Targeted TAG #5 – TAG Meeting

Date & time: 04/11/2024, 9:00 AM to 10:00 AM

Location: Microsoft Teams Meeting

Presenters: Brian Robertson, Jenny De Boer

In attendance: Abbie Krebsbach, Abe Abdallah, Alessandra de la Torre, Bailey Steeves, Becky Hodges, Brian Robertson, Byron Harmon, Caleb Reimer, Carolyn Stone, Chris Robbins, Corey Dahl, Debra Campbell, Eric Shierman, Eric Wood, Folsom Bruce, Gabe Forrester, Isaac Kort-Meade, Jennifer DeBoer, Kathleen Campbell, Kim Herb, Kyle Putnam, Lori Blattner, Mark Sellers-Vaughn, Matt Steele, Matthew Doyle, Michael Freels, Michael Parvinen, Molly Brewer, Noemi Ortiz, Quinn Weber, Russ Nishikawa, Scott Madison, Sofya Atitsogbe, Tom Pardee, Wesley Franks, Will Gehrke, Zachary Sowards

Brian Robertson, Supervisor of Resource Planning, opened the meeting by welcoming and thanking stakeholders for participating in Cascade's IRP Process. Brian reminded folks that we wouldn't be doing introductions at the beginning of the meeting but asked if/when people interjected throughout the meeting to please introduce themselves.

Robertson explains how to access various information on Cascade's website, such as older TAG information, stakeholder engagement documents, contact information, presentations, meeting minutes, and the remaining schedule for IRP meetings. He also mentions that the meeting recording will be posted on the website soon.

Presentation #1 – Safety Moment

- Jenny De Boer gives a quick safety moment on safety precautions for outdoor activities, including hunting, fishing, camping, and general outdoor enjoyment.

Presentation #2 – Demand Forecast

- Brian Robertson presented an overview of the demand forecast process, emphasizing its importance for understanding future gas usage. The forecast considers energy efficiency, transportation modeling, distribution system planning, and carbon compliance. The forecast is developed over the next 20+ years, going as far as 2050 for decarbonization modeling. The presentation discussed consolidating models to the pipeline zone level for efficiency. It also covered the use of weather data, heating degree days (HDD), and wind in the forecasting models. Fourier terms and auto regressive integrated moving average (ARIMA) models are used for time series analysis. A question was raised regarding the covariance of Fourier terms and HDD, which the team plans to investigate further. The presentation also touched on the software used for statistical computing and the process flow of the customer forecast model. There was a discussion about disaggregating customer classes by income quartiles for more precise analysis, which would require additional data and model adjustments. The presentation concluded with insights on the use per customer forecast results, including the impact of retail rates and Fourier terms on the models.

Question: Byron asked a question during Brian Robertson's presentation on the demand forecast process. Byron inquired about the potential covariance between Fourier terms and heating degree days (HDD) in the forecasting models. This question prompted a discussion within the team, indicating that further investigation into this relationship may be necessary for refining the forecasting models.

Answer: Brian responded by acknowledging Byron's question and indicating that it was a good point to consider. He mentioned that the team would need to examine the covariance between Fourier terms and HDD to understand if there is a significant relationship that could improve the forecasting models. Brian suggested that this investigation could lead to adjustments in the modeling approach to better capture the nuances of the data.

Presentation #3 – Customer Forecast

- Brian discussed the customer forecast model, which includes baseline alpha, coefficients for households and employment, retail price, and income. The model starts with a linear model and checks for collinearity. Some areas may have naive models, such as areas with consistent customer counts. The inputs include household, employment, and income data at the county level, actual customer counts from ThoughtSpot data matched with pipeline data. The model also uses four E terms and ARIMA models. Different combinations of variables are tested for the customer forecast, and collinear variables are removed. Retail price is considered per therm and is not multiplied by therms to avoid high correlation. The future customer bill impact includes carbon compliance costs.

Question: Byron Harmon asked about how retail prices are considered in the model and how they relate to customer counts.

Answer: Brian explained that retail prices are considered per therm and are matched with historical data to build relationships. Changes in retail prices may affect customer counts, but the correlation is tested along with other variables to avoid collinearity.

Question: Byron inquired about the impact of new building codes on the number of households and employment data. He asked if these factors would have a declining influence on future customer forecasts.

Answer: Brian acknowledged the point and mentioned that while he hadn't finalized adjusting the data for new building codes, it does make sense to flatten the numbers out. He noted that the number of households may not decrease but the number of households that can be served by the company may decrease.

Question: Byron asked about building stock attrition and its potential impact once customer growth due to building codes stops.

Answer: Brian mentioned that building stock attrition is around 1.4% but will look into this further. Caleb added that the attrition rate is around 2% on average, depending on the type of building, and is factored into the energy efficiency model.

