

**PSE IRP Feedback Report**  
**Webinar 8: Natural Gas IRP**  
**October 14, 2020**

10/28/2020

The following stakeholder input was gathered through the online Feedback Form, from October 7 through October 21, 2020. PSE's response to the feedback can be found in the far-right column. To understand how PSE incorporated this feedback into the 2021 IRP, read the Consultation Update, which will be released on November 4, 2020.

Feedback Form Date	Stakeholder	Comment	PSE Response
10/14/20	James Adcock	Please do your "mike checks" and other "technology presentation checks" <i>before</i> the start time of the meetings. There is no reason why you guys should be wasting everyone's time "fixing" things after the start time of the meeting. When you do so, you are implying that your time -- "PSE's time" -- is important, but that the time and energy of IRP participants is <i>not</i> important!	We thank our stakeholders for their patience and understanding. PSE regularly checks the technology and audio before meetings, however, sometimes technology fails. Even though PSE was able to recover the presentation in a timely manner, we apologize that this caused an inconvenience for our stakeholders.
10/14/20	James Adcock	Slide 36 -- PSE continues to use archaic "weather data" going back to the 1950's -- when the "coldest winter day" was as cold as zero degrees F. In the last 20 years "coldest winter day" has only been 18 degrees -- 18 HDD less! Can you please create an up-to-date version of Slide 36 which only uses "weather data" from at most the most recent last 20 years -- and then rely on that up-to-date information rather than relying on ancient out-of-date data for all of your NG planning efforts? When PSE continues to use ancient out-of-date weather data what PSE is really saying is: "Puget Continues to Deny the Reality of Climate Change!"	Thank you for your comment. As was discussed in the webinar, the gas planning standard is very different from the electric peak planning standard. This has to do with the long time, higher cost and increased safety concerns in the event of a gas outage. The planning standard for the natural gas portfolio is based on a cost/benefit analysis. While PSE will not update the cost/benefit analysis for this IRP, the gas planning standard is in line with industry standards and other gas utilities in the region. The gas-planning standard was successfully tested in early October 2019 when a pipeline ruptured in B.C. and PSE did not experience any gas service customer disruptions.  For clarification, the coldest day in the weather data used by PSE is a 24-hour average temperature of 13 degrees, not zero.
10/14/20	James Adcock	Re: feedback about "natural gas sensitivities" -- I suggest creating a "natural gas sensitivity" based on weather data taken only from the last 20 years -- 2000 to 2020, rather than reaching back to archaic weather data from the 1950s.	Thank you for your comment. The effects of warming temperature trends on the demand forecast will be analyzed as a sensitivity that was presented in Webinar 9 on October 20, and has been included in the list of portfolio sensitivities. At the time of this Feedback Report, we have not yet reviewed stakeholder input regarding the temperature sensitivities.
10/14/20	Don Marsh, CENSE	During the October 14 webinar, PSE asked for stakeholder comment on the priority of the portfolio sensitivities (slide 43). I didn't find a way to provide this feedback other than this feedback form, so I hope this is the proper way to do it. My preferred sensitivities, in priority order, and reasoning are as follows: (top priority) 7. High impact SCGHG Reason: I believe PSE's current accounting of SCGHG (slide 17), while high, understates the true impacts of the Social Cost of Greenhouse Gas emissions, as indicated by more recent scientific studies. It is very likely that PSE's numbers will have to be revised upward in the next few years, so we should find out now what the implications will be. 9. Use AR5 to model upstream emissions PSE is using methane leakage rates that are low and not up to date, so the cost of methane emissions is also understated on slide 17. PSE will need to revise these numbers in coming years, so let's see what that will look like. 10. Temperature Sensitivity In every recent IRP meeting, and many of the 2019 meetings, James Adcock and several other stakeholders (including me) have criticized PSE for using up to 70 years of temperature data as a basis for forecasts. The climate is warming, and the effects are dramatic in the case of winter temperatures in the Pacific Northwest. Other states, like New York, are using 15-20 years of data to account for accelerating warming during the past couple of decades. I believe this will have a significant effect on PSE's forecasts, and it is time for us to understand what the magnitude of that effect actually is. 11. Equity focused portfolio Economically challenged customers are bearing the brunt of pollution and climate change. They are the least likely to benefit from clean energy technologies due to costs and the basic struggle to stay afloat financially in these difficult times. Although PSE is required to pursue least reasonable cost solutions, it	Thank you for sharing your preference concerning sensitivities. PSE looks forward to your participation in the selection of the portfolio sensitivities to be analyzed as part of the 2021 IRP. The survey opened on October 19 and remained open thru October 27.  PSE's responses from the numbers you provided are as follows:  9. Thank you for your comment. AR5 to model upstream emissions is included in the sensitivity selection for the 2021 IRP.  10. PSE will be running a temperature sensitivity as a "must run" sensitivity. Temperature sensitivities options were presented and further discussed with stakeholders at the October 20 Webinar 9 meeting. Your request to use the most recent 15-years of data is included in our proposed sensitivities.  11. Thank you for your comment and concern. PSE shares your concern. PSE looks forward to stakeholder feedback during the November 16 webinar when we discuss the approach to the Highly Impacted Communities and Vulnerable Populations Assessment and the Clean Energy Action Plan.  12. Thank you for your comment.  13. Thank you for your comment.  14. Thank you for sharing your preference for applying the discount rate.  15. Thank you for sharing your thoughts on a CO2 tax. The idea for this sensitivity is to include a federal CO2 on top of the SCGHG currently being modeled.  16. Thank you for your comment.

