Resource Planning Advisory Group Meeting

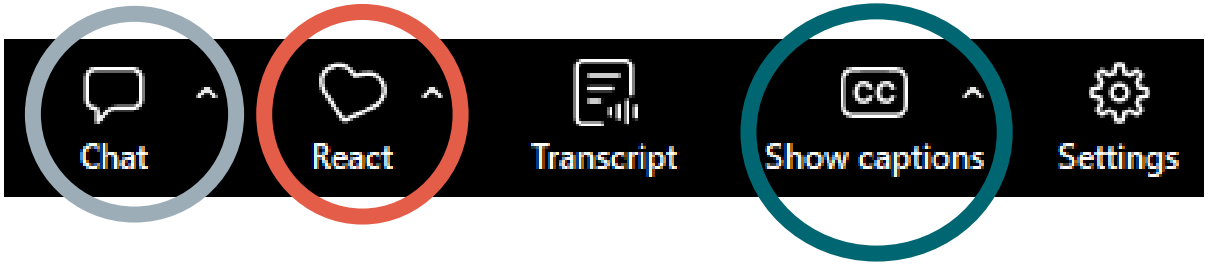
2027 Integrated System Plan

May 28, 2026

PUGET SOUND ENERGY

Welcome to the meeting!

Use the **React** feature to raise your hand or respond to content with emojis



RPAG members and PSE staff are welcome to use the **Chat** feature*

Click **Show Captions** to see real-time closed captioning

**To ensure members of the public can see RPAG questions and comments, please select "Everyone" in the chat dropdown menu*

Facilitator requests

- Engage constructively and courteously towards all participants
- Respect the role of the facilitator to guide the group process
- Avoid use of acronyms and explain technical questions
- Use the feedback form or email isp@pse.com for additional input to PSE
- Aim to focus on the webinar topic
- Public comments will occur after PSE's presentations
- To ensure members of the public can see the RPAG chat, please select "Everyone" from the chat dropdown menu

Safety moment

- May is electrical safety month!
  - Never use extension cords continuously long-term as this can deteriorate the cord and create shock and fire hazards.
  - Do not plug two extension cords together. This can overload your circuit.
  - Do not allow extension cords to run through water or snow outside
  - Call before you dig! Dial 8-1-1 to have your local utility mark the location of underground wires or gas lines in your yard for free.

Today’s speakers

- Hilary Wilkinson, Facilitator, Maul Foster & Alongi (MFA)
- Kara Durbin, Director, Clean Energy Strategy, PSE
- Mark Lenssen, Manager, Strategic Planning, Evaluation & Research, PSE
- Elizabeth Hossner, Manager, Resource Planning & Analysis, PSE
- Shaun Foster, Director, Electric Transmission, PSE
- Jennifer Coulson, Director, Resource Planning Analytics, PSE
- Niecie Weatherby, Manager, Gas System Integrity, PSE

Agenda

Time	Agenda Item	Presenter / Facilitator
1:00 p.m. – 1:05 p.m.	Welcome and introductions	Hilary Wilkinson, MFA
1:05 p.m. – 1:15 p.m.	Introduction – reference case	Kara Durbin, PSE
1:15 p.m. – 1:20 p.m.	Reference case customer programs	Mark Lenssen, PSE
1:20 p.m. – 2:25 p.m.	Electric supply reference case	Elizabeth Hossner, PSE Shaun Foster, PSE Kara Durbin, PSE
2:25 p.m. - 2:30 p.m.	Break	All
2:30 p.m. – 2:45 p.m.	Gas supply reference case	Jennifer Coulson, PSE
2:45 p.m. – 3:00 p.m.	Reference case portfolio results	Jennifer Coulson, PSE
3:00 p.m. – 3:20 p.m.	Gas system planning reference case	Niecie Weatherby, PSE
3:20 p.m. – 3:30 p.m.	Next steps and public comment opportunity	Hilary Wilkinson, MFA
3:30 p.m.	Adjourn	All

Today's objectives

- *Inform* RPAG on reference case portfolio process and outcomes
- *Involve* RPAG on key decisions regarding next steps

- Feedback PSE needs:
  - Reactions to revised reference case assumptions

- How feedback will be used
  - Feedback will inform next steps as we finalize the reference case and continue with scenarios and sensitivities

What we need from you

- Share your questions, reflections, and advice on today’s topics
- Let us know if anything is missing or unclear
- Flag areas where deeper discussion is needed
- Help us identify risks, tensions, or points of misalignment early

Introduction – reference case

Kara Durbin
Director, Clean Energy Strategy, PSE

May 28, 2026

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Meeting purpose

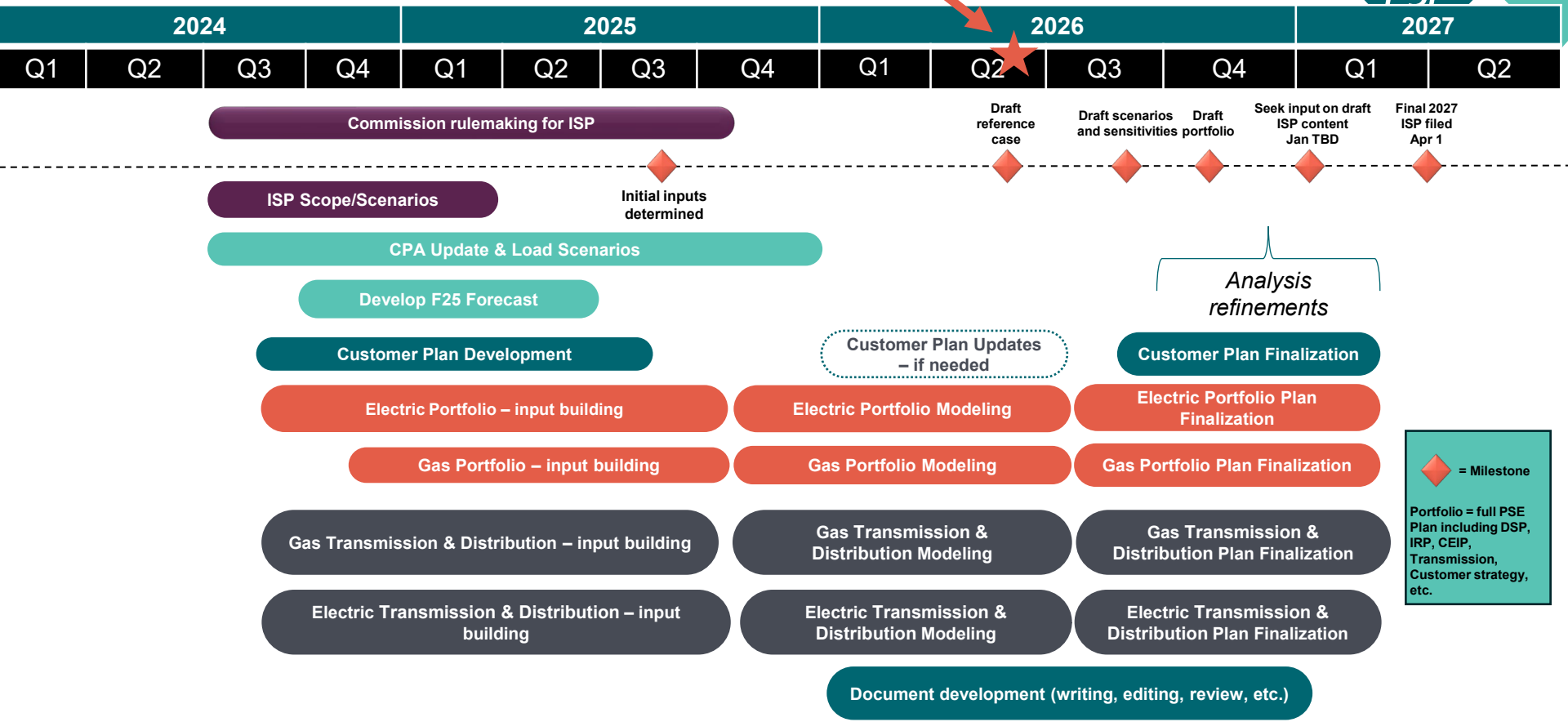
May 2026

- Explore gas and electric reference case portfolio challenges and results; see details included in appendix
- Develop shared understanding for assumptions adjustments required to achieve successful model runs
- Respond to initial questions from RPAG members on the reference case results

June 2026

- Dive deeper into certain reference case assumptions or planning areas
- Focus on areas where RPAG members have questions or provided feedback

Where are we in the process today?



DSP: delivery system planning CEIP: Clean Energy Implementation Plan IRP: Integrated Resource Plan

Reference case: Our preferred portfolio starting point

- Building block to developing a preferred portfolio
- The **starting point** for ‘what-if’ scenarios and sensitivities
- Generally, the least cost plan that meets policy requirements from model
- Compares bill impacts, resource builds, and emissions over time

Reference case portfolio

Scenario & sensitivity modeling

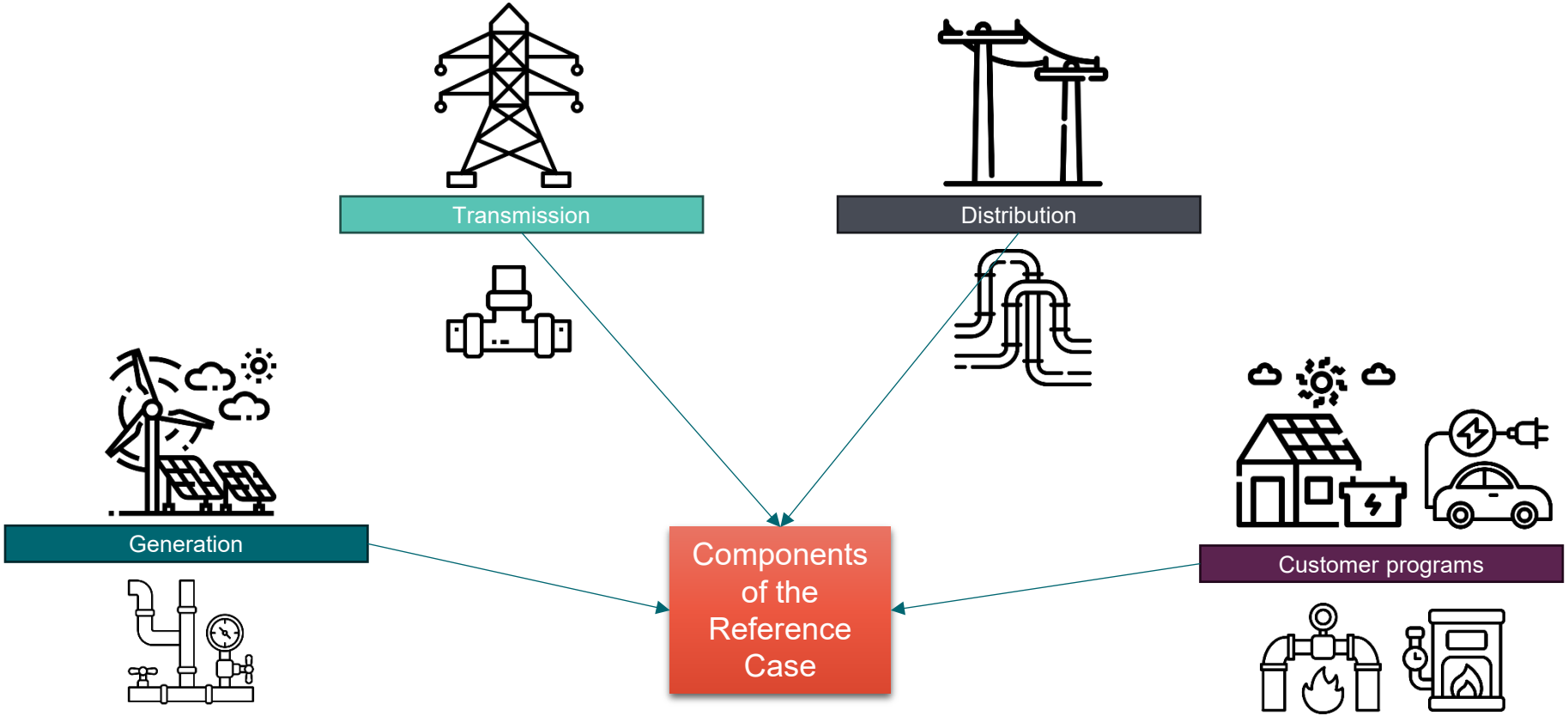
- Re-run of different assumptions **against the selected reference case**
- Scenarios affect multiple levers
- Sensitivities pull single levers

- Must be **“technology that is reasonably anticipated to be available”**
- Existing resources
- Emerging resources
- Renewable gas/distillate & other emerging resources
- Based on what we learned from scenario/sensitivities
- Informed by required decision factors*
- End goal: an **actionable preferred portfolio**

Preferred portfolio

** The cost test, decision framework, and public interest criteria will be applied in determining the preferred portfolio*

The reference case for our first integrated system plan includes the following components:



Reference case: Initial observations

- Electric supply optimization model **did not produce a solution** using assumptions developed through RPAG engagement
- Manual workarounds in the model and different assumptions were necessary to get a model that would solve – as a *starting point* for further analysis
- **Peak capacity and CETA needs are significant** over the CEAP (10-year) planning horizon and beyond
- **Transmission across the region is significantly constrained** and poses risks for the generation builds needed to meet the reference case demand
- Gas supply optimization model continues to select purchasing CCA allowances in addition to RNG to offset emissions
- Electric and gas rates are both **increasing significantly,** raising customer affordability concerns

Reminder: the reference case is not the preferred portfolio; it's a starting point.

CEAP: Clean Energy Action Plan CCA: Climate Commitment Act CETA: Clean Energy Transformation Act RNG: Renewable natural gas

Questions?

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Reference case customer programs

Mark Lenssen
Manager, Strategic Planning, Evaluation & Research

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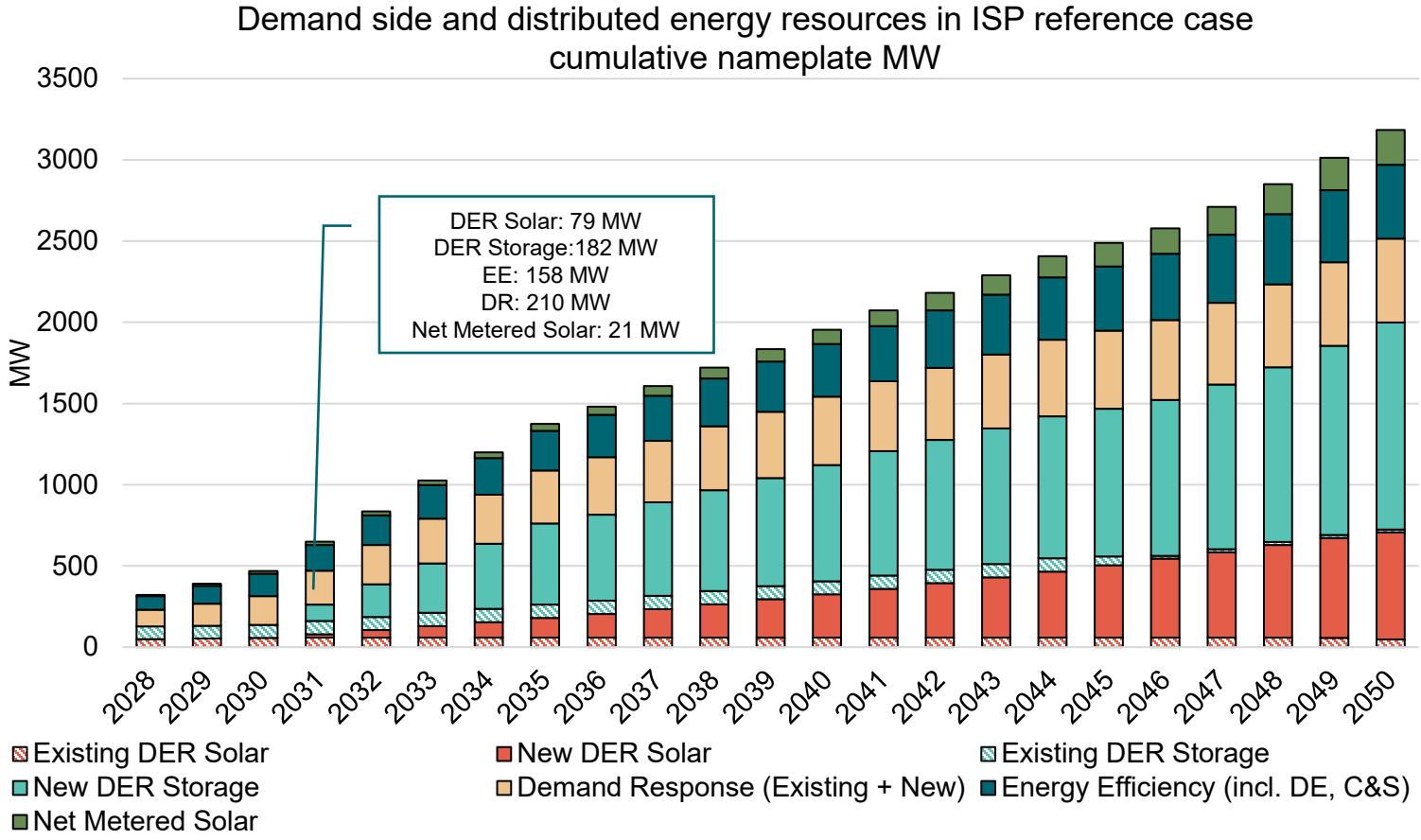
Customer programs are included in the reference case results

- Reference case demand-side resources include:
  - Conservation / Energy Efficiency
    - Cadmus Conservation potential assessment merged with short term PSE program assessments
  - Demand Response
    - Conservation potential assessment
  - DER Solar
    - PSE NREL dGen modeling (simulating customer DER adoption rates)
  - DER Storage
    - PSE NREL dGen modeling (simulating customer DER adoption rates)
  - Net Metered Solar
    - Conservation potential assessment
- Building from the reference case will be sensitivities to assess different levels of customer programs, such as trying to achieve 2%/10% targets and just as important, the traditional IRP cost-effective bundle selection

DER: Distributed energy resource IRP: Integrated Resource Plan

Electric demand-side inputs – starting point



DRAFT – subject to change DER: Distributed energy resource C&S: Codes and standards DE: Distribution efficiency

Meeting the 2% and 10% targets

For efficiency: achieving 2% of annual electric load will be virtually impossible with voluntary programs

- A 2% conservation target would:
  - ✓ Nearly double PSE's 10-year average delivered energy savings
  - ✓ Require technologies and solutions not yet developed nor in the marketplace today
- Residential LED lighting is near saturation and Washington State mercury lighting prohibition will significantly raise the baseline for commercial lighting savings potential

For demand response: achieving 10% demand response target could be possible in the future as it is cumulative

Conservation acquisition costs continue to increase (regardless of a 2% requirement)

- Savings potential remains in underserved communities that may require higher incentives to overcome affordability barriers
- Labor, materials, and economic uncertainty raise acquisition costs
- Spending on the variety of DER discussed today must be balanced with customer bill impacts

Questions?

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Electric supply reference case

Elizabeth Hossner
Manager, Resource Planning and Analysis

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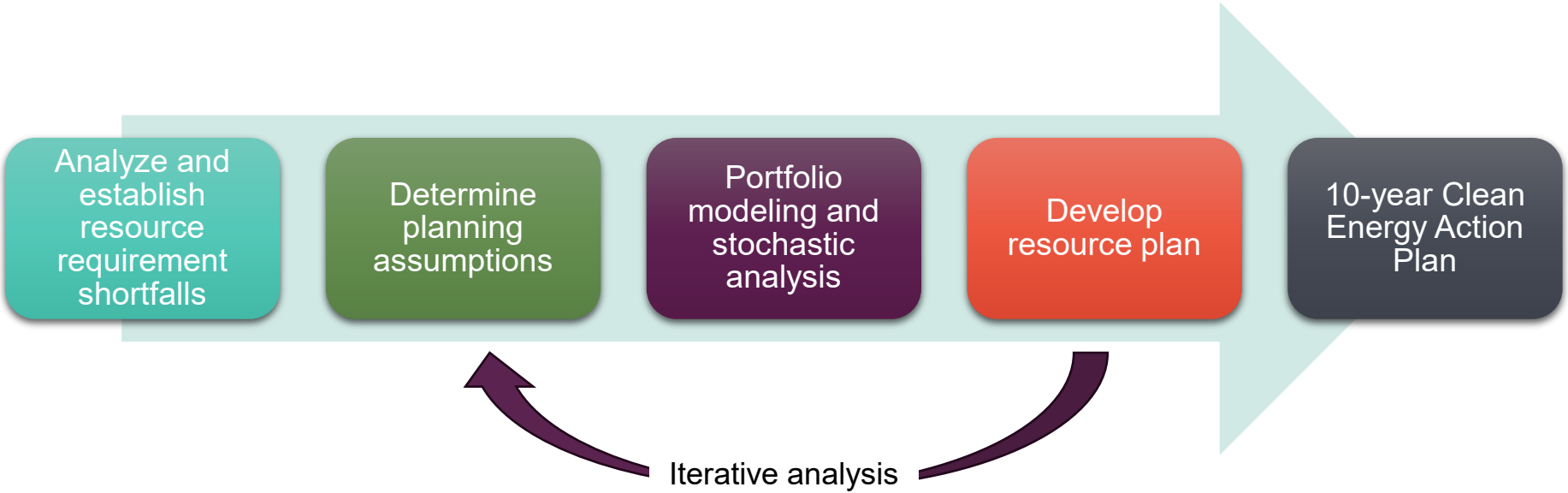
Electric supply modeling – 5-step process



Analyze and establish resource requirement shortfalls

Three types of resource requirements are identified

Effective peak capacity

- Physical peak need refers to the resources required to ensure reliable operation of the system. It is an operational requirement that includes three components: customer peak demand (demand forecast), planning margin (resource adequacy modeling), and operating reserves.

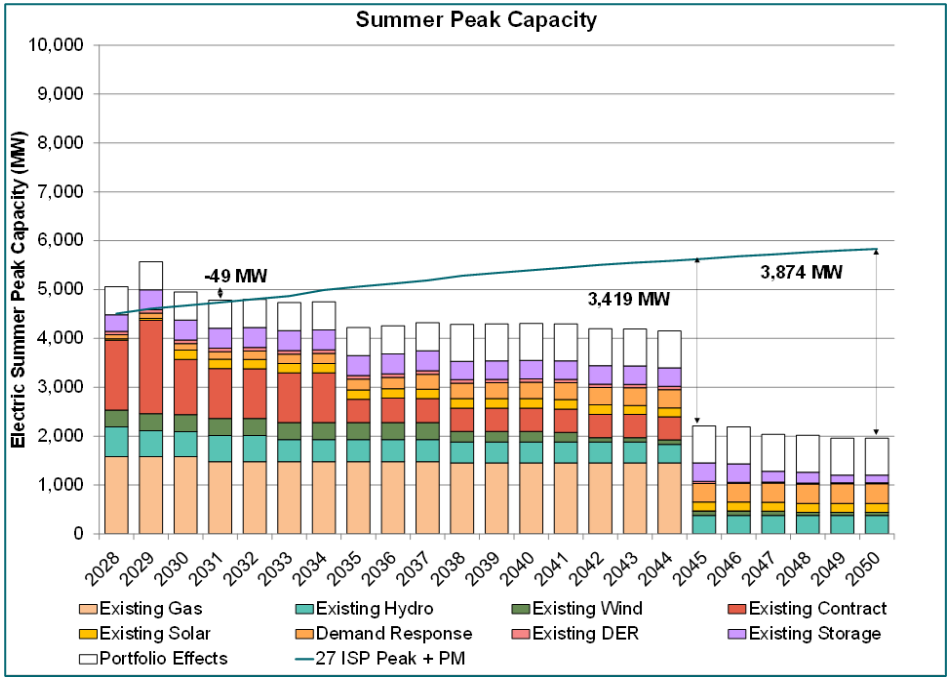
CETA renewable and nonemitting resources

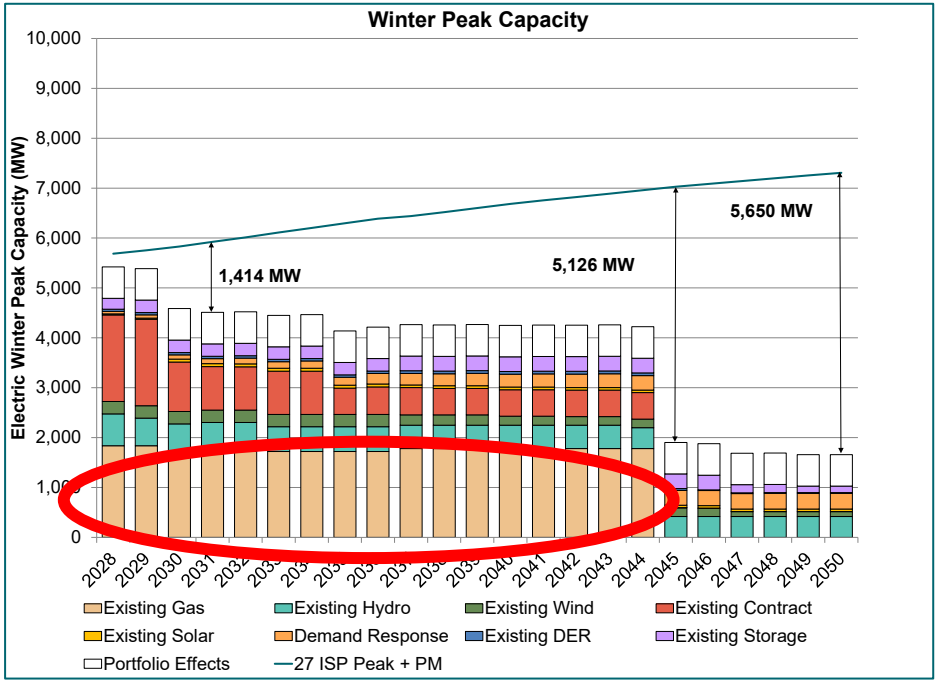
- Washington State's Clean Energy Transformation Act (CETA) requires PSE to meet specific percentages of our load with renewable or non-emitting resources or renewable energy credits (RECs) by specific dates; 80% renewable or non-emitting target by 2030-2033; 100% renewable or non-emitting target by 2045.

