

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

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MARK T. THIES

REPRESENTING AVISTA CORPORATION



Infrastructure Investment Plan 2020



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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	%
<i>Customer Requested</i>	\$60,181,711	\$51,134,379	\$49,859,819	\$49,734,401	\$50,362,596	\$261,272,906	13%
<i>Mandatory & Compliance</i>	\$91,410,119	\$89,600,960	\$73,515,726	\$57,761,343	\$58,005,327	\$370,293,475	18%
<i>Failed Plant & Operations</i>	\$20,877,880	\$18,398,000	\$16,028,200	\$14,868,000	\$14,868,000	\$85,040,080	4%
<i>Asset Condition</i>	\$115,602,157	\$122,601,308	\$148,432,501	\$151,699,678	\$169,863,832	\$708,199,476	35%
<i>Customer Service Quality & Reliability</i>	\$53,112,537	\$43,039,745	\$41,682,500	\$42,540,000	\$15,850,000	\$196,224,782	10%
<i>Performance & Capacity</i>	\$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 as 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.

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.



Main Campus parking structure when completed



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

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

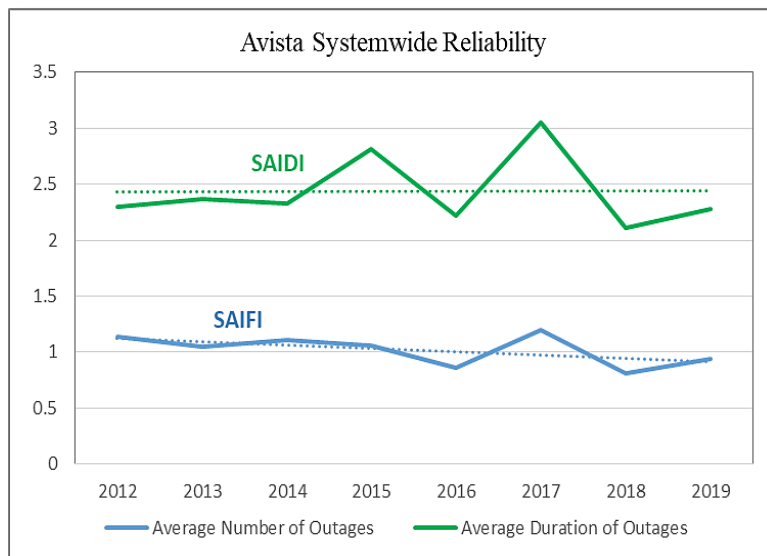


Figure 1. Avista System Reliability Over Time⁶

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.

AVISTA CUSTOMER GUARANTEE

- Keep service appointments
- Restore your service within 24 hours of reporting an outage
- Turn on your power within a day of receiving the request
- Provide a cost estimate for new electric or natural gas service within 10 business days of receiving your information
- Investigate and respond to a billing inquiry within 10 business days if we are unable to answer your question on first contact
- Investigate a reported meter problem or conduct a meter test and report the results to you within 20 days
- Notify you at least 24 hours in advance of a planned power outage lasting longer than 5 minutes

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>

SUMMARY OF FIVE YEAR CAPITAL PLAN

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

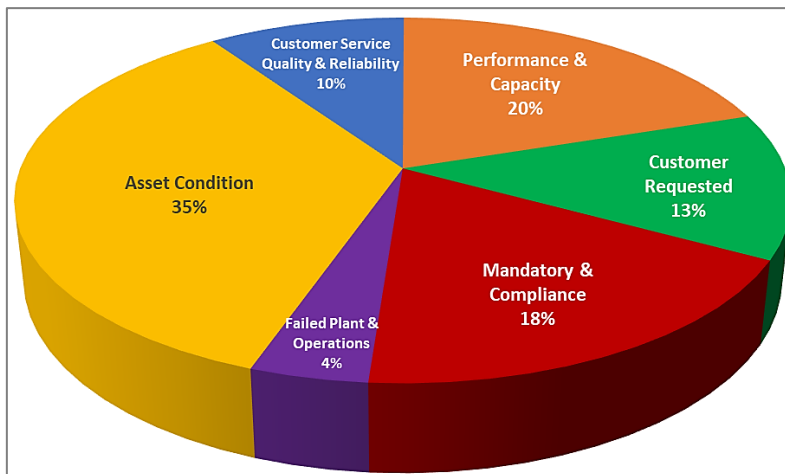


Figure 1. Five Year Capital Budget Percentages by Investment Driver 2020-2024

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.

