2018 Hedge Plan Update

WUTC Recessed Open Meeting
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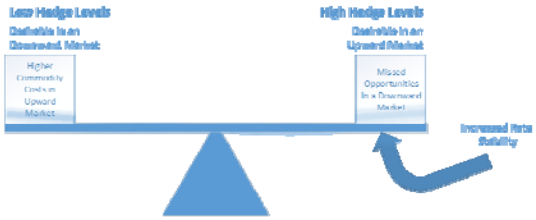
Agenda

1. Review last year's update
2. Progress made during the past year
   - Impacts of the Enbridge line break on hedging
3. Plans for 2019 and beyond

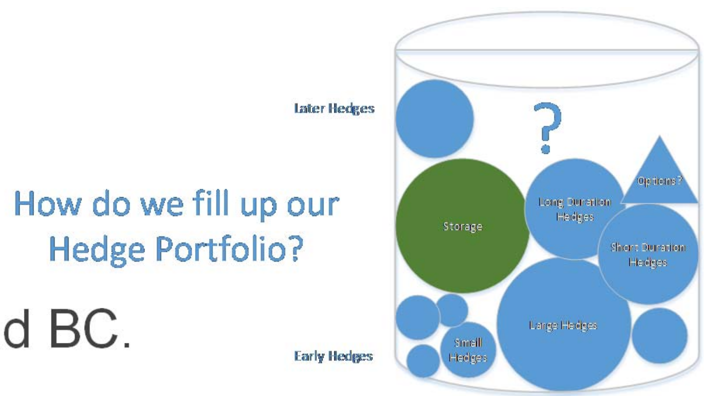
Summary of Last Year's Update

Our work plan for the implementation of risk responsive hedging focused on these parameters:

- Timing
  - When to execute hedges.



- Tenor
  - Which future month(s) should be hedged.
- Instruments to use
  - Swaps, options, fixed-price physical.
- Basins to hedge
  - Deciding between Rockies, Alberta, and BC.



Where We Left Off…

- In our 2017 update we provided a timeline of 1-2 years to reach full implementation on a risk-responsive approach to our hedging practices.

- After last year's meeting, we began analyzing options for dynamic hedging and continued to research and develop our risk responsive methodology.

Progress Since Last Year

- We implemented a new Energy Trading Risk Management (ETRM) system using the Allegro software.
  - Brings our Front, Middle and Back Office functions into one platform.
  - A key prerequisite to implement the planned changes.
- As we move toward risk-responsive, we implemented an interim hedging strategy approach that analyzed market conditions for asymmetric risk.
  - Hedge when the risk of rising prices was deemed higher than the risk of falling prices.
- Continued research and development towards a finalized risk-responsive program.

Asymmetric Risk Hedging

We focused on the impact of forecasted marketed conditions on prices, specifically:

- Weather
  - Weather forecasts during spring/summer 2018 consistently called for a warm 2018-19 winter throughout the country.
  - Warm weather forecasts act to drive forward prices lower because they imply lower market demand.
  - The risk became asymmetric as the only significant change to the weather forecast would be a call for colder weather, which would act to drive forward prices higher.
  - Accordingly, hedging at higher levels for the 2018-19 PGA year would reflect warm weather forecasts and lower prices, while shielding customers from the risk of rising prices should the weather turn out to be colder.
- Storage and Production
  - Storage levels across the country were at low levels throughout the spring/summer 2018 and entered the heating season at their lowest levels since 2005.
  - Low storage would imply higher forward prices.
  - Offsetting low storage was record high production levels in the US, so the combination of these two factors were viewed as neutral towards hedging.
- Price volatility
  - Canadian market volatility was assessed and showed price risk asymmetry on the upside, therefore, AECO and Station 2 were hedged at higher levels
  - Rockies price risk analysis indicated less hedging for the non-heating months of 2019

Fall 2018 Decision to Split the Hedge Portfolio

- After a year trying to implement the same approach to hedging for both Oregon and Washington, it was determined that a better approach would be to develop separate hedge portfolios for each state.
- Reasons for this decision include:
  - Our focus in Oregon is on minimizing and stabilizing gas <u>rates</u> paid by customers, which includes the impact of deferrals. This approach leads to more 1-3 year hedges, as well as not performing hedges within a PGA year..
  - Washington approach focuses on upside price risk and hedge losses. Its focus on risk analytics depends on market data, which drops significantly the further out in time the hedge transaction.
  - In short, a single hedge portfolio cannot serve the needs of both Oregon and Washington.
- NW Natural's physical gas purchases and storage resources will remain integrated to ensure the same reliability of service to Oregon and Washington customers.

Moving Forward

Beginning with hedges executed in 2019 for the 2019-20 PGA year, our Washington hedge portfolio will have four hedging strategies in our overall risk responsive framework:

- Dynamic Hedging
- Storage
- Programmatic Hedging
- Discretionary Hedging

Future Portfolio Composition

Dynamic Hedging – Up to 65% of our portfolio, though expected to be far less than this percentage. At-risk and other metrics will be used to inform defensive hedges through time. We will monitor the risk of customer rates increasing above a defined percentage from one year to the next.

Storage – Our storage inventories account for about 15% of our total annual sales requirement. This includes underground storage at Mist and Jackson Prairie, as well as our two LNG facilities. We will continue to allocate these values between Oregon and Washington on a volumetric basis, which means approximately 11% of the total is allocated to Washington. Following past practice, storage volumes will continue to be purchased for injection/liquefaction on the spot market and are <u>not</u> financially hedged.

Programmatic Hedging – About 20% of the portfolio will be programmatically hedged using the prior strategy where asymmetric risk of market conditions is evaluated. We would expect this category to consist mostly of multi-year hedges to provide year-to-year rate stability.

Discretionary Hedging – Hedging in this category will be based on market opportunity and is expected to be rare.

Enbridge Impacts on Hedging

- Our hedging for the 2018-19 PGA year was conducted during the spring/summer/fall of 2018, and was completed shortly before the October 11th line break.
  - Accordingly, the Enbridge event did not have an impact on our hedges or hedging strategy for the 2018-19 PGA year.
- Comparing our current hedging portfolio to the forward market, it is currently forecasted that our hedging program will save Washington customers approximately [redacted] in commodity costs over the 2018-19 PGA year (roughly [redacted] residential customer).
- Is a higher level of programmatic hedges justified in order to more effectively shield customers from unforeseen events?

Next Steps

We are currently working on the following items in order to fully implement a risk-responsive hedge system for Washington customers:

- **Hedging Policy** – establish governance, boundaries, reporting, etc., as needed for hedge planning, status and performance
- **System modifications -** We are currently modifying the systems used in our Front, Middle, and Back Office functions to support hedge portfolios differentiated by state.
  - Physical purchases and storage volumes for Washington customers will remain integrated with Oregon customers.
- **Analytics -** We are reviewing proposals for software to calculate Value at Risk and other metrics to enable dynamic hedging. Our goal is to have this in place by this coming spring, which is when we normally would start hedging for the next PGA year.
- **Hedge portfolios will be split by state for the 2019 PGA filings in Oregon and Washington**