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		<p>is also ethically bound to provide equitable solutions for all its customers. An equity focused portfolio accords with our values and respect for all customers.</p> <p>12. 6-yr ramp rate It is very difficult to forecast what conservation opportunities will be available in 10 years. PSE says it is impossible to forecast technology and societal priorities in 20 years, and I agree! Six years is a reasonable horizon for these forecasts, so I support pursuing all available conservation in six-year increments. This also reflects the urgency of doing everything we can to avoid environmental catastrophe for future generations.</p> <p>13. Fuel switching from gas to electric I believe fuel switching will accelerate as technology options become available and awareness builds that natural gas is not a "clean" fuel, but rather extremely detrimental to the well-being of people and the planet. In the past four years, my family has cut our gas use by a factor of five by installing an on-demand hot water heater, heat pump, and induction stove. There are several additional things we can do to cut our gas use even further. I believe this trend will start to take hold more broadly, and may be accelerated by new regulations at the city and county levels.</p> <p>14. Social discount rate I believe the current discount rate is distorting the true value of DSR, which is a valuable tool in the implementation of CETA and CEIP. Let's see how much the discount rate is creating headwinds to adoption of more DSR.</p> <p>15. CO2 tax If the administration changes (and this appears likely), interest in an equitable CO2 tax will increase. Let's understand what that would mean for PSE's planning efforts.</p> <p>16. Non-energy impacts (NEI) In the spreadsheet, the description of this sensitivity is pretty vague, so I might increase its priority if I understood it better. I strongly believe that PSE needs a lot more Demand Response and conservation, and it is unfortunate that the company is trying to withdraw from its most recent RFP for DR resources. These resources are good for customers, beneficial for the environment, and improve reliability by relieving peak-induced stress on the grid.</p> <p>17. Low Demand with very high gas price This sensitivity was not described in the spreadsheet, but I assume "very high gas price" includes a high SCGHG cost. If I had to bet, this is the most likely scenario we will experience in 2030. We should understand what the implications are.</p> <p>18. 8-yr ramp rate This is a good sensitivity to study, but it's a small step from the current 10-year ramp rate. I prefer the more aggressive 6-year ramp rate to gain a good understanding of the effects of a shorter ramp rate. If PSE studies both the 6-year and 8-year ramps, we can get a better understanding of how incremental changes affect the costs and benefits. I don't expect to see a simple linear response.</p> <p>19. Low demand with mid gas price Assuming low demand is good, but a mid gas price seems unlikely given what we know about SCGHG and upstream emissions. This study will provide an interesting contrast to sensitivity number 1, but it's not a high priority because it is seems unlikely to occur.</p> <p>(lowest priority) 11. Fuel switching from electric to gas This sounds dumb to me, but maybe we will find out how dumb by actually running the numbers. More information is always good. But if you're running out of time to study portfolios, this is the last thing you should spend scarce resources on.</p> <p>For each sensitivity studied, I ask PSE to produce a forecast like the one shown on slide 26. If the adjusted forecast is not lower than the one shown for "2021 IRP BASE Demand after DSR," please provide an explanation. For many sensitivities, the explanation will be obvious, but for some, stakeholders may need a little more insight.</p>	<p>17. Thank you for your comment.</p> <p>18. Thank you for your comment.</p> <p>19. Thank you for your comment.</p> <p>A stakeholder suggested a sensitivity of fuel switching from electric to gas. PSE has added all stakeholder requests to the list of sensitivities for further prioritization.</p> <p>Thank you for your comments.</p> <p>Thank you for your suggestion to include a similar graph as slide 17 for any sensitivity that affects the SCGHG Adder or Upstream Carbon cost. Your suggestion is being considered.</p>

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		<p>For any sensitivity that affects the SCGHG Adder or Upstream Carbon cost, please show a graph like slide 17 so we can fully understand the assumptions. Full detail of how you arrived at the new costs (references to studies or existing/future regulations) should also be provided.</p> <p>Sincerely, Don Marsh, 2021 IRP Stakeholder</p>	
10/14/20	James Adcock	<p>Please respond now to the questions I raised in the chat box during the online meeting, where I "raised hand" but you continually refused to acknowledge that "raised hand."</p> <p>During the online Meeting PSE, while refusing to acknowledge my "raised hand" to ask a question, claimed that it is answering my previous-session questions after-the-fact in the Consultation Updates even if it did not answer my questions during the meeting. I have reviewed those Consultation Updates once again, and PSE is NOT in fact answering my questions, but rather -- if doing anything at all --- instead lumping a bunch of people's questions and concerns together, and instead of answering any of those questions, simply restating generically what PSE claims that it is doing already.</p> <p>Please actually respond specifically to the specific questions I asked in this meeting, and previous meeting's chat boxes. And please stop telling other participants in the online meetings that you answering my questions offline in the Consultation Updates, when in fact you are not answering my questions offline in the Consultation Updates.</p>	<p>PSE appreciates your participation and desires to make a space for all stakeholders and provide equal access. PSE regrets that you do not find the Feedback Reports and Consultation Updates adequate. PSE regrets that not all your questions have been addressed and that you do not think you are being provided enough opportunity to participate. PSE's intention to provide a means for all stakeholders to be heard and be part of the 2021 IRP record via the meeting recordings, Q&amp;A Logs, Feedback Forms, Feedback Reports and Consultation Updates. PSE is also available via email at IRP@pse.com.</p> <p>PSE will not be going back to all past meeting records and ask that you consider alerting PSE of any specific gaps. Thank you for using the tools that PSE has provided to engage in this process. Thank you for your comments and continued participation.</p>
