Feedback Report

RPAG Meeting

Meeting details

- Friday, January 12, 2024 12:00 p.m. - 2:00 p.m.
- Virtual webinar hosted by PSE and facilitated by Triangle Associates
- Links to:
  - Presentation
  - Meeting recording

Feedback report

The following table records participant questions and PSE responses from the public comment opportunity and comments submitted via online feedback form or irp@pse.com. Meeting materials are available on the IRP website.

Note: PSE aims to provide clarity in responses but subsequent follow-up may be required at times. Please direct any follow-up clarifications to irp@pse.com.

No.	Date	Interested party	Submitted via	Question or comment	PSE response
1	1/12/2024	Virginia Lohr	Public comment	I'm Virginia Lohr, a PSE electric customer and a former PSE gas customer who had PSE remove the gas line to my home. PSE used to look backwards using temperature data but forward when predicting gas prices. It's shocking to think of how many years PSE fought against using forecasts for temperature but commendable that PSE is finally including temperature forecasts in their IRPs. However, PSE still seems to be inconsistent in how it considers what may happen in the future and when it chooses	Thank you for your comments. PSE incorporates codes and standards within the Conservation Potential Assessment (CPA); the forecast shown during the Jan.12, 2024 meeting was prior to the application of the CPA results. Concurrently, PSE is developing building

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				to ignore it. For example, PSE is considering an economic slowdown in 2024 that has not yet happened in its gas base case but not willing to admit that residential gas customer growth for example could be negative in spite of ample evidence that it must become so. The state has passed laws clearly indicating that utilities are expected to dramatically reduce gas usage during the period of this IRP. Perhaps you will consider negative growth in residential customers for example in a scenario but to not have that in your base case says to me that you are ignoring reality. Perhaps you haven't heard but 2023 was the warmest year on record since recordkeeping began in 1850. In my comments last month I mentioned James Hansen's predictions of catastrophe already baked into Earth's warming from burning fossil fuels. The UN Secretary General now says that we have passed the time of global warming and we are now into global boiling. Will this IRP be as flawed as PSE's last gas IRP? When will PSE get serious about doing their part for humanity and the rest of living beings on this planet?	electrification scenarios which will reflect negative gas customer growth for the 2025 IRP, which will be discussed with the RPAG during the Feb.13, 2024 meeting.
2	1/12/2024	James Adcock	Public comment	*Mr. Adcock submitted a duplicate of his public comments in full via PSE's IRP Feedback Form. To avoid redundancy, his comments in their entirety are shown below in comment #3.*	
3	1/12/2024	James Adcock	Feedback form	James Adcock, Electrical Engineer, MIT No Nukes! Puget should explore "Storage as a Product" quote-unquote with BPA aka Hydro Flow Modulation as Storage Aka Wind Integration. Puget is not nearly actually building the renewables that their models predict their need. Puget has only accepted less than 1/2 of one percent of the 21,000 Megawatts of RFP proposals. Only 90 Megawatts of Wind nameplate, only about 35 Average megawatts, only about 3% of Pugets recent Average monthly megawatts of Natural Gas generation. Verses Nearly 1,000 Megawatts of Current Natural Gas Generation. Puget is not nearly on track to meet the CETA requirements to actually be 80% actually clean in 2030. In terms of EVs and -- and EV	Thank you for your comment. We acknowledge your concerns with small modular nuclear and hydrogen as emerging resources. As you know, the Clean Energy Transformation Act (CETA) set a target to reach 100% renewable and non-emitting resources by 2045. Recognizing the intermittent nature of renewable resources like wind and solar are not enough to reach this target, we are obligated to explore all CETA-eligible

