Puget Sound Energy

2018 Hedging Plan

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I. Background and Summary

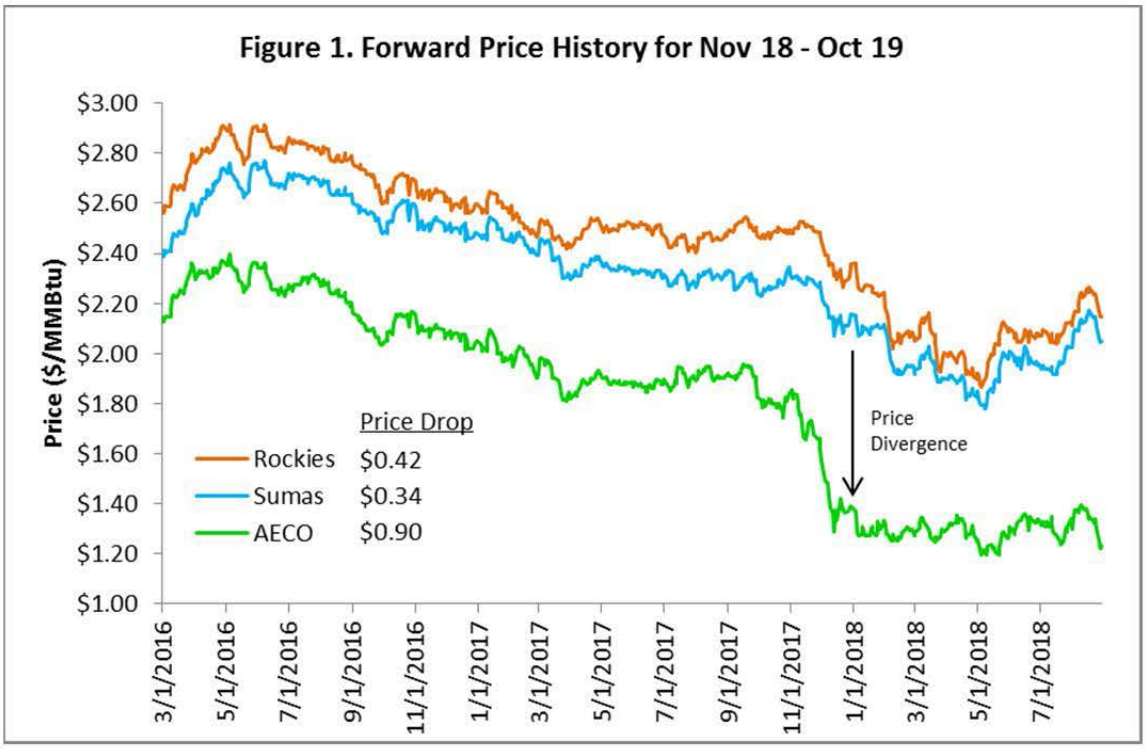
The goal of Puget Sound Energy's ("PSE's") natural gas hedging program is to balance the benefit of customer protection from market price volatility with the cost of hedging. This review focuses on PSE's commodity price hedging plan which is one component of PSE's broader energy supply program. PSE's hedging plan includes programmatic, risk responsive, and discretionary (cash cost) strategies. The plan considers seasonal and daily load variability, prices, natural gas storage, and transportation (pipeline) assets. Within the hedging plan, PSE uses its storage assets to reduce winter hedging requirements as withdrawal flexibility helps mitigate price volatility. Transportation assets provide price diversity which enables hedging flexibility at multiple supply basins in the region. In addition to the hedging benefits, unutilized storage and transportation capacity is further optimized in the short term market to reduce commodity costs. This combination of strategies meets PSE's objective of developing a robust hedging plan that balances the benefit of commodity price risk reduction with hedging costs.