10/19/20	David Perk 350 Seattle	<p>House Bill 2311 aligned Washington's greenhouse gas reduction goals with the Paris Accord. In the near term, that requires a 45% reduction of statewide GHG emissions by 2030.</p> <p>The "Gas Resource Need" (slide 16) and "Draft base scenario –DSR sufficient to meet future demand" (slide 26) should reflect that reality.</p> <p>Moreover, HB 2311 requires relevant state agencies to report their reduction plans for the next biennia by June 1, 2022. As a major emitter, PSE will need to supply a plan to reduce its emissions.</p> <p>To work toward that goal the "Stakeholder requested natural gas portfolio sensitivities" (slide 43) should include a sensitivity that addresses the necessary GHG reductions.</p>	<p>PSE looks forward to reviewing the Department of Ecology's progress report at the end of this year, indicating statewide greenhouse gas emissions as well as emissions from relevant key sectors, such as the electricity and/or building sectors. PSE will review Ecology's report, as well as the overall statewide greenhouse gas emissions limits established in HB 2311, in considering potential sensitivities to run for the next IRP cycle.</p>
10/19/20	Elyette Weinstein	<p>As you know, E2SHB 2311 became law, effective June 11, 2020. It requires that, by 2030, Washington State utilities limit anthropogenic emissions of greenhouse gases to achieve a 45% reduction in such emissions below 1990 levels or 50 million metric tons.</p> <p>Please run a sensitivity that fully conforms to the above stated law based on emissions below 1990 levels and another with a reduction of 50 million metric tons.</p> <p>Thank you.</p>	<p>PSE looks forward to reviewing the Department of Ecology's progress report at the end of this year, indicating statewide greenhouse gas emissions as well as emissions from relevant key sectors, such as the electricity and/or building sectors. PSE will review Ecology's report, as well as the overall statewide greenhouse gas emissions limits established in HB 2311, in considering potential sensitivities to run for the next IRP cycle.</p>
10/19/20	Doug Howell, Sierra Club	<p>HB 2311 mandates new GHG targets for the state calling for 95% elimination of fossil fuel by 2050 and 45% reduction in fossil fuel by 2030. PSE needs to run a scenario or at least a sensitivity of how PSE is going to meet this 2030 interim target for its gas utility. In the last IRP meeting on the gas utility, PSE is planning on demand remaining relatively flat through</p>	<p>PSE looks forward to reviewing the Department of Ecology's progress report at the end of this year, indicating statewide greenhouse gas emissions as well as emissions from relevant key sectors, such as the electricity and/or building sectors. PSE will review Ecology's report, as well as the overall statewide greenhouse gas emissions limits established in HB 2311, in considering potential sensitivities to run for the next IRP cycle.</p>

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		<p>2030. This is unacceptable. PSE needs to demonstrate a path forward to achieve the state climate goals.</p> <p>Run a scenario or at least a sensitivity showing a 45% reduction in gas use by 2030.</p>	
10/20/20	Josh Rubenstein	<p>To both PSE and the facilitators, the fact that you told the public that we were "involved" in the October 14th IRP meeting stretches the imagination. After three hours of "inform" we got to the one slide with "involve" level of IAP2 participation, at which point PSE said that based on the data they had presented they did not believe that further sensitivities analysis needed to be done on the gas forecasts. In other words, PSE asked us to agree that public involvement was unnecessary at the only point in their presentation where public involvement was planned. PSE and EnviroIssues staff responsible for this process lose credibility in the eyes of the public when you demonstrate no interest or ability to engage the public and instead choose to only "inform." In this case PSE, I heard you trying to cut out the public voice. How will you improve your public process to seek input, rather than ask for permission to not receive input? EnviroIssues, as the process experts in this situation, it is your job to uphold a process that is truly public. What will you do to improve the opportunities for public participation in the meetings you facilitate?</p> <p>In response to the question, PSE should prioritize every sensitivity that may lead to a reduction in global warming pollution. PSE ratepayers and the public have payed, are paying, and will continue to pay the social cost of PSE's carbon pollution. It's high time that PSE start working to reduce the demand for gas so that we PSE can begin reducing the damage you inflict on our climate and our society. If the first step in doing that means running sensitivity models, then you should do that rather than ask for permission not to.</p> <p>Improve public process and accountability to fully invite public input. When the public is seeking lower climate pollution, incorporate that into PSE's actions in a meaningful way.</p> <p>Model all the sensitivities for the gas IRP that could lead to lower gas usage or demand, so that PSE will feel that they have the information they need to lower and then eliminate regional reliance on fossil fuels.</p>	<p>Thank you for your thoughtful comments and suggestions concerning PSE's 2021 public participation process. PSE agrees that for future meetings we will consider placing, "involve" level topics as priority on the agenda to provide for more opportunity for engagement. PSE has decided the level of engagement for each topic to the level that we can commit concerning that topic.</p> <p>Thank you for your comments and suggestions concerning sensitivities.</p>
