CASCADE NATURAL GAS

NOV17-OCT18 PGA HEDGING PLAN

(UM-132019)

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I. Overview/Purpose

On March 13, 2017, the Washington Utilities and Transportation Commission (WUTC) issued its Policy and Interpretative Statement on Local Distribution Companies' (LDCs) Natural Gas Hedging Practices in Docket UG-132019. This statement provided guidance on how LDCs should develop and implement more robust risk management strategies, analyses and reporting related to hedging activities.

In forming its opinions, WUTC Staff were heavily influenced by a 2015 white paper written by Michael Gettings of RiskCentrix, LLC (White Paper).[1] The White Paper outlines key philosophical reasons why LDCs should hedge, how to quantify risk so hedges can be implemented, describes different types of hedging strategies, and concludes with a discussion of how the WUTC and its Staff should evaluate hedging strategies of LDCs for prudency and accuracy.

Cascade's Gas Supply Oversight Committee (GSOC) oversees the Company's gas supply purchasing and hedging strategy. Members of GSOC include Company senior management from Gas Supply, Regulatory, Finance and Operations. In preparing the Company's hedging document, Cascade has relied on the following points when interpreting the WUTC hedging policy statement:

- WUTC affirmed its preference that natural gas LDCs utilize risk responsive hedging practices.
- Hedging practices should not be speculative in nature. Hedging is an activity designed to reduce price uncertainty, not an attempt to realize profits based on predictions of anticipated market movements.
- The Commission believes that while there is no right mix of methods that may be applied unilaterally due to utility specific operations, LDCs must reasonably plan for market volatility and appropriately react to balance ratepayer exposure to hedging losses. This includes recognizing dual protection of upside price risk and downside hedging loss, along with annual validation of acceptable hedging outcomes.
- Based on the WUTC hedging policy statement the Company feels the WUTC views the White Paper as providing valuable guidance in helping LDCs develop more robust risk management programs. Cascade will use the White Paper to inform the Company's enhanced risk management strategies, analysis and reporting.

[1] Natural Gas Utility Hedging Practices and Regulatory Oversight, Michael Gettings, July 2015

- WUTC expects LDCs to make reasonable progress in developing a more sophisticated risk management framework, targeting the submission of the 2019 PGA filing to contain plans that exhibit the full hedging strategy to implement for 2020 and beyond.
- With the 2017 PGA filing a preliminary hedging plan must be submitted that outlines the company's intended path to incorporating risk-responsive hedging strategies for the coming year.

The purpose of Cascade's 2017 WA PGA Hedging Plan is to describe Company's most recently completed PGA hedging year strategy, provide an overview of comparison of executed prices vs the market at the time, describe conditions affecting the Nov17-Oct 18 portfolio and hedging design, ending with a discussion of the Company's hedging policy implementation plan to meet the objectives outlined in the WUTC hedging policy statement.

This hedging policy implementation plan will lead to a more robust risk management analysis, execution, review and reporting, with an eye towards substantive overview of hedging methodologies and reviewing said strategy to identify opportunities for continuous improvement in meeting the Company's risk mitigation objectives.

II. 2016 (Nov16-Oct17) Portfolio and Hedging Design

Fixed Price Physicals, Financial Derivatives and Risk Management

The most significant expense to ratepayers is the gas that the Company purchases to meet customer demand. Cascade recovers only the allowed gas costs from its ratepayers. Allowed gas costs are determined by the state utility commissions. In determining allowable gas costs, the Commissions expect Cascade to employ prudent business practices and have a balanced, diverse and flexible portfolio in place to ensure customers are paying a reasonable price for the gas. Failure to do this may cause the Commissions to disallow recovery of imprudent gas costs within Cascade's rates. Cascade constantly seeks methods to ensure price stability for customers.

Because the price Cascade pays for gas is subject to market conditions, the Company may participate in hedging techniques within designated parameters to minimize the risk of losses or assumption of liabilities from commodity prices.

In Cascade's view, risk is associated with business objectives and the external environment. The number of strategies to deal with risk is almost infinite. Risk can be categorized as to whether the risk is one to be avoided, one to be accepted and controlled, or a risk left uncontrolled. When a risk is high impact with a high likelihood of occurrence, it is probably too high in relation to the reward and should be avoided. It is reasonable to accept business risks that can be managed and controlled. For some risk, the measurable impact is low and the risk may not be worth controlling at all. These are risks where Cascade can absorb a loss with little effect to ratepayers. Cascade's policy is directed toward those risks that are considered manageable, controllable and worth the potential reward. The manageable risk requires acceptable analysis of the possible side effects on the financial position compared to the potential rewards.

