AVISTA UTILITIES

2021 Washington PGA Filing

ATTACHMENT "G"

2021 Washington Natural Gas Hedge Report

August 31, 2021

Avista Utilities
Natural Gas Procurement Plan
and Hedging Framework

I. Background

On October 30, 2013, the Commission opened a Staff Investigation in Docket No. UG-132019 regarding policy issues related to the Washington natural gas utilities' hedging practices and transaction reporting. Staff and Public Counsel co-sponsored a White Paper on natural gas hedging practices written by Michael Gettings of RiskCentrix, LLC. The White Paper provided examples and detailed instruction concerning hedge practices and how to incorporate risk-responsive hedging methods into the overall portfolio. Avista provided comments in this docket and participated in several workshops. In UG-132019, the Commission distributed a "Policy and Interpretive Statement on Local Distribution Companies' Natural Gas Hedging Practices" ("Policy Statement"). This Policy Statement outlines the process each LDC should follow in order to incorporate such risk-responsive hedges into their individual portfolios. In summary, the Policy Statement provided the following guidance:

- We therefore direct each company to submit, as part of the 2017 PGA filing, a preliminary hedging plan that outlines the company's intended path to incorporate risk-responsive hedging strategies for the upcoming year. This plan should articulate the company's hedging objectives and communicate its approach to address the basic elements of risk-responsive hedging: objectives and goals, exposure quantification, strategic initiatives, and oversight and control.

- When making their 2018 PGAs filings, we require the Companies to submit annual comprehensive hedging plans that demonstrate the integration of risk responsive strategies into the Companies' overall hedging framework. The Commission expects full implementation will take no longer than 30 months.

- As part of the comprehensive annual hedging plan, the Companies should incorporate a retrospective hedging report. This report should provide a narrative of the utility's perspective on the execution of its prior year hedging strategy. Additionally, the report should include a discussion providing insight about whether the metrics and tolerances identified in the previous year's plan continue to be appropriate and how the Company's retrospective evaluation has informed modifications to the forthcoming year's hedging plan.

The information required by the Commission is contained within this report as follows:

II. Objectives and Goals

Avista's foundational purpose/goal of the natural gas procurement plan (Plan) is to provide a diversified portfolio of reliable supply while at the same time managing the volatility and cost of that supply. Avista manages the Plan by layering in hedges over a period of time based on average system load per month. Avista does not measure the success of the Plan based on a certain cost or loss risk, rather the plan is considered successful when we have secured firm load at a reasonable price while addressing risk inherent within these markets. The measurable objectives monitored toward this goal include a daily financial position of the overall portfolio, tracking of all new and previously transacted hedges, and the tracking of remaining hedges yet to be purchased based on a percentage of forecasted load as specified in the Plan.

No company can accurately predict future natural gas prices, however, market conditions and experience help shape Avista's overall approach to natural gas procurement. Our Plan seeks to acquire natural gas supplies while reducing exposure to short-term price and load volatility. The Plan utilizes a combination of strategies to reduce the impacts of changing natural gas prices in a volatile market. A portion of hedges will be focused on the concentration risk of fixed-price natural gas purchases by utilizing Hedge Windows, and another portion of hedges will target reducing risk in a volatile market by utilizing Risk Responsive methods. This allows Avista to set a risk level to help reduce exposure to events outside of our control such as the Energy Crisis in the early 2000's or the Enbridge pipeline rupture in 2018.

Hedge transactions may be executed for a period of one-month through thirty-six months prior to delivery period and are for the Local Distribution Customer (LDC) only. No hedging in this report or the Plan include any hedges for Avista's Power Supply or other

entity.[1] Due to Avista's geographic location, transactions may be executed at different supply basins in order reduce our overall portfolio risk. The Plan is disciplined, yet flexible, allowing for modifications due to changing market conditions, demand, resource availability, or other opportunities. Should economic or other factors warrant, any material changes to the Plan are communicated to senior management and Staff.

In addition to hedges, the Company's Plan includes storage utilization and daily/monthly index purchases. It is diversified through time, location, and counterparty in accordance with Risk Management credit terms.

III. Oversight and Control

The Company's Plan is the framework under which natural gas supply is acquired in order to reach our goal of providing reliable natural gas supply for customers, while at the same time managing the volatility and cost of that supply.

The Plan is governed by the Avista Utilities Energy Resources Risk Policy ("Risk Policy") which addresses certain risks inherent in supplying energy and managing energy resources. It also outlines certain important roles, responsibilities and processes to manage and control those risks including approved time horizons to hedge, the type of load to hedge and those credit worthy entities approved for trade. This policy contains a list of individuals and their transaction level of authority in addition to overall responsibility for the plan. The Risk Policy governs Avista Utilities' transactions to purchase and sell natural gas in the wholesale energy market, financial contracts and derivatives (relating to natural gas and fuel), and agreements for use of Avista Utilities' natural gas storage and transportation rights.

The Risk Management Committee (RMC), which includes corporate officers and senior-level management, is responsible for oversight of the Risk Policy and associated Natural Gas Plan (which includes hedging). The RMC establishes the Risk Policy and monitors compliance through regular meetings (typically monthly, unless otherwise scheduled) including, but not limited to, hedge activity, discussions on market conditions, and other natural gas-related matters.

The Risk Policy addresses several variables which affect natural gas supply and customer load. It is the intent of the Risk Policy to recognize and actively manage the interaction and dynamics among these variables by establishing a process for load estimation, resource procurement (including natural gas storage), and management of

[1] The Company maintains, and carefully tracks, transportation resources and commodity purchases in separate "books" for the Local Distribution Company (addressed in this report) and for the Electric side of the business. The electric side of the business is reviewed for prudence annually through the Energy Recovery Mechanism (ERM).

the expected Short Term and Immediate Term gas requirements. The Policy spells out the following processes:

- Natural Gas Load and Obligations estimation, Natural Gas Resource estimation, and management of associated surplus or deficit.

- Responsibility and approvals for transactions and operating decisions related to natural gas procurement, wholesale natural gas purchases and sales, scheduling natural gas resources, and providing good stewardship of natural gas resources.

- Reporting. All changes that affect the Short Term natural gas position will be reflected each business day in a natural gas position report. This includes status of estimated load and obligations, and estimated system open positions (net surplus or deficit) for each month in upcoming 30-36 months. The position report also includes the current status of the Plan including percent hedged, current open transaction windows, daily prices, and estimated current market value of overall natural gas positions. Due to the voluminous nature of the Position Reports, the Company will make available for review upon request.

The Risk Policy gives the Director of Energy Supply the authority to enter into or direct their staff to execute transactions that mature no more than a set number of months ahead. The Director of Energy Supply may delegate transacting authority to employees in her work group by specifying the transaction types and any limitations (such as term and size) that each delegate is authorized to execute. The Director of Energy Supply is responsible for oversight of all Short Term transactions in their areas. The Vice President of Energy Resources (VP-ER) may authorize transactions that mature no more than 60 months in the future. Avista Corp Senior Management must approve any transactions that mature more than 60 months in the future.