10/21/20	Bill Westre, Union of Concerned Scientists	<p>Slides 16 and 26: The business-as-usual presupposition behind these charts is illusory at best and not reflective of the reality of our current situation. We need to turn to science for a better perspective of what is real. The preponderance of reputable scientists have formed a consensus that we must eliminate all fossil fuel emissions by 2045. To not do so would lead to catastrophic consequences for citizens in every country. This is articulated in the IPCC Paris Agreement and its subsequent reports. The Federal Government may for the moment be attempting to get out of this agreement, but Washington State is committed to the Paris GHG reductions by the passage of HB 2311 last year. HB 2311 requires, with respect to year 2005, all GHG emissions be reduced by: 15% by July 1 2020 45% by 2030 70% by 2040 90% by 2050 These required emissions reductions apply to nearly all non-natural emissions including those by any corporation that produces or distributes methane which is the primary constituent of natural gas. The Bill also requires that by June 1st 2022 the relevant state agency must report to the Dept of Ecology the actions planned for the next biennia to meet these emission reduction targets. This date falls within the 4-year time construct of the 2021 IRP. As a major supplier of natural gas produced GHG emissions, PSE will surely be called on to submit its plan for these reductions.</p> <p>Question 1 - Is PSE willing to create a scenario that includes plan options that reflect the above listed reductions in the 2021 IRP? If not, why not?</p>	<p>Thank you for your comments and questions.</p> <p>PSE supports customer choice and we accommodate and support customers switching from gas to electric service.</p> <p>PSE looks forward to reviewing the Department of Ecology's progress report at the end of this year, indicating statewide greenhouse gas emissions as well as emissions from relevant key sectors, such as the electricity and/or building sectors. PSE will review Ecology's report, as well as the overall statewide greenhouse gas emissions limits established in HB 2311, in considering potential sensitivities to run for the next IRP cycle.</p> <p>The above response covers questions 1, 3, 4 and 5; thank you.</p> <p>Concerning question 2: PSE will be addressing this question in the Consultation Update on November 4, 2020.</p>

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		<p>Question 2 – PSE alludes to its responsibility to respond to these requirements by referring to renewable gas, hydrogen, and gas-to-electric switching. What other options are available to PSE to make these reductions?</p> <p>Question 3 - Will PSE inform its customers of the required reductions and its long-term impact on them?</p> <p>Question 4 – Will PSE incorporate these requirements into its gas conservation plan?</p> <p>Question 5 – Will PSE intensify its conservation rebate incentives to help its customers make the required transitions.</p>	
10/21/20	Virginia Lohr	<p>I do not agree with PSE's proposal to run no gas sensitivities. You showed us one set of results that indicated you would be able to meet most of your gas load, but that does not guarantee you will. The future is uncertain, as Covid has clearly demonstrated, so not running alternate sensitivities to look at alternate possible futures seems clearly imprudent.</p> <p>During the meeting, I brought up HB 2311 - 2019-20: Amending state greenhouse gas emission limits for consistency with the most recent assessment of climate change science. It became effective on June 11, 2020. While this bill does not include specific language requiring PSE to take action, it does present the clear intent of the legislature to take strong action to reduce greenhouse gas emissions. It is not improbable that a bill similar to CETA but directed towards utilities that supply natural gas rather than focused on electricity, would be enacted. I strongly recommend PSE run a gas sensitivity based on the updated greenhouse gas emission reduction targets in HB 2311.</p>	<p>Thank you for your comments and recommendations.</p> <p>PSE looks forward to reviewing the Department of Ecology's progress report at the end of this year, indicating statewide greenhouse gas emissions as well as emissions from relevant key sectors, such as the electricity and/or building sectors. PSE will review Ecology's report, as well as the overall statewide greenhouse gas emissions limits established in HB 2311, in considering potential sensitivities to run for the next IRP cycle.</p>
10/21/20	Anne Newcomb	<p>Please add requirements of GHG reductions from E2SHB 2311 to PSE Natural Gas sensitivities.</p> <p>Requirements: Greenhouse Gas Emissions Reductions. Washington must limit anthropogenic emissions of greenhouse gases to achieve the following reductions for the state:?</p> <p>By 2020, reduce overall emissions of greenhouse gases in the state to 1990 levels, or 90.5 million metric tons.</p> <p>By 2030, reduce greenhouse gas emissions to 45 percent below 1990 levels, or 50 million metric tons.</p> <p>By 2040, reduce overall emissions of greenhouse gases in the state to 70 percent below 1990 levels, or 27 million metric tons.</p> <p>By 2050, reduce overall emissions of greenhouse gases in the state to 95 percent below 1990 levels, or 5 million metric tons, and achieve net-zero greenhouse gas emissions.</p> <p>Thank you for listening to Stakeholder comments and recommendations!</p> <p>It is unsettling for me to see PSE is still considering Natural Gas (NG) expansion, as shown in slide #19, even with new Washington state laws in place and more coming online to address Greenhouse Gas emissions.</p>	<p>Thank you for your comments and recommendations.</p> <p>Slide 18 shows all natural gas resource alternatives available to PSE, however, as we discussed later in the presentation, conservation meets future gas growth for the base scenarios and no natural gas expansion is needed for the base scenario.</p>

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		<p>Hopefully PSE will add new WA state law requirements, including E2SHB 2311, to the 2021 IRP (NG) sensitivities to be run.</p> <p>Well wishes to all of you, Anne Newcomb</p> <p>Attached: <a href="http://lawfilesexternal.wa.gov/biennium/2019-20/Pdf/Bill%20Reports/House/2311-S2.E%20HBR%20FBR%2020.pdf?q=20201022100749">http://lawfilesexternal.wa.gov/biennium/2019-20/Pdf/Bill%20Reports/House/2311-S2.E%20HBR%20FBR%2020.pdf?q=20201022100749</a></p>	
