



2025 IRP TAG #2 Meeting

Date & time: 10/24/2024, 9:00 AM to 12:00 PM

Location: Microsoft Teams Meeting

Presenters: Brian Robertson, Abbie Krebsbach, Megan Koelzer, Alyn Spector, Elizabeth Torske, Jodie Albert, Devin McGreal, Jenny DeBoer

In attendance: Abbie Krebsbach, Alessandra de la Torre, Alondra Regalado, Alyn Spector, Bailey Steeves, Becky Hodges, Brian Hoyle, Brian Robertson, Bruce Folsom, Byron Harmon, Caleb Reimer, Debra Campbell, Devin McGreal, Elizabeth Torske, Eric Shierman, Eric Wood, Jennifer DeBoer, Jodie Albert, Kathleen Campbell, Kim Herb, Mark Chiles, Mark Sellers-Vaughn, Matt Steele, Matthew Doyle, Megan Koelzer, Michael Parvinen, Michael Schoepp, Patrick Darras, Patrick Hanks, Quinn Weber, Russ Nishikawa, Ryan Denton, Ryan Kern, Samantha Christenson, Scott Madison, Shaun Henson, Tamy Linver, Tom Pardee, 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 briefly covers the overall agenda and notes a potential future TAG meeting on alternative fuels before moving forward.

Presentation #1 – Safety Moment (Brian Robertson)

- Brian presented a safety moment, covering winter safety. This includes methods to keep your body warm (hats, mittens, etc).

Presentation #2 – Abbie Krebsbach (Environmental Policy and Compliance)

- Abbie covers the commitment by Cascade Natural Gas (hereinafter referred to as the “Company” or just “Cascade”) toward reducing emissions. This includes the Company’s environmental policy and Company specific goals. One of these goals is to reduce greenhouse gas (GHG) emissions 30% by 2035 compared to 2022 levels.

Question (Byron Harmon): Byron seeks clarification on the GHG emissions reduction by 30% goal, asking if this is for distribution system emissions or if it includes customers.

Answer (Abbie Krebsbach): Abbie clarifies this goal is for distribution system and operational emissions. Abbie also further clarifies that this is not customer combustions emissions, noting these are “scope 1 emissions”.

- Abbie continues to cover the level of emissions the Company reported. This includes from leaks, from distribution systems, and from compressor stations.
- Abbie talks about the required emissions to report and where those requirements come from as well as a change in reporting that will come in 2025.

Question (Patrick Hanks): Patrick asks for further explanation about the emissions from leaks, wondering if they are side effects from typical operations or if they are a result from unforeseen events.

Answer (Abbie Krebsbach): Abbie clarifies that these are a result from many potential sources, including loose fittings, typical operations, blowdowns, excavation damages, and other events such as those. Mostly occurring where the system has fittings.

- Abbie mentions how Cascade and sister companies have joined “One Future Coalition” to better understand the Company’s emissions. This coalitions discusses a variety of topics on emissions (such as monitoring and lowering).
- Abbie mentions the EPA GHG data that was recently released, noting that total emissions in the US were found to be down by about 4% when compared to the previous year.
- Abbie further talks about how the company has replaced pipelines with new materials that also help reduce emissions.

Question (Byron Harmon): Byron asks how these emission reduction policies compare in terms of cost effectiveness relative to EE or non-conventional fuels.

Answer (Abbie Krebsbach): Abbie mentions how this will likely be answered at a future point in the presentation.

- Abbie continues to talk about the more robust GHG emission inventory the Company now has, how the Company is looking into more ways to reduce emissions (such as methane capture), and how they are piloting an emission survey using Picarro and Advanced Mobile Leak Detection technology in 2024. Abbie briefly explains how these work and how they help to quantify the leaks in the system, thus helping to reduce those leaks and emissions.
- Abbie talks about how energy efficiency (EE) and demand-side management (DSM) are translated into reduced emissions, helping to lower customer emissions, as well as details about how some programs work.

Question (Patrick Hanks): Patrick asks why the savings in 2021 was so high compared to other years (referring to slide 8 on reducing customer emissions).

Answer (Caleb Reimer): Caleb explains how there is a cyclical nature to larger projects that will have bigger effects on the therms reduced.