II. Oversight and Controls

The hedging program is governed by PSE's Energy Risk Policy ("Policy") and associated Energy Supply Transaction and Hedging Procedures Manual ("Procedures"). The Policy and Procedures are approved by PSE's Energy Management Committee ("EMC"). The EMC provides policy direction and oversight of PSE's energy risk policies and is comprised of company officers and directors. Energy Supply Merchant ("ESM") provides the EMC with a monthly update of market conditions, hedging activity, and a forecast of hedging costs or gains. The EMC reviews and evaluates recommendations to the hedging program.

III. Market Summary

Commodity prices trended lower over the past 3 years for the November 2018 – October 2019 PGA year (Figure 1). The largest price drop came from the Western Canadian Sedimentary Basin (WCSB) with a $0.90/MMBtu move lower at AECO. AECO price moved lower versus Rockies and Sumas as a result of increasing western Canadian production, bottlenecked by inadequate takeaway capacity to other markets. Pipeline expansions to increase capacity are not expected until the 2019-2023 timeframe.



IV. Hedging Strategies

1) Programmatic Strategy

In response to the Policy Statement issued by the Washington Utilities and Transportation Commission ("WUTC" or "Commission"), PSE reduced its existing programmatic strategy from 50 percent to 35 percent of annual demand, improving the flexibility to lower hedging costs. This program change was implemented in November 2017 starting with the November 2018 – October 2019 PGA year. The 35 percent programmatic level provides a balance between price stability, reducing the effects of natural gas price volatility on portfolio costs, and the risk to hedging losses. The strategy is a prescribed dollar cost averaging approach where hedges are added consistently over a [redacted] year time horizon reducing hedging concentration. Hedging volumes are added seasonally in [redacted] hedging periods allowing for ratable risk reduction (Figure 2). Programmatic hedges can be accelerated in response to market opportunities.

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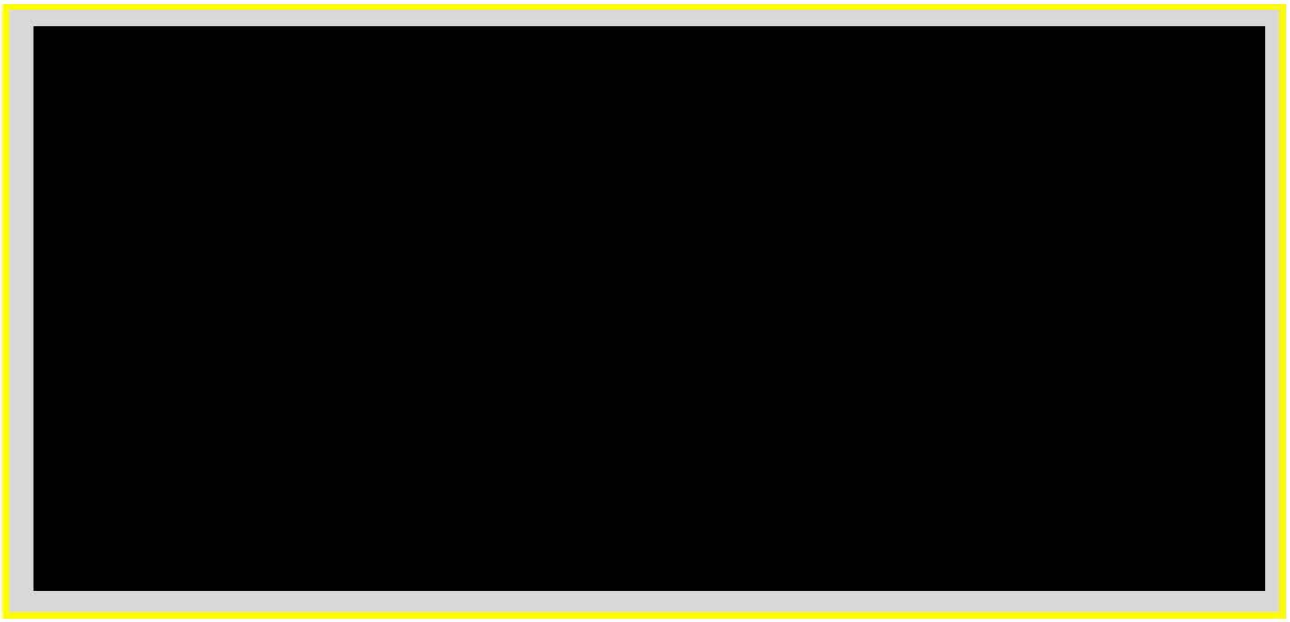


