



Tacoma Power IRP Public Workshop #1

Monday, February 24, 2020

Date: February 24, 2020

Time: 1:00-3:00 P.M.

Location: Tacoma Public Utilities Building | 3628 South 35th Street | ABS-B1

Attendees

Frank Boykin, Tacoma-Pierce County Black Collective
Javier Figueroa, City of University Place
Todd Hay, Sustainable Tacoma Commission
Marquis Mason, Citizens for the Healthy Bay
Bruce Martin, WestRock
Christina Rupp, South End Neighborhood Council
Ruth Ann Schonbachler, Ratepayer
Jon Shields, U.S. Oil
Rebecca Sliger, Tacoma Community College
Andrew Strobel, Puyallup Tribe of Indians
Connor Tomkins, PraxAir
Graham VanderSchelten, Port of Tacoma
Lauren Walker Lee, Tacoma Community House
Kirsten Watts, Bonneville Power Administration

Staff

Rachel Clark, Tacoma Power
Ray Johnson, Tacoma Power
Ahlmahz Negash, Tacoma Power
Clay Norris, Tacoma Power
Gareth Tomlinson, Tacoma Power
Jenny Thacker, PRR
Mila Lassuy, PRR

Welcome

Jenny Thacker welcomed the group and reviewed the agenda. Attendees and hosts introduced themselves and explained what they hoped to gain from the IRP Public Input process.

Jenny then reviewed the objectives of the Integrated Resource Plan (IRP) Public Process Workshop #1:

- Ensure participants understand the IRP process,
- Ensure participants understand how they can contribute to the IRP process, and
- Ensure participants understand the big questions the IRP process needs to answer.

Public Process Overview

Rachel Clark from Tacoma Power's Integrated Resource Planning group provided an overview of the IRP public process. The objectives of the public process are to:

- Listen to and understand stakeholder objectives and concerns
- Provide a forum for productive stakeholder feedback
- Increase community understanding of Tacoma Power's planning process

Tacoma Power is committed to keeping the working group and greater community informed beyond the four public workshops, by posting all meeting materials on the website, providing opportunities for input through public surveys, and creating public comment opportunities inside and outside of the workshops.

Rachel stressed that while it was unlikely every suggestion from the public would make it into the 2020 IRP update, Tacoma Power will consider all ideas through this and future IRP processes.

IRP Basics:

Rachel reviewed the definition of an IRP. An IRP is a way to help power companies plan for an uncertain future. It is a 20-year plan, fully updated every four years and with a less extensive revision every two years. The current process is a four-year update.

This year's IRP is due on September 1, 2020. The project team aims to get it approved by the Utility Board by mid-August.

The IRP process consists of reviewing the current portfolio of resources against the anticipated needs, considering new resources to add or resources to remove from the portfolio, modeling how those resources meet anticipated needs, and selecting a resource portfolio.

Dealing with Uncertainty

Rachel discussed how Tacoma Power models for the future. Because the future is unknowable, the IRP process includes multiple potential resource portfolios modeled with a range of different conditions and scenarios. In every scenario, the models allow for regular variability (e.g. weather conditions and price differences). The scenarios include a "base case," where things continue on their current track, and four to five alternative scenarios in which things change. These can also be thought of as alternative possible futures.

The "base case" scenario incorporates approved political measures (e.g. the Washington Clean Energy Transformation Act and renewable energy mandates in some Western States,) but does not make guesses about future political measures (e.g. will other states introduce renewable energy mandates?).

2020 IRP Focus:

Rachel reviewed the major issues Tacoma Power needs to address in the 2020 IRP. In the 2020 IRP process, Tacoma Power will:

- Make near-term resource decision recommendations on whether or not to renew the contract with Columbia Basin Hydro.
- Conduct preliminary analyses for longer term contract decisions on the next (post-2028) Bonneville Power Administration contract (product choice, potential diversification with other resources, etc.).
- Incorporate new laws, including the Clean Energy Transformation Act (CETA). This includes incorporating the social cost of carbon into planning and resource decisions as well as meeting clean energy goals.