10/21/20	Robert Briggs, Vashon Climate Action Group	<p>On March 19, 2020, Governor Inslee signed HB 2311, which updated the state's greenhouse gas emissions limits. Those emissions now need to be 45% below 1990 levels by 2030, 70% below 1990 levels by 2040, and 95% below 1990 levels by 2050.</p> <p>During the webinar, PSE proposed to abandon doing all gas sensitivity analyses because current gas resources appear adequate to meet near-term demand. I strongly urge PSE to reject that idea. Given the clear legislative intent expressed in HB 2311, PSE needs to be planning its gas system to comply with state emissions limits.</p> <p>As the largest gas utility in the state of Washington, PSE needs to recognize the importance of its fully complying with state law to the state's credibility and reputation. I would argue that complying with state law should be included as a baseline assumption. I would think it financially imprudent for PSE to fail to include a reduction of gas emissions in conformance with HB 2311 at least as a scenario, given the clarity with which the Legislature has now spoken. Future legislation is likely to make these limits more stringent not less.</p> <p>There is also an equity dimension to this situation that PSE, the WUTC, and the Public Counsel's office need to take responsibility for managing. As the direct use of gas is abandoned in favor of electricity for both cost and GHG emissions reasons, there will be fewer and fewer gas customers to shoulder the costs of maintaining gas infrastructure. The need to recover those costs with fewer sales will drive up rates, leaving those least financially able to cope with the consequences of an essential energy service experiencing a financial death spiral. It is essential that PSE with oversight from the WUTC proactively manage the scaling back and orderly withdrawal of this service. How will PSE be able to manage this development, which now appears inevitable, if it continues to pretend that change is not coming?</p> <p>This process has large implications for the electric side of PSE's business. It seems important that the consequences for electricity demand of contracting gas service be fully explored in PSE's electric IRP as well.</p> <p>I recommend that PSE include a gas sensitivity that reflects a contraction of gas deliveries to direct users proportionate with their contribution to state greenhouse gas emissions and in conformance with the schedule for reductions specified in HB 2311.</p>	<p>Thank you for your comments and recommendations.</p> <p>PSE looks forward to reviewing the Department of Ecology's progress report at the end of this year, indicating statewide greenhouse gas emissions as well as emissions from relevant key sectors, such as the electricity and/or building sectors. PSE will review Ecology's report, as well as the overall statewide greenhouse gas emissions limits established in HB 2311, in considering potential sensitivities to run for the next IRP cycle.</p>
10/21/20	Kyle Frankiewicz, WUTC	<p>Questions and comments from presentation were provided by reference slide number. Recommendations were provided as well.</p>	<p>Thank you for your questions and recommendations. PSE inserted each item below along with PSE's responses.</p>
10/21/20	Kyle Frankiewicz, WUTC	<p>Slide 10: I'm not clear on why Enbridge is a good example of a "peak event." Is the company's argument that the level of overbuild / redundancy / resilience in the system was tested and performed well during a major infrastructure outage outside of PSE's control?</p>	<p>The Enbridge event was not characterized as a peak event, but rather an example of the value of diversity of the portfolio. There is no excess capacity in the upstream pipeline and storage system (all of it is contracted) so when one part fails PSE has to rely on other parts of the portfolio and other planned responses (curtailment of interruptible loads and lower priority firm loads) in order to maintain service on the gas system.</p>

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10/21/20	Kyle Frankiewicz, WUTC	Slide 12: Seems that the NG line of business (LOB) more consistently sources gas from the Rockies than the electric LOB. Why is this? Broadly, since the low prices brought about through fracking, what is the historical ratio of sourcing from BC, Alberta and the Rockies?	<p>The PSE Electric (Generation) LOB does not source any gas from the Rockies, and never has, as it does not hold any firm pipeline capacity from the Rockies. PSE began acquiring pipeline capacity for generation well after all capacity from the Rockies was fully contracted. While a few expansions from the Rockies to the Pacific NW have been proposed, none were economic or attracted enough interest to be built. The table below provides a summary of the natural gas supply sources for the natural gas utility and a second table for the natural gas for power (the natural gas generators for the electric utility).</p> <p><b>Gas Supply source for PSEG and PSEE for 2010 through 2019</b> Supply sources are limited by the firm pipeline capacity held by each respective portfolio</p> <table border="1" data-bbox="1473 592 2545 1060"> <thead> <tr> <th>PSE Gas Customer Portfolio by year:</th> <th>BC at Station 2 or Sumas</th> <th>Alberta in Alberta</th> <th>US- Rockies &amp; San Juan Basin</th> <th>Total</th> </tr> </thead> <tbody> <tr><td>2019</td><td>49.4%</td><td>19.2%</td><td>31.4%</td><td>100.0%</td></tr> <tr><td>2018</td><td>49.0%</td><td>17.2%</td><td>33.8%</td><td>100.0%</td></tr> <tr><td>2017</td><td>54.8%</td><td>19.1%</td><td>26.1%</td><td>100.0%</td></tr> <tr><td>2016*</td><td>56.0%</td><td>21.0%</td><td>23.0%</td><td>100.0%</td></tr> <tr><td>2015*</td><td>57.0%</td><td>24.0%</td><td>19.0%</td><td>100.0%</td></tr> <tr><td>2014</td><td>57.1%</td><td>18.1%</td><td>24.8%</td><td>100.0%</td></tr> <tr><td>2013*</td><td>56.0%</td><td>21.0%</td><td>23.0%</td><td>100.0%</td></tr> <tr><td>2012*</td><td>51.0%</td><td>20.0%</td><td>29.0%</td><td>100.0%</td></tr> <tr><td>2011*</td><td>49.0%</td><td>15.0%</td><td>36.0%</td><td>100.0%</td></tr> <tr><td>2010</td><td>42.8%</td><td>18.7%</td><td>38.5%</td><td>100.0%</td></tr> </tbody> </table> <table border="1" data-bbox="1473 1096 2545 1598"> <thead> <tr> <th>PSE Power Generation Portfolio by year:</th> <th>BC at Station 2 or Sumas</th> <th>Alberta in Alberta</th> <th>Alberta