The Director of Energy Supply or VP-ER may set more restrictive term limits and may impose transaction value limits for any or all of their employees at any time by communicating to the affected employees. The CEO must approve any transactions for energy resources that are not authorized above before they may be executed.

The VP-ER is responsible to provide information to the RMC so the RMC may review new transaction types and consider relevant risks. Relevant information about the proposed transaction should be presented to the RMC, including:

- Market characteristics

- How it fits within Avista Utilities' operations and strategy

- Risks and procedures to manage risks

- Accounting implications and tax treatment

- Regulatory and legal implications

- Information systems requirements

Avista Utilities conducts natural gas planning, procurement, sales, and gas resource management activities to assure an adequate supply of natural gas to meet customer load and other obligations and to optimize natural gas resources. Several variables affect natural gas supply and customer load. It is the intent of the Risk Policy to recognize and actively manage the interaction and dynamics among these variables by establishing processes for load estimation, resource procurement (including gas storage), and management of the expected Short Term and Immediate Term gas requirements. The Director of Energy Supply is responsible to estimate future natural gas loads and obligations. It is understood that many factors cause actual loads to differ from estimates. Nonetheless, forward load and obligation estimates are a foundation for establishing gas supply requirements. Since Avista Utilities relies on external sources for gas supplies, the forecast of gas resources involves tracking the company's contracts and storage gas. Gas resources may be constrained because of contract terms, delivery constraints or storage withdrawal constraints. The Director of Energy Supply will review the natural gas hedging plan and present any recommended changes for approval by the Risk Management Committee prior to each gas operating year. Any significant changes in gas resource estimation practices must be communicated to the Risk Management Committee.

The approved procurement plan is a guide for transactions that fulfill the anticipated load requirements for core gas customers. The procurement plan is not intended to dictate a strict course of action, to limit decisions or replace management judgment. If discretionary actions are taken outside the approved procurement plan, the Director of Energy Supply will modify the remaining natural gas procurement plan to reflect discretionary actions taken, changes in estimates, or other changes deemed appropriate. When the natural gas hedging plan is modified, the extent and reasons for changes will be fully communicated to the RMC within two business days; such communication may be highlighted and included with the daily position report or it may be done by means of a separate report, memo or presentation.

The Director of Energy Supply is responsible for transactions and operating decisions related to natural gas procurement, storage management, transportation, wholesale natural gas purchases and sales, and scheduling gas resources to meet obligations and providing good stewardship of gas resources. Long-Term natural gas supply or resources transactions may be executed with specific prior approval of the VP-ER or Senior Management. Finally, term limits apply to all transactions.

In addition to the RMC, the Company also has an internal Strategic Oversight Group (SOG) comprised of natural gas-related stakeholders who provide guidance and input on decisions regarding the Plan through regularly scheduled meetings, typically monthly, which precede RMC meetings. While the overall responsibility lies with the Director of Energy Supply per the Risk Policy, the SOG serves as a reference/sounding board for strategic decisions made by the Energy Supply department regarding procurement of

natural gas for Avista's Local Distribution Company (LDC). Examples of input provided to Energy Supply made through SOG collaboration include:

1. Review, discussion, and final recommendation of overall hedge percentages for the Plan

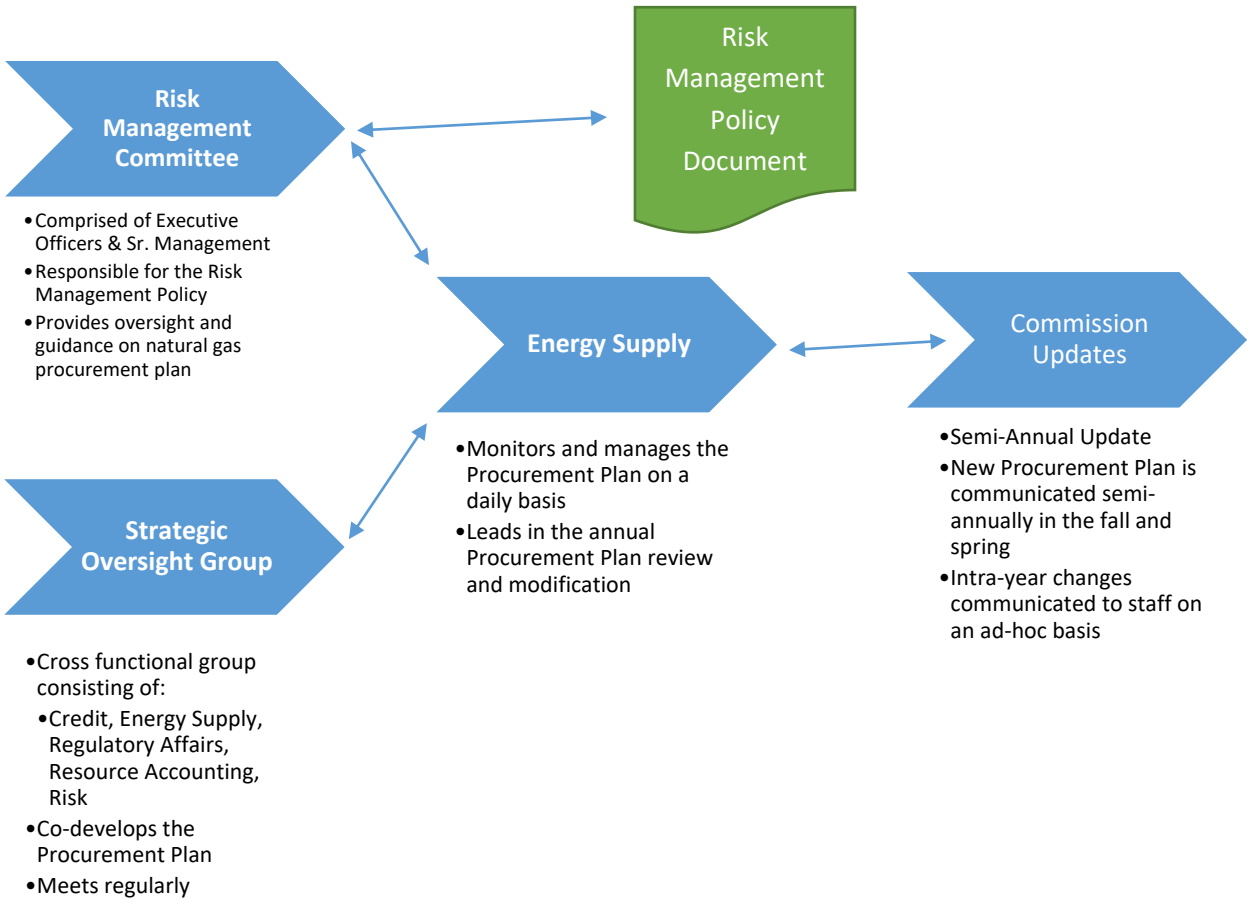
2. Review, discussion, and recommendations of possible mechanisms and analytical methods to manage hedge programs and determine limits

3. Review and discussion of risks to supply and market availability combined with methods to address these risks

4. Reporting, review, and discussion of the status and trending of deferral balances, as well as the management of these balances

SOG members include representatives from the Energy Supply, Resource Accounting, Regulatory Affairs, Credit Management, and Risk Management departments. These SOG meetings are fully documented by the risk department with all information and decisions fully shared for transparency and accountability. These SOG meeting presentations and minutes will be made available upon request. Ultimately, the Director of Energy Supply is responsible for the management of the overall Plan and associated hedge transactions, however, the SOG provides critical input, feedback, and advice. The structure of Avista's Oversight and Control can be seen in Illustration No. 1.

