Resource Planning Advisory Group feedback report

Meeting details

- Thursday, May 28, 2026, 1:00 p.m. - 3:30 p.m.
- Virtual webinar hosted by PSE and facilitated by Maul Foster & Alongi
- Links to:
    - Presentation
    - Agenda
    - Meeting recording

Feedback

The following records participant questions and PSE responses from the public comment opportunity and comments submitted via online feedback form or email to isp@pse.com. Meeting materials are available on the clean energy planning website.

PSE endeavors to provide clarity in responses but subsequent follow-up may be required at times. Please direct any follow-up clarifications to isp@pse.com. *PSE responses are in teal italics.*

1. RPAG member feedback

Quinn Weber on behalf of the Washington Utilities and Transportation Commission staff, June 4, 2026 via isp@pse.com

Reference Model Run

Staff appreciates PSE asking for feedback on the sensitivities listed on slide 36. How did seeing this reference portfolio, and the fact that the model wouldn't solve under the initial baseline assumptions, influence the sensitivities PSE wants to run/focus on moving forward? Are there any additional sensitivities PSE thinks would be particularly useful after seeing these reference case results and the trouble the model had with solving initially?

We appreciate the question. We think we have a comprehensive list of sensitivities already – but we're still reflecting on RPAG feedback from the meeting and what sensitivities we might add, if any, to address advisory group's interests.

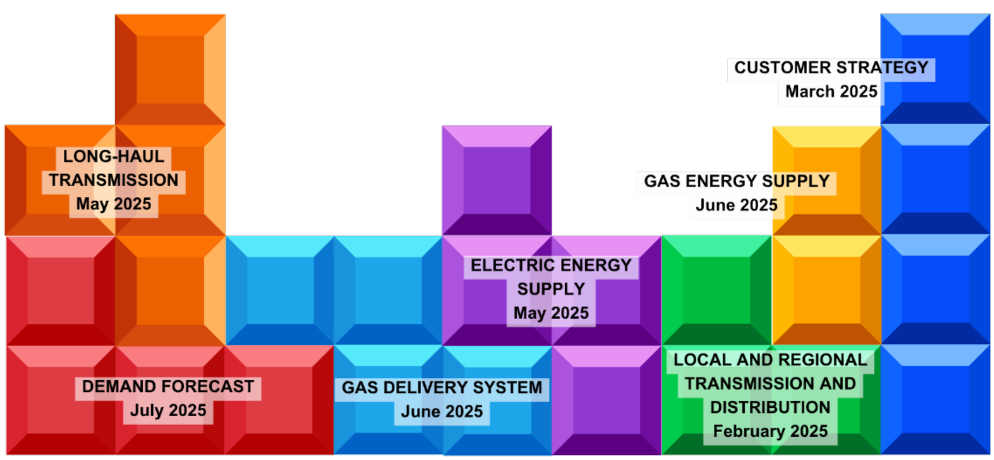
Staff strongly recommends that PSE provide an alternative reference case option for RPAG review that has a nuanced treatment of emerging technologies and RNG, rather than approaching emerging technologies and RNG as binary variables where they are either available (Case B) or unavailable (Case A). PSE should provide an alternative case with well-supported parameters for availability/build limits and price assumptions that aim to capture the fuel limitations of RNG and price uncertainties for emerging technologies. PSE should engage RPAG in discussion of the parameters for the reference case (requested above), similar to what was offered on slide 80, but which was not discussed during the RPAG meeting.

Thank you for sharing your recommendations. We plan to move forward with Reference Case B – this allows PSE to move forward with a model that can optimize and scale to meet the demand increases for the electric loads that we will see in the scenario analysis. The reference case is our starting point and uses sensitivities to understand the nuances on issues like the fuel limitations of RNG and what impacts that may have.

To the extent possible, PSE is following Lawrence Berkley Lab's paper on IRP best practices, best practice 28 (BP 28) is to model a base case that allows for easy comparison. Specifically, it says "model a base case scenario that facilitates comparison across scenarios and sensitivities and ensure internal consistency across all scenarios and sensitivities."

Sensitives are a very valuable and helpful data point that allows PSE and our external parties to assess risks as we develop the preferred portfolio; your suggestions will be incorporated into that analysis. Moving forward with Reference Case B will help ensure PSE is able to stick to our committed deliverables for the additional results of scenarios and sensitivities to allow for time to discuss the preferred portfolio development later this year.

We engaged the RPAG on 2027 ISP reference case assumptions for the electric utility, gas utility, customer programs and transmission throughout 2025 and 2026 as shown in our "Tetris" model.



When did PSE know that the reference model could not solve?

PSE first ran into challenges this spring with getting the reference case model to solve. Having not encountered this before with the reference case, we explored alternatives to get it to solve, which took some time and internal discussions.

For Reference Case Option A, did PSE consider eliminating the build limit on additional resources instead of just batteries? If so, why were batteries considered over those resources?

Yes, PSE considered adjusting build limits for all resources and ultimately needed to increase build limits for transmission, batteries, and solar for the model to solve.

In explaining Slide 28, PSE stated that the decision to not include or allow each of the stated resource types was based on RPAG feedback. Please provide specific references to the RPAG dates, feedback responses, or other venues where PSE received the feedback to exclude these resources.