2) Risk Responsive Strategy

In response to the Policy Statement issued by the WUTC, PSE added a risk responsive strategy to the hedging program. This change was implemented in November 2017 starting with the November 2018 – October 2019 PGA year. The risk responsive strategy hedges approximately 15 percent of demand and is based on a risk-view rather than a market-view, measuring and monitoring market risk conditions. Risk responsive hedges are added in response to the risk of higher and lower prices. If hedges are not required then hedge losses will not be incurred.

i. Exposure Calculation & Transaction Control

Exposure for the risk responsive strategy is measured and monitored through a Risk Responsive Model (RRM) by front office trading analytics and middle office. The current exposure calculation and the potential for future price movement (value-at-risk, or VaR) governs hedge execution in this strategy, prescribing hedging when necessary based on a risk-view. PSE's middle office (Energy Risk Control) on a weekly basis, updates the model ensuring that all executed transactions are captured and that the output is validated with current prices and volatility metrics.

Market prices and volatility are measured weekly against [redacted] in the risk responsive strategy in order to constrain costs to a [redacted] The RRM tool (Tables 1 and 2) informs front office of the potential for higher prices (VaR-C) and hedge losses (VaR-L). Tables 1 and 2 show the output from the RRM tool, displaying the weekly measurements including market prices, volatility, and VaR. Table 1 measures the [redacted]

[redacted] Table 2 measures the [redacted]

In the weekly measurement, [redacted]

[redacted]

[redacted]