Question: Corey Dahl asked for clarification on the inputs and assumptions built into the building stock attrition rate, specifically regarding conversions to electric.

Answer: Caleb Reimer explained that the attrition rate is complex and includes inputs from commercial and residential building stock assessments, as well as data from billing databases and the National Inventory of Assessments (NIA).

Presentation #4 – Customer Forecast Regime Change

- Brian discussed the impact of new building codes on customer forecasts. He explained that the Washington State Building Code requires compliance with the Washington State Energy Code, which has stringent requirements for energy use in new buildings. This includes zero

credits for combustion heating equipment, making it impractical for builders to use natural gas appliances for heating. Similar changes are expected for water heating, although details for commercial buildings are still being finalized. Brian also mentioned the Oregon Joint Action Plan, which aims to transition to clean buildings, reducing the use of natural gas. He noted the challenges in modeling these changes, especially in distinguishing usage data by appliance.

Question: Byron asked if Cascade has seen changes in actual customer accounts or the rate of change over time, considering the impact of building codes and compliance costs.

Answer: Brian noted a general slowdown in growth, which could be attributed to building codes or compliance costs. This data is included in the modeling process to build relationships between coefficients.

Question: Byron inquired about the prioritization of pre-2023 historical data versus newer data impacted by building codes and compliance costs.

Answer: Brian explained that they use seasonal decomposition to separate trend and seasonality. The seasonality piece, which shows no trend, is used to model the impacts of building code changes.

Answer: Kathleen Campbell from engineering services mentioned that some builders are still using natural gas for non-space or water heating purposes, like stoves and BBQs, which could affect usage per customer. She highlighted the need to consider how these changes might impact demand profiles and usage patterns.

Question: Byron asked if Cascade has reason to believe that the State Building Code Council is pursuing the zero fossil fuel emission goal with the same directness as the mandate.

Answer: Brian stated he does not have any insight into the Council's pursuit of the goal and cannot speak for the entire company.

Presentation #5 – Weather Normals and Climate Change Impacts

- Brian discussed the approach to weather normals and climate change impacts. Previously, Cascade used a 30-year historical period and calculated average heating degree days (HDDs). They are now considering using a shorter period for calculations. They contracted with ICF to provide projections using the CMIP6 model and SSP 2-4.5 and 3-7.0 scenarios, which represent heavily mitigated and largely unabated emissions. ICF will also review cold weather peak forecasts to assess how climate change may impact peak numbers. Brian opened the floor for questions.

Question: Byron highlighted the risks associated with both a hotter and a colder future. He mentioned that a colder future would impose harder HDDs, potentially accelerating customer flight if gas service became noncompetitive with electric. He also noted that a warmer future would mean less fuel consumption, posing risks for both scenarios. He asked if Cascade is considering these risks.

Answer: Brian acknowledged the risks and stated that Cascade plans to run scenarios using 20 different climate models and both SSP 2-4.5 and 3-7.0 scenarios. He emphasized the importance of the IRPs being updated every two years to reduce long-term risks.

Question: Byron asked if Cascade would be willing to run a scenario that aligns with the Northwest Power and Conservation Council's standard of RCP 8.5.

Answer: Brian noted that RCP 8.5 is from the CMIP5 study and mentioned the need to confirm with ICF how the SSPs compare to the RCPs and if they can run a scenario that aligns with that standard.

Presentation #6 – Non-Core Outlook

- Brian discussed the outlook for non-core customers, who schedule and purchase their own gas, generally through a marketer, and use Cascade's system to receive the gas. These customers include various industrial customers, such as farms, breweries, and food manufacturers, averaging 800,000 therms per month throughout the year. Cascade also serves six electric generation customers in Washington and one in Oregon, projected to use approximately 602,000 therms in 2025. The number of transportation customers has slightly decreased, with 241 customers projected for 2025. Industrial managers are communicating with potential industrial customers about the CCA impacts, but it's still early to determine the impact on transportation customers, who are projected to consume approximately 513,000,000 therms in 2025.

Presentation #7 – Feedback for Cascade?

- No feedback was given.

Presentation #8 – 2025 WA IRP Schedule

- Brian outlined the remaining schedule for the IRP, including the Environmental Compliance Cost Adjustment (ECCA) modeling on May 7th, distribution system planning on May 16th, and resource integration on May 30th. The tags will be kicked off in June through October with different draft dates, and the final draft will be circulated on December 3rd for comments. The goal is to wrap it up by February 14th for filing on February 24th. The next tag meeting will be on Tuesday, May 7th, and participants can contact IRP@cngc.com for questions or feedback. Brian thanked everyone for their participation and feedback, noting that updates will be made to the load forecast model.