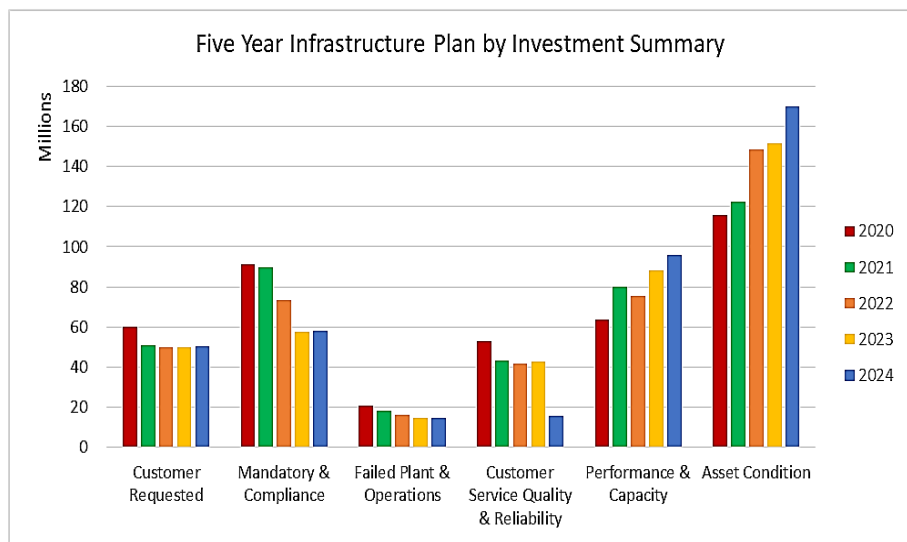


Figure 2. Five Year Capital Budget by Investment Driver



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

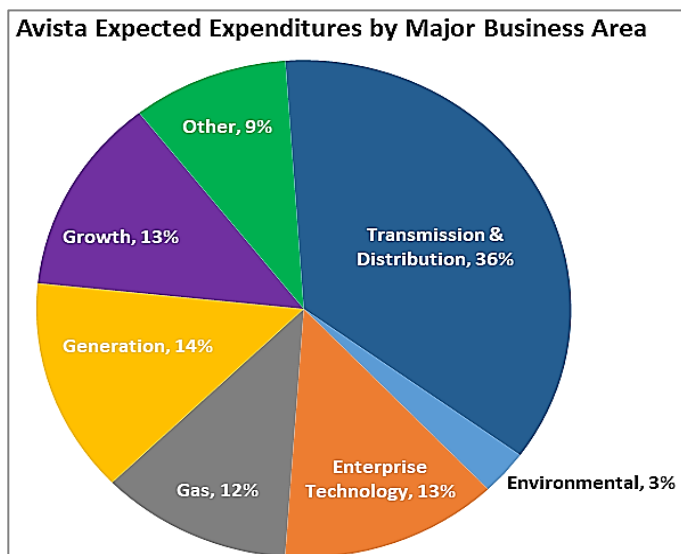


Figure 4. Five Year Capital Budget by Major Business Area

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.