at Stanfield</th> <th>Total</th> </tr> </thead> <tbody> <tr><td>2019</td><td>54.4%</td><td>19.7%</td><td>25.9%</td><td>100.0%</td></tr> <tr><td>2018</td><td>72.2%</td><td>18.0%</td><td>9.8%</td><td>100.0%</td></tr> <tr><td>2017</td><td>69.9%</td><td>21.8%</td><td>8.3%</td><td>100.0%</td></tr> <tr><td>2016*</td><td>64.0%</td><td>20.0%</td><td>16.0%</td><td>100.0%</td></tr> <tr><td>2015*</td><td>76.0%</td><td>1.0%</td><td>23.0%</td><td>100.0%</td></tr> <tr><td>2014</td><td>91.2%</td><td>0.0%</td><td>8.8%</td><td>100.0%</td></tr> <tr><td>2013*</td><td>88.0%</td><td>0.0%</td><td>12.0%</td><td>100.0%</td></tr> <tr><td>2012*</td><td>93.0%</td><td>0.0%</td><td>7.0%</td><td>100.0%</td></tr> <tr><td>2011*</td><td>83.0%</td><td>0.0%</td><td>17.0%</td><td>100.0%</td></tr> <tr><td>2010</td><td>77.5%</td><td>0.0%</td><td>22.5%</td><td>100.0%</td></tr> </tbody> </table> <p>* no decimal places</p>	PSE Gas Customer Portfolio by year:	BC at Station 2 or Sumas	Alberta in Alberta	US- Rockies & San Juan Basin	Total	2019	49.4%	19.2%	31.4%	100.0%	2018	49.0%	17.2%	33.8%	100.0%	2017	54.8%	19.1%	26.1%	100.0%	2016*	56.0%	21.0%	23.0%	100.0%	2015*	57.0%	24.0%	19.0%	100.0%	2014	57.1%	18.1%	24.8%	100.0%	2013*	56.0%	21.0%	23.0%	100.0%	2012*	51.0%	20.0%	29.0%	100.0%	2011*	49.0%	15.0%	36.0%	100.0%	2010	42.8%	18.7%	38.5%	100.0%	PSE Power Generation Portfolio by year:	BC at Station 2 or Sumas	Alberta in Alberta	Alberta at Stanfield	Total	2019	54.4%	19.7%	25.9%	100.0%	2018	72.2%	18.0%	9.8%	100.0%	2017	69.9%	21.8%	8.3%	100.0%	2016*	64.0%	20.0%	16.0%	100.0%	2015*	76.0%	1.0%	23.0%	100.0%	2014	91.2%	0.0%	8.8%	100.0%	2013*	88.0%	0.0%	12.0%	100.0%	2012*	93.0%	0.0%	7.0%	100.0%	2011*	83.0%	0.0%	17.0%	100.0%	2010	77.5%	0.0%	22.5%	100.0%
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10/21/20	Kyle Frankiewicz, WUTC	Slide 14: The CPA was discussed in July, but the assessment itself was not shared, and the presentation did not focus much on the gas LOB. What kind of demand-side resources are evaluated? Are any demand response measures considered?	The draft report of the CPA will be ready and provided with the draft IRP in January 2021. The July webinar included a discussion of the results of the natural gas measures [see slides 57 to 64 from the slide deck for the July Webinar; Webinar 5]. There was no discussion of natural gas demand response, as there are no gas demand response programs being considered [see detailed reply below].
10/21/20	Kyle Frankiewicz, WUTC	Slide 16: How many IRPs have assumed that the Tacoma LNG facility is necessary to meet the forecasted natural gas resource need in the near term? What is the current projected online date for the facility?	PSE anticipates the Tacoma LNG plant to begin commissioning and testing in late January 2021 and begin normal operation in Q1 2021. The 2017 IRP and the 2019 IRP process assumed the Tacoma LNG facility as necessary to meeting forecasted natural gas resource need for the IRP study period.
10/21/20	Kyle Frankiewicz, WUTC	Slide 16: follow-up to Participant Adcock's question - How is PSE's electric LOB factored into planning for the company's gas LOB? Bill Donahue clarified that gas supply and transportation books are fully separated between the lines of business. Is the electric LOB a transportation customer in any way?	PSE will be addressing this question in the Consultation Update on November 4, 2020.
10/21/20	Kyle Frankiewicz, WUTC	Slide 16: follow-up to Participant Olson's question - could PSE share the rate of voluntary cancellations of service for natural gas customers? Is there evidence of growing customer 'defection' (if that is the appropriate word) away from natural gas? Also, to echo Participant Adcock's question, we would appreciate a list of peak throughput days for each of the last winter seasons for added context in understanding the company's forecast.	PSE will be addressing this question in the Consultation Update on November 4, 2020.
10/21/20	Kyle Frankiewicz, WUTC	Slide 18: While no projects were listed for the Tacoma LNG facility or the Jackson Prairie storage facility, there may be other projects that do not reach the system-level focus of this presentation which nonetheless would benefit from consideration in the IRP. What drives decision-making for potential investments in facilities used by PSE's natural gas utility function but also marketed to other wholesale customers?	Opportunities for utility scale natural gas resources are currently very limited. Option 6 on slide 18 is related to Tacoma LNG, which can be more fully utilized if distribution bottlenecks can be eliminated to allow more vaporized gas reach a wider customer base. The Jackson Prairie owners have determined that given current technology and our current understanding of the underground reservoir, further expansion of the project could cause inappropriate risk to the existing resource, so no expansion is currently proposed. The only resource that is offered (by PSE) to other parties is Tacoma LNG, and that shared use is what made the project cost-effective to PSE. The use of Tacoma LNG by Puget LNG LLC is complimentary not additive to PSE's use as a peaking resource. PSE would consider shared use of other resources if that led to lower costs for PSE customers, but none have been identified.
		Slide 20: Based on staff's current understanding (see recommendation 1), the mandate to acquire all cost-effective conservation includes PSE's transportation customers. Has PSE calculated a cost-effectiveness threshold for these customers? How is the company analyzing transportation customer potential?	PSE does not acquire any resources to provide gas or upstream capacity to serve transportation customers so there are no avoided costs to account for.
		Slide 20: All conservation must be considered in new gas CPAs. How is PSE analyzing and including conservation potential within the industrial customer class (see recommendation 4)? For clarification, what conservation offerings are currently offered to industrial customers who receive gas directly from PSE – that is, industrial customers who are not transportation-only customers?	The non-transport industrial customers are treated the same as non-transport commercial customers with respect to any conservation offerings. The non-transport customers all contribute to the conservation rider and are all eligible for conservation offerings.