Illustration No. 1



IV. Strategic Initiatives

Strategic Initiatives are generally defined as the means through which a vision is translated into practice. These initiatives are a group of projects and programs that are outside of the organizations daily operational activities and help an organization achieve a targeted performance.

The two primary roles of the Energy Supply Department is two-fold:

1. Serve Load – Assure adequate and reliable energy supplies for Avista Utilities natural gas customers.

2. Manage Resources – Exercise prudent stewardship of Avista Utilities energy supply facilities and related Company resources.

Through the use of fixed-priced hedges, daily balancing transactions and storage injections and withdrawals the Company can meet its obligation to serve load. In addition,

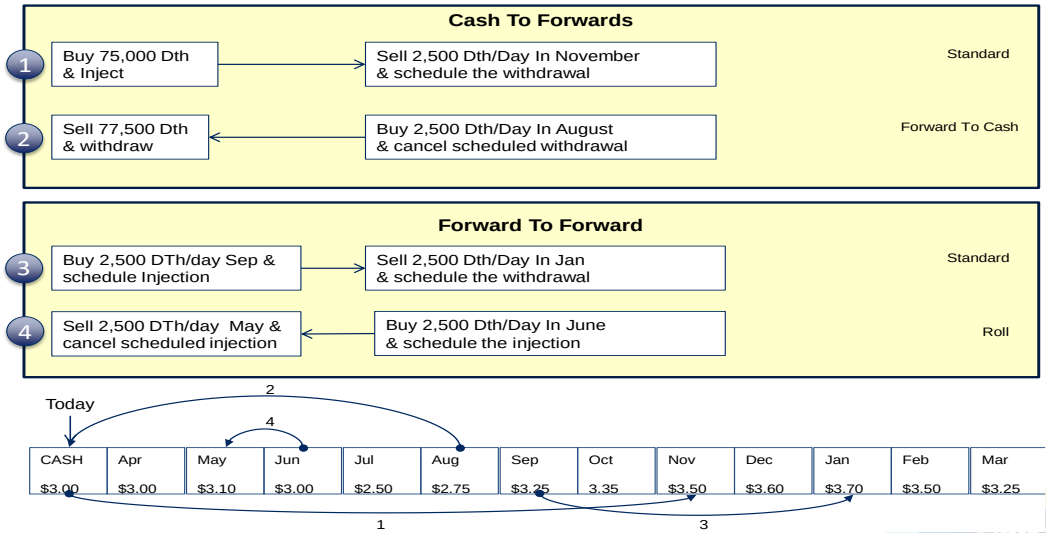
through our Dynamic Window Hedges and Risk Responsive Hedges, we are also able to provide a level of price certainty in volatile commodity markets and reduce cost risk exposure. Related to managing our resources, we have secured firm natural gas transportation capacity in order to ensure we are able to reliably deliver the commodity to our customers. Finally, we have secured a level of storage (through ownership at Jackson Prairie) providing Avista with an additional level of firm supply and associated transportation contracts.

It is part of Avista's culture to be good stewards of our customer's resources. While there is no "targeted performance level", success is measured by the ability to capture benefit from our existing resources to the best of our ability, which results in either lower overall expenses for our customers or a higher level of price certainty. As such, we are continuously monitoring the Plan, evolving market conditions, new supply opportunities, and regulatory conditions. Hedges for storage optimization are allocated 90% Washington/Idaho[2] and 10% Oregon, based on the appropriate proportion of retail load for each of our natural gas jurisdictions. This allocation amount was adopted in settlement agreements with all three states in Docket UG-100468 (Washington), Case AVU-G-10-1 (Idaho) and UG-201 (Oregon).

Accordingly, effective in 2015 the Company implemented a new Storage Optimization Model which meets the definition of "Strategic Initiative" as described above. Prior to the implementation of the model, Storage had been utilized in the standard way – to purchase natural gas in the spring and summer when prices are historically low, inject into Storage, and withdraw in the winter when prices are historically high. Through the use of this model, we are able to still provide reliability of supply for our customers, but also capture benefits of price spreads between time periods. The model is governed by a storage management program that sets boundaries on injections and withdrawals as well as tracks real time market data to guide the purchase and sale of natural gas storage transactions with favorable spreads. Through this model, the Company is able to purchase natural gas in one period and sell into a higher priced market, effectively locking in a benefit for our customers. Illustration No. 2 below is an example of storage optimization:

[2] Allocation between Washington and Idaho is based on a three-year average five-day peak calculation.

Illustration No. 2



The program enforces storage constraints and requirements such as the storage fill schedule, peak day load requirements, transportation capacity limits, and deliverability constraints.

The Company also has mechanisms in place which allow us to optimize the value of our existing pipeline and storage assets in order to reduce costs for customers until such resources are required to meet demand. Should there be transportation capacity that is not required to serve load, we may be able to optimize this capacity by purchasing natural gas, transporting it, and selling it into a higher priced market. Commodity purchases and sales are carefully tracked and allocated, or directly assigned, jurisdictionally based on the unique characteristics of each individual pipeline capacity.[3] Avista may also be able to release a portion of this unutilized firm transportation capacity to third parties, further reducing customer's firm transportation expense.

V. Procurement Plan Components

The Plan is not intended to be a static document with a "set-it-and-forget it" program. It is formally reviewed no less than annually, with existing results discussed monthly with the SOG and Risk Management Committee. When a new method is considered for incorporation, such as risk responsive hedging, it is developed, tested and reviewed extensively prior to implementation. The goal is to utilize the best methods available to provide reliable supply at competitive prices, with some level of price stability, in a volatile commodity market.

[3] Allocation between Washington and Idaho for Commodity purchases and sales is based on actual calendar load for each respective month.

The basis for the Procurement Plan is the development of the load forecast. This load forecast is developed for each individual area and class of customer by day for each of our major service areas (Klamath Falls, OR; La Grande, OR; Medford, OR; Roseburg, OR; Washington State and Idaho State). The key inputs for the load forecast model are the forecasted number of customers, a set of demand coefficients (Dth consumed per customer per heating degree day) and historical heating degree-days.