This was first discussed at the May 15, 2025 RPAG meeting. We received feedback (available in feedback report) with mixed opinions on emerging technologies. This was then discussed again at the June 24, 2025 RPAG meeting. The next discussion was at the January 27, 2026 RPAG meeting with regard to sensitivities. This decision was described in the Oct. 1, 2025 Modeling Feedback Memo.

Level of engagement: Involve

Feedback theme	Action taken	Response
Acknowledge potential delays and cost uncertainties for new technologies (like nuclear SMRs, alternative fuels, geothermal, storage, offshore wind)	Incorporated	The ISP will include several sensitives around emerging technologies along with a portfolio that does not include any emerging technologies to see if the portfolio builds change and if it would change any decisions in the next 10-years.

Reference Model Outputs and Other

Presenting slide 17 during the RPAG, PSE explained the use of dGen to estimate DERs, including solar, and the separate net metering estimate from the conservation potential assessment. Do both methods provide an estimate for residential solar adoption? If so, how does PSE avoid double counting of residential solar adoption?

The dGen estimate of DER solar that PSE performed looked at solar adoption outside of net metering, and for projects greater than 100kW. Together the two methods provide PSE with a more complete estimate of DER solar adoption for projects of all sizes.

On Slide 24, please define “existing contract.”

PSE defines existing contracts as other resources not owned by PSE and unspecified intermediate term contracts.

On Slide 33, why does PSE assume no nuclear would be available in the Wyoming transmission zone?

See response below regarding the ID/WY zone. It can be added to WY in the sensitivity analysis if we feel this is a likely location for a new nuclear resource.

Slide 34 notes that ID/WY to WA is a key transmission constraint, yet the resource zones on slide 33 do not include ID or WY. How is ID/WY to WA transmission being modeled, and the constraint analyzed, if it is not one of the resource zones?

Given constraints on the system and unknown availability of the transmission corridor to Idaho and Wyoming, this was removed from the reference case and will be reviewed as a possible sensitivity.

On Slide 50, how does accelerated depreciation impact the potential rate effects on the gas system? Was that modeled?

The analysis incorporated a depreciation rate on the gas business of 5 years less than equipment life based on PSE's 2026 GRC proposal. The assumed remaining life changes from 30 to 19 years. The upfront impact is approximately $100 million annually.

JP Carvallo stated "Note that if the 142% increase is in nominal dollars it roughly matches a 2.8-2.9% annual inflation rate. In other words, the real growth is close to 0" Is 142% rate increase measured in 2026 dollars? Are these rate impacts broken down by customer class? Does this graph take into account for utility sales?

Yes, the 142% rate increase is in nominal terms. No, the rate impacts are not broken down by customer class. Yes, there are market sales included in the rate forecast.

Specifically, based on the draft reference case and the modeled assumptions, the analysis shows that PSE customers could see a 6.7% increase annually through 2035 as PSE moves towards 100% renewable goals. The results shown include inflation at 2.5%. The rate increases level off in later years. The rate impacts are applied globally to all customer classes.

Staff would like to see a graph like similar to the one on slide 52 that breaks down the emissions from the gas system and the electric system separately.

Thank you for the feedback. PSE will develop and share a graph showing emissions for the electric and gas system separately as we develop the analysis further.

On Slide 84: Please define "New PBA".

Power Bridging Agreement (PBA) is defined as short-term contracts used to fill near term needs until long-term resources become available.

Slide 97: Assuming that HB 1589’s (or DALCU) restrictions on gas conservation remain in place, should gas conservation eventually approach zero or decrease into future years? Would a higher electrification scenario show something like this?

PSE expects restrictions on gas conservation will decrease gas conservation over time; however, there are multiple variables that affect conservation. PSE is evaluating additional scenarios with progressively higher levels of electrification that will help us understand this better.

Katie Ware on behalf of Renewable Northwest, June 4, 2026 via isp@pse.com

I. INTRODUCTION

Renewable Northwest (“RNW”) appreciates Puget Sound Energy’s (“PSE” or “the Company”) continued engagement with stakeholders during development of its 2027 Integrated System Plan (“ISP”). We recognize that this first ISP is a significant undertaking requiring PSE to evaluate electric supply, gas supply, transmission and distribution, customer programs, and decarbonization strategies in a more integrated manner than previous electric integrated resource planning cycles.

PSE’s May 28, 2026, Resource Planning Advisory Group (“RPAG”) presentation provided a window into the challenges the Company is encountering as it develops its electric and gas reference cases. We understand that the initial electric supply reference case did not solve using assumptions developed through—as noted during the May meeting—feedback obtained during the 2021 and 2023 resource planning cycles, not during the 2025-26 RPAG process.

This statement is inaccurate. The initial electric supply reference did not solve using assumptions informed by and validated through sustained engagement with the RPAG since late 2024. Multiple assumptions were changed from the previous IRP cycle, including the initial exclusion of all emerging technologies.

Manual workarounds and different assumptions were necessary to produce a model run that would solve. We appreciate PSE’s acknowledgement that the reference case is not the preferred portfolio but rather a starting point for further scenarios, sensitivities, and decision-framework evaluation.