Energy demand

- Energy need refers to the resources required to meet customer demand in every hour. How the demand is met changes by scenario and is dependent on how resources are dispatched versus buying on the market.

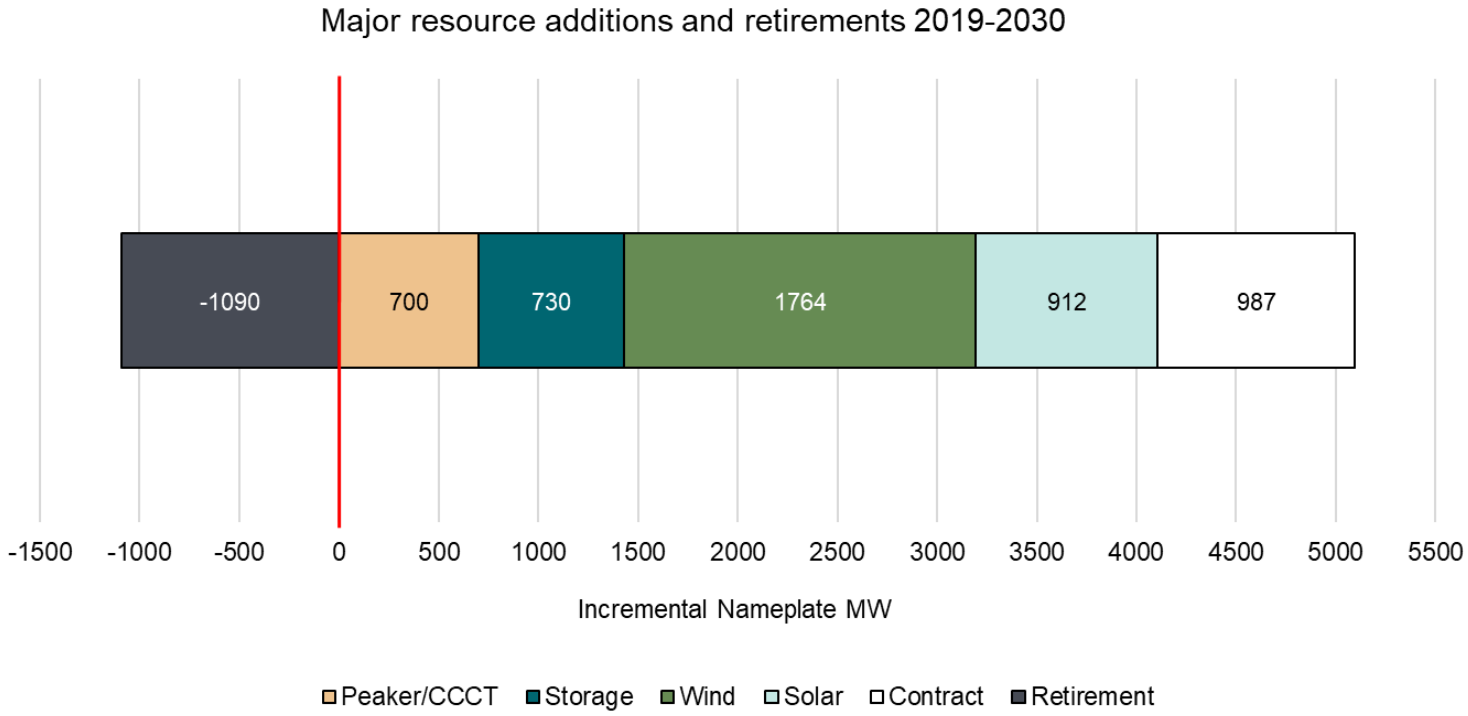
Effective peak capacity requirement grows significantly, particularly after 2045





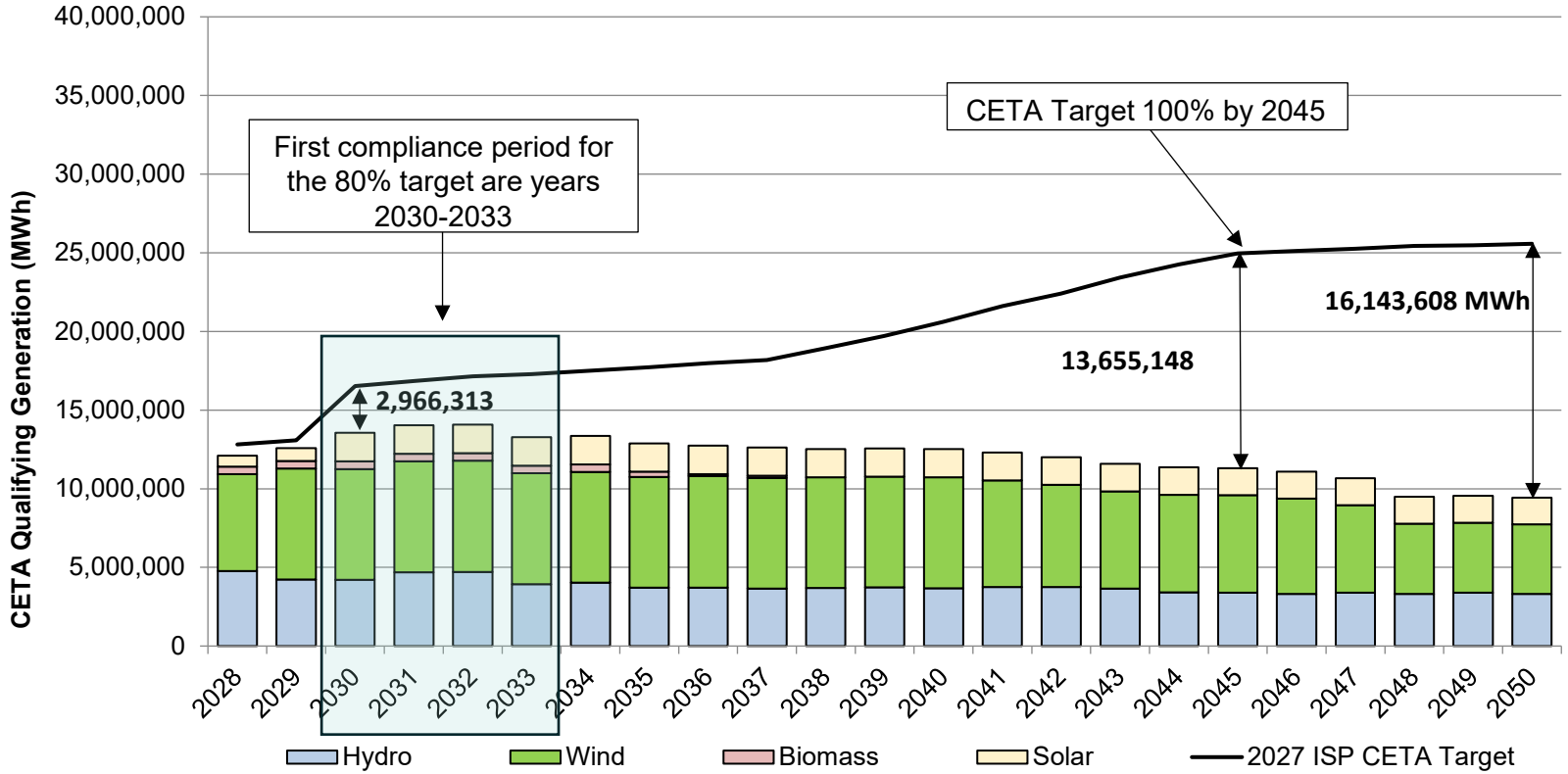
Existing natural gas has a 1,779 MW effective peak contribution.
The deficit increases to 5,126 MW in 2045 without natural gas

Reference case includes 2.9 GW of long-term renewable resources (nameplate) added since 2019



CCCT: Combined cycle combustion turbine

Remaining CETA need is significant beginning in 2030 and grows to roughly 5x by 2050



DRAFT – subject to change

**The 2027 ISP load includes contribution from conservation*

Portfolio modeling and stochastic analysis

Deterministic portfolio analysis

- Shows how different resource alternatives dispatch to market
- Identifies the least-cost integrated portfolio
- Shows how specific input assumptions can impact the least-cost mix of resources

Stochastic analysis

- Tests the robustness of different portfolios
- The goal is to understand the risks of different candidate portfolios
- Runs portfolios from the deterministic analysis through draws

Initial reference case modeling assumptions

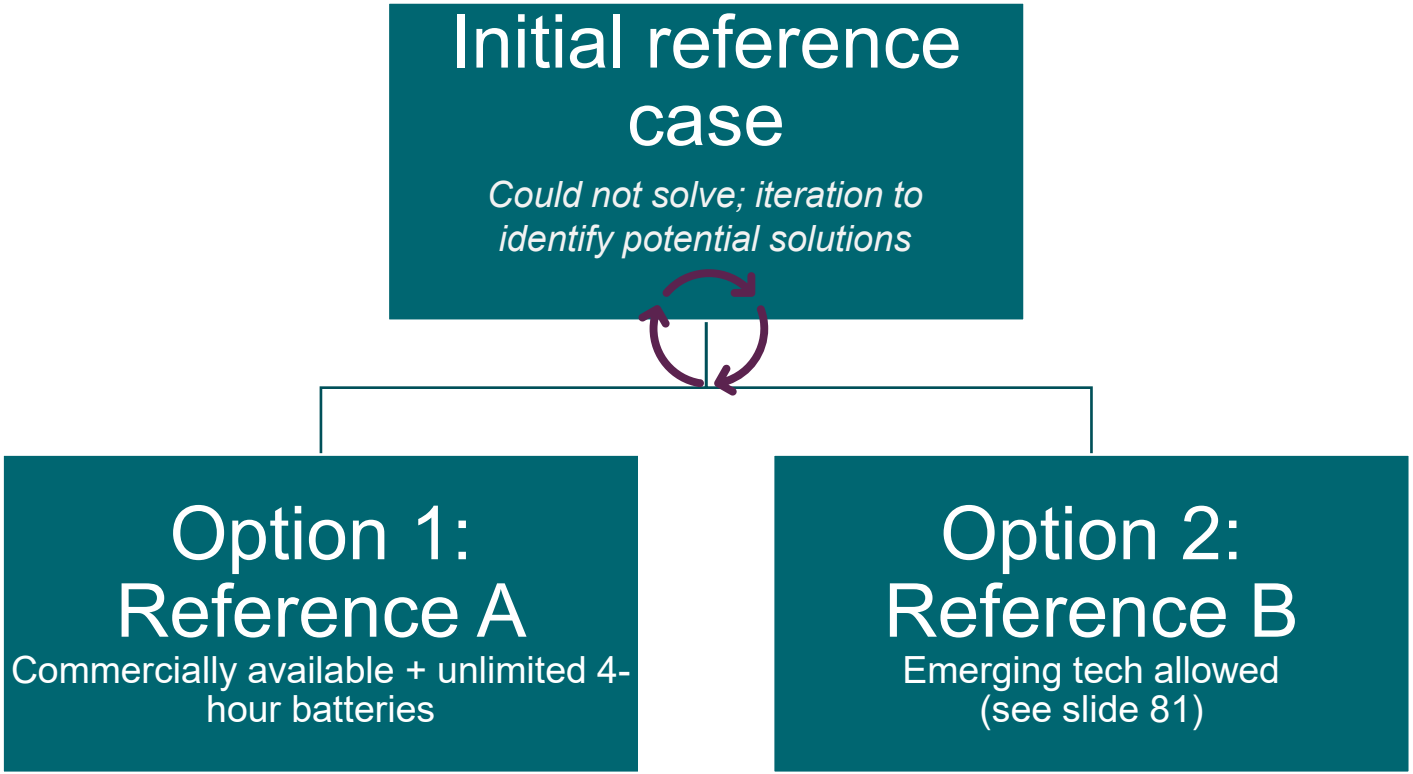
Type	2023 Electric Progress Report	2027 ISP
Emerging technology	Limited to certain resources available at time	Not included
Existing thermal resources	Assumed natural gas to Hydrogen fuel blending by 2045	Not assumed
New thermal resources	Allowed to switch to alternative fuel by 2045 or biofuel only peaker	Not allowed
CETA compliant fuel*	Hydrogen and biodiesel available as needed	Not available

Electric model could not solve under the conditions for the 27 ISP Reference

In order to have a workable starting point to begin iterating towards a preferred portfolio, we must have a reference case that solves (i.e., produces a portfolio)

** CETA compliant fuel such as biodiesel, renewable natural gas*

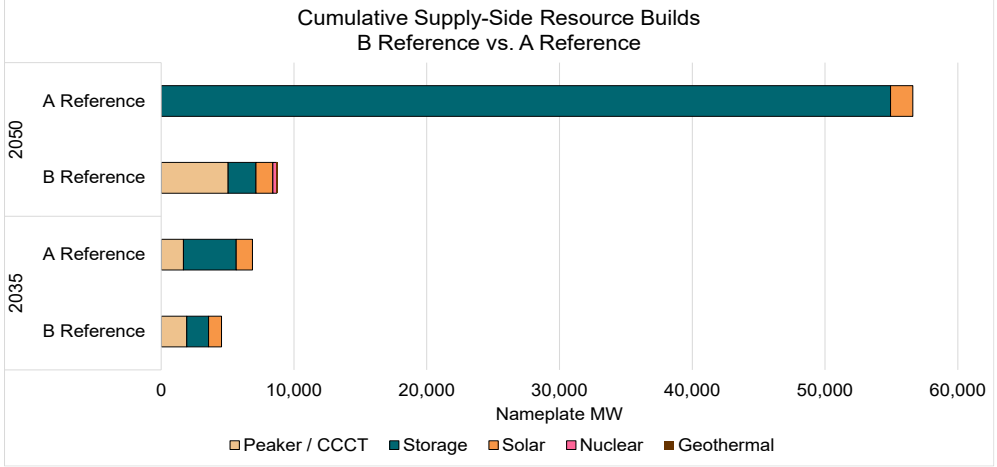
Options that allow the model to solve



Supply-side resource build comparison (A and B) - Draft

Year	Reference A	Reference B
2035	Builds significantly more capacity, driven primarily by higher storage and more wind capacity	Relies more heavily on renewable peakers with lower renewable and storage builds
2050	Shows dramatic growth of total capacity, dominated by massive storage additions particularly approaching 2050 that appear unrealistic	Maintains more moderate total capacity, incorporating emerging technologies including nuclear and geothermal; peakers switch to biofuel by 2045
		Significantly expands flex-fuel peaker capacity by 2050 and maintains lower but consistent renewable builds

Cumulative Resource Additions (MW)	Reference A 2035	Reference A 2050	Reference B 2035	Reference B 2050
Flex-fuel peakers	1,674	0	1,924	5,042
Storage	3,980	54,940	1,640	2,090
Wind	2,300	3,900	1,700	3,100
Solar	1,220	1,675	975	1,275
Nuclear	0	0	0	300
Geothermal	0	0	0	100
Total	**9,174**	**60,515**	**6,239**	**11,907**



Summary of reference case options - Draft

Portfolios	Portfolio costs NPV $ billions		Draft results
	2028 - 2045	2028 - 2050	
2023 Progress Report *(NPV 2026-2045)*	21	N/A	Preferred Portfolio – Last published analysis
27 ISP reference (initial assumptions)	Failed to solve		**Failed to solve** The model failed to converge and meet the peak and CETA requirements
A: Reference with Unlimited 4hr battery storage	65.0	100.1	**Failed to solve without manual intervention: results in unrealistic amount of battery energy storage** Solving version requires excessive short-duration batteries and manual workarounds for both storage capacity build limits and transmission constraints to meet reliability targets
B: Reference with emerging technology	46.7	55.4	**Solved: Emerging technologies available starting 2035** Emerging technologies enable cost-effective clean energy transition through reliable baseload nuclear power and flexible renewable peakers

Cost shown include electric generation, interconnection and upgrade costs, associated BPA transmission costs

Reflection (round robin)

What are your observations on the recommended reference case?

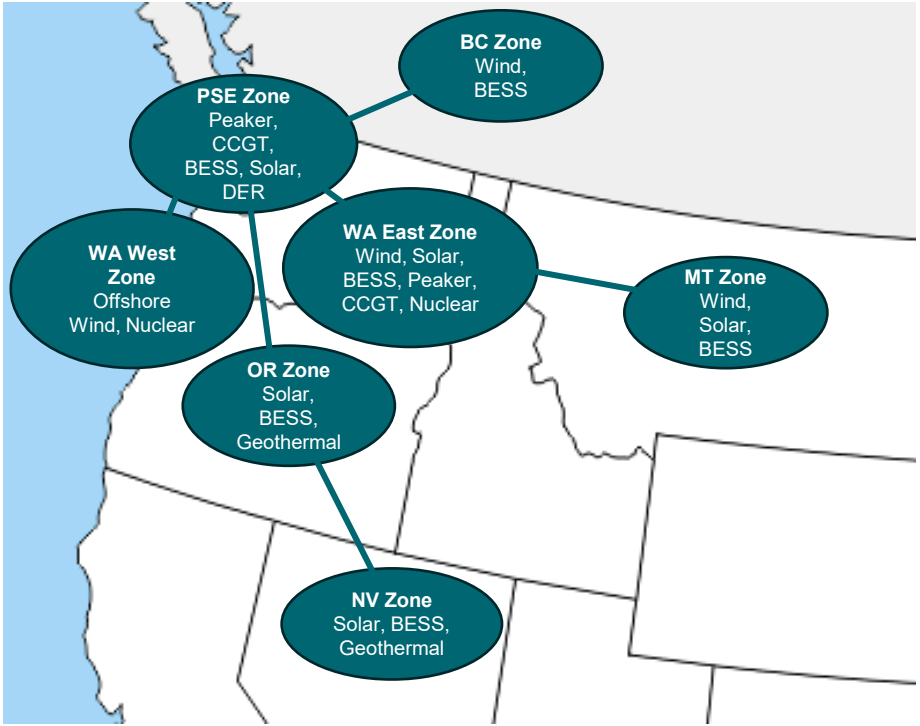
Do you have other feedback on the approach to solving the reference case?

Do you have any remaining questions?

The 2027 ISP further refined resource zones and regional transmission capacity assumptions from the 23 EPR

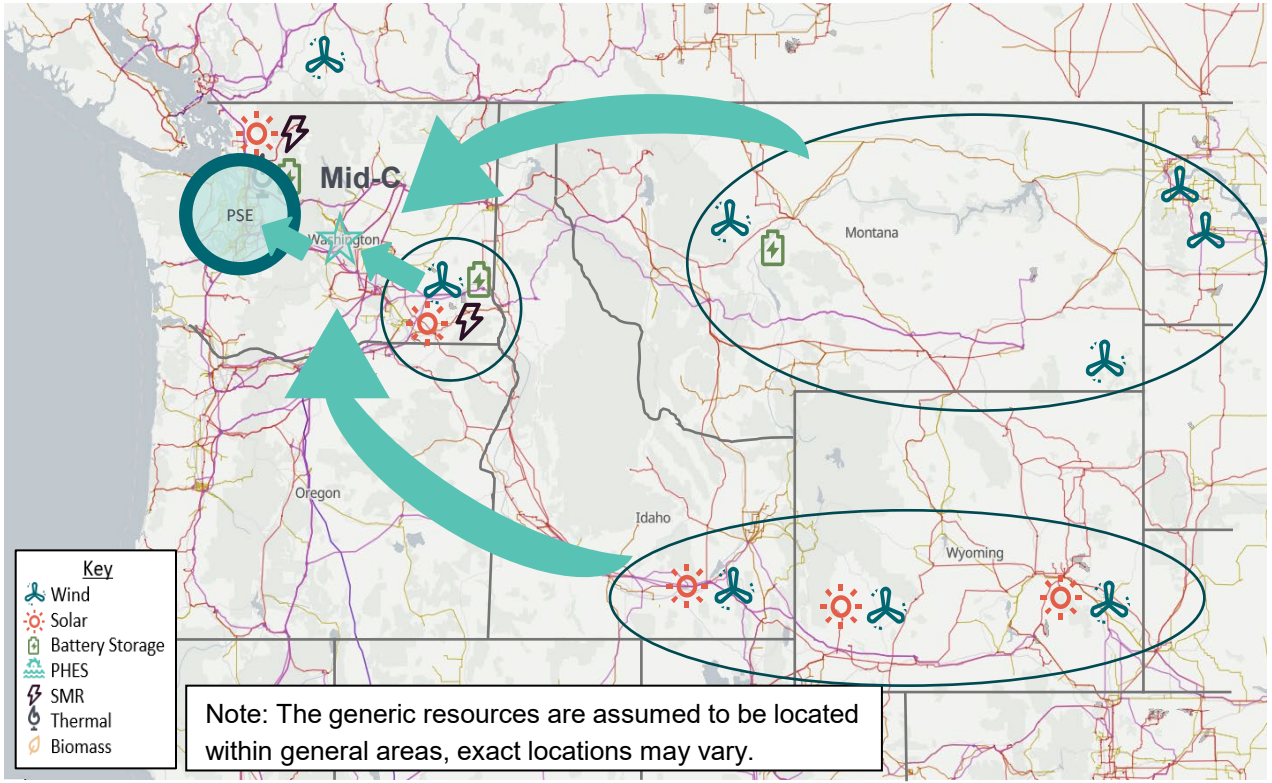
- The 2027 ISP capacity expansion model groups resources into unique regions sharing a fixed transmission capacity to PSE Load.
  - Transmission capacity was modeled as a “build limit” for each region.
- Total transmission availability from each zone for new resources is based on planned regional transmission builds (e.g., BPA Evolving Grid projects).
  - BPA EG 2.0 capacity was reduced to reflect the withdrawal of Transmission Service Requests that would require those upgrades for service
  - In addition to BPA capacity, each scenario includes all expected transmission capacity from all other relevant transmission providers.