The Plan is reviewed with senior management and state regulators in the fall of each year, and after Company approval, the plan is implemented. As previously noted, the Plan may be updated throughout the year as market conditions, available resources, and/or changes in demand dictate. Any material mid-year changes in the Plan are communicated and discussed with senior management and regulators.

For purposes of the Procurement Plan, the daily load forecasts are consolidated into average daily volumes for each month for customers in Oregon and for the combined Washington and Idaho jurisdictions. These estimates are adjusted to compensate for pipeline fuel and estimated daily requirements for Interruptible Customers to derive "Average Load".

In order to serve load, and optimize its resources for the benefit of customers, the Company secures/purchases natural gas supply through the transactions and procedures described below:

1. **Fixed-Price Purchases:** To provide a level of price certainty in volatile natural gas commodity markets, Energy Supply will hedge some of its load with fixed-price transactions, either with fixed-price physical purchases or with financial swaps or financial futures which will be matched to purchases of index-priced physical products prior to the products settlement. These hedges will be structured to diversify procurement in terms of timing of the transaction and duration of committed supplies.

   The fixed-price purchases portion of the Plan, or hedges, are comprised of the following two components (described in later sections of this paper):

   - Dynamic Window Hedges (DWH).
   - Risk Responsive Hedge Tool (RRHT).

2. **Storage Injections and Withdrawals:** Avista owns and contracts for storage services at Jackson Prairie. Avista has a contractual operational obligation to have its share of Jackson Prairie full by September 30 of each year. Energy Supply retains flexibility in terms of the timing and volume of the injection and withdrawal schedules. Actual storage injections and withdrawals will be executed to optimize the economic value of storage within the reliability constraints of the project and the ability to serve retail customers' peak day needs.

3. **Index-Based Physical Purchases:** Energy Supply generally purchases physical index-based natural gas for up to the difference between the average daily load forecast for each month and the sum of the fixed-price purchases. Energy Supply retains flexibility to modify the components of its purchases in a month due to operational or other reasons. The selected indices may be first-of-month indices or daily-based indices.

4. **Daily Adjustments Due to Load Variability:** To the extent actual loads differ from the average daily load forecast for the month, the difference will be managed through a combination of: a) Daily purchases or sales of natural gas, or b) withdrawals from, or injections into, natural gas storage facilities.

5. **Use of Derivative Contracts:** Subject to limitations in the Energy Resources Risk Policy, Energy Supply may enter into derivative-based contracts intended to reduce or manage exposure to rising prices or fluctuating loads.

6. **Resource Optimization:** Energy Supply may enter into transactions that create value for customers using unutilized supply, transportation or storage assets. Utilization of these resources reduces fixed costs and lowers overall costs to customers.

As described above, The Company secures the fixed-priced portion of our portfolio through Dynamic Window Hedges (see section VI Dynamic Window Hedges) and the Risk Responsive Hedge Tool (see section VII Risk Responsive Hedge tool).

VI. Dynamic Window Hedges (DWH)

The DWH portion of the plan secures a pre-determined, minimum hedge portion for LDC load with fixed priced purchases. These transactions are diversified in terms of time, location and delivery period. The target delivery periods, development, procures, and execution are described below. Dynamic Window Hedging reduces the cost risk and increases the loss risk.[4]

Dynamic Window Hedge (DWH) - Target Delivery Periods

The target delivery periods for the DWH portion of the Plan is for a period of 30 to 36 months depending on market availability of the hedging period. Illustration No. 3 depicts in tabular format the Hedge Target Delivery Periods:

[4] Loss risk is the potential to pay more than the daily gas price with a forward hedge. Cost risk is the potential for daily prices to rise above the hedge price.

Illustration No. 3:

Beginning with the current month and at the top of each column (the Hedge Assessment Month of the columns in the Table), a list of potential hedges would look to the sequential future periods shown in the column below that month. The first five to eleven months in each column are addressed in monthly blocks, depending on the time of year and the rolling nature of the specified gas supply target delivery periods. Following these monthly blocks, a minimum of four seasonal blocks are addressed in consecutive November – March and April - October blocks. Additional November – March or April – October blocks are added so that in any given delivery period, there are between 30 and 36 months to be monitored and eligible for hedge. The compressed blocks break into individual month blocks as the hedge period nears the current month. By the time the delivery period is reached, each individual month will have been available for hedging for a full 36 months prior to delivery.

DWH Development

A DWH is defined by its set-price (SP), an upper control limit (UCL), a lower control limit (LCL) and an expiration date. The SP is the closing price of the day prior to the window opening. The UCL and LCL are developed using quantitative mathematics to define boundaries in relation to the SP. Expiration dates are determined based on the remaining volumes to be hedged and remaining time to expiration. Each DWH's SP is based upon the closing price, of the selected supply basin for the delivery period. The supply basin

for each hedge window will be selected from available term markets, based on whichever market has the highest volatility.

The DWH has a price band defined by its UCL and LCL above and below the SP, respectively. A statistically based method is used to create the UCL and the LCL. The methodology looks at historical prices over the last 60 days. A 90% confidence level of the price changes during the last 60 days is used to set the UCL and the LCL. The UCL and LCL will adjust ("ratchet") daily depending on the movement in current pricing. When a window is closed the next window will be opened (if a window remains to be processed). The next window's SP and price band will be determined based on the current day's closing price but the new window will retain its original expiration date. Illustration No. 4 depicts the Window Mechanism set up:

Illustration No. 4

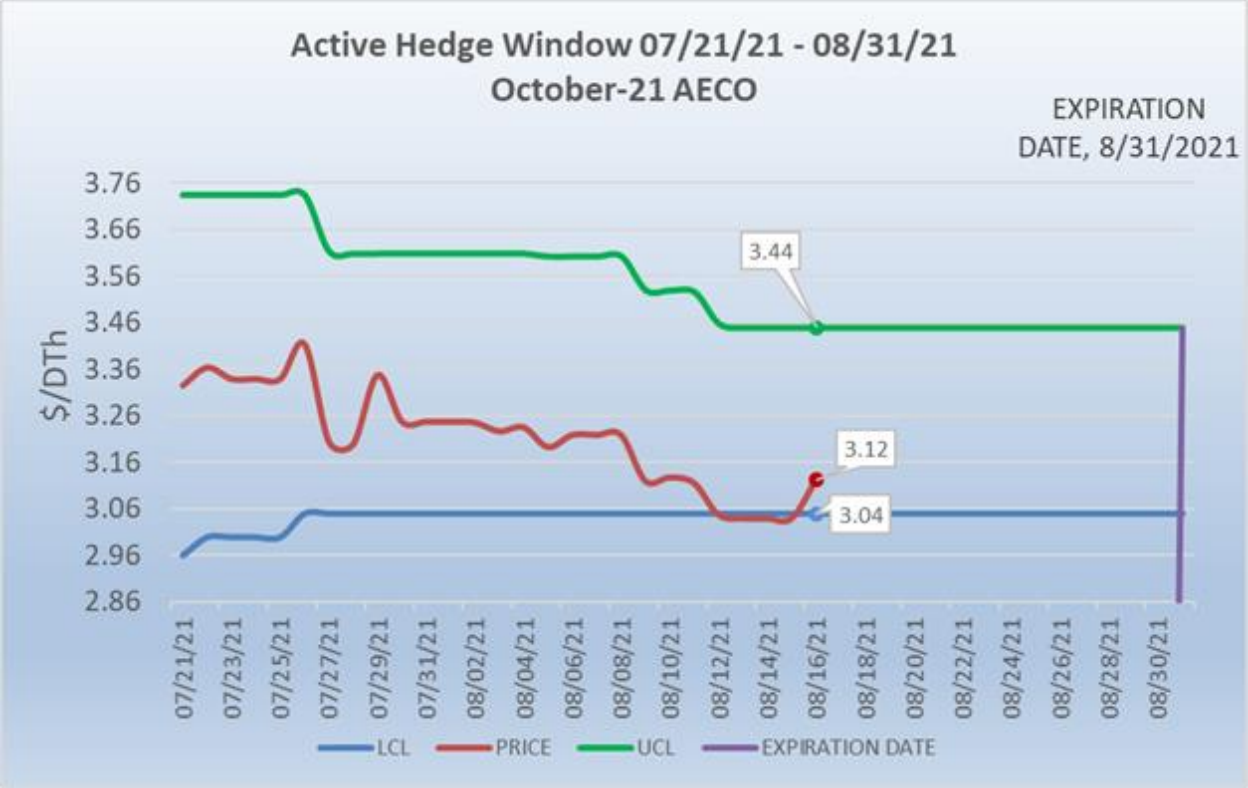
	August 16, 2021												
	Physical Positions			Dynamic Window Hedging									
	Load Estimate (DTh/Day)	Completed Hedges (DTh/Day)	Net Position (DTh/Day)	Window Hedging Threshold	Load Hedged (%)	Hedges Left	Set Date	Expire Date	Low Price Trigger ($/DTh)	Today's Price ($/DTh)	High Price Trigger ($/DTh)	Hedge Required (DTh/Day)	Preferred Basin
September-21	-40,078	15,000	-25,078	40%	37%	0							
October-21	-94,543	35,000	-59,543	40%	37%	1	07/21/21	08/31/21	3.04	3.12	3.44		AECO
November-21	-161,241	60,000	-101,241	40%	37%	2	07/22/21	08/27/21	4.01	4.23	4.42		NWPC RM
December-21	-213,544	65,000	-148,544	40%	30%	8	08/02/21	08/13/21	4.76	4.90	4.93	2,500	NWPC RM
January-22	-199,135	65,000	-134,135	40%	33%	6	08/12/21	08/31/21	4.67	4.96	5.07		NWPC RM
February-22	-189,411	67,500	-121,911	40%	36%	3	07/22/21	09/14/21	4.41	4.73	4.93		NWPC RM
March-22	-143,001	60,000	-83,001	40%	42%	0							
Apr22-Oct22	-55,161	12,500	-42,661	22%	23%	0							
Nov22-Mar23	-182,032	42,500	-139,532	32%	23%	6	08/03/21	10/13/21	2.59	2.74	2.92		AECO
Apr23-Oct23	-55,827	5,000	-50,827	23%	9%	3	07/30/21	02/08/22	1.90	2.11	2.32		AECO
Nov23-Mar24	-182,407	10,000	-172,407	32%	5%	20	08/02/21	09/11/21	2.36	2.44	2.51		AECO

DWH Procedures

Hedge windows remain "open" as long as the previous day's forward delivery period price remains between the UCL and the LCL, and the window has not reached its time expiration. The selected basin closing price will be the determining benchmark of the forward delivery period price. Hedge window status is examined each business day. If the hedge window's current rate moved outside the UCL or LCL, a hedge transaction is triggered, subject to execution provisions described later in this report. If a SP does not move outside the UCL or LCL prior to time expiration, then the window's hedge transaction is executed on the expiration date.

DWH procedures also include a price band responsiveness calculation. The purpose of the responsive calculation is to ratchet either the UCL or the LCL toward the SP. This calculation will be performed daily for each open window based on the market closing price for a hedge delivery period. If the closing price is above the SP, the LCL is increased by the amount the closing price is above the SP. If the closing price is below the SP, the UCL is decreased by the amount the closing price is below the SP. Tightening of the LCL and UCL values is limited to the maximum extent that closing prices have risen above the SP (for LCL) or below the SP (for UCL) over the life of the open hedge window. The adjusted LCL and UCL values are not moved away from the SP regardless of price volatility. Illustration No. 5 shows a hedge which was executed for the October of 2021 time period and the associated limits.

Illustration No. 5



DWH Execution

If a hedge window time expires, Energy Supply will transact on or within three business days of expiration.

When a planned transaction is price triggered prior to time expiration, Energy Supply will solicit at least one market quote, or document the relevant bids and offers from ICE on the following business day to verify the published settlement price. If the market quote indicates that the actual current market price is outside the UCL and LCL, then Energy Supply will transact on or within three business days of the trigger. If a market quote indicates that the actual current market price is still within the UCL or the LCL, then Energy Supply may defer a transaction and the window will remain open.

Because the Procurement Plan allows discretion for ultimate decision making, management may determine that it is appropriate to take other action, partial action, or no action, with respect to transaction execution and will document accordingly, as compared to the transaction trigger guidance from the DWH procedures. Hedges are allocated to 74% to Washington/Idaho, and 26% Oregon based on jurisdictional load.

In instances where there is significant intra-day price movement, Energy Supply may deem it appropriate to close a hedge window on that day to avoid further price increases.

The entire process of closing a window that has breached the UCL, LCL, or has time expired is managed through the Plan and ultimately guided by the Risk Policy. The hedges are made by persons approved to transact on the company's behalf for a period of time (also described in the Risk Policy). These persons are knowledgeable in hedging mechanisms, approved hedging types, entities with the proper credit approval, and market dynamics and are considered subject matter experts for Avista in the procurement of natural gas. Guided by the Plan and Risk Policy, they operate within approved limits, methods, and boundaries as directed by the SOG, the risk department, and company executives through the RMC.

VII. Risk Responsive Hedging Tool (RRHT)

In 2018, Energy Supply incorporated a Risk Responsive Hedging Tool in addition to the Dynamic Window Hedges discussed above. The RRHT helps to manage the Value at Risk (VaR) of Avista's LDC natural gas portfolio's open position on a daily basis. The forward gas prices are the basis for the VaR analysis. The analysis utilizes a confidence level and historic volatility to calculate a portfolio VaR, and combines it with the current mark-to-market portfolio price to develop a price risk metric that is compared to a predetermined threshold value (Operative Boundary). If the price metric exceeds the

Operative Boundary, then one or more hedges will be executed to bring the price metric back within the Operative Boundary. In any case, hedge volumes should not exceed the Maximum Hedge Ratio. Upon trigger, Energy Supply will begin to transact to bring the price metric back within the Operative Boundary.

