

PSE IRP Consultation Update

Webinar 2: Electric Price Forecast

June 10, 2020

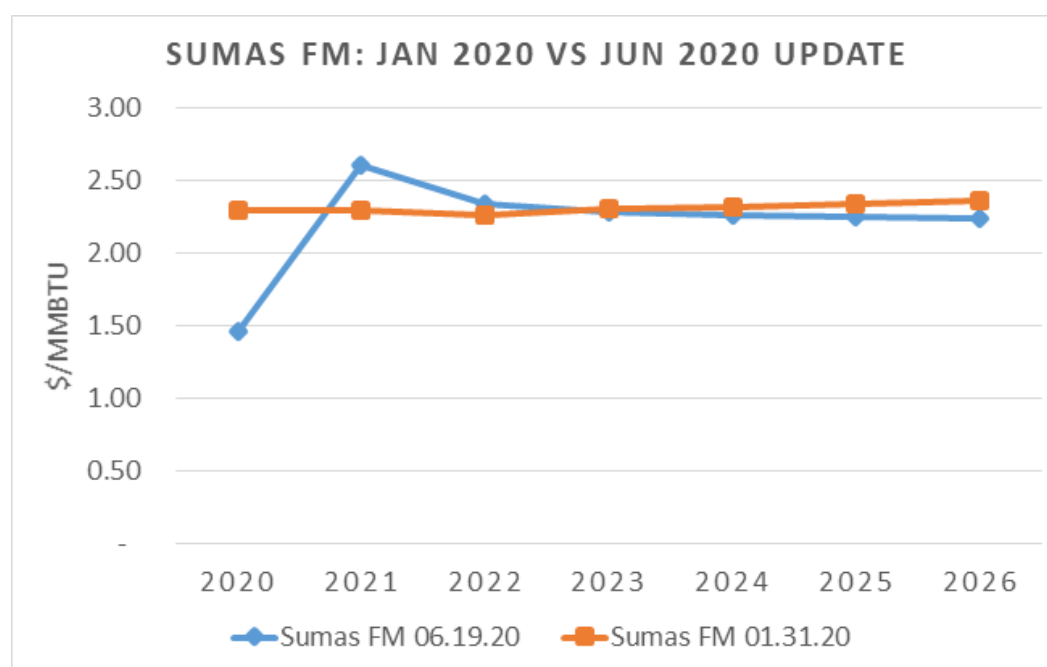
7/1/2020

The following consultation update is the result of stakeholder suggestions gathered through an online Feedback Form, collected between June 4 through June 17, 2020 and summarized in the June 24 Feedback Report. The report themes have been summarized and along with a response to the suggestions that have been implemented. If a suggestion was not implemented, the reason is provided.

PSE also thanks Fred Huette of Northwest Energy Coalition (NVEC), Vlad Gutman-Britten of Climate Solutions, Bill Pascoe of Pascoe Energy representing Absoroka Energy & Orion Renewables and Katie Ware of Renewables Northwest for meeting with PSE staff to help further clarify their questions and suggestions in follow-up meetings.

Gas price forecast

PSE received feedback from Kathi Scanlan, Washington Utilities and Transportation Commission (WUTC) Staff, requesting the use of an updated gas price forecast to reflect the socioeconomic changes of the COVID-19 pandemic. The PSE gas price forecast is an amalgam of two price forecasts incorporating forward marks for the short-term forecast (5 years in the future) and a Wood Mackenzie forecast for the long-term forecast (greater than 5 years into the future). PSE has updated the forward marks portion of the forecast as reflected on the chart below. The chart compares the January 2020 and June 2020 gas forward marks forecast for the Sumas hub. The chart shows a significant drop in prices in year 2020 and a slight increase in prices for year 2021, and a very similar projection in years 2022 through 2026. Given the 2021 IRP timeframe extends from 2022 to 2045, PSE does not anticipate the change in forward marks prices to have a meaningful impact on the power price forecast.



PSE has contacted Wood Mackenzie for an updated long-term gas price forecast and was informed the forecast would be released in the coming weeks. PSE will examine the magnitude of change of the updated long-term gas price forecast and, if deemed significant, incorporate the new forecast into the power price model. Further details will be provided upon receipt and analysis of the new long-term gas price forecast.

