



In the Community to Serve®

TAG #5 WA – TAG Meeting

Date & time: 10/20/2022, 9:00 AM to 12:00 PM

Location: Microsoft Teams Meeting

Presenters: Brian Robertson, Devin McGreal, & Ashton Davis

In attendance: Ashton Davis, Brian Cunnington, Brian Robertson, Bruce Folsom, Byron Harmon, Caleb Reimer, Carolyn Stone, Chris Robbins, Corey Dahl, Devin McGreal, Eric Wood, Gabe Forrester, Garret Senger, Haixiao Huang, Jon Storvick, JP Batmale, Kary Burin, Kim Herb, Mark Sellers-Vaughn, Michael Parvinen, Monica Cowlshaw, Pamela Archer, Sebastian Weber, Zachary Sowards

Brian Robertson, Supervisor of Resource Planning, opened the meeting by welcoming and thanking stakeholders for participating in Cascade’s IRP Process. Brian then proceeded with introductions, the agenda, a safety moment, and a reminder of the stakeholder engagement goals.

Presentation #1 – Backcast Overview (Ashton Michael Davis)

- Ashton opened by sharing what cross-validation, or backcast, is and how it’s used to test the accuracy of a model.
- Ashton then provided a breakdown of how the cross-validation modeling works.
- Ashton shared the results of the model, as well as an explanation of what the results of the cross-validation tells Cascade. In summary, the “fit” of Cascade’s models have been relatively good and provide useful feedback on where improvements can be made.

Question: Byron asked if the Sumas SPE Loop industrial rate schedule results are representative of industrial customers in general.

Answer: Ashton responded with “in general, yes.” Industrial customers in general are more difficult to forecast than Residential and Commercial customers, but not all Industrial customers were as difficult to forecast than the Sumas SPE Loop.

Presentation #2 – Summary of Alternative Resources (Ashton Davis)

- Ashton provided a high-level summary of Cascade’s alternative upstream resources. Alternative upstream resources include transportation, storage, traditional natural gas, renewable natural gas, and hydrogen.

Question: Byron asked a clarification question about incremental RNG and hydrogen.

Answer: Brian explained that incremental is referring to anything above and beyond what Cascade currently is contracted for.

Question: Byron asked if the renewable fuels are incremental to our supply or if it would replace what Cascade is currently using?

Answer: Devin explained that it would absolutely replace traditional natural gas in an effort to reduce emissions.

Presentation #3 – Components of Candidate Portfolios (Brian Robertson)

- Brian covered Cascade's six steps to running the Company's Supply Resource Optimization Process. This process explains how Cascade analyzes portfolios through a deterministic and stochastic analysis and then runs sensitivity and scenario analysis on the top ranked portfolio.

Question: Byron asked a question about the portfolio generation process, if all portfolios go through the full Supply Resource Optimization Process, as well as why Cascade goes through the process of evaluating different portfolios.

Answer: Devin responded that there is a UTC rule that comes from the electric world where utilities have to evaluate multiple portfolios, so while the electric world that can be different resources like hydro, solar, coal wind, etc. a gas utility has less options. Cascade comes up with 5 or 6 portfolios that are a mix of environmental compliance options mostly, which for time efficiency reasons are only run under expected conditions. Even though the resulting optimized mix of resources is what we expect will end up ultimately being the preferred portfolio, it is important to test it under stochastic conditions like extreme price or extreme weather and to see what we can learn about it from scenario analyses. Additionally, if the portfolio that is optimized for deterministic conditions fails significantly under stochastic conditions, such as the Company not coming close to hitting emissions targets, the portfolio could still be rejected and require modifications.

- Brian recapped the As-Is Analysis, which shows how Cascade's current supply resources would meet future needs. Transportation shortfalls would begin mid- to late-2030's and emission shortfalls would begin right away.
- Brian then listed the portfolios and provided information about each portfolio. This included what the portfolio entails, how it does or does not meet emission reduction targets, as well as costs.

Question: Byron asked Cascade to explain the dynamics between offset and allowance purchasing and what would cause the blips on slide 27.

Answer: Brian explained the number of offsets/allowances and the prices of each, as well as having an understanding that decisions are made every four years for compliance periods which is an important factor of when carbon compliance options are selected. Brian also mentioned that Plexos has perfect knowledge, so it will optimize the least-cost options by compliance period.

- The final rankings of the portfolios were provided, with the All-in including DSM portfolio being the least cost, least risk option that met supply and emission targets. The All-in Portfolio includes a small amount of on-system RNG, offsets, allowance purchasing, and hydrogen to meet customer demand while meeting carbon compliance targets.

Presentation #4 – Stochastic Methodology (Brian Robertson)

- Brian provided background information on Cascade's stochastic methodology throughout the previous IRPs. Cascade was limited with the amount of Monte Carlo simulations in previous IRPs, but Cascade has continued to improve this process by utilizing R, a free statistical analysis software.
- Brian then gave details on how the process of weather and price Monte Carlo's work as well as some results from the stochastic analysis.

Presentation #5 – Scenario and Sensitivity (Devin McGreal)

- Devin described the new philosophy behind scenario and sensitivity modeling, which is reducing the number of scenarios to allow for more in-depth and robust analysis. In the past, Cascade modeled a wide breadth of scenarios and sensitivities, but time constraints did not allow for a deep analysis of the results.
- Devin went into detail regarding each scenario and sensitivity, describing what is included.
- Total system costs, carbon emission resource stacks, and key takeaways were provided for every scenario

Question: Kim asked if the carbon neutral scenario was linked to the E3 study that was done for Northwest Natural.

Answer: Devin responded that the carbon neutral scenario came from the UM 2178 docket, and the assumptions in the E3 report may not be the same assumptions in Cascade's carbon neutral scenario, although there may be some similarities.

Presentation #6 – Proposed Two-Year Action Plan (Brian Robertson)

- Brian described Cascade's current Two-Year Action Plan that Cascade will undertake over the next two years.

Presentation #7 – 2023 IRP Schedule (Brian Robertson)

- Brian went through the remaining TAG schedules for both WA and OR.
- Brian noted that the next TAG meeting will be Oregon-focused and take place on November 9th while the next WA step is that the draft will be filed November 23rd.

The Meeting was Adjourned

Per Cascade Commitment #8 (Stakeholder Engagement Design Document, 2/22/2022: "Provide TAG minutes that include the action items from bullet #7 as well as any upcoming deadlines for feedback on the IRP"), here are additional action items to track, coming out of the TAG 4 meeting:

1. Cascade will include narrative on scenarios that show emission shortfalls.
2. Cascade will provide bill impact analysis in the IRP.