BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

DOCKET NO. UE-20_____

DOCKET NO. UG-20_____

EXH. JMK-3

JAMES M. KENSOK

REPRESENTING AVISTA CORPORATION

Index for Business Case Justification Narratives Related to Major Technology Capital Additions for 2018 and 2019

Endpoint Compute and Productivity Systems

EXECUTIVE SUMMARY

Business processes require automated technology solutions to meet the overwhelming need for data and information to make decisions. All industries, including the utility industry, are reliant on the ability to produce, transmit, analyze, and store information to meet various business requirements. Avista's office, call center, and field staff require on-demand information to meet customer expectations when providing gas and electric service to customers across our service territory. The information can be critical to prevent, reduce, affect, or optimize an outcome that benefits our customers. Technology investments under the Endpoint Compute and Productivity Systems business case enable our staff with information to optimize our business and be responsive to our customers.

Traditionally, much of this technology was primarily driven by asset condition aligned with asset management strategies. Technology lifecycles based on manufacturer product roadmaps were critical to optimize the overall lifecycle value of the product. However, more recently, we have witnessed an increase in vendor-driven planned obsolescence, whereby the technology asset although within its functional lifespan is technologically flawed or no longer meets the need of users or customers, as expectations increase due to newer and more powerful technology that is available in the market. This has resulted in a reclassification of the primary driver to performance and capacity, whereby the Company balances the need to meet performance standards and system reliability for the various technologies under this program with annual budget allocations, and their respective technology lifecycles. This is a true balancing act that requires historical trend analyses, technology road-mapping, and cost-control measures.

Technology solutions under this program include, but are not limited to, technology required day-to-day to automate and enable business processes, such as Personal Computer (PC) hardware and their operating systems, various handheld devices, printers, configuration and management systems, productivity tools (e.g. Office 365), etc. The costs associated with each solution can vary by the scale of the solution deployed, as well as vendor licensing models. Therefore, each technology under this program undergoes regular review of the levels of utilization and performance to determine if it is meeting the expected performance standards and capacity requirements to maintain system reliability under the established budget constraints. These reviews can result in calling for additional investment under this program from time to time for technology either falling behind technology lifecycles or predetermined performance standards, which can pose risk to computing system reliability that may only be resolved with the reinstatement of manual processes replacing automation with workforce, thereby increase labor costs, human error, and overall processing delays.

VERSION HISTORY

Version	Author	Description	Date	Notes
1.0	Walter Roys	Initial BCJN Draft	6/2017	
1.1	Walter Roys	Update Investment Driver	7/2019	
2.0	Walter Roys	Revision of BCJN to new template	7/2020	

Endpoint Compute and Productivity Systems

GENERAL INFORMATION

Requested Spend Amount	$22,400,000
Requested Spend Time Period	5 years
Requesting Organization/Department	Enterprise Technology
Business Case Owner | Sponsor	Walter Roys | Jim Corder
Sponsor Organization/Department	Enterprise Technology
Phase	Monitor/Control
Category	Program
Driver	Performance & Capacity

1. BUSINESS PROBLEM

1.1 What is the current or potential problem that is being addressed?

Endpoint compute and productivity technology is not only subject to the traditional mortality rate or lifecycle, but it is compounded by planned obsolescence, also known as technology obsolescence.[1] That is, whereby, the technology asset although within its functional lifespan is technologically flawed or no longer meets the need of users or customers, as expectations increase due to newer and more powerful technology (with greater performance and capacity) that is available in the market.

Additionally, with the rapid pace of technological change, technology vendors require continuous upgrades to maintain system maintenance and support, which can include security patching, bug fixes, version upgrades, interoperability, and compatibility with other technologies.

1.2 Discuss the major drivers of the business case *(Customer Requested, Customer Service Quality & Reliability, Mandatory & Compliance, Performance & Capacity, Asset Condition, or Failed Plant & Operations)* and the benefits to the customer

The Endpoint Compute and Productivity Systems Business Case is driven by managing technology replacement according to manufacturer product roadmaps with an objective to maintain infrastructure performance and align infrastructure assets with business demand for capacity. Therefore, the major driver for this business case is Performance & Capacity.

All Avista customers benefit from maintaining endpoint compute and productivity systems, as this technology enables the Avista workforce to perform their day-to-day job functions in delivering gas and electric service to our customers.

[1] Barreca, Stephen L. (1998-2000). *Technology Lifecycles and Technology Obsolescence*. Retrieved from http://bcri.com/products/publications.htm

1.3 Identify why this work is needed now and what risks there are if not approved or is deferred

Avista's office, call center, and field staff require on-demand information to meet customer expectations when providing gas and electric service to customers across our service territory. The information can be critical to prevent, reduce, affect, or optimize an outcome that benefits our customers. Additionally, the endpoint compute and productivity technology is necessary to enable the capabilities that align with our strategic goals of putting our customers at the center.

Reliance on obsolete technology for automated business process presents significant risk that may only be solved with the reinstatement of manual process. Sustaining automated business process by replacing automation with workforce would increase labor expense, and delay response times to meet customer needs.

1.4 Identify any measures that can be used to determine whether the investment would successfully deliver on the objectives and address the need listed above.

Vendor roadmaps and technology asset lifecycles are data points that inform on how best to plan replacements, while meeting business value and strategic alignment, within the constraints of resource capacity and funding, which in turn can result in deferred replacement introducing the risk of technology failure. Ongoing reviews of vendor roadmap and technology asset lifecycle alignment provide necessary information to track how much of our investment in technology is lagging behind the vendor roadmap, and thereby introducing risk. Additionally, assets that fail due to not being replaced within their technology lifecycle are replaced by the Technology Failed Asset business case, which tracks technology asset failures, and is also used as a data point to inform the technology lifecycles under this business case.

1.5 Supplemental Information

1.5.1 Please reference and summarize any studies that support the problem

The Enterprise Technology team references various technology vendor and third-party resources to stay informed and recommend decisions on the various technology investments. A few sample sources are included below:

Barreca, Stephen L. (1998-2000). *Technology Lifecycles and Technology Obsolescence*. Retrieved from http://bcri.com/products/publications.htm

Directions on Roadmaps, Independent IT Planning Information and Advisory Service focused exclusively on Microsoft enterprise software and services. Retrieved from https://www.directionsonmicrosoft.com/

Gartner Industry