Regional demand forecast

PSE received feedback from James Adcock, Kathi Scanlan, WUTC Staff, and Joni Bosh and Fred Heutte, NVEC, concerning PSE's use of the Northwest Power and Conservation Council's (the Council) 7th Power Plan regional demand forecast. Since the 7th Power Plan was published in 2016, concerns were raised about the applicability of the regional demand forecast for PSE's 2021 IRP power price forecast. PSE has contacted the Council to request an updated demand forecast. The Council responded that the regional demand forecast intended for use in the 2021 Power Plan is not available for release at this time. However, the Council was able to provide the regional demand forecast used in the 2019 Update of the 7th Power Plan.

PSE is currently reviewing the "2019 Update" regional demand forecast and intends to incorporate the updated information into the 2021 IRP power price forecast. Further details will be provided upon analysis of the updated regional demand forecast.

Renewable need

On slide 38 of the Draft Electric Price Forecast presentation, PSE solicited feedback on how to model Washington State's renewable need. Two scenarios were presented: 22.9 million MWh by 2030 which equates to 90% adoption of renewable resources (Scenario 1) and 12.2 million MWh by 2030 which equates to 80% adoption of renewable resources (Scenario 2).

PSE received feedback from Vlad Gutman-Britten, Climate Solutions, Katie Ware, Renewable Northwest, Kathi Scanlan, WUTC Staff, and Joni Bosh and Fred Heutte, NVEC, on this topic. The majority of stakeholders suggested that PSE move forward with modeling Scenario 1 (higher renewable resource implementation in 2030) for the 2021 power price forecast.

PSE received feedback from Vlad Gutman-Britten, Climate Solutions, and James Adcock regarding the starting point for the ramp used for Washington state CETA requirements, as shown on slide 21. The renewable need will be updated with the demand forecast and an adjusted starting point for the renewable need ramp to start at the existing amount of non-emitting/renewable resources in 2022 and then ramp to the 2030 need. The ramp rate and demand forecast will be updated and further details will be provided upon completion of this analysis alongside other updates to gas price forecast and regional demand forecast discussed above.

Electric price forecast scenario selection

On slide 43 of the Draft Electric Price Forecast presentation, PSE solicited feedback on power price scenarios to include as part of the 2021 IRP. PSE received feedback from Vlad Gutman-Britten, Climate Solutions, Katie Ware, Renewable Northwest, Bill Pascoe representing Absaroka Energy & Orion Renewables, Kathi Scanlan, WUTC Staff, and Joni Bosh and Fred Heutte of NWEA on this topic. The table on the next page summarizes the stakeholder suggestions for power price forecast scenarios.

In the table, cells highlighted orange represent a change from Scenario 1 and dark grey cells represent scenarios proposed by stakeholders but will not be included in the 2021 IRP. The 'Comments' column provides an explanation of how the scenario may be applied in the 2021 IRP. The 2021 IRP Scenarios will include Scenarios 1, 2, 3, 6, 9, 10, 11, and 12.

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2021 IRP Power Price Forecast Scenarios

	Scenario Name & Requestor	Demand	Gas Price	CO ₂ Price/Regulation	RPS/Clean Energy Regulation	Comments
1	Mid	Mid	Mid	CO ₂ Regulation: Social cost of carbon included in Washington state, plus upstream natural gas GHG emissions CO ₂ Price: CA AB32	Washington CETA, plus all regional RPS regulations in the WECC	2021 IRP Scenario
2	Low	Low	Low	CO ₂ Regulation: Social cost of carbon included in Washington state, plus upstream natural gas GHG emissions CO ₂ Price: CA AB32	Washington CETA, plus all regional RPS regulations in the WECC	2021 IRP Scenario
3	High	High	High	CO ₂ Regulation: Social cost of carbon included in Washington state, plus upstream natural gas GHG emissions CO ₂ Price: CA AB32	Washington CETA, plus all regional RPS regulations in the WECC	2021 IRP Scenario
4	High + High CO ₂ Price (Vlad Gutman-Britten, Climate Solutions)	High	High	CO ₂ Regulation: High Social cost of carbon included in Washington state, plus upstream natural gas GHG emissions CO ₂ Price: CA AB32	Washington CETA, plus all regional RPS regulations in the WECC	PSE recognizes the value in modeling a 'very high cost of carbon'. However, this model run is better suited as a <i>sensitivity</i> on the existing High Scenario (Scenario 3) than as a standalone scenario.
5	WECC Wide CO ₂ Price (Bill Pascoe, Absaroka Energy & Orion Renewables)	Mid	Mid	WECC wide CO ₂ price (federal tax)	Washington CETA, plus all regional RPS regulations in the WECC	Given the similarity to Scenario 6, PSE has elected to combine the essence of this suggestion into the modeling of Scenario 6, which also incorporates a CO ₂ tax across the WECC.
6	Mid + CO ₂ Tax (Katie Ware, Renewable Northwest and Vlad Gutman-Britten, Climate Solutions)	Mid	Mid	WECC wide CO ₂ price (federal tax)	Washington CETA, plus all regional RPS regulations in the WECC	2021 IRP scenario where the cost of carbon is modeled as a tax instead of a cost adder. The cost will extend across the entire WECC as if by federal mandate. The cost is yet to be determined.
7	High + CO ₂ Tax (Katie Ware, Renewable Northwest)	High	High	WECC wide CO ₂ price (federal tax)	Washington CETA, plus all regional RPS regulations in the WECC	PSE recognizes the benefit of a High plus WECC wide CO ₂ price as a tax. PSE will make every attempt to include this scenario in the 2021 IRP. However, given the similarity to Scenario 6, PSE will only be able to include this scenario if resources and schedule allow.
8	Mid + Very Gas Price (Joni Bosh, NWECC)	Mid	Very High (25% greater than Mid)	CO ₂ Regulation: Social cost of carbon included in Washington state, plus upstream natural gas GHG emissions CO ₂ Price: CA AB32	Washington CETA, plus all regional RPS regulations in the WECC	PSE recognizes the value in identifying the impact of higher than expected gas prices on the power price forecast. However, given the similarity to Scenario 9, this scenario will not be modeled.