The Dynamic Window Hedging will continue to systematically hedge to a certain minimum hedge level through the use of time limits and UCL/LCL. RRHT will monitor the market financially and call for additional hedging if pre-determined risk tolerance limits are triggered.

The RRHT includes all utility purchase and sales transactions, estimated customer load, and storage injections and withdrawals to derive open positions (by basin) that are marked to forward market prices. These monthly financial positions, along with market volatility, are then used to calculate the Value at Risk (VaR) by basin, which in turn is used to evaluate recommended defensive hedging actions.

Each day a "Price @ 2 Sigma $/Dth" metric, as shown in Illustration No. 6, is recorded for the amount of portfolio risk and cost Avista could expect with a 98% level of certainty based on the current market exposure in the portfolio. This Price @ 2 Sigma metric is run on a daily basis, or when the market is open, and closely watched to help monitor the entire portfolio's amount of volatility in the forward markets. If the operative boundary is crossed, ways to address this situation are actively discussed to decide the best methodologies to move the portfolio position back below the operative boundary.

Illustration No. 6

These RRHT hedges are procured by those persons approved to transact on the company's behalf. As previously stated these individuals are subject matter experts, knowledgeable in hedging mechanisms and approved hedging types, and serve as the focal points for the procurement of the natural gas commodity for Avista. Guided by the Plan and Risk Policy, they stay within approved limits, methods and boundaries as directed by the SOG, Risk department and company executives. This tool allows Avista to monitor and manage the overall financial position of hedges for our LDC. These hedges from the RRHT are allocated via the same percentages as the DWH mechanism 74% Washington/Idaho and 26% Oregon.

The RRHT report is run on a daily basis and shared with all Risk Management Committee executive members and members of the SOG via the daily position report.

A review of the previous year's RRHT, along with analysis of other factors, such as market price and volatility information (to name a few), was completed as part of the annual Procurement Plan process. Section VIII Exposure Quantification includes a detailed description of the volatility factors reviewed as part of this process and provides insight into the changes for the upcoming 2021-2022 Procurement Plan.

This review resulted in the following (Illustration No. 7 below):

1. LDC Load Hedge Percent: The Hedge Percent for LDC will remain at 40% due to the continued use of the RRHT and the unknown nature and volatility of natural gas as a commodity.

2. Operative Boundary: The beginning operative boundary is set for $5.08 per Dth, based on of a one in ten scenario of prices exceeding this cost. The ending value of the operative boundary is $6.30 per DTh and was developed based off of a one in one hundred scenario or 99% of all statistically measured potential results as falling within this boundary. The initial boundary is equal to a one in ten-year scenario utilizing actual prices at 2 Sigma from the past 252 days of portfolio activity (see Illustration No. 6 above). The slope of the operative boundary has been updated to begin its upward trajectory from the start. This will allow the portfolio $ hedged to react accordingly to changing commodity prices and volatility in direct correlation to the hedge percentage of the portfolio.

3. System Hedge Percent: If the operative boundary is exceeded, Avista would begin curing the position to fall back below the operative boundary through the execution of hedge transactions. Additional transactions would continue as long as the price at 2 sigma remains above the operative boundary. The system hedge percent would follow the upward slope until the price at 2 sigma falls below the operative boundary or the maximum value of 60% of the total portfolio cost is reached, at which point no more RRHT hedges would be executed.

Illustration No. 7

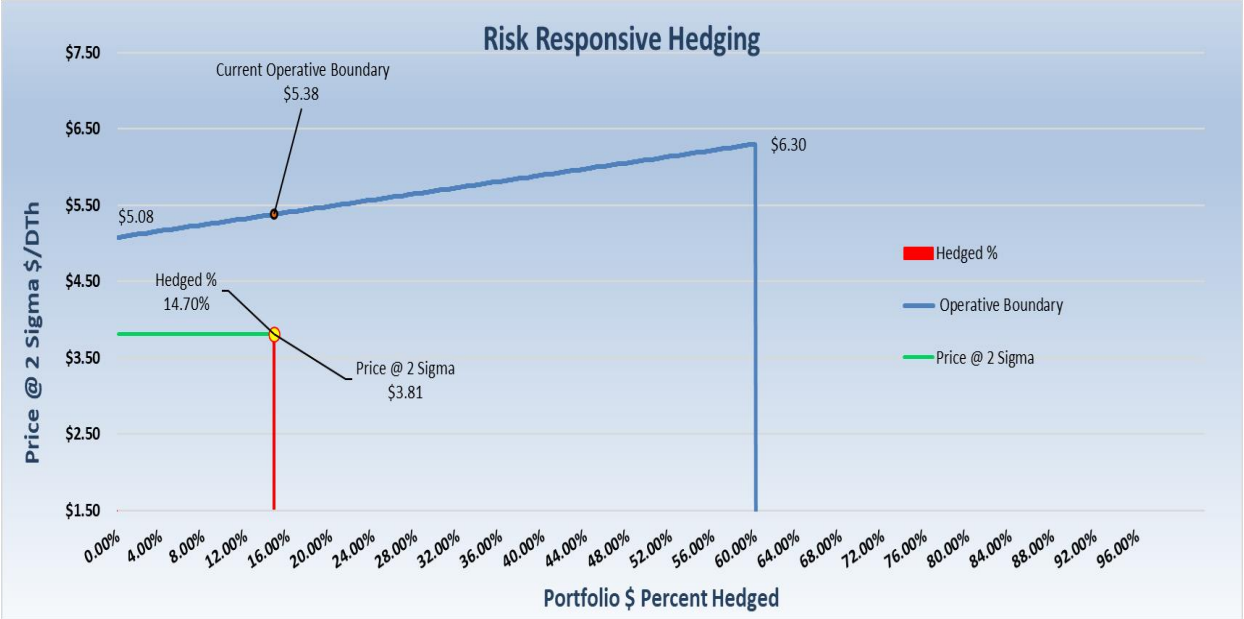


Illustration No. 8 provides a quick-view of the changes between Natural Gas Years:

Illustration No. 8

	2020-2021	2021-2022
Hedge percent of firm LDC average load – DWH	40%	40%
Operative Boundary – RRHT	$3.93 up to $5.49	$5.08 up to $6.30
Slope of Operative Boundary	20% to 60%	0% to 60%

