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BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF THE APPLICATION OF AVISTA CORPORATION FOR THE AUTHORITY TO INCREASE ITS RATES AND CHARGES FOR ELECTRIC AND NATURAL GAS SERVICE TO ELECTRIC AND NATURAL GAS CUSTOMERS IN THE STATE OF IDAHO	)))))))	CASE NO. AVU-E-21-01 CASE NO. AVU-G-21-01 EXHIBIT NO. 2 OF MARK T. THIES

FOR AVISTA CORPORATION

(ELECTRIC AND NATURAL GAS)

AVISTA CORPORATION

Long-term Securities Credit Ratings

	Standard & Poor's		Moody's	
Credit Outlook	Stable		Stable	
	A+		**A1**	
	A		**A2**	
	A-	First Mortgage Bonds Secured Medium-Term Notes	**A3**	First Mortgage Bonds Secured Medium-Term Notes
	BBB+		**Baa1**	
	BBB	Avista Corp./Corporate credit rating	**Baa2**	Avista Corp./Issuer rating
	BBB-		**Baa3**	Trust-Originated Preferred Securities
	INVESTMENT GRADE			
	BB+	Trust-Originated Preferred Securities	**Ba1**	
	BB		**Ba2**	
	BB-		**Ba3**	

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AVISTA CORPORATION
Proposed Cost of Capital
December 31, 2020

	Percent of Total Capital	Cost		Component Cost
Total Debt	50%	4.70%		2.35%
Common Equity	50%	9.90%	(1)	4.95%
Total	100%			**7.30%**

AVISTA CORPORATION
Actual Cost of Capital
December 31, 2019

	Percent of Total Capital	Cost		Component Cost
Total Long-term Debt	50.0%	5.17%		2.58%
Common Equity	50.0%	9.50%	(2)	4.75%
TOTAL	100%			**7.34%**

(1) Proposed return on common equity
(2) Last approved ROE as of 12-01-2019 (electric) and 01-01-2019 (natural gas).

AVISTA CORPORATION
Cost of Long-Term Debt Detail - Idaho
December 31, 2020

Line No.	Description	Coupon Rate	Maturity Date	Settlement Date	Principal Amount	Issuance Costs	SWAP Loss/(Gain)	Discount (Premium)	Loss/Reacq Expenses	Net Proceeds	Yield to Maturity	Outstanding 12/31/2020
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(g)	(h)	(i)	(j)	(k)
1	FMBS - SERIES A	7.530%	5/5/2023	5/6/1993	5,500,000	42,712	-	-	963,011	4,494,277	9.359%	5,500,000
2	FMBS - SERIES A	7.540%	5/5/2023	5/7/1993	1,000,000	7,766	-	-	175,412	816,822	9.375%	1,000,000
3	FMBS - SERIES A	7.180%	8/11/2023	8/12/1993	7,000,000	54,364	-	-	-	6,945,636	7.244%	7,000,000
4	ADVANCE ASSOCIAT	2.345% [1]	6/1/2037	6/3/1997	40,000,000	1,296,086	-	-	(1,769,125)	40,473,039	2.300%	40,000,000
5	FMBS - SERIES	6.370%	6/19/2028	6/19/1998	25,000,000	158,304	-	-	188,649	24,653,047	6.475%	25,000,000
6	FMBS - 6.25%	6.250%	12/1/2035	11/17/2005	150,000,000	1,812,935	(4,445,000)	367,500	-	152,264,565	6.139%	150,000,000
7	FMBS - 5.70%	5.700%	7/1/2037	12/15/2006	150,000,000	4,702,304	3,738,000	222,000	-	141,337,696	6.120%	150,000,000
8	5.125% SERIES	5.125%	4/1/2022	9/22/2009	250,000,000	2,284,788	(10,776,222)	575,000	2,875,817	255,040,618	4.907%	250,000,000
9	5.55% SERIES	5.550%	12/20/2040	12/20/2010	35,000,000	258,834	-	-	5,263,822	29,477,345	6.788%	35,000,000
10	4.45% SERIES	4.450%	12/14/2041	12/14/2011	85,000,000	692,833	10,557,000	-	-	73,750,167	5.340%	85,000,000
11	4.23% SERIES	4.230%	11/29/2047	11/30/2012	80,000,000	730,833	18,546,870	-	105,020	60,617,277	5.868%	80,000,000
12	4.11% SERIES	4.110%	12/1/2044	12/18/2014	60,000,000	428,205	(5,429,000)	-	-	65,000,795	3.650%	60,000,000
13	4.37% SERIES	4.370%	12/1/2045	12/16/2015	100,000,000	590,761	9,383,299	-	-	90,025,940	5.017%	100,000,000
14	3.54% SERIES	3.540%	12/1/2051	12/15/2016	175,000,000	1,042,569	53,966,197	-	-	119,991,233	5.598%	175,000,000
15	3.91% SERIES	3.910%	12/1/2047	12/14/2017	90,000,000	552,539	8,823,322	-	-	80,624,139	4.550%	90,000,000
16	4.35% SERIES	4.350%	6/1/2048	5/22/2018	375,000,000	4,246,448	26,580,102	378,750	-	343,794,700	4.881%	375,000,000
17	3.43% SERIES	3.430%	12/1/2049	11/26/2019	180,000,000	1,108,340	13,330,106	-	-	165,561,554	3.885%	180,000,000
18	3.07% SERIES	3.070%	9/30/2050	9/30/2020	165,000,000	1,065,856	33,503,119	-	-	130,431,025	4.323%	165,000,000
19												1,973,500,000
20												
21	Repurchase	[2] 5.72%	3/1/2034	12/30/2009	17,000,000				1,916,297	15,083,703	6.661%	
22	Repurchase	[2] 6.55%	10/1/2032	12/31/2008	66,700,000				3,709,174	62,990,826	7.034%	
23												
24												1,973,500,000
25												
26	**IDAHO TOTAL DEBT OUTSTANDING AND COST OF DEBT AT December 31, 2020**							**Adjusted Weighted Average Cost of Debt**			**4.70%**	
27												
28												
29	[1] Average Monthly Average Rate over a twelve month period											
30	[#] Coupon Rate at the time of repurchase											
31	[#] Calculated using the Internal Rate of Return method											

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AVISTA CORPORATION
Cost of Long-Term Variable Rate Debt Detail
December 31, 2020

	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Avg of
(a)	(b)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(o)
Trust Preferred*	$40,000,000	$40,000,000	$40,000,000	$40,000,000	$40,000,000	$40,000,000	$40,000,000	$40,000,000	$40,000,000	$40,000,000	$40,000,000	$40,000,000	$40,000,000	**$ 40,000,000**
Number of Days in Month	31	31	29	31	30	31	30	31	31	30	31	30	31	
Forecasted Rates Trust Preferred	2.7900%	2.7900%	2.7900%	2.4600%	2.4600%	2.4600%	1.2250%	1.2250%	1.2250%	1.1159%	1.1159%	1.1159%	1.1931%	
Trust Preferred Interest Expense	$ 96,100	$ 96,100	$ 89,900	$ 84,733	$ 82,000	$ 84,733	$ 40,833	$ 42,194	$ 42,194	$ 37,197	$ 38,437	$ 37,197	$ 41,096	**$ 812,714**

Description	Coupon Rate	Maturity Date	Settlement Date	Principal Amount	Issuance Costs	Loss/Reacq Expenses	Net Proceeds	Yield to Maturity	Outstanding 12/31/2020	Effective Cost
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
Trust Preferred	2.03%	6/1/2037	6/3/1997	$ 40,000,000	$ 1,296,086	$ (1,769,125)	$ 40,473,039	1.989%	$ 40,000,000	$ 795,509

*Original issue principal amount was $50 million. The Company repurchased $10 million of the securities outstanding.

**Forecasted Rates are based on forward rates from Thomson Reuters analysis tools plus the 87.5 basis points pursuant to the debt agreement.

AVISTA CORPORATION
Capital Structure Reconciliation
(dollars in thousands)

	10-K 12/31/2019	Adjustments		Adjusted Regulatory Balance 12/31/2019	Activity		Adjusted Regulatory Balance 12/31/2020	
Short-term Debt								
Avista Corp	$ 185,800	$ (185,800)	a	$ 100,000		a		
Subsidiaries			b					
Total short-term debt	$ 185,800	$ (185,800)		$ 100,000	$ -		$ -	
Long-term Debt								
Long-term debt	$ 1,843,768	$ (75,268)	c	$ 1,768,500	$ 165,000	f	$ 1,933,500	
Current Portion of long-term debt and capital leases	52,000	-	c	52,000	(52,000)	g	$ -	
Debt to Affiliated Trust	51,547	(11,547)	d	40,000			$ 40,000	
Total long-term debt	$ 1,947,315	$ (86,815)		$ 1,860,500	$ 113,000		$ 1,973,500	
Equity								
Total Avista Corporation stockholders' equity	$ 1,939,284	$ (79,071)	e	$ 1,860,213	$ 88,331	h	$ 1,948,544	

a Adjusted to reflect short term debt balances on a monthly average.

b We exclude short-term borrowings outstanding at our subsidiaries.

c These adjustments are made to reflect our actual principal amount outstanding. We exclude amounts related to settled interest rate swaps and unamortized debt discount. The amounts related to settled interest rate swaps and unamortized debt discount are included as a cost of debt. Additionally, amounts related to capital leases and subsidiary long-term debt are excluded from Avista Utilities long-term debt.

d We hold $11.547 million of these securities. The $40 million adjusted balance relates to the current outstanding balance to third party investors.

e We exclude the following: capital stock expense; in order to recover the costs incurred for issuing equity, an amount equivalent to the investment in AERC, and accumulated other comprehensive loss; in order to reflect our actual equity balance.

Equity Adjustments (dollars in thousands):

Capital Stock Expense	$ 17,518
Accumulated other comprehensive loss	$ 7,222
Investment in AERC	$ (103,811)
Total	**$ (79,071)**

f Represents the issuance of long-term debt. There are forecasted issuance of $165 million in 2020. For additional details related to this issuance see page 3 of this Exhibit.

g $52 million of debt matures on 12/20/20.

h Forecasted Equity Activity (dollars in thousands):

Equity Activity	$ 89,468
Change in equity in AERC	$ (1,137)
Total	$ 88,331

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Interest Rate Risk Management Plan

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Infrastructure Investment Plan
2020

AVISTA

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Executive Summary

Avista Utilities serves a population of about 1.7 million people across a 30,000 square mile service territory covering portions of Washington, Idaho and Oregon.[1] On the electric side, Avista serves approximately 385,000 retail electric customers with an infrastructure system consisting of approximately 2,200 miles of high voltage transmission lines and 19,000 miles of distribution lines, including both overhead wire, underground cable and service lines, all interconnected by 175 substations.[2] The Company owns eight hydroelectric, five natural gas-fired power plants, and one biomass generating facility, is part owner in a coal-fired generating station as well as purchases wind, solar, and customer-owned generation. Avista also owns and operates nearly 8,000 miles of natural gas distribution mains serving approximately 350,000 retail natural gas customers.[3] Avista must continually make new investments in these systems in order to continue providing customers with safe and reliable electric service, at a reasonable cost, and with service levels that meet customer's expectations for quality and satisfaction.

Report Key Objectives:

- *Improve transparency and visibility into Avista's capital planning and budgeting processes;*
- *Provide a comprehensive yet simplified summary of the drivers of capital investment and the plan for implementation, and*
- *Explain the need and timing of investments, viewed at the individual project level as well as the way in which these projects are integrated into enterprise-wide planning.*

AVISTA CAPITAL BUDGET	2020	2021	2022	2023	2024	Five Year Total	%
Customer Requested	$60,181,711	$51,134,379	$49,859,819	$49,734,401	$50,362,596	$261,272,906	13%
Mandatory & Compliance	$91,410,119	$89,600,960	$73,515,726	$57,761,343	$58,005,327	$370,293,475	18%
Failed Plant & Operations	$20,877,880	$18,398,000	$16,028,200	$14,868,000	$14,868,000	$85,040,080	4%
Asset Condition	$115,602,157	$122,601,308	$148,432,501	$151,699,678	$169,863,832	$708,199,476	35%
Customer Service Quality & Reliability	$53,112,537	$43,039,745	$41,682,500	$42,540,000	$15,850,000	$196,224,782	10%
Performance & Capacity	$63,815,596	$80,225,608	$75,481,254	$88,396,578	$96,050,245	$403,969,281	20%
Total Budget	$405,000,000	$405,000,000	$405,000,000	$405,000,000	$405,000,000	$2,025,000,000	

Table 1. Avista Capital Budget 2020-2024 by Investment Driver

This report provides an overview of the Company's planned infrastructure investments for the period 2020 – 2024 as shown in Table 1. These expenditures are described in more detail below. Collectively, the investments described in this report allow Avista to effectively respond to customer requests, meet its regulatory and other mandatory obligations, replace equipment that is damaged or fails, support electric and gas operations, address system performance and capacity issues, and replace infrastructure at the end of its useful life based on asset condition, all based on what is known about the business today, including a range of precision in future cost estimates, applicable laws, regulatory requirements, and the capabilities of current technologies. This report is a summary of the reports produced for each major business unit, including Natural Gas, Transmission, Distribution, Substations, Fleet and Facilities. Those reports, which will be updated annually, contain detailed information about the associated business cases and are available upon request.

[1] 2019 Avista Quick Facts, https://www.myavista.com/about-us/our-company/quick-facts

[2] This includes 8 transmission substations, 31 transmission with distribution substations, 13 switching substations, 12 generation substations, 2 foreign owned, and 109 distribution substations.

[3] 2019 Avista Quick Facts, https://www.myavista.com/about-us/our-company/quick-facts

Introduction

Avista's Investment Selection Process

Several steps are involved in determining which projects should be considered for funding and how to maximize the value of limited budget dollars. As a start, capital projects are organized into "Investment Drivers," six categories that are used to help explain the needs the project is trying to address. The Company developed these drivers in an effort to improve the transparency and consistency of decision making and they are a consideration for every project, regardless of where it resides. These drivers are:

1) **Customer Requested**. These projects are triggered by customer requests for new service connections, line extensions, transmission interconnections, transmission capacity, or system reinforcements to serve customers. Responding to customer requests for service is a requirement of providing utility service. Projects in this category also include customer service enhancements, line extensions or interconnections to serve large industrial or commercial customers, integrating customer generating projects such as Lind Solar,[4] or requested interconnections with neighboring utilities.

2) **Mandatory and Compliance**. The investments in this category are driven typically by compliance with laws, rules, and contract requirements that are external to the Company, areas for which the Company has little or no discretion in spending. Avista operates in a complex regulatory and business framework and must adhere to national and state laws, state and federal agency rules and regulations, and county and municipal ordinances. Compliance with these rules, as well as contracts and settlement agreements, represent obligations that are generally external to the company and generally beyond Company control. Projects in this category may include the obligation to relocate facilities based on road construction projects, dam safety upgrades, air and water quality permits, NERC requirements related to the interconnected grid, FERC required transmission upgrades, etc.

3) **Failed Plant and Operations**. Although Avista responds to thousands of forced outage events every year, asset replacement due to equipment failure or an outage event is only one component of the investment required to operate natural gas and electric operations. Operating conditions are driven by seasonal variations in weather, changes in customer demand patterns, economic trends, as well as large scale events such a windstorms, floods, fire, lightning, and snow storms. The replacement and capital repair of equipment failures constitute requirements to replace assets that

[4] Lind Solar is owned and operated by Strata Solar of North Carolina who requested interconnection with Avista's system. Avista is purchasing the energy from this project.

have failed and which must be replaced in order to provide continuity and adequacy of service to \ customers (e.g. capital repair of storm-damaged facilities). This also include investments in natural gas and electric infrastructure that is performed by Avista's operations staff, and which is typically budgeted under capital accounts by major asset or business class (e.g. Electric Distribution).

4) **Asset Condition**. Assets of every type will degrade with age, usage and other factors, and must be replaced or substantially rebuilt at some point in order to ensure the reliable and acceptable continuation of service. Projects or programs in this category of need are defined as: "investments to replace assets based on established asset management principles and systematic programs adopted by the Company, which are designed to optimize the overall lifecycle value of the investment for our customers." The replacement of assets based on condition is essentially the practice of removing them from service and replacing them at the end of their useful life. This funding category replaces assets or portions of assets as needed to maintain function and usefulness, such as repairing or replacing parts that wear out, when safety or environmental concerns are identified, or when assets no longer provide optimized performance or customer value.

5) **Customer Service Quality and Reliability**. Customer Service Quality and Reliability investments are those investments required to maintain or improve the quality of services provided to customers, to introduce new types of services and options based on an analysis of customer needs and expectations, to ensure customer service quality requirements are achieved, and to meet electric system reliability objectives. These investments include such programs as the Company's smart meter installation, replacing aging gas pipeline, changing out underground cables to reduce outages, or installing automation devices to help isolate outages and reduce their impact.

6) **Performance and Capacity**. Avista's projects and programs responsive to this category of need include a range of investments that address the capability of assets to meet defined performance standards, typically developed by the Company, or to maintain or enhance the performance level of assets based on a demonstrated need or analysis. This driver helps ensure that assets satisfy business needs and meet performance and reliability standards. Programs in this category ensure that assets satisfy business needs and meet performance standards. Examples might include adding a redundant feeder to reduce the chance of outages, upgrading systems to improve accuracy, monitoring, or service levels, or increasing capacity due to customer growth or to mitigate potential overloaded equipment.

Projects are developed through various means including planning studies, engineering and asset management analyses, as scheduled upgrades or need for replacements are identified, or with observations made by expert personnel. These projects undergo internal review by multiple stakeholders within the business units themselves and through a formal review process at the appropriate business area level. These formal review teams, which encompass Avista's primary business areas, are listed in Appendix A.

Each business unit proposing a capital expenditure is required to fill out a form explaining the situation, the primary business driver, alternatives considered, and the justification for the approach recommended. The resulting business case is sent to the Capital Planning Group (CPG) for final review and consideration.

The CPG is comprised of Avista directors from across all of the capital-intensive areas of the Company. This group has the responsibility of determining how the capital budget, at a level which is approved by the Finance Committee of the Board of Directors, will be allocated across the business. The CPG evaluates all of the projects proposed for funding from a company-wide perspective. Based on the various expertise they bring to the table, they determine which projects should be funded and which should be deferred in order to stay within budget.

They consider the immediacy of the need for investment, the financial and other impacts of deferring projects, as well as safety, reliability, and partial funding versus an "all or nothing" approach. This group also evaluates and discusses the consequences of *not* funding projects. Based on this iterative and comparative assessment, the team adjusts the list of projects to be funded, as well as the amounts to be funded, to arrive at the best-balanced allocation of capital among priority needs across the business. The final allocation recommended by the Capital Planning Group reflects the need to fund the highest priority investments first, on a Company-wide basis, while taking care to ensure that the investments deferred will not result in excessive cost or risk.

Main Campus parking structure when completed

Once funding is allocated to priority projects for the coming five-year period, the Capital Planning Group presents the budget to Avista's senior management who provide feedback and ultimately approve the infrastructure plan. Planned spend by business driver is presented to the Finance Committee of the Board of Directors, which after discussion and the opportunity for amendment, approves the infrastructure plan. The status of the planned versus actual investment spending is reviewed with the Finance Committee at least twice each year. The final result demonstrates a reasonable balance among competing needs required to maintain the performance of Avista's systems, as well as prudent management of the overall enterprise in the best interest of customers.


Natural Gas Pipeline Repair in Downtown Spokane

External factors such as new regulatory or legislative requirements may drive changes in the plan. The projects in the Company's portfolio are regularly reviewed for changes in assumptions, constraints, project delays, accelerations, weather impacts, outage coordination, system operations, performance, permitting/licensing/agency approvals, safety, and customer-driven needs that arise. The portfolio is continually updated throughout the year to remain as accurate as possible.

Avista Focus Areas

Prudent Investment

When Avista makes any capital investment there is an obligation to demonstrate that the overall need, evaluations of alternatives, and the planned timing of implementation is prudent and in the customer's best interests. Whether the investment touches the customer directly, such as customer service or metering systems, or indirectly, such as improving the capability and efficiency of employees and internal work processes, each dollar invested ultimately supports one purpose: to provide customers with safe, reliable, and cost-effective energy services that meet their expectations for quality of service and value. The Company believes that the investments summarized in this report satisfy this obligation, both when viewed at the level of the individual project, and as aggregated into an overall plan of investment.

When evaluating investments, Avista applies a four part prudency standard:

1) ***Demonstrated proof of need for a project***, which can be as simple as reducing the load on an overhead transformer or as complex as the Advanced Metering Infrastructure, which has a diverse set of objectives such as reducing outage duration, providing detailed information about customer's energy usage, and enabling their smart home appliances.
2) ***Evidence that reasonable alternatives were considered*** that allowed objectively selecting the best, most cost effective alternative.
3) ***Company awareness of the need for and approval of the project.*** This means that affected employees have been made aware of and are in favor of the project and are kept informed of any material changes.
4) ***Documentation is maintained*** during the course of the project that would allow a person (sometimes years later) to reach the same conclusions about key decisions based on what was known at the time, or should have been known by the project manager. Also called the 'prudent manager' standard.

Managing Costs

Beginning about 2005, Avista, like the rest of the utility industry, began to gradually increase the level of its annual capital investments. The cost impact was mitigated by moving to the present level of investment more gradually over a period of several years. This effort often required Avista to fund programs at less than an optimum level during ramp up. The Company has maintained a stable level of capital investment for the past several years in an effort to stabilize the price impacts experienced by customers.

Meeting the Expectations of Customers

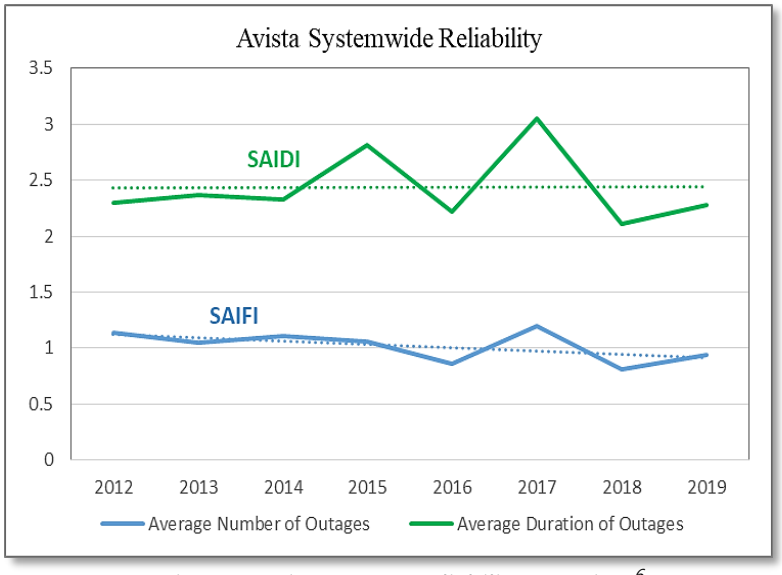


Figure 1. Avista System Reliability Over Time [6]

While Avista is focused on prudently managing the money invested to provide customer service, and effectively mitigating the price impact of those expenditures, the Company must also ensure that it is meeting their service expectations today as well as laying the foundation for meeting their evolving expectations tomorrow.

As one example, Avista is focused on maintaining a high degree of service reliability. This is a vital aspect of the quality of electric service, particularly as society becomes ever more reliant upon electronic technologies. In this case, Avista must gauge what constitutes an acceptable level of service, and strive to strike a complex balance between customer's expectations, the investments that are needed to meet them, and the reasonableness of those costs from their perspective. Ideally, this balance delivers the highest level reliability performance for the years 2004 through 2019 is shown in Figure 1.[5] The Company can make some improvements to these indices over time with aggressive vegetation management, adequately maintaining trucks and equipment, installing reclosers and fusers, etc. However, unpredictable and uncontrollable elements such as storms, ice loading, car-hit-pole, and other factors can have significant impacts on reliability.

Each year through our Voice of the Customer survey we check in with our customers to determine their level of satisfaction with the customer and field services we provide. In 2019, customers indicated 94% overall satisfaction with the customer service they received from Avista.[7] Of the seven guarantees shown in the text box on the left, the Company was successful 99.99% of the time in meeting these objectives in the latest "Customer Service Quality and Electric System Reliability Report" filed with the Washington Utilities and Transportation Commission.[8] The Company's focus on customer service helps ensure that customer expectations are met, and hopefully exceeded.

[5] Note that we do not directly measure customer satisfaction for reliability alone. For more information, please see the 2016 Avista Service Quality Report Card, https://myavista.com/-/media/myavista/content-documents/your-account/bill-inserts/june-17/14961-avu-wa-annual-report-card-042117-fullre-final.pdf?la=en

[6] SAIDI = System Average Interruption Duration Index which measures the number of minutes an average customer is without power per year. SAIFI=System Average Interruption Frequency Index which measures how often a customer experiences a sustained (>5 minutes) interruption over the course of a year.

[7] Avista 2019 "Voice of the Customer Survey Results: Overall Satisfaction with Service"

[8] https://www.utc.wa.gov/regulatedIndustries/utilities/Documents/180376-AVA-Revised2017-Serv-Qlty-Elect-Reliability-Rpt-6-27-2018.pdf#search=avista%20service%20quality%20report

CAPITAL BUDGET BY INVESTMENT DRIVER

For the next five-year planning horizon Avista expects to spend approximately $405 million in capital dollars per year, allocated across the investment drivers described above.

As shown in Figure 2, 35% of Avista's planned capital investments are based on Asset Condition. Avista is experiencing a bow wave of investments as equipment reaches end-of-life. This expectation is common across the industry. An in-depth study by Deloitte stated: "In 2019, the multiyear pattern of record-breaking utility capital expenditures amid stagnant load growth continued in the power industry. And it shows few signs of changing as the need to upgrade aging infrastructure, digitize, and secure the grid against natural and manmade disasters such as cyberattacks continues."[9]

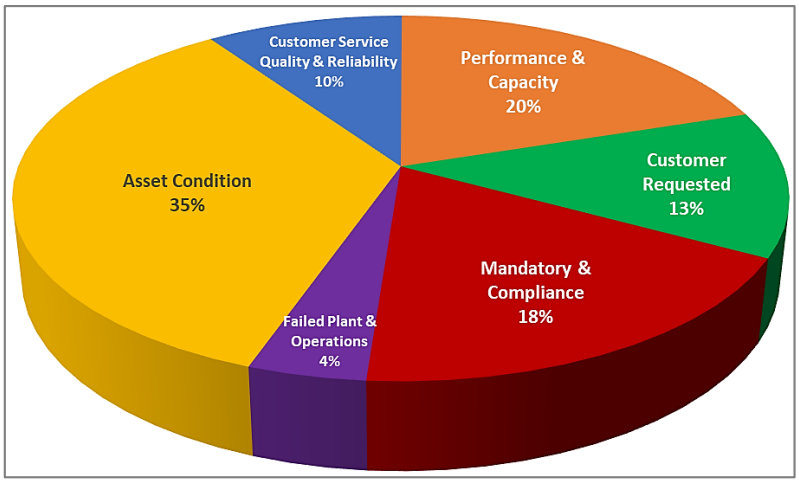


Figure 1. Five Year Capital Budget Percentages by Investment Driver 2020-2024

Below more details will be provided regarding the strategies and projects Avista is employing to meet these challenges, to address infrastructure age, customer growth, security issues, and improvements required to increase and enhance existing assets and processes related to customer satisfaction, as well as meet ever increasing levels of compliance and regulation.