	Scenario Name & Requestor	Demand	Gas Price	CO ₂ Price/Regulation	RPS/Clean Energy Regulation	Comments
9	Low Demand + Very High Gas Price (Joni Bosh, NWECC and Vlad Gutman-Britten, Climate Solutions)	Low	Very High (25% greater than Mid)	CO ₂ Regulation: Social cost of carbon included in Washington state, plus upstream natural gas GHG emissions CO ₂ Price: CA AB32	Washington CETA, plus all regional RPS regulations in the WECC	2021 IRP scenario to understand the impact of higher gas prices combined with low demand on the power price forecast. This scenario has been selected instead of Scenario 8.
10	Mid + \$15 CO ₂ tax (Vlad Gutman-Britten, Climate Solutions)	Mid	Mid	CO ₂ Regulation: Social cost of carbon included in Washington state, plus upstream natural gas GHG emissions WECC wide CO ₂ tax of \$15/ton + inflation	Washington CETA, plus all regional RPS regulations in the WECC	2021 IRP scenario to evaluate CO ₂ tax pricing structure in addition to existing regulation on the power price forecast.
11	Mid + Increased Renewable Energy (Vlad Gutman-Britten, Climate Solutions)	Mid	Mid	CO ₂ Regulation: Social cost of carbon included in Washington state, plus upstream natural gas GHG emissions CO ₂ Price: CA AB32	Washington CETA, plus all regional RPS regulations in the WECC 100% OR RPS (similar to CETA), Xcel Energy, Idaho Power, Avista clean energy commitments	2021 IRP scenario included to understand future clean energy regulation and utility commitments on the power price forecast.
12	Low Growth	Low	Mid	CO ₂ Regulation: Social cost of carbon included in Washington state, plus upstream natural gas GHG emissions CO ₂ Price: CA AB32	Washington CETA, plus all regional RPS regulations in the WECC	2021 IRP scenario included to understand the potential long-term impact of COVID-19 on the regional economy and slower regional growth impact on the power price forecast.

Summary of all updates

PSE appreciates the feedback provided by stakeholders. In summary, the following changes will be implemented into the power price model:

- Updated gas price forecast to include recent socioeconomic impacts of COVID-19 pandemic
- Inclusion of the 2019 Update to the 7th Power Plan regional demand forecast
- Modeling of higher Washington State clean energy implementation in 2030 (i.e. Scenario 1)
- The renewable need will be recalculated with the 2019 Update of the 7th Power Plan regional demand forecast and a Washington CETA requirement ramp starting point at the existing amount of non-emitting/renewable resources in 2022

When the 2021 IRP power price scenarios are completed, PSE will provide a spreadsheet with a conversion from nominal to real dollars.

PSE is committed to keeping our stakeholders informed of our progress toward incorporating feedback into the IRP process. PSE will review the list of scenarios with stakeholders at the August 11, 2020 webinar and open for the floor for discussion around the details of these scenarios. Then the completed power price forecast scenarios will be presented at the October 20, 2020 webinar.