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				Management off peak charging, I would point out I am in one of the TOU pilot programs, and Puget has just increased my off peak charging costs by 51% -- while continuing to tell ratepayers in weekly mailings that they have not raised those costs. Schedule 327. I wish to express concerns about Hydrogen technology. I have been a member of the EV community for more than a dozen years, during which the Battery technology have improved immensely, while Hydrogen technology has gone nowhere -- because it is too expensive and too inefficient. If used to "round trip" renewable energy from renewables to hydrogen and back to electricity via Gas Turbine the efficiency is terrible -- wasting about 2/3rds of that renewable energy. Further, I am concerned about the possibility of "double counting" of the supposedly environment benefits of renewables. For example if renewables get converted to hydrogen injected in the gas system, then that ONLY represents a gas side environmental benefit, it cannot also be claimed as an electrical side environmental benefit. You cannot use the same renewable energy two times, both on the electrical side and on the gas side. That is a basic physics impossibilty. In comparison using renewable electricty AS renewable eletricity powering heat pumps provides about 9X more societal benefits compared to round-tripping hydrogen. And the real way to decarbonize the gas side is to use heat pumps and to stop using gas, not inject small amounts of extremely expensive and inefficient hydrogen into that gas supply. I agree with Mr. Popoff that hydrogen has better uses in other industries, not in either the electrical side nor the gas side of Puget's regulated business. In general Puget's predictions of future demand of electricity and gas to 2050 are not consistent with continued life on this planet. Please read the Bressler Mortality Cost of Carbon paper. Particularly the continued gas usage prediction to 2050. And that is a serious	options to meet public service and reliability requirements. In reference to your concerns regarding “double counting” of environmental benefits for renewables, we can assure you this is not the case. The hydrogen assumptions within the gas utility IRP are independent of the electric IRP. As discussed in our public webinar on Dec. 7, 2023, PSE shared our learnings regarding hydrogen and its potential sources. The hydrogen costs and supply curves will be updated in the 2025 IRP process. The optimization models determine if the fuel is a cost-effective alternative compared to other resources.

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				Puget modeling problem. You cannot seriously predict that which doesn't work. Something has to change with Puget's mental model of the future.	
4	1/16/2024	Orijit Ghoshal	Feedback form	Regarding which resource should be the generic resource for short-duration energy storage, it should be lithium ion. While sodium ion technology presents a potentially promising opportunity, it simply does not have the technological maturity or real-world deployment experience to be considered a generic resource for IRP modeling purposes. That does not mean sodium ion resources cannot compete with lithium ion and be given the opportunity to do so in any follow-on solicitation, however, for purposes of determining which resource should be generic it should be the commercially proven and widespread option. It is also unclear why a choice between two resources need to be made at this point, both can be studied and the plan could study six generic resources instead of three, which is an arbitrary figure.	We agree with your assessment; sodium-ion is a new technology, and we would like to know more about it. Since we are using a production cost capacity expansion model and optimizing to the lowest cost, the model will pick up the resource with the lowest cost. By modeling resources of similar size and duration, the model will not be able to pick up on some of the nuanced differences between the technologies, which is why we will choose one technology as a stand in generic. The purpose of the IRP is to establish the resource need. The resources identified in the IRP are not meant to be a shopping list for resource acquisition. We will continue to run the acquisition process and evaluate all available resource options to meet PSE's needs for both capacity, energy, and CETA requirements.
5	1/18/2024	Dr. Ezra Hausman (RPAG alternate) on behalf of	irp@pse.com	Public Counsel notes that PSE provided a forecast of the impact of electric vehicle (EV) adoption on peak load in its presentation on January 12, 2024, starting on slide 23. PSE projected that "Including EV growth, demand higher by 24% in 2040." (Slide 24) and "Including EV growth, winter peak higher by 28% in 2040"	You are correct that the forecast of electric vehicle load presented during the Jan. 12, 2024 meeting does not include impacts of managed charging. We agree it is unrealistic to assume no managed charging or

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		Public Counsel		(Slide 27) and "Including EV growth, summer peak higher by 30% in 2040" (Slide 28). PSE stated (but did not indicate in its presentation) that this forecast assumed no managed charging - that is, no effort to induce customers to charge during off-peak times and thus to reduce the additional peak load impact on the system. PSE provided no information on what the assumed charging demand profile was, or on the basis for any such assumption. It is unrealistic to assume no managed charging with a high level of EV penetration, and such a situation would reflect a significant policy failure. PSE's January 12 charts show an alarming and unrealistic picture, without providing the necessary context. Instead, PSE should show EV load under a range of managed charging scenarios to provide stakeholders with a fuller and more realistic picture of the likely impact. The scenario shown on January 12 should be identified as a "worst-case" scenario, if shown at all, and only for the purpose of demonstrating the importance of managed charging.	peak mitigation in the final demand forecast. We need to start with an unmanaged EV load, so we can use the portfolio modeling to demonstrate the value of actions to manage that load. The forecast presented is an input into the portfolio analysis and does not yet include any impacts of demand side resources. Managed charging programs and other peak mitigating programs like time varying rates are included in the Conservation Potential Assessment, which develops the cost/supply curve for demand side resources (another input for the portfolio analysis). The portfolio analysis is the step that determines cost-effective amounts of demand side resources. A final demand forecast that includes mitigating effects of demand side resources will be included in the resource plan.
6	1/18/2024	Joel Nightingale (RPAG member) on behalf of UTC staff	irp@pse.com	Base Load Forecasts Gas 1. Slide 15, and discussion during the Jan. 12 RPAG meeting, seem to suggest PSE is assuming in its base/reference forecast that residential gas customer growth will remain at zero indefinitely for the entire 2025 IRP study period. Is that correct? Slide 15 also shows that PSE expects the commercial gas	1. The data on slide 30 do suggest some small portion of voluntary electrification is occurring (<1% of customers annually). However, it is also possible that residential dwellings can be built with or install natural gas with the policies that are in effect at this time, possibly in high-