The Oct16-Nov17 portfolio and hedging design was authorized by GSOC on June 14,2016. For the Oct16-Nov17 PGA buying period, GSOC had the following high-level view of the market:

- Supplies remain plentiful in all three basins.
- Warmer than normal weather impacted demand; we are currently securing approximately 80% of normalized demand.
- While forward prices appear to be rising somewhat, most industry experts do not see large volatility in prices; prices are expected to remain low compared to recent years allowing for more index based supplies into the portfolio and encourage cycling of the Jackson Prairie storage accounts. Cascade was about 90% cycled this past winter. Cascade remains committed to the idea that Plymouth LNG is a needle peaking resource and not subject to the general storage cycling targets. Plymouth LNG is fully functional again and we have added 100K for the 16/17 season.
- Some level of fixed-price is still required to maintain a diversified portfolio.
- Lacking significant price volatility and with continued uncertainty about rules from the Commodity Future Trading Commission (CFTC), plus open hedging dockets in Oregon and Washington, no financial derivatives are in the 2016 portfolio design.

This procurement strategy leaves roughly 10 to 20% of the annual portfolio to be met with spot purchases. Spot purchase consist of either First of the Month (FOM) deals, executed during bid week for the upcoming month, or day purchases which are utilized to meet incremental daily needs.

III. Review of Projected vs Executed Prices of Natural Gas Contracts

The purpose of this section is to provide a high-level summary of the analysis Cascade developed to compare the price Cascade executed various contracts at compared to the listed futures price. Futures price is determined by looking up the market settlement indicators on the day the contract was executed. This analysis began in 2016 to help inform changes needed to the Company's risk management analysis, design, implementation, reporting and in future hedging strategies.

In these comparisons, a negative number indicated that we executed the contract at a higher price than the futures price in the period listed. A positive number indicated that Cascade executed the contract at a lower price than the forward pricing on the day of contract execution. The focus was on fixed contracts versus indexed contracts, since indexed contracts almost always moved in tandem, while fixed had move variance.

Over the course of the eight years reviewed, the sum of all the prices differences came out to $0.6867/Dth, with a mean annual difference of $0.0858/Dth. As alluded to above, for the most part indexed contracts had the lowest difference. This makes sense since the executed price is directly tied to the futures market of that basin. The exception to this was a few indexed contracts executed tied to the Station 2 receipt point. These contracts were tied to the prices at AECO, not Sumas, and thus the executed price significantly outperformed futures price, as AECO tends to be much lower in price compared to Sumas. Many fixed-priced physical contracts seemed to try to find the "best fit price" to account for either rising or falling futures gas prices. Obviously, this does not always work as the Company is competing in a free market for natural gas, and prices did not always move in a linear fashion. Outlined below is a summary of the findings of the analysis over the past eight periods:

Gas Year Nov 09 – Oct 10:

- Average difference was -$0.6475/Dth
- As the year progressed the differences in prices often began to shrink. This indicated that that the Company did execute at a reasonable fixed price, and if the contract were to extend further and prices kept the same trends, futures and executed price would probably align in a few months.

Gas Year Nov 10 – Oct 11:

- Average difference was -$1.1151/Dth
- This was the Company's worst year in terms of futures pricing outperforming our executed prices. Many prices were executed at 10-20% higher than the futures pricing, hence providing justification for establishing bandwidth metrics for future portfolio and hedging designs.

Gas Year Nov 11 – Oct 12:

- Average difference was -$0.1164/Dth
- This year had the lowest total variance in terms of the difference between futures and executed prices. Futures pricing on many contracts seemed to be relatively flat, which allowed for fixed prices to find a close best fit.

Gas Year Nov 12 – Oct 13:

- Average difference was -$0.5646/Dth
- Most contracts fell within +/- $0.11/Dth, showing a low variance in price difference, which is desired.
- All but one of the contracts with a higher variance were due to a fixed executed price significantly higher than the futures price in the first month of the contract, which was a price that futures never caught up to.

Gas Year Nov 13 – Oct 14:

- Average difference was $0.8129/Dth
- This year had the greatest variance between executed and futures pricing, as well as the largest positive differential between the two.
- Many contracts were initiated well below initial futures price for the contract, and prices never rose significantly.

Gas Year Nov 14 – Oct 15:

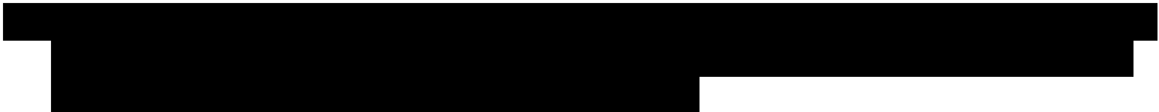
- Average difference was $0.3943/Dth
- Even though more contracts ended with the sum of executed prices higher then futures prices for the year, the net dollar difference ended in favor of executed prices
- This was mostly buoyed by a spike in prices in December of 2014, while most contracts were executed near or below the futures price of November 2014

Gas Year Nov 15 – Oct 16:

- Average difference was -$0.167/Dth
- Variance was very low for this gas year, with well over 50% of contracts coming within +/- $.10/Dth of the executed price in total
- All but two contracts were executed at or above the futures price for the first month of the contract. This makes sense with gas prices so low, one would expect it to be difficult to get a discount in the open market.