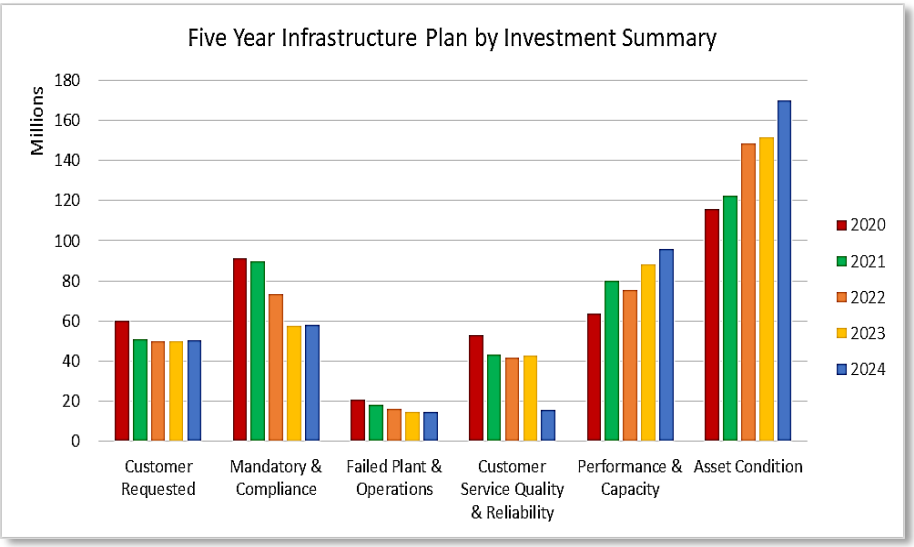


Figure 2. Five Year Capital Budget by Investment Driver

Cabinet Gorge turbine shaft

[9] Deloitte US "2020 Power and Utilities Industry Outlook," https://www2.deloitte.com/us/en/pages/energy-and-resources/articles/power-and-utilities-industry-outlook.html

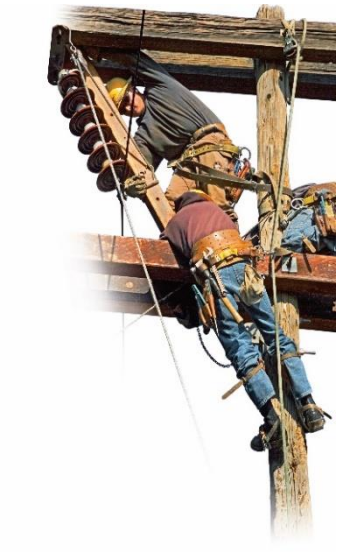
Capital Budget by Business Unit

Avista's capital budget is broken out by major business unit or area as well as by business driver. For the upcoming five year budget cycle, the expected spend for each business area is shown in Table 2 and in Figure 4. More information about each business case, the issues facing each area, associated business processes and terminology are included in the individual business unit infrastructure plans.[10]

Please note that the "Other" category shown in Table 2 includes the Fleet and Facilities business units as well as general categories such as training, tools, some regulatory requirements such as contracts, Tribal or WSDOT obligations, and expenditures for categories such as security and communications. "Growth" contains the budget for new customer service requests as mentioned earlier. A detailed table listing the projects for each investment driver can be found at the end of each investment driver section. Each table lists the individual business cases, defines the time period of each project and indicates the expected expenditures for each year of the project's duration.

	2020	2021	2022	2023	2024
Environmental	24,136,627	18,223,068	6,096,910	5,282,698	5,094,679
ET	42,594,463	52,905,275	59,687,121	57,584,578	54,836,578
Gas	46,193,892	47,608,892	49,549,816	45,988,645	45,355,648
Generation	51,451,805	53,933,675	54,488,738	61,201,000	61,199,000
Growth	57,956,711	51,134,379	49,859,819	49,734,401	50,362,596
Other	28,942,845	36,023,346	33,761,476	38,885,258	53,946,179
T&D	153,723,657	145,171,365	151,556,120	146,323,420	134,205,320
Total Budget	$405,000,000	$405,000,000	$405,000,000	$405,000,000	$405,000,000

Table 2. Avista Capital Expenditures by Major Business Area



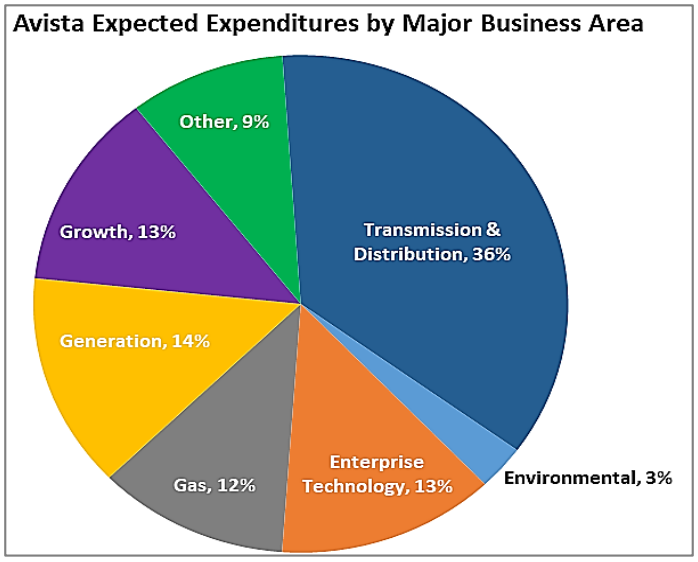


Figure 4. Five Year Capital Budget by Major Business Area

[10] These plans can be found on the Company's internal website, the Avenue. Hardcopies are available upon request.

1. Customer Requested

Projects in this category are triggered by customer requests for new service connections, line extensions, transmission interconnections with large customers or a neighboring utility, to address transmission capacity issues, or to provide system reinforcements needed to serve customers. An example would be construction of a distribution substation with associated line extension and/or an additional natural gas line in order to meet the requested new load requirements of an industrial or large commercial customer. Another investment of this type would be reinforcing or adding transmission to meet the interconnection and associated requirements for a new renewable energy project such as a wind or solar generating facility.

New Service Connections

Between 2009 and 2019 the Company responded to an average of over 4,000 requests for a new residential electric service connection each year and nearly 5,000 requests for gas connections across Avista's service territory. For the current five-year planning period Avista expects to connect an average of about 4,600 new residential electric and 5,800 natural gas customers each year as shown in Figure 5, based on current economic and population forecasts.

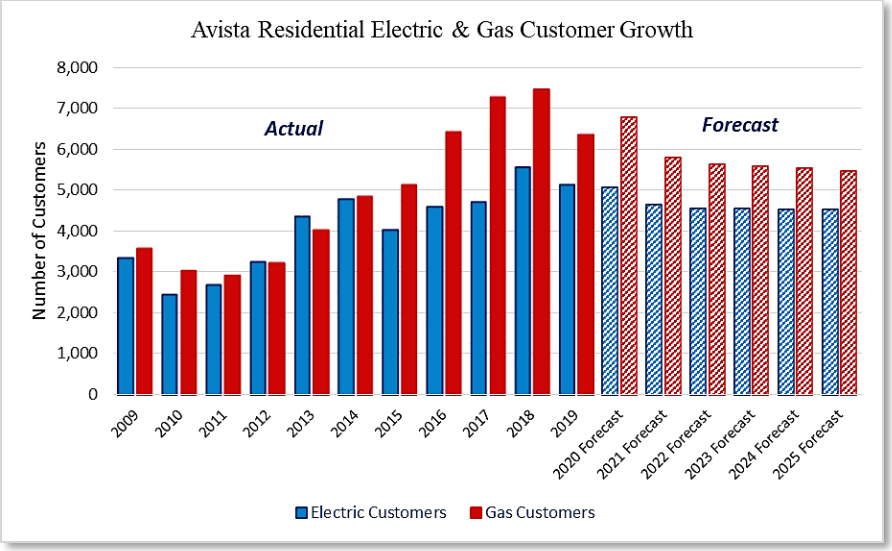


Figure 5. Total Annual Residential Service Customer Connections

New Transmission Connections

An external company, Clearway Energy Group, is developing a wind energy facility known as Rattlesnake Flat Wind, which is projected to provide Avista with approximately 50 average megawatts of renewable energy, or as much as 144 megawatts of nameplate wind capacity, under a 20-year power purchase agreement with deliveries beginning in 2020. This project, including 90 wind turbines and associated facilities, is located in Adams County, Washington, and requires significant upgrades to Avista's existing system, including transmission line rebuilds, an additional switching station, and substation upgrades required to handle the new generation. The developer is responsible for about half the costs of this project. This new energy resource benefits Avista customers in two primary ways: providing customers with additional renewable energy and enhancing the strength and resiliency of the existing transmission infrastructure.[11]

[11] For details about this project, see: https://apps.ecology.wa.gov/separ/Main/SEPA/Record.aspx?SEPANumber=201803289

Customer Requested Business Cases						
Function	*Customer Requested* Business Cases	2020	2021	2022	2023	2024
Growth	New Revenue - Growth	$57,956,711	$51,134,379	$49,859,819	$49,734,401	$50,362,596
T&D	Rattlesnake Flat Wind Farm Project 115kV Integration Project	$2,225,000	$0	$0	$0	$0
	Total	$60,181,711	$51,134,379	$49,859,819	$49,734,401	$50,362,596

Table 3. Customer Requested Planned Expenditures

2. Mandatory & Compliance

Avista operates in a complex regulatory and business framework and must adhere to national and state laws, state and federal agency rules and regulations, and county and municipal ordinances. Compliance with these rules, as well as contracts and settlement agreements, represent obligations that are generally external to the Company and largely outside of the Company's control.

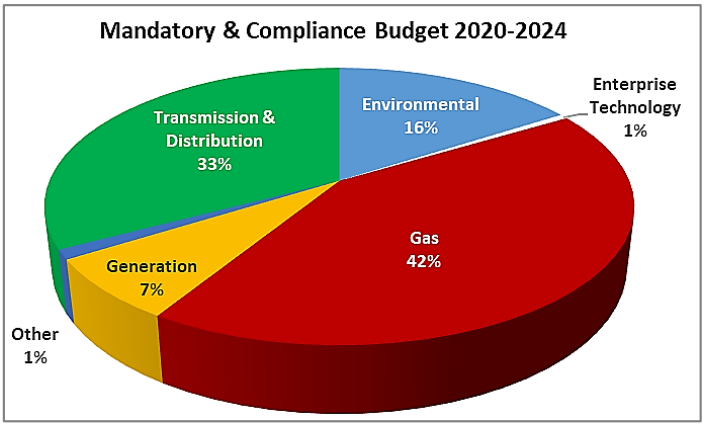


Figure 6. Mandatory & Compliance Budget

Natural Gas Business Unit

The natural gas business is driven by a wide range of regulations. As an example, the U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration requires pipeline operators to identify and document as well as have adequate cathodic protection in place for pipelines to protect against corrosion. Pipeline operators are also required to identify and mitigate the highest risk areas of their natural gas distribution systems[12] and to remove any customer-installed encroachments over pipelines. In addition, meters must be tested to make sure they are performing correctly and to replace them if they do not. Another capital cost results when local authorities request relocation of equipment residing on public easements, which must be done at the Company's expense.

Transmission & Distribution Business Units

Several projects are undertaken in the Transmission and Distribution areas as a result of primarily FERC and NERC requirements. Mandatory projects during this budget cycle include updating fault recording equipment at a number of substations,[13] mitigating transmission line clearance issues,[14] and replacing the Westside #1 230/115 kV transformer, as it exceeds its NERC facility rating when the #2 transformer is taken out of service.[15] This business driver also includes Avista's contractual obligations to pay its ownership share in Colstrip Transmission and to provide funding for other transmission rebuild work, line reconductoring,

[12] For Avista, a high risk is the bending stress that occurs on Aldyl A service pipe where it connects to a steel main pipe.
[13] The Protection System Upgrade for PRC-002 Business Case.
[14] Based on North American Electric Reliability Corporations (NERC) "NERC Alert" - Recommendation to Industry, "Consideration of Actual Field Conditions in Determination of Facility Ratings," addressed by the Transmission NERC Low-Risk Priority Lines Mitigation Business Case.
[15] This is the Westside 230/115kV Station "Brownfield Rebuild" Project Business Case.

and new construction required by NERC Reliability Standards.[16] The Company is also undertaking system upgrades to provide an interconnection for the Clearwater Wind Project as requested by the developer.

Capital dollars are also set aside to provide funding for Avista to move its electric transmission and distribution infrastructure in response to municipalities, counties and state-level agency projects to rebuild or realign roads, streets and highways, and other infrastructure projects. This work must be performed at the Company's expense. Funds are also allocated to manage joint use requests. This occurs when one or more utilities share space on the same pole.[17] The Company is typically reimbursed for requests for work made by other utilities.

In addition, during this budgeting cycle four major transmission projects are planned:

- Ninth & Central 230kV Station & Transmission: The Spokane area transmission system is heavily dependent upon the Beacon Substation, which is networked to the Bell Substation as well as eight 115 kV transmission lines. In order to reduce this dependency, create redundancy, enhance system reliability, and remain in compliance with mandatory standards, Avista is upgrading the infrastructure of the Ninth & Central Substation, including adding an autotransformer, circuit breakers, and new transmission lines.

- Saddle Mountain 230/115kV Station (New) Integration Project Phase 1 and Phase 2: This project will upgrade the Othello area transmission system, reducing the current pressure being put on neighboring Grant County Public Utility District and greatly improving the reliability of Avista's transmission in this area. It also removes an existing single point of failure situation. This will all be accomplished with the addition of the Saddle Mountain substation and associated new transmission lines, breakers, and an autotransformer.

- Spokane Valley Transmission Reinforcement Project: The Spokane Valley area has experienced load growth to the point of causing compliance issues with the NERC reliability standards.[18] To remedy this situation, a new substation will be constructed along with rebuilding part of the Beacon-Boulder #2 115 kV transmission line. These changes will not only address compliance issues, but will make the transmission system in this urban area more robust, specifically for serving large industrial customers.

[16] These activities are part of the Transmission Construction – Compliance and Transmission NERC Low-Risk Priority Lines Mitigation
[17] These utilities typically include power, cable TV, phone service, fiber optic data, cellular antennas, etc. These activities are covered in the Electric Relocation and Replacement Program and Joint Use Business Cases.
[18] NERC Standard TPL-001-4: http://www.nerc.com/files/tpl-001-4.pdf which requires the Company to avoid load loss and have circuit breakers with sufficient interrupting capability for faults.

- West Plains New 230kV Substation: Currently four substations serve the Spokane Area. The 230/115 kV transformation for this area has become inadequate according to NERC standards.[19] In addition, distribution in the area has radial feeders that require manual intervention when a fault occurs, exposing up to 31 miles of customers to an outage. The new West Plains Substation will not only bring the Company into compliance with regulations but will interconnect with the Bonneville Power Administration, providing redundancy and flexible operating options and reducing the chance of an extended outage for customers.

Environmental Business Unit

The North Channel of the Spokane River after Avista constructed weirs (small dams) in the river channel which were so cleverly designed that the approximately 170 cfs flowing in the river in this photo has the same appearance as 1500-1600 cfs did prior to the project completion. These weirs are indistinguishable to the public, as they were color and texture matched to blend in with the surrounding basalt channel.

Avista faces a wide range of environmental regulation as well as agreements and contracts related to protecting the resources impacted by the Company's operations. Among the most significant is the Clark Fork Project Agreement, which includes both Cabinet Gorge and Noxon Rapids power plants. This Agreement includes hundreds of specific legal requirements for Avista, derived from a comprehensive settlement agreement between the Company and over 20 other parties, including the States of Idaho and Montana, various federal agencies, five Native American tribes, and numerous non-governmental organizations. For example, one such required program is designed to provide fish passage at Cabinet Gorge in order to maintain the FERC license for this facility. The Spokane River facilities also have FERC licensing requirements that must be fulfilled in order to continue operations of those power plants. All of the facilities have requirements around issues such as public safety (such as signage and boater safety cables), scenic and cultural requirements, and recreation that fall under the Environmental team's jurisdiction – and budget.

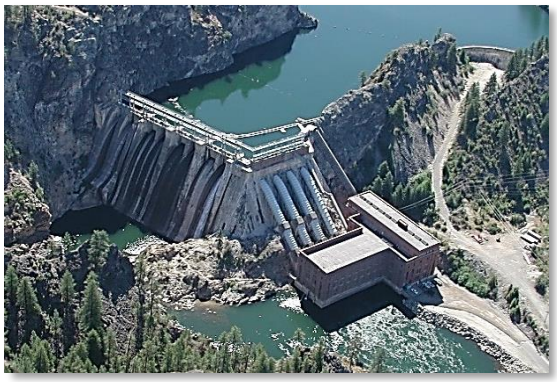
The Company is also subject to a myriad of local, state, regional, and federal environmental regulations including proper handling and disposal of hazardous waste, clean air and water standards, endangered species considerations, cultural uses, and special permitting required for the facilities located on public land. Another program, the Hydro Safety Minor Blanket, handles placing or replacing warning signs, boater safety cables and the like. All of these types of programs are managed through Environmental's Mandatory and Compliance budgets.

Generation Business Unit

Generation has three primary programs related to Mandatory and Compliance in this budget cycle. One is a requirement to add additional anchoring to the bedrock of the Long Lake dam as well as concrete mass to

[19] NERC TPL-001-4 https://www.nerc.com/pa/comp/guidance/EROEndorsedImplementationGuidance/TPL-001-4_Standard_Application_Guide_endorsed.pdf

the dam itself to be in compliance with a FERC requirement. During this construction, the construction team will also change the spillway design to reduce dissolved gasses downstream, improving water quality for fish habitat. Another project will stabilize the penstock at the Monroe Street dam.



Long Lake Dam & Spillway

Enterprise Technology

Under the Mandatory and Compliance business driver, Enterprise Technology is responsible for updating the Special High Voltage Protective (HVP) equipment located on the Avista side of the distribution system. This equipment protects personnel and equipment from faults in a customer's electric power system. Other ET mandatory and compliance business cases include installation of communications equipment used to control and monitor substations and transmission facilities.

Other Areas

Capital dollars are also allocated to provide tools, materials and equipment for training apprentices and journey workers across eleven skilled crafts or trades. Additional funding is set aside to ensure compliance with tribal permits and settlements primarily related to easements and Washington State Department of Transportation franchises and rights-of-way. The North American Electric Reliability Corporation ("NERC") Critical Infrastructure Protection Reliability Standards related to the physical security of Avista's key assets such as substations and control centers are requiring upgrades at Noxon Switchyard.[20]

Mandatory and Compliance Business Cases (Part 1 of 2)						
Function	***Mandatory & Compliance* Business Cases**	**2020**	**2021**	**2022**	**2023**	**2024**
Environmental	Cabinet Gorge Dam Fishway	$19,500,000	$12,500,000	$160,000	$0	$0
Environmental	Clark Fork Settlement Agreement	$3,068,027	$4,418,068	$5,119,610	$4,222,698	$4,277,379
Environmental	Environmental Compliance	$450,000	$450,000	$450,000	$450,000	$450,000
Environmental	Hydro Safety Minor Blanket	$50,000	$50,000	$50,000	$50,000	$50,000
Environmental	Spokane River License Implementation	$1,068,600	$805,000	$317,300	$560,000	$317,300
ET	High Voltage Protection (HVP) Refresh	$800,000	$800,000	$200,000	$200,000	$0
Gas	Gas Cathodic Protection Program	$715,000	$715,000	$715,000	$700,000	$700,000
Gas	Gas Facility Replacement Program (GFRP) Aldyl A Pipe Replacement	$23,318,892	$24,043,892	$24,624,816	$25,218,645	$25,825,648
Gas	Gas Isolated Steel Replacement Program	$1,400,000	$1,400,000	$1,600,000	$1,600,000	$1,600,000
Gas	Gas Overbuilt Pipe Replacement Program	$400,000	$400,000	$400,000	$250,000	$0
Gas	Gas PMC Program	$1,400,000	$1,200,000	$1,300,000	$1,300,000	$1,300,000
Gas	Gas Replacement Street and Highway Program	$3,000,000	$3,000,000	$3,000,000	$3,000,000	$3,000,000
Generation	Long Lake Stability Enhancement	$880,000	$1,455,000	$12,260,000	$11,300,000	$0
Generation	Monroe Street Abandoned Penstock Stabilization	$0	$150,000	$750,000	$0	$0
Other	Apprentice/Craft Training	$48,600	$54,000	$54,000	$60,000	$60,000
Other	Tribal Permits & Settlements	$250,000	$250,000	$250,000	$250,000	$250,000
Other	WSDOT Franchises	$225,000	$225,000	$225,000	$225,000	$225,000
Other	CIP 14 v1 - High Impact Assets	$1,000,000	$500,000	$0	$0	$0

[20] For more information about these requirements, specifically Critical Infrastructure Protection 14, please see: "Utility Security: Understanding NERC CIP 014 Requirements and Their Impact," Rich Shumard and Steve Schneider, EE Online, https://electricenergyonline.com/energy/magazine/813/article/Utility-Security-Understanding-NERC-CIP-014-Requirements-and-Their-Impact.htm

Mandatory and Compliance Business Cases (Part 2 of 2)						
Function	***Mandatory & Compliance* Business Cases**	**2020**	**2021**	**2022**	**2023**	**2024**
T&D	Clearwater Wind Generation Interconnection	$346,000	$0	$0	$0	$0
T&D	Colstrip Transmission	$370,000	$485,000	$590,000	$1,075,000	$350,000
T&D	Ninth & Central 230kV Station & Transmission	$0	$0	$3,200,000	$1,500,000	$15,000,000
T&D	Protection System Upgrade for PRC-002	$5,600,000	$2,600,000	$1,200,000	$0	$0
T&D	Saddle Mountain 230/115kV Station (New) Integration Project Phase 1	$10,000,000	$0	$0	$0	$0
T&D	Saddle Mountain 230/115kV Station (New) Integration Project Phase 2	$500,000	$16,000,000	$0	$0	$0
T&D	Spokane Valley Transmission Reinforcement Project	$3,900,000	$2,900,000	$0	$0	$0
T&D	Transmission Construction - Compliance	$2,850,000	$3,500,000	$0	$1,200,000	$0
T&D	Transmission NERC Low-Risk Priority Lines Mitigation	$2,800,000	$2,700,000	$1,000,000	$0	$0
T&D	West Plains New 230kV Substation	$0	$0	$8,650,000	$0	$0
T&D	Westside 230/115kV Station "Brownfield Rebuild" Project	$3,500,000	$4,500,000	$2,800,000	$0	$0
T&D	Elec Relocation and Replacement Program	$2,470,000	$3,000,000	$3,100,000	$3,100,000	$3,100,000
T&D	Joint Use	$1,500,000	$1,500,000	$1,500,000	$1,500,000	$1,500,000
	Total	**$91,410,119**	**$89,600,960**	**$73,515,726**	**$57,761,343**	**$58,005,327**

Table 4. Mandatory & Compliance Planned Expenditures

3. Failed Plant & Operations

This business driver is designed to provide funding to replace assets that have failed and which must be replaced in order to provide continuity and adequacy of service to customers.

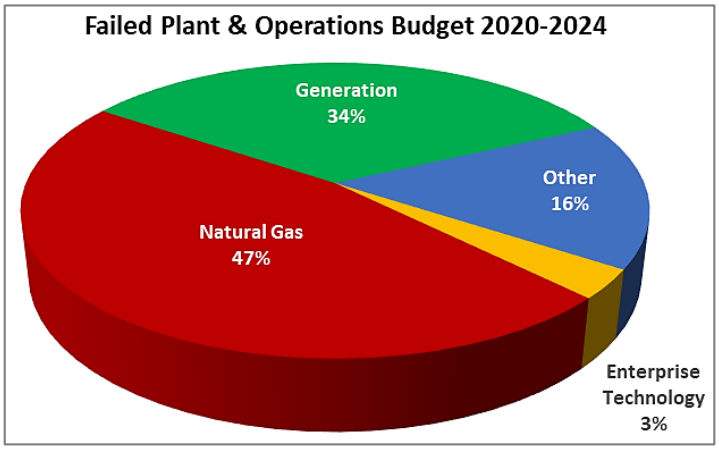


Figure 7. Failed Plant & Operations Budget

While large-scale outages such as the windstorm of November 2015 are vividly remembered by both Avista employees and customers, the Company responds to thousands of outage events each year that occur daily. The replacement of assets due to equipment failure or outage events, however, is only one component of the investments required to operate the electric system.

Throughout Avista and its business units, equipment fails or is damaged, safety issues are identified, and technology must be updated. Issues that come up as a natural course of the utility business must also be addressed. Small capital projects such as such as replacing a failed fan, fueling system, control valves,

Pole hit by a truck

and the like are relegated to this category. Larger projects such as replacing the primary transformers at Coyote Springs 2 are also funded under this driver.

In the Transmission and Distribution arena, this category is primarily related to repairing assets due to storms, fires, vehicle accidents, third-party dig-ins, etc. When this happens, the Company must quickly respond to replace the failed infrastructure in order to ensure the continuity of service to and safety of customers.

Pole rot causes a failure

This category also includes a blanket bucket for small projects that don't rise to the level of a capital project. Crews may spot a broken crossarm, cracked insulator, broken guy wire, gas meter in a hazardous location, or other issues in their daily work that must be repaired or mitigated. Another focus is on replacing failed meters and metering equipment to ensure that customer bills are accurate.

Failed Plant & Operations Business Cases						
Function	***Failed Plant* Business Cases**	**2020**	**2021**	**2022**	**2023**	**2024**
ET	Technology Failed Assets	$306,200	$618,000	$556,200	$618,000	$618,000
Gas	Gas Non-Revenue Program	$8,000,000	$8,000,000	$8,000,000	$8,000,000	$8,000,000
Generation	Base Load Thermal Program	$2,042,280	$2,790,000	$2,790,000	$3,100,000	$3,100,000
Generation	CS2 Single Phase Transformer	$7,000,000	$4,000,000	$1,600,000	$0	$0
Generation	Peaking Generation Business Case	$329,400	$450,000	$450,000	$500,000	$500,000
T&D	Electric Storm	$3,000,000	$2,340,000	$2,432,000	$2,450,000	$2,450,000
T&D	Meter Minor Blanket	$200,000	$200,000	$200,000	$200,000	$200,000
	Total	$20,877,880	$18,398,000	$16,028,200	$14,868,000	$14,868,000

Table 5. Failed Plant & Operations Planned Expenditures

4. Asset Condition

Assets of every type will degrade with age, usage and other factors, and must be replaced or substantially rebuilt at some point in order to ensure the reliable and acceptable continuation of service. The replacement of assets based on condition is essentially the practice of removing them from service and replacing them at the end of their useful life.

Across the utility industry, and likewise for Avista, the replacement of assets based on condition constitutes a substantial portion of the infrastructure investments the Company makes each year. At Avista, the goal is to manage assets in a manner that optimizes their overall value over the lifecycle of each particular class of asset. Asset replacement strategies

are "optimized" in the sense that a given approach may not achieve the overall lowest possible lifecycle cost, but rather the lowest cost that allows us to meet a variety of important performance objectives, such as electric system reliability or the efficient use of employee crews.