Zone	Cumulative transmission by 2035
WA West	100 MW
BC	310 MW
OR	860 MW
WA East	4447 MW
MT	200 MW
NV	181 MW



BESS: Battery energy storage system CCGT: Combined cycle gas turbine DER: Distributed energy resource BPA: Bonneville Power Administration

Transmission expansion is needed to enable clean energy delivery

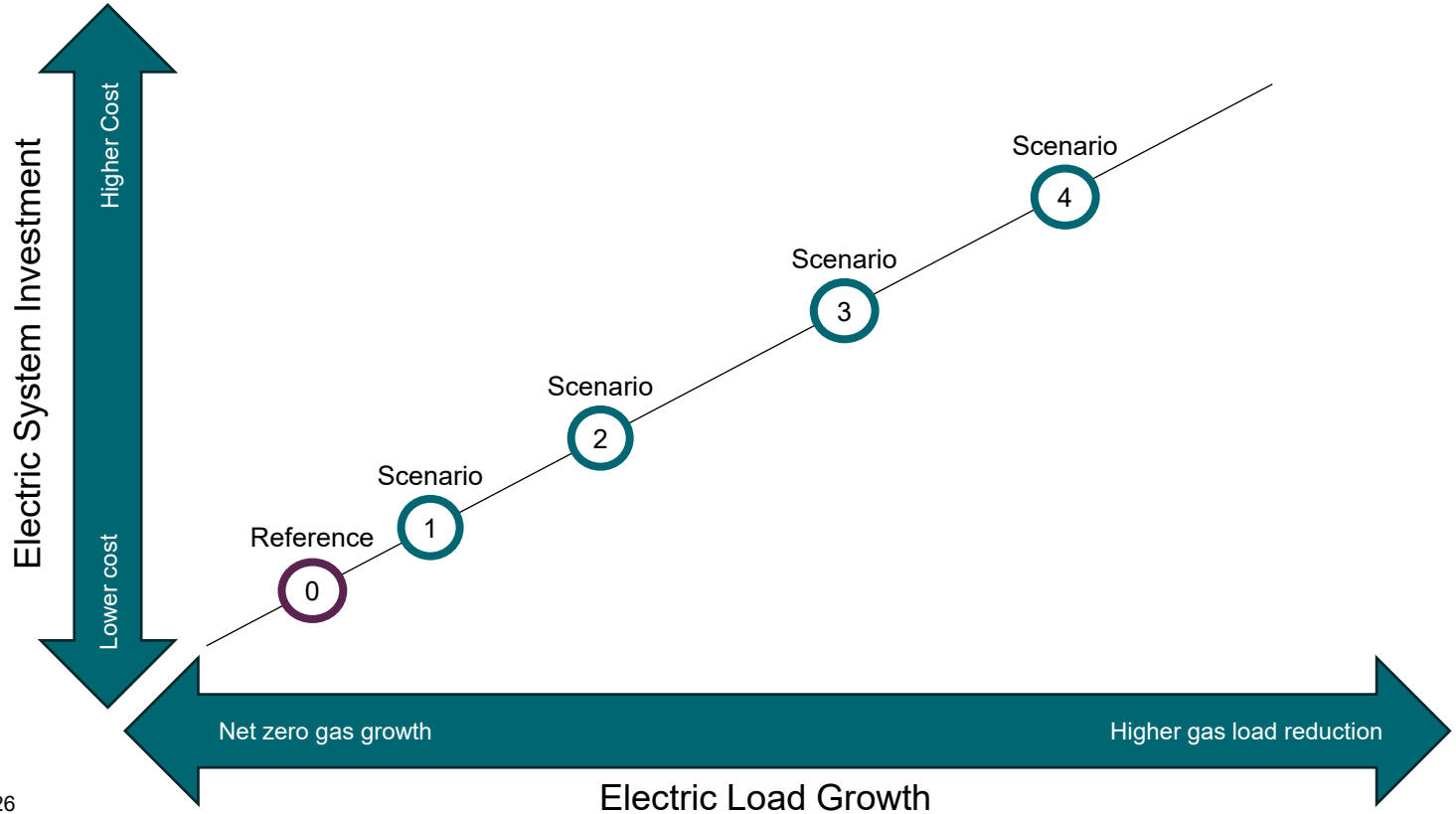


Transmission to deliver Clean Energy Zones (CEZ) to PSE's service territory will require multiple segments.

Key constraints:

A. **Cross-Cascades via the West of Cascades North (WOCN) path**
B. **Montana/North Dakota to WA**
C. Idaho/Wyoming to WA

With the electric reference case modeling challenges, we expect additional challenges as we model the various scenarios that continue to increase electric demand



Draft 2027 ISP sensitivity themes – electric utility

Requirements by WAC

- CETA
- Maximum customer benefit
- Energy efficiency 2%
- Demand response 10%

Transmission availability

- Additional transmission available
- ★ No new transmission available

Policy changes & analysis

- CETA & SCGHG
- CCA
- I-2066
- ★ ITC & PTC restored

Customer programs

- Additional DER such as V2X or V2G
- ★ Conservation bundled by capacity

Emerging technology

- No emerging tech
- SMR
- Geothermal
- Mid- and long-duration energy storage
- Offshore wind

Other

- Resource adequacy
- Residential exchange
- ★ Alternative compliance cost
- ★ Availability of NG resources

★ Based on feedback from interested parties

Not all sensitivities will be analyzed due to time constraints

CETA: Clean Energy Transformation Act SCGHG: Social cost of greenhouse gas ITC: Investment tax credit PTC: Production tax credit SMR: Small modular (nuclear) reactor NG: Natural gas V2X: Vehicle to everything V2G: Vehicle to grid

Questions?

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Break

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Gas supply reference case

Jennifer Coulson
Director, Resource Planning & Analytics

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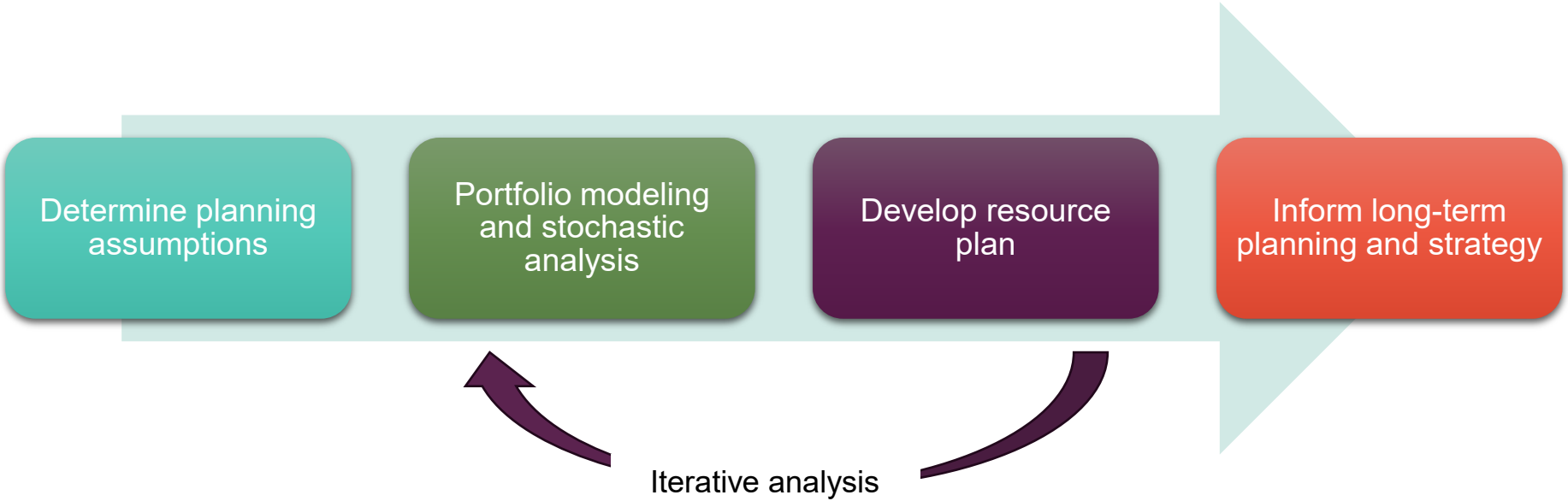
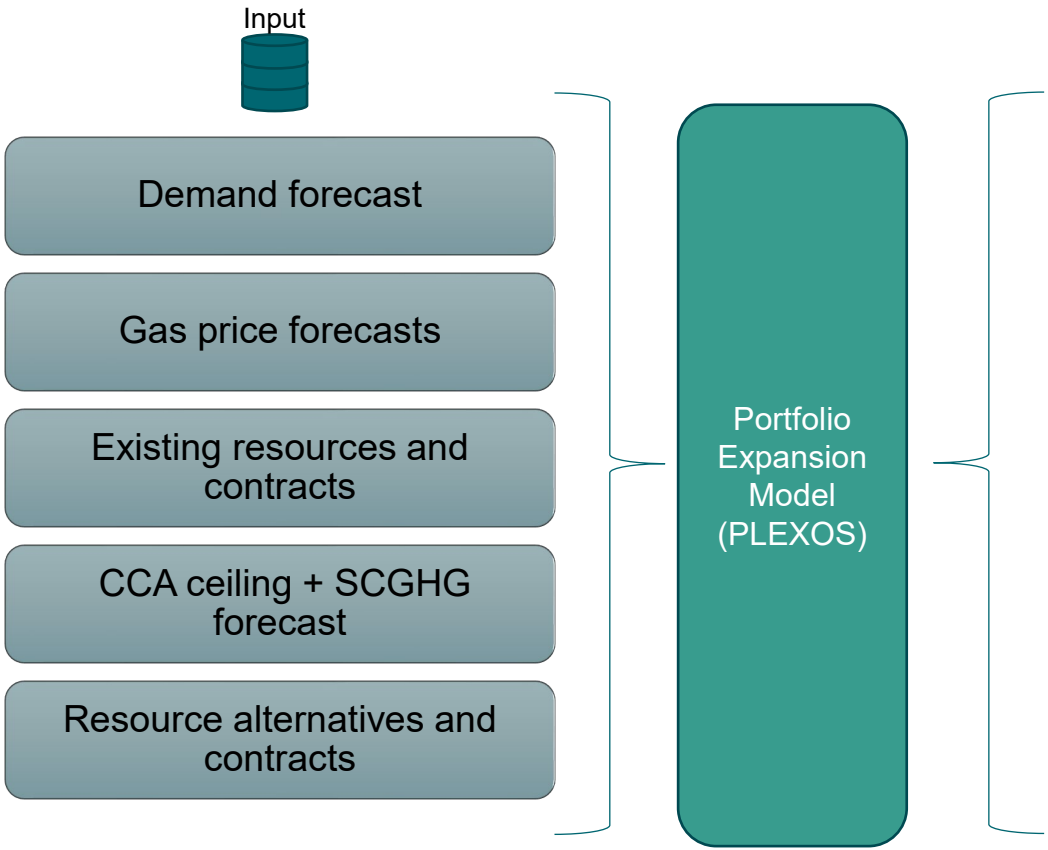
High – level gas supply modeling process overview



Gas supply modeling process overview

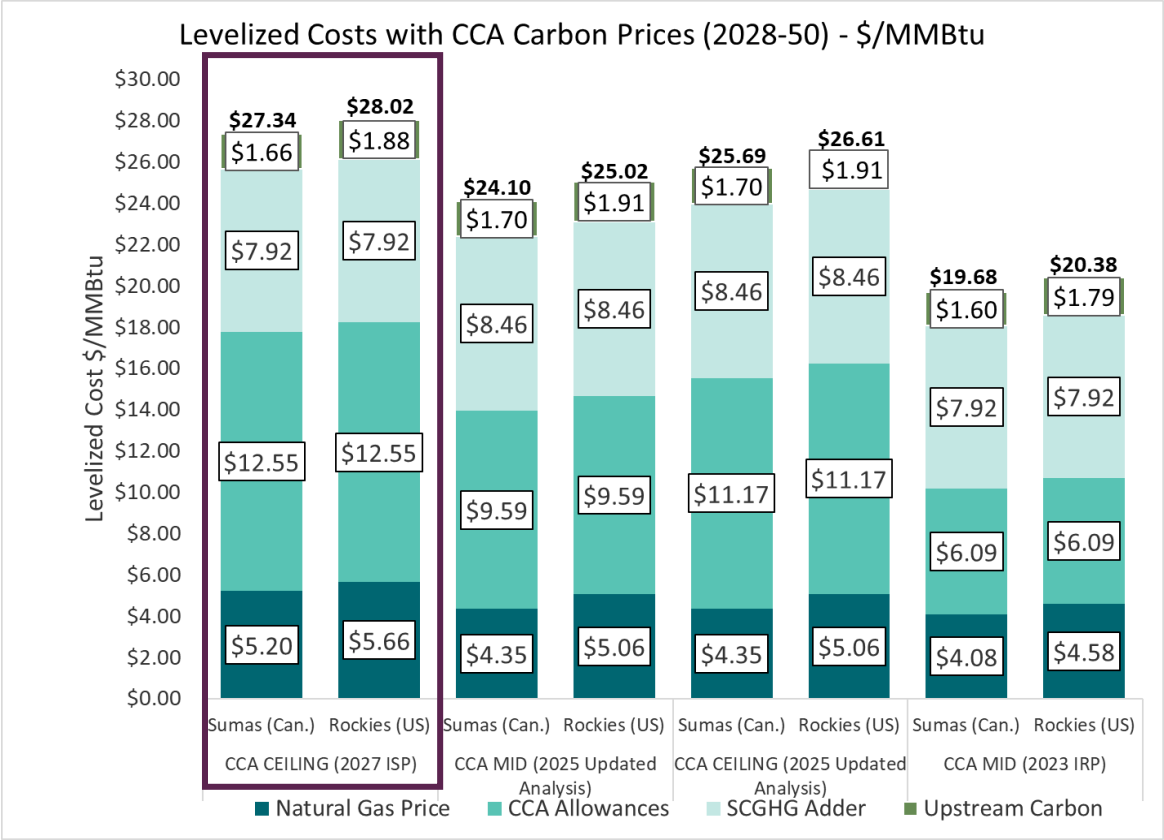


Modeling approach:
Mixed Integer Linear Programming problem that uses a mix of continuous linear variables and discrete integer variables

Objective function:
Minimize the total portfolio cost

Subject to constraints:
Resource characteristics
Pipeline constraints
Demand
Peak day requirements

Levelized costs of natural gas continues to increase from prior IRPs mainly due to carbon adders



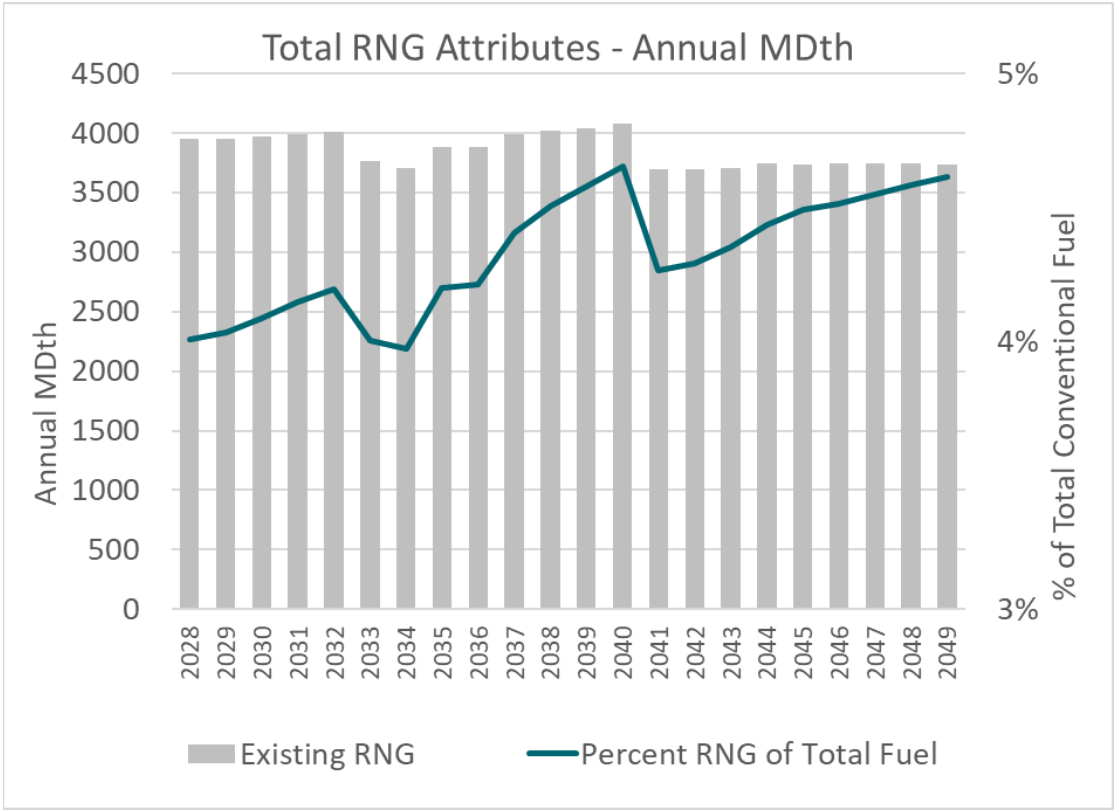
Levelized costs used in 2027 ISP

CCA: Climate Commitment Act SCGHG: Social cost of greenhouse gas

Gas supply costs are greater in 2027 ISP compared to 2023 IRP reference case

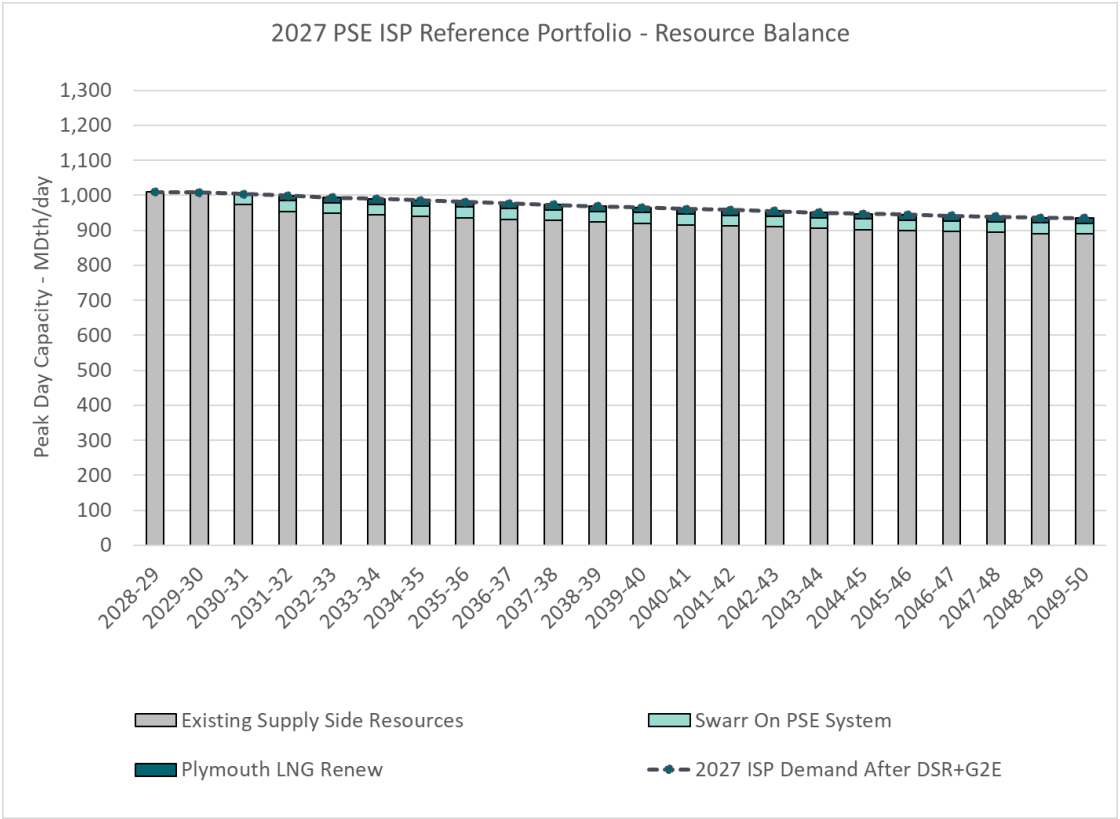
Portfolios	Portfolio costs NPV $ billions		Draft results
	2028 - 2045	2028 - 2050	
2023 IRP *(NPV 2026-2045)*	$21.1	N/A	Preferred Portfolio – Last published analysis
27 ISP reference	$24.4	$29.2	Notable updates: • CCA Ceiling price assumed • Modeling refinements

Total cumulative annual renewable natural gas (RNG) stays between 4-5% of conventional fuel due to supply limitations



RNG: Renewable natural gas

Gas supply cumulative reference resource balance shows continued reliance on existing resources, Swarr, and Plymouth LNG



LNG: Liquid natural gas

Questions?

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ISP reference case results

Jennifer Coulson
Director, Resource Planning & Analytics

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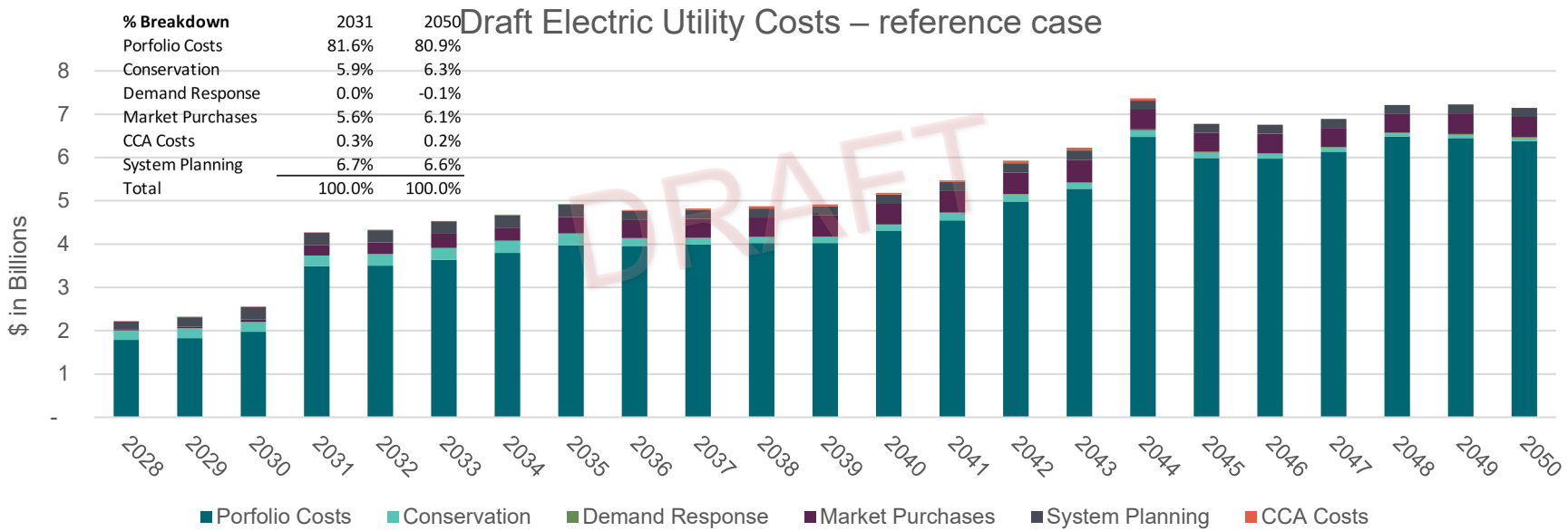
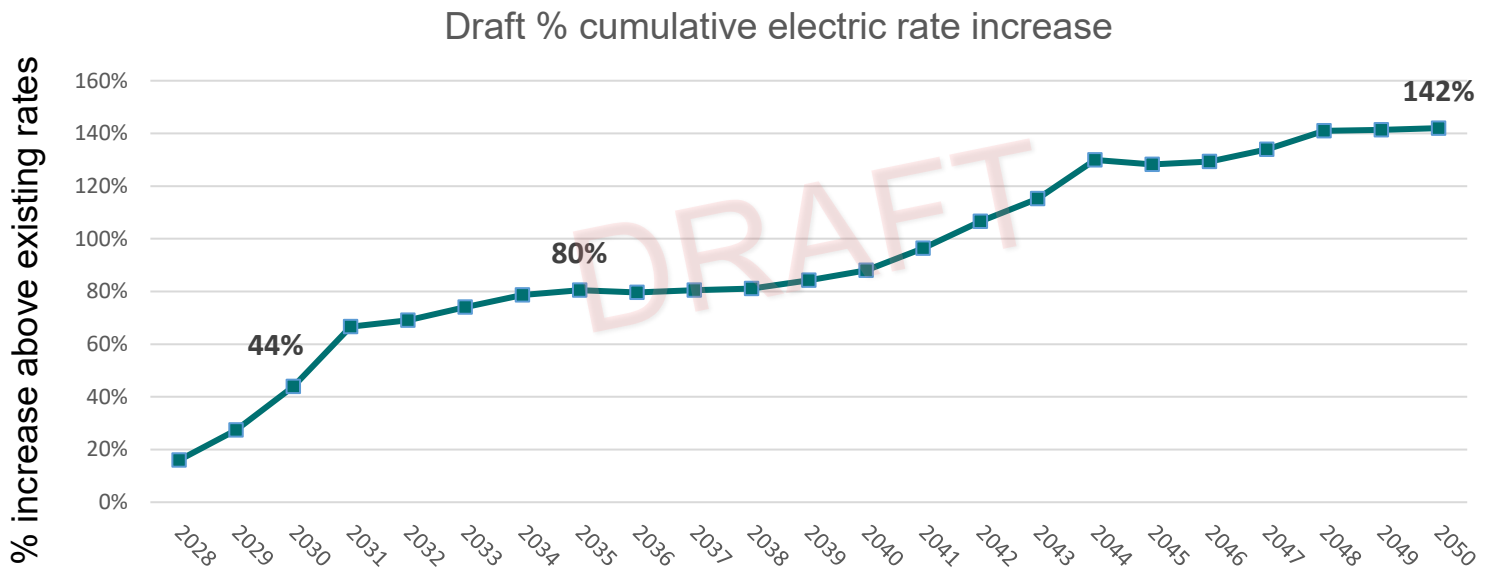
Electric utility reference case costs increase, specifically in the electric supply area, to meet peak capacity and CETA needs