To clarify, a primary reason PSE is moving forward with Reference Case B is because it only required an assumption change (incorporating emerging technology) - no manual workarounds were required.

However, the May 28 presentation raises several significant modeling, process, and resource-accreditation concerns. Our principal concern is that PSE’s current framing presents two relatively extreme options: Reference Case A, which appears to define the “commercially available” pathway too narrowly, and Reference Case B, which appears to solve by relying heavily on emerging technologies, particularly flex-fuel or renewable peaking resources. This A/B comparison may overstate the need for emerging technologies and understate the potential contributions of commercially available or near-commercial storage, hybrid resources, demand flexibility, transmission-enhancing technologies, hydro-storage coordination, and phased gas replacement.

RNW recommends that PSE develop and present a middle-ground reference case before finalizing the reference case used for scenarios and sensitivities. This reference case should test a more robust suite of commercially available and near-commercial resources, including multiple storage durations, hybrid resources, grid-enhancing technologies, and limited-build clean-fuel resources where PSE believes those fuels are reasonably available. Such a case would provide a more analytically useful bridge between Reference A's unrealistic short-duration storage buildout and Reference B's reliance on emerging flex-fuel peakers.

The initial reference case did not solve due to an insufficient amount of known, commercially available resources to meet modeled capacity requirements. From an analytical standpoint, the reference case serves as the baseline for all subsequent scenario and sensitivity analysis, making it critical to preserve a consistent and comparable starting point. PSE followed a similar approach to the one described here; please see below for details.

To the extent possible PSE is following Lawrence Berkley Lab's paper on IRP best practices, best practice 28 (BP 28) is to model a base case that allows for easy comparison. Specifically, it says "model a base case scenario that facilitates comparison across scenarios and sensitivities and ensure internal consistency across all scenarios and sensitivities. PSE evaluated potential adjustments (expanding the volume of generic resource availability (e.g., 4-hour batteries); however, materially altering the reference case to force a solution would have reduced its value as a neutral baseline and limited the ability to make clear, apples-to-apples comparisons across scenarios. Given these constraints, the only viable path PSE identified to achieving a solved case while maintaining analytical integrity was to introduce additional resources.

After exhausting the pool of generic, commercially available resources within the model, the remaining option was to make emerging technology resources (long duration batteries, SMR, advanced geothermal) available to allow the model to solve. This approach enabled continuation of the broader analytical process while preserving a consistent framework for comparing scenarios and sensitivities.

As we move forward, we will use all the information and data gathered from the scenario and sensitivities analysis to inform development of the final preferred portfolio.

II. FEEDBACK

A. PSE should provide greater transparency into the failed initial reference case and subsequent model changes.

PSE stated that the initial electric supply optimization model did not produce a solution using assumptions developed through "RPAG engagement," though during the meeting it was specified that the assumptions were developed based on stakeholder feedback from the 2021 and 2023 resource planning cycles. The ongoing RPAG process would have been the ideal opportunity to refresh this old feedback, especially considering the amount of market and policy evolution since 2023.

This statement is inaccurate. PSE has been working with the RPAG since 2024 to update assumptions; initially for the 2025 resource planning process and then transitioning to the 2027 ISP. The methodology for every resource planning topic (e.g., gas utility, electric utility, transmission, distribution, customer) has been discussed with the RPAG at least once and in some cases multiple times. The assumptions used for the reference case are based on our current and planned future resources, and this sustained engagement with the RPAG, which is documented in the Oct. 1, 2025 Modeling Feedback Memo.

Because the reference case will serve as the starting point for scenarios, sensitivities, and the preferred portfolio, RPAG members need a clear understanding of when the model failed, why it failed, and what changes were made to produce References A and B.

RNW recommends PSE provide a transparent log—in narrative format—of modeling changes that identifies (1) when PSE first determined that the initial electric reference case failed to solve; (2) the assumptions associated with the failed case; (3) whether the failure reflected infeasibility, constraint conflict, or another technical issue; (4) the specific constraints that prevented the model from producing a solution, (5) the sequence of assumption changes, manual workarounds, constraint relaxations, or build-limit changes used to produce References A and B; (6) for any change in build limits, the associated transmission constraint, why in the original reference included that specific limit, how the limit was modified, and whether Reference A ultimately selected a higher level of the resource once the constraint was relaxed; and (7) which assumptions were developed through RPAG engagement and which were modified after the failed run.

This information would allow stakeholders to evaluate whether the recommended reference case is a reasonable starting point or whether it reflects a set of post-run modifications that may materially shape all subsequent analysis.

Thank you for this feedback. A description of the assumptions for both options is described in the table below.