VIII. Retrospective Report and Exposure Quantification

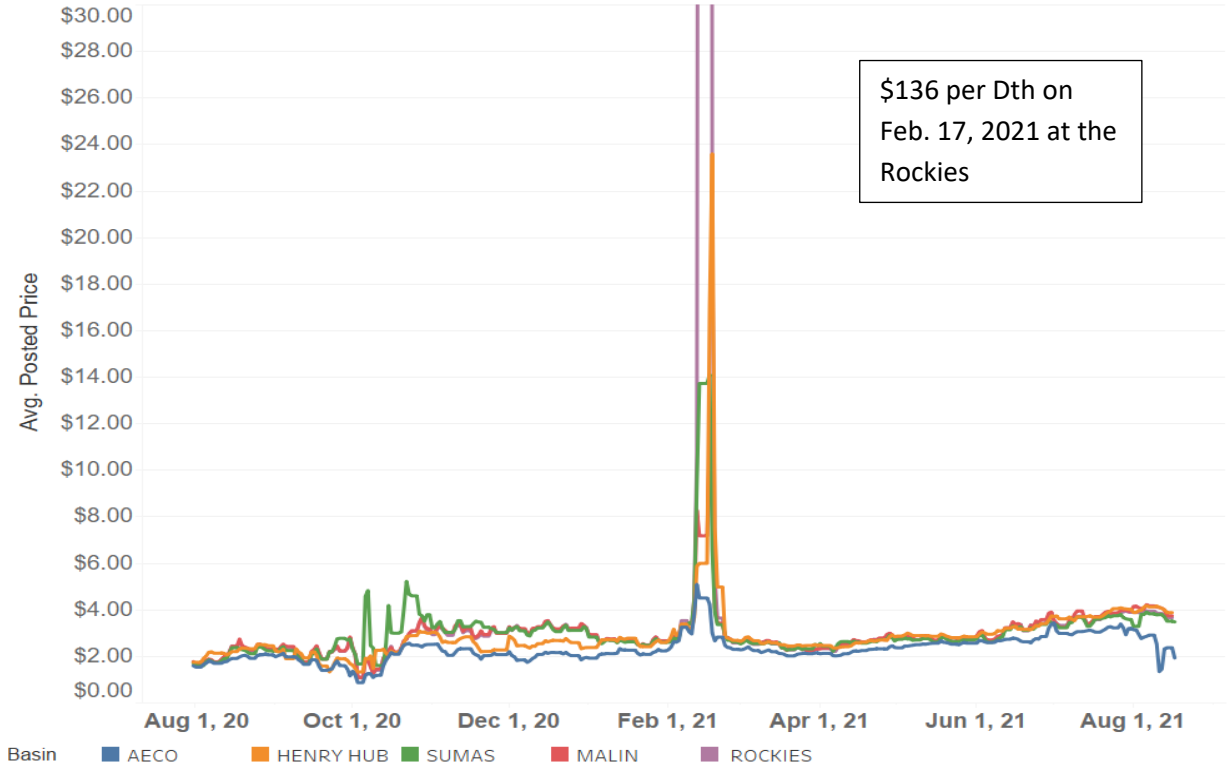
Market Overview

The big story for the current PGA year (11/2020 - 10/2021) was the Artic freeze in the Southwest in February. The price spike, as shown in Illustration No. 9 below, set records at some basins in the southwest region. It also affected prices in the West, most notably the Rocky Mountain Region. Prices after the deep freeze event settled back down on a more mild end to winter but changed course beginning in April.

Natural gas prices have been on an upward trajectory since the second quarter of 2021. There are likely many factors that have contributed to this trend but the most impactful is that supply (production) growth has not kept pace with demand growth. Production in the US has been flat since November of 2020. Demand meanwhile has grown steadily, primarily in the form of exports, both as LNG and to Mexico via pipeline. The supply demand imbalance has led to smaller than average storage injections during the period and an overall storage balance that is significantly below prior years. This has in turn put upward pressure on forward prices through the balance of 2021 and the beginning of 2022 both Nationally and Regionally.

Regionally in the West, there are additional factors that are putting upward pressure on prices both in the Day ahead and Forward Market. A below average water year in the pacific northwest and in California have drastically reduced available hydro power capacity which has increased demand for gas fired generation in the area. This situation was very apparent during the heat wave in the end of June when prices at the Malin and Rockies hubs approached $4 in the Day Ahead market. Additionally, there has been a very extensive maintenance schedule this year on the GTN pipeline which is the main source for bringing AECO gas into the PNW region. Capacity to bring gas south of the Canadian border on the pipeline has been reduced by up to 20% at times. This maintenance is scheduled to continue off and on through September. Enbridge and Northwest pipelines are performing routine maintenance which limits capacity into the region as well but is nearly as impactful and the GTN maintenance.

Illustration No. 9



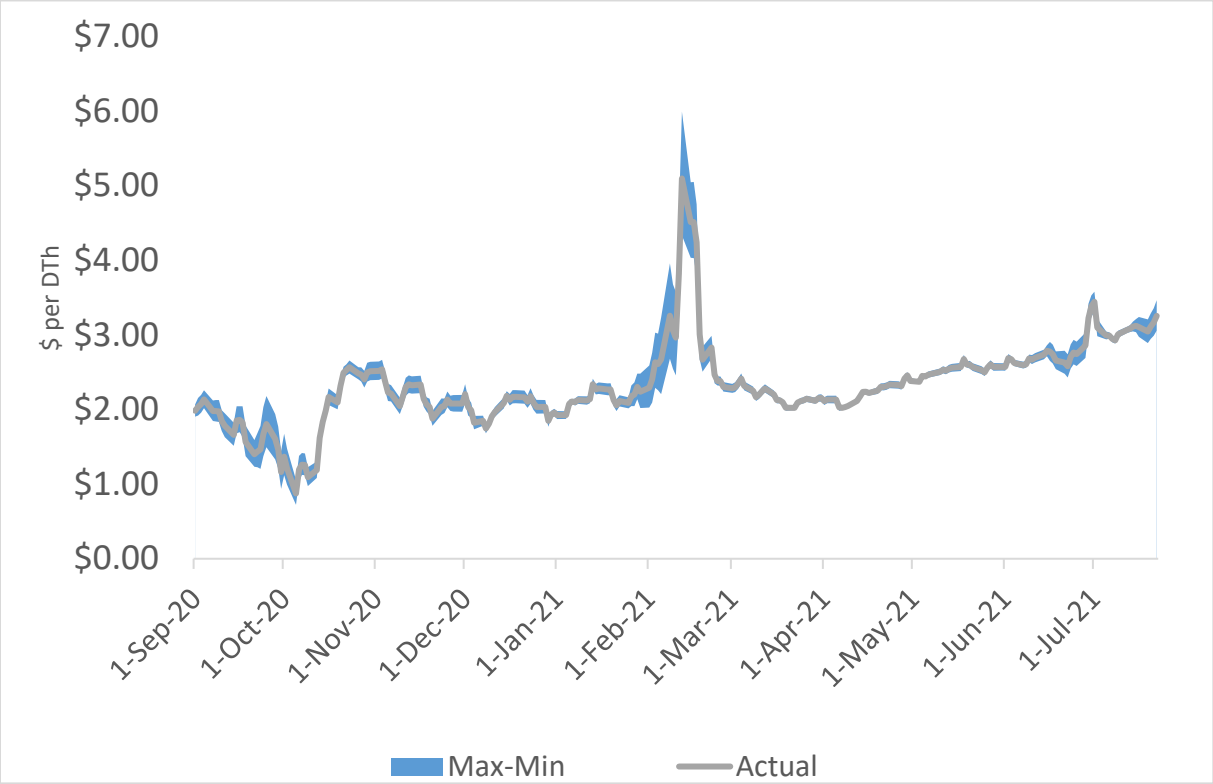
Exposure Reports

Positions are reported on a daily basis for a forward time horizon of approximately 2 years. Overall financial exposure is quantified volumetrically and in dollars, calculated by valuing the volumetric positions using the associated forward prices. Avista documents all transactions within the daily position report which includes our exposure based on the most recent prices. This report is then distributed to all persons in Energy Supply, risk, resource accounting, credit and our executive leadership for any day the market is open for trading. In addition, VaR is reported through the RRHT for the entire portfolio of positions which helps to measure the at risk dollar amount above and beyond the current financial exposure.