*Costs shown only reflect investments studied within the ISP

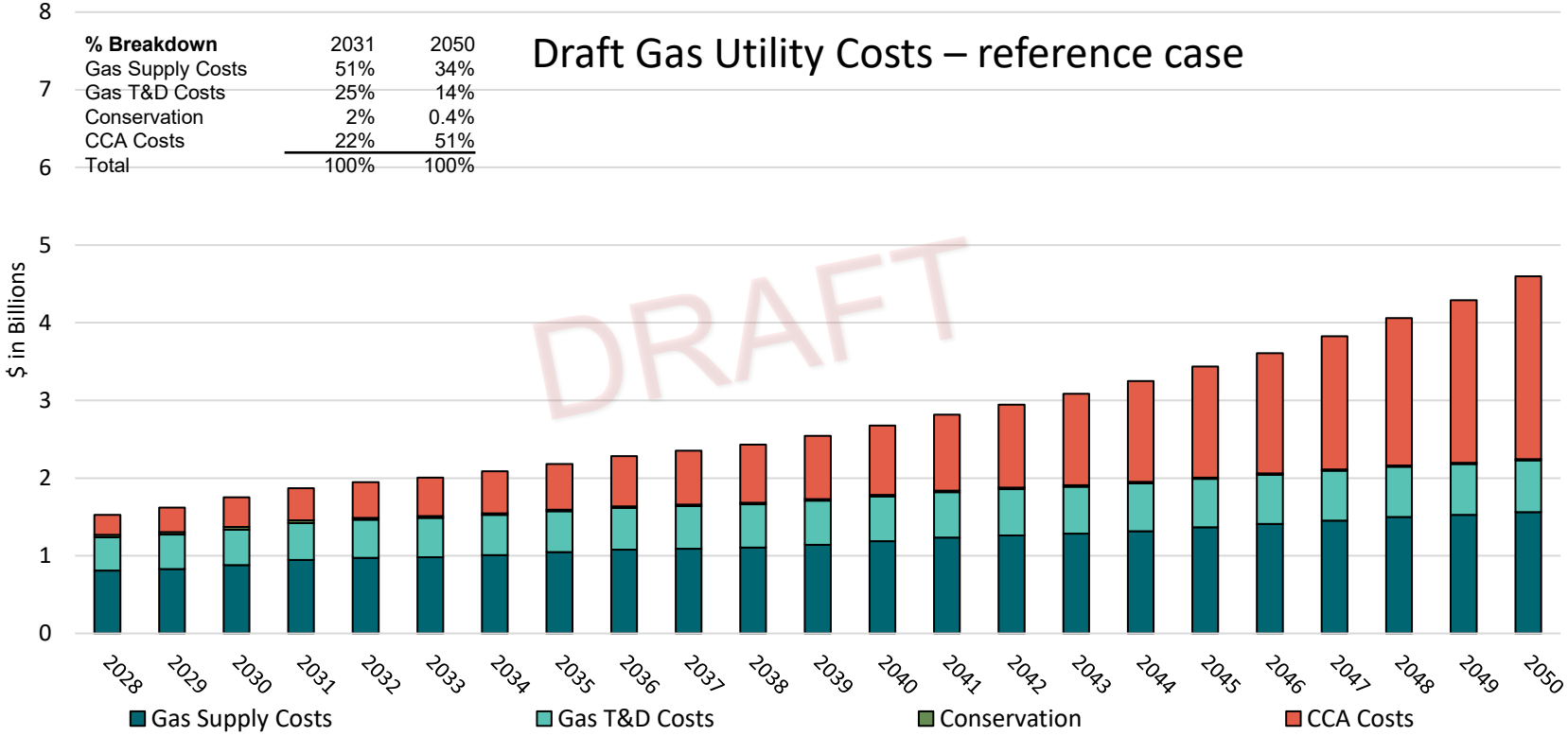
The electric utility cumulative percentage rate impact for the reference case is projected to increase existing rates by 44% 2030, 80% 2035 and 142% by 2050



Rate impacts are illustrative only and based on hypothetical assumptions, including the commercial availability and economic viability of flex-fuel peakers and other emerging technologies. The projections above should not be interpreted as PSE's expected rate impacts.

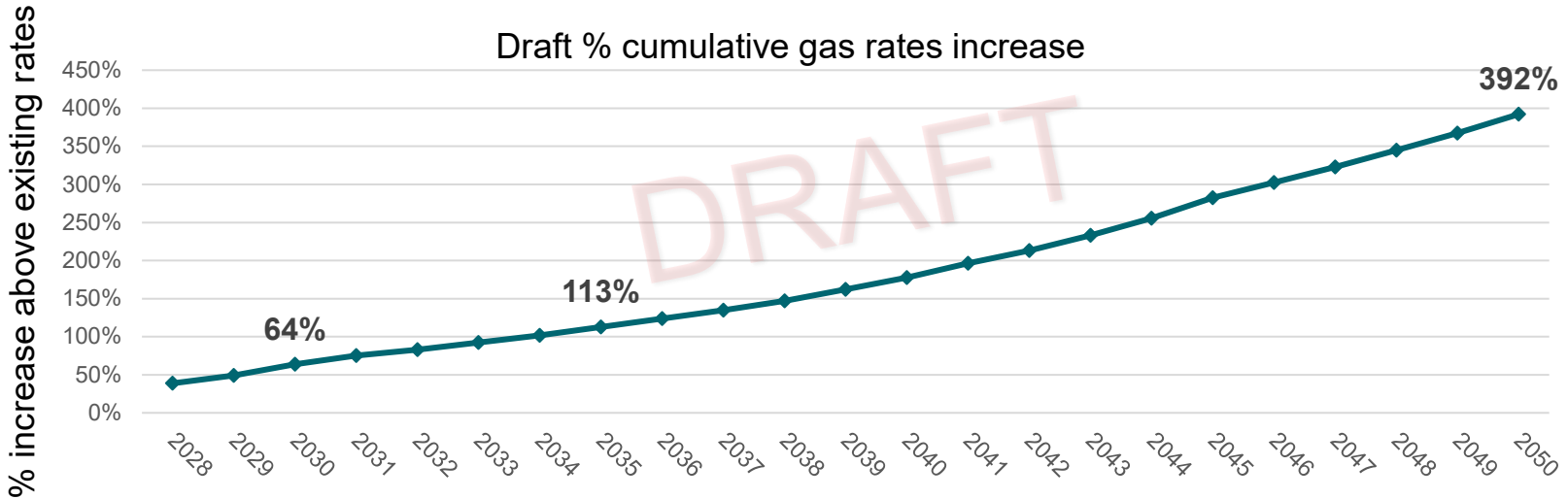
Gas utility reference case costs continually grow over the planning horizon; towards the latter half of the plan CCA is a significant cost that we see flow into rates

% Breakdown	2031	2050
Gas Supply Costs	51%	34%
Gas T&D Costs	25%	14%
Conservation	2%	0.4%
CCA Costs	22%	51%
Total	100%	100%



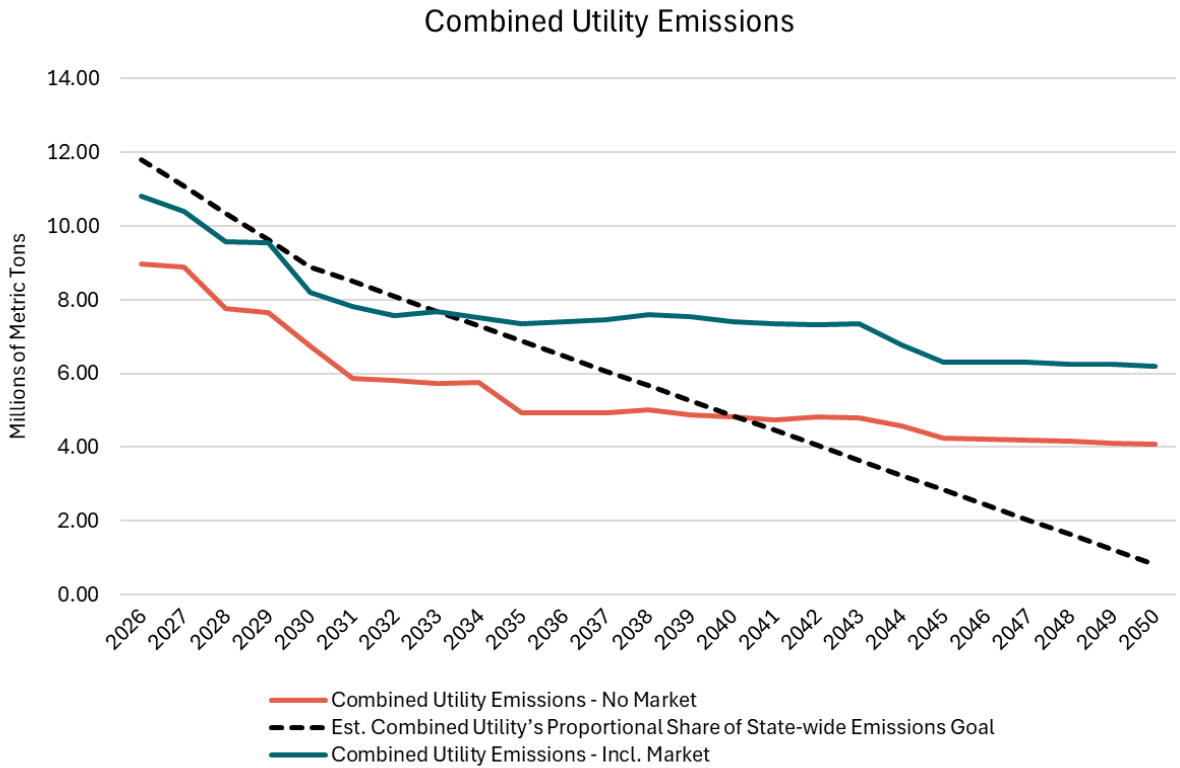
*Costs shown only reflect investments studied within the ISP

The gas utility cumulative average rate for the reference case is projected to increase existing rates by 64% 2030, 113% 2035 and 392% by 2050



Rate impacts are illustrative only and based on hypothetical assumptions, including CCA ceiling prices rather than expected CCA prices. The projections above should not be interpreted as PSE's expected rate impacts.

Near term emissions for the combined utility are below the utility's proportional share of state-wide emission goals, depending on the market emission rate assumption we see that line cross after 2035



Key takeaways from the reference case

- Electric supply optimization model **did not produce a solution** using assumptions developed through RPAG engagement
- Manual workarounds in the model and different assumptions, were necessary to get a model that would solve – as a *starting point* for further analysis
- **Peak capacity and CETA needs are significant** over the CEAP (10-year) planning horizon and beyond
- **Transmission across the region is significantly constrained** and poses risks for the generation builds needed to meet the reference case demand
- Gas supply optimization model continues to select purchasing CCA allowances in addition to RNG to offset emissions
- Electric and gas rates are both **increasing significantly,** raising customer affordability concerns

Reminder: the reference case is not the preferred portfolio; it's a starting point.

Questions?

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Gas transmission and distribution system planning reference case

Niecie Weatherby
Manager, Gas System Integrity, PSE

May 28, 2026

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Natural gas transmission and delivery system reference case

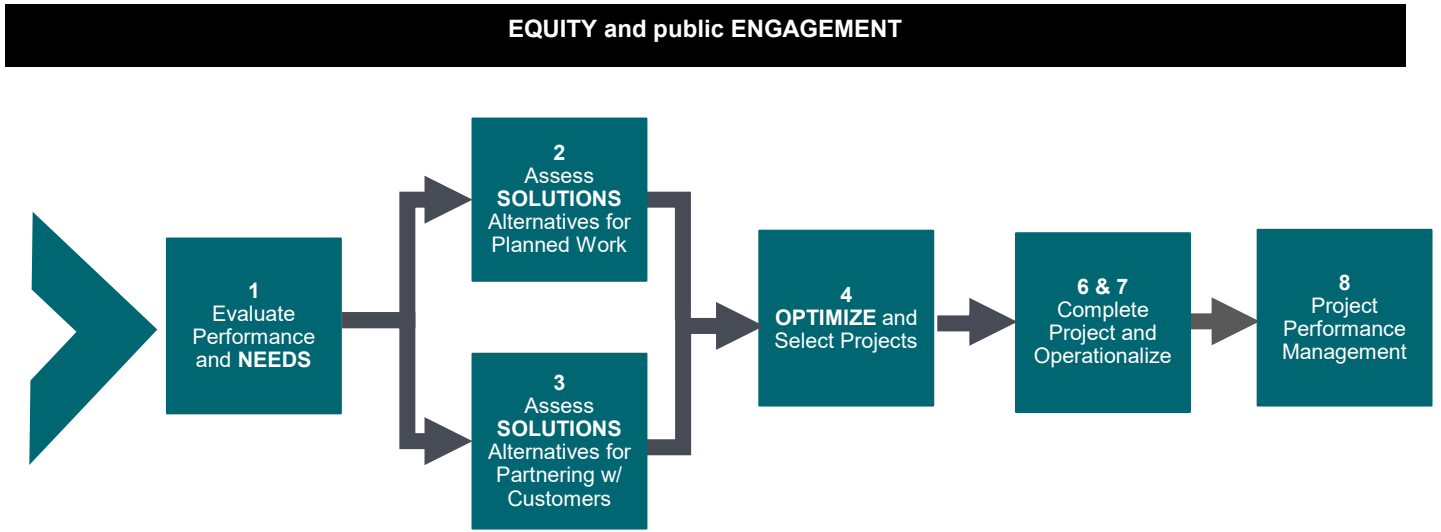
- Reference case is our starting point – not the preferred portfolio

- Reference case outputs:
  - Portfolio level estimates of capital, operations and maintenance (O&M) and asset retirements
  - Covers the 2028 – 2050 planning horizon

- Additional ongoing analysis not included in reference case:
  - Geographic electrification potential assessment
  - Transmission and distribution system assessment
  - Non-Pipeline Alternatives (NPA) suitability evaluation of investments/segments

Gas transmission and distribution planning process

Triggers:
- Asset condition
- Compliance
- Customer/jurisdiction requests
- Integrity safety, and risk
- Localized growth
- System performance
- System reliability



Components of the reference case

Gas transmission and delivery system planning overall scope includes supply, pipeline safety and integrity, regulatory compliance, system reliability, and operations

Category	Reference Case
General rate case	Assumes approval of the 2028 and 2029 General Rate Case (GRC) proposal
Load and customer count	Starting in 2030, uses F25 Q4 load and customer count assumptions. Analysis includes all customer classes, including **transportation** customers.
Investment decisions	• 2028–2029: Based on proposed GRC investment levels. • 2030–2050: Reflects known projects and programs, with other investment categories trended over time. • Investment levels are influenced by usage and load, miles of pipeline, number of customers, and other system assets.
Capital retirements	• 2028–2029: Retirement levels aligned with GRC assumptions. • 2030: Includes planned retirement programs and retirement of approximately 5% of replacement expenditures. • 2031–2050: Retirement levels increase in proportion to customers exiting the system, consistent with the 2026 depreciation analysis.
Operations and maintenance expense	• 2028–2029: Based on GRC proposed expenditures. • 2030–2050: Estimated using cost-per-customer benchmark assumptions.

Reference case assumptions and variables driving the analysis

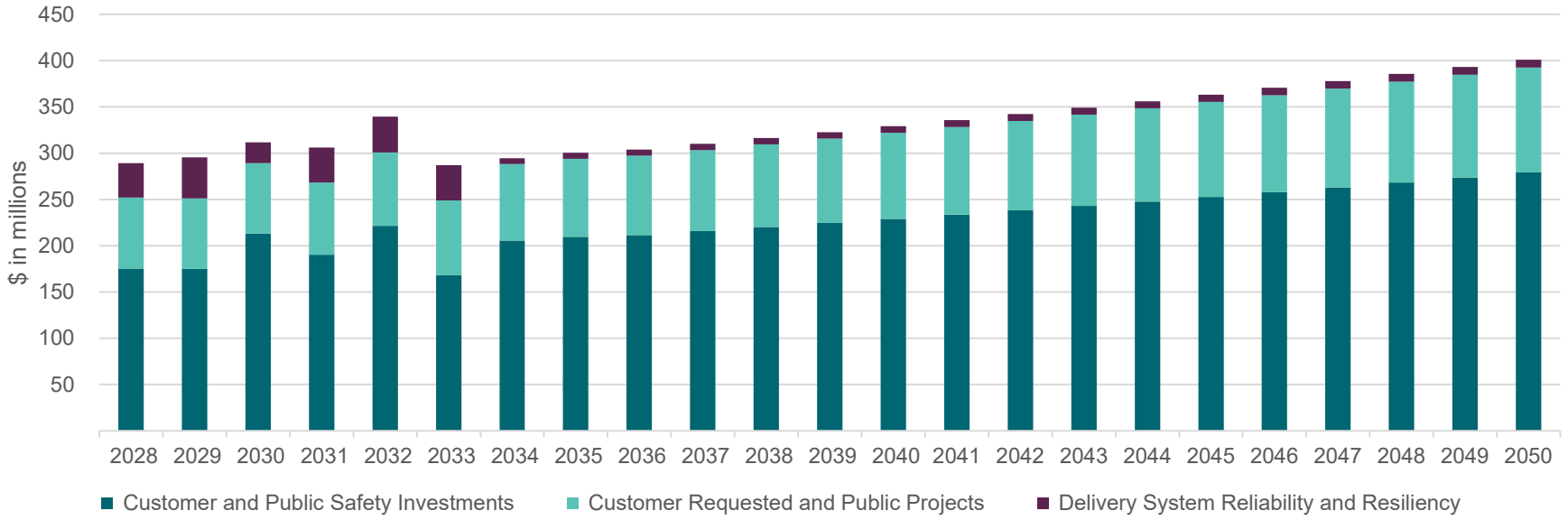
Category	Assumption
Customers count	Remains constant over planning horizon
Customer load	Remains stable in the near term, followed by an approximate 10% decline by 2050.
Miles of main	Remains constant
Number of services	Service retirements are largely offset by modest additions. When customers permanently exit the system, associated services are assumed to be removed within two years.
Number of pressure regulating stations	Remains constant
Pipe age/fully depreciated	Pipe age and the presence of fully depreciated assets do not independently drive investment decisions.
Rate of targeted electrification	Continues at the current rate and is incorporated into the plan, limited to 3–5 small, cost-effective projects annually.
Demand side targeted electrification	Limited to the existing Duvall pilot program.
Renewable fuels	Assumes renewable fuels within the PSE service territory are primarily represented by certificates (RECs/RNG credits) rather than physical gas supply, resulting in negligible impacts to modeled pipeline heat content and volumetric flow.

REC: Renewable energy credit RNG: Renewable natural gas

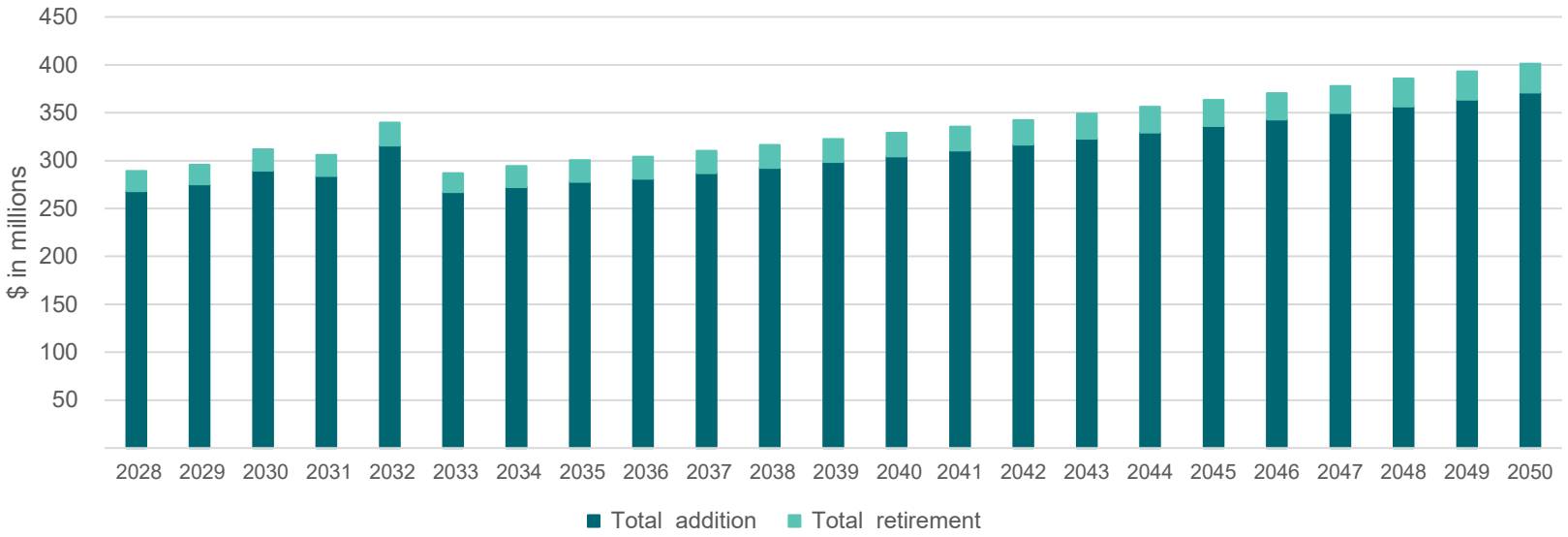
Make the "right" investments to provide safe, reliable natural gas in the most cost effective/efficient manner

ISP category	Description	Programs/drivers included	2028 – 2050	Additional notes
Customer requested and public projects	Non-capacity, localized work driven by customer and public agency requests, including service additions, relocations, and system modifications to maintain service	• Customer requests • Public improvement	Add: $2,031M Ret: $74M	Customer work is typically customer-funded and site-specific. Jurisdictional work involves infrastructure relocations to support public projects (e.g., roadway, bridge, and culvert improvements).
Transmission and distribution system reliability and resiliency	Investments required to reliably deliver gas to customers and support system performance under peak and adverse conditions.	• Pipeline reinforcement • Cold weather action equipment	Add: $334M Ret: $11M	Utility driven to address existing system need
Customer and public safety investments	Condition-based repairs and replacements driven by safety, integrity, and regulatory compliance requirements. Includes time-sensitive work necessary to mitigate risk.	• Integrity management • Pipeline replacement plan • Digital monitoring • Gas leaks • Critical safety system issues • Customer billing inquiries	Add: $4,749M Ret: $431M	Estimated total pipeline main replaced –per year (0.4%)

Inflation and flat customer counts result in increased annual investments in safety and customer /public projects



Retirements account for 5% of annual capital investment in the reference case



Using the reference case as a foundation for the analysis

- How these results will be used
  - Establish a baseline for evaluating tradeoffs, scenarios, and alternatives
  - Identify key cost drivers, assumptions and priority system segments for deeper analysis

- Next steps
  - Complete geographic electrification potential assessment (RPAG 7/2026)
  - Complete the Transmission and Distribution System Assessment
  - Evaluate Non-Pipeline Alternative (NPA) suitability by investment category
  - Use results to inform scenario and sensitivity analysis

Questions?