B. Reference Case A appears too narrow to represent a robust “commercially available” case.

PSE described Reference Case A as “commercially available + unlimited 4-hour batteries.” That framing is too narrow to support a conclusion that commercially available resources cannot meet PSE’s CETA and reliability needs. A commercially available case should include a more complete suite of clean capacity resources including diverse storage configurations and hybrid resources. At a minimum, the case should examine the impact of longer duration batteries that are now available on the market—such as those in the 6-12 hour range—along with the same hybrid configurations PSE considered in its previous resource planning cycle. This is especially important in the 2027 ISP because PSE’s May presentation suggests that Reference A’s result—which PSE itself labels “unrealistic”—is driven in part by forcing the model to solve multiple distinct system needs (winter peak capacity, CETA compliance, hourly energy sufficiency, and transmission deliverability) using an overly narrow set of tools.[1]

A stronger commercially available case should include, at minimum:

1. Multiple lithium-ion storage durations, including 4-, 6-, 8-, and 10-hour configurations;
2. Hybrid wind-plus-storage and solar-plus-storage resources, including configurations that maximize use of existing or constrained points of interconnection;[2]
3. Storage strategically located in the PSE zone or behind constrained transmission paths;
4. Grid-enhancing technologies;
5. Transmission investments that could increase resource build limits;
6. Limited-build biodiesel or other CETA-compliant fuels in years where PSE believes those fuels are available for peak-capacity needs; and
7. A more gradual phase-down and replacement trajectory for existing gas capacity, rather than a sharp 2045 capacity cliff.

Please see the table below in response to the above recommendations:

	Reference A	Reference B
1. Multiple lithium-ion storage durations, including 4-, 6-, 8-, and 10-hour configurations;	Short Duration BESS included *Additional durations not considered because they are considered emerging technology.	Short duration, mid duration, and long duration energy storage included
2. Hybrid wind-plus-storage and solar-plus-storage resources, including configurations that maximize use of existing or constrained points of interconnection;[1]	Included	Included
3. Storage strategically located in the PSE zone or behind constrained transmission paths;	Included	Included
4. Grid-enhancing technologies;	DER included	DER included
5. Transmission investments that could increase resource build limits;	Not included	Not included
6. Limited-build biodiesel or other CETA-compliant fuels in years where PSE believes those fuels are available for peak-capacity needs; and	Biofuel not included	Availability of biofuel included, but no build limit.

[1] PSE May RPAG presentation, slide 31.

[2] According to research by Lawrence Berkeley National Laboratory, "[h]ybrid power plants comprised 55.2% of active bulk solar capacity and 51.7% of active bulk energy storage capacity in the U.S. interconnection queue at the end of 2023. See, *e.g.*, https://www.utilitydive.com/news/hybrid-power-plants-account-for-majority-of-proposed-us-solar-storage-capacity- LBNL/728582/.

	Reference A	Reference B
7. A more gradual phase-down and replacement trajectory for existing gas capacity, rather than a sharp 2045 capacity cliff.	Included	Included

C. PSE should improve its representation of storage contributions to resource adequacy.

PSE indicated during the May 28 RPAG meeting that it modeled storage beyond existing battery capacity at approximately 10 percent ELCC, fully saturated. RNW remains concerned that this approach may materially understate the resource adequacy value of storage, particularly if it is applied generically to short-duration battery storage without sufficient attention to resource duration, state-of-charge management, hydro dispatch, charging sufficiency, and transmission deliverability. Storage does not have one static capacity value. Its contribution depends on the type of reliability event being modeled, the duration and shape of that event, whether storage can charge during the event, whether hydro is dispatched in a way that complements storage, whether the resource is located where it can relieve binding system constraints, and more.

Sylvan Energy Analytics' review of E3's Northwest resource adequacy analysis reinforces this point. Sylvan found that the magnitude and timing of the Pacific Northwest's winter resource adequacy challenge depends on load-growth assumptions, large-load flexibility, hydro dispatch, import capability, and treatment of retirements and conversions.[3] Sylvan also found that winter ELCCs for 4-hour storage could depend strongly on how the hydro system is operated and modeled, and that load-following hydro dispatch assumptions may overlook the ability to co-optimize hydro and short-duration storage.

We recommend PSE revisit and stress-test the assumptions underlying E3's resource adequacy framework. In particular, PSE should disclose and stress-test the following specific assumptions:

- Hydro dispatch methodology. The Sylvan review of E3's regional resource adequacy analysis found that E3's load-following hydro dispatch heuristic, which caps interweek energy shifting at 5% of weekly budgets, may underestimate the hydro system's available flexibility and may overlook contributions from short-duration storage that could otherwise charge and discharge in coordination with hydro operations. Sylvan's analysis of BPA dispatch data from January 2024 found that any given week could have access to as much as 880 average MW, or approximately 14% above monthly average energy, beyond what a load-following heuristic would allocate. PSE's 2027 Resource Adequacy study uses the same E3 RECAP platform. If PSE uses the same hydro dispatch methodology, the resulting storage ELCCs may understate the capacity contribution of batteries that could otherwise co-dispatch with hydro to cover multi-day reliability events. PSE should document its hydro dispatch assumptions, identify whether they differ from those used in E3's regional study,

[3] Sylvan Energy Analytics, Near-term Winter Resource Adequacy Challenges in the Pacific Northwest: A Review of E3's Northwest RA Study Phase 1 and Independent Evaluation of Near-term Winter Challenges (Jan. 2026), *available at* https://static1.squarespace.com/static/

and test the sensitivity of storage ELCCs to alternative dispatch assumptions before finalizing the reference case

Thank you for the feedback. We will review the hydro methodology and document assumptions; however, given PSE's limited access to BPA hydro, any adjustments would have minimal effect on our analysis.