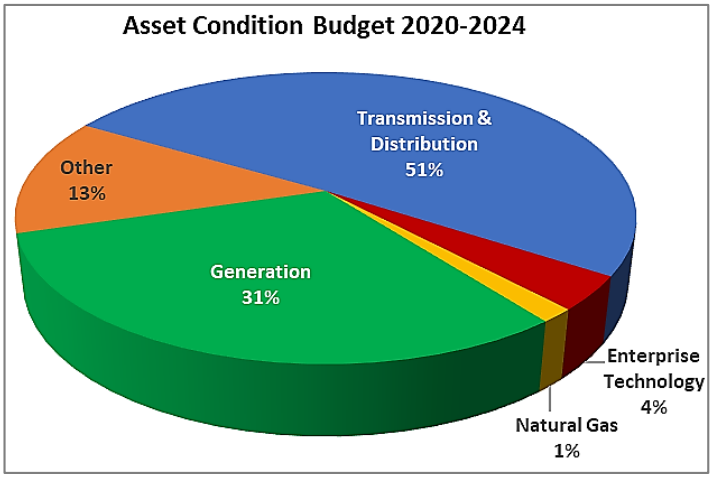


Figure 8. Asset Condition Budget

Transmission & Distribution

The Transmission and Distribution systems both require hardware and software systems to both manage the grid and be in compliance with increasing federal regulations. This requires specialized training, control systems, mechanisms and algorithms, and other protection measures. One of the primary business cases under this investment driver, SCADA – SOO and BuCC (Supervisory Control and Data Acquisition - System Operations Office and Backup Control Center) is directly related to this need, replacing existing electric and gas control systems as they reach end-of-life. The Minor Rebuild program provides capital dollars for small unplanned asset failures, customer requested modifications to their service, updating old equipment to meet new safety and construction standards, or other routine work that does not add up to a capital project. This category also includes replacing and upgrading major substation and/or transmission apparatus and equipment as it approaches end-of-life or becomes obsolete. Changing out old transformers and LED lights across the fall under this category. The Company's program to replace pre-1990 underground cable to increase system reliability is another program in this category. Other major programs include:

- Distribution Grid Modernization: Avista is systematically rebuilding and upgrading its electric distribution feeder and other aging equipment as it reaches end-of-life, and, where it is cost effective, installing feeder automation. The objectives is improving service reliability, capturing energy efficiency savings, and improving operational ability, code compliance and safety. The Grid Modernization Program provides a holistic approach for optimizing the value captured with each feeder project. This approach integrates work performed under various operational initiatives at Avista including the Wood Pole Management Program, the Vegetation Management Program, the Segment Reconductor and Feeder Tie Program, and various budgeted maintenance programs into one program that addresses a wide variety of needs with an added benefit of only one outage for customers that achieves a range of positive results.

Distribution Grid Modernization represents a comprehensive approach to infrastructure management, from its data- and engineering-driven analysis and evaluation to the way it serves as a platform to better integrate a portion of the capital investments we make each year in our electric distribution system.

- Downtown Network: The Downtown Network also has funding set aside under the Asset Condition investment driver. The majority of the Network's physical assets have exceeded their expected life and must be replaced in order to continue service. When this equipment fails, it can have a significant impact on downtown businesses as well as pose safety hazards for the public. Within the Downtown Network the Company is in a state of constantly replacing old equipment while at the same time addressing requests from the city, county, and customers for service changes as well as managing and mitigating construction impacts on Company facilities and operations.

- Wood Pole Management: Avista has 347 overhead electric feeders that are supported by approximately 240,000 wood poles and the attached equipment. Avista's wood pole population is inspected on a 20-year cycle interval, which means about 12,000 poles, crossarms, and associated equipment are inspected on average each year. Results of the inspections are used to design the capital repairs and replacements that need to be performed.

Generation Business Unit

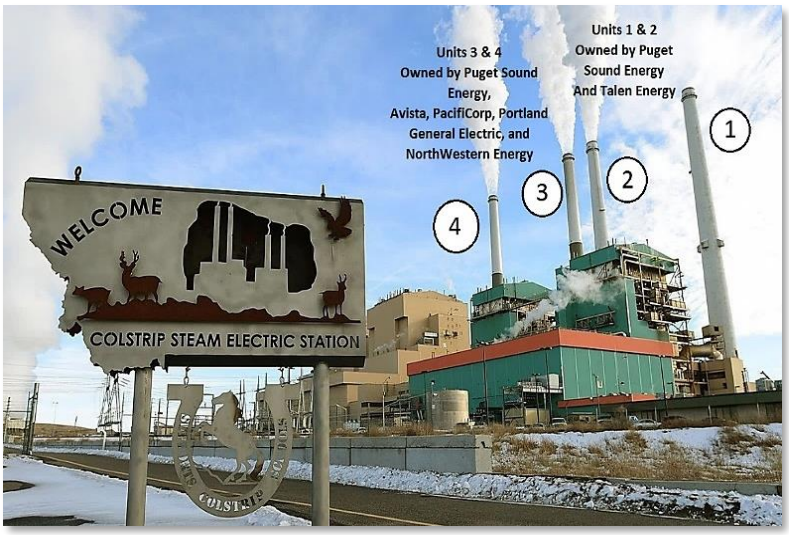
Under this business case category, Generation covers small capital expenditures and upgrades for all of Avista's generating facilities as needed. These projects are often reactionary in nature or designed to replace outdated technology. For example, during this budget cycle the battery (DC) systems at each power plant will be upgraded to a companywide standard that meets federal requirements, repairs will be made to plant masonry, and the current computer systems will be updated to current technology. At Kettle Falls, the fuel yard and delivery system will be redesigned to accommodate today's truck sizes, increasing safety for drivers and deliveries. Another project replaces the Monroe Street 1990 exciter and the associated continually overheating transformer. At Noxon, the 50-year old transformer banks and the 60-year old spillgates will be replaced and the trash rakes will be replaced at Upper Falls. Under the "Regulating Hydro" business case, several small capital projects will take place, such as spillway improvements at Long Lake and installing protecting metal sheeting in the Cabinet Gorge tunnel to prevent falling rocks.

Several major projects are scheduled at some of the generating facilities as described below.

- Cabinet Gorge: The plant will receive a large scale update of elements, many of which are over 70 years old, including the control room, HVAC system, station service, spillgates, stop logs, and Gantry crane. New protection and automation controls will be added and the governor for unit 1 will be replaced.

- Colstrip Capital Projects: Avista does not operate the Colstrip facility nor does it prepare the annual capital budget plan. The plant operator, Talen Energy, provides the annual business plan and capital budgets to present to the owners group every September for approval. Avista owns a 15% share in Colstrip Units 3 & 4, along with four other owners.[21] The expenditures Talen presents are in

[21] The other owners are: Puget Sound Energy, Northwestern Energy, Portland General Electric and PacifiCorp.



accordance with the Ownership and Operation Agreement among all six parties (the five owners and Talen). Typical expenses for plant owners are related to environmental, state and federal regulations, reliability requirements, and general sustenance of the facility.

- Little Falls and Long Lake: These two generating facilities are also going to experience major upgrades. The existing equipment ranges in age from 60 to 100 years old, and the plants are experiencing an increasing number of outages and equipment failures. To remedy this situation, most of the equipment at the plants will be modernized, upgraded, or replaced so the plants can continue to reliably serve customers in the coming decades as well as be safe for employees.

- Nine Mile: Three of the four Nine Mile units have mechanically failed and the remaining unit is experiencing the same symptoms of failure. Two units were completely replaced to remain in complaince with Avista's FERC license, but in order to keep this plant operational, more work must be done. All four units will receive control, protection, and communications equipment, and a new sediment bypass system will be built for the plant to help protect the units in the future. The existing crane will also be rehabilitated. Units 1 and 2 will be replaced and units 3 and 4 will be overhauled.


Nine Mile Falls

- Post Falls: Built in 1906, this is another plant that has the need for significant rehabilitation. The planned capital project for this plant will replace the existing six 110-year old units with six new variable blade turbine generator units, replace archaic ancillary equipment in the powerhouse, and modernize the plant. The North Channel spillway will also undergoing renovation. This major project will take about five years with a two year construction window during which the plant will be shut down completely.

Other Areas

This category covers the Facilities and Fleet groups and their work. On the Facilities side, this includes capital maintenance, site improvement, and furniture budgets at all of Avista offices, storage buildings, and service centers. Also under this budget, the new Pullman Service Center will be constructed to replace the 70 year old current building. The Service Building basement at the Mission Campus will be renovated into efficient office spaces.

The Fleet group uses this budget to cover the cost of the tools and equipment needed to keep all of Avista's vehicles and equipment functioning. Funds in this category also provide for purchasing new assets for Fleet as needed, everything from generators and welders to line trucks are funded in this category. It also includes upgrading the sophisticated asset management software Fleet uses to manage their inventory. Note that there is an Offset to Budget line that in the short term is used to make an immaterial adjustment to tie the plan to guidance and in the long term for contingency.

Enterprise Technology Business Unit

ET has a few programs in the Asset Condition business driver category, including funding set aside to upgrade or replace existing software applications, either due to technological obsolescence or evolving business needs. Programs under this umbrella include geographically based (GIS) software systems, mobile work platforms, scheduling, forecasting, and planning software, metering solutions, and outage management tools, all of which must be kept current with technology.

Natural Gas Business Unit

The Natural Gas group also has programs in the Asset Condition business driver category. These programs have the goal of replacing deteriorated steel pipe, meters, and regulators.

Asset Condition Business Cases (Part 1 of 2)						
Function	***Asset Condition* Business Cases**	**2020**	**2021**	**2022**	**2023**	**2024**
ET	Atlas	$2,100,000	$1,800,000	$1,800,000	$0	$0
ET	Energy Delivery Modernization	$450,000	$450,000	$1,225,000	$1,225,000	$1,225,000
ET	Outage Management System & Advanced Distribution Management System	$0	$0	$6,500,000	$5,000,000	$5,000,000
Gas	Gas Deteriorated Steel Pipe Replacement	$1,000,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000
Gas	Gas ERT Replacement Program	$200,000	$200,000	$210,000	$220,000	$230,000
Gas	Gas Regulator Station Replacement Program	$800,000	$1,000,000	$1,000,000	$1,000,000	$1,000,000
Generation	Base Load Hydro	$756,960	$1,034,100	$1,034,100	$1,149,000	$1,149,000
Generation	Cabinet Gorge Automation	$500,000	$0	$0	$0	$0
Generation	Cabinet Gorge Control Room Replacement	$0	$0	$0	$160,000	$1,235,000
Generation	Cabinet Gorge Gantry Crane Runway Modernization	$500,000	$0	$0	$0	$0
Generation	Cabinet Gorge HVAC Replacement	$0	$0	$0	$550,000	$0
Generation	Cabinet Gorge Spillgate Replacement	$0	$0	$0	$1,000,000	$2,500,000
Generation	Cabinet Gorge Station Service	$2,800,000	$750,000	$500,000	$0	$0
Generation	Cabinet Gorge Stop Log Replacement	$0	$1,000,000	$0	$0	$0
Generation	Cabinet Gorge Unit 1 Governor Upgrade		$0	$0	$560,000	$0
Generation	Cabinet Gorge Unit 2 Field Pole Refurb	$0	$0	$0	$0	$1,500,000
Generation	Cabinet Gorge Unit 3 Protection & Control Upgrade	$1,800,000	$750,000	$0	$0	$0
Generation	Cabinet Gorge Unit 4 Protection & Control Upgrade	$600,000	$2,000,000	$0	$0	$0
Generation	Cabinet Gorge Warehouse Replacement	$0	$0	$130,000	$2,025,000	$0
Generation	Colstrip 3&4 Capital Projects	$12,500,000	$9,400,000	$3,034,000	$4,000,000	$8,000,000
Generation	Generation DC Supplied System Update	$840,000	$840,000	$900,000	$840,000	$900,000
Generation	Generation Masonry Building Rehabilitation	$0	$1,000,000	$1,000,000	$1,000,000	$1,000,000
Generation	HMI Control Software	$2,230,625	$1,961,875	$1,195,938	$0	$0
Generation	Kettle Falls Fuel Yard Equip Replacement	$9,000,000	$7,000,000	$2,400,000	$0	$0
Generation	Little Falls Intake Gate Replacement	$0	$300,000	$2,200,000	$2,000,000	$0
Generation	Little Falls Plant Upgrade	$2,100,000	$0	$0	$0	$0

Asset Condition Business Cases (Part 2 of 2)						
Function	***Asset Condition* Business Cases**	**2020**	**2021**	**2022**	**2023**	**2024**
Generation	Little Falls Spillway Flashboard Replacement	$0	$0	$0	$0	$1,000,000
Generation	Long Lake Plant Upgrade	$1,500,000	$4,500,000	$11,500,000	$11,500,000	$11,500,000
Generation	Long Lake Emergency Generator	$0	$75,000	$650,000	$0	$0
Generation	Monroe Street Generator Excitation Replacement	$0	$93,000	$650,000	$182,000	$0
Generation	Nine Mile Powerhouse Crane Rehab	$0	$0	$0	$750,000	$750,000
Generation	Nine Mile Unit 3 Mechanical Overhaul	$0	$0	$0	$0	$2,000,000
Generation	Nine Mile Units 3 & 4 Control Upgrade	$0	$0	$0	$0	$1,000,000
Generation	Noxon Rapids Generator Step-Up Bank C Replacement	$0	$0	$0	$1,005,000	$2,406,000
Generation	Noxon Rapids Spillgate Refurbishment	$500,000	$6,430,000	$5,930,000	$5,930,000	$4,759,000
Generation	Post Falls HED Redevelopment Program	$0	$0	$0	$0	$2,000,000
Generation	Post Falls Landing and Crane Pad	$190,000	$3,110,000	$0	$0	$0
Generation	Post Falls North Channel Spillway	$500,000	$0	$1,500,000	$9,500,000	$10,000,000
Generation	Regulating Hydro	$2,137,540	$3,179,700	$3,179,700	$3,500,000	$3,500,000
Generation	Upper Falls Trash Rake Replacement	$0	$0	$0	$0	$450,000
Other	New Pullman Service Center	$0	$0	$5,000,000	$7,000,000	$0
Other	Service Building Basement Renovation	$3,000,000	$0	$0	$0	$0
Other	Structures and Improvements/Furniture	$2,000,000	$2,200,000	$2,500,000	$2,750,000	$2,750,000
Other	Capital Tools & Stores	$1,782,000	$1,980,000	$1,980,000	$2,000,000	$2,000,000
Other	Fleet Services Capital Plan	$6,237,000	$6,237,000	$6,237,000	$6,237,000	$6,237,000
Other	Telematics 2025	$0	$1,100,000	$675,000	$612,500	$0
Other	Offset to Budget	($329,588)	($403,487)	$4,892,643	$1,680,758	$16,192,512
T&D	SCADA - SOO and BuCC	$2,100,000	$920,000	$700,000	$700,000	$700,000
T&D	Substation - Station Rebuilds Program	$18,750,000	$18,250,000	$24,950,000	$25,050,000	$25,125,000
T&D	Transmission - Minor Rebuild	$1,659,120	$2,409,120	$2,409,120	$2,593,420	$2,593,420
T&D	Transmission Major Rebuild	$7,550,000	$7,500,000	$14,000,000	$10,000,000	$10,000,000
T&D	Distribution Grid Modernization	$8,000,000	$10,000,000	$12,000,000	$12,200,000	$13,000,000
T&D	Distribution Minor Rebuild	$8,768,500	$10,000,000	$10,000,000	$10,000,000	$10,000,000
T&D	Distribution Transformer Change Out	$541,000	$600,000	$0	$0	$0
T&D	Downtown Network - Asset Condition	$1,539,000	$1,600,000	$2,800,000	$2,800,000	$2,800,000
T&D	LED Change-Out Program	$500,000	$585,000	$500,000	$500,000	$500,000
T&D	Primary URD Cable Replacement	$0	$750,000	$750,000	$750,000	$750,000
T&D	Wood Pole Management	$10,500,000	$11,000,000	$11,500,000	$12,730,000	$13,111,900
	Total	**$115,602,157**	**$122,601,308**	**$148,432,501**	**$151,699,678**	**$169,863,832**

Table 6. Asset Condition Planned Expenditures

5. Customer Service Quality & Reliability

These programs are designed to enhance customer interactions and the quality of their service, streamline internal processes to increase efficiency and effectiveness, and ensure that the people and assets that provide electric and gas service are adequately secured and protected. One example is Avista's work to improve the customer experience through the Advanced Metering Program.

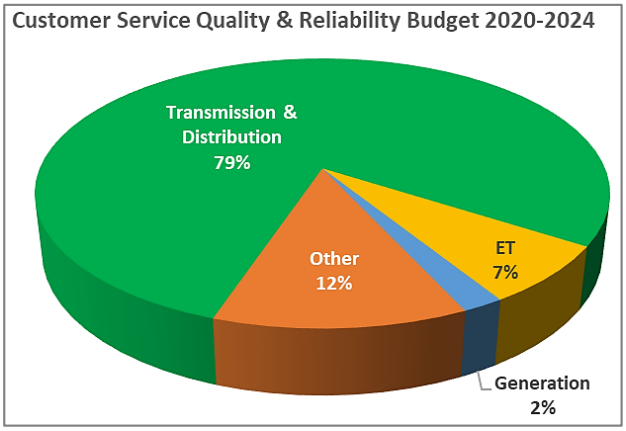


Figure 9. Service Quality & Reliability Budget

Transmission & Distribution Business Units

Advanced Metering Infrastructure (AMI): Avista is currently in the process of deploying advanced metering infrastructure (AMI), also popularly known as "smart meters" across its Washington service territory with plans to begin this effort in Idaho in the near future. This effort keeps pace with the evolving metering standard of the industry and will deliver a range of cost-effective benefits to customers, as shown in the text box.

Benefits of AMI

- *Allowing customers better understanding and management of their energy use.*
- *Ability to notify customers when their energy use meets predetermined targets the customer has established.*
- *Enable smart home options to monitor and control energy use.*
- *Deter theft of electricity.*
- *Eliminate manual reading of meters.*
- *Identify outages more quickly to reduce outage time for customers.*
- *Increased efficiency of feeder operation for energy savings.*
- *Streamline a range of administrative and back office work processes.*

Generation Business Unit

Avista believes that automating power plants provides an increase in control and reliability. The Company utilizes distributed control systems to regulate and monitor generating units and facilities remotely, which is part of routine utility operations. The current systems have exceeded their useful life and must be replaced. Issues include unsupported operating systems, parts that are no longer available, and failing hardware and software systems that are no longer compatible with current computer systems. When these old systems fail, the Company is unable to operate their generating facilities reliably, often resulting in unplanned plant outages to provide emergency temporary patches. The Company has developed a planned replacement approach to update and replace hardware with current standards and with enhanced cybersecurity measures required by national regulations (primarily by the FERC). This plan provides a replacement schedule designed to minimize outage time and impact to the plant while providing upgrades that will ensure more reliable long term operations.

Other Areas

- Enterprise Business Continuity: All businesses are growing ever more dependent upon technology to maintain functionality. Avista prepares for changing conditions, system emergencies, disaster recovery, and other contingencies critical to the continuity of business systems and processes through the Business Continuity Program. This program monitors and identifies failing or aged elements and provides for replacing or upgrading equipment as needed. It also provides funds for training employees and enhancing procedures that are required to meet these challenges.
- Customer Facing Technology: This program provides customer facing applications such as mobile apps to make payments, online request tracking, appointment scheduling, and notification options, and website enhancements, to name a few.
- Security: There are three primary drivers of capital spending related to security: cyber security, physical security (including employee safety and

Enterprise Security Focus Areas

- Generation
- Substations
- Natural Gas Facilities
- Telecommunications
- Network Facilities

the protective security of Avista's facilities and critical infrastructure) and increasing regulatory standards related to security, especially at the national level. Each plays a critical role in supporting the delivery of safe and reliable energy to customers. Avista is committed to protecting the Company's facilities, people, equipment and material that are critical in supporting day to day operations. Many critical locations are remote, unmanned and vulnerable, which makes them difficult to protect. This group of programs has the goal of identifying and mitigating areas of risk across the service territory.

Service Quality and Reliability Business Cases						
Function	***Customer Service Quality & Reliability* Business Cases**	**2020**	**2021**	**2022**	**2023**	**2024**
Generation	Automation Replacement	$585,000	$585,000	$585,000	$650,000	$650,000
Other	Enterprise Business Continuity	$345,000	$405,000	$405,000	$450,000	$450,000
Other	Enterprise Security	$2,160,000	$2,160,000	$2,160,000	$2,700,000	$2,700,000
Other	Facilities and Storage Location Security	$280,000	$340,000	$340,000	$340,000	$500,000
Other	Generation, Substation & Gas Location Security	$330,000	$330,000	$330,000	$500,000	$500,000
Other	Telecommunication & Network Distribution Location Security	$75,000	$112,500	$112,500	$250,000	$250,000
ET	Customer Facing Technology Program	$7,245,000	$9,050,000	$9,050,000	$9,050,000	$8,800,000
ET	Customer Transactional Systems	$2,300,000	$2,000,000	$2,000,000	$2,000,000	$2,000,000
T&D	Idaho AMI	$2,500,000	$26,700,000	$26,700,000	$26,600,000	$0
T&D	Washington Advanced Metering Infrastructure Project	$37,292,537	$1,357,245	$0	$0	$0
	Total	$53,112,537	$43,039,745	$41,682,500	$42,540,000	$15,850,000

Table 7. Customer Service Quality & Reliability Planned Expenditures

6. Performance & Capacity

Performance and Capacity types of investments target maintenance or improvement of Company infrastructure based on demonstrated need or financial analysis, as indicated by industry accepted practices, and/or as prescribed by Company policies, procedures, and standards. The goal of this category of programs is to ensure the safe, efficient, reliable and prudent management of utility infrastructure and operations. When the Company determines its assets no longer meet a given standard, infrastructure needs must be assessed in order to make the timely capital investments necessary to remain within the limits of the standard. A common example is the objective to operate within established thermal limits for electrical equipment. Another example is the obligation under the Company's operating agreement for Coyote Springs to fund expenditures identified by the plant operator as being necessary, such as routine and regular overhauls of critical equipment.

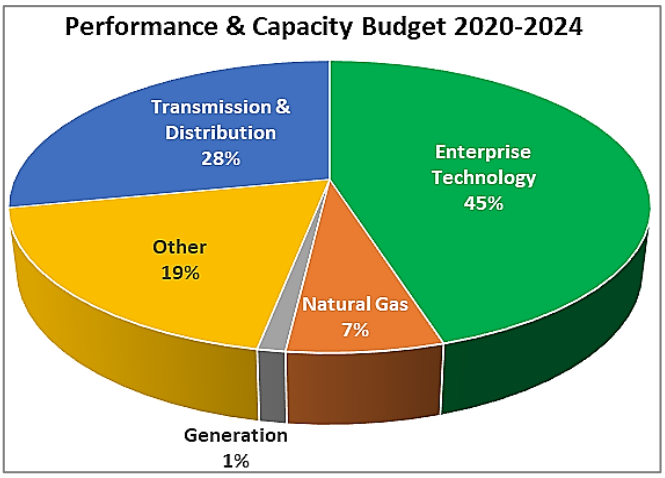


Figure 10. Performance & Capacity Budget

Coyote Springs generator repair

Enterprise Technology Business Unit

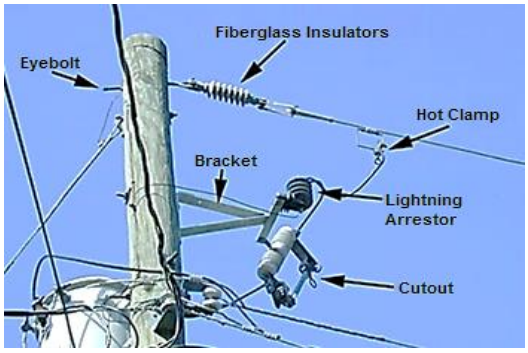
Technology equipment has a very short lifespan compared to many of the Company's assets, thus the ET group has a myriad of projects related to performance and capacity. Some of them are related to simply keeping existing equipment updated and functioning as expected or replacing assets that no longer meet business needs. Software systems required to perform business functions such as financial, human resources, and legal also fall under this category, as does technology related to buildings (such as HVAC systems, telephones, etc.) and systems related to GPS, forecasting, communications, data management, and more. ET is also responsible for expanding Avista's digital networks to support AMI and have put forward a business case designed to support Avista's efforts to develop an enterprise wide data science business unit.

Transmission & Distribution Business Units

Adding new substations for load growth and reliability is critical to the long term safe, dependable, and cost-effective operation of the system. As load demands increase and customer expectations related to reliability also continue to increase, incremental substation capacity is required to serve those demands. In addition, funding in this category is used to increase reliability to existing substations by providing a redundant transmission feeds to radially-fed substations, reducing the potential for customer outages.

More specific expenditures include elements such as replacing an existing circuit breaker arrangement at Cabinet Gorge substation which has reliability issues and must be replaced. Other programs in this category include:

- Segment Reconductor and Feeder Tie Program: This key program is designed to remedy the overloading of electric equipment and cable, as well as the line sag that results from overheating overhead wire, most often the result of load growth and shifts in load demand. Resolving these overloading issues involves a combination of two strategies known as "load shifting" and "segment reconductoring." The strategy of load shifting involves moving existing lines on one feeder to an adjacent feeder that has the available capacity to carry the additional transferred load. Reconductoring involves replacing conductor that is too small for its current loading and replacing it with larger diameter wire.



- Downtown Network: Avista owns and maintains an underground electric network that serves the core business, financial, and city government district of downtown Spokane. This network encompasses over a thousand underground manholes, hand-holes, and vaults. Given the age of the Network and the fact that most of its facilities are located in the downtown area where a single catastrophic failure could create public safety issues, replacing deteriorated infrastructure is an integral part of the Network's reliability strategy, as is addressing increasing customer growth and construction projects in the downtown area.

Downtown Network Vault

Other Areas

- Central 24 HR Operations Facility: This facility will be home to the Company's 24-Hour operations groups including Transmission, Energy Delivery, Security, Customer Service, Dispatch, SCADA, and System Operations. These groups provide crucial services to both customers and the system. This new space will most likely be located away from the general office building in a secured location. Space for a training area, this group's significant technology requirements, and for storm response will be included.

- Corporate and Craft Training Center: The current Jack Stewart Training Center has reached end-of-life and is experiencing increasing failures (roof, HVAC systems, floors, etc.) along with the associated maintenance and repair costs. It was decided to replace this center with actual classrooms (versus the current trailers) and a hands-on laboratory serving Utility Construction, Electric and Gas Operations, Corporate, Compliance, and Safety.


Sandpoint Office cracked walls, end-of-life bay doors and HVAC equipment

- Corporate Campus Exterior Wellness-Safety (also called the Corporate Landscape Improvement and Design): It was decided that providing an aesthetically pleasing campus would help improve employee morale and retention and would encourage outside activities and exercise. This project will also feature safety upgrades such as designated walkways, paths, and barriers.

- Sandpoint Service Center: The Company has outgrown the existing facility and there is no adjacent property available for expansion. The existing storage area does not have room for all of the inventory required to keep up with current work demands. The yard is too small to hold all of the vehicles and equipment, which has become a security issue, as these assets are quite valuable and should be protected (and covered, if possible). The old buildings are failing, with roofs, windows, HVAC, electrical systems, and lighting requiring replacement. Safety is also an

ongoing concern. There are no exit lights or smoke detectors, and there are broken fences and cracked and pitted pavement. The plan is to replace this facility.