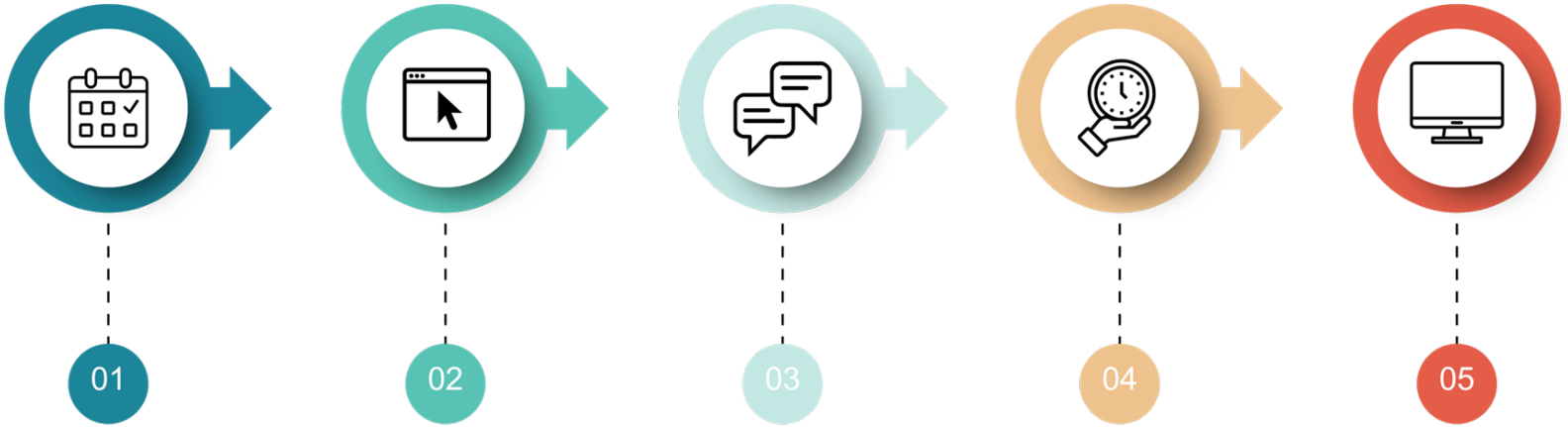
PSE PUGET SOUND ENERGY

Next steps

May 28, 2026

PSE PUGET SOUND ENERGY

Feedback process



One week prior to meeting

The feedback window for the upcoming meeting opens.

3-5 business days prior to meeting

PSE posts the meeting agenda and slide deck on the Clean Energy website.

Day of meeting

PSE engages RPAG for feedback and facilitates a public comment opportunity.

One week post meeting

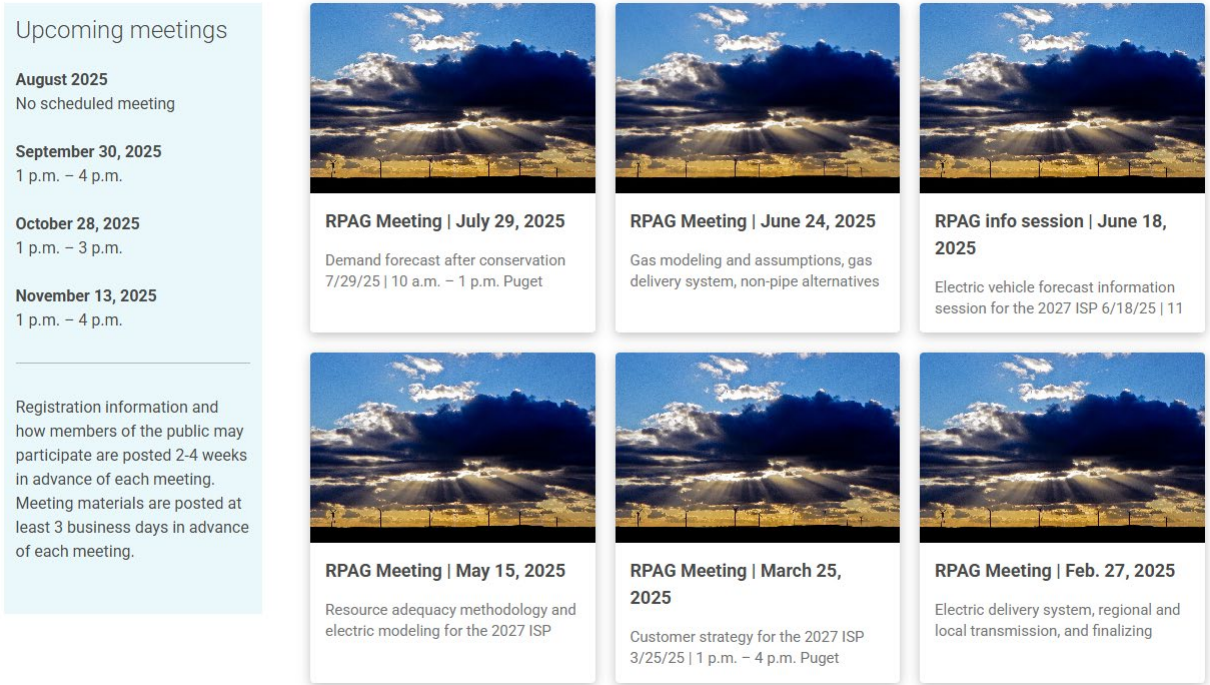
Feedback window for the latest RPAG meeting closes. Feedback received outside this window will go into the subsequent feedback report.

Four weeks post meeting

PSE posts the meeting summary and feedback report from the latest RPAG meeting on the Clean Energy website.

Visit our website

- You can find meeting materials, meeting summaries, feedback reports, and links to meeting recordings on the RPAG portion of our clean energy planning website.



Upcoming activities

Date	Activity
June 4, 2026	Feedback form for this meeting closes
June 23, 2026	RPAG meeting
July 28, 2026	RPAG meeting

Contact us

- Via email at isp@pse.com
- Via feedback form at: https://www.cleanenergyplan.pse.com/contact
- Leave us a voicemail at 425-818-2051
- Subscribe to our email list
- Visit our website: cleanenergyplan.pse.com

Public comment opportunity

May 28, 2026

PUGET SOUND ENERGY

How to participate in public comment opportunity

- Please use the “raise hand” feature if you would like to provide comment
- Each speaker will have up to 3 minutes to give comments
- Comments should relate to today’s meeting topics
- Please keep remarks respectful – no personal attacks
- Comments and questions will be included in the feedback report with PSE’s response
- You are welcome and encouraged to send written feedback and questions to isp@pse.com

Thank you for joining us!

May 28, 2026

PSE PUGET SOUND ENERGY

Appendix

May 28, 2026

PUGET SOUND ENERGY

Definitions and acronyms

Acronym	Definition
BESS	Battery energy storage system
BPA	Bonneville Power Administration
C&S	Codes and standards
CCA	Climate Commitment Act
CCCT	Combined cycle combustion turbine
CCGT	Combined cycle gas turbine
CEAP	Clean Energy Action Plan
CEIP	Clean Energy Implementation Plan
CETA	Clean Energy Transformation Act
CPA	Conservation potential assessment
DE	Distribution efficiency
DER	Distributed energy resources
DSP	Delivery system planning
GHG	Greenhouse gas
GRC	General rate case

Acronym	Definition
GW	Gigawatt
IRP	Integrated Resource Plan
ISP	Integrated System Plan
ITC	Investment tax credit
LCOE	Levelized cost of energy
Mid-C	Mid Columbia energy market
MW	Megawatt
MWh	Megawatt hour
NG	Natural gas
PTC	Production tax credit
PURPA	Public Utilities Regulatory Policy Act
REC	Renewable energy credit
RNG	Renewable natural gas
RPAG	Resource Planning Advisory Group
WAC	Washington Administrative Code

ISP financial assumptions

Time Horizon

- 2028 through 2050

Inflation

- 2.5% per year
- Inflation can spike in the near term, but levels off to ~2.5% in the long run

Unspecified Market

- Section 7 of E2SB 5116, paragraph 2 states to use 0.437 metric tons CO_2/MWh for unspecified market purchases

OBBB

- Removal of previous tax credits from the Inflation Reduction Act (both PTC and ITC)
- This materially increases resource costs

Alternative Compliance

- CETA requires 100% greenhouse gas (GHG) neutrality by 2030
- Minimum of 80% of energy delivered from renewables, remaining can be met with other options
- PSE will estimate alternative compliance costs as the remaining energy gap x (LCOE of the most cost-effective renewable – Market energy price)

Discount Rate

- 7.07% after tax WACC (weighted average cost of capital)

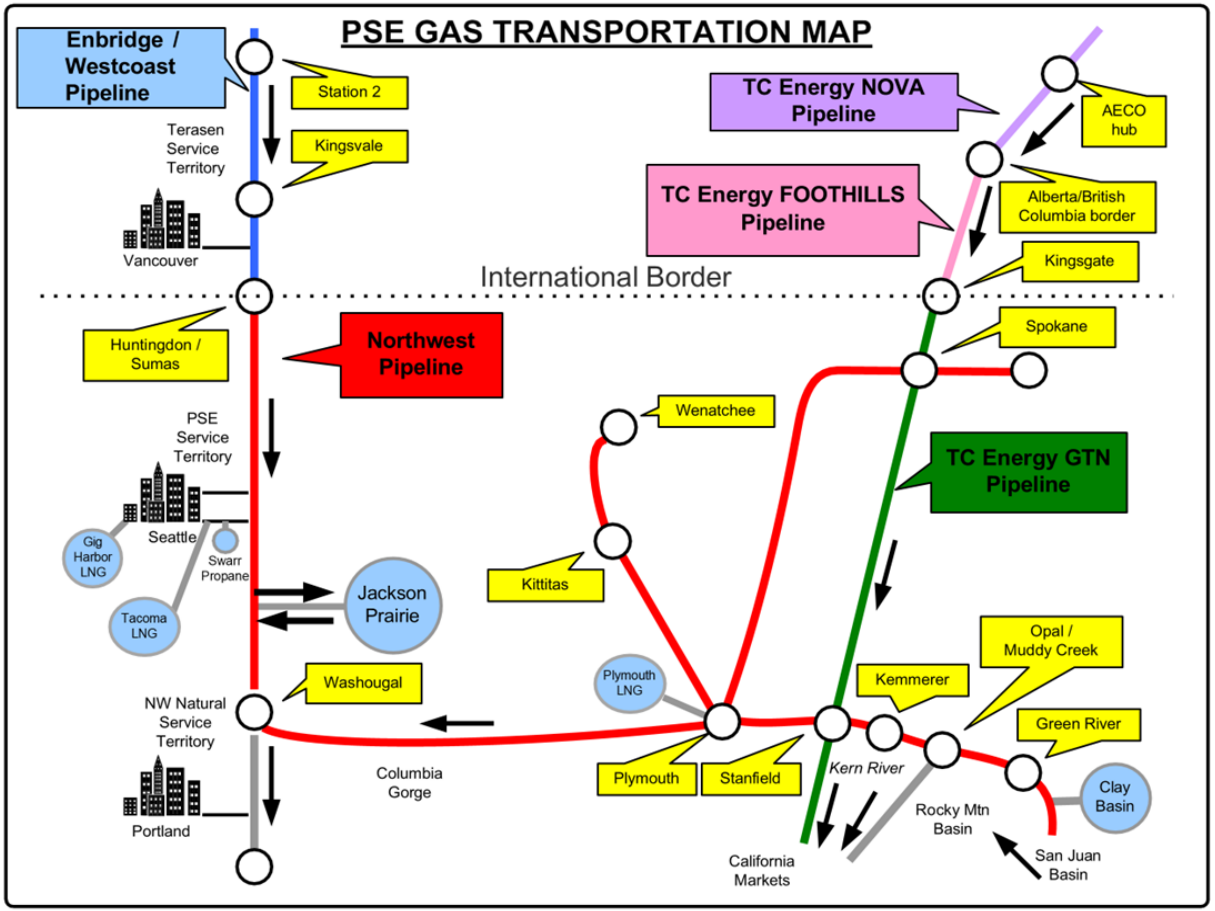
PTC: Production tax credit ITC: Investment tax credit LCOE: Levelized cost of energy

Key references

PSE presented methodologies and assumptions for each of the workstreams during previous RPAG meetings as listed below. Please refer to the videos and slides from those meetings for additional details.

Demand forecast	• March 26, 2026 and July 29, 2025
Customer strategy	• March 25, 2025
Electric supply	• May 15, 2025
Gas supply	• June 24, 2025
Gas delivery system	• June 24, 2025
Electric delivery system	• February 27, 2025
Regional transmission	• February 27, 2025

Gas Supply pipelines modeled



Appendix – Electric supply

For more details regarding electric supply please refer to the May 15, 2025 RPAG meeting

May 28, 2026

PUGET SOUND ENERGY

Electric Reference case assumptions developed with input from RPAG during 2027 ISP process

Inputs	Assumptions
Electric & NG Price Inputs	• Wood Mackenzie Prices – Fall 2025 Release
Customer Demand	• 2027 ISP reference demand
Alternative Fuels	• Biofuel
CO2 Inputs	• Social Cost of Greenhouse Gas (SCGHG) w/ upstream emissions • Climate Commitment Act (CCA) ceiling price
Wind & Solar Generation	• Renewable profiles from 2025 DNV Wind Study
Hydroelectric Generation	• Ensemble of 30-year historical data and RMJOC II streamflow projections
Regional Transmission Constraints	• Transmission assumptions align to 2021 and 2022 BPA cluster study and 50% of GERP from 2023 study
Electric Resource Assumptions (Generics)	• Emerging Technology available in reference.

2027 ISP Electric Reference Assumptions Cont.

Inputs	Assumptions
Resource Adequacy Analysis	• ELCCs & PRM from 2027 Resource Adequacy study
Achieving CETA Compliance: 100% Greenhouse gas neutral by 2030	• Fundamental REC price – net cost of wind (total cost of resource minus revenue)
Flexibility Analysis	• 2025 Energy Strategies Flexibility Analysis
Other	• Includes One Big Beautiful Bill (OBBB)

Technology modeled – first year available

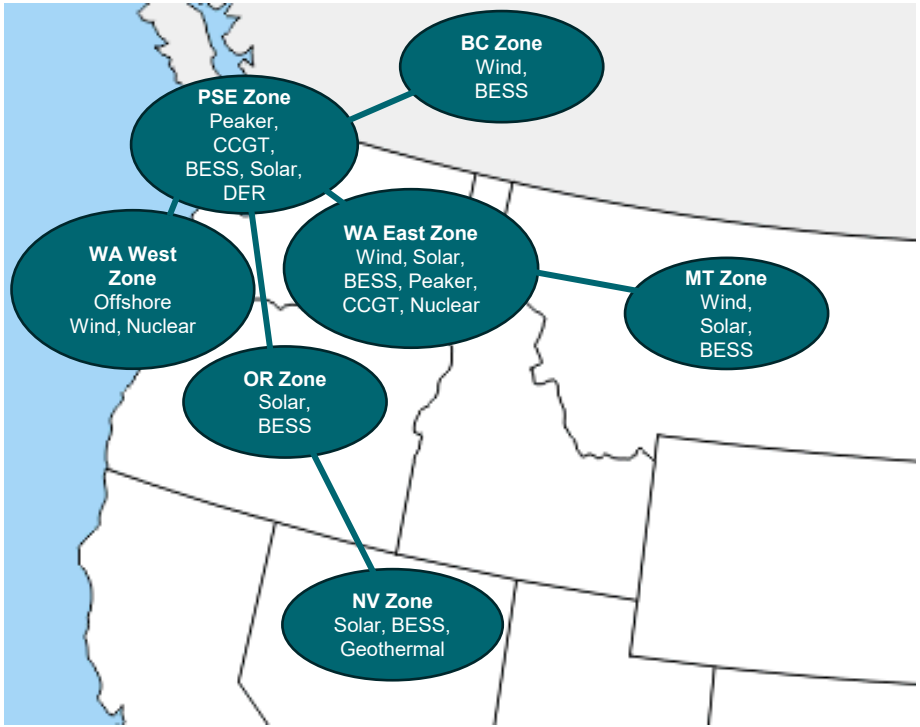
	Type	First Year Available	Resource Capital Costs In 2020$/kw vintage year 2025
	Wind	2031	$1,972
	Solar	2031	$1,938
	Li-ion Battery	2031	$1,844
	Natural Gas Peaker	2031	$1,624
	Renewable Peaker	2031	$1,988
	Mid-Duration Advanced Compressed Air (CAES)	2035	$2,321
	Long Duration Storage Iron Air	2035	$2,273
	Enhanced Geothermal	2035	$11,893
	Nuclear SMR	2040	$13,518
	Offshore Wind (Floating Foundation) Class 12	2045	$16,224

Emerging technology

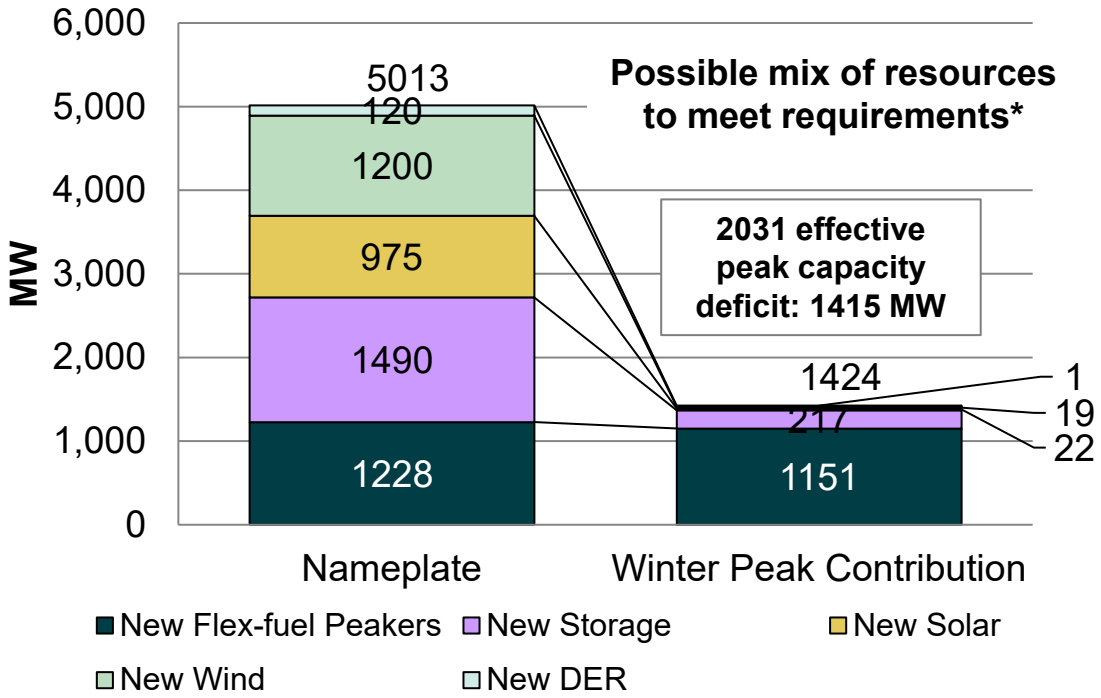
Regional transmission capacity in 2035

- The 2027 ISP capacity expansion model groups resources into unique regions sharing a fixed transmission capacity to PSE Load.
  - Transmission capacity will be modeled as a “build limit” for each region.
- Total transmission availability from each zone for new resources is based on BPA cluster studies (BPA Evolving Grid 1.0 and 50% of 2.0), rate case filings, and announced preliminary guidance.
  - In addition to BPA capacity, each scenario includes all expected transmission capacity from all other relevant transmission providers, excluding PSE’s prospective cross-Cascades build.

Zone	Total Added Transmission by 2035
WA West	100 MW
BC	310 MW
OR	860 MW
WA East	4447 MW
WA MT	200 MW
NV	181 MW
ID/WY	0 MW



How is the reference portfolio meeting the peak capacity?



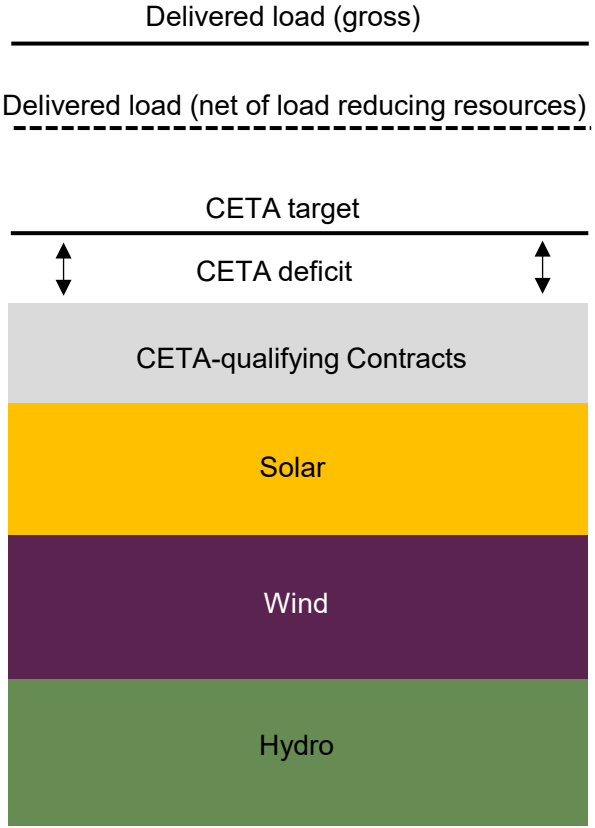
- The 5,013 MW nameplate is a mix of supply-side and distributed resources that meets the effective peak capacity, CETA requirements, and hourly demands (aka “resource need”).
- This mix of resources was dependent on assumptions on availability of resources and costs from the 2027 ISP.
- This mix can change depending on availability, economics, and other factors.