- Storage ELCC methodology. The results on slide 30 raise questions about how these ELCC assumptions are being applied in practice. Assuming the two reference portfolios are intended to provide equivalent firm capacity, the approximately 53 MW difference in storage additions and 5 MW reduction in flexible peakers between the portfolios appears to imply an even lower average ELCC for the incremental storage resources than the stated 10% assumption. These results also raise questions regarding the assumed firm capacity contribution of the flexible peakers and whether any discount to the peaker nameplate capacity has been applied in the modeling.

  ELCCs are applied to all resources, including flexible peakers, as described in the Sept. 30, 2025 RPAG meeting, slide 43. It is not a 1 for 1 replacement of resources; the whole portfolio is changing including wind and solar and each of those resources also has a peak capacity contribution that will change the position.

- Long duration storage ELCC. PSE's reference cases treat 100-hour iron-air storage as an emerging technology not available until 2035. We understand that PSE is currently working with Form Energy to deploy a 10 MW, 100 hour iron-air battery pilot by the end of 2026. Form Energy is also installing its first commercial battery in Minnesota and has contracts for developing storage in several other states.[4] PSE is correct that long-duration battery storage has not yet been deployed at the scale required by its planning horizon and that multi-year performance data under real operating conditions is still being collected. However, the technology is no longer pre-commercial in the same sense as small modular reactors or floating offshore wind. A 2035 availability date treats a technology with contracted deployments and an operating manufacturing facility as equivalent in maturity to technologies with no commercial installations, no operating factories, and no near-term procurement pipeline. That is not a fair characterization of long-duration energy storage. E3's regional study found average ELCCs for 100-hour iron-air batteries of 63% to 77%, which, if included, would materially change PSE's analysis.

  PSE defines commercially available to mean that there are multiple vendors for a specific technology that could bid into an open RFP. That is not the case for 100-hour batteries. PSE will consider this feedback and how it might inform the sensitivity analysis.

[4] https://www.fastcompany.com/91500104/google-minnesota-data-center-electric-bills

D. PSE should develop a middle-ground reference case.

RNW recommends that PSE develop a middle-ground reference case that is more robust than Reference A but less dependent on emerging technologies than Reference B. This case would help stakeholders understand whether PSE's modeling challenges are caused by technology limitations, overly narrow resource assumptions, transmission deliverability constraints, or the assumed timing of gas capacity replacement.

This reference case should include the "stronger commercially available" technologies listed above in recommendation B. Further, PSE should explicitly model grid-enhancing technologies ("GETs"), especially considering the limited incorporation of BPA's Evolving Grid 2.0 projects in PSE's consideration of transmission capacity. Moreover, during the May RPAG meeting PSE discussed the near- to mid-term availability of biodiesel with uncertainty only becoming an issue in the later years of the planning cycle. As such, we recommend a limited-build biodiesel or other CETA-compliant fuel where PSE believes near-term availability is plausible, which would help relieve the strain on 4-hour batteries to meet peak needs. Finally, we recommend a gradual phase-down of gas capacity rather than a sudden 2045 cliff, considering PSE's driving hypothesis for the model's failure to solve revolves around the magnitude of the capacity need in 2045 (5,000 MW).

This middle-ground case would not assume that all emerging technologies are available at scale, nor would it assume that commercially available resources are limited to 4-hour batteries. It would instead test a more realistic transition pathway in which PSE uses a suite of clean capacity, flexibility, storage, transmission, and limited clean-fuel options to reduce reliance on fossil gas while preserving reliability.

PSE does not plan to develop a separate reference case in the manner described – which is already markedly similar to Reference B. As noted previously, the reference case is intended to serve as a consistent baseline for scenario and sensitivity analysis. Materially altering resource assumptions within the reference case – such as selectively restricting or expanding certain technologies – would reduce its effectiveness as a neutral starting point and limit comparability across analyses. The concepts described can be further addressed through sensitivity analysis and in developing the preferred portfolio.

E. Flex-fuel peakers require additional scrutiny.

Reference B relies on 5,042 MW nameplate of flex-fuel peakers by 2050, with resources modeled as available starting 2031 at a capital cost of $1,988/kW. PSE has not disclosed what ELCC it assigns to these resources, how those values evolve over time, or how it treats fuel supply availability in the resource adequacy framework.

E3 presented PSE's ELCCs in detail during the Sept. 30, 2025 RPAG meeting.

During the RPAG meeting, PSE explained that the cost difference between renewable peakers and natural gas peakers was not driven by carbon costs but instead reflected firm fuel treatment and the fact that RNG “requires no pipes.” If natural gas peakers are modeled with firm physical fuel costs while renewable peakers are modeled using clean-fuel attributes or certificates without comparable deliverability, infrastructure, storage, scarcity, or operational constraints, then Reference B may be structurally advantaged.