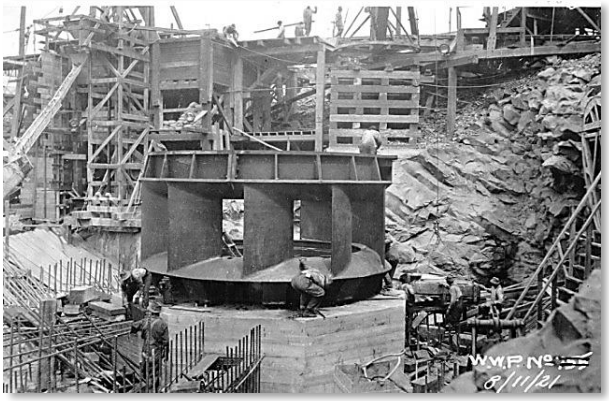
- The California Independent System Operator's Energy Imbalance Market (EIM) is a real-time energy market, the first of its kind in the western U.S. It uses advanced market systems to automatically find low-cost energy to serve real-time consumer demand across a wide geographic area. Avista is joining this Market in 2022, and doing so requires a significant investment, including new software applications, changes to existing software, generation controls and metering upgrades, contractors to assist with implementation, and internal resources including new employees to support the on-going operations associated with EIM participation.

Natural Gas Business Unit

Natural Gas has many projects related to Performance and Capacity, all of them related to reinforcing the existing natural gas system due to load growth or age-required replacement. During this budget cycle, these types of reinforcements will occur in Cheney, Airway Heights, Pullman, Warden, and in the Sandpoint area. These upgrades will help ensure that customers receive service even on the coldest winter days. This investment driver also funds the placement of monitoring equipment at gate and regulator stations to allow the Company to monitor what is happening in the gas system real-time. There is also a business case to provide specialized training related to Gas Operations personnel.

Generation Business Unit

In the Generation area there are five business cases related to Performance and Capacity. They include provisions for regular maintenance costs at the Coyote Springs Generating Station, replacing the bus at Cabinet Gorge, upgrading the unit at Upper Falls, and providing a backup generator for Upper Falls and Monroe Street Generating Stations, which provide a large part of downtown Spokane's power needs.



Above Right: Upper Falls plant under construction in 1921

Left: Cabinet Gorge

Right: Coyote Springs Generating Station

Performance and Capacity Business Cases						
Function	***Performance & Capacity* Business Cases**	**2020**	**2021**	**2022**	**2023**	**2024**
ET	Basic Workplace Technology Delivery	$440,000	$440,000	$440,000	$440,000	$440,000
ET	Data Center Compute and Storage Systems	$1,692,000	$2,192,000	$1,692,000	$1,692,000	$1,692,000
ET	Digital Grid Network Expansion	$2,053,302	$2,296,379	$2,772,216	$2,583,537	$2,583,537
ET	Endpoint Compute and Productivity	$3,780,000	$4,480,000	$4,480,000	$4,480,000	$4,480,000
ET	Energy Delivery Operational Efficiency & Shared Services	$2,575,000	$2,575,000	$2,450,000	$2,450,000	$2,450,000
ET	Energy Resources Modernization & Operational Efficiency	$1,100,000	$1,634,000	$1,634,000	$1,800,000	$1,800,000
ET	Enterprise & Control Network	$6,521,561	$7,432,896	$6,932,896	$7,000,000	$7,000,000
ET	Enterprise Communication Systems	$2,020,000	$2,520,000	$2,020,000	$2,848,041	$2,848,041
ET	Enterprise Data Science	$1,368,000	$1,820,000	$1,520,000	$1,820,000	$1,820,000
ET	Environmental Control & Monitoring	$900,000	$900,000	$900,000	$1,000,000	$1,000,000
ET	ET Modernization & Operational Efficiency - Technology	$1,664,400	$1,752,000	$1,752,000	$2,400,000	$2,400,000
ET	Facilities Driven Technology	$150,000	$270,000	$270,000	$300,000	$300,000
ET	Fiber Network Lease Replacement	$1,000,000	$3,000,000	$3,000,000	$2,500,000	$0
ET	Financial & Accounting Technology	$750,000	$1,450,000	$1,350,000	$1,350,000	$1,350,000
ET	Human Resources Technology	$600,000	$1,425,000	$1,493,000	$1,218,000	$1,330,000
ET	Land Mobile Radio & Real Time Communication Systems	$2,500,000	$3,500,000	$5,249,809	$5,260,000	$5,250,000
ET	Legal & Compliance Technology	$279,000	$500,000	$400,000	$350,000	$450,000
Gas	Airway Heights HP Reinforcement	$50,000	$1,950,000	$0	$0	$0
Gas	Cheney HP Reinforcement	$4,710,000	$3,100,000	$0	$0	$0
Gas	Pullman HP Reinforcement Project	$0	$0	$100,000	$2,400,000	$0
Gas	Reinforcement Program	$1,000,000	$1,300,000	$1,500,000	$1,000,000	$1,000,000
Gas	Schweitzer Mtn Rd HP Reinforcement	$0	$0	$0	$100,000	$1,500,000
Gas	Telemetry Program	$200,000	$200,000	$200,000	$200,000	$200,000
Gas	Warden HP Reinforcement	$0	$100,000	$5,900,000	$0	$0
Generation	Cabinet Gorge 15 kV Bus Replacement	$0	$0	$0	$0	$1,200,000
Generation	Coyote Springs LTSA	$2,160,000	$1,080,000	$0	$0	$0
Generation	Upper Falls and Monroe Street Permanent Backup Generator	$0	$0	$0	$0	$100,000
Generation	Upper Falls Unit Upgrade	$0	$0	$250,000	$0	$0
Other	Central 24 HR Operations Facility	$0	$0	$0	$10,000,000	$9,000,000
Other	Corporate and Craft Training	$0	$9,000,000	$4,000,000	$0	$0
Other	Corporate Campus Exterior	$0	$0	$0	$0	$2,000,000
Other	Sandpoint Service Center	$0	$0	$0	$1,500,000	$8,500,000
Other	Energy Imbalance Market	$9,157,500	$9,180,000	$2,262,000	$0	$0
Other	Gas Operator Qualification Compliance	$54,000	$60,000	$60,000	$60,000	$60,000
Other	Jackson Prairie Joint Project	$2,328,333	$2,293,333	$2,278,333	$2,270,000	$2,271,667
T&D	Cabinet Gorge Bus Isolating Breakers	$100,000	$1,500,000	$0	$0	$0
T&D	Segment Reconductor and FDR Tie	$6,000,000	$6,000,000	$6,000,000	$6,000,000	$6,000,000
T&D	Substation New Capacity Program	$7,650,000	$5,150,000	$13,050,000	$13,000,000	$13,000,000
T&D	Transmission New Construction	$0	$0	$400,000	$11,250,000	$12,900,000
T&D	Downtown Network Performance & Capacity	$1,012,500	$1,125,000	$1,125,000	$1,125,000	$1,125,000
	Total	**$63,815,596**	**$80,225,608**	**$75,481,254**	**$88,396,578**	**$96,050,245**

Table 8. Performance & Capacity Planned Expenditures

Appendix A: Business unit capital budgeting teams

- **Engineering Round Table (ERT)** evaluates and recommends business cases for Transmission, Substation, or Protection projects and prioritizes resources for those projects.

- **GPSS SCRUM (or Project and Resource Forecasting)** is responsible for all projects within the scope of Generation, Production, and Substation Support.

- **Operations Round Table (ORT)** manages requests related to Distribution programs including new customer service, wood pole and vegetation management, storm restoration, transformer change outs, street lights, and grid modernization. This also includes the meter shop.

- **Technology Planning Group (TPG)** oversees technology projects and selects and prioritizes those that will be sent on to the CPG.

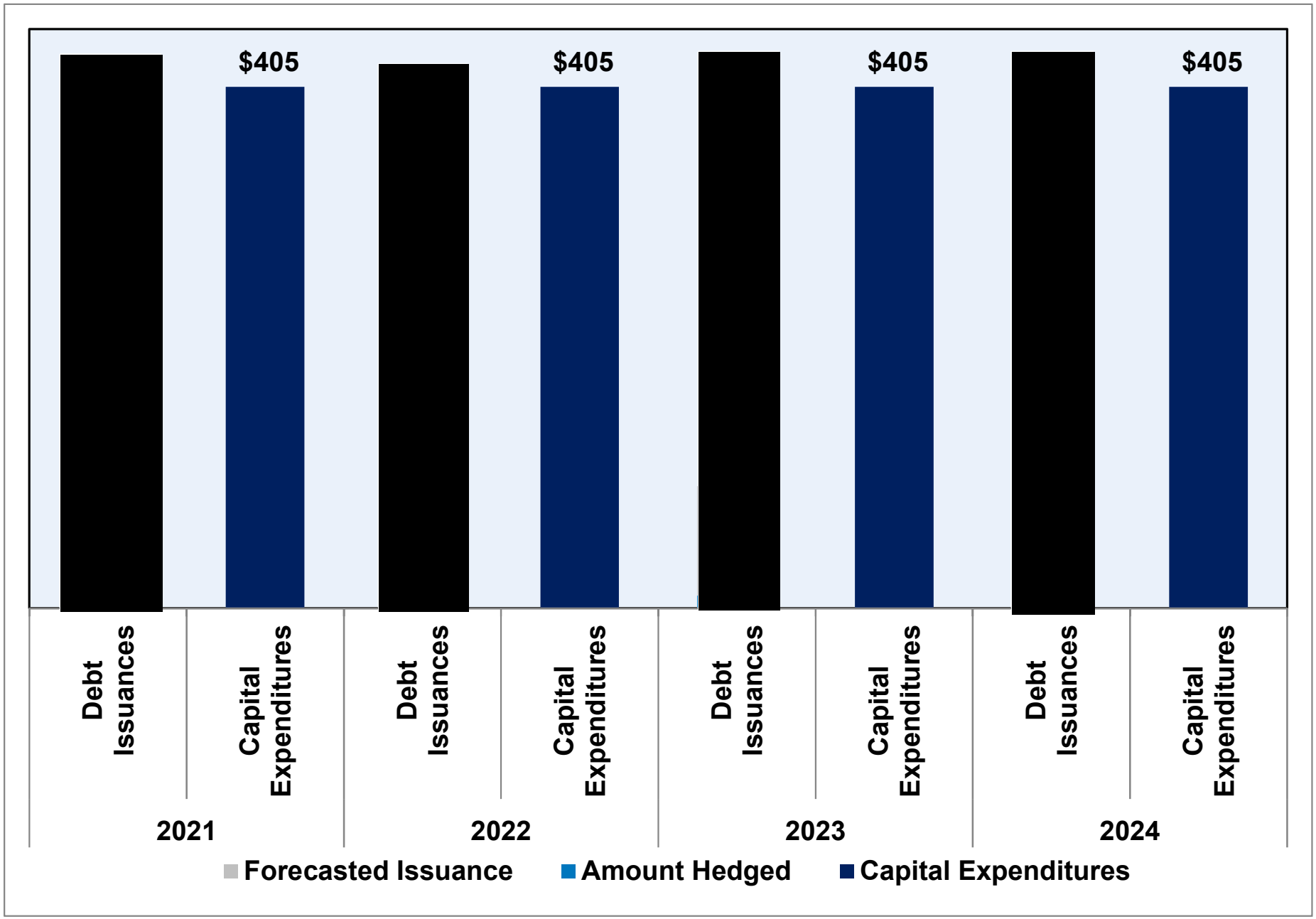
- **Gas Engineering Prioritization Investment Committee (EPIC)** evaluates and recommends business cases and prioritizes projects with programmatic categories related to Natural Gas Capital work.

- **Facilities Capital Request Board and Large Facilities Project Steering Committee** vet facility related requests from across the service territory. If projects are approved by this Board, they are prioritized based on risk, safety, environmental impact, and compliance then sent on to the CPG.

- **Real Estate and Environmental** develops budgets for business cases based on requirements of our FERC hydro licenses as well as local, state & federal regulations related to environmental, hydro safety and rights-of-way matters. The final proposed budgets are informed by analysis of these requirements as well as resource availability to carry out capital projects and past patterns of project costs.

- **The Property Management Committee** reviews real estate related requests for funding. This Committee reviews property purchase and sale recommendations from around the company with the goal of making the most of every purchase and optimizing the value of all property transactions across the entire company.

Redacted



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AVISTA CORPORATION

INTEREST RATE HEDGING PLAN EVALUATION REPORT

ISSUED IN ACCORDANCE WITH:

PUBLIC UTILITY COMMISSION OF OREGON ORDER 19-331

DECEMBER 28, 2020

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December 28, 2020

Jason Lang
Director of Finance, Risk & Assistant Treasurer
Avista Corporation
1411 E. Mission Avenue MSC-19
Spokane, WA 99202

Dear. Mr. Lang,

Concentric Energy Advisors, Inc. ("Concentric") is pleased to submit this Report that provides the summary of the evaluation ("Evaluation") of the interest rate hedging program (the "Plan") at Avista Corporation ("Avista") current as of August 2020.

As per the direction of the Public Utility Commission of Oregon (the "Commission") in its Order 19-331,[1] the Evaluation examines the mechanics of the Plan to understand whether the objectives of the Plan are being met and whether those objectives are still appropriate in the current interest rate environment. The Evaluation also seeks to evaluate how the Plan benefits customers, and whether any proposed changes and/or modifications are recommended.

In summary, **the results of the Evaluation show that the Plan is well structured, executed and has the appropriate internal control structure to monitor its performance and its continuation is therefore endorsed. While we have found opportunities for improvement, we did not find areas with meaningful deficiencies**. The recommendations will therefore improve the efficiency of the Plan but will not materially change its current form. In fact, we find most of the features of the Plan to be at the best practice level and some of the features of its implementation actually exceed such standards.

We appreciate the opportunity to serve Avista on this important project.

Sincerely,

Ruben Moreno
Project Manager to the Assignment
Assistant Vice President for Concentric Energy Advisors, Inc.

1 Final Order 19-331, Docket UG 366, October 8, 2019 before the Public utility Commission of Oregon. In the matter of Avista corporation, DBA Avista Utilities, Application for a General Rate Revision.

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SECTION 1:

EXECUTIVE SUMMARY

Concentric Energy Advisors ("Concentric) performed an evaluation (the "Evaluation") of the interest rate hedging program (the "Plan") at Avista Corporation ("Avista") current as of August 2020. The Evaluation is in accordance with the direction of the Public Utility Commission of Oregon (the "Commission") in its Order 19-331. The Evaluation examines the mechanics of the Plan to understand whether the objectives of the Plan are being met and whether those objectives are still appropriate in the current interest rate environment.

The methodology used by Concentric is consistent with the audit standards recommended by the Public Company Accounting Oversight Board ("PCAOB") and borrows from many established sources for industry best practices. Based on our experience of more than 20 years performing similar studies, Concentric adapted its methodology and the best practice standards to fit the assignment and Avista's business model and regulatory framework.

In summary, the results of the Evaluation show that the Plan is well structured, executed and has the appropriate internal control structure to monitor its performance and its continuation is therefore endorsed. When compared to the option of not hedging, the Plan has paid 12% on average in excess of the option of do not consider this to be an outlier result. While we have found opportunities for improvement, we did not find areas with meaningful deficiencies. The recommendations will therefore improve the efficiency of the Plan but will not materially change its current form. In fact, we find most of the features of the Plan to be at the best practice level and some of the features of its implementation actually exceed such standards.

Within a scale of 1 to 5 where 1 is negative and 5 is positive, Concentric evaluated 134 different risk elements to determine the risk and the capabilities associated with the Plan and calculated the difference between these two concepts to determine a gap for improvement. When the different risk elements are aggregated into 12 different categories, the unfavorable aggregate gap was 0.1 (Figure 1). This means that there are no obvious flaws in the Plan and any recommendations for changes will not change its character, but mostly improve in its efficiency.

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Figure 1: Evaluation Summary Score

	Capability	Risk	Unfavorable Gap
Aggregate	**4.3**	**1.6**	**0.1**
Governance	4.6	1.6	0.1
Policy	4.5	1.7	0.0
Procedures	4.6	1.4	0.0
RMC	4.6	1.7	0.1
Monetary Limits	4.8	1.3	0.0
Strategic	4.9	1.3	0.1
Transactional Controls	4.0	1.0	0.0
Audit	4.0	1.0	0.0
Credit Risk	4.5	1.0	0.0
Risk Metric Methodology	3.6	2.0	0.2
Risk Metric Implementation	3.3	1.8	0.1
Infrastructure	2.8	1.9	1.9

Source: Concentric

The following is a statement of opinions by Concentric based on the Evaluation. It includes recommended improvements to the Plan.

- Opinion 1: The interest rate risk is significant and merits having Plan to contain the risk
- Opinion 2: The Plan as it currently stands is well structured, executed and has the appropriate internal control structure to monitor its performance
- Opinion 3: The objective of the Plan to reduce volatility of interest rates is appropriate
- Opinion 4: The Plan provides reasonable protection for rate payers by controlling for potential price increase at a reasonable cost
- Opinion 5: Recommend enabling the model used to implement the Plan so that it runs an outlier test to avoid obvious errors in the price feed and inconsistencies in price movements
- Opinion 6: Recommend changing the method used to calculate volatility to a method that yields volatility estimates that are more reasonable for long-dated volatility estimation
- Opinion 7: Once the new method to estimate volatility is implemented, ensure that it is used throughout the model used to implement the Plan

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- Opinion 8: The performance of the Plan should not be exclusively measured as a comparison between the scenario of hedging or not hedging. It should be based on the reasonableness of the interest rate to support the investment and a comparison to the cost of debt of peer companies
- Opinion 9: The Plan is structured as a prudent effort to control the cost of debt on behalf of customers
- Opinion 10: The Plan provides a reasonable, prudent strategy benefiting the customers and should be continued.

There are elements of the Plan that are either at, or above industry best practices. This includes the design and implementation of the dynamic hedge window, the actual implementation of the model and the involvement of Senior Management.

The character of the Report is written for a non-technical audience in mind, but the subject at hand is very technical in nature. Concentric has had extensive conversations with Avista's staff to address the technical details of the Evaluation and the recommended changes. We are committed to revisit how these changes are implemented within three months of this Report to ensure that the Opinions are still valid and that the recommended changes are being implemented.

At the end of the Report we provide a summary of the questions and the answers Concentric received during the review of the draft Report to Avista's and the Commission's staff on November 30th, 2020.

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SECTION 2:

CONTEXT OF THE EVALUATION

The Public Utility Commission of Oregon (the "Commission") in its Order 19-331[2] requested Avista Corporation ("Avista") to perform an evaluation (the "Evaluation") of the interest rate hedging program in compliance with the Partial Settlement Stipulation for the General Rate Revision, whereby Avista's interest rate risk management plan (the "Plan") should be reviewed by an independent third party. Avista issued a competitive procurement process under RFP #4-42876 and Concentric Energy Advisors, Inc. ("Concentric") was awarded the contract.

The Evaluation examines the mechanics of the Plan to understand whether the objectives of the Plan are being met and whether those objectives are still appropriate in the current interest rate environment. The Evaluation also seeks to evaluate how the Plan benefits customers, and whether any proposed changes and/or modifications are recommended.

In the writing of the Order, the Commission expressed its interest in recommendations based on the results and findings of the Evaluation and to summarize them in the form of a Final Report (the "Report"). As stated by the Commission, these findings will only apply prospectively and will not apply to any prior Avista interest rate hedging activity. Avista, at its discretion, has agreed to use the Report to make modifications to, or to discontinue, its Hedging Plan after consultation with the parties involved in the proceeding. The recommendations of the Report shall not be binding on any Party, but such Party shall have the burden of proof in any subsequent proceeding at which interest rate hedging is at issue, to demonstrate why the Report recommendations are unreasonable.

Per the language in the RFP issued by Avista, the Report assesses and provides an opinion on the following elements of the Plan:

- Review the overall Hedging Plan;
- Determine if Avista's current hedging strategy is the appropriate risk mitigation tool;
- Determine if the objectives of the Plan are still appropriate;
- Determine if and how the Plan benefits customers;
- Provide recommendations on how to improve the Plan, if appropriate;
- Provide an opinion to appropriately measure the performance of Avista's hedging Plan;
- Effectiveness of the Plan to mitigate interest rate risk;

2 Final Order 19-331, Docket UG 366, October 8, 2019 before the Public utility Commission of Oregon. In the matter of Avista corporation, DBA Avista Utilities, Application for a General Rate Revision.

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- Provide an opinion on the prudency of the Plan;
- Identify changes to the Plan that can be made;
- Provide an opinion on whether the Plan should be continued, suspended, or terminated.

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SECTION 3:

THE NEED TO HEDGE

Avista's future borrowing requirements are driven, primarily, by Avista's significant capital expenditure program and maturing debt which creates exposure to interest rate risk. Avista usually issues long-term debt (with maturities exceeding one year) approximately once a year. To mitigate interest rate risks, Avista hedges interest rates for a portion of forecasted debt issuances over several years, leading up to the date Avista anticipates each issuance.

Avista also manages interest rate risk exposure by limiting the extent of outstanding debt that is subject to variable interest rates rather than fixed rates. In addition, Avista issues fixed rate, long-term debt with varying maturities to manage the amount of debt required to be refinanced in any period (looking ahead to the debt's future maturity), and to obtain rates across a broader spectrum of prevailing terms which tend to be priced at different interest rates.

Avista's Plan is designed to provide a certain level of stability to future cash flows and the associated retail rates related to future interest rate variability. The Plan provides guidelines for hedging a portion of interest rate risk with financial derivative instruments. Avista settles these hedge transactions for cash, simultaneously, when a related new fixed-rate debt issuance is priced in the market. The settlement proceeds (which may be positive or negative) are amortized over the life of the new debt issuance. The Hedging Plan provides that hedge transactions are executed, solely, to reduce interest rate uncertainty on future debt that is included in Avista's five-year forecast. The hedge transactions do not involve speculation about the movement of future interest rates.

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SECTION 4:

NATURE OF THE RISK

Having established that interest rate hedging is needed given the relevance of long-term debt, this section explores if the risk itself is meaningful. Logic dictates that hedging of interest rates is meaningful if the actual volatility of interest is significant. The uncertainty of interest rates affects the company in its ability to issue debt at competitive levels and in its ability to reduce cash flow volatility and the associated retail rate impacts given changes in interest rates.[3] In the case of Avista, the nature of the risk is therefore an interaction of the following exposures:

- **Uncertainty of Cost of Debt**. The risk that the interest rate at the time of issuing the debt will increase significantly from current levels.
- **Concentration Risk**. The risk of pricing the debt on one single day, instead of spreading the pricing of the debt to reduce single-day risk.
- **Competitiveness**. The risk that the uncertain interest rate to be fixed when the debt is priced is not competitive.

In this section we will explore the nature of each of these risks and provide a perspective as to their relevance. We first start with a small description as to the origin of the debt requirement needs.

Debt Requirements as the Starting Point of the Evaluation

Utilities routinely prepare a capital expenditure plan to invest in infrastructure and projects to address the load needs of their customers and will typically file a detailed plan of how the needs of the customers will evolve, how the utility will adjust its operations, a capital investment plan to indicate how these capital investments will be structured, and a schedule for their implementation.

In the case of most utilities, these plans are typically filed in the form of an Integrated Resource Plan ("IRP") and have an outlook of several years into the future that is updated periodically as the schedule for IRP filings mandates. The IRPs present a set of assumptions, including debt cost assumptions as of the drafting of the respective IRPs, including assumptions as to the cost of debt and how this cost will affect the viability of the investments and the impact to the customers.

For the specific case of Avista, it files an electric IRP with a rolling five-year outlook in odd years with the public utility commissions in Washington and Idaho, while in even years it files a natural gas IRP with a 20-year outlook with the public utility commissions in Washington, Idaho, and Oregon.[4] Both the electric and the natural gas IRP processes include public involvement in the form of a Technical Advisory Committee ("TAC") and public comment period.

3 Avista Corp. (January 2019). Interest Rate Risk Management Plan

4 https://www.myavista.com/about-us/integrated-resource-planning

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The investment requirements associated with the interest rate hedging program therefore come from a comprehensive and transparent process that has gone through rigorous and transparent process for its approval and out of which several specific investments and capital requirements are outlined. The perspective on the cost of debt at the time when the IRP is approved is directly linked to the financial viability of the investments to be implemented. For the purpose of this Evaluation, the starting point is a requirement for debt issuance that is directly associated with the respective IRP documents.

Uncertainty of Cost of Debt

The capital expenditure plan is drafted and approved many years in advance and the assumptions driving the plans (including cost of debt assumptions) will evolve as the IRPs are updated in subsequent filings. But implementation of the investments, such as the need to build a new plant, may require many years to implement. If cost of debt volatility is significant, the actual cost of the debt as of the time the debt is issued and impact to the financial performance of the approved investments will be at risk.

To understand if the volatility[5] of long-term interest rates and the impact to the rates is meaningful we look at historical Forward rates for 30-year interest rates as reported by Thomson Reuters® for different expiration years ("FY"). For instance, the curve for FY7 in Figure 2 represents the 30-year interest rate Forward[6] contract expiring seven years into the future with respect to the trade date, whereas FY1 represents the 30-year interest rate Forward contract expiring within the next year and FY0 represents the interest rate as priced on a daily basis for next day contracting.

Using the cost of interest rates in Figure 2, we proceed to calculate volatility to understand how much the price of debt can change in the future. The most traditional way to calculate this volatility is originally expressed as a potential one-day [7]movement (Figure 3), while volatility is typically reported for comparative purposes as an annualized number.

The impact of the volatility for interest rates is significant because it affects decision to fix the price for the duration of the debt issuance (in this case 30 years). While hedging decisions for natural gas for instance are for delivery for one specific month, the volatility of interest rates will have an impact of 30 years because the debt is issued at a fixed rate.

5 In finance, Volatility is an estimate to characterize the degree of how prices may have big swings in either direction. Technical, it is a statistical measure of the dispersion of the change in prices (i.e. returns) for a given period of observation.

6 In finance, a Forward contract is a non-standardized contract between two parties to buy or sell an asset (in this case interest rate debt) at a specified future time at a price agreed on at the time of conclusion of the contract (expiration date) or before the expiration of the contract if the price is locked-in before expiration of the contract (i.e. hedged).

7 Volatility is typically calculated as the ln (Pt/Pt-1) where Pt represents the price as of today, Pt-1 is the price as of the previous date and ln represents the natural logarithm. Volatility is typically expressed in terms of standard deviation or variance of the returns over a period of time of choice.

