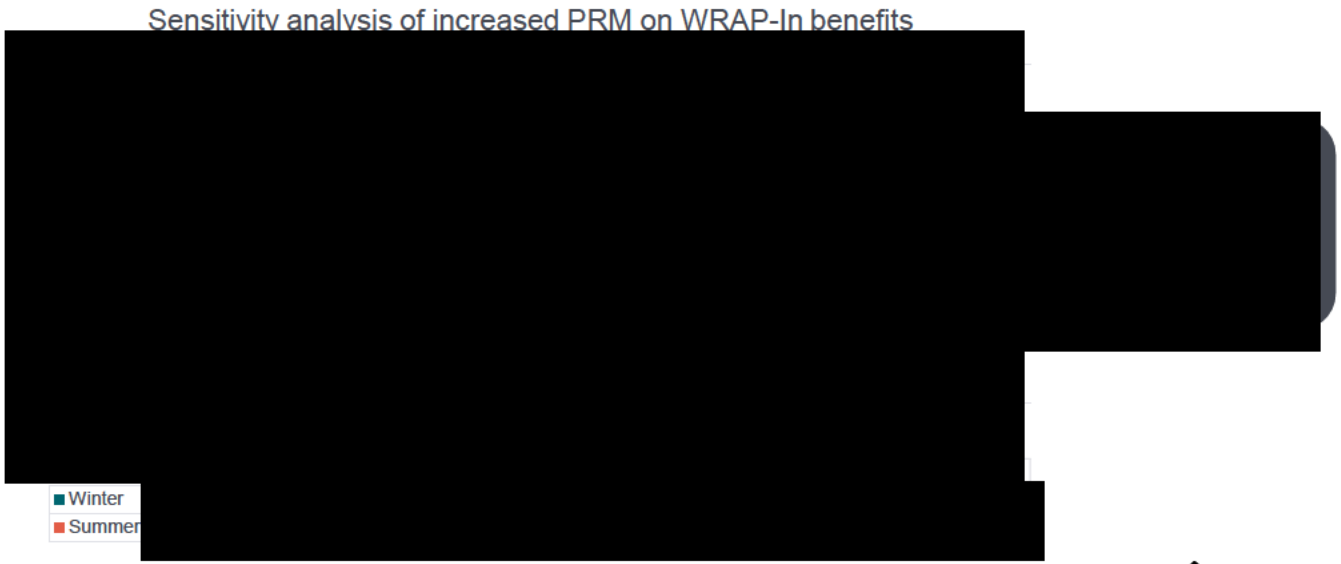
Increasing the PRM assumption for the WRAP-In alternative shows diminishing yet still positive capacity cost benefits



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Timeline of WRAP Steering Committee and Energy Risk Management Committee review and approvals since April 2022

Date	Committee	Topic	Action
18-Apr-22	Steering	WRAP Participation Agreement Decisional	Approved
22-Apr-22	Steering	Transition to Binding Program Decisional	Approved
29-Apr-22	ERMC	WRAP Participation Agreement Decisional	Approved
29-Apr-22	Steering	WRAP Business Case Framework Decisional	Approved
19-May-22	ERMC	WRAP Business Case Framework Informational	No objections
24-May-22	Steering	Business Case Consultant Selection Informational	No objections
9-Aug-22	Steering	WRAP Tariff and Transition Proposal Informational	No objections
29-Sep-22	ERMC	PSE Participation in WRAP Decisional	Approved

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