- Begin modeling climate change by starting to incorporate data from a study with the University of Washington Climate Impact Project modeling climate change impacts for the Tacoma Power service area. The study modeled climate change in a low emissions and a high emissions scenario and predicted an increase in temperature, especially during the summer, and changes in the timing of inflows to the dams, with more precipitation falling in the winter, less water stored as snow, earlier snow melt and lower inflows in the summer. Tacoma Power will include broader analysis of climate change impacts in the 2022 IRP once more time can be put into determining the best way to incorporate the climate change projections into our models.

Modeling Overview

Tacoma's Toolset

Tacoma Power uses a few different tools for modeling, which include

- Western Energy Coordinating Council (WECC) capacity expansion model
- Price simulation (production cost model)
- System model, and
- Portfolio performance analysis using outputs from the system model

The output of the capacity expansion model and the production cost model feeds into the system model. Ahlmahz Negash and Gareth Tomlinson of Tacoma Power's Integrated Resource Planning group, explained the models to the group.

Capacity Expansion Model

Ahlmahz reviewed the Capacity Expansion Model. This model has a lot of inputs, including zonal definition, existing resources, resources slated for early retirement, candidate resources, demand and fuel cost forecasts, and policy constraints. The outputs of this model are the buildout costs, expected resource buildout, and expected resource retirement.

Ahlmahz reviewed updates Tacoma Power had made to the "out-of-the-box" Capacity Expansion Model. The updated system:

- Separates the "OWI" zone into separate "OR," "WA," and "ID" zones, meaning that data from Oregon, Washington, and Idaho can be viewed individually rather than as a group.
- Updates early coal retirements, meaning that the models will not use coal sources that will be taken offline in the upcoming years.
- Updates WECC Renewable Portfolio Standards. These standards reflect individual state requirements to meet a certain percentage of their load with renewables.
- Adds the CETA constraint to include the social cost of carbon in Washington State only.

Aurora Production Cost Model

Ahlmahz reviewed the second step of the modeling process, the Aurora Production Cost Model. This model uses some similar inputs as the Capacity Expansion Model and is informed by the output of the Capacity Expansion Model. The outputs include hourly weather adjusted long-term price forecasts.

Both Aurora models focus on regional resource availability and price forecasts, rather than just local options. They are used to inform the SAM model, which looks more closely at how Tacoma Power resources perform.

There have been a few updates to the Aurora Production Cost Model, and Ahlmahz reviewed them for the group. The updated system:

- Includes 1950-2007 water year adjusted hydro capability. The publicly available data ends at 2007, and that is the only data accessible by the out-of-the-box Aurora software. Future updates will have more recent water years available once we are able to access those data from other sources.
- Simulates five natural gas price risk iterations. Gas prices have the biggest impact on the price of power in the market and this model simulates random price variances based on historic variability.
- Adjusts demand forecast to reflect 1950 to 2007 temperatures. Similarly to the water year data, the publicly available data ends in 2007. Future IRPs will have data from beyond 2007.

SAM Model (IRP System Model)

Gareth reviewed the SAM model. After the Aurora models are run, the SAM model looks at resources at a local level. The question SAM answers is, “how will Tacoma Power’s system operate in a future scenario?” The SAM model considers the prices created by the Aurora Production Cost Model system, various scenarios and weather trends, and predicts hourly energy outflows (dispatch) for each resource in a way that meets all resource and system constraints.

The SAM model allows for “plug and play” – which means that resources can be added and taken away and constraints can be applied to each resource.

Public comment

Questions

When Tacoma Power is developing scenarios, what is the value and usability of customer input? For example, if the Port is studying electrification, would it make sense to work together to inform the scenarios?