On fuel supply, the capacity contribution of a flex-fuel peaker during a multi-day winter reliability event depends on whether adequate fuel is physically available and deliverable to the generation site at the time of the event. PSE's modeling appears to assume unlimited fuel availability without constraint. Hydrogen, in particular, has significant infrastructure challenges. It requires either on-site production, dedicated pipeline infrastructure, or transportation and storage, none of which exist at the scale implied by thousands of megawatts of winter peaking capacity. Moreover, it is not clear PSE is considering those costs as part of its assumed capital cost. Biodiesel faces analogous supply constraints at scale. PSE should disclose what fuel volumes Reference B requires during a design reliability event, what delivery and storage infrastructure those volumes presuppose, and what those infrastructure costs contribute to the total cost of the reference portfolio. If fuel delivery and security costs are not included in the $1,988/kW capital cost estimate, the cost comparison between Reference B and alternatives that do not carry fuel supply risk is incomplete.

Biodiesel is a liquid fuel; costs for transport and onsite storage are included in the modeling assumptions. Renewable peakers are modeled as an emerging technology precisely because of the uncertainty and risk of fuel supply.

F. PSE should directly examine the 2045 capacity cliff.

PSE explained during the May RPAG meeting that Reference A struggled because the model wanted to retain gas as long as possible because it was cheap, but then ran into a large deficit in 2045 that it could not solve without PSE’s manual intervention. A sudden 2045 loss of roughly 5,000 MW of effective capacity may be an unnecessary modeling artifact limiting the model’s selections. RNW recommends PSE evaluate whether earlier and more gradual replacement of gas capacity reduces the need for manual intervention and avoids a sudden reliability deficit.

Specifically, RNW recommends that PSE test a gradual phase-down of existing gas capacity, earlier procurement of replacement clean capacity, and limited clean-fuel use for existing or new peaking resources where fuel availability is supported. Further, because PSE has indicated that long-duration storage can become saturated during extended winter reliability events, the Company should evaluate portfolios that strategically pair long-duration storage with complementary resources such as DERs, transmission upgrades, renewable generation diversity, and limited peaking capacity. PSE should also test whether siting storage in constrained areas of the system, co-locating storage with renewables, or optimizing charging strategies could increase the effective contribution of long-duration storage to peak reliability needs and reduce the risk of saturation during prolonged events.

The gradual phase down is included in both reference A and B, with replacement beginning in 2038. The modeling is increasingly complex in later years because electric loads are also growing significantly, making it more difficult to gradually phase resources out.

G. Transmission constraints should be diagnosed with specificity.

PSE has emphasized that transmission constraints are a main driver of Reference A's results. RNW agrees that transmission is a central challenge for PSE's clean energy transition. However, "transmission constraints" should be treated as a diagnosis requiring additional analysis. If transmission is the dominant constraint, PSE should identify which constraints bind, in which years, in which zones, and during which hours. PSE should explain whether the constraints are preventing new clean resources from being delivered, preventing storage from charging, preventing delivery of market purchases, or preventing local resources from serving customers versus remote resources.

Including BPA Evolving Grid assumptions does not necessarily mean that PSE has tested all practical transmission-relief options. PSE should evaluate commercially available transmission-relief measures including GETs (advanced power-flow control, topology optimization, etc.), local storage, storage-as-transmission, and DERs targeted to constrained areas.

If Reference A fails because transmission constraints prevent the model from accessing enough commercial clean resources, then the problem may not be that commercial resources are insufficient. The problem may be that the reference case artificially constrains commercial resource availability by excluding transmission options that would unlock them.

We plan to leverage additional transmission sensitivities to evaluate the impact of transmission constraints on the portfolio and ultimately support the development of the preferred portfolio.

H. PSE should better incorporate large-load flexibility and winter demand management.

PSE has indicated that large loads are not currently a significant driver of system needs. However, Sylvan's review of Northwest winter resource adequacy (discussed above in section C) highlights that reliability outcomes can become highly sensitive to load growth, large-load assumptions, and the ability to manage demand during critical winter events. RNW recommends that PSE maintain large-load flexibility as a sensitivity within its planning analyses, particularly if future forecasts show increased contributions from large loads or accelerated electrification.

To clarify – PSE stated that large loads were minimal and not the key driver for the load increases shown in the 2027 ISP Updated demand forecast – the forecast used to develop the reference case presented at the May RPAG meeting. PSE will be evaluating impacts caused by building electrification, large loads and EVs in the scenarios.