*Actual resources acquired will differ from modeled solution

DER: distributed energy resources

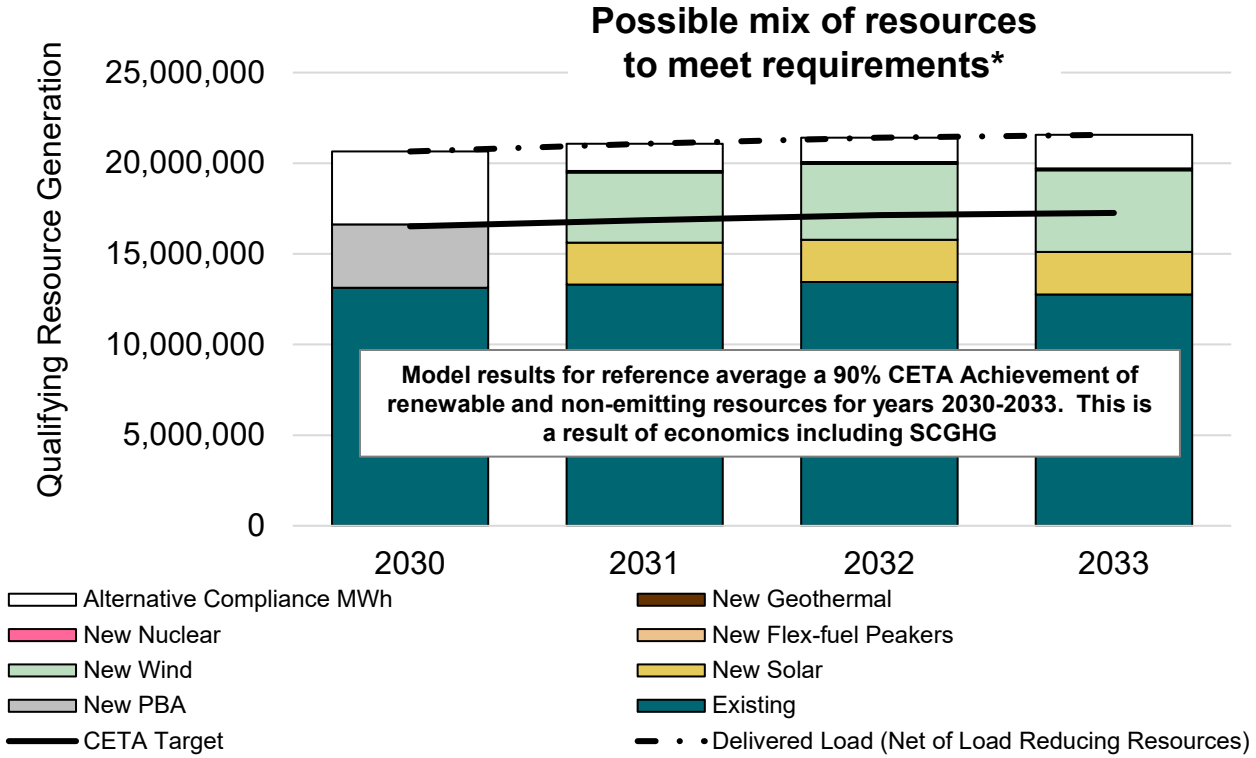
CETA requirement illustration

- Existing CETA compliant resources are stacked
  - Hydro, wind, solar, biomass, etc.
- The total delivered load is adjusted for load reducing resources, which include:
  - Green Direct
  - PURPA
  - Customer side solar
  - Community solar
- The resulting adjusted load is further adjusted to reflect the CETA target in that year
  - e.g., 80% in 2030
- Any remaining gap is the CETA deficit
- This calculation is done using projected load for every year of the planning horizon to determine the CETA need



PURPA: Public Utilities Regulatory Policies Act of 1978

How is the portfolio meeting CETA?



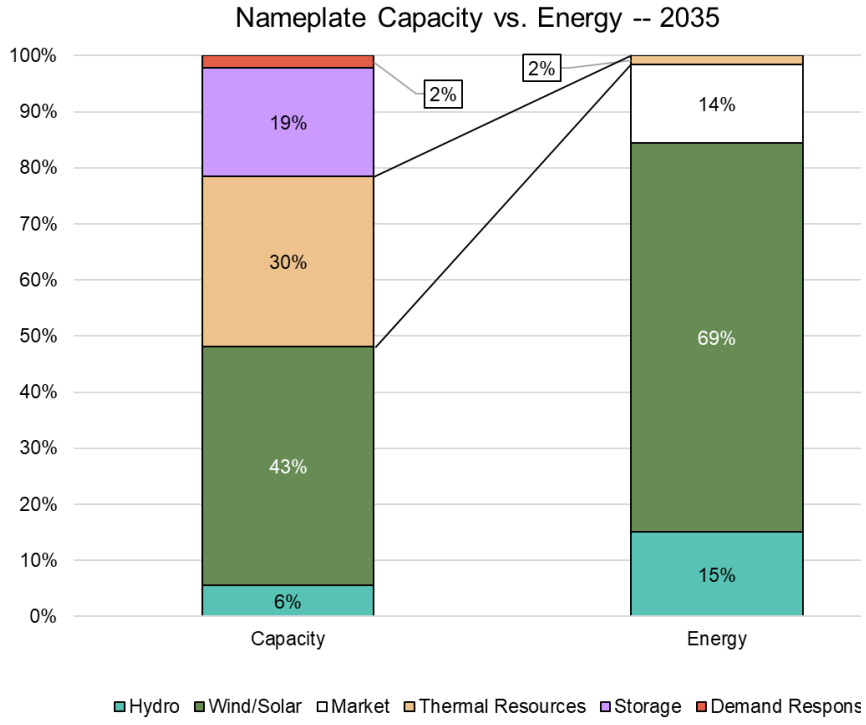
*Actual resources acquired will differ from modeled solution

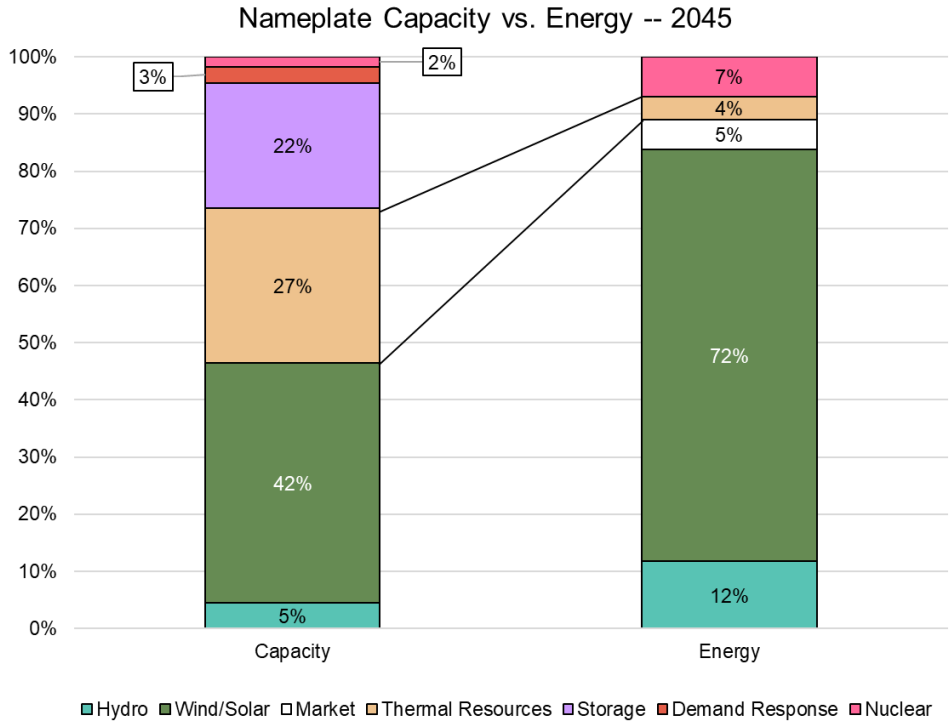
CETA target achievement for 2030-2033 compliance period

- Existing clean energy resources provided 13 million MWh annually, demonstrating PSE's strong existing clean energy portfolio.
- New wind and solar resources were key to meeting targets, with wind providing up to 4 million MWh and solar adding over 2 million MWh annually, plus Power Bridging Agreements contributing 3.5 million MWh in 2030.
- Any remaining shortfall between the 80% and 100% requirement (to achieve carbon-neutrality) will be met through alternative compliance options. These costs are calculated using the fundamental REC price (cost of wind resource less market value) and included in the total portfolio costs.

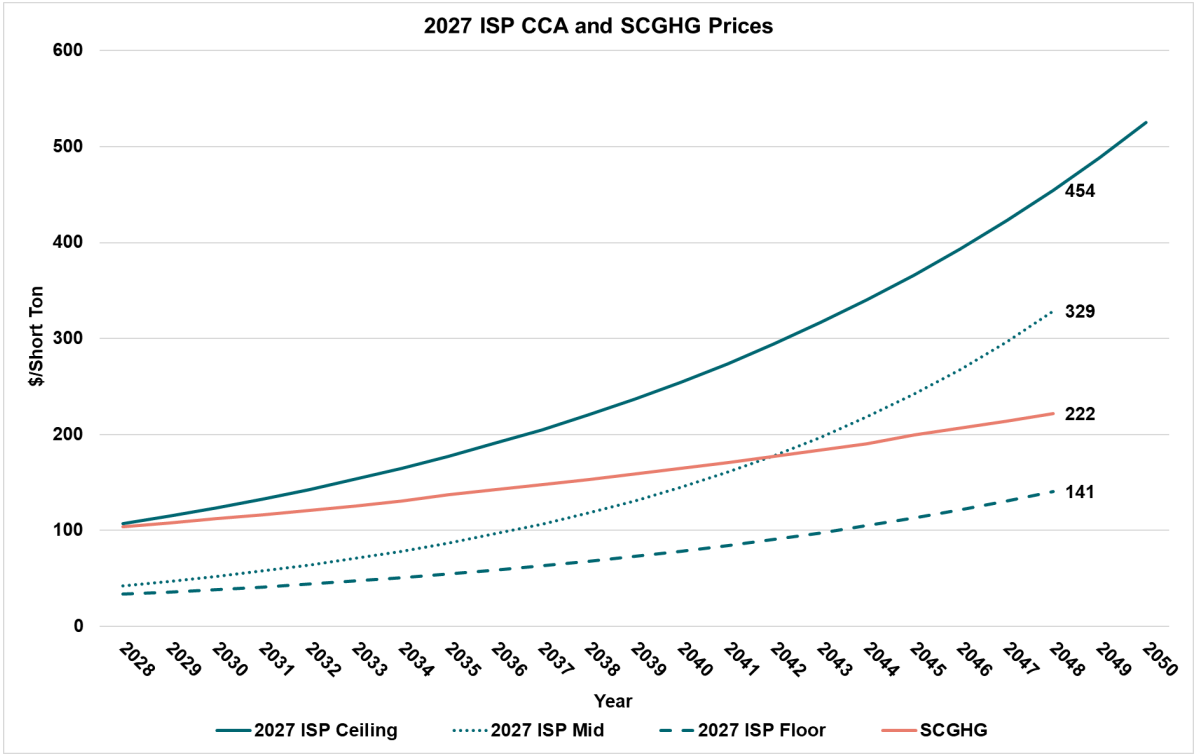
PBA: Power bridging agreement REC: renewable energy credit

Nameplate vs. energy – 2035 and 2045





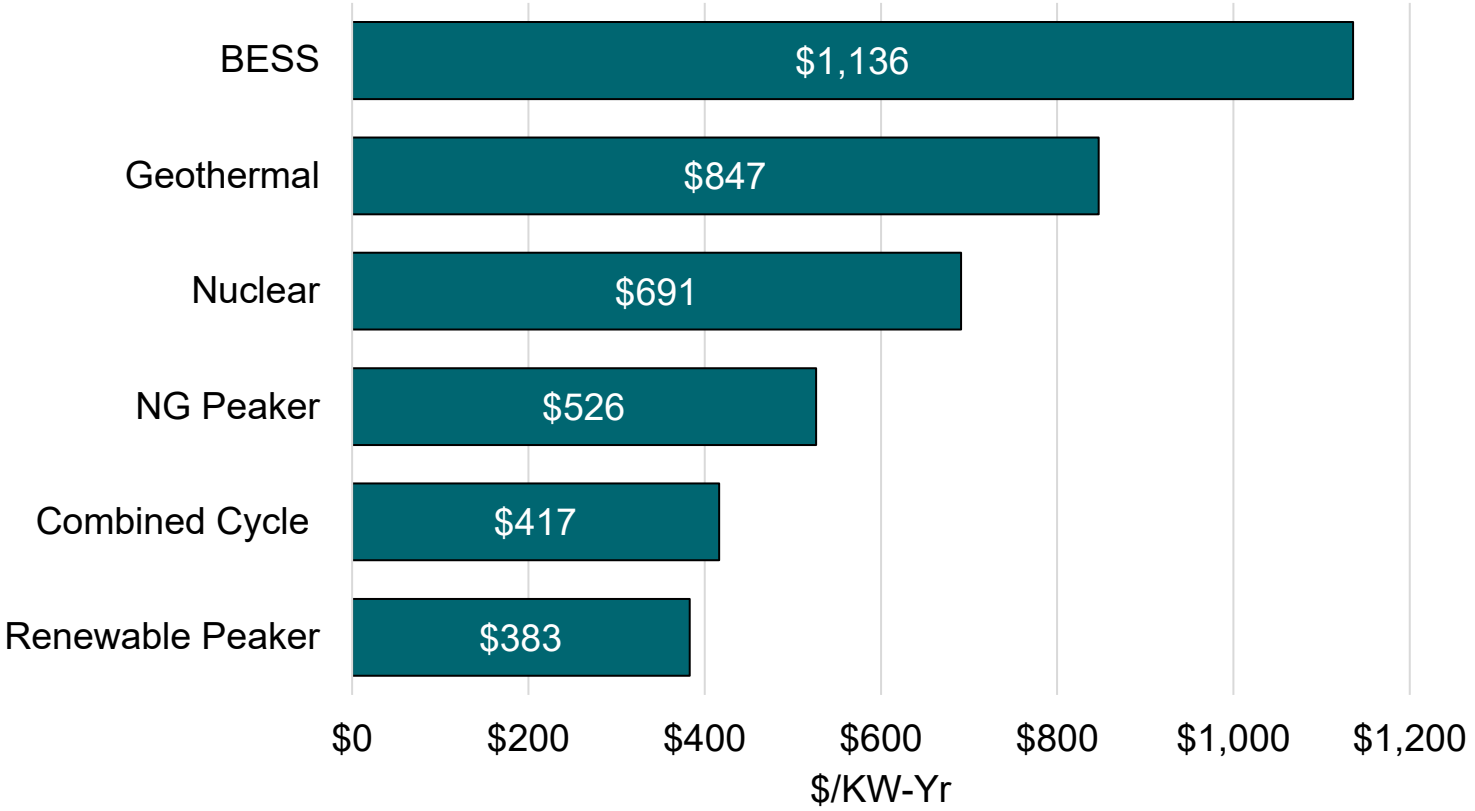
CCA price forecast – used in both gas & electric supply optimization portfolio



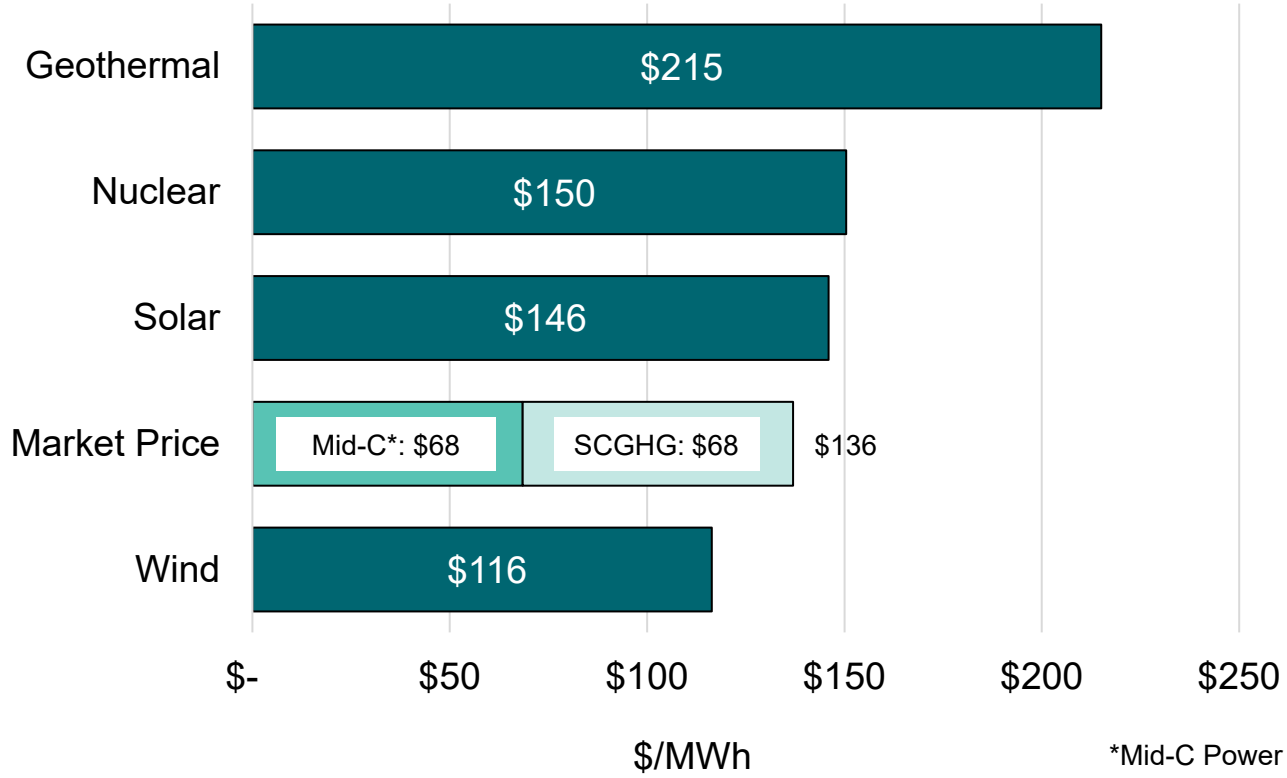
- **Ceiling CCA forecast:**
  - Ceiling CCA Forecast per HB 1975 holds the ceiling at 80$/metric ton until linkage to CA. Starting in 2028 the ceiling price is calculated by taking CA Air Resource Board's announced 2025 price and adding 5% plus inflation every year
- **Mid CCA forecast:**
  - The Mid CCA is an ensemble of market forwards until 2029, and the 2025 California Energy Commission Integrated Energy Policy Report published February 2026.
- **Floor CCA forecast:**
  - The Floor CCA forecast uses the Washington Department of Ecology 2026 Annual Action Floor price and increases by 5% plus inflation, assuming linkage with Californian in 2028 PSE moves to California Energy Commission Integrated Energy Policy Report Floor price.

The Ceiling CCA Forecast is used in the reference case (both gas & electric)

Levelized Costs of Effective Capacity (LCOEC) - DRAFT



Levelized Costs of Energy (LCOE) - DRAFT



*Mid-C Power price includes CCA

Upstream emissions

The upstream emission rate represents the carbon dioxide, methane, and nitrous oxide releases associated with natural gas extraction, processing, and transport along the supply chain.

The upstream segment of 10,803 g/MMBtu is converted to 23 lb/MMBtu and then applied to the emission rate of natural gas plants for the SCGHG emissions.

Example:

New NG plant emission rate: 117 lbs/MMBtu

Upstream emission rate: 23 lbs/MMBtu

Total emission rate: 140 lbs/MMBtu

*This is the same assumption as the 2023 Electric Progress Report. Further discussion can be found in Chapter 5: Key Analytical Assumptions, page 6 of the report.

Changes to hydro modeling

2027 ISP

- 30-year historical generation
  - Used in first 10 years of planning period
  - Years 2027-2036
- 30-year historical + climate change
  (same data that was used in 2025 & 2023)
  - 30-year rolling average
  - Years 2037-2050
- Benefits to this approach
  - Captures lower than predicted stream flows in recent history
  - Aligns with other PSE processes
  - Captures increasing variability due to climate change
  - Responsive to RPAG and public feedback

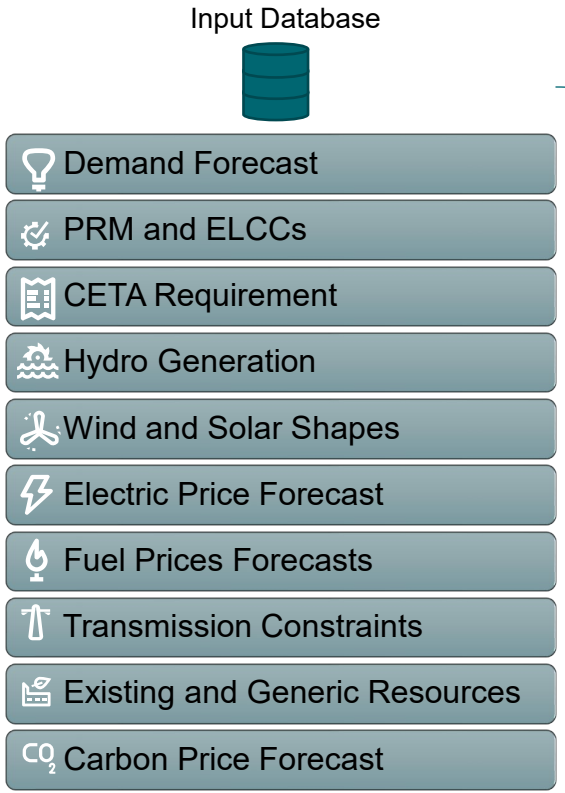
2025 analysis & 2023 Electric Progress Report

- Climate change data
- Aligned with Power Plan assumptions
- Average of 3 RMJOC II models:
  - **A**: CanESM2_RCP85_BCSD_VIC_P1
  - **C**: CCSM4_RCP85_BCSD_VIC_P1
  - **G**: CNRM-CM5_RCP85_MACA_VIC_P3

2021 IRP and earlier

- 80-yr hydro

Electric modeling process



Portfolio Expansion Model

Modeling Approach:
Mixed Integer Linear Programming problem that uses a mix of continuous linear variables and discrete integer variables

Objective Function:
Minimize the total portfolio cost

Subject to constraints:
Resource Characteristics
Transmission Constraints
Hourly Energy Demand
Peak Requirements
Renewable Requirements

Appendix- Conservation and Demand Response reference case

For more details regarding conservation and demand response please refer to the March 25, 2025 RPAG meeting

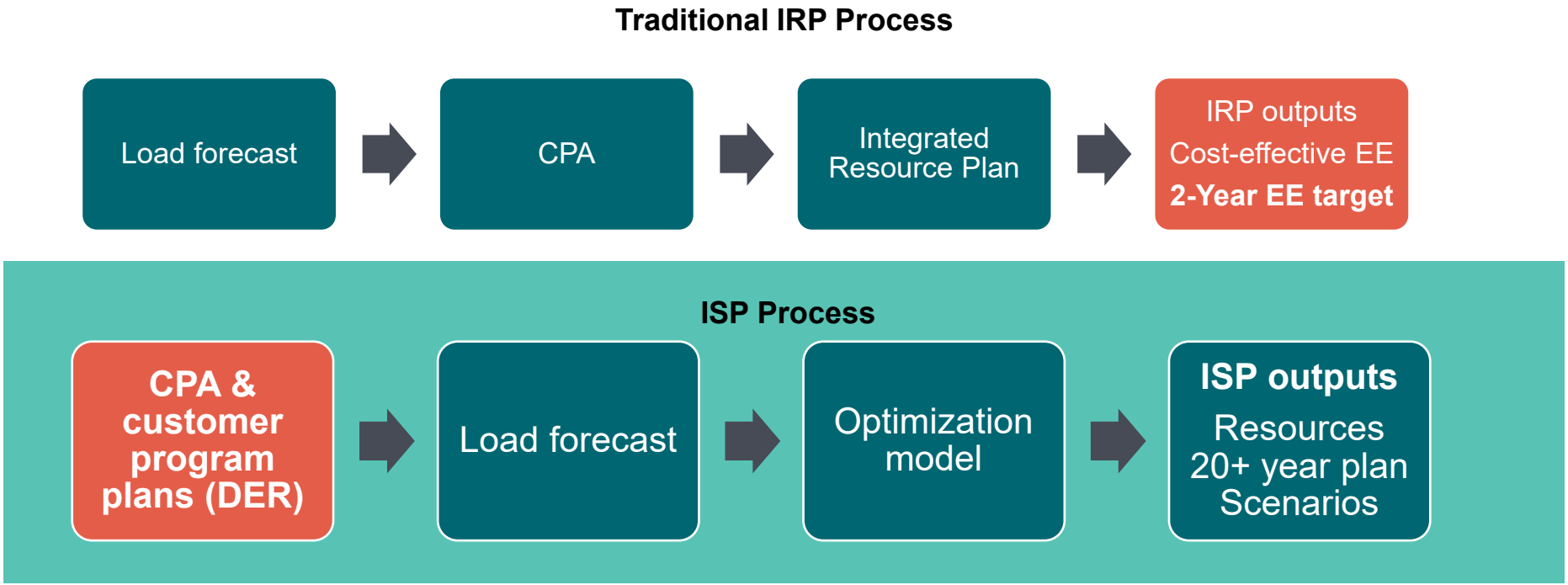
PUGET SOUND ENERGY

Understanding the distributed energy resource (DER) reference cases

- **The DER reference case is an input to the ISP portfolio analysis**
  - Various DER solutions including energy efficiency, demand response, solar, and others, yield reductions from the load forecasts, which are then inputted into the resource planning & analysis
- **Reference cases forecast program and market conditions over 20 years**
  - Assumed to be cost effective; were not subject to least cost test
  - Developed prior to biennial CEM RFP 2025 & 2026 DR RFP
  - Supported by program implementation team surveys conducted in December 2024
- **Reference Cases are not "the ISP targets"**
  - Provide a basis from which to compare the sensitivities and other scenarios against
  - ISP targets will result from ongoing discussions on Commercial Feasibility & Reasonable Cost that bridges the gap between the reference case and the statutory 2%/10% targets