Volatility

Volatility is the movement, or change, of price from one period to the next and is absolute, meaning it can go up or down. When markets get extremely volatile, the unknown nature of pricing from period to period increases risk to open positions. Avista has an obligation to serve load, which results in a natural short position. This short position, combined with volatility in prices, subjects us to price fluctuations that ultimately effect customers' rates. The cash market has been volatile at AECO over the September 2020 through July 2021 timeframe as depicted in Illustration No. 10.

Illustration No. 10



A tabular view of this price potential showing the minimum and maximum price based off of volatility can be seen in Illustration No. 11.

Illustration No.11

Month	Average	Max	Min
January	$ 2.16	$ 2.48	$ 1.87
February	$ 3.11	$ 5.99	$ 2.03
March	$ 2.19	$ 2.48	$ 1.98
April	$ 2.22	$ 2.50	$ 1.98
May	$ 2.54	$ 2.73	$ 2.35
June	$ 2.75	$ 3.53	$ 2.43
July	$ 3.09	$ 3.58	$ 2.88
August	$ 1.75	$ 2.26	$ 0.94
September	$ 1.88	$ 2.66	$ 0.72
October	$ 2.19	$ 2.67	$ 1.78
November	$ 2.02	$ 2.34	$ 1.68
December	$ 2.33	$ 5.99	$ 0.72

This represents daily volatility scaled to a minimum or maximum potential based on this volatility. The standard deviation of daily pricing over this time horizon was $0.42. Considering the high price potential (Max) was close to $6.00 with the average price at $2.35, the daily market exhibited a high degree of pricing uncertainty.

The market has continued to remain volatile at the basins Avista has firm transportation to procure natural gas supply. Over the past decade, the price of natural gas has declined due to an increased level of total available and extractable supply. This has reduced the cost risks associated with financial positions and decreased the amount of hedging loss potential as the market is currently at a low level relative to historic pricing. The upside price risk is much higher at current market levels due to the depressed price of natural gas. The loss risk is lower as after a certain point, producers may not continue providing natural gas supply with a negative return.

Volumetric risk is higher in the winter months when demand is at its peak for residential and commercial loads. In consideration of both summer and winter season risks Avista will maintain an annual percent of load as it is automatically shaped by the seasonal demand volumes. Due to the high levels of volatility found in the market, Avista continues to view hedging as a type of risk insurance from upside prices. The RRHT will add additional protection in an extremely volatile market as displayed over the past winter.

Executed Hedges for the 2020-2021 PGA Year

As previously described, Avista's portfolio of hedges includes those completed for firm LDC customers based on estimated average load, storage optimization, and transportation optimization on a rolling 36-month basis. All hedges were executed in accordance with the DHW and RRHT procedures described above. In Illustration No. 12 the mark-to-market (M2M $) on a system basis, or the purchase price of the gas ("mark") as compared to the current price of the gas if the gas were purchased on the market today ("market"), shows Avista is currently "in the money" by roughly $13.4M for hedges that have not settled which include prior Plan years.

Illustration No. 12 (System)*

Strategy	# of Hedges	Mark to Market	Total Volume
LDC Prompt Yr Hedges	134	$ 18,863,720	20,315,000
LDC STORAGE OPT	94	$ (5,233,905)	(6,487,500)
LDC Transport Opt	26	$ (772,731)	-
Risk Resp Hedge	4	$ 527,478	607,500
Total	258	$ 13,384,561	14,435,000

*Hedge types include Basis Swaps, Fixed for Fload Swap and Fixed Physical

*Detail by individual hedge is attached as "Exhibit 1"

Illustration No. 13 contains the results of those individual month hedges which have been hedged in the current Plan and have settled in the period November 1, 2020 through July 31, 2021 and is summarized below:

Illustration No. 13 (System)

# of Hedges	Total Volume	Avg. Hedge Price	Avg. Index Price	Actual Gain (+) / Loss (-)
26	982,500	$ 1.99	$ 2.29	$ 298,338

Illustration No. 14 displays the Dynamic Window Hedge performance over the current PGA year highlighted by the count of ways by which each individual window closed as discussed above. The count involves all sides of a trade as discussed above.

Illustration No. 14:

Gas Delivery Timeframe	Ceiling	Floor	Time Expire	Grand Total
Apr-21	3	4	3	10
Dec-21	3			3
Feb-22	1		1	2
Jan-22	1		1	2
May-21	2	1		3
Nov-21	1			1
Oct-21	5	4		9
Sep-21		1		1
Summer 2022	2		1	3
Summer 2023	1		1	2
Winter '21 - '22	2	1		3
Winter '22 - '23	5	2	2	9
Winter '23 - '24	1		3	4
Grand Total	27	13	12	52

Avista agrees that hedging, in general, will lead to circumstances where some purchases are "in the money" and some purchases are "out of the money", but that overall hedging is a type of risk insurance against market volatility. This mark-to-market look is for the

twenty-six hedges purchased for LDC firm load since the hedges for storage and transportation optimization will always be a net positive benefit for customers.

The events of the 2020 PGA year (November 2020 – October 2021) have provided further visibility into the uncertainty of natural gas prices as discussed in the "Market Overview" section above. The rising commodity prices and volatility from regional demand and extreme weather events in Texas have tested our Plan for another year and have guided the program and results shown above. Avista's hedge program has aided in providing stable prices in an unpredictable environment, all combined with a relatively neutral hedge price, or mark-to-market, as compared to index prices. This overall performance, risk and market factors have been analyzed with the results taken into consideration in the determination to maintain its DWH and RRHT programs for the upcoming PGA year.

Next Steps

The next steps in this process are as follows:

- Provide a Comprehensive Hedging Plan, including retrospective report, with the 2022 Washington Natural Gas PGA filing

- Continue to carefully monitor the market to watch for fundamental changes in prices or conditions along with the performance of the Dynamic Window Hedging and Risk Responsive Hedging Tool, and adjust the Plan as warranted.