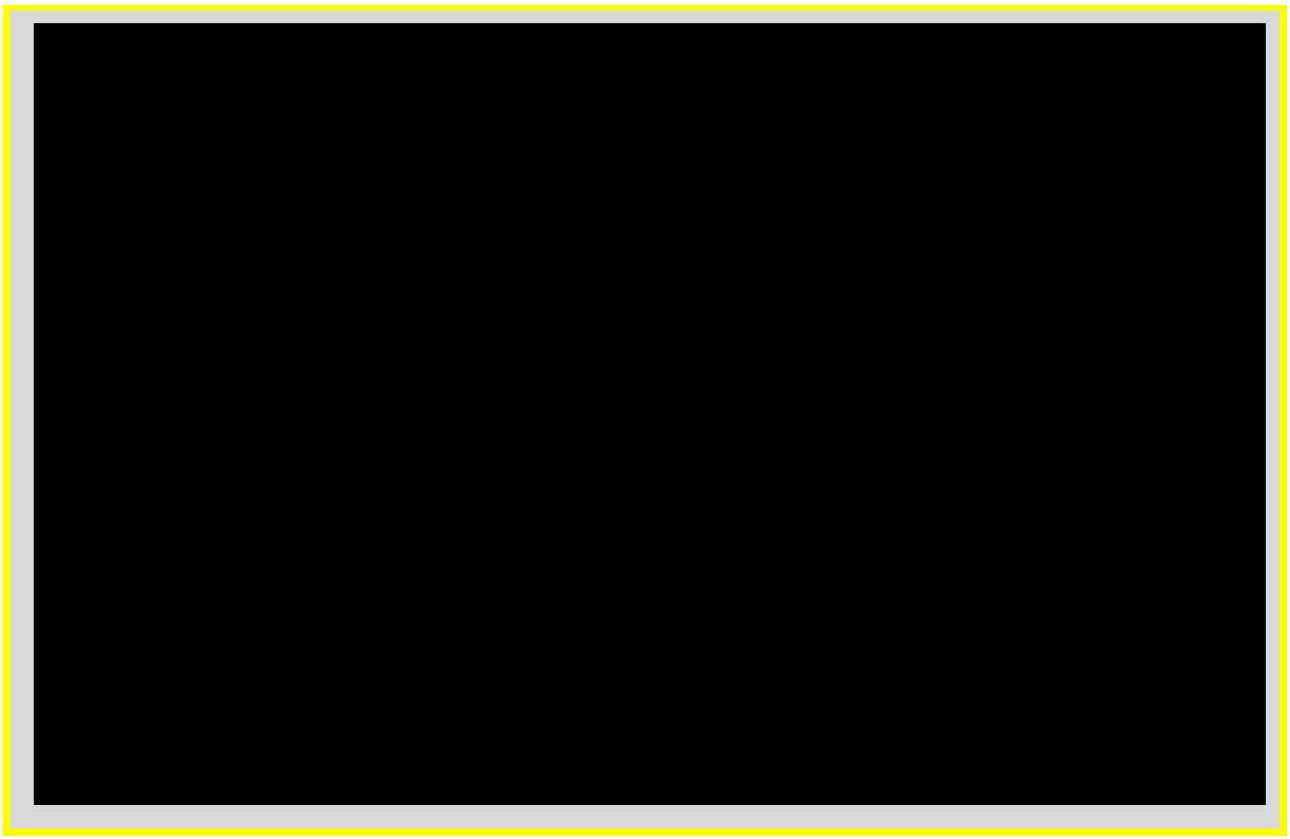
3) Cash Cost (Low Price) Strategy

The cash cost strategy increases hedging capacity in response to low market prices. Hedges are added over a shorter time horizon ranging out to 18 months. This strategy is discretionary, taking advantage of low price opportunities resulting from near term changes to market fundamentals. Hedge volumes are available based on a low price methodology that is

calculated annually. These volumes are limited to approximately [redacted] percent of demand. The strategy allows for the flexibility to hedge or not based on changes to resources, load, or supply/demand dynamics.

V. November 2018 – October 2019 PGA Year Hedging Results

The November 2018 – October 2019 PGA year is hedged 35 percent in the programmatic strategy and [redacted] percent in the cost cash strategy, totaling [redacted] percent. This is a reduction in program volume compared to the November 2017 – October 2018 PGA year, which was [redacted] percent hedged. In transition from a 50 percent to 35 percent programmatic strategy, less hedging was required versus the prior year. During 2018, cash cost strategy volumes became available and were executed throughout the year as prices declined. Hedges were not triggered in the risk responsive strategy, as shown in Figure 3, although the additional 15 percent capacity remains available. Executed hedges and the available risk responsive capacity are shown on Figure 4.



Hedging instruments used in the November 2018 – October 2019 PGA year include financial swaps, physical fixed price, and financial options. The use of financial call options at AECO capped upside prices while allowing portfolio flexibility to participate in low prices. On financial call options, hedge costs are limited to the option premium paid. Additionally, winter storage inventory at Jackson Prairie and Clay Basin reduces risk to high prices (Figure 5).

As filed in PSE's 2018 PGA, hedge costs for the November 2018 – October 2019 PGA year are currently forecasted at approximately [redacted] which includes [redacted] of option premium. As shown in Figure 6, hedge costs for the November 2018 – October 2019 PGA year have increased over the past year due to the drop in market prices. The reduction in programmatic hedging beginning with the November 2018 – October 2019 PGA year from 50 percent to 35 percent allowed for an incremental participation in the drop in prices.