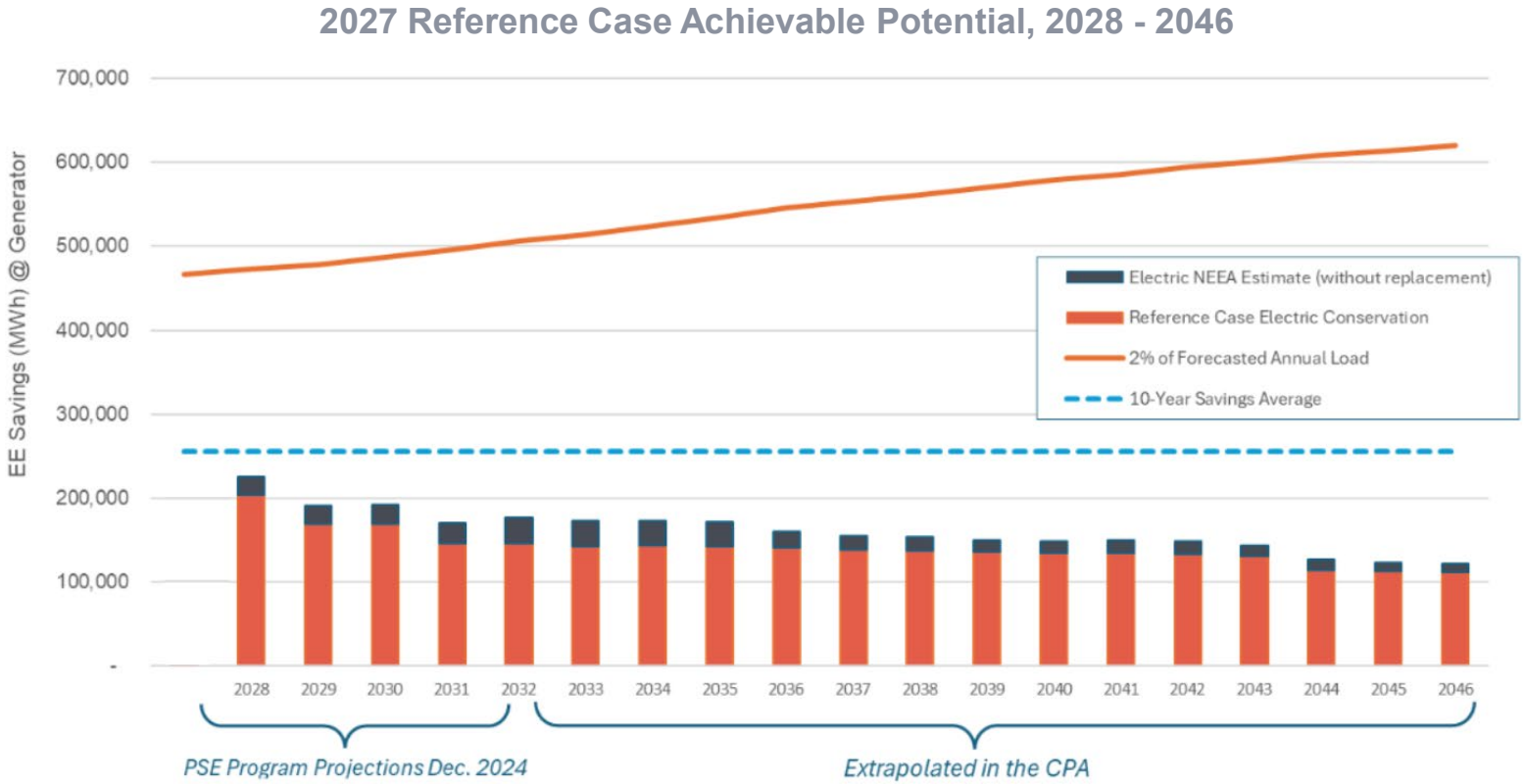
- For more information about how this plan was developed please refer to the RPAG meeting on March 25, 2025

ISP analysis begins with customer plans

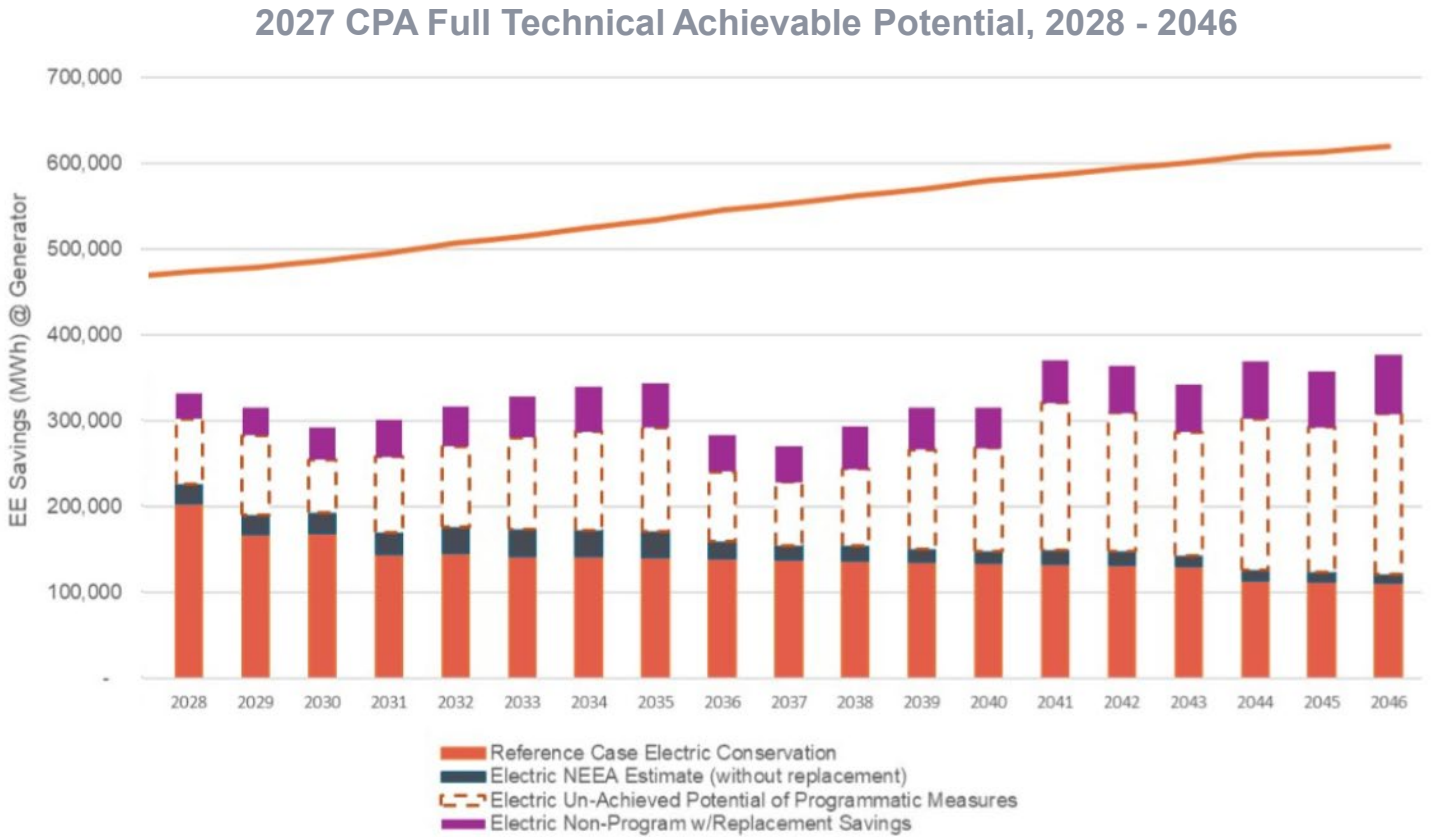


EE: Energy efficiency CPA: Conservation potential assessment (includes EE and DR) DER: Distributed energy resources DR: Demand response

ISP reference case - electric conservation



2027 CPA technical achievable potential



ISP reference case – natural gas conservation

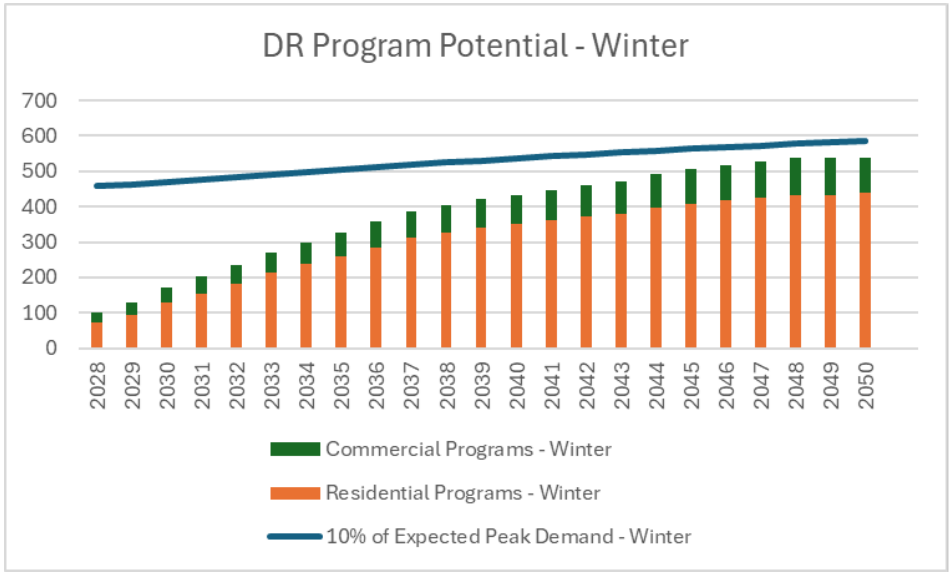
Assumes all HB 1589 restrictions on incentives for residential and commercial gas equipment remain in place.

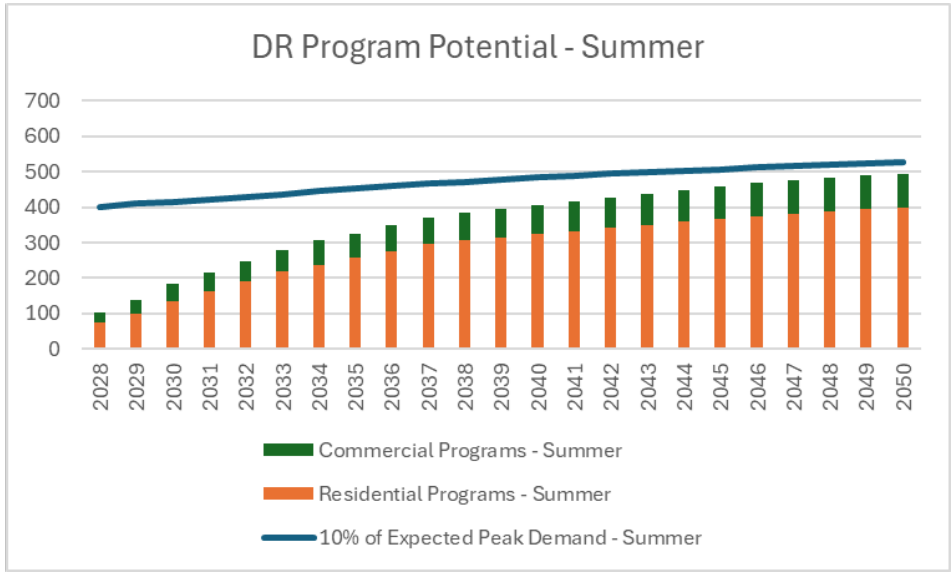
Total Achievable Savings Potential, including non-PSE and non-cost-effective measures

Expected PSE Program Savings

*Non-Program savings occur without direct involvement in PSE programs and without an incentive

Demand response reference cases – DR programs only





Potential includes dispatchable thermostat, EV, water heat programs and time of use. Does not include battery Demand Response.

Takeaways from the remand response potential assessment

- **Forecasting lacks program history in the PNW**
  - Assumptions based on DR programs in 2024 and early 2025
  - Unlike energy savings, there are few program years or peer experiences on which to base assumptions
  - Use cases are still being tested and evaluated
- **Estimates have changed within even the last year**
  - EV adoption assumptions changed with the elimination of EV vehicle tax credits
  - Early-stage DR programs expected to change
- **10% is potentially achievable, but there is substantial uncertainty as to when it could be delivered**
  - PSE DR program planning aims for earliest possible achievement
  - 2026 DR RFP will increase our knowledge of local market
  - Future acquisition costs are uncertain until enabling technologies mature

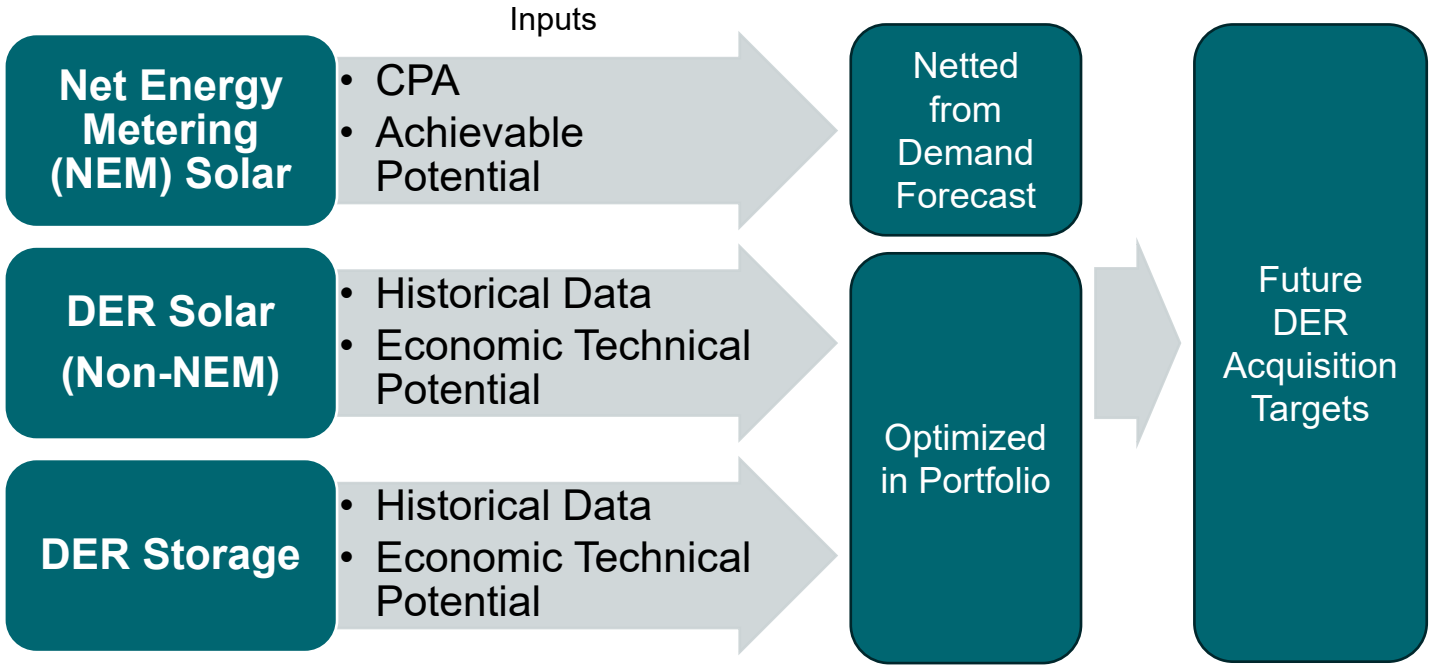
DR: Demand response RFP: Request for proposal EV: Electric vehicle

Appendix – DER Solar, Storage and Net metering

For more details regarding DER solar, storage, and net metering please refer to the March 25, 2025 RPAG meeting

PUGET SOUND ENERGY

How are we approaching the DER Program ISP planning process?



- For more information regarding how this plan was developed please refer to the RPAG meeting on March 25, 2025

DER: Distributed energy resource CPA: Conservation potential assessment NEM: Net energy metering

DER solar & BESS program achievable potential – key inputs

Electric Retail Rates	• PSE electric res and com general service rates • Rate escalation factors calculated from historical NREL data
Financing Factors	• NREL 2024 Annual Technology Baseline (ATB) (moderate)
Net Metering and Incentives	• 20% Upfront Incentive for Generic DER Programs • Net metering assumed through 2050 to account for future incentives
Federal IRA ITCs	• Modeling only Commercial BESS ITC (section 25D) accounting for OBBB changes
Market Adoption	• PSE program data • Segmented vulnerable population based on customer data
Adoption Curve	• Bass diffusion model coefficients calibrated to PSE's historical adoption patterns

BESS: Battery energy storage system NREL: National Renewable Energy Laboratory ITC: Investment tax credit DER: Distributed energy resource

PSE-Owned DER Projects — ISP Cost Tranche & MW Supply Structure

Key Assumptions and MW Optimization Potential

Three cost tranches per resource type — each with a distinct weighted avg. price ($/kW-yr) and MW potential — form a DER supply curve input to AURORA portfolio optimization.

Resource Type	Band 1 — Lowest Cost Smallest Price Band	Band 2 — Mid Cost Moderate MW potential	Band 3 — Highest Cost Largest Price Band
☀ Solar PV	Wtd. Avg. Price ($/MWH) **$134 / MWH** MW Potential (2-yr RFP avg.) **5 MW**	Wtd. Avg. Price ($/MWH) **$166 / MWH** MW Potential (2-yr RFP avg.) **10 MW**	Wtd. Avg. Price ($/MWH) **$257 / MWH** MW Potential (2-yr RFP avg.) **70 MW**
Battery Storage	Wtd. Avg. Price ($/kW-yr) **$114 / kW-yr** MW Potential (2-yr RFP avg.) **5 MW**	Wtd. Avg. Price ($/kW-yr) **$204 / kW-yr** MW Potential (2-yr RFP avg.) **10 MW**	Wtd. Avg. Price ($/kW-yr) **$252 / kW-yr** MW Potential (2-yr RFP avg.) **75 MW**

Band price (ATB-adjusted, NREL cost curve) + static MW potential (2-yr PSE RFP avg.) → DER supply curve → AURORA optimization → Preferred portfolio

Price Basis

Wtd. Avg. price bands reflects distribution of bids received across PSE's 2023–2024 DER RFPs. Solar price will include ELCC adj T&D avoided cost as benefit & storage will include 23 EPR Flex Benefit in AURORA analysis

MW Potential

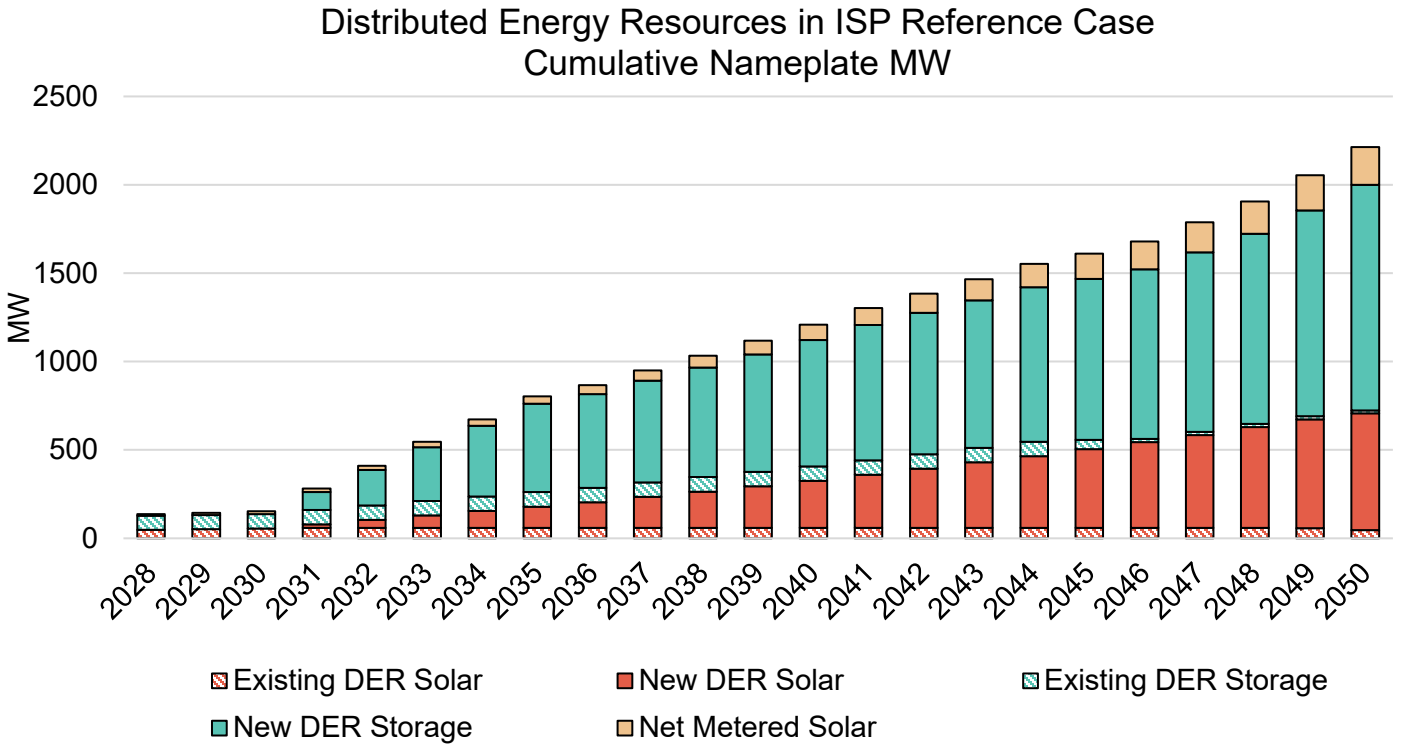
Static MW per band = 2-year average developer response depth at each price tier. Held constant across planning years; represents a conservative floor on available supply.

Known Limitation & Refinement Path

Two RFP cycles is a thin sample. As additional procurement rounds occur, the MW distribution will be updated. Locational deferral value analysis will further screen cost-effectiveness by substation.

MW potential held static across all ISP planning years. Price trajectories forward-adjusted per NREL ATB. Distribution will be refined as additional PSE DER RFP cycles accumulate.