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				customer class to “grow modestly” over the study period. As discussed in Staff comments (filed on June 6, 2023) on PSE’s 2023 Gas IRP, negative customer growth is a real possibility, if not a likelihood given existing state policies (e.g., CCA), building and energy codes (e.g, RCW 19.27A.020(2)(a)), and federal incentives for electrification. Slide 30 suggests that a substantial portion of PSE customers are beginning to electrify significant end uses voluntarily, if not leaving the gas system altogether. Does PSE’s analysis of projected customer counts and customer use assumptions fully account for these factors? How is the company ensuring this analysis is robust and transparent? 2. To the degree PSE’s gas customer count and usage analysis implies increases in electric usage, does PSE plan to ensure consistency in assumptions in overlapping portions of the Company’s service area? 3. On slide 16, PSE depicts use per residential customer declining. Has PSE conducted – or does PSE plan to conduct – any equity analysis on how different residential customers are likely to respond to energy efficiency program offerings and electrification offerings? Staff notes the possible risk of stranded customers in a decarbonizing/electrifying scenario, especially with regards to equity. Staff highlights these risks especially as they might apply to non-English speaking customers, low-income customers, seniors, renters, and other named communities. 4. Though not the primary topic of this meeting, Staff continues to encourage PSE to include in its 2025 IRP a reasonable “worst case” scenario that assesses potential risks to both the company and customers. With a real possibility that several variables could combine to apply great stress on the system and compound in a feedback loop, this scenario needs to be considered. Staff	end new construction. Additionally, we expect modest growth in the commercial gas space to continue. For those reasons it is reasonable for our base case to assume gas customers will remain relatively stable overall. Please note our base case is "before DSR" meaning it does not include conservation measures, the Climate Commitment Act, or federal funding. We will consider the factors you describe in the Conservation Potential Assessment (CPA) being conducted by Cadmus. We plan to present the results of the CPA during the April 17, 2024 RPAG meeting. 2. Yes, for any decarbonization or fuel switching adjustments made to the gas forecast, we will also account for the electric impacts. 3. The CPA will consider the role of IRA incentives and an analysis of how vulnerable populations may adopt electrification and energy efficiency measures. PSE recognizes the potential for stranded customers and the distributional justice implications that may arise. While the IRP itself does not address these potential implications, PSE is carefully considering procedural and

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				comments on PSE's 2023 Gas IRP discussed some of the dynamics and factors that may be included in such a scenario. Beyond the risk to ratepayers at large, Staff is also interested in the disparate impact this potential future would have on different customer groups. 5. On slide 30, PSE estimates the number of residential gas furnaces that turnover annually, does PSE anticipate this to be a linear or constant function over time? Has PSE assessed whether the percentage of customers who needed a new heating system switched from gas to electric might increase due to increased bill impacts associated with CCA compliance and an increasing ratio of fixed costs to customers? 6. On Slide 30, PSE states "First cut at billing data analysis estimates about 15 to 20% of customers who needed to replace their gas furnace replaced it with some type of electric heat." Has PSE considered, in addition to replacement upon failure, whether customers might replace their gas furnace under other conditions, such as a bill impacts threshold, safety/emissions concerns, or other possible motives? Electric 7.EV forecast: a. Staff appreciates PSE continuing to iterate on its EV forecast and sharing the Company's current thinking with the RPAG even if it is not fully developed/finalized. We also appreciate PSE's offer to make Guidehouse available for an explanation of their EV modeling and would like to attend such a presentation and opportunity to better understand this forecast and its implications for the 2025 IRP. b. On Slide 12, PSE states "Recent federal and state transportation electrification policies significantly increase the	distributional justice in our resource acquisition and program and product design efforts. We will continue to do so as more is known about our state's decarbonization policies and priorities. 4. Thank you for your comment. We plan to discuss them in during the Feb.13, 2024 RPAG meeting. 5. The turnover rate on slide 30 is an estimate of the current turnover rate assumed in the Conservation Potential Assessment. Trends in annual appliance turnover rates will be estimated and impacts of changes to bills associated with the CCA as we work with Cadmus on electrification scenarios (forthcoming). 6. We agree it would be useful to research customers' motivation for replacing their heating systems. We will work with Cadmus to determine if there is any industry data readily available to incorporate. 7. We are currently working with Guidehouse to schedule a presentation to the RPAG. As part of the Conservation Potential