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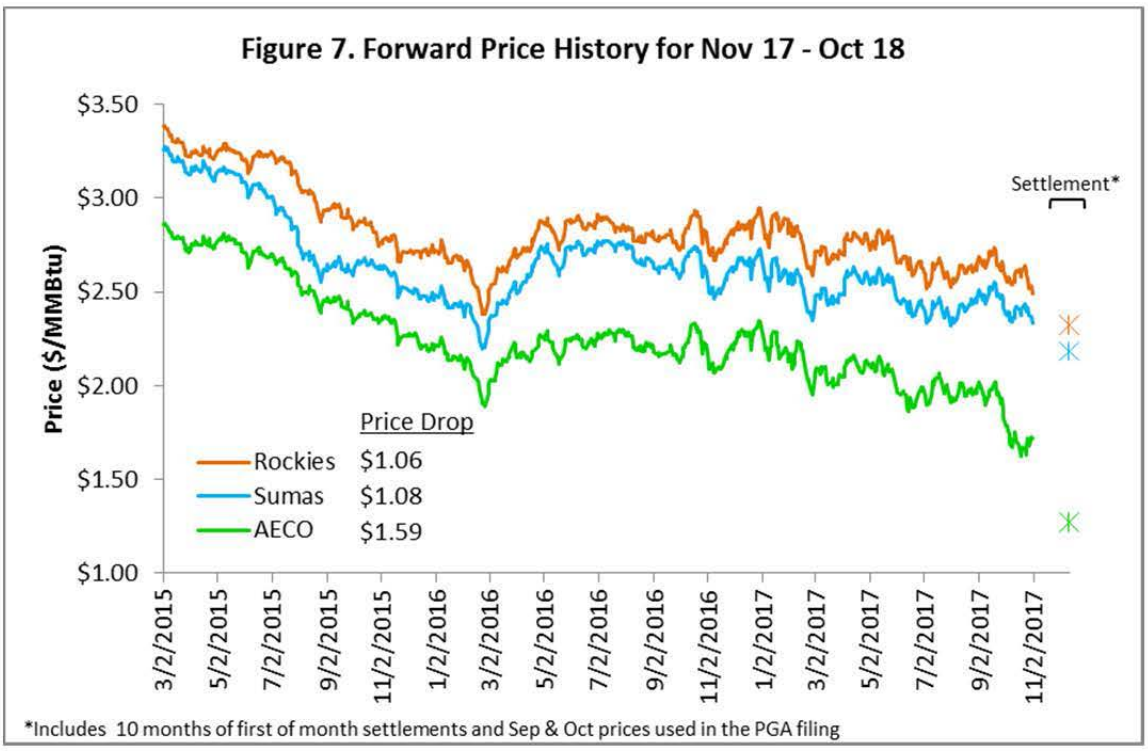
VI. November 2017 – October 2018 PGA Year Hedging Results

Commodity prices trended lower over the 3 years leading up to the November 2017 – October 2018 PGA year and continued to decline to monthly settlement (Figure 7). The largest price drop came from the WCSB with AECO dropping $1.59/MMBtu over the timeline. North American production levels continued to expand and are currently at all-time highs. As well, drilling efficiency continues and shale basin production continues to grow putting downward pressure on prices.



For the 2017 – 2018 PGA year, PSE hedged 50 percent of demand with the programmatic strategy and [redacted] percent with the cash cost strategy, totaling [redacted] percent. Hedging instruments included financial swaps, physical fixed price, and financial options. Winter storage inventory at Jackson Prairie and Clay Basin further reduced risk to high prices (Figure 8).

Total hedge costs for the November 2017 – October 2018 PGA year are forecasted at approximately [redacted] relative to the [redacted] that was filed in the 2017 PGA. The increase is a result of lower settlement prices in the PGA year. This includes 10 months of actuals from November through August and two months of mark-to-market. This figure includes all forward fixed price hedges, from the start of programmatic hedging in [redacted] through monthly settlement. In addition, unutilized transport and storage capacity for load was optimized in the short term market to reduce commodity costs.