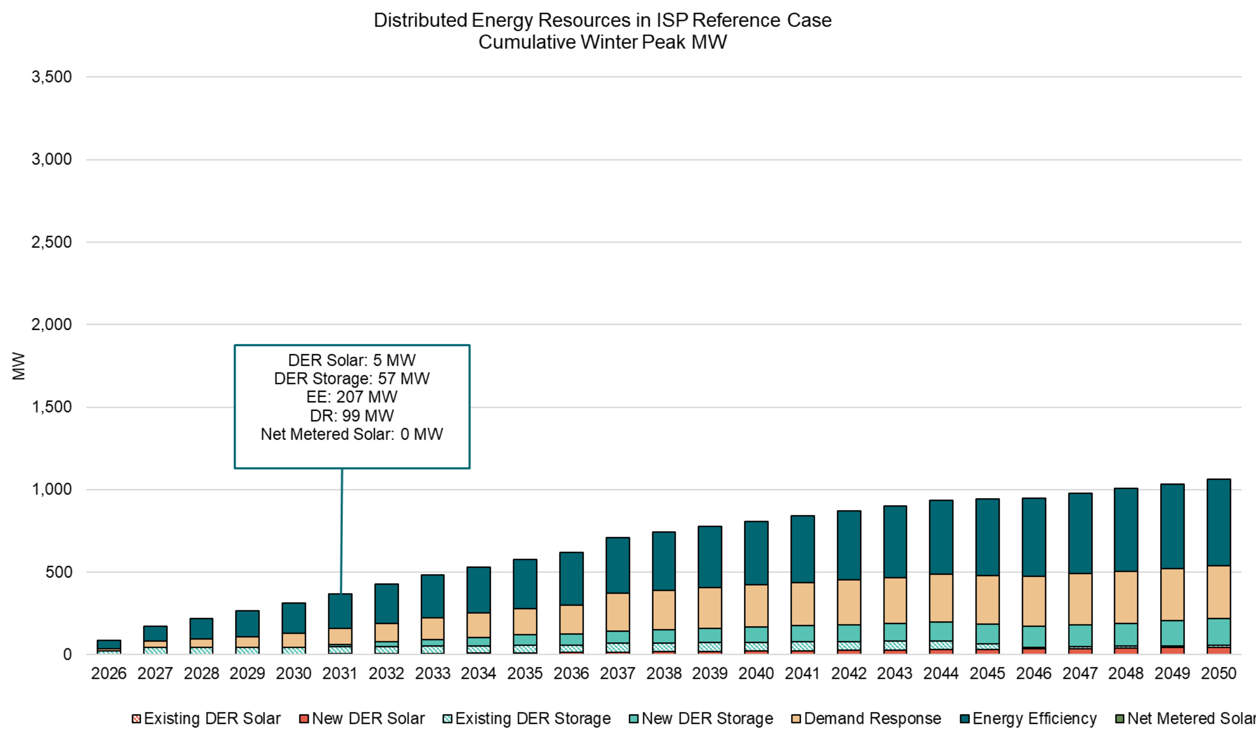
III. CONCLUSION

RNW thanks PSE for its consideration of this feedback. We look forward to continued engagement in the RPAG process toward development of PSE's 2027 ISP.

2. Unanswered RPAG member questions from meeting

1. Could we see the effective load carrying capability (ELCC) version of the chart on slide 18?

Here is the updated chart:



3. Public feedback

Don Marsh on behalf of the Washington Clean Energy Coalition, May 28, 2026 via public comment opportunity

I'm Don Marsh. I chair the Washington Clean Energy Coalition. I'm also a member of the Sierra Club Energy Committee. I would say in general, we are quite concerned, if not alarmed, by some of the information we saw today. We think there's implications both for our emissions as well as customer prices. I'm not sure that I understand every slide. I think I had some pretty substantive questions about a few of them and the fact that I'm not able to ask those questions during the meeting is really a problem because now I have to share very quickly our observations with partner organizations and with the public. And if I'm getting some of the details wrong or the analysis I'm not quite understanding, I'm nervous that I'm going to be spreading information that's not accurate, and I really don't want to do that. So, I would like to have a contact in PSE that I can review certain slide and questions with quickly here so that we can meet the June 4th deadline for feedback. That's going to be very difficult for us to digest all the information that's been provided without having all the information we need to make a good comment. So, this is not an ideal situation, but if somebody from PSE can be made available to answer questions on a timely basis we may be able to get through with this. So, I encourage you to do that. Otherwise, we're going to have a little bit of a mess, and we really don't want that. You don't want that. So, let's do it right. Thank you.

Thank you for your comments. In accordance with our standard feedback process, PSE is providing answers to your questions submitted via email on May 29 in the report below.

James Adcock, May 28, 2026 via public comment opportunity

James Adcock, electrical engineer, MIT, retired. I basically see this presentation as just another in the ongoing 15-year ploy by Puget to say the only solution is natural gas. So, we are just going to build more natural gas peakers and combined cycle plants. Puget calls these flex fuel but they're just natural gas plants. Puget, like always, sets up their modeling to plan to fail. Puget has always dragged their feet, planning to fail by falsely setting up constraints so their models fail, then they conclude, oh gosh, our models failed. We have successfully planned to fail. But Google doesn't say, oh gosh, our models fail. They asked and said, "what is the solution?" And the solution is to add an additional battery technology that already exists, namely iron air. There is nothing that says lithium ion is the only battery technology that Puget can consider. Rather, Puget only considers lithium ion because they are planning to fail. Iron air provides 100 hours of battery backup at 1/10 the cost. While less efficient, iron air can represent the secondary tier of battery technology backup. It works for Google because Google doesn't plan to fail. And then there is hydro storage which Puget continues to ignore. Why the continuous Puget fixation on natural gas? I suggest that it is well timed that UTC take a very hard look at possible outside of the fence ownership conflicts of interest. I see the Puget perceived solution to be, gosh, only solution is natural gas. It is always just natural gas, and it will always be just natural gas. Thank you for your consideration.

Thank you for your comments. PSE is considering long-duration storage along with other emerging technologies in the analysis as described during the March 25, 2024 RPAG meeting.

