

## STAKEHOLDER FEEDBACK: June 2022

<i>Received</i>	<i>Stakeholder</i>	<i>Question/Comment/Response</i>
5/26/2022	Elizabeth Graser-Lindsey	<p>Why on this slide (1 h: 28 min) is it said that energy storage is batteries when other approaches are cheaper especially on the grid scale? Why isn't a mix or other options considered?</p> <p>Why are gas and oil (above) still major sources of electricity with the HB 2021 requirement?</p> <p>Is one of your models able to consider how international competition for battery materials such as lithium would affect prices? Shouldn't a variety of storage methods be considered to protect against risk?</p> <p>1:46 Did the high-gas price scenario get run?</p> <p><b>RESPONSE:</b></p> <p><i>Why on this slide (1 h: 28 min) is it said that energy storage is batteries when other approaches are cheaper especially on the grid scale? Why isn't a mix or other options considered?</i></p> <p>The graph summarizes Wood Mackenzie's professional judgement for resource expansion to meet expected WECC load and reserves. While we mentioned only batteries as storage at our roundtable, Wood Mackenzie does include any type of already existing or announced storage asset (predominantly pumped storage and lithium). Please note that this build out is used by PGE only to generate long-term electricity prices for the Pacific Northwest. New resource options for PGE are discussed in a different presentation.</p> <p><i>Why are gas and oil (above) still major sources of electricity with the HB 2021 requirement?</i></p> <p>This figure reflects the resource buildout across the entire WECC. As HB 2021 affects only Oregon, other states within the WECC have different pace of transitioning towards renewables. For example, as California faces low renewable production during winter months it is expected to continue to use gas and oil to bridge the capacity gap as multi-day energy storage matures.</p>

*Is one of your models able to consider how international competition for battery materials such as lithium would affect prices? Shouldn't a variety of storage methods be considered to protect against risk?*

Similar to the first question above, the forecast reflects Wood Mackenzie's professional judgement of resource economics, therefore, the inclusion of lithium as an energy storage option in the WECC model indirectly incorporates risks associated with raw materials for resources. Similarly, when analyzing PGE new resource options, PGE does consider a range of investment costs that captures this procurement risk.

*1:46 Did the high-gas price scenario get run?*

Yes. We did not present it at the Roundtable but will be happy to generate a similar graph for the high gas future if it is of interest. Please let us know if you'd like us to.

6/7/2022

Elizabeth  
Graser-  
Lindsey

Here are some follow up questions (labeled new on the form):

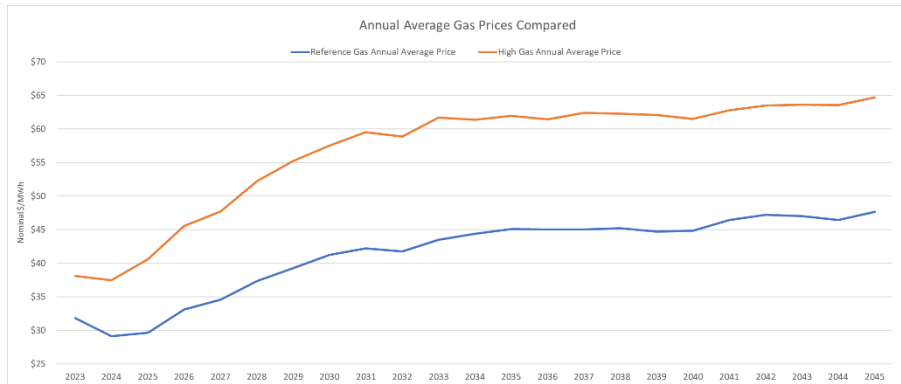
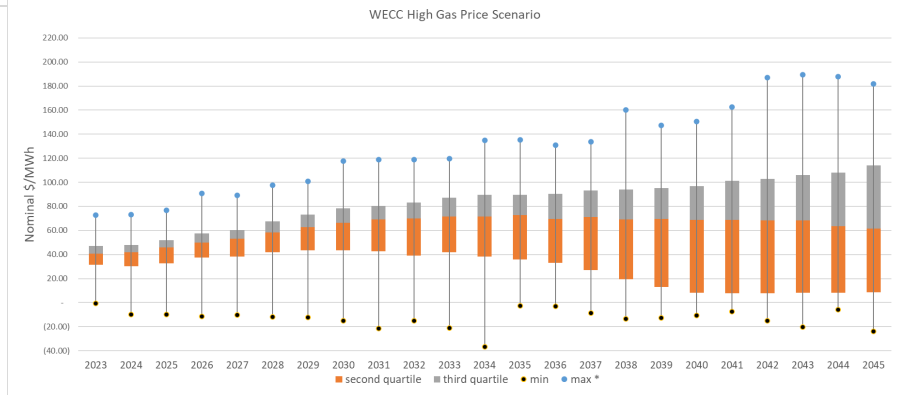
Doesn't HB 2021 require PGE to get clean energy from outside Oregon?

Yes, I would like the high-gas price scenario graph to be presented and compared.

Here are answers to your follow up questions. These questions and answers will be published during our July response cycle.

PGE is planning towards meeting the carbon reduction targets established in HB2021. The graph presented at the April roundtable represents Wood Mackenzie's forecast of the western region's resource capacity installed by technology and date. The major takeaway from the chart is that the entire WECC is transitioning to renewables and storage and fossil fuel capacity will see major retirements. Since WECC includes US states and Canadian provinces not covered by HB2021, Wood Mackenzie assumes that WECC will continue to generate from fossil fuels but progressively less so. Fossil fuel plants in WECC are not fully retired in our model after 2040.

As PGE is a participant in the western grid, we simulate long-term electricity prices with the overall regional demand and supply to reflect real world operations. We use this simulation only to generate long-term electricity prices.



We will share your questions and our answers in the next online stakeholder feedback pdf, posted in July 2022. If you have any other questions, please let us know! – IRP Team