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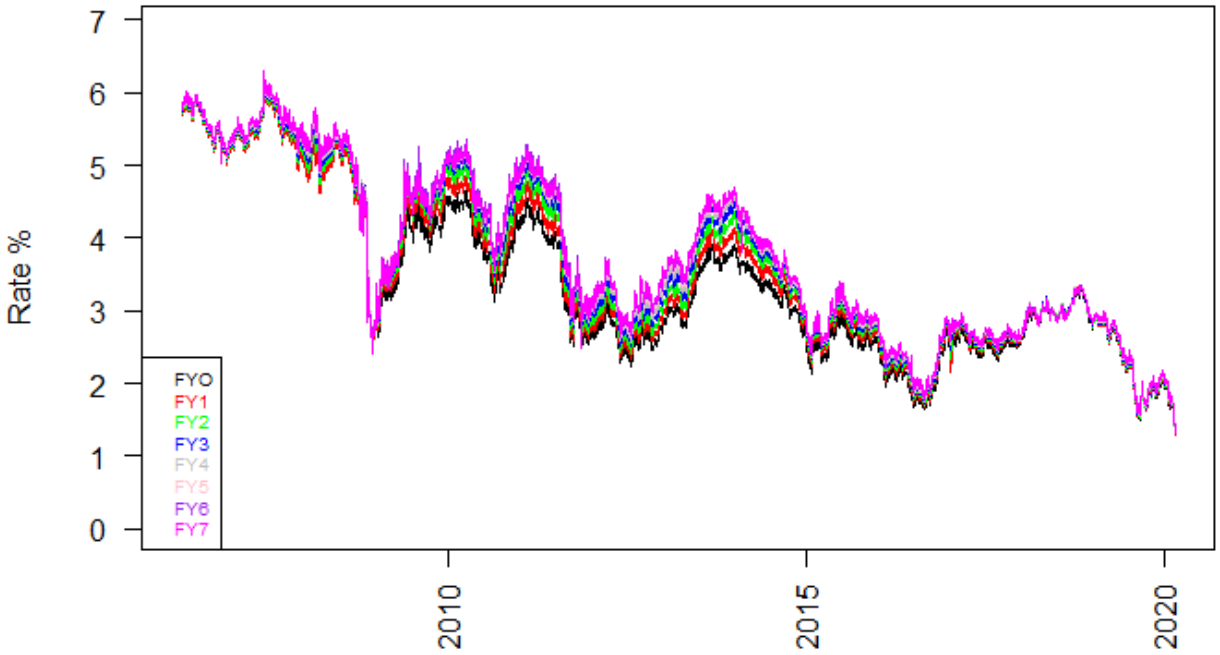
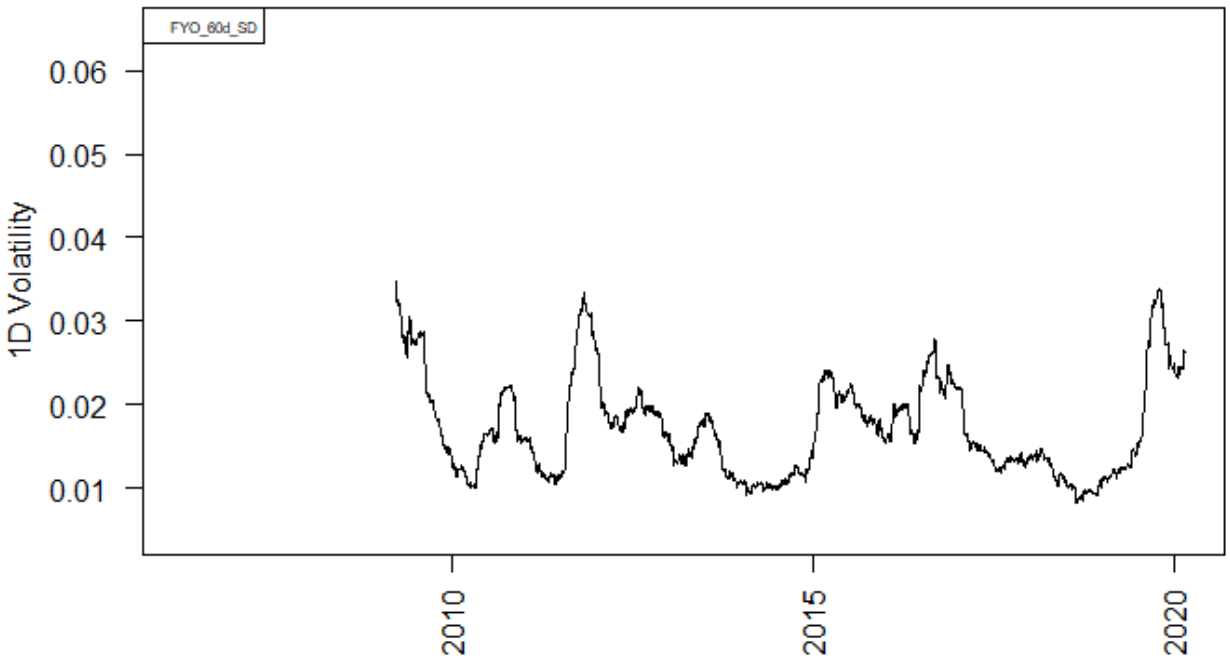
Figure 2: Historical 30-Year Forward Curves for Rolling Forward Year Expiration ("FY")



Source: Concentric using data from Thomson Reuters as provided by Avista

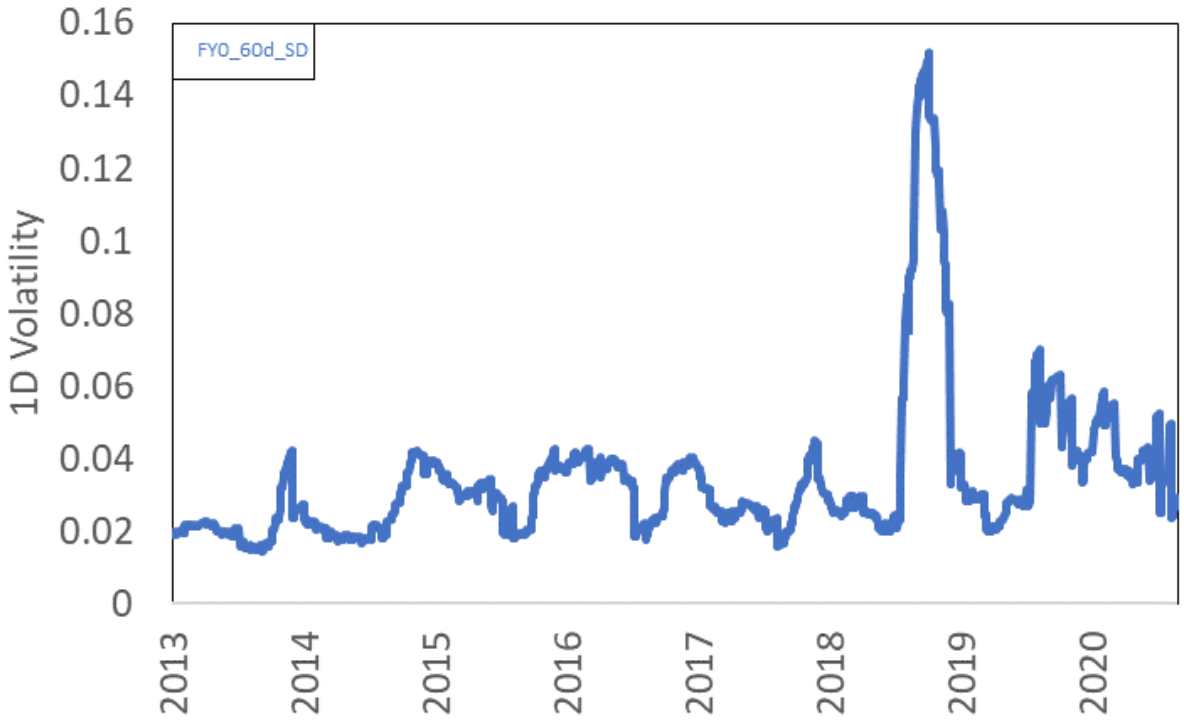
Figure 3: One-Day Volatility of 30-Year Spot Interest Rates



Source: Concentric using data from Thomson Reuters as provided by Avista

For comparative purposes, the one-day volatility in natural gas Forwards for delivery into the border of Washington States ("Sumas") is shown in Figure 4. Ignoring the specific issues of volatility at the end of 2019 when a pipeline interruption exacerbated volatility, the volatility from 2013 through 2018 shows levels very similar to those in interest rates. Therefore, just as it is meaningful to hedge the exposure to natural gas on behalf of the customers, the volatility in interest rates is comparable under normal circumstances. It is large enough to meaningfully affect the rates to customers and therefore a significant cost to be hedged.

Figure 4: Volatility of One-Month Forward for Natural Gas Delivered to the Washington Border



Source: Concentric using data from SNL

For illustrative purposes, assume today is February 28, 2020 and Avista is scheduled to issue debt for $160 million on October 2020 and we are evaluating the decision to hedge or not to hedge. As of the date of evaluation the 30-year interest rate with an approximate expiration of October 2020 is 1.294%. If Avista decides to wait to fix the price of the debt, the interest rate could be between 0.642% and 2.608% on the day the debt is issued. When considering the size of the debt, the expected interest payment from the debt at current levels is $2.07 million per year, but it could fluctuate between $1.03 and $4.17 million if the decision to hedge is made at the day of debt issuance.

Given the level of volatility in interest rates and the cost impact to the rate payers, hedging interest has enough volatility to warrant hedging decisions in advance of the day when the debt is issued.

Concentration of Risk

In the previous section we concluded that the level of volatility (i.e., risk) in interest is large enough to hedge, and it is comparable to the volatility in natural gas markets in the Northwest during normal times. In this section we will address the decision all hedgers face in terms of hedging in advance of actual needs (in this case the date when the debt is issued). Just as any hedging decision, Avista has the opportunity to fix the price before the expiration of the contract or fix it in advance through a series of decisions that will "smooth" the final outcome.

If Avista decides to postpone fixing the price of the debt at the time the debt is issued, it implicitly has ignored the risk that the cost of debt will increase from "now" through the day of when the debt is issued. If on the contrary, Avista decides to hedge (or to hedge a portion) of the debt requirements before the day the debt is issued, it has avoided (or partially avoided) the risk that rates may increase, but it has inevitably created a risk that the interest rate may decrease through the date when the debt is issued.

The essential choice for Avista under the interest rate hedging Plan is to decide to fix the price of the debt at the time the debt is issued or to fix the price (or a portion) before its expiration to avoid the possibility that the interest rate may change significantly from the current level to when the debt will be issued ("concentration risk"). Postponing the price of the debt for when the debt is issued is relying on a single day as the determinant of the price of the debt and therefore is the proverbial issue of putting all eggs in one basket.

To avoid this concentration risk and following best practices, hedgers tend to make incremental decisions well before the expiration of the contract. By spreading out the decisions to hedge, the hedger will reduce the risk of having made a poor decision. It is also true that this behavior of averaging out the hedge decisions will not be able to achieve the lowest level possible but trying to achieve the very best is speculative and contrary to the purpose of a hedger that is trying to control the cost.

Given the level of volatility and how the market dynamics change, separating the decision to execute the hedges in increments diminishes the risk that the rate will turn out to be non-competitive.

Competitiveness

A company trying to control cost (such as debt) is making a choice of hedging now to avoid prices increasing or not hedging to avoid the possibility that the price hedged may turn out to be a poor one. Since the hedger is not able to know for a fact what debt prices will do in the future or what prices will be at the time of expiration, the decision to hedge to protect cost versus the cost of engaging in

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non-competitive hedges is inevitable. It is a delicate balance. To address this, companies structure hedging plans that make decisions to hedge in a measured way by either limiting the amount to hedge through time, limiting the total amount to hedge and closely monitoring both the upside and the downside risk.

Avista's interest rate hedging plan has numerous elements to manage the risk of interest rates increasing and decreasing from the current levels. The unfavorable comparison of the hedged price versus the unhedged price that we have experienced is not a result of failures in decision making, but rather is the result of a falling interest rate market that is a reflection of the government's interest rate policy.

In the context of the Evaluation, Concentric observes that the unfavorable comparison between the cost of debt unhedged versus the cost of debt hedged is not a function of deficiencies in the Plan, but it is a result of unpredictable monetary policy changes.

This is consistent with an earlier finding in 2017 in the context of the Washington Utilities and Transportation Commission ("WUTC") when the hedging programs of the gas utilities operating in the state of Washington were being reviewed in the context of more than $1 billion in unfavorable hedge settlements over the previous decade for the four gas utilities in the state. [8] RiskCentrix (a consultancy) reviewed the program at the time and concluded the following:

> *"…The reason for hedging is to reduce customer pain in severe upside markets and thereby create marginal utility for customers. Customers derive greater value from upside cost mitigation than they forego from hedge losses because upside cost outcomes tend to require them to make painful adjustments relative to prior expectations, but hedge losses, while still painful, occur in declining markets when the net costs are more favorable than prior expectations, thus moderating the pain. This statement is not meant to understate the real value foregone by high-cost hedges; it is meant to put a proper perspective on the relative pain associated with whatever unfavorable outcomes are realized. Unless hedges are always made at market troughs there will always be some degree of unfavorable outcomes relative to retrospective opportunities…"*[9]

8 Docket UG-132019. Washington Utilities and Transportation Commission. March 13, 2017.

9 Gettings, Michael. (2014). Washington State Attorney General's Office, Public Counsel. (2014). Comments of Michael A. Getting

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SECTION 5:

HEDGING OBJECTIVES

The objective of the Plan is to maintain a competitive cost of debt while reducing cash flow volatility and the associated retail rate given future interest rate variability. The Company typically pays interest rates on long-term debt that are derived by hedging the benchmark rate. The Plan's goal to reduce the impact of uncertainty inherent in future interest benchmark rates through active management and uses of interest rate derivative ("IRD") transactions. The Company has designed and executes the Plan but does not benefit any gains nor does it profit from the cost of running the program. All costs and benefits are transferred to the customers.

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SECTION 6:

HEDGING APPROACH

Avista's Interest Rate Hedging Plan was implemented in 2011-2012 and modeled after the Company's natural gas and electricity hedging programs. This plan utilizes a combination of strategies to reduce the impacts of changing interest rates in a volatile interest rate environment. A portion of hedges will be focused on the concentration risk of pricing debt issuances by utilizing Dynamic Hedge Windows, another portion of hedges will target reducing risk in a volatile interest rate environment by utilizing Risk Responsive Hedging methods.

The approach is documented in the Interest Rate Risk Management Plan[10] and provides guidelines regarding the use, procurement and execution of IRDs and outlines strategies or combinations of strategies to reduce the impacts of changing interest rates in a volatile interest rate environment. While the Evaluation included a detailed review and validation of the information contained in the Plan and its execution, a summary of the approach in its current form of the writing of this report is follows:

- **A combination of programmatic and risk-sensitive approach**. The execution of the Plan is structured around two basic protocols that accumulate hedges on a scheduled basis (i.e. programmatic) and another protocol that accumulates hedges based on the observed risk in the market (i.e. risk sensitive). The programmatic approach is called the Dynamic Hedge Window, and the risk-based approach is the Risk Responsive Hedging method. The Plan also allows discretion for decision making as market conditions warrant under a controlled and documented manner.

- **Dynamic Hedge Window**. A portion of the hedges are geared to mitigate the concentration risk of pricing debt issuances. The Dynamic hedge window procures a targeted amount (currently set at 40%) of the interest rate needs in a programmatic way divided into four different windows of opportunity. Instead of paying the interest rate at the date of issuance, the Plan dollar-cost-averages 40% of financing costs in advance of the issuance date.

- **Risk Responsive Hedging**. The risk-responsive element of the Plan targets up to a maximum incremental hedge ratio of 60% using an industry-standard measure of risk commonly known as Value at Risk or ("VaR")[11] thresholds of the applicable interest rate risk. If the risk-responsive tolerance is not reached, no incremental hedges take place and the unhedged financing costs are fixed on the day of debt issuance.

10 Avista. Version January 2019.

11 Value at Risk ("VaR") is a statistical measure that quantifies the level of financial risk over a specific time frame and a confidence level. It is used to measure and control the level of risk control and the level of risk exposure. It determines the potential for loss and the probability of occurrence for the defined loss. One measures VaR by assessing the amount of potential loss, the probability of occurrence for the amount of loss, and the timeframe.

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- **Senior Oversight**. The Plan is supervised in its design, execution and evaluation by a Risk Management Committee that is responsible for periodic review of this Plan to ensure that the principles continue to provide adequate guidance, protection and direction for managing interest rate risks.

This Report is written with a non-technical audience in mind and therefore tries to address the Evaluation and the recommendations from a non-technical approach. Below is a broader description of each one of these approaches.

Dynamic Hedge Window

The Dynamic Hedge Window goes into effect three years prior to the time of debt issuance and is broken down into segments (called Windows). Within each Window, the Dynamic Hedge Protocol establishes an Upper Control Limit ("UCL") and a Lower Control Limit ("LCL") that represent confidence thresholds of a probabilistic estimate of interest rate swap rates relative to a "Set Rate," which is equal to the prior day's closing interest rate. As time evolves from the beginning of the Window, the UCL and the LCL are adjusted (i.e. "tightened") if the current interest rate moves above the Set Rate, the LCL will move up proportionally. If the current interest moves below the Set Rate, the UCL will move down proportionally. If the current rate goes above the UCL or below the LCL a hedge trigger is indicated. If the UCL or LCL do not trigger a transaction during the window period a transaction will be triggered at the end of the window period.

A programmatic approach such as the Dynamic Hedge Window places hedges through a formulaic process and may sometimes create undesirable risk of placing hedges (or too many hedges) that turn out to be non-competitive if market prices decrease. To control this, Avista has set a maximum level of hedges to accumulate under this protocol, and this limit is evaluated on a yearly basis to ensure that there is effective protection against the price of debt increasing, but that the potential risk that the programmatic risk may be non-competitive. Risk parameters are reviewed once a year and this includes an assessment of both upside and downside risks.

Risk Responsive Hedging

The risk-responsive protocol goes into effect two years prior to the debt issuance and only triggers a hedge if the risk exceeds a specified risk threshold. The intent is for the trigger to be a response to very high interest rate volatility and serves to mitigate excess losses where risk is extreme. The protocol is not intended to be triggered under normal market conditions. Executed hedge volumes under the Plan should not exceed the maximum incremental hedge ratio of 60%. The thresholds for this element of the Plan are reviewed on a yearly basis and are also a function of risk measurement and implementation of Value at Risk metrics.

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Complementarity of Protocols

These two protocols are complementary to each other and the total amount of risk hedged under one protocol will influence the other. For instance, if the Risk Responsive protocol drives hedges up to 60% of the total needs without activity in the Dynamic Hedge Window protocol, then there would be no room to hedge incrementally in the Dynamic Hedge Window protocol. Consequently, the Risk Responsive protocol that is triggered by encroaching on the threshold will be informed by any hedges triggered by the Dynamic Hedge Window. If the Dynamic Hedge Window protocol triggers 40% of the hedges needed for a particular issuance, then the risk that the Risk Responsive protocol will trigger hedges for the remaining 60% only if the risk prior to the date of issuance is significant. The risk-responsive element of the Plan therefore limits the risk of hedging at a higher price, while the dynamic hedge portion of the Plan allows us to create a certain degree of certainty of what the debt rate will be.

Senior Oversight

Avista has established several levels of oversight for the design, execution and validation of the Plan based on the following structure:

- The Finance Committee of the Board of Directors provides oversight and ensures that management has in place the proper strategies, budgets, forecasts, and financial plans and programs to enable achievement of objectives.
- The Risk Management Committee ("RMC") approves the Interest Rate Risk Mitigation Plan and review updates to this Plan, review periodic reports on interest rate risk and hedges from Treasury Management.
- Treasury Management (CFO, Treasurer and the Director of Finance) implement the Plan and provide ongoing oversight of the interest rate strategy to ensure compliance with the Plan. Additionally, it negotiates, directs, organizes, executes, amends, interprets and administers any contracts or agreement necessary to hedge interest rate risk.
- Risk and Credit Management is in charge of counterparty risk and market rate validation. It determines the creditworthiness of the counterparties, analyzes the performance of the hedges (commonly known as mark-to-market or "MtM") and manages collateral requirements with the counterparties.

With this control structure in place, reporting on the Plan is done on a weekly basis by reviewing position reports regarding associated derivative transactions to the RMC and Risk and Credit Management.

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SECTION 7:

BEST PRACTICES

The majority of utilities do not actively manage interest rate exposure through a risk management program, but instead fix the financing costs of new debt issuances on the date of the debt issuance. The reason why most regulated utilities do not hedge interest rates is influenced by utility concerns that engaging in risk management for a cost that is already explicitly recovered through rates, may subject it to increased risk of regulatory disallowance. In other words, most utilities don't hedge interest rates because they are typically guaranteed recovery of the interest rate cost regardless of the interest rate paid.

The decision on the part of a regulated utility to hedge or not to hedge regulated activities is often dictated by its regulatory cost recovery process and the risk tolerance toward rate variability.[12] Utilities' hedging decisions are motivated at least in part by the cost recovery risk of unmanaged volatility borne by utility shareholders. In its 2019 Peer Survey of Energy Industry Practices in Risk Management, the Committee of Chief Risk Officers ("CCRO"), an independent non-profit corporation of member companies dedicated to promoting best practices for risk management in the energy industry, found that 10 of 14 regulated utilities do manage the risk associated with regulated activities,[13] implying that the remaining 4 of 14 respondents (roughly 30%) transfer the risk of regulated activities directly to customers through rates.

Though the same survey found that interest rate risk management was generally not considered to be a core risk management activity, it noted that participants often still considered interest rate risk in their management of overall risk exposure. It is interesting to note that as shown in Figure 5, interest rate exposure was considered to be a core activity for respondents that also listed natural gas risk management as a core activity.

12 Committee of Chief Risk Officers, Guidelines on Establishing a Risk Management Framework and Policy (Feb. 2005) Section 3.1 [paraphrased]. Committee of Chief Risk Officers, Guidelines on Establishing a Risk Management Framework and Policy (Feb. 2005) Section 3.1 [paraphrased].

13 Committee of Chief Risk Officers, 2019 Peer Survey of Energy Industry Practices in Risk Management, Detailed Study Report April 2019, 2nd Edition

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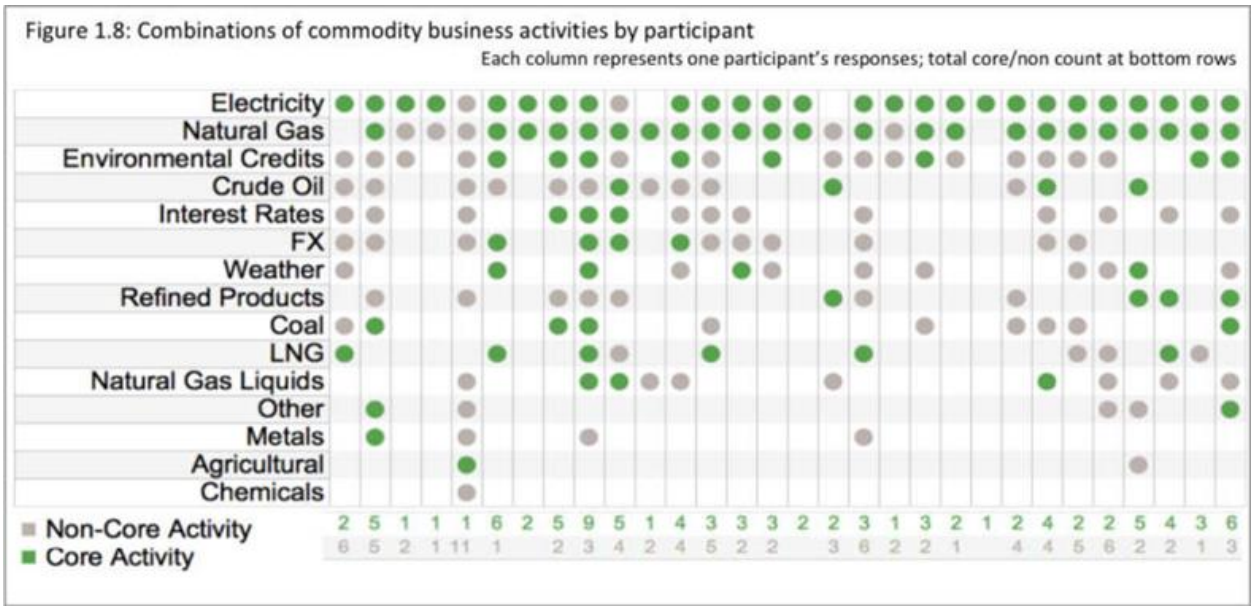
Figure 5: Core and Non-Core Risk Activities from Energy Industry Respondents



Source: Committee of Chief Risk Officers, 2019 Peer Survey of Energy Industry Practices in Risk Management, Detailed Study Report April 2019, 2nd Edition

The Prudency Standard

Utilities are generally allowed recovery of prudent costs and will earn a return on prudent investment. According to the National Regulatory Research Institute ("NRRI") 1985 paper, the Prudent Investment Test, the concept of prudent investment under public utility law is a standard for regulatory oversight that attempts to serve as a legal basis for judging whether utilities meet their public interest obligations.[14] It's application by state regulatory commissions suggests that there are four primary guidelines for application of the test: 1) there should be a presumption of prudence; 2) to be prudent, a utility decision must have been reasonable under the circumstances that were known or could have been known at the time the decision was made; 3) proscription against the use of hindsight in determining prudence; and 4) assessment of prudence is made through a retrospective factual inquiry, i.e., the evidence must relate to the time the decision was made.[15]

The NRRI paper goes on to state that "the concept of prudence provides commissions with a principle that does not necessarily require an "all or nothing" decision in favor of one side, but can allow some sharing of the risks between investors and ratepayers. The prudent investment test is a tool that regulators are using to provide an answer to the question of who should bear which risks and associated costs."[16] In this context, prudence can be thought of as a construct that is often negotiated between the regulatory commission and the utility to arrive at a reasonable and fair allocation of risk.

14 Burns, Poling, Whinihan and Kelly, The National Regulatory Research Institute, The Prudent Investment Test in the 1980s (April 1985) at iv

15 Ibid.

16 Id., at vi.

In Oregon, utilities have a duty to furnish adequate and safe service at 'reasonable' rates. Specifically ORS 757.020 states, "Every public utility is required to furnish adequate and safe service, equipment and facilities, and the charges made by any public utility for any service rendered or to be rendered in connection therewith shall be reasonable and just, and every unjust or unreasonable charge for such service is prohibited." In this case, what constitutes reasonableness is agreed upon by the utility and the regulator which occurred with the regulatory approval of Avista's interest rate hedging plan.

At a 2010 NARUC meeting, the topic of prudence standards for utility hedging was examined. In that meeting the presenters posited, "…*[t]o offer a real chance of mutual acceptance, a regulatory compact would need to preserve the regulator's right to scrutinize the prudence of a utility's hedging decisions, yet it would also establish clear hold-harmless standards that could be relied on by the utility*…"[17] It also found that "risk mitigation programs deployed by investor-owned utilities on behalf of customers are often weaker than they could be, and the reason is substantially tied to the regulatory interface. Investor-owned utilities ("IOUs") fear prudence findings, and they also shy away from complicating regulatory relationships with complex proposals to improve risk mitigation. So typically, IOUs hedge customer exposures in the simplest way, minimizing market-responsive decisions because hedge decisions are subject to retrospective scrutiny."[18]

It is in this context that we consider Avista's interest rate hedging plan. Avista is somewhat unique in its decision to hedge interest rates for the purpose of protecting its customers from financing cost increases. It is true that in periods of low interest rates and low volatility, hedged rates may be higher than what can be obtained in the market, but this is the trade-off for robust protection against interest rate increases. To reduce this downside risk would necessarily weaken the upside protection against the risk of interest rate increases. This could be enacted through stop loss features of the Plan, where hedging would stop entirely when prices, hedge losses, and/or volatility reached certain low thresholds, but ultimately this type of feature would result in less hedging in the extreme low-cost environment, which would weaken the protection against interest rate increases when rates do rise.