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				electric load forecast." Has PSE investigated any strategies related to improving energy efficiency to specifically mitigate the load impacts of transportation electrification? Emerging Technology Assessment 8. Staff appreciates the work PSE has done with Black & Veatch to systematically analyze the various emerging technologies for consideration in its 2025 IRP. Staff notes that we and other RPAG members had questions about the storage technologies PSE is considering, including cost and performance characteristics, which would be helpful to know before providing more pointed feedback. We look forward to conversations about the other emerging technologies PSE is considering modeling in its 2025 IRP like those listed on slide 33.	Assessment, Cadmus includes the potential for load shifting strategies to mitigate the effect of electric vehicle load during peak hours. 8. We understand that having cost information is helpful, but the initial technology assessment is just an overview of existing and new technologies along with their readiness. We will then choose a handful of new emerging technologies to model in this IRP and then Black and Veatch will present the costs and operating characteristics of those resources.
7	1/19/2024	Katie Chamberlain (RPAG member) on behalf of Renewable Northwest	irp@pse.com	Renewable Northwest (RNW) appreciates the opportunity to comment on Puget Sound Energy's (PSE or "the Company") January 12, 2024 RPAG meeting. We would like to briefly provide feedback on three of the topics discussed at the meeting: 1) the natural gas demand forecast, 2) the original electric vehicle (EV) forecast and its update, and 3) the emerging resource technology assessment for storage. 1. PSE's base case natural gas demand forecast should account for electrification efforts and existing state policy. On slide 12 of the RPAG presentation, PSE lays out the underlying assumptions for the base/reference case. PSE assumes zero residential customer growth starting in 2024 based	1. The base forecast is used for the reference portfolio in the IRP. The reference portfolio is a starting point that accounts for current laws and regulations to get the least-cost mix of resources. From the reference portfolio, we then use sensitivity analysis to look at different future scenarios that can include new proposed laws and regulations. Sensitivity analysis is an essential component of the IRP process. After generating a reference portfolio, which is the optimized, least-cost set

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				on current gas decarbonization policies but does not include the impact of potential future policies incentivizing existing customers to switch to electric. The result is that PSE's gas system largely remains the same over the twenty year planning horizon. Several members of the RPAG questioned whether PSE was accurately accounting for electrification already occurring within its service territory based on federal incentives and building turnover. Specifically, one RPAG member noted that PSE's base case should be conceived of as a "most likely" scenario, rather than business as usual. RNW agrees with these comments and recommends PSE provide an estimated rate of fuel switching for the 2025 IRP, as it could measurably impact the electric load forecast as well as the gas demand forecast. Additionally, we understand that "potential future policies" are difficult to firmly predict for PSE's base/reference case scenario. However, Washington's Climate Commitment Act is an existing policy, which mandates that covered entities collectively achieve, in comparison with 1990 levels, a 45% reduction in greenhouse gas (GHG) emissions by 2030, a 70% reduction by 2040, and a 95% reduction by 2050. RNW recommends that PSE be consistent about applying statewide decarbonization policies that are currently in effect; as a result, for PSE to be in compliance with state law, we could assume that PSE will reduce its natural gas usage accordingly (45% below 1990 levels) by 2030. RNW does not advise PSE make use of a base/reference case—even if it is not the ultimate preferred portfolio—that overlooks existing Washington statute. Forecasting this level of natural gas reduction will impact PSE's electric forecast assumptions as well, which will be critical for electric resource planning. 2. RNW would support further discussion on PSE's EV forecast update.	of resources to meet the base set of constraints, we model sensitivities that change a resource, environmental regulation, or condition to examine the effect of the change on the portfolio. We will then use what we learn from the sensitivity analysis to inform the preferred portfolio. The idea is to create a portfolio that is robust enough to adjust to different potential futures. The Climate Commitment Act (CCA)is not designed as a command and control regulation that requires gas utilities to stop selling natural gas to end-use customers to hit a specified target. Instead, the CCA allows covered entities to trade allowances to comply with CCA allowance (i.e., authorized emissions) obligations. We recognize that allowable emissions across the entire market will decline over time, but as Washington moves towards joining the California and Quebec cap and trade markets, it will significantly increase the size of the allowance market. Therefore, it is appropriate to model the price related impacts of CCA allowance obligations of PSE's gas utility service to customers in the IRP, not a hard emissions cap.