Summary – DER in ISP Reference Case



DER: Distributed energy resource

Electric Distribution System Reference Case

For more details regarding the electric distribution system analysis please refer to the February 27, 2025 RPAG meeting

PSE PUGET SOUND ENERGY

There are four key takeaways from the electric distribution system reference case

Alignment – The Electric Distribution System Reference case aligns with the 2027 ISP load forecast update and latest 2026 general rate case

Steady Investment – The overall investment is steady across different time horizons, going from $213M/year investment in the first 5 years to $199M across 25 years

Investment Shifting – The investment spending shifts from primarily capacity additions in the early years due to substation overloading to incremental maintenance associated with the growing electric system

Future Iterations – The reference case may iterate based on findings from the gas Non-Pipeline Alternative analysis and Distributed Energy Resource penetration

The updated reference case provides capacity and maintenance investments

Reference Case – outputs for analysis

- Baseline capacity investments from 2028 – 2050
- Baseline incremental maintenance expenses from 2028 – 2050 (new)

Changes

- Updated load forecast to 2027 ISP Update final version
- Alignment with 2026 GRC filing
- Changed methodology to substations overloaded ($/substation) vs. incremental MW ($/MW) to improve sensitivity forecasts and better understand locational impacts
- Addition of incremental maintenance expenses to account for system expansion
- Levelized costs across time horizons (5-year, 10-year, etc) to prevent spikes and project more realistic investment strategies

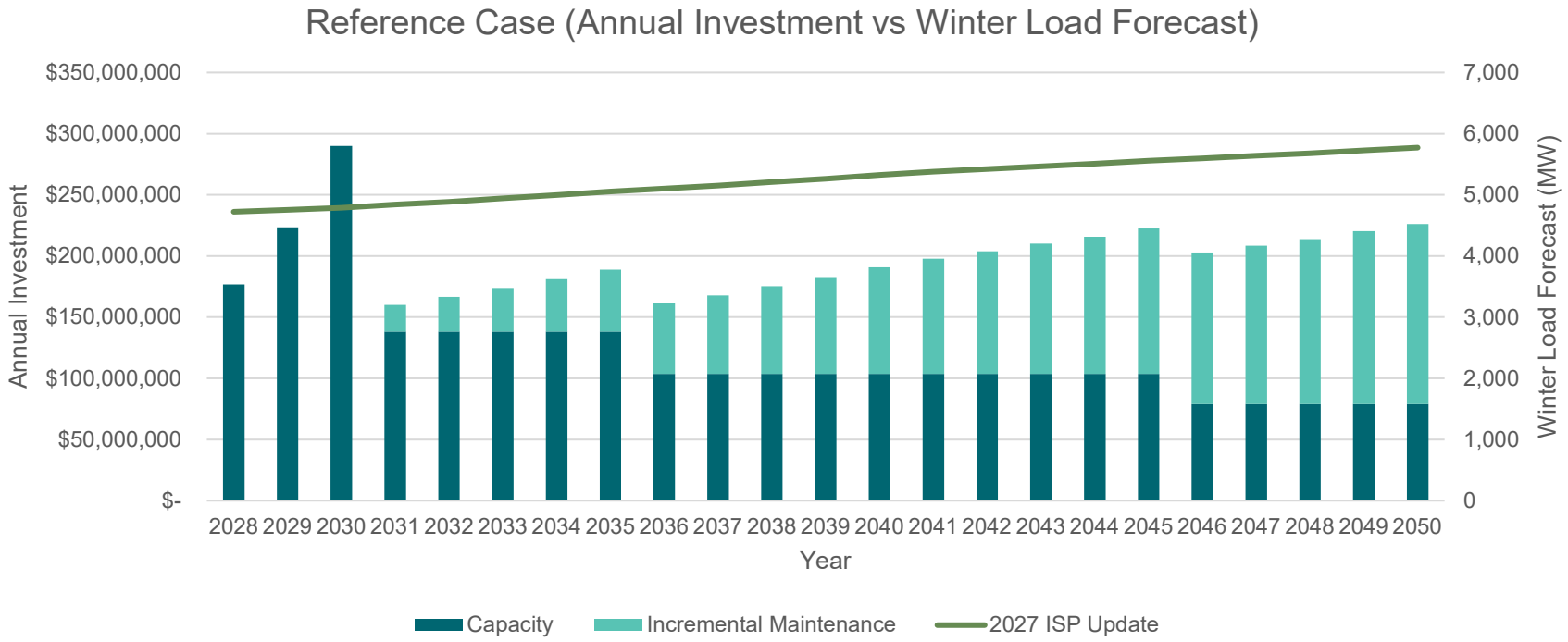
There were four overall assumptions for the reference case

Category	Reference Case (new)
Load	• Use 2027 ISP Update county-level load forecast spread across substations based on location
Investment decisions for capacity	• 2028 – 2029 use updated 2026 GRC numbers • Based on substations overloaded in five year period and total capacity spend (~$50M/substation) that gets extracted from 2031-2050
Investment decisions for maintenance	• Based $/MW spend within five years, that grows incrementally with demand
Expected T&D Infrastructure	Provide substations impacted metrics based on time increments (5 year, 10 year, etc) and overloading projections

The substation results showed high loading in the first five years, followed by a slower decline based on the load forecast

Time Horizon	Qty of Substations Loaded >100%	% of Total Substations Load > 100%	Qty of Substations > 100% /Year in Time Horizon
Five-Year	28	9.3%	5.6
10-Year	42	13.9%	2.8
20-Year	63	20.9%	2.1
25-Year	71	23.5%	1.6

The reference case investment spending shifts from primarily capacity additions in the early years to incremental maintenance associated with the growing electric system



Appendix – Local transmission planning

For more details regarding the PSE local transmission analysis please refer to the February 27, 2025 RPAG meeting

PUGET SOUND ENERGY

Analysis of resource builds in the PSE Zone supported ISP assumptions

An analysis of resource builds on the local system supported:

- *Understanding of the local transmission system network upgrades needed to support added resources in the PSE Zone*
- *The cost of the local system network upgrades required for resource integration*

Study Assumptions:

- Location of a new resource on the system is material to the network upgrades needed to support it. Assumptions for location included:
  - City and county policies on renewable resource development
  - Local codes
  - Permitting Concerns
  - Zoning
  - Land availability
- 5 scenarios were studied to capture uncertainty in future resource siting
  - Locations aligned with the interconnection queue and RFP proposals
  - Resource placement focused on the 230 kV system
  - Three geographically focused cases (Northern Region, Southern Region, and Western Region respectively)
- Study assumptions include:
  - Known system constrains were solved by planned transmission projects
  - Battery Energy Storage was only studied discharging onto the system
  - Study only included powerflow analysis
  - Impacts on neighboring systems and required mitigation were not included

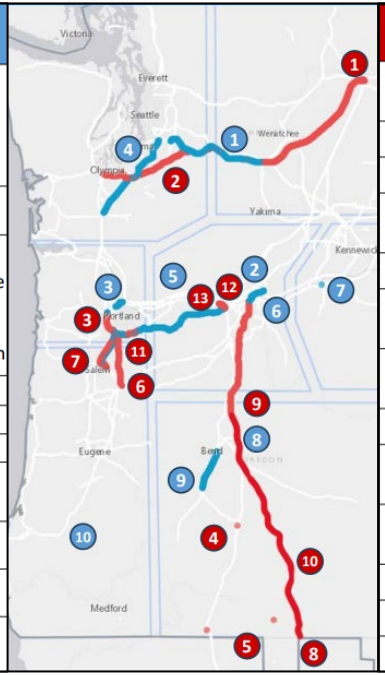
Appendix – Regional transmission

For more details regarding the regional transmission analysis please refer to the February 27, 2025 RPAG meeting

PSE PUGET SOUND ENERGY

BPA's Evolving Grid plans are underway to improve paths based on transmission service requests

Evolving Grid 1.0	
1	Cross Cascades North Upgrades • Schultz-Raver 500 kV Line Upgrade • Paul 500 kV Substation Upgrade • Olympia 230 kV Substation Upgrade
2	Big Eddy-Chemawa 230/500 kV Line Upgrade
3	Portland Area Upgrades • Pearl-Sherwood McLoughlin 230 kV Line Upgrade • Keeler-Horizon 230 kV Line • Keeler 230/500 kV Transformer Addition
4	Chehalis-Covington 230 kV Line Upgrade
5	Ross-Rivergate 230 kV Line Upgrade
6	Rock Creek-John Day 500 kV Line Upgrade
7	Six Mile Canyon 230/500 kV Substation (New Construction)
8	Bonanza 230/500 kV Substation (New Construction)
9	La Pine-Bonanza 230 kV Line (New Construction)
10	Buckley 500 kV Substation Rebuild



Evolving Grid 2.0	
1	Grand Coulee-Columbia-Schultz 500 kV Line Upgrade
2	Schultz-Olympia 500 kV Line Upgrade
3	North of Pearl Upgrades
4	Central Oregon 500 kV Dynamic Reactive Upgrades
5	RATS: Reno-Alturas Reactive Addition
6	Salem Area Upgrades #1 (North of Marion)
7	Salem Area Upgrades #2 (North of Marion)
8	NOB Substation (New Construction)
9	Lower Columbia-Bonanza 500 kV Line (New Construction)
10	Bonanza to NOB 500 kV Line (New Construction)
11	Ostrander-Pearl 500 kV Line Upgrade
12	Big Eddy-Quenett Creek Upgrade
13	Big Eddy-The Dalles Line Rebuild

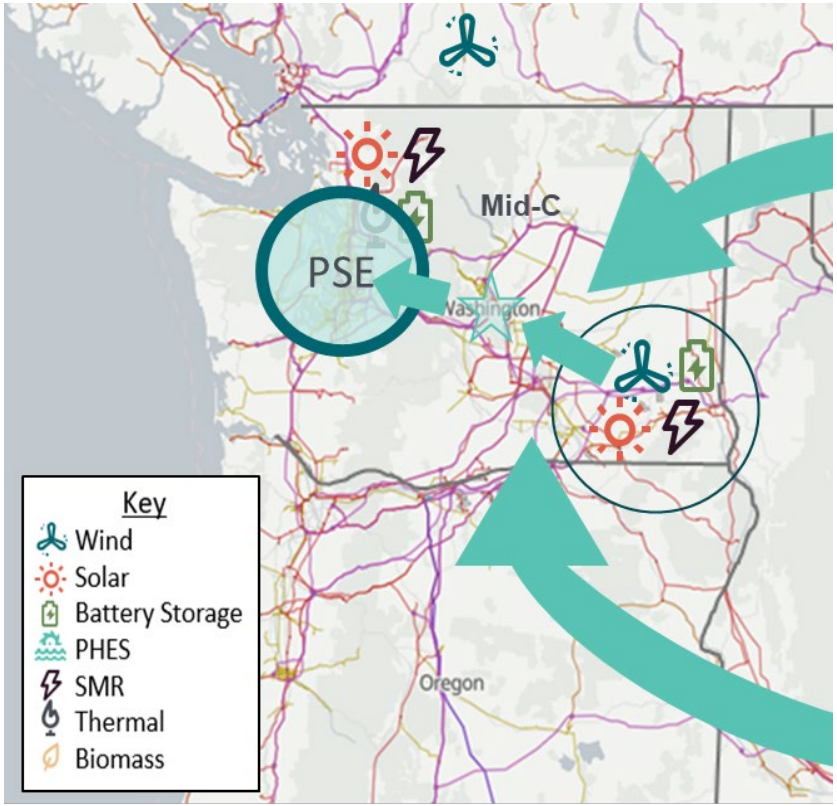
BPA Evolving Grid Initiative has 2 main phases:

Evolving Grid 1.0 - Committed Projects
- 10 proposed projects at a cost of $2 billion
- Estimated in service dates of 2026-2032
- Additional capacity included in PSE's assessment

Evolving Grid 2.0 - Proposed Projects
- 13 proposed projects at a cost of $3 billion
- BPA is evaluating new grid enhancing technologies to reduce costs
- Estimated in service dates for key projects most directly affecting PSE are 2035+
- Risk that these projects will not have commitment to continue. Due to the uncertainty, we are considering these as scenarios in PSE's assessment.

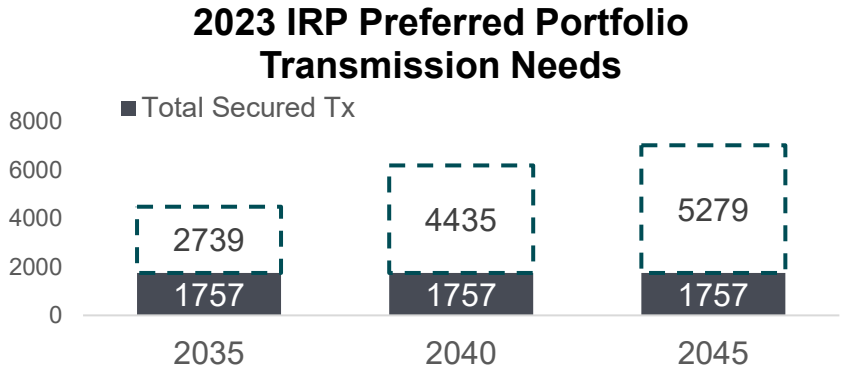
Source: BPA Evolving Grid Update on Transmission Activities, Dec. 4, 2024

A. Cross-Cascade transmission need

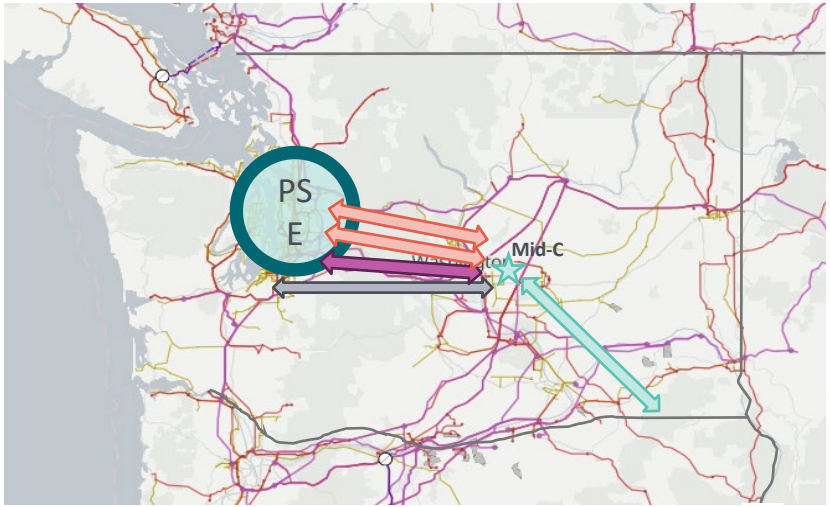


Additional Cross-Cascades capacity is critical first step to deliver clean energy to PSE.

- Majority of clean energy from WA, MT, ID and other clean energy zones will come across the Cascades.
- Significant need to address and will require additional transmission lines.



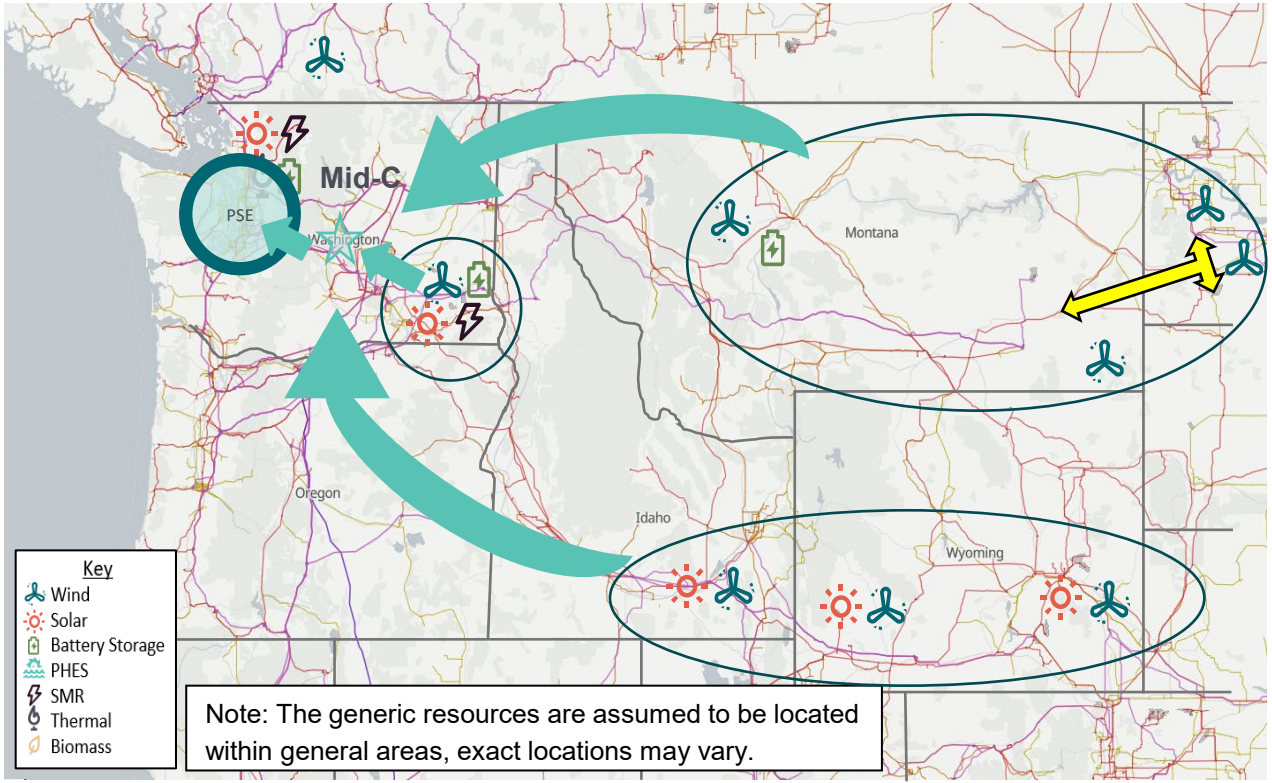
Cross-Cascades transmission solution development to access WA and ID/WY clean energy



- PSE is evaluating multiple options to increase capacity on Cross-Cascades by 3,000-4,500 MWs
- Due to the large need, at least 2 additional 500kV lines will be required on the path.
- Joint options considering upgrades of existing BPA and PSE lines are under consideration
  - BPA Evolving Grid 2: Schultz-Olympia rebuild
  - Existing PSE line rebuild
  - Build new greenfield double circuit (AC)
  - AC or DC options
- The connection from Mid-C to Longhorn will enable WA and OR/ID/WY clean energy delivery

*2024 PSE Plan can be found at https://www.oasis.oati.com/woa/docs/PSEI/PSEIdocs/PSE_Plan_2024_Final_1231.pdf

Transmission expansion to enable clean energy delivery



Transmission to deliver Clean Energy Zones (CEZ) to PSE's service territory will require multiple segments.

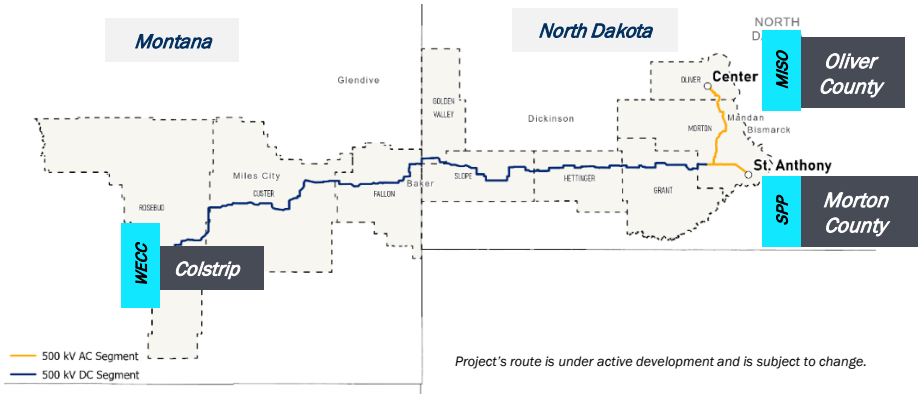
Key constraints

- Cross-Cascades via the West of Cascades North (WOCN) path
- Idaho/Wyoming to WA
- **Montana/North Dakota to WA**

North Plains Connector Project

North Plains Connector

Preliminary Route



Project Configuration

Development	Grid United and ALLETE
Length	~420 mi.
Configuration	HVDC (VSC) | 525 kV | 3,000 MW | bi-directional
Interconnections	• WECC – 3,000 MW into Colstrip, MT 500kV system • MISO – 1,500 MW (AC) to new substation in Oliver County, ND; SPP – 1,500 MW (AC) to new substation in Morton County, ND
Timeline	Construction start: 2028 (expected) Commercial Operation Date: 2032 (expected)

- This project is a ~420 mile HVDC transmission line connecting Colstrip, MT to endpoints near Bismarck, ND
- PSE currently has 746 MW of rights on Colstrip Tx
- PSE has executed an MOU to purchase 25% (750 MWs) of the project
- **GRIP grant recipient**

PSE portfolio benefits

- Adds ND wind which correlates well to PSE load shape
- Market access to both SPP and MISO
  - Reduce curtailment risk of MT wind
  - Improve resilience to extreme weather
- Enables near perfect capacity and full utilization of existing Colstrip Tx MT to PSE

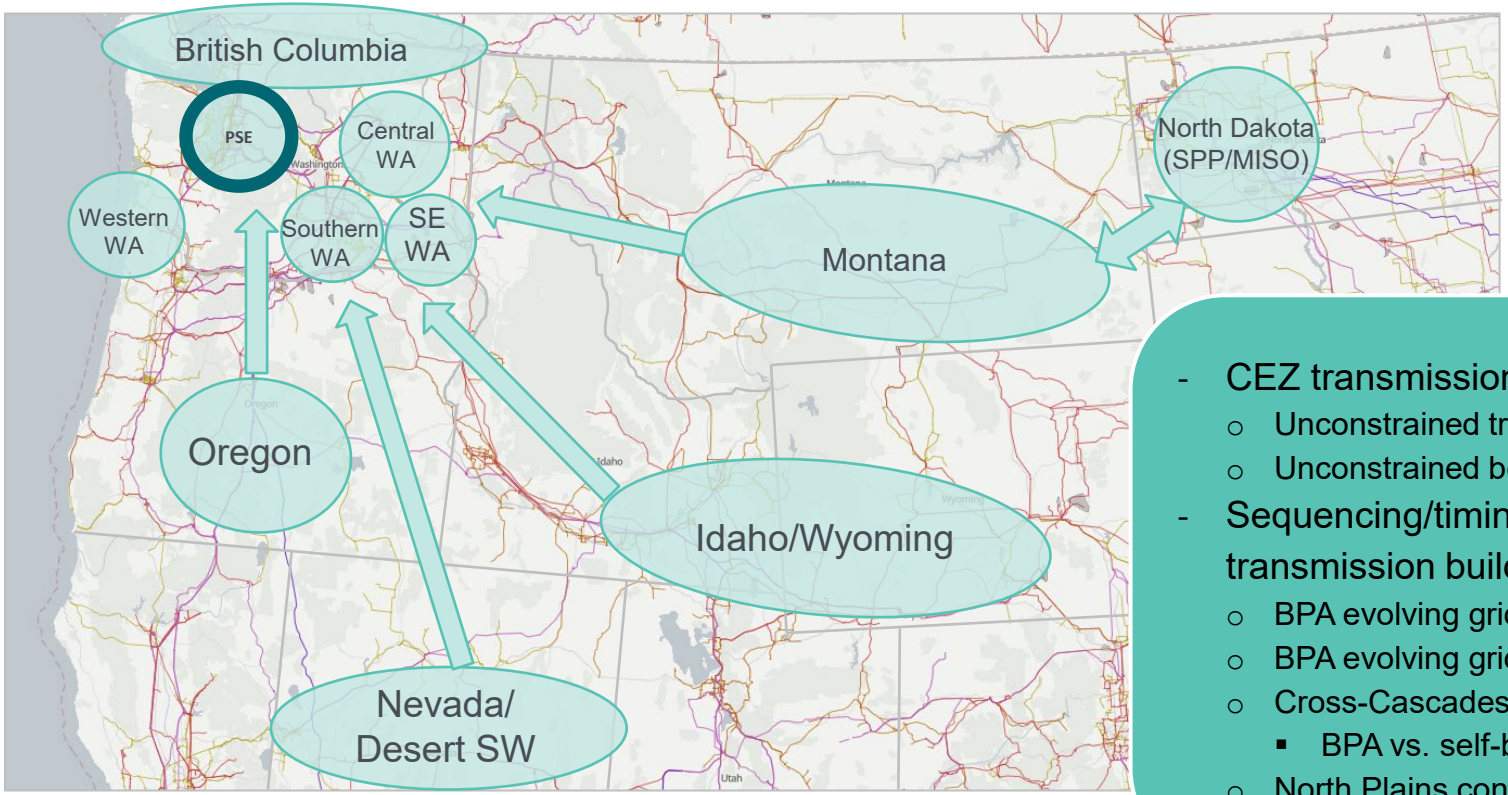
Transmission sensitivities

Sensitivities for discussion and feedback:

- CEZ transmission access
  - Unconstrained beyond 2035

- Sequencing/timing for future transmission builds
  - BPA Evolving grid 1.0 - Committed
  - Cross-Cascades (WOCN increases) - PSE Self-Build plus BPA Evolving Grid 1.0
  - Cross-Cascades (WOCN increases) - Phased PSE Self-Build plus BPA Evolving Grid 1.0 and 2.0
  - North Plains Connector
  - North Plains Connector + Colstrip Upgrades + Montana to Washington + Cross-Cascades

Transmission sensitivities for discussion/feedback



- CEZ transmission access
  - Unconstrained transmission
  - Unconstrained beyond 2035
- Sequencing/timing for future transmission builds
  - BPA evolving grid 1.0 – committed
  - BPA evolving grid 2.0 – proposed
  - Cross-Cascades (WOCN increases)
    - BPA vs. self-build timing
  - North Plains connector