Presentation #3 – Megan Koelzer (Climate Commitment Act)

- Megan gives an overview of the Climate Commitment Act (CCA) and some specific details that are important for the Company (e.g. GHG emission targets). Megan further covers the idea of “linkage”, that would help places such as Washington, Oregon, California, and Quebec reach their emissions goals by reducing barriers in the marketplace.
- Megan covers Cascade’s regulated emissions as per the CCA and emissions metrics that were measured in 2023.
- Megan shares a graph of the projected path of the no cost allowance allocations to the Company, covering up to the year 2050. This graph reflects the decreasing nature of the program. Megan also mentions the details on how the allowances will reduce during different periods and talks about the different compliance periods.

Question (Will Gehrke): Will asks what Cascade's plan is for using consignment revenue.

Answer (Brian Robertson): Brian explains that, under the CCA, there are rules that are put in place to help low-income customers first.

Abbie Krebsbach further echoes Brian’s reply and adds that the Company also adds credits to certain customers even without that revenue.

Question (Patrick Hanks): Did you say your total emissions estimate can vary by 25,000 to 27,000?

Answer (Megan Koelzer): Megan clarifies that the operations emissions can indeed vary by 25,000 to 27,000.

Brian Robertson clarifies that this is the operational emissions and not customer combustion emissions.

Question (Patrick Hanks): Patrick further seeks to clarify whether the total range for these emissions is 25,000 to 27,000 or if this range represents the potential difference in what operational emissions are.

Answer (Abbie Krebsbach): Abbie clarifies this is the total range of what is reported for operational emissions.

- Megan continues to cover CCA compliance and goes over the different options to meet the compliance goals (e.g. allowances, EE, CSM, RNG, offsets).

Presentation #4 – Brian Robertson (Projected Emissions)

- Brian shares a graph showing the Company’s projected baseline emissions for Washington state, up to 2050.
- Brian shares another graph that is an example of allowances and the potential limitation of reliance on them going forward while trying to meet emission goals. One such limitation

being the purchase limit. There are also other factors to consider, such as the cost of allowances relative to other emission reducing options (e.g. RNG or hydrogen).

Question (Eric Shierman): Eric seeks to clarify the meaning of the “max purchase” line in the graph, whether this is an “economic limit” or a hard limit of the amount able to purchase.

Answer (Brian Robertson): Brian clarifies that this line represents the limit that entities are allowed to purchase during auctions (this is a percentage based on how many are available).

Question (Will Gehrke): Will comments it may be helpful to add the 25% limit to the analysis/graph for if linkage does indeed occur. Will also comments that using price ceiling units if adding a secondary market is not an option in Plexos.

Answer (Brian Robertson): Brian clarifies that there are price ceiling units in Plexos and that allowances purchased can be held onto and used in future periods for compliance (though there are limits to this process of banking allowances).

Question (Byron Harmon): Byron comments on the previous IRP and a worry that Plexos may pick a lot of allowances early on and then dump them all at the end to minimize costs. Byron also comments that it would be good to assume that elements of the CCA will continue after 2050, so Plexos performing that way may not be a good solution.

Answer (Brian Robertson): Brian clarifies that the last IRP did not have this same purchase limit included so that same issue should not manifest.

Question (Byron Harmon): Byron further comments on how the CCA rules are for emissions goals and there may be issues if the IRP just focuses on ecology’s rules.

Answer (Brian Robertson): Brian comments that the purchase limit should capture this and that he does not believe that we will see the Company having a lot of allowances in 2050. Brian further talks about how, by 2050, the Company will meet its emissions goals through low-carbon alternative fuels and/or electrification.

Presentation #5 – Alyn Spector & Elizabeth Torske (Building and Energy Code)

- Elizabeth talks about WA IA 2066 and its potential impact if passed in November. Elizabeth also talks about the Company’s involvement in Oregon Department of Energy’s (ODOE’s) Buildings Working Group to stay on top of Oregon codes and to ensure compliance.
- Alyn covers initiative 2117 and 2066 in Washington, noting the significant impact that these changes would have on the Company.
- Alyn then covers local and regional initiative for Oregon, particularly in Bend. This includes Bend’s Environmental and Climate Committee (ECC) meetings and important dates of theirs that the Company will continue to monitor to ensure compliance with their decarbonization targets. Further noting how the company has continued to have production conversations with stakeholders and the committee.