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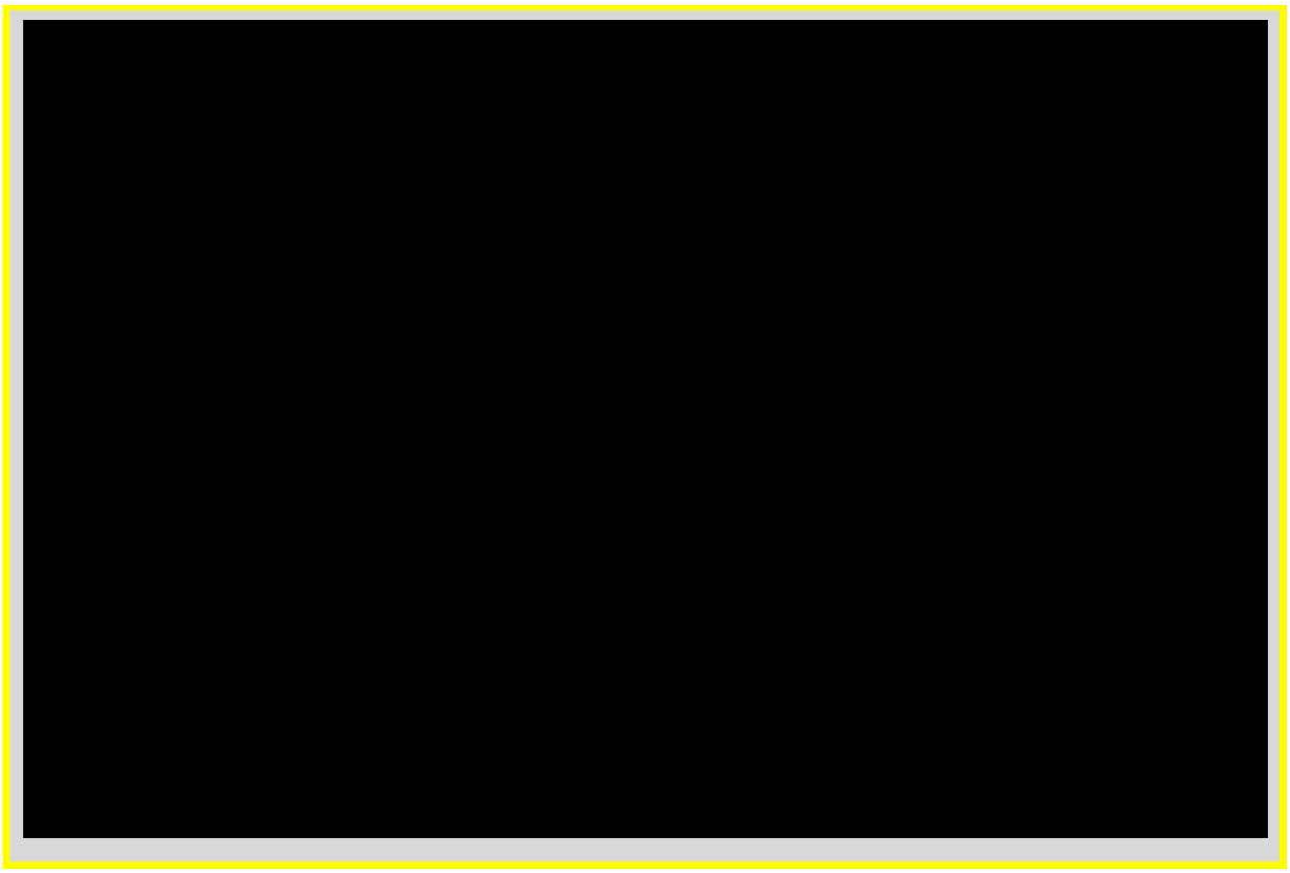

VII. Conclusion

In Summary, PSE implemented two strategy changes to the November 2018 – October 2019 PGA year. This includes reducing the existing programmatic strategy from 50 percent to 35 percent and adding a new risk responsive strategy equal to 15 percent of annual load. These changes were consistent with hedging practice discussions that occurred in the workshops hosted by the WUTC. PSE's EMC approved the changes to the hedging program and continues to provide oversight. In combination with PSE's existing strategies, these changes meet PSE's objective of developing a robust hedge program that balances risk reduction with hedge costs. Looking forward, PSE will continue to monitor market conditions and evaluate strategy improvements.