		Slide n/a: This presentation did not present any distribution reinforcement projects proposed by PSE. What are PSE's thresholds for defining run-of-the-mill O&M reinforcements as compared to larger projects requiring IRP vetting? What systems are in place for distribution-level pipeline safety (San Bruno, Greenwood, Baltimore)?	Distribution system reinforcement projects are part of the distribution system planning process and are planned when minimum pressure/flow criteria are met on the system based on peak hour design day modeling. Potential solutions are then determined and run through a benefit/cost analysis to help to determine the preferred solution. These projects are typically capital projects. Similarly, most maintenance planning projects involve the replacement of an existing property unit and are therefore capital. There is not necessarily a threshold for funding the remaining O&M projects. O&M based programs may include a backlog of known projects or can be placeholders for unplanned projects for the current year. The funding level is established based on the program plan for reducing the backlog or historical trending for unplanned work. Distribution pipeline safety is governed by PSE's Distribution Integrity Management Program (DIMP). PSE currently has 34 DIMP Programs that identify and mitigate pipeline safety risk in the distribution system. Also, an annual review of the distribution system is conducted each year to identify new threats, prioritize risk, develop and implement risk reduction measures, and evaluate results and effectiveness.

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		Slide n/a: Is DR considered in this IRP as a resource for the natural gas LOB? If I recall, DR was very briefly touched on verbally, but none of the slides discuss DR in the context of the NG LOB.	There is no natural gas DR included in the IRP. There is a DR pilot on the gas distribution system. As stated in the Webinar the gas planning in the IRP is on the gas transmission system that is upstream of the distribution system. Gas is nominated on a daily basis and thus DR which offset peak on an hourly basis on the distribution system does not impact the daily peak on the upstream system.
		Recommendation 1: Conservation, transportation customers, and HB 1257: Staff struggles to find an exclusion for gas transportation customers in the statutory language of RCW 80.28.380. We welcome any and all discussion and legal analysis that might support a conclusion one way or the other as the commission prepares to open a rulemaking on the implementation of this statute.	The purpose of the IRP is to “meet system demand with the least cost mix of natural gas supply and conservation.” While RCW 80.28.380 does not include a specific exclusion for gas transportation customers, it is worth noting that PSE does not plan for the supply of natural gas commodity for gas transportation customers. Gas transportation customers procure natural gas commodity independently and separately from PSE’s procurement of natural gas commodity for and on behalf of PSE’s bundled gas customers. Gas transportation customers do not rely on PSE for the supply of natural gas commodity, and their rates recover the cost of the use of PSE’s pipeline system to distribute the natural gas commodity they independently and separately procure from the interstate pipeline to the loads of the gas transportation customer. Additionally, these customers do not pay into PSE’s energy efficiency tariff rider and, instead, independently procure their own energy efficiency services. The statutory language in RCW 80.28.380 does not appear to change this long-standing practice, which dates back to the 2002 Stipulation Agreement, Condition 38, which states that “No gas conservation program costs shall be allocated for recovery from natural gas transportation customers.”
		Recommendation 2: Incorporation of social cost of greenhouse gas (SCGHG) in cost-effectiveness analysis, and HB 1257: As required by RCW 80.28.380, please provide a deeper explanation of how PSE’s cost-effectiveness analysis properly includes all costs of greenhouse gas emissions established in RCW 80.28.395. PSE includes a description of the cost adders in slide 17. How does this \$/MMBtu get included in the modeling? Does SENDOUT’s modeling allow it to consider conservation measures compared to incremental gas consumption priced at the higher, SCGHG-inclusive \$/MMBtu?	The total cost of natural gas used in PSE’s modeling includes the SCGHG and the cost of upstream emissions added to the natural gas commodity price. Thus any incremental use of gas is priced at the total cost of natural gas and conservation alternatives in the model will offset this total price when selected.
		Recommendation 3: Upstream emissions – Council methodology: The NWPCC is including upstream emissions estimates for its analysis, including an estimate for US-produced natural gas that is significantly higher than the estimate PSE is using for its own modeling. Why is PSE using a different upstream emissions estimate?	PSE’s estimate is based on the US EPA calculations and other studies that have been broadly accepted in the scientific community as discussed in detail in various IRP webinars. PSE and others provided significant feedback to NWPCC’s methodology and their estimate was partially adjusted.
		Recommendation 4: Make CPA used for this IRP publicly available: I don’t believe the company has shared the Conservation Potential Assessment for electric or gas resources. I understand that participants in the company’s conservation-focused advisory group have also not yet seen the document or the underlying data. Please share this document and data (in native file format) with stakeholders by posting it on the IRP webpage, as was done for the 2019 progress report. If the company feels that the CPA should not be shared at this time, please explain why and set expectations for when stakeholders will be able to review the CPA. This would also help stakeholders understand how recent code and standard updates – for example, increasing building efficiency standards – are reflected in the modeling.	The CPA output conservation supply curve data for the gas and electric will be posted online along with this Feedback Report. The CPA draft report is not ready for posting at this time and will be submitted along with the IRP draft submittal expected in January 2021. It will include discussion of the codes and standards updates in the CPA.
		Recommendation 5: Peak day planning standard: We recommend that the company thoroughly explore the 2005 study that arrived at a peak planning standard of 52 HDD for the natural gas LOB. While we would encourage the company to refresh the study to include new resource options, contemporary climatological forecasts and new statutory requirements as applicable, we are open to the argument that the results of the study are still valid in guiding company decisions for 2020-2045. The company should defend its decision to refresh the study, or to not refresh it.	Based on stakeholder feedback we continue to review this planning standard. Any refresh of the benefit/cost study will take time to complete the market research needed to update the value of reliability to customers. There will also have to be consideration of the safety implications for revising the planning standard that will need further review. Due to these elements, it will not be feasible to update this study for the 2021 IRP, however, it is under review for update in the next IRP cycle. Our planning standard is in line with industry standards, including planning standards of the other gas utilities in the region. So while we agree to review a possible refresh, it will not be feasible for the 2020-2045 time period.