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				During the electric load forecast presentation, PSE asked RPAG members to weigh in on the dilemma it's facing with regard to the EV forecast. Essentially, should PSE use the original EV forecast or the EV forecast update, which is significantly lower than the original forecast? It's a difficult question and one that will materially impact the IRP and potentially PSE's resource procurement. While PSE briefly explained some of the drivers of the changes to the EV forecast, RNW does not feel that we can meaningfully comment without reviewing the details of the EV forecast update. RNW would welcome the opportunity to engage more deeply on this issue - an option that PSE suggested during the meeting. 3. All six emerging storage technologies should be modeled at this stage in resource planning. RNW appreciates PSE's development of an emerging resource technology assessment for storage and the Company's commitment to modeling storage of different durations in the 2025 IRP. This is significant progress in the treatment of storage compared to previous resource planning cycles. PSE presented an assessment of the options within each duration category and then asked RPAG members to choose which resource PSE should model within each category: sodium ion or lithium ion within short duration, compressed air energy storage or pumped hydro within medium duration, and metal air or flow batteries within long duration. Several RPAG members questioned whether this needed to be set up as an either/or scenario. RNW agrees and encourages PSE to model all potential future storage options. With a statewide decarbonization mandate and significant capacity needs, PSE should be considering all commercially available storage options rather than picking among them at this stage of resource planning, even if just for	2. We are currently working with Guidehouse to schedule a presentation to the RPAG to provide more background on the EV forecast. 3. Please see our response to comment #4.

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				modeling purposes. We believe that a more robust model will only lead to more accurate planning results.	
8	1/19/2024	Jim Dennison (RPAG member) on behalf of Sierra Club	irp@pse.com	Gas Load Forecast •PSE's gas load forecast should account for factors indicating that there will be negative growth in customer count over the forecast period, as opposed to PSE's current flat or zero-growth assumption. UTC Staff and a public commenter made similar suggestions at the RPAG meeting. By failing to account for these factors, PSE's zero-growth assumption risks overestimating resource need. This could lead to unwise investments in infrastructure to meet demand that never materializes, and it could overestimate the cost and effort of CCA compliance strategies that involve PSE incentivizing additional electrification to fill the gap between naturally-occurring electrification and PSE's CCA obligations. Factors indicating that negative growth is the most likely baseline scenario include the following: o Naturally-Occurring Electrification: Slide 30 of PSE's presentation states that initial estimates show that "about 15 to 20% of customers who needed to replace their gas furnace replaced it with some type of electric heat." PSE should apply the best-available estimate of the rate of naturally-occurring electrification at the time it finalizes its load forecast. We understand PSE is working to refine the initial estimate presented in the RPAG meeting, but unless an updated estimate is available when PSE finalizes its load forecast, it should use 15%, or about 5,700 existing customers electrifying heating systems per year, as a starting point. This is likely a conservative estimate, as the pace of electrification is likely to accelerate over the forecast period as the regional heat pump market develops and additional policies take effect. □At the RPAG meeting, a PSE representative suggested that its current forecast accounts for the current rate of electrification, and updating its forecast would only account for changes in that	Thank you for your comments. Please see our response to comment #6 part 1. Regarding electrification impacts to customer growth and loads, Cadmus, who is developing the Conservation Potential Assessment will also be assessing the potential of electrification measures. Impacts from electrification will be included in the final gas and electric demand forecasts. From the 2023 Gas IRP at the zero-growth assumption we saw the gas portfolio decreasing, leaning into peaking resources and reducing pipeline contracts. There is little risk of overestimating the resource need when the gas portfolio with a zero-growth assumption doesn't identify a need on the gas side. With regard to the issue of building stock turn-over, PSE agrees this is an issue that should be examined in more detail. This will not be feasible for the 2025 IRP cycle, but will be something we address in the future. Note, to the extent this activity has already been happening, those trends