Sources for Best Practices

Concentric has consulted a framework of industry publications and resources to develop a standardized set of principles and reasonable practices that collectively form a basis to assess best practices across the spectrum of elements of Avista's interest rate hedging plan. In our evaluation of best practices, we consider how Avista's interest rate hedging plan compares to best practices and whether there is a better approach to mitigate interest rate risk.

Below, we list the industry resources which define best practices for evaluating interest hedging functions. It is important to note, that in determining best practices, it is necessary to reflect Avista's structure, culture and corporate governance and adapt practices to reflect best practices for Avista.

17 Michael Getting, Risk Centrix, LLC, Clarity in a World of Uncertainty, Prudence Standards for Utility Hedging (NARUC Winter Committee Meetings) (Feb. 2010)

18 Ibid.

- **Committee of Chief Risk Officers** - Founded in 2002, the CCRO is an independent nonprofit corporation of member companies dedicated to promoting best practices for risk management in the energy industry. The CCRO has produced a series of documents starting with its six-chapter volume addressing the merchant energy business risks, commercial business risks, and enterprise risk management for utilities.
- **Ad-hoc reports from Credit Rating Agencies** - The Credit Rating Agencies incorporate risk management parameters in their routine rating process and from time to time provide documents that describe the methodology that they use to evaluate the companies' creditworthiness. Those documents tend to concentrate on how the risk management practices affect (positively or negatively) the creditworthiness of the company.
- **Extrapolated Guidelines from the Bank of International Settlements** - The Bank of International Settlements provides central banks guidance as they pursue financial stability. Although the Bank's guidance focuses on financial entities (such as counter-parties), its writings are also a source of some of the principles and practices that companies use to evaluate improvements to their risk-management profile.
- **Guidelines from Professional Trade Organizations** - Some of the professional trade organizations (such as the Professional Risk Management International Association, "PRMIA") are starting to provide certain guidelines.
- **Board of Governors of the Federal Reserve** - The Fed published a "Trading and Capital Markets Activities Manual" that provides a consensus perspective on issues such as liquidity risk and the nature of trading activities.
- **Committee of Sponsoring Organizations of the Treadway Commission (COSO)** - Although less applicable to the Energy industry, COSO takes an Enterprise Risk Management ("ERM") approach as updated in the 2017 Enterprise Risk Management report. COSO provides thought leadership through the development of comprehensive frameworks and guidance on enterprise risk management, internal control and fraud deterrence designed to improve organizational performance and governance and to reduce the extent of fraud in organizations.
- **Avista's Policies and Procedures** - The Policies and Procedures within Avista represent aspirational guidelines to how the interest hedging process should perform, and therefore are part of the best practice for this interest hedging Evaluation.
- **Reports and presentations by other Risk Management Experts** - Risk management experts in the energy utility sector provide a corroborating perspective for best practices assessments.

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- **Whitepapers and Presentations by Regulatory Research Labs** – Regulatory associations often review risk management and the need for hedging in the utility sector. Associations like NARUC and NRRI provide valuable insight into the regulatory perspective of utility hedging practices.
- **Regulatory Orders and Decisions** – Regulatory commissions often must decide cases on the reasonableness of hedging plans, whether hedge transactions were prudent, or whether utilities should hedge or discontinue hedging. Each of these cases provide important insights into the regulatory perspective of hedging, and of prudence, as well as identifying the pitfalls of certain types of hedging protocols.
- **Articles in Trade Journals on Risk Management Trends and Utility Hedging Practices** – provide important perspectives of utility hedging trends and practices.

While all of these sources are commonly referred to as best practices, none of these should be taken as an engineering metric for comparison because they need to be adjusted to the busines model, regulatory framework, culture and market dynamics of the particular entity being evaluated or compared. A synthesis of the above best practices that addresses the identified pitfalls, ensures adequate supervision and oversight by both the utility and the regulator, and provides enhanced protection against increases in financing costs, while striving to minimize costs of the hedging program drives our best practices evaluation. For the purpose of the Evaluation, Concentric started with the sources of best practices for the industry and adjusted them to fit Avista's business model and the purpose of the Evaluation. In the following section we provide a summary of the most meaningful best practices appropriate for the assignment.

Summary of Best Practices

For the case of Avista, we have synthesized our expertise and the best practices we have reviewed to arrive at a framework for assessing risk management practices in the energy sector. That framework is comprised of the following eight key areas: Governance; Oversight; Segregation of Duties; Established Processes and Controls; Risk Metrics; Sensitivity Analysis; Credit Analysis, Management and Reporting; and Reporting and Disclosure.

- **Governance**. Governance follows a top-down approach whereby senior management discusses policies with respect to risk assessment and risk management, followed by the development of strategic policy development and oversight by senior management-level risk oversight committee.
- **Oversight**. The oversight function follows a strategic, tactical, and operational corporate hierarchy.

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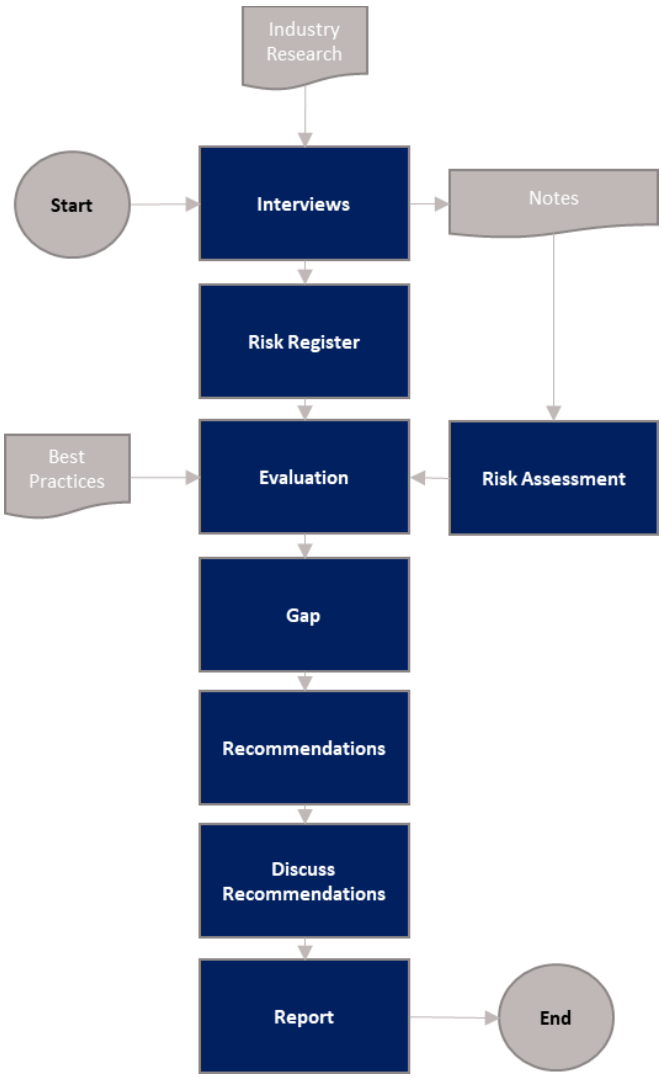
- **Segregation of Duties**. Typically known as the separation of front-middle-back office, it ensures independence of functional execution activities from its oversight, reporting and settlement roles
- **Established Processes and Controls**. Clear and concise directives for processes. Not meant to be prescriptive, but rather to serve as high-level guidelines.
- **Risk Metrics.** Metrics to value and measure the risk in a consistent, theoretically grounded, and subject to replication and audit.
- **Sensitivity Analysis.** Sensitivity analysis, scenario analysis and stress-testing conducted to assess appropriateness of metrics and inform management.
- **Credit Analysis, Management and Reporting.** Practices and procedures to assess, monitor, report and maintain credit risk exposure measurement and management.
- **Reporting and Disclosure.** Processes and checks to ensure that information presented to senior management and regulators is accurate, consistent and has a way to audit its accurateness.

SECTION 8:

METHOD FOR EVALUATION

Concentric has a well-developed process we use to review or evaluate risk management programs, and we have adapted such methodology to fit this assignment. It is summarized in Figure 6 and further described below.

Figure 6: Approach for Evaluation



Source: Concentric

Interviews

Concentric gathered information and reviewed documents to understand the Plan by interviewing several individuals with different perspectives as to how the Plan is structured, its execution, performance, and implementation. Figure 7 shows a summary of the topics discussed.

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Figure 7: Context for Interviews

:a	Discussion Points
Context	• Future challenges of the Plan and of cost to serve the load • Perspective on measurement of risk created/mitigated by the Plan • Upside/downside risk relevance • Perspective on risk and tolerance • Ability/desire to enter and exit hedges • Could changing/terminating the Plan affect hedging activities elsewhere? • What is the cost/benefit/risk of terminating the program? • What has the Commission and/or Customer approved? and has formally or informally approved? • Desirable results from Plan • Reputation impact • Cross-subsidiary transactions and integration • Relationship with Commission and main interveners • Perspective on how other regulated utilities manage fiduciary concerns on behalf of Customers • Approach to managing fiduciary concerns on behalf of the Customers • Perspective on how Customers and Commission's view the Plan • Overall strategic objectives and concerns
Design and Plan	• What are the guiding principles that the Model is incorporating? • How is risk and tolerance being incorporated? • What are the limitations in modeling? • What are the resources (technology and people) available to design and execute the Plan? • Allocation of hedge costs across states and Customers • Metrics and performance goals • Ability/desire to soften the monthly impact by some kind of a reserve • How does the Plan learn from ongoing performance? • Alternative strategies considered • Perspective on the hedging of interest rate and other elements of the cost to serve • How important is cost of debt in the entire cost of service? • Roles and responsibilities surrounding the Plan
Monitoring	• KPIs and KRIs associated with the execution of the Plan • How do you know the Plan and the model supporting it is doing what it is supposed to be doing? • Allowable/tolerable deviations in performance of Plan • Impact of load variations to performance and cost of Plan • Consequences of changing collateral of counterparts providing hedges. • Evolution of regulatory oversight
Cost Recovery	• Do customers have a say in participation of the Plan? • Perspective on current and future cost recovery dynamics • Communications protocols inside Avista, with the Customer and with the Commission

Source: Concentric

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Following is a list of the individuals that were interviewed for this Evaluation and the primary focus of the interview. The interviews were conducted over video conferences and in general they lasted 1.5 hours each. Some of the individuals were interviewed more than once, contingent on the level of detail of the conversation.

- **Jason Lang, Director of Finance, Assistant Treasurer**. Interview focused on gathering information on the guiding principles and context behind the Plan.
- **Karrie Wilson, Treasury Manager**. Day-to-day implementation of the Plan.
- **Mark Thies, Executive Vice President, Treasurer and Chief Financial Officer**. Context of how the Plan was originally structured, current performance and reporting.
- **Megan Thilo, Manager of Treasury**. Oversight of the inputs and outputs of the model used to implement the Plan. Reporting on performance and oversight.
- **Pat Ehrbar, Director of Regulatory Affairs**. Regulatory aspects of the Plan and historical filings.
- **Ryan Krasselt, Vice President, Controller and Principal Accounting Officer**. Information on the guiding principles and context behind the interest rate hedging program.
- **Todd Bryan, Manager of Resource Optimization**. Implementation of the hedging strategy and the Excel model used to execute it.

Parameters for the Evaluation

The categories identified for Best Practices as listed above were expanded into each individual risk element for a total of 134 unique risk elements and 9 interviews of Avista's staff formed the basis of our analysis (Figure 8). The evaluation itself was implemented through what is commonly called a Risk Register that has been filed with the Company as a confidential document. A sample view of the Risk Registered is offered in Figure 910. For each element of applicable best practices, we have provided a "capability" score from 1 to 5, with 5 indicating a high capability to address the risk, i.e., that the company is following best practices; and we also have identified a "risk" score from 1 to 5, with 1 indicating low risk. To the extent that the risk score exceeds the capability score, we identified a gap.

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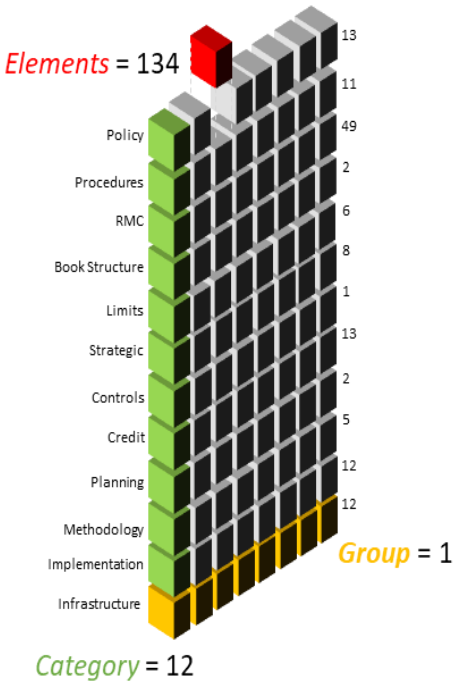
Figure 8: Evaluation Criteria



1. **Leveraged the Enterprise Risk Management Framework from COSO*** that associates risk elements to categories within different business unit groups.

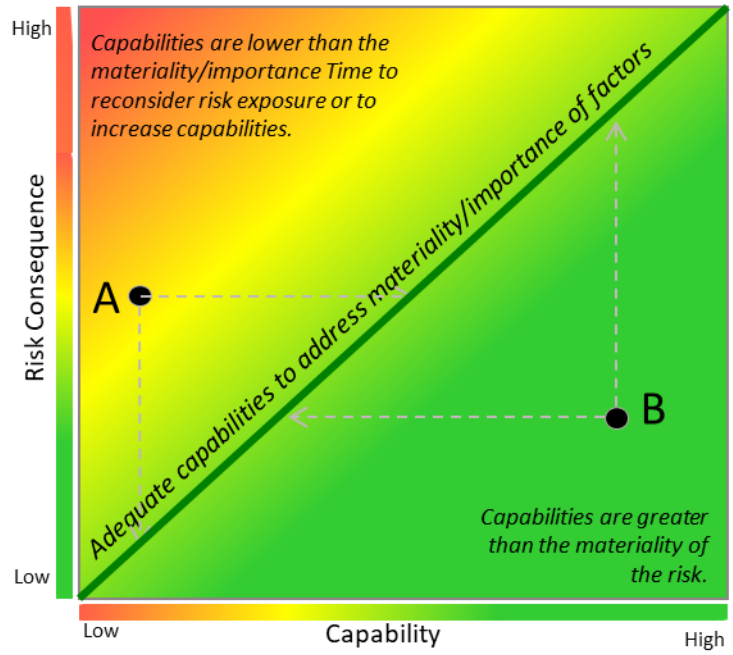
2. **Assessment of 1 Functional Group :** Interest Rate Hedging Plan

3. **12 risk Categories were identified.**

4. **Identified 134 risk elements** to evaluate the risk and the capabilities. Evaluation based on **9 Interviews** and numerous documents reviewed.

Source: Concentric
*COSO: Committee of Sponsoring Organizations of the Treadway Commission.

Figure 9: Capability/Risk and Gap Map



Source: Concentric

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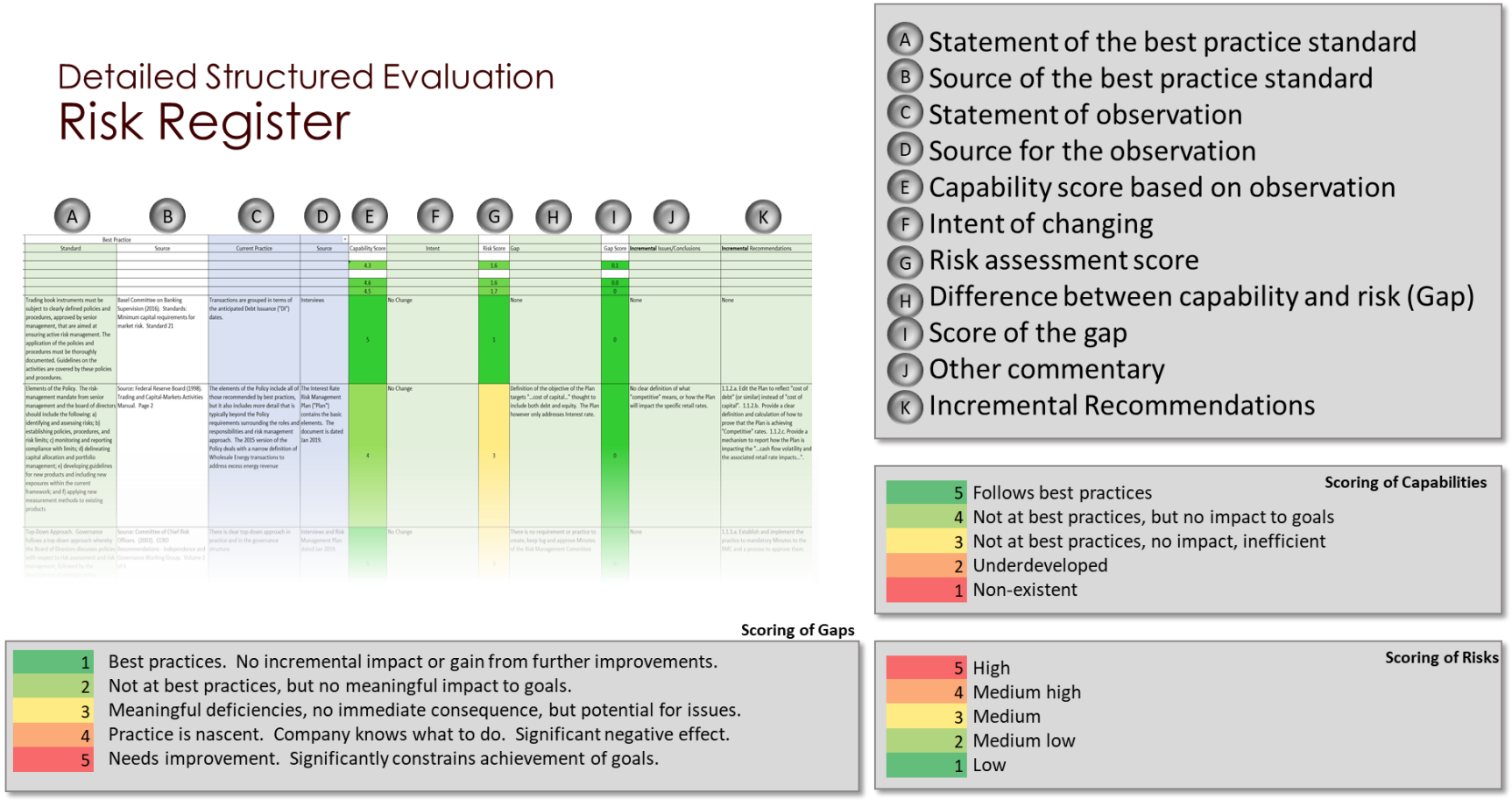
Figure 10: View of the Risk Register



Source: Concentric

The Risk Register is able to summarize existing capabilities and the risk exposure. For the purpose of summarizing these findings Concentric made use of a traditional Capability/Risk Gap Analysis chart that associates Risks with Capabilities (Figure 9).

The Gap Assessment diagram in the same Figure summarizes the comparison of the existing capabilities against the materiality or importance of a particular risk factor. The diagonal (green) represents an area where the capabilities are commensurate to the materiality or importance of the risk. Points above the diagonal (such as "A") represent risk factors with higher materiality or importance than what the company has the capability to address. Management has a decision to either invest and increase capabilities (move right) or reduce the materiality or importance by actions such as contracting out (move down).

Points below the diagonal (such as "B") represent capabilities that are in excess of what is needed to address the materiality or importance of the risk factor or that they reflect industry's best practice. Management requires a decision to leave this capability as is or use it as a basis to gauge the convenience of further investments to improve the practice. The coloring of the risk, capability and gap is multidimensional. The capability or the risk are evaluated as isolated variables in the horizontal or vertical access, but since the gap is the intersection of risk and capabilities, it is read as the color inside the graph.

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SECTION 9:

EVALUATION AGGREGATE SCORE

Aggregate Score

The Program as it currently stands is well-structured, executed and has the appropriate internal control structure to monitor its performance. Continuation of the Program is encouraged because there is evidence that it adds value to Avista's customers by reducing the uncertainty around the cost of debt acquired on behalf of Customers. The overall capability score was 4.3, the company is aligned with best practices and when it isn't the deficiencies do not affect the goals of the Program; the overall risk score was 1.6, which is low to medium-low risk; and the gap score was identified as 0.1 (materially non-existent). A gap of 1.0 or less indicates that the company follows best practices as adapted to the organization; there is no obvious gain from implementing further improvements; and the current practices fully support the achievement of Program goals.

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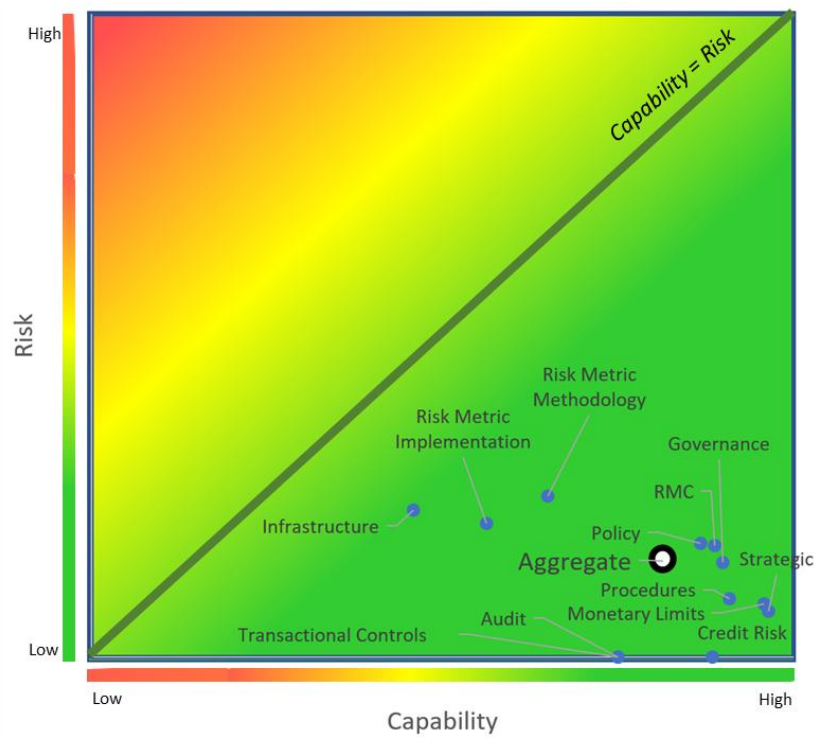
Figure 11: Evaluation Summary

	Capability	Risk	Unfavorable Gap
Aggregate	**4.3**	**1.6**	**0.1**
Governance	4.6	1.6	0.1
Policy	4.5	1.7	0.0
Procedures	4.6	1.4	0.0
RMC	4.6	1.7	0.1
Monetary Limits	4.8	1.3	0.0
Strategic	4.9	1.3	0.1
Transactional Controls	4.0	1.0	0.0
Audit	4.0	1.0	0.0
Credit Risk	4.5	1.0	0.0
Risk Metric Methodology	3.6	2.0	0.2
Risk Metric Implementation	3.3	1.8	0.1
Infrastructure	2.8	1.9	1.9

Unfavorable — Favorable



Source: Concentric

At-or-Above Best Practices

Beyond the areas of improvement that will be covered in the Opinions section of this Report, there are numerous aspects of the Plan that we find to be either at the best practice threshold or exceeding it. The following represents a summary of those areas of outstanding performance:

- **"Dynamic" Hedge Window**. The dynamic nature of this protocols is quite unique and effective. It starts defining a threshold to the upside and to the downside to trigger the hedge. As the market evolves it tightens this band in a noose format so that even within this programmatic protocol the risk of interest rates increasing is considered. By tightening the lower end of the threshold, it allows for low interest rates to be locked in. Effectively, even though this is a programmatic protocol that accumulates hedges by a rule, it has an embedded risk logic within it that is quite unique and worthy of repeating elsewhere. It is a progression from the traditional dollar-cost-averaging approaches because it has a smart and dynamic decision logic within it that limits the risk of interest rates increasing or the risk of locking-in a rate too soon.

- **Model to Implement the Strategy**. The model to implement the strategy is based on Microsoft Excel ® and it is very efficient in its implementation. The model therefore runs very efficiently, and the hedging logic of the Dynamic Hedge Window and the Risk Responsive protocols are implemented in a very efficient manner. There are a few elements of this Excel model that can be improved, but the talent behind its implementation is notewor thy.

- **Senior Management Involvement and History**. The original idea of the Plan and its implementation was authored by staff that is still at Avista but has not migrated to a Senior Management role. This level of institutional memory and knowledge of the detail is quite unique in the industry and allows for more fluid and transparent oversight of the Plan.

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SECTION 10:

RECOMMENDATIONS AND OPINIONS

In this section we summarize the recommendations for changes to the Plan in the form of Opinions and arguments to further clarify the opinions. In compliance with the mandate, the Opinions are organized according to the specific questions that the Commission was interested in the Evaluation producing. While we continue to push for a non-technical approach in the content of this Report, there are some aspects that are unavoidably technical. The full technical detail of the evaluation has already been presented to Avista's staff along with the evidence to support it.

Appropriateness of the Plan

Opinion 1: The interest rate risk is significant and merits hedging

Given the total amount of dollars involved in debt payment, the long-dated consequences of issuing debt and the volatility of interest rates that is commensurate to natural gas in normal conditions, having a Plan that hedges the exposure to interest rates is reasonable and encouraged.

Opinion 2: The Program as it currently stands is well structured, executed and has the appropriate internal control structure to monitor its performance

The process detailed in this Report for the Evaluation evidence finds that there are no significant gaps in any of the areas. The gaps identified were minimal and improvements to the Plan (see below) will largely increase the efficiency of the Plan, but not its character.

Opinion 3: The Objective of the Plan to reduce volatility of interest rates is appropriate

The objective of the plan is to maintain a competitive cost of debt by reducing cash flow volatility and the associated retail rate impact. While it is true that fixing the price in advance of the day when debt is issued may (and has) created the possibility that the hedges will be non-competitive, the risk for cost upside is significant. The unfavorable hedge settlements to date have been a function of the changing monetary policy of the government and not the function of a deficient Plan.

Opinion 4: The Plan provides reasonable protection for rate payers by controlling for potential price increases at a reasonable cost

The Hedging Plan was put in place to protect customers from rising interest rates associated with financing the company's significant capital plan. Financing requirements are known well in advance of debt issuances, and by progressively locking in rates in advance of the issuance, customers are protected against what may be significant rate impacts due to interest rate fluctuations. Avista management considers it its fiduciary responsibility to manage this cost on behalf of its customers to reasonable levels and the interest rate hedging program is an effective contributor to this goal.

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Notwithstanding the Plan does not have significant gaps, there are areas where it can be improved. These are as follows.

Opinion 5: Enable the model to run an outlier test to avoid obvious errors in the price feed and inconsistencies in price movements

The model used to execute the strategy is an implementation in Microsoft Excel that pulls data to calculate the risk and estimate the value of the hedges based on automatic links and some data that is entered by the analyst. Given the number of transactions and the number of instruments involved in the Plan, we do not recommend investing in a more sophisticated platform to execute the Plan. But even within Microsoft Excel there are statistical tests that can be implemented to detect potential errors in the data feed or in the manual input. This entails a routine after each day the data is entered to test for the existence of an outlier at the price level and another test for an outlier at the daily return level. It also includes a test for inconsistency in the price movement of one Forward curve with respect to others.