- Alyn moves back to Washington and covers the Thermal Energy Networks (TENs) Law, which was passed last legislative session and allows local distribution companies to pursue networked thermal energy opportunities. Alyn further comments on how the Company needs to wait for approval from regulators once the Company declares intention to pursue this network and how if this is approved it may open the door for funding from the Department of Commerce to bridge the incremental cost.
- Alyn goes over the next steps and exploration of the TENs Law.

Question (Quinn Weber): Quinn asks about the timeline for the Company to send things to the UTC and what kind of efforts the Company is looking at for the thermal energy networks.

Answer (Alyn Spector): Alyn defers to the business development team while noting that the Company is having conversations about potential opportunities, though there is nothing concrete at the moment. Alyn further comments on the various factors that go into making such a decision and to put such a project into place.

Presentation #6 – Abbie Krebsbach (National Focus)

- Abbie covers several potential or current regulations/legislation that could impact the Company's IRP planning. These include entities such as the EPA and the SEC.

Presentation #7 – Jodie Albert (Conservation Potential Assessment)

- Jodie talks about how the Company has re-run the 2023 CPA load map model with updated inputs from the IRP team, noting that this is not a new CPA model like what will be produced in 2025. The three scenarios are a reference case, low growth, and high growth. All of which use updated avoided costs, HDDs, inflation rate, and distribution system loss values.
- Jodie covers the sum of savings by 2045 for each of the scenarios, including a summary for each one.

Question (Byron Harmon): Byron asks about a perceived discrepancy between what was covered here and what was covered previously by Brian in a previous slide and asks if the relatively more expensive alternative fuels, such as hydrogen, are being factored into avoided costs to drive conservation efforts.

Answer (Brian Robertson): Brian covers how in the avoided cost model the carbon compliance adder is involved and that there is an added social cost of compliance value.

Question (Byron Harmon): Byron further comments that the marginal cost of fuel gets very expensive when considering alternative fuels, such as synthetic methane or hydrogen, and that these are much more costly than the CCA compliance costs.

Answer (Devin McGreal): Devin clarifies that the cost that is abated in the end is the cost of allowances, which is the cost that is in the avoided cost calculation. Devin recognizes the method may be simplified

currently while also noting the difficulty in doing something different without new results to help guide what should be modified.

- Jodie continues to finish the explanation of the various scenarios previously mentioned.
- Jodie then shares graphs that show projected consumption and savings from 2023 and for the 2025 reference case, highlighting similarities and differences.

Question (Byron Harmon): Byron asks why the lines in the graphs for the 2025 reference case show higher variance and are not as smooth as the 2023 original case lines.

Answer (Brian Robertson): Brian explains that this has to do with retail rates being included in the forecast.

Question (Byron Harmon): Byron further asks what this behavior may have been caused by.

Answer (Brian Robertson): Brian explains that it comes from certain conditions in the Plexos model that are being investigated so that the lines may be smoothed out in the future.

- Jodie continues to share more graphs, this time comparing the 2023 original case to the 2025 high growth case while explaining the similarities and differences.
- Jodie then shares more graphs, this time comparing the 2023 original case to the 2025 low growth case while explaining the similarities and differences.
- Jodie then highlights the overall estimated changes in savings between different residential customer types, commercial customers, and industrial customers before sharing the top 20 saving measures (e.g. furnaces, water heaters, etc).

Question (Byron Harmon): Byron asks why some values in the table showing the top 20 measures for savings do not change, while others do, between the difference scenarios.

Answer (Caleb Reimer): Caleb mentions that this arises from what changes were made between the difference scenarios. For example, if what was changed was HDDs, weather normal, avoided costs, inflation, and demand then that will produce different results than if only demand is changed. The variables across scenarios will then change based on the correlation with what is being changed.

Presentation #8 – Devin McGreal (Alternative Resources)

- Devin provides an overview of what renewable natural gas (RNG) is and how it is created and the potential for using it. Devin also covers current and potential RNG projects, the compliance aspect of it, and the restrictions of having it as a part of the Company's plan.
- Devin explains the differences between renewable thermal credits (RTCs) and RNG, as well as the relationship between them.
- Devin mentions that RNG may also be used as a peak day resource as well as an emission reduction alternative fuel.