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				rate. This appears to be incorrect: The load forecast shown on slides 16 and 17 shows a very slight decline over the forecast period, and PSE explained this results not from current rates of electrification but from (1) PSE's zero-growth assumption, (2) reduced demand from industrial customers, and (3) reduced demand from accounting for climate change. The forecast presented does not appear consistent with levels that would account for naturally-occurring electrification, even at significantly lower rates than the 15-20% observed rate. o Policies Driving Electrification of Existing Buildings: PSE's load forecast does not account for existing policies driving electrification of existing buildings. PSE stated that it would account for the impact of IRA incentives in its modeling of electrification as a compliance resource, but this would not capture the IRA's contribution to driving naturally-occurring electrification independent of PSE's resource selection. We recognize that the impact of financial incentives like the IRA may be difficult to incorporate into assumptions about the rate of naturally-occurring electrification, so the main priority should be incorporating the observed 15-20% rate discussed above. However, PSE's forecast should account for policies such as Seattle's Building Emissions Performance Standard, which requires most covered building types over 20,000 square feet to reach net zero emissions by 2045 (and covered multifamily buildings to reach net zero by 2050). Electrification is expected to be the primary strategy for complying with the standards, so PSE's load forecast should assume that all covered buildings will exit the gas system by 2045 (2050 for multifamily buildings). o Building Stock Turnover: PSE's load forecast assumes that all newly-constructed buildings will be all-electric, but it does not account for the rate at which existing buildings are torn down and replaced with all-electric buildings. PSE's load forecast should assume a reasonable rate of building stock turnover and	are reflected in the underlying data that is an input to the econometric forecasts; that is, trends associated with the way building turnover has impacted customer growth, sales, and peaks is reflected in the load forecast. In the future, PSE will study further to determine if those trends are changing over time, and if so, how to incorporate changes in those trends. The 2023 gas IRP showed a declining net resource need; we are already focused on how to reduce the portfolio in the future.

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				corresponding reductions in gas customer count. At the RPAG meeting, PSE suggested that the state building codes that form the basis of PSE's zero-growth assumption may not apply when a building is torn down and replaced. This is incorrect. The state building codes apply to "the design and construction of buildings," with no exception for buildings that are constructed where a previous building was removed. See WAC 51-11R-10100 § R101.2. • PSE should apply its gas load forecast consistently across all portfolios evaluated in the IRP. In PSE's 2023 IRP, it applied the zero growth load forecast to its preferred portfolio, but not to alternative portfolios that were evaluated such as the electrification portfolio. This made it impossible to perform an apples-to-apples comparison between portfolios, and it artificially increased the costs of the electrification portfolio relative to the preferred portfolio. At the RPAG meeting, PSE suggested that it may develop multiple load forecasts to use as sensitivities or to incorporate additional information that becomes available before the IRP is finalized. If PSE does this, the IRP should include at least one model run of every significant alternative portfolio considered using the same load forecast that is applied to the preferred portfolio in PSE's central IRP analysis. EV Charging Scenarios • We look forward to learning more about the updated EV charging forecast that recently became available to PSE. We share other RPAG members' interest in performing sensitivity runs using both the original and updated EV forecasts, given the significant difference in peak demand between the two forecasts. Based on a preliminary understanding of the updated forecast, it seems like the lower, updated peak demand forecast may be appropriate to use as the base forecast (with the original forecast as a sensitivity). The types of changes that led to the updated	

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				forecast, such as disaggregating the heavy-duty sector's vehicle types and duty and charging cycles, seem to increase the precision of the estimate using known, existing data, rather than reflect uncertain future factors that may affect the trajectory of Washington's transition to an electrified vehicle fleet. Generic Storage Resources • We recommend that PSE's IRP model established storage types as the generic resources, rather than emerging technologies that are subject to greater uncertainty. This is particularly true for lithium ion batteries, which currently dominate the short-duration storage market.	