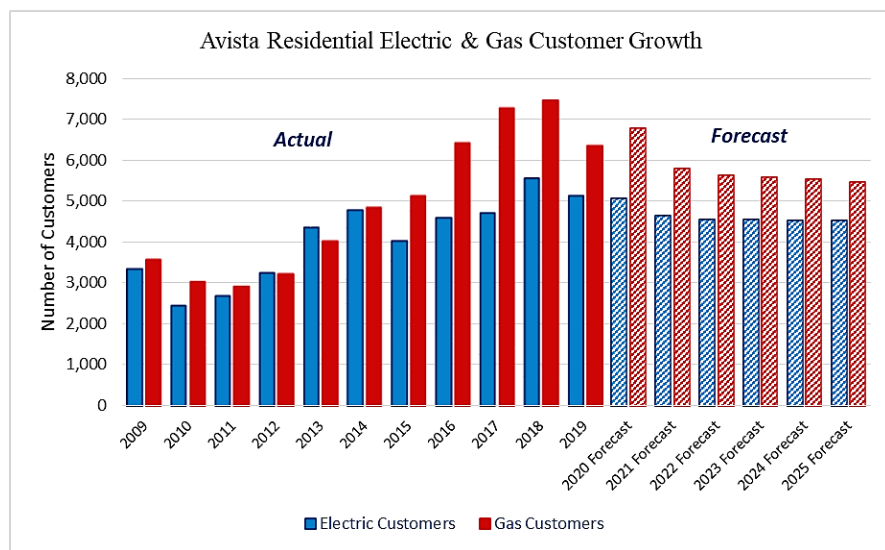


Figure 5. Total Annual Residential Service Customer Connections

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	\$2,225,000	\$0	\$0	\$0	\$0
	115kV Integration Project					
	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.

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 systems¹² 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.

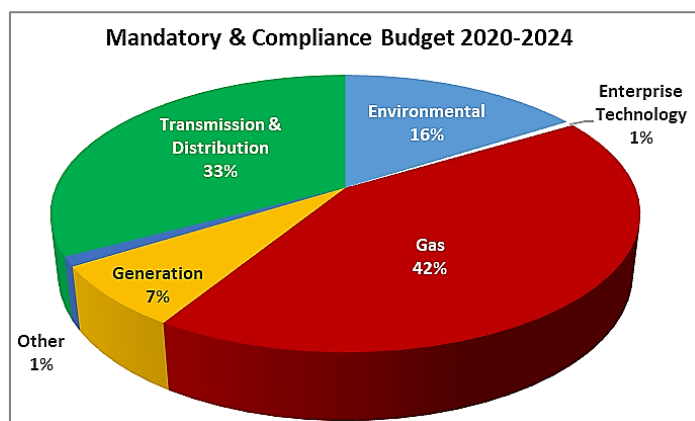


Figure 6. Mandatory & Compliance Budget

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

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



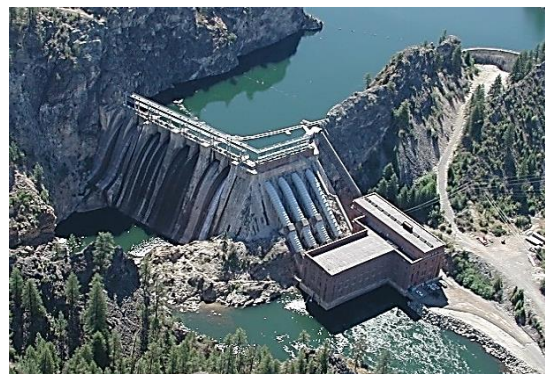
The North Channel of the Spokane River after Avista constructed weirs (small dams) in the river channel which were so cleverly designed that the approximately 170 cfs flowing in the river in this photo has the same appearance as 1500-1600 cfs did prior to the project completion. These weirs are indistinguishable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

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.

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.



Long Lake Dam & Spillway

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.

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

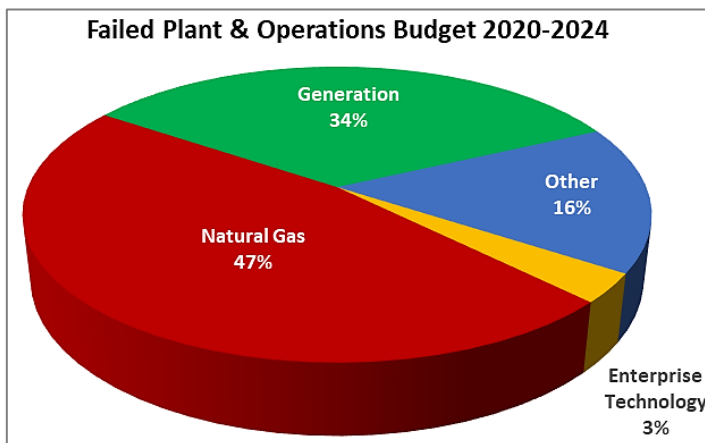


Figure 7. Failed Plant & Operations Budget



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,



Pole rot causes a failure

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.