Don Marsh on behalf of the Washington Clean Energy Coalition, May 29, 2026 via isp@pse.com

I am hoping to provide substantive comments on the May 28 RPAG meeting before the June 4 deadline. To communicate with member organizations and the public, I'm asking for some clarifications so that we can share accurate information.

Our questions:

1. Slide 18: Does DER storage include V2G? How much residential and commercial fixed battery storage are you assuming?

   PSE is researching the costs of the different unique V2G segments (residential, fleet, school buses) and will be analyzing them as sensitives on the reference case. PSE has a lot of interest in these programs and will continue to learn from the modeling work and ongoing pilot projects that help us better understand how to run effective programs in the future.

2. Slide 30: We are deeply disappointed that PSE chose two extreme and unrealistic scenarios. I unfortunately missed the discussion on this slide, but if you have any explanation, I would like to consider it. 2 GW of storage by 2050 seems incredibly miniscule, and we don't understand that. Also, 100 MW of geothermal seems quite pessimistic and hardly worth mentioning.

   The model solved for the least cost portfolio given very real and known constraints and consistent with state law and policy. Further scenario and sensitivity testing will help us understand where refinements are possible. As stated previously, the reference case is a starting point and not a preferred portfolio or indicative of PSE's plan Additionally, resources selected are hypothetical and may vary significantly from what may be procured in the future given conditions at the time of acquisition.

3. Slide 36: Customer programs – are VPPs not worth further consideration? What about TOU rates? Are these already baked into your planning so that no sensitivity is needed?

   Virtual power plant (VPP) and time of use (TOU) are both included in the proposed reference case. They are part of the demand response and DER results. Their additional capacity will be further explored in the sensitivity analysis described on slide 36.

4. Slide 44: Does this mean that "flexible fuel" peakers will be 95-96% natural gas through 2050?

   No, slide 44 is in the gas supply section and reflects the portion of renewable natural gas currently and forecast for use in the gas utility serving direct end use gas customers – natural gas will remain required to deliver directly to our customers. The electric analysis assumes natural gas can no longer be used in peaking facilities beginning in 2045, as required by CETA.

5. Slide 45: Does this chart imply demand for natural gas will fall only about 6% by 2050? If it does not imply that, do you have a new demand chart?

   Slide 45 shows how existing gas utility supply-side resources are expected to meet the design peak day need for residential, commercial, and industrial net demand. The expected decline in gas energy use on an annual basis is expected to be approximately 20% by 2050. It shows a negative trend in demand consistent with our current demand forecast for natural gas (inclusive of demand side resources).

6. Slide 51: You say this should not be interpreted as expected rate impacts. But if this graph is accurate, rates would probably track this trend pretty closely, right?

These are not future rate projections for PSE – they are predicted cost impacts for the draft reference case that are highly dependent on the assumptions being made in the modeling analysis.

7. Slide 51: If the cost of gas for customers increases by a factor of 5 by 2050, wouldn't customers switch to heat pumps at an accelerated rate? My analysis shows that a customer could save approximately $350 for each cold winter month in 2050 by switching to a heat pump, due to higher efficiency and lower rates of price increases for electricity. We think this will accelerate the transition to electricity while further increasing costs for remaining gas customers. Do you dispute this?

   Evaluating a customer's willingness to transition from gas to electric fuel is a complex question that requires additional data points that are not reflected in the draft reference case that was presented during the May RPAG. PSE is analyzing electrification potential and will present this to the RPAG later this summer.

8. Slide 89: Where did these LCOE figures come from? Based on Lazard's latest report and a February report by ACEEE, we think these are reasonable cost estimates. Why are yours so different?

   Lazard's report only includes the EPC (engineer, procure, construct) costs. There may be some small assumptions around interconnection, but they are underestimated. We are in line with Lazard's EPC costs; the added costs are coming from transmission and integration costs associated with interconnecting the resources and bringing the energy back to PSE.

9. Slide 104: Why are the costs about twice the highest solar + storage cost in the Lazard report?
   Please see our response to #8 above.

Chris Goelz, June 6, 2026 via isp@pse.com

1. As we all know, PSE should be working hard to add clean energy resources. They are not — as you can infer from the ISP. I live on Mercer Island, where we're building a big, new municipal building with a gain flat roof. A majority of the counsel would like to add solar. But PSE has made in cost ineffective and thus politically difficult. You'd think they would be doing everything they can to encourage it, but you'd be wrong. (By the way, it's not too late if PSE wants to make a belated effort — they should just contact council member Daniel Becker.)

2. As you can see from the ISP and certainly from WCEC comments, it appears that the PSE plan is to neglect solar and wind, continue to burn crazy amounts of gas and then charge any CETA penalties off to rate payers. The UTC should make it crystal clear than PSE will never recover a penny of CETA penalties from ratepayers. It's going to take that to incentivize PSE to develop clean resources.

Thank you for your careful consideration of this important matter — for those who are exposed to gas pollution, for the planet and for ratepayers.

Although directed to the UTC, these comments were submitted to PSE as part of the May RPAG feedback report. As stated in other responses, PSE has not prepared or published a plan at this time. To date, we are focused on finalizing our reference case for the 2027 ISP then transitioning to critical scenario and sensitivity analysis -- all of which will be required to develop a resource plan and preferred portfolio.