- Devin talks about how RNG is evaluated, noting that the Company primarily looks at cost-effectiveness when looking at RNG projects. Further noting that if it is not cost-effective, the next stage would be the lowest reasonable cost analysis to look at the costs relative to other alternatives.
- Devin further highlights risks involved with RNG projects as well as ways the company can protect itself from them before covering the Company's cost-effective formula and how it quantifies this metric.
- Devin covers an example situation with actual values and the key inputs that are considered in the process, as well as the differences between investing in an RNG project vs buying RTCs.
- Devin discusses about the Company's future considerations with RNG/RTCs.

Question (Byron Harmon): Byron comments on how they have been hearing that anticipated amounts of RNG won't be able to meet the full future demand. Byron asks if there may be added quantifiable value to acting more aggressively in the market before it is actually needed so the Company may capture as much of the market as they need ahead of time.

Answer (Devin McGreal): Devin notes that he has not had any challenges in the market thus far with procuring RNG but also notes that the future of this market remains unknown. Devin recognizes all the unknowns involved in this question and mentions his excitement for the market going forward, while noting there has been a short-term ability to acquire this resource.

Presentation #9 – Megan Koelzer (The State of Hydrogen)

- Megan covers the importance of RNG and hydrogen in meeting decarbonization goals while also maintaining the reliability of the Company's distribution system.
- Megan talks about hydrogen research that is focusing on technologies and product development to help with decarbonization efforts. Megan also covers the different types of hydrogen (e.g. blue, green)

Question (Byron Harmon): Byron asks if the tests covered in the slides are also being conducted on the transmission system where there is a lot higher pressure on the lines, highlighting previous issues on higher pressure lines.

Answer (Devin McGreal): Devin states the Company will follow the guidance of experts in terms of this and blending percentages on the lines, noting that our focus is on the distribution side.

Presentation #10 – Brian Robertson (Other Low Carbon Alternative Fuels)

- Brian covers two other potential low carbon alternative fuels being considered by the Company. These are synthetic methane and carbon capture.
- Brian notes that these will be included in the low carbon alternative fuel projections but that the Company is waiting for more data and thus is not ready to share further information about these at this time.

- Brian mentions that carbon capture is only currently being considered for large industrial customers and that it is not currently eligible for Oregon or Washington compliance programs but could help offset carbon.

Presentation #11 – Jenny DeBoer (Price Forecast)

- Jenny covers the long-range market outlook, going over a graph from the EIA that shows predictions for gas prices at Henry Hub for several different scenarios. She also covers the sources that Cascade uses in putting together its own long-range price forecast.
- Jenny explains the price forecast weights, these being based on an analysis of the symmetric mean absolute percentage error (SMAPE), also noting the variety in frequency between the sources used and thus the need for a dampening mechanism in the forecast. She also shares graphs that showcase an example of unsmoothed vs smoothed weights by source and how this changes the graphs.
- Jenny also provides an example of weights for a price forecast, showcasing the difference between interpolated and not interpolated, explaining the desired traits of the interpolated method.
- Jenny provides graphs of the Company's current price forecast.

Question (Byron Harmon): Byron asks how the methodology has changed between this IRP and the last IRP.

Answer (Brian Robertson): Brian clarifies the methodology has not changed, it has just been updated.

Post Presentations –

Brian opens it up for questions and feedback then shares the 2025 Washington IRP schedule.

Question (Byron Harmon): Byron asks about the cost effectiveness of the distribution system emission reduction policies covered earlier in the meeting when compared to other emission reduction strategies (e.g. energy efficiency).

Answer (Abbie Krebsbach): Abbie highlights the nuances and complexities involved and that when looking at the implementation and cost of Picaro in order to develop an emission factor for the Company to use, it is currently more cost effective than purchasing allowances, but that there is still a lot more that will be learned from this method in the near future.

Question (Byron Harmon): Byron asks if there is an actual analysis of cost effectiveness on this or if it is just an assumption that the method is cost effective.

Answer (Abbie Krebsbach): Abbie provides an example of why the potential cost effectiveness of this method.

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 meeting:

1. Ensure the Avoided Cost is applying to correct carbon compliance obligation to be mitigated.