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10/21/20	Kyle Frankiewicz, WUTC	<p>Feedback on gas sensitivities: While staff is interested in seeing the results of the sensitivities listed on slide 43, staff appreciates that there is a finite amount of analytical work that can be performed before the IRP must be filed, and that some scenarios will yield more compelling results than others. Staff has binned the sensitivities into the following three categories.</p> <p>Highest priority: 4, 9, 12, 13            Try to make the time: 2, 3, 7, 11            If there is time / if it is simple to do: 1, 4, 6, 8, 10</p>	Thank you for sharing WUTC's priorities concerning gas sensitivities.
10/21/20	Robert Briggs, Vashon Climate Action Group	<p>As someone who has been prodding PSE to take a serious look at hydrogen, I would like to help Bill Donahue in responding to James Adcock's question:</p> <p>"Why would you turn "Excess Electricity" into Hydrogen as opposed to Battery Storage or Pumped Hydro, or sell it to BPA for long term storage behind their dams as stored potential energy?"</p> <p>Batteries are great for dealing with most diurnal storage needs but are not economic for long-term storage. Similarly, hydro in the Northwest provides valuable balancing capability but not long-term storage. Aside from Grande Coulee, virtually all of the main-stem Columbia and lower Snake River dams are run-of-the-river and incapable of long-term storage. The only pumped storage capability in the system are the six pump/turbines in the Keys Plant at Grand Coulee providing just 314 MW, but again these are incapable of long-term storage. PSE should be looking at hydrogen for storage to complement batteries and pumped storage, not to compete with them. Hydrogen can provide long-term storage and meet PSE's needs for dispatchable renewable generation, obviating the need for fueling peakers with natural gas.</p> <p>An aggressive build-out of renewables in the Northwest will inevitably lead to surplus electricity far beyond what the region's power system currently has the capability to store. Making hydrogen can enable PSE to reduce the carbon content of the natural gas it delivers and to provide hydrogen for use as chemical feedstocks and transportation fuels. Any hydrogen PSE sells today would predominantly be displacing hydrogen that would have been manufactured from natural gas. Electrolyzers represent an ideal load for PSE to serve, as they can ramp up and down very quickly, are curtailable, and can run increasingly on zero marginal cost power that would otherwise be curtailed.</p> <p>According to Fortis BC, who is responding to a British Columbia mandate to decarbonize their gas system by 15% by 2030, at least 2/3 of that decarbonization will come through the introduction of renewable hydrogen into their natural gas system. Biogenic sources of methane are inadequate to meet the 15% requirement. Before the end of the decade hydrogen is expected to be flowing into the US through the Sumas hub, according to Fortis.</p> <p>I applaud PSE's foresight in becoming a founding member of the Renewable Hydrogen Alliance.</p> <p>I encourage PSE to continue looking at the role hydrogen can play in meeting decarbonization requirements for both their electric and gas IRPs.</p>	<p>Thank you for your comments and recommendations.</p> <p>As part of the electric IRP, several stakeholders have requested PSE to consider using an alternative fuel such as hydrogen for the peaker plants. The idea for the portfolio sensitivity is to turn the "excess electricity" into hydrogen so it can be used in the peaker plants for reliability instead of natural gas. PSE is currently researching this for the 2021 IRP.</p>

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<b>Questions from the webinar requiring follow-up</b>			
10/14/20	James Adcock	On a "peak coldest winter day" what percent of Puget's supplied natural gas is going to Puget's NG electric generators?	In the IRP modeling, we are only showing gas consumption for gas customers. The electric generation side has its own pipeline capacity and buys its own gas. Because PSE peak electric demand is also driven by cold temperature, the gas and electric generation demand can be coincident.
10/14/20	James Adcock	What has been your Peakest Peak Day condition in terms of actual MDth/day, in the last 10 years?	PSE will be addressing this question in the Consultation Update on November 4, 2020.
10/14/20	Fred Huetten	Slide 19: the cross-BC upgrades (it's Fortis most of the way as I recall, with about 250 mmcf/d of current capacity) has been in discussion for many years. What is the current status?	PSE's understanding is that Fortis would consider building the project if parties contract for enough capacity to justify the project. We understand that the minimum contracted volume is above 200,000 Dth/d. This project is not within PSE's control as it would require contracting by other parties in addition to any volumes requested by PSE.
10/14/20	Fred Huetten	Slide 19: Williams/NW Pipeline declared a Deficiency Period starting Sep. 25 which is continuing and will result in "anomaly repairs" next week resulting in zero flow for several days. While this is a short term issue, to what degree is PSE including this kind of reliability risk in long term planning?  <a href="http://northwest.williams.com/NWP_Portal/operations.action">http://northwest.williams.com/NWP_Portal/operations.action</a>	PSE relies on 100% of Northwest Pipeline (NWP) availability to meet a design peak day. The type of Deficiency Period and the occurrence of anomaly repairs is not uncommon for any pipeline (and indicates that the pipeline is fulfilling its maintenance obligations) and all pipelines plan and undertake this work in off-peak periods when shippers can use other pipeline capacity. PSE has maintained a very flexible portfolio of resources that allows it to manage around the periodic disruptions.
10/14/20	Srirup Kumar	Thank you. Following-on, would modular anaerobic digesters be eligible for conservation incentives offered to industrial, institutional and commercial clients?	There could be incentives if the particular technology results in energy savings AND those savings are cost effective. More information on incentives for specific projects can be found here: <a href="https://www.pse.com/rebates/business-incentives/commercial-retrofit-grants">https://www.pse.com/rebates/business-incentives/commercial-retrofit-grants</a>