- Tacoma Power is definitely interested in working with other agencies to inform scenarios. The timing for this IRP process may mean that we cannot incorporate findings from the Port study in this round, but Tacoma Power could include it in future updates.

When you’re factoring random variability, what do you include other than weather and prices? Do you consider the impacts of a cyber-attack for example? What about Clean Air and Clean Water Acts?

- Tacoma Power understands the importance of cyber-security; however, this is not really a consideration in the IRP process which is mainly focused on determining whether or not Tacoma Power has enough resources in place to meet demand. Tacoma Power plans for things like cyber-attacks, but not through the IRP process. As for laws like Clean Air and Water Acts, Tacoma Power builds changes in these types of laws into the various scenarios.

Do you run the production cost model with the region (Oregon, Washington and Idaho) consolidated to compare how it performs relative to being broken out by state?

- Yes, we made that comparison initially to test how the model was performing.

Does the model look at local distribution?

- No, the model looks at zones, which are larger than our local power sources.

How much does Tacoma Power consider revenue that comes from selling power to outside agencies versus revenue that comes from the Tacoma Power service area when making resource decisions? In other words, is Tacoma Power prioritizing the supply needs of outside agencies over its customer base in making resource decisions?

- While revenue is a major factor in decision making, Tacoma Power always looks first at the needs of Tacoma Power customers and what is needed to meet those needs. When those are taken care, Tacoma Power sells the leftover power, and the revenue from those sales is used to keep customer costs low.

How does private renewable energy production factor into the percentage of renewable energy needed to meet mandates?

- Private energy production doesn't impact Tacoma Power's numbers. For example, if Tacoma Power needs to get to 15 percent non-hydro renewable sources, that percentage would not change regardless of what other renewable energy was being produced in the service area privately.

Do the models include the power Tacoma Power plans to export?

- While individual contracts are not explicitly modeled in Aurora, various power outflows are included in the scenarios.

How is the social cost of carbon calculated?

- The US Department of Commerce researched a wide variety of impacts of carbon including impacts on health, the environment, wildlife, and many more going out 300 years to create a cost to add to models. They settled on 2.5% so this is what Tacoma Power uses. Tacoma Power adds the social cost of carbon to the cost of the resources we are considering purchasing.

Do the models take transmission constraints into consideration?

- Yes, the models take current transmission constraints into consideration. No future buildout of transmission capacity is assumed in the models.

How does social cost of carbon get factored into the SAM model?

Tacoma Power accounts for the social cost of carbon on market purchases after the fact. First, we run a portfolio through SAM with the prices we get out of Aurora (without adding on a carbon cost). Then we look at how much carbon is in our portfolio in that run (e.g. through market purchases), and we multiply the social cost of carbon by those emissions.

How are you adjusting the load over time, when it comes to transportation?

- In our base case, transportation electrification growth is only captured by the trend we have already seen. Increased transportation load could be built into a scenario but it is not built in to the base case.

Will this IRP go to City Council or just the Tacoma Power Utility Board?

- The IRP will be approved by the Tacoma Power Utility Board and does not need to go to the Tacoma City Council.

Tacoma Power may enter the Energy Imbalance Market soon. Will this impact future loads and are you modeling for this?

- Tacoma Power is joining the Energy Imbalance Market in April 2022. This will allow for energy transactions at five- or 15-minute intervals rather than just hour intervals. The models are built with this switch in mind, but it is not currently modeled in the IRP since all price data in the IRP are hourly.

Are these models based on public or public and private utilities?

- These models are based on all utilities, public and private.

Next Steps

Tacoma Power will:

- Send out survey about what to consider in scenarios to attendees (completed)
- Send out schedule of upcoming meetings to attendees (completed)
- Make available the standard deviations of loads
- Provide meeting notes to all attendees 10 days after the meeting
- Post updated meeting materials from this meeting online
- Post meeting materials for the second meeting one week before the meeting

Attendees will:

- Take the survey on scenario planning by Friday, February 25