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.

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.

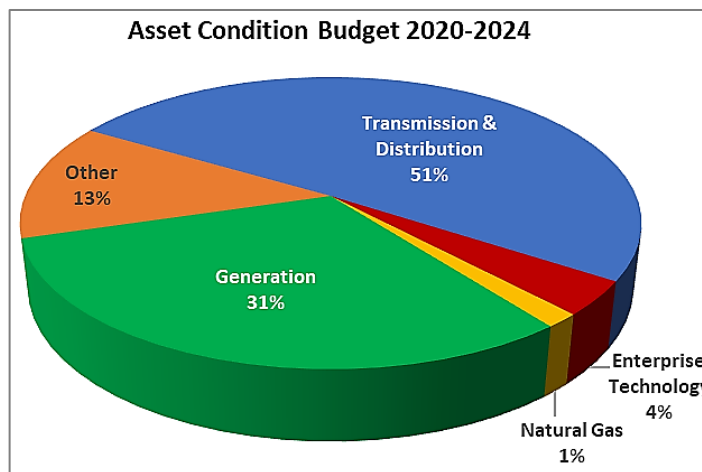


Figure 8. Asset Condition Budget

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.



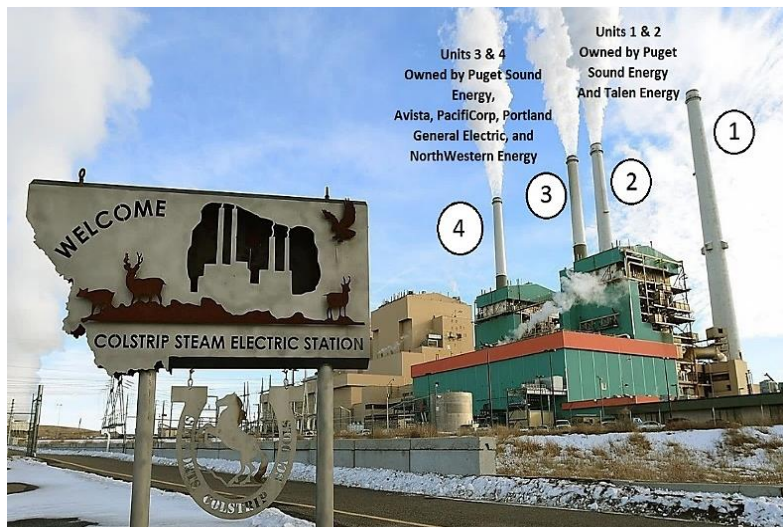
Generation Business Unit

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 compliance 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.



- **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	\$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.

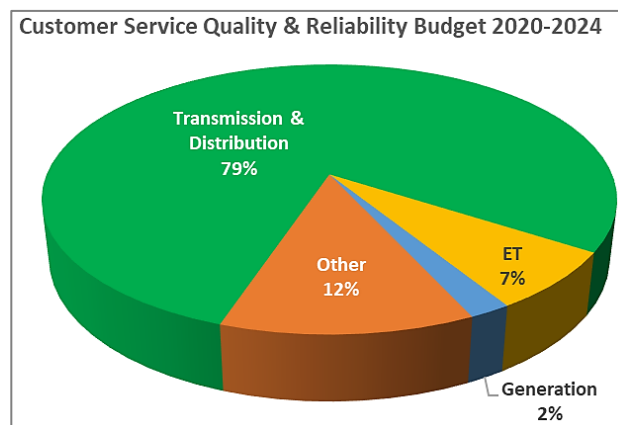


Figure 9. Service Quality & Reliability Budget

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



Coyote Springs generator repair

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.

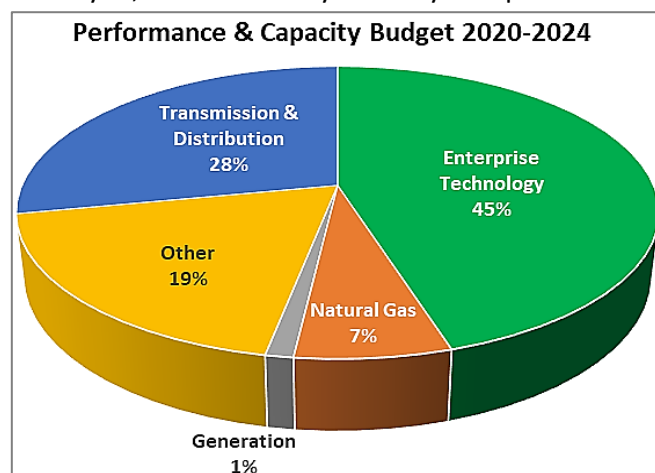


Figure 10. Performance & Capacity Budget

Enterprise Technology Business Unit

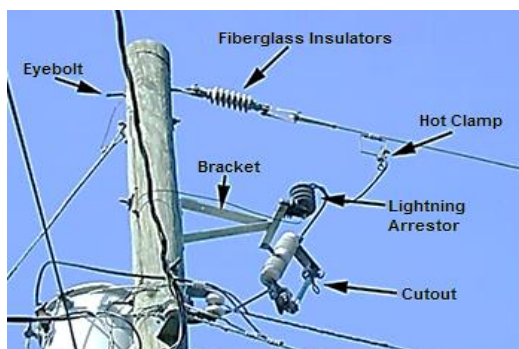
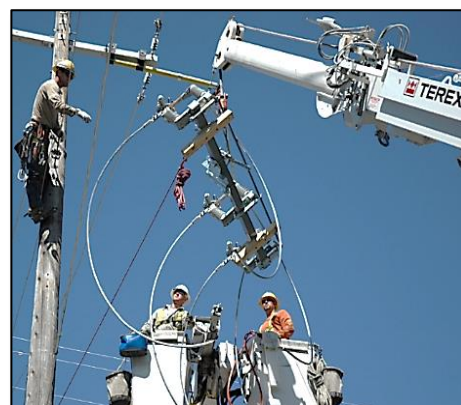
Technology equipment has a very short lifespan compared to many of the Company's assets, thus the ET group has a myriad of projects related to performance and capacity. Some of them are related to simply keeping existing equipment updated and functioning as expected or replacing assets that no longer 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.
- **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



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



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.

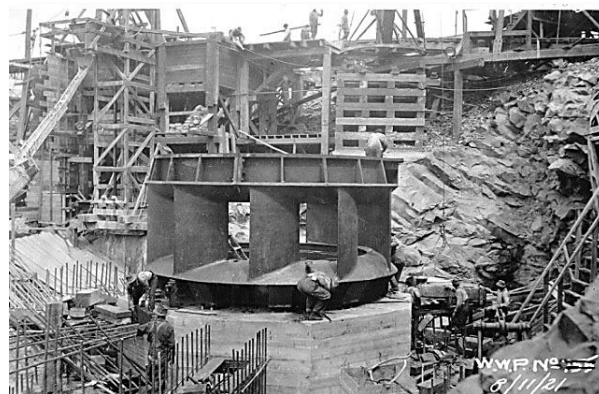
- **The California Independent System Operator’s Energy Imbalance Market (EIM)** is a real-time energy market, the first of its kind in the western U.S. It uses advanced market systems to automatically find low-cost energy to serve real-time consumer demand across a wide geographic area. Avista is joining 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

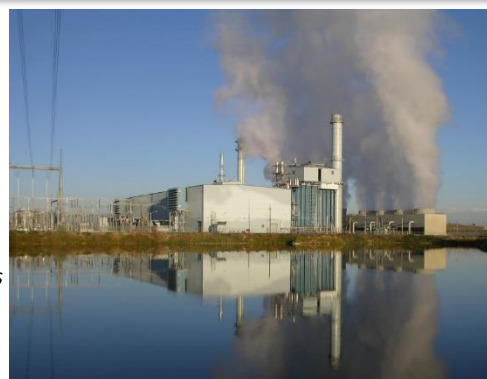
In the Generation area there are five business cases related to Performance and Capacity. They include provisions for regular maintenance costs at the Coyote Springs Generating Station, replacing the bus at Cabinet Gorge, upgrading the unit at Upper Falls, and providing a backup generator for Upper Falls 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.