Gas Year Nov 16 – Oct 17:

- Average difference was $0.4659/Dth
- 17 of the 22 contracts for this gas year were executed at +/- 0.11/Dth
- Almost all the variance in this period is caused by the indexed contract at Station 2 being tied to AECO



IV. 2017 (Nov17-Oct18) Portfolio and Hedging Design

The Oct17-Nov18 portfolio and hedging design was authorized by GSOC on April 5, 2017. For the Oct17-Nov18 PGA buying period, GSOC had the following high-level view of the market:

- Supplies remain plentiful in all three basins
- Pricing – A Recent Morgan Stanley report claims gas prices between $2-3 US/MMBtu will be "The New Normal"
- At the time, the Yakima River Basin reservoir is filled to about 60% capacity, while the 5 major Oregon River Basins range from 94%-72% filled.
- There were many infrastructure projects to keep an eye on, most notably a storage facility within a natural cavern system in the Rockies. This facility could connect onto the Ruby pipeline, which could create a price arbitrage opportunity for gas from the Rockies.
- A recent survey of the Federal Reserve Bank of NY at the time forecasted an increase in the number of months before the Fed Funds rate will return to 0. This indicates a recession may be further out then initially projected.
- According to the reference case of the EIA 2017 Annual Energy Outlook, Natural Gas projected to lead the power sector in gross energy consumption over the next 20+ years.
- Wood Mackenzie forecasts global GDP growth to increase slightly, from 1.8% in 2016 to 2.0% in 2017--but politics are causing much uncertainty.
- According to the most recent data from EIA, natural gas production in US as of December is down .8% from the previous month, and 2.2% year over year.
- On March 13, 2017 Cascade received the WUTC policy & interpretive statement on hedging (docket UG-132019). Cascade will be working with staff, stakeholders and other LDCS on how best to implement the expectations the commission identified in the policy.

V. Implementation Work Plan

On an interim basis, the Company will continue to utilize the currently approved hedging plan while implementing a more robust hedging strategy over the course of the next two years.

Cascade recognizes that we may not currently have sufficient subject matter expertise to fully execute our enhanced risk management activities and analysis as guided by the White Paper. The Company has identified a new position for 2018 that may help us narrow this knowledge gap. In addition, Cascade anticipates the hiring of an outside consultant to review the Company's current hedging strategy, internal knowledge base, systems, controls and help the Company develop a plan to execute modifications that are in alignment with the goals of the WUTC's hedging policy. The Company's 2018 portfolio design will include more modeling of different scenarios, examination of risk associated with those scenarios, and identification of any opportunities to mitigate costs. There will also be additional discussion of the Company's strategy regarding the use of storage as a hedge vs its principle role for operational balancing. Cascade's analysis for 2018 will include a larger variety of various statistical analysis.

Additionally, key personnel have been and will continue to participate in educational opportunities to build expertise in hedging practices and methodologies. A restructuring of existing staff may also be necessitated during the next year or so to implement the enhanced risk management efforts.

To assist the consultant the Company has developed a summary of the Company's interpretation of the White Paper to use as a reference to compare to Cascade's existing policies. Combined with the Company's current hedging volumes, strategies and polices, this package of information will provide the consultant and Cascade's risk management implementation team with base material to assist in developing the necessary enhancements and modifications needed to provide GSOC with more robust analysis and reporting to shape and inform future hedging decisions.

Cascade has held preliminary discussions with several parties such as Gelber & Associates and Deloitte Touche Tohmatsu Limited, among others as potential industry experts/consultants to assist Cascade in developing more robust risk management strategies, analysis, reporting, etc. A consultant is expected to be on board within the next few months.

Cascade currently uses an energy trading and transactional system/gas management system called Align. Align is a software application from FIS Global. Cascade currently uses the Align functionality as the repository for contracting, pricing, volume, nominating, measurement and settlement of physical supplies. Align has a risk management component called ETRM, which Cascade has purchased. We are currently working with a gas management system consultant to assist Cascade in working with FIS to enable and configure ETRM. Cascade currently utilizes a third party to obtain historical and forward pricing so once ETRM is properly configured the system can assist Cascade in tracking, analyzing and reporting hedging activities, including mark-to-market and value-at-risk (VaR). A budget for this system work is currently in development for the ETRM configuration work. The Company expects the configuration of ETRM to be mostly completed during 2018.

The Company is aware that many utilities utilize Excel or third-party risk management analytical applications to perform modeling. While it is possible that Excel or tools such as R and SAS may be able to handle Cascade's risk modeling analyses and stress testing of hedging scenarios, Cascade

anticipates that it may need to purchase software, or contract with a third party for mathematical modeling purposes. Those decisions will be made during 2018.

Working with the hedging consultant and using the White Paper as a resource, the Company will work with stakeholders to develop metrics to calculate risks, identify mitigation strategies, enhance our reporting and provide GSOC with sufficient analysis and reporting to determine the effectiveness of our hedging strategy and determine if modifications might be needed to the Company's hedging policy. Cascade's 2018 PGA filing will contain a more expansive explanation of the Company's more robust hedging strategy. A fully executed enhanced hedging strategy is expected to be in place by the filing of the 2019 PGA filling.