In the Evaluation we detected at least four data entry errors in historical numbers that had no impact to the performance of the Plan, but they clearly indicate an area for improvement to automatically check for obvious outliers.

Opinion 6: Change the method to calculate volatility to a method that yields volatility estimates that are more reasonable for long-dated volatility estimation

The model used to implement the Plan uses a method called Exponential Weighted Moving Average ("EWMA") to calculate all volatility metrics. But a statistical analysis and simulation of results shows that this method overstates the value of volatility for long-dated estimations. Instead, we recommend using a method that controls for this deficiency based on a method called Generalized Autoregressive Conditional Heteroscedastic ("GARCH") model. The result is that all measures of risks for long-dated estimations will be within a more reasonable and theoretically consistent framework. The technical details as to why this is a better method is beyond the character of this Report but has already been discussed with Avista staff.

Opinion 7: Once the new method to estimate volatility is implemented, make sure that it is used throughout the model, including in the determination of tolerances, sensitivity analysis and yearly reviews of the parameters of the Plan

As a consequence of updating the core metric for volatility, the calculation of the tolerances and reporting of the risk exposures will change. Senior Management should therefore request a review and comparison of the changes affecting the risk measurement and impacting the reporting structure.

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Opinion 8: The performance of the Plan should not exclusively be a comparison between the scenario of hedging or not hedging. It should be based on the reasonableness of the interest rate to support the investments and a comparison to cost of debt of peer companies

It is tempting to measure the competitiveness of rates by comparing the price hedged versus the price without hedges, but this parameter of competitiveness fails to recognize that decisions to hedge and the outcome of not hedging happen at very different points in time and it is therefore unfair. If we knew (for certain) that interest rates will be lower in the future than today, nobody would hedge. Alternatively, if we knew that interest rates will be higher in the future, then everybody would hedge completely. Unfortunately, we do not know the future and therefore competitiveness should not be exclusively measured in terms of the outcomes from hedging or not to hedging.

Instead, performance needs to be framed in the context of how the interest rate hedged supports (or not) the investment decisions for which the debt was issued; how the decisions to hedge interest rates achieved by the company compare against its peers; and by examining if the parameters driving the hedging decisions include both perspectives of the risk of interest rates increasing and decreasing. Finally, the comparison of the hedged price versus the price unhedged should be treated more as a metric of performance of the program and used to inform and test if the parameters of the program should be adjusted or improved.

Opinion 9: The Plan is structured as a prudent effort to control the cost of debt on behalf of the customers

Based on the criteria of Prudency discussed in this Report, we believe the structure, execution, control, and review of the Plan is prudent. Furthermore, there are elements of the Plan that are either at or above industry best practices as discussed earlier in the Report.

Opinion 10: The Plan provides a reasonable, prudent strategy benefiting the customers and should be continued

Interest rates are at historical lows and even though they could go to zero, it is reasonable to expect that they will rise from current levels. Over time interest rates will go up and we will likely be in the opposite position whereby the hedged price will be less than the market price. If the Company were to stop hedging in today's low interest rate environment, the customers will (likely) be negatively impacted in the future because interest rates are extremely low and are likely to rise. Given where interest rates are currently, it is possible that the Plan is more important today than when it was initiated.

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SECTION 11:

ABOUT CONCENTRIC

Concentric Energy Advisors was founded in 2002 by a small group of executive-level consultants who were committed to establishing a mid-sized energy consulting firm with capabilities and a reputation unsurpassed by any firm in North America. Since its inception, Concentric has grown more than eight-fold and has significantly expanded its service offerings, while remaining focused on achieving the highest standards of consulting excellence in the energy field.

Currently, Concentric has approximately 60 employees who work out of the corporate headquarters in Marlborough, Massachusetts, or in offices in Washington, DC, Chicago, Illinois, and Calgary, Alberta, Canada. Our team specializes in management consulting and financial advisory services with a focus on the North American energy industry. Our energy industry experts have held positions with utility companies, regulatory agencies, integrated energy companies, regional transmission organizations, retail marketing companies, and utility management consulting firms. Many members of our team have been working together for more than 30 years.

The team assigned to this Evaluation is listed below:

- **Dan Dane, Senior Vice President. Officer in charge for the Evaluation**. More than 20 years of experience in the energy and financial services industries providing advisory services to power companies, natural gas pipelines, and local gas distribution companies in the areas of regulation and ratemaking, litigation support, generating asset divestitures, valuation, financial statement evaluations and analysis, and the examination of financial reporting systems and controls. He also has provided expert testimony on regulated ratemaking matters for investor- and provincially owned utilities, including revenue requirements, the cost of capital, capital structure, lead-lag studies/cash working capital, and rate base development.

  Mr. Dane is a certified public accountant and is a licensed securities professional (NASD Series 7, 28, 63, 79, and 99). In addition to his consulting work, he serves as the Financial and Operations Principal of CE Capital Advisors, a FINRA-Member firm and a subsidiary of Concentric Energy Advisors. CE Capital is a securities firm that provides services relating to corporate mergers and acquisitions, the valuation of securities, and capital market support. In his role at CE Capital, Mr. Dane has developed fairness opinions to Boards of Directors of companies entering into asset purchases and sales. He has led valuation modeling on multiple energy-related valuation assignments using the Income Approach, Cost Approach, and Sales Comparison Approach.

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- **Ruben Moreno, Assistant Vice President and Project Manager for the Evaluation**. is a recognized expert in risk management in the U.S and Canada in both administrative and civil proceedings. He has been helping large consumers or producers of energy optimize expenditures, revenues, and investments for the past 22 years. He is a specialist in risk management, quantitative methods, and statistical analysis. He has advised on the exposures of a US$10 billion portfolio and has broad experience in management consulting and teaching. His experience includes a broad range of interests (oil, natural gas, coal, wind, solar and hydro), differing generating technologies and extensive transactional experience supporting clients in the design and implementation of energy procurement practices to identify how much to purchase, when and why.
- **Julie Lieberman, Senior Project Manager and Best Practices Expert for the Evaluation**. Ms. Lieberman is a financial and economic consultant with more than 25 years of experience in the energy industry. Her broad base of expertise includes financial and economic consulting in the energy sector, utility ratemaking, regulatory policy and compliance, due diligence, mergers and acquisitions, litigation support and analysis, risk management, asset valuation and modeling, nuclear decommissioning, wholesale and retail energy trading and operations, energy procurement and scheduling, and utility hedging strategies.
- Ms. Lieberman is a testifying expert on utility cost of capital and has performed a variety of economic analyses, extensive regulatory research, and developed testimony and research reports in both regulatory and non-regulatory proceedings. Most recently She has studied the importance of Environmental, Social, and Governance (ESG) practices to utility investors and has assisted in the development of a risk-based approach to ESG strategic planning for Concentric clients. Additionally, she has co-authored articles published in Public Utilities Fortnightly on utility hedging practices and utility cost of capital and is a regular contributor to the Concentric Connection.

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SECTION 12:

QUESTIONS AND ANSWERS

On November 30, Avista coordinated a conference call with staff from the Commission and Concentric to present the Report and summarize the evaluation of the Plan. The following is a summary of the list of questions and answers as presented by Concentric, including answers that were submitted after the conference call. Whenever possible, and in the spirit of this being a non-technical Report, the answers continue with the same style of prose. Whenever the answer requires a more technical description, these are offered in the form of footnotes. Finally, the questions are numbers to facilitate cross-referencing.

To facilitate the presentation of the concepts in the answers, let us make the following overarching remarks:

1. **Essential Elements of a Hedging Strategy**. A hedging program is designed as a tool to manage risk to an acceptable level, and consequently consider three basic elements: First, it has mechanisms to become aware of risk; second, it measures the impact of risks on meaningful objectives, and third, it makes decisions as a response to the risk exposure and a tolerance level. In alignment with best practices, if the purpose of the Plan is hedging, it needs to be centered around risk. If the strategy does not identify, measure, or make decisions based on risk, then it is not a hedging strategy consideration.
2. **Perspective Vs. Risks**. Some of the questions refer to a perspective such as what monetary policy may do in the future or alternative approaches to the hedging strategy that are normally used for investment purposes. For an economist, it is very tempting to go into a discussion surrounding these topics, but discussion or an agreement of a perspective is beyond the practice of risk management. Risk management by its own virtue is a discipline where a perspective does not exist. Risk management is a discipline that concerns itself with the uncertainty of perspectives. This does not mean that a hedging strategy dismisses market expectation. The key difference is that risk drives decisions, not the perspectives.

Q1: Is hedging interest rates equivalent to betting against what the Federal Reserve will do?

A1: No, Avista's Plan is designed to hedge against the uncertainty of long-term interest rates which in turn is a function of current monetary policy, uncertainty of how monetary policy will evolve in the future, and by the international demand for U.S. government debt. The Plan therefore does not take a perspective to make decisions to hedge or not to hedge, it is making decisions based on the embedded uncertainty in long-term interest rates.

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It is not the purpose of this Report to go in-depth in terms of how the Federal Reserve ("Fed") makes decisions nor to assume that the reader is an expert in monetary policy. In brief though, the Fed influences short-term interest rates to slow/spur economic activity and control inflation.[19] As the economic activity evolves, the Fed adjusts the monetary policy through its Federal Open Market Committee ("FOMC") that holds eight regularly scheduled meetings per year. In contrast, long-term interest rates are partially influenced by current monetary policy, but they are also influenced by the uncertainty of future monetary policy changes and the auction of government debt by the U.S. Treasury Department.[20]

At the risk of being repetitive, the key feature in the distinction between short and long-term interest rates is that the relationship between monetary policy and long-term interest rates is well documented and "…shows that the relationship between policy and long-term interest rates appears much looser and more variable…" than for short-term interest rates.[21] Long-term interest rates, such as those being addressed by the Plan, are not only influenced by current FOMC actions, but also by market expectations about the future direction of the monetary policy and international demand for debt.

It is also not the purpose of this Report to present, debate or agree on a particular economic perspective, for trying to do so would be a kind of apostasy. Without question, the world economy is emerging from the health pandemic with a public debt of 125% of GDP which would logically lead to an expectation of an inflation less economic recovery and therefore very low interest rates. But on the other hand, and as the Economist points out in its briefing of December 12, 2020, we could also emerge from the pandemic into an era of higher inflation as people that have been cooped-up at home may go on a spending spree that outpaces the ability of firms to restore and expand their capacity, causing prices [and interest rate] to rise.[22]

This ongoing debate between economists highlights that it is feasible to create scenarios where interest rates may stay low or they may begin to rise. Having a perspective is extremely useful for

19 Strictly speaking, the FOMC affects the interest rate at which depository institutions lend reserve balanced to other depository institutions overnight on an uncollateralized basis (known as the federal funds rate). The changes to the federal funds rates then influence overall monetary and credit conditions, aggregate demand and the entire economy. For further reading on how the FOMC specifically targets short-term interest rates visit the FOMC description at the Board of Governors of the Federal Reserve System (https://www.federalreserve.gov/aboutthefed/structure-federal-open-market-committee.htm).

20 For a more in-depth presentation of how long-term interest rates are determined visit https://www.thebalance.com/how-are-interest-rates-determined-3306110

21 Roley, Vance V and Gordon H. Sellon, Jr. (1995). Economic Review. Fourth Quarter. Federal Reserve Bank of Kansas City. Pp. 73-89.

22 The Economist (2020). After the pandemic, will inflation return? December 12, 2020 Edition. The Economist (2020). Tail Risk: A surge in inflation looks unlikely, but it is still worth keeping an eye on. December 12, 2020 Edition.

planning or investment purposes. But from the risk perspective, if a company decides to remain unhedged on the expectation that interest rates will remain low it is accepting the risk and economic consequences that interest rates may rise. Conversely, as a company hedges to avoid undesirable upside risk, it is implicitly acknowledging the risk of being wrong.

In general, a risk management plan aims to control the risk associated with an expectation (i.e., a perspective). When tied to a perspective, a risk management plan manages against the possibility that a perspective may be wrong. Both the perspective and the plan to manage the risks around the expectation are equally valuable, but not interchangeable. Rather than ignoring the risks, companies take action to insure themselves against the risk that a particular perspective may turn out to be wrong.

Q2: Insurance at what cost? Insurance in advance of possibly catastrophic events is great – but is there a point at which the cost of protection exceeds the cost of 90 percent likely outcomes of the current financial marketplace? Please discuss how the cost to ratepayers of Avista's hedging program compares to a no-hedging alternative. Includes estimates of cost comparison if possible.

A2: If the difference between the cost hedged and unhedged is systematically and unreasonably unfavorable, then the structure and execution of the Plan should be reviewed to ensure that it does not have a systemic flaw or bias. This includes ensuring that the Plan has a balanced perspective of interest rates increasing and decreasing. The potential for up/down movement should therefore be an integral part of the design of the hedging strategy. Avista's Plan shows such a balance.

According to the position reports reviewed by Concentric between 2014 and 2020, the average unfavorable hedge settlements generated by the Plan when compared to the option of not having hedged is 12%.[23] Throughout this Report we have made the case that comparing the cost hedged versus the cost unhedged is not a useful metric because hedging decisions are made in advance of the settlement and are therefore done in the context of an asymmetric risk. We have also stressed the point that hedging is done to curtail upside risk and not as a decision to avoid being wrong if interest rates drop. For the purpose of this question, let us focus exclusively on the basic comparison between the hedged and the unhedged interest rate. Is the 12% historical result a reasonable result? Is the amount paid to settle the hedges significantly higher than what should be consider "normal" or "reasonable"?

23 Avista has issued a $91,600,000 million on behalf of Oregon customers from 2014 and 2020 and the total unfavorable hedge settlements is $11,172,260 million for an unfavorable settlement of 12.197%. Results prior to 2014 are not considered in this Report because the current hedging strategy differs from the earlier years. If the results from 2009 through 2019, the average unfavorable settlement is 10.127%.

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This question suggests establishing a reasonableness in terms of the 90 percent likely outcomes of the current financial marketplace. This type of analysis is conceptually similar to what Avista performs every January and we can leverage to establish a framework to gauge the reasonableness (or not) of the hedge settlements. The 90 percent likely outcome range[24] is not a static number and there are several variables that affect the result:

- Parameters to estimate the potential range. The 90 percent distribution is a function of two parameters (mean and standard deviation) and an assumption as to the distribution of interest rates (log-normal).[25]
- Volatility. Interest rates change on a daily basis and volatility estimate changes accordingly.
- Market Value. In risk, the current market is equivalent to the average because this is the value at which both buyers and sellers of interest rate Futures are willing to transact. Since this value changes on a daily basis, the estimate of the distribution of cost will also change. For the purpose of the comparison, we use daily interest rate as the best unbiased estimator of interest when the debt is issued.
- Time to Debt Issuance. The number of days until the debt is issued changes. The current hedge program establishes hedges up to three years in advance. The tradeoff is that as the time increases the uncertainty grows, but volatility tends to grow as the time to issue the debt gets near.

Based on these assumptions, the 90 percent distribution is shown in

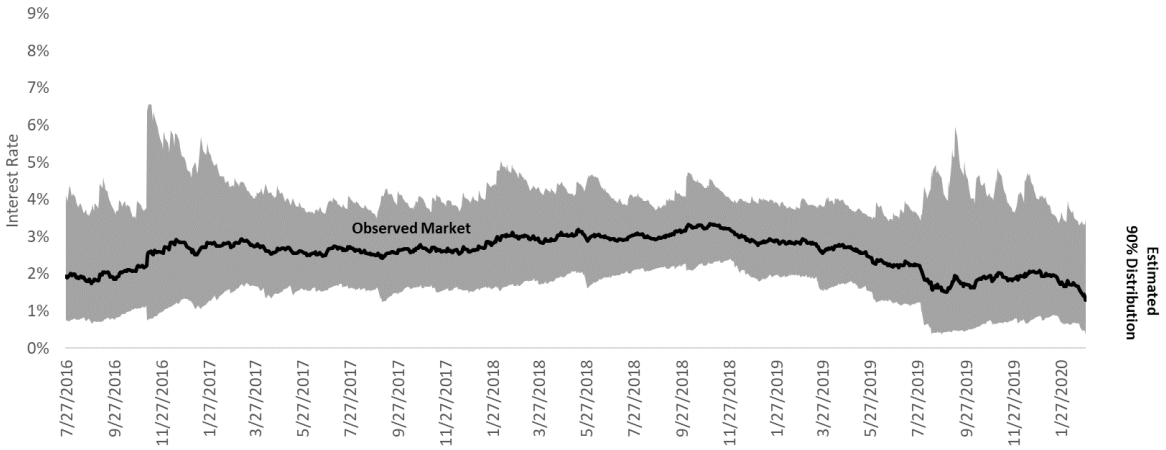
Figure 12. In alignment with the considerations identified above, the upper and lower value of the 90 percent distribution is updated on a daily basis as the interest and volatility changes. The Figure shows the asymmetric nature of the risk and how it evolves over time. For comparative purposes, we can standardize the distance between the lower end of the confidence level and the upper end and express is in terms of the percent above or below the market quote. The results are shown in Figure 13.[26]

24 The test involves a two-tailed distribution to accommodate both upside and downside risk. The 90 percent distribution should therefore be defined around the 5th and 95th percentile. But for the purpose of A2, we have selected a more restrictive definition of the distribution between the 10th and the 90th percentile (effectively an 80 percent cost distribution).

25 This can be implemented in excel by using the formula *lognorm.inv(probability, mean, Standard Deviation)*. This distribution provides an asymmetric characterization of risk whereby the absolute upside movement is greater than the downside movement.

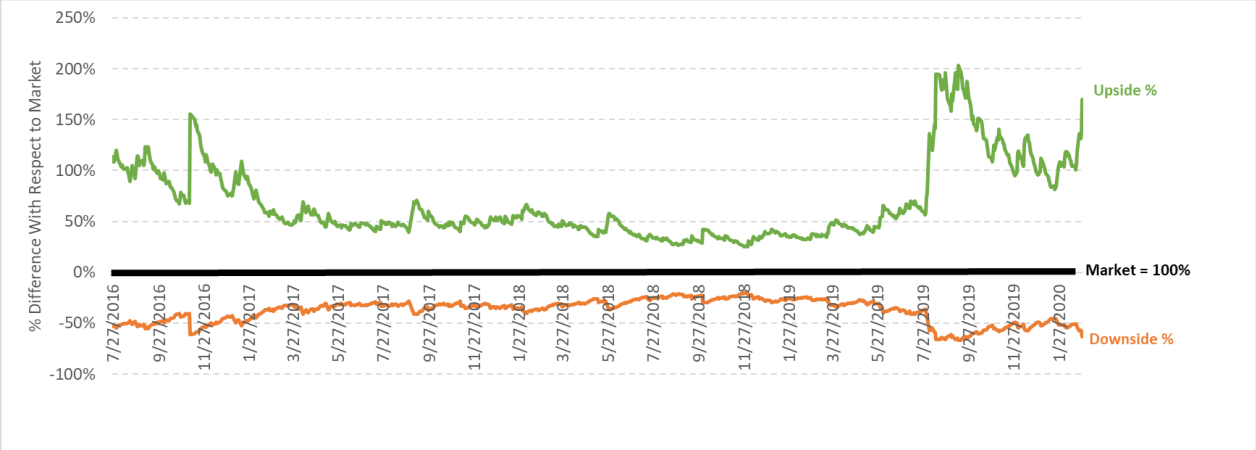
26 For instance, the last data point of the Evaluation shows an interest rate at market of 1.294%, the one-day volatility of 3.4% and an average time to debt issuance of two trading years (520 calendar days). With these assumptions in mind, the estimated upside interest is 3.495% (lognorm.inv(0.90,ln(0.01294),0.034*sqrt(520)). With an interest rate of 1.294%, 3.495% is a potential increase of 2.201% or 170% percent when compared to current interest rate (0.0201/0.01294).

Figure 12: 90 percent Estimated Interest Rate Range



Source: Concentric using data from Avista and Thompson Reuters®

Figure 13: Downside/Upside for the 90th Percentile as a Percentage of Market

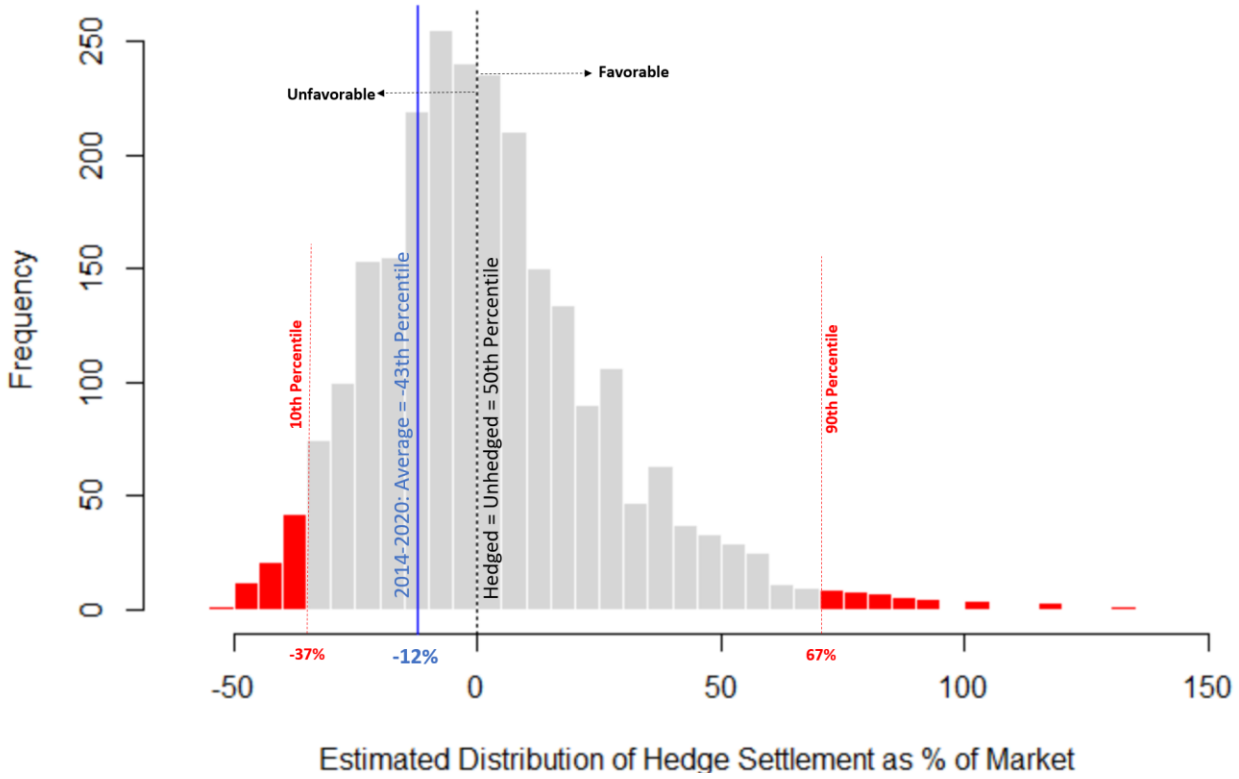


Source: Concentric using data from Avista and Thompson Reuters®

Every single dollar paid by the customer in excess of the theoretical optimum on a look-back basis is important, but the average 12% unfavorable settlements is well within the distribution of normal results. Figure 14 shows a visual comparison whereby the historical results are compared against a 90th percentile distribution.

Similarly, the estimated downside interest rate is 0.479% (lognorm.inv(0.10,ln(0.01294),0.034*sqrt(520)) or a potential downside movement of 63% with respect to current interest rates (0.00815/0.01294). The yearly average in the Table within the Figure averages similar daily calculations within each year.

Figure 14: Percentile Distribution of Hedge Settlements



Source: Concentric using data from Avista and Thompson Reuters®

Q3: Is there wisdom in the herd? If the majority of publicly traded Investor-Owned Utilities (IOU) have not engaged heavily in financial hedging against fluctuation of interest rates in bond issuance, is Avista wise to have a contrary position going in a different direction than the majority of like-situated utilities? Why should the Commission trust the soundness or scope of Avista's hedging program when no other Oregon-regulated utilities have chosen to implement a similar program?

A3: As addressed in Section 7 of the Report (Best Practices), the decision to hedge or not to hedge by most utilities is dictated by the recovery process and the risk tolerance toward rate variability. The "herd" behavior alluded to in the question is therefore not a function of the wisdom from IOUs to

exclude interest rates from their risk management programs. Instead, it is based on the fact that IOUs already have a recovery mechanism of the cost of the debt through the rate cases.

Within the context of a fiduciary role, Avista's interest rate hedging Plan is an effort to manage meaningful cost exposures on behalf of its customers. Overall, hedging practices by IOUs continues to be supported by several public service commissions.[27]

Q4a: Don't business enterprises have to break even? At some point, if an endeavor consistently loses money, does a business have a fiduciary obligation to its investors, and in the case of utilities, their ratepayers to terminate or suspend that activity? Interest rates have been consistently falling for the last decade, which would make an asymmetric hedging contract a losing endeavor. Why should it remain in place when it insulated against upward rate shocks that occurred infrequently in the last decade and likely won't in the next 2 years if the FED is to be believed?

A4a: Hedging decisions are not investment decisions and they are therefore not judged in terms of parameters of "making money". When hedging decisions are made, they are made well in advance of the day that the debt is issued, and they are therefore decisions made with uncertainty. These are decisions are made to avoid the risk of interest rates rising while at the same time being cognizant that interest rates may fall. Once the debt is issued, the risk disappears, but the value hedging provides is not a function of making money or not. The value is in the ability to reduce the uncertainty.

Just as with Avista's Plan, if market participants had knowledge that interest rates would for sure be lower in the future, nobody in the marketplace would hedge. Conversely, if market participants had certainty that interest rates would rise, then everybody would hedge. This means that when hedging decisions are made, they are made with an expected net benefit of reducing the risk on behalf of its customers. They are not decisions to "make money".

Avista is not hedging to make money on behalf of the customers, it is hedging to contain the risk of interest rates. Even though insurance and hedge products are not identical, the convenience of the hedging strategy is not measured in terms of break even.

Hedging decisions made in the past have been made with the expectation that the risk of upside was higher than the risk of downside. Fortunately, interest have continued to decrease, and customers have benefited from a partial hedge position that currently does not exceed 40% of total needs. By the same token, since interest rates today are at a historical low, the risk moving forward for upward

27 See Docket No. 20170057-EI: Analysis of IOUs' hedging practices. Florida Public Service Commission. (http://www.psc.state.fl.us/library/filings/2017/06904-2017/06904-2017.pdf)

shock is, in our opinion higher. It would be unfortunate to suspend the program in the current environment of low interest rates.

Just as highlighted in A1 above, the actions of the Federal Reserve influence short-term interest rates, whereas long-term interest rates are a function of current monetary policy, future monetary policy, and internal demand for government debt. Having an expectation that interest rate "…likely won't…" increase is a perspective, but a perspective is not a hedge and hedges should not be viewed as investments.

Q4b. What constitutes a reasonable cost for the service of mitigating the risk, and what constitutes wasteful expenditure with little or no value returned?

AQ4b. The nature of this question is the same as Q2. Please refer to A2 for its answer.

Q5. Question: What is the comparison to Delayed Draw in Private Placement? If (without timing the market) many utility CFOs perused the financial news and found that UST yields and spreads for A and B rated utility bonds were the lowest they had been in two years, and then locked in that trough in rates in a private placement term sheet allowing for delayed draw on funds a little or no incremental cost for six months, why is that not a superior program based on track record to the Plan? Please compare the approaches, beyond noting that time frames are not overlapping and that the Plan does not preclude the prior addressed approach.

A5. While the question is outside the scope of the Evaluation, we believe that the approach of Delayed Draw in private placement is typically an approach for investment vehicles, and not for hedging programs. We therefore respectfully avoid answering a question that would require a totally different study to appropriately respond. The hedging program does not aim to maximize the profits or to minimize costs, it is based on achieving a balance between the upside and the downside risk. Evaluating the interest rate hedging program in terms of investment vehicles would therefore not satisfy the goal of reducing the risk. Hedging is not investing.

Additionally, private placement transactions and the ability to lock-in an arbitrage opportunity between Treasury yields requires strong assumptions in terms of transaction costs to enter and exit the transaction if needed. Private placement delayed draw is a very short-term mechanism. It takes a view and does not address concentration risk as a single transaction would be done for the full amount of the debt issuance on a single day. There would be fees associated with a delayed draw greater than 3-months and also hinges on investor appetite. Therefore, when viewed from the risk management perspective, delayed draw has the same loss risk inherent in interest rate swaps.

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Q5 Follow Up (A). Looking back a decade, had Avista not pursued the Plan and only utilized delayed draw in private placement, how much less money would AVA[28] have lost?

A5 Follow up A. As per A5 above, we respectfully avoid answering the question because it would require a different study to answer. To our knowledge the Company engages in delayed draws but does not view them as an alternative to hedging interest rates. We nevertheless understand that the delayed draw is used by the Company to secure investors funding commitment up to 3-months in advance of funding the debt issuance. While delayed draws do secure pricing 3-months prior to the debt issuance, it does not hedge the debt issuance for the established program time horizon. The comparison of the Plan against a delayed draw in private placement is outside the scope of the Evaluation primarily because the private placement framework is an investment, and not a hedge vehicle. In our opinion, it would be speculative to start treating cost containment strategies as if they were investment opportunities.

Q5 Follow Up (B). Did these funds used to fund program costs and not compete with other utility priorities, including other risk controls such as for wildfire prevention and mitigation? Was the Plan the highest benefit, cost, risk use of funds at Avista, outperforming alternative uses of funds?

A5 Follow Up (B). The question is outside the scope of the Evaluation of the interest rate hedging Plan and would require an Enterprise Risk Management Assessment to complete. The Evaluation did not look at areas beyond the interest rate hedging program. As stated in A2, the "cost of hedging" is unknown until the time of settlement and therefore does not compete with any Company priorities. According to the Evaluation, the cost to administer the Plan is limited to employee time and the hedge transactions do not involve speculation of future interest rates.

Q5 Follow Up (C). Sometimes insanity is said to be performing the same action but expecting different results. If the Plan continues with tweaks but is structurally the same, and if interest rates stay low for the next 4 years, then over that four years, would Avista expect to continue to see the same pattern of Plan losses going into the future in that scenario?

A5 Follow Up (C). As stated earlier, hedging decisions are made under an uncertain scenario: Interest rates may increase, or they may decrease. When the debt is issued, the uncertainty disappears, but this does not mean that the value of decreasing the uncertainty was irrelevant. The

28 For this purpose of this Report, we interpret AVA to mean Avista

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unfavorable results of the interest rate hedging Plan have not been a function of the design, execution or control of the interest rate hedging Plan, there have been many economic factors that were uncertain at the time the hedges were placed. For instance, the unconventional forms of monetary policy such as Quantitative Easing ("QE") whereby trillions of new dollars were created and later retired from the system worried many that the stage seemed set for prices and interest rates to surge in a way which had not been seen for a generation. Or alternatively, the surprising effect COVID has had on government debt was clearly unexpected. The fact that QE has not translated into rises in interest rates does not mean that the risk was nonexistent at the time. The uncertainty of how the impact of COVID on inflation and interest rate is yet to be resolved.

The unfavorable results to date are a function of historically low interest rates and not a function of critical deficiencies in the Plan or its execution. The wisdom of the Plan is in the uncertainty it curtails, and not in the return it provides. The Plan is drafted as a hedging practice, not an investment vehicle.

Q6. HILF[29] Risk of Negative Interest Rates. Europe and other parts of the world have moved to negative interest rates on national bonds – understanding that there are A) normal condition probabilities usually focused on a 90 or 95 percent probability, and B) High Impact Low Frequency risks that entail company threatening events – does the potential of negative interest rates pose a HILF risk to AVA under the Plan? European governments have begun offering negative interest rates on national bonds. The December 4, 2020 Wall Street Journal (WSJ) showed for example: 10-year yield on German national debt as minus 0.540% and 10-year yield on French national debt at minus 0.304%. Discuss whether this should be taken into account when forming Avista's hedging strategy. When addressing this question, please discuss both how Avista models the likelihood of a negative interest rate and the impact of a negative interest rate.

A6. In alignment with the answers above, the interest rate hedging Plan is based on a concept of hedging against an asymmetrical behavior of risks. It is not drafted with the point of view of whether a particular investment scenario is more credible or not. Companies hedge because of the uncertainty in these scenarios.

The issue of interest rates potentially going to zero is nevertheless relevant to the Evaluation because traditional quantitative measurements of interest rate risk have a built-in assumption that interest

29 From the context of the question, we interpret "HILF" to mean high-impact, low-frequency

rates will not be negative.[30] Negative interest rates are not only an unconventional monetary policy tool, but they are also a recent one.

As of the period of Evaluation, the statistical expectation that long-term interest rates would go negative territory (in nominal terms) is low,[31] but if the statistical estimate of interest should yield a credible likelihood near or close to 0%, then Avista would have to revise its probability assumptions, especially in light of how permanent such a possibility may be. As of the writing of this Report, that probability of sustained negative interest rates is too small to be a material concern.

Q6 Follow Up (A). In the event of U.S. negative interest rate policy, wouldn't the majority of IOUs ride it out no worse off and possibly with a lower cost of capital, while to Avista and its ratepayers the policy change would be catastrophic? Discuss why Avista's current hedging strategy is prudent when a negative interest rate would necessarily cost ratepayers millions relative to a no-hedging alternative.

A6 Follow Up (A). Providing a perspective or a defense of particular market expectation is outside of the scope and spirit of the Evaluation. As stated in A6, the probability of sustained long-term interest rates going into negative territory is, as of the writing of the Report, small. Evaluating the perspective of negative interest rates is a perspective that exceeds the merits of the risk analysis and should be approached as an investment scenario. Additionally, the impact of sustained negative interest rates is well beyond interest rate hedging considerations.[32] In the same spirit of the question, the balanced discussion of the hedging strategy should also include the possibility of interest rates increasing to avoid the bias in the analysis.

Q7: Success Criteria – Accounting vs. Practical. Please discuss the criteria used to determine the successfulness of the hedging program, including an in-depth description of the metrics used and how those metrics were derived. Also, discuss why these metrics should be used in place of the simple questions: "How much money did this save the ratepayers this year?" and "Based on our assumptions, will ratepayers save money if this plan were in place for the next 10 years?"

30 The assumption that interest rates will not be negative comes from the overwhelming agreement that interest rates (as well as most commodities) follow a log-normal distribution whose domain is only the positive numbers. The log of a negative number is undefined.

31 As of the writing of the report, the risk of interest rates falling into negative territory is less than 0.0001%

32 See for instance https://www.thebalance.com/what-negative-interest-rates-mean-for-investors-1978886

A7. The Plan represents a tool to control for the risk of interest rates is a hedging program (risk mitigation) and not an investment strategy. The performance of a hedging program needs to be framed in the context of how the interest rate hedged supports (or not) the investment decisions for which the debt was issued; how the decisions to hedge interest rates achieved by the company compare against its peers; and by examining if the parameters driving the hedging decisions are well informed and include an unbiased perspective of the risk of interest rates increasing and decreasing. The comparison of the hedged price versus the price unhedged should be treated more as a tool to inform and test if the parameters of the program should be adjusted or improved.

The performance or "return" of the hedging program is therefore a function of how hedging activity curtails upside risk in a measured way. If the risk that was curtailed does not materialize, this does not mean that the protection was useless in a similar way that a life policy is still useful even if the insured individual continues to live.

With this balanced perspective in place, an interest rate hedging plan such as the one being implemented by Avista should represent a net cost in the long run. Just as with insurance products, the absolute level of cost depends on the underlying risk and will therefore change over time. Therein lies the importance of comparing Avista's interest rate costs against peers.

As detailed in A1, the comparison between the hedged interest rate versus the cost without hedging does not provide useful information to evaluate the hedging decisions because the hedges are done in advance of the uncertain interest rate on the day the debt is issued. Once the debt is issued and the uncertainty has disappeared, the comparison between the hedged versus unhedged result is extremely useful to evaluate the parameters of the hedging strategy.

In the case of Avista, the minimum hedge recommendation is a result of an analytical exercise at the beginning of each year of the risk of leaving interest rate needs unhedged versus interest rates hedged. Avista's team measures the risk using a Value at Risk calculation and arrives at a compromise of establishing a minimum level of hedges within the Dynamic Hedge Window protocol. If the concern for downside risk exposure continues, the targeted amount to hedge within the Dynamic Hedge Window protocols will decrease. It currently is set at 40% of needs whereas in the past was 60%. This particular parameter is a critical tool that Avista has incorporated in the design of their Plan.

In practice, the criteria to determine the successfulness of the hedging program is as follows:

1. **Supportive of Investments**. The debt requirements are established in support of diverse investment decisions that have particular investment metrics such as Net Present Value ("NPV") or an Internal Rate of Return ("IRR"). If the base case discount rate used to justify these investments should increase as a function of increased interest rates, the performance

of the investments will deteriorate.[33] If on the other hand the hedged interest rate turns out to be higher than the interest rate without hedging, then the return on the investments on behalf of the customers may have suffered an opportunity cost. Given the asymmetry of interest rates, the likely impact of increases in interest rates is larger than decreased interest rates.

2. **Competitiveness to Peers**. The cost of debt achieved by Avista should be within the average range of interest rates achieved by peer utilities. This is a common metric to benchmark different areas of utilities.
3. **Alignment with Policy**. From the oversight perspective, a successful hedging strategy is one that is in full alignment with its governing structure.
4. **Sensitive to Risk Dynamics**. If and as the risk changes, the successful hedging program should be sensitive enough to become aware of the risk, evaluate the impact of the risk and make decisions based on the balanced risk exposure.

Q8. Annual Cost of Program. A) How much does it cost to administer the hedging program? B) How does this compare to the incremental cost to ratepayers of an interest rate that is at the top range of 90 percent likely outcomes for each of the next two years – informed by Fed guidance and based in part on market forwards posted on Bloomberg and other business data feeds?

A8. As A1 details, the guidance of the Federal Reserve is targeted to influence short-term interest rates, whereas long-term interest rates depend on current monetary policy, future changes to monetary policy and the uncertain international demand for U.S. Government debt. Additionally, the perspectives from various data feeds identified in the question provide a point of view (i.e., a perspective), but this is not a protection against the possibility that the perspective itself being wrong. Perspectives and hedges are not interchangeable and serve very different purposes. For a comprehensive presentation of the cost of the Plan please read A2 above.

Q9. PCAOB. Doesn't the Public Company Accounting Oversight Board (PCAOB) weigh elements like the credit ratings of counterparties in hedging more heavily than financial metrics of program success?

33 Mathematically, the value of the future discounted cash flows will decrease as the discount rate increases while the initial investment is kept constant.

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A9. The nature of the question exceeds the scope of the Evaluation. Concentric did not evaluate how the PCAOB operates. We therefore respectfully avoid answering the question at this time.

Q10. Opinion 1 – Interest Rate Risk [s]ignificant. Did Concentric find that interest rate risk when placed in a comprehensive list of risks Avista faces, find that interest rate risk was one of the greater risks that Avista faces compared to cyber security risks, wildfire risks, natural gas availability, transport and pricing risk, vegetation management risk and so on. [i.e.], Would Interest Rate Risk would [sic] rank higher than other risks Avista faces were risks competing for available cash flows to fund programs?

A10. The question exceeds the scope of the Evaluation because Concentric only looked at the interest rate hedging program. A comparative analysis of the risk exposures for Avista is beyond the scope of the Evaluation and would have to be addressed in the context of an Enterprise Risk Assessment. The current Evaluation identified the risk of interest rates being similar to the risk in natural gas in western markets under normal conditions.

Q11: Opinion 8 – Hedging vs Not Hedging. Please elaborate why hedging vs. not hedging would not be an important control and benchmark in evaluating program cost, risk and benefits against alternatives considered. It is important for Staff and decision makers to understand why a common approach is not employed or not given much weighting in Plan evaluation.

A11. Comparison of the cost hedged versus the unhedged cost is admittedly a very intuitive way to measure performance, but the comparison needs to be done with the appropriate perspective in mind. As stated throughout the Report, the decision to "hedge" or "not to hedge" is done in the context of a meaningful risk exposure and with full knowledge that hedging to protect upside risk by its own virtue creates a risk of being wrong. Hedging is therefore a series of decisions that balance a risk exposure, and not eliminate one or the other.

As hedging decisions are made, a process to actively measure the risk is at the core of the analytical framework of the interest rate hedging program. The information derived from comparing hedged versus unhedged results is an appropriate metric to inform the minimum hedge requirement (currently at 40%). As and if the risk to downside exposure encroaches on the risk for upside, the amount to hedge will decrease. The comparison of hedged versus unhedged cost can therefore be used as a control mechanism to this specific parameter.

Q12. Benefits to Ratepayers. Please further explain why the Plan benefits ratepayers and how. That helps to frame the Plan in context of Commission mission, and applicable laws, administrative rules.

A12. The Plan benefits ratepayers because it reduces the uncertainty of how the interest rates for long-term debt may evolve up until the point when the debt is issued. While it is true that interest rates have followed a downward trend, there have also been significant uncertainties that could have increased the cost. As described above, a risk management strategy for an end-user implies making decisions to limit the upside risk exposure, but by placing hedges the risk of being wrong is created. Hedging is therefore a framework to balance the asymmetric nature of interest rate risk.

The key analytical parameters in the Plan is the minimum hedge target as implemented in the Dynamic Hedge Window. If the downside risk is greater than the upside risk, the minimum hedge will decrease.

Q13. Controlling Interest Rate Uncertainty vs Aggregate Plan Cost. Please explain further how [Concentric] evaluates control of variability in interest rates of new bond issuances against aggregate plan costs.

A13. When evaluating a hedging program, Concentric looks at the existence and implementation of three key elements: Awareness of risk, impact of risk and decisions based on risk. The actual implementation may vary, but these represent basic elements to consider.

- Awareness. The hedging program needs to have systematic mechanisms to become aware of the risks and their evolution. In practice, this means that the plan has some analytical mechanism of routine process whereby the risks are being monitored. The opposite is a hedging program that is consistently being surprised by events.
- Impact. In addition to awareness, the hedging practice needs to have a structured and auditable way to evaluate how the particular risk will impact the goals. This element allows the company to ensure that the capabilities at hand to address the risk are commensurate to the risks it faces.
- Decisions based on risk. As a consequence of the awareness of risk and the measurement of the impact, the decisions that are being made are a logical consequence of risk and that the awareness, impact and decisions are being discussed and communicated broadly.

If a hedging program performs well in the three areas above, it generally means that it has an adequate control of the variability in interest rates. The methodology described in the Report expands these three different areas into 134 individual risk elements grouped into 12 different categories.

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Q14. Efficient Markets vs Global Central Bank Activity. Please help readers better understand how Concentric relies on efficient market theory in the context of extraordinary global central bank activity to stimulate economies and help control financial impacts of Covid-19 pandemic.

A14. It is not the purpose of the Evaluation to assess efficient market theory. Amongst economists, this is an often-debated subject that typically does not lead into useful conclusions. It is hard to defend that interest rates are "perfectly" efficient from a conceptual point of view[34], but by the same token it would be naïve to argue that interest rate markets lack any semblance of efficiency. Instead, we view efficiency of market as a degree by which a company can execute a hedging strategy effectively. Given the size of the market, the number of transactions per day, the speed by which trading is cleared and the bid-ask spread, we believe that the market for long-term interest rates is "efficient enough" to support a hedging practice.

Implicit in this definition of "efficient enough" is the notion that information in the market is promptly incorporated in prices and there is no systemic, sustained or repeatable opportunity for one market participant to have better information to make decisions. This means that the "current" market price for interest rate futures represents the average expectation of all market participants. Some market participants may have a perspective that the market is over/under valued, but the quote at which the market settles represents the balance between all perspectives. It represents the fair price at the time the transaction is made.

Furthermore, we support the idea that the market quotes represent an opportunity for market participants to transfer risks across the system. So even if the market quote may be judged by some as being "wrong", the market price is the price at which participants are comfortable transferring risk and it is therefore right. For instance, a market participant may believe that the Future for the 30-year interest rate should be lower than current quotes indicate, but the only price at which the uncertainty can be transferred to somebody else is the market.

Per our observation, as and if information such as the impact of COVID-19 pandemic gets absorbed by the market, the market quotes have efficiently incorporated such information and adjust the price of the underlying asset.

34 Theoretically, the efficient market theory is a hypothesis that states that asset prices reflect all information and consistent arbitrage opportunities are impossible. For further reading on the topic see Fama, Eugene (1970). "Efficient Capital Markets: A Review of Theory and Empirical Work". Journal of Finance. 25 (2): 383–417. doi:10.2307/2325486. JSTOR 2325486.

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Q15. AVA 5-Year Debt Forecasting. Please explain further how Concentric looked at and evaluated AVA five-year debt forecasting and data sources and methods used to predict fixed-income market trends five years out – beyond forward market activity and data carried by Bloomberg and other sources. In particular, was Concentric finding that this data was refreshed / not stale due to pandemic disruptions? An example of such delays was Value-Line slowness to update 5-year projections as quickly this year as in recent years. Please further discuss the five-year AVA debt forecasting projections and the three- and two-year Dynamic Hedge and Risk Responsive Protocol Windows respectively of the Plan and how they interact.

A15. The debt requirements were an input to the Evaluation, and we understand that these debt requirements come from an integrated resource planning process that is a result of collaboration between many stakeholders.[35] Per A14 above, we support the notion that quots for interest rates as reported by data providers such as Thompson Reuters® or Bloomberg® efficiently reflect all the relevant information in the market and that there are no systemic opportunities for a market participant to extract a higher return based on better or more up-to-date information.

There are some services, such as Value-Line that incorporate information at a different speed than market prices for debt. It is not the purpose of this Report to make an evaluation of such services, but it is clear that the services such as Value-Line reflect information that is coming from different sources, and the frequency of updates of this information is also different. For instance, while the price of debt is changing constantly, the reports from financial performance of companies typically follow a monthly or a quarterly schedule.

In our analysis we did not find that prices for interest rates exhibited a lag due to issues such as COVID-19. There were no obvious liquidity black holes[36] and the trading pattern of the debt with different maturities was consistent. This means that the relationship of how interest rates of different maturities evolve has no significant change or abnormal change from its historical pattern.

The question also asks to address how the Dynamic Hedge Window and the Risk Responsive protocol are complementary to each other. On the one hand, the Dynamic Hedge Window establishes a (minimum) target amount to hedge based on the balanced risk of interest rates increasing and decreasing and executes these trades well in advance of when the debt is issued (up to 3 years in advance). As the time to issue the debt nears, the Risk-Responsive protocols is enabled to protect against very significant increases in interest rates. If the upside risk does not materialize, the risk-

35 https://www.myavista.com/about-us/integrated-resource-planning

36 In finance, a liquidity black hole is one where the buyers or sellers do not quickly find a counterpart to trade with, or that where the bid-ask spread differs substantially from historical pattern. For more on the subject see Stephen Morris & Hyun Song Shin, 2003. "Liquidity Black Holes," Cowles Foundation Discussion Papers 1434, Cowles Foundation for Research in Economics, Yale University.

responsive hedging protocol will not hedge beyond the 40% established by the Dynamic Hedge Window and the company will fix the remaining 60% of its needs on the day the debt is issued. In fact, there have been no hedges triggered by Avista that are a function of the risk-responsive protocol. If for any reason the risk responsive protocol would recommend a hedge, then the amount hedged would be counted as part of the dynamic hedge window target.

Q16: Risk (Variability) Spread Over Prevailing UST. Please talk about the amount of upward variability AVA uses as a referent amount of upward change and how that is derived in determining the interest rate risk that is to be mitigated.

A16. Avista has implemented a methodology of Value at Risk to determine the amount of asymmetric variability whereby absolute upside risk is higher than absolute downside risk.[37] As detailed in A2 above, the analytics are implemented in an excel file that Concentric had an opportunity to replicate to ensure accuracy of the results. A2 provides an actual example of how to implement Value at Risk, including formulas to implement within excel. Please note that Avista's interest rate Plan is not based on interest rate spreads (i.e., difference of interest rates with different maturity). It is based on the actual spreads themselves.

Q17: UST Yields vs Spread over UST Yields for A and B Rated Utilities. Please talk about Concentric's look at the Plan's consideration of UST yields vs spreads there over for utilities that spiked at times in 2020.

A17. This analysis exceeds the scope of the Evaluation. The current strategy is based on yields and not term spreads because debt placements are done one at a time and not as a portfolio.

Q18. Question: Voluntary vs. Essential. Please talk about Concentric's consideration of whether the Plan is essential hedging like hedging gas to ensure availability and price of an essential input to service customers for AVA vs financial hedging which might be seen as a choice or voluntary decision on AVA's part.

A18. Deciding on the "essential" or "voluntary" nature of the interest rate hedging program is the purview of the Company and the Commission and we respectfully avoid answering the question. As experts in the topic, we provide a perspective to understand it and, hopefully, assist the Commission in its oversight role and Avista in managing the cost on behalf of customers. When compared to the

37 For instance, this means that a decrease in interest rate of 100 basis points carries a smaller probability than an increase in interest rates of 100 basis points.

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volatility of natural gas markets in the Northwest under normal conditions, we found that the volatility in interest rate is comparable to natural gas. Additionally, given the long-dated nature of the consequence of the interest rate decisions, the impact of the hedging decisions will have an even greater duration that those for typical electricity or natural gas transactions.

The interest rate hedging Plan does not benefit nor cost Avista or its shareholders. It is being implemented because it has recognized this as a line-item that has significant absolute value and that it embodies meaningful volatility. Avista is therefore implementing the Plan as a fiduciary concern over its customers. Unlike other utilities that will pass the cost of debt to the customers regardless of the interest rate on the day the debt is issued, Avista is proactively contributing to rate stability of the customers. The risk is meaningful, and the absolute exposure is also significant.

Q19. Correlations. Please discuss whether Concentric's review of the Plan found correlations that Plan modeling depended on that were more or less predictive or certain to hold in recent periods than in prior periods.

A19. There were no obvious concerns for bias given correlation effects. Concentric analyzed the cross-temporal correlation of the prices and examined the way the existing model is taking them into account and found that the correlations across time were meaningful, but the model was already making the appropriate adjustments. The correlation across forward curves of different durations was not meaningful because decisions on debt placement are not being made for multiple debt issuances at the same time. This means that decisions on hedges for one debt issuance are not influenced by the decisions or the results of hedging decisions for other debt issuances.

Q20. Sharing of Plan Costs. A) Would the Plan still be effective were the Commission to decide that gains and losses incurred in the plan and amortized over future bond issuances now were split equally 50 percent to investors and 50 percent to ratepayers going forward. B) In that scenario of sharing equally between ratepayers and investors, is the continuance of the Plan equally endorsed by Concentric?

A20. Avista does not benefit or subsidize the cost of the Plan and all costs or results are transferred to the customer. A decision on how to amortize the gains and losses over future bond issuances is a decision that Avista would have to make, particularly because at some point it may imply some kind of a finance vehicle as Avista either owes or is owed a recovery of these expenses. In this particular case the effectiveness of the Plan could probably continue, but the economics to recognize the finance vehicle would probably have to change.

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It is also up to Avista to accept if the Commission decides to split gains/losses of the Plan, but since the current economics of Avista are neutral, a change to reflect a potential gain or losses implies a strategic decision by Avista. It is hard to support that sharing in the gains/losses of the Plan will maintain the efficiency of the Plan. As the experience shows, when the utilities are instructed to share in the hedge gains/losses in a cost item where they are cost-neutral, the utilities often opt not to hedge.

Our endorsement of the Program is based on our opinion that it provides effective risk protection, and in an environment of historically low interest rates we believe it would be unfortunate to either suspend or terminate the Plan. As highlighted in our Report, there are some areas of improvements, our Evaluation showed this to be a well-structured, executed, and controlled exercise. The Plan itself is of value to the customers and it is neutral to Avista.

Q21. Senior Oversight of Plan. Given necessary review of other financial oversight at other jurisdictional utilities, did Concentric find senior management oversight of the AVA Plan adequate even in Covid-19 remote working and social distancing conditions?

A21. We found that the oversight of the Plan was not affected by remote working or social distancing. As noted in the Report, senior oversight of the Plan is an area where Avista excels and it is largely driven by individuals who are now in senior management and that at some point had a role in the development or execution of the Plan itself.

Q22. Question: On/Off Switch. Should the Plan incorporate the ability to pause hedging to zero percent given certain inputs inclusive of central bank guidance in contrast to always having a positive floor in the amount of hedging in each of Dynamic Hedge and Risk Responsive Protocol targets?

A22. The program already has a parameter that effectively works like a "switch" or a dial to decrease the hedging activity should it be deemed necessary and it is in the form of the target to hedge under the Dynamic Hedge Window. As stated before, this percentage is reviewed every January and the target that is established is based on a balanced analysis of how much risk for upside exposure is avoided and how much risk may be created should interest rates decrease. Additionally, the Risk Responsive protocol provides a risk-based trigger to protect against the possibility that interest rates increase significantly. Since this risk-based protocol has been created, there has been no risk-based hedges.

If the on/off decision is implemented, it should be implemented based on a risk perspective, and not on the comfort of a perspective of what the central bank may do (see A1 for a broader discussion on

the difference between hedging to protect against a risk and making decisions based on a perspective). There is a significant difference in adjusting the parameters to reduce the downside risk exposure versus suspending or terminating the execution of the Plan. In terms of prudence, decision to reduce the hedging activity based on the risk is very different than a decision to suspend or terminate the Plan based on a perspective.

Q23: Covid-19 Pandemic Study Conditions. Was there anything that Concentric was unable to do in 2020 Covid-19 working conditions that Concentric would have done a year ago, and if so, does that inform the study in any way?

A23. No, the depth or quality of the work did not suffer as a function of COVID-19. The only difference was that Concentric did not have a chance for face-to-face with the client and the Regulator, but we made additional efforts for longer interviews and for efforts such as volunteering for a documented Q&A section within the Report.

Q24. Question: Flexibility. Is the Plan flexible enough to perform well in current and changing financial environments?

A24. Yes, the Plan has sufficient elements to perform under different scenarios. As highlighted in A13, the three core elements of awareness, impact and analysis/reporting provide such flexibility and the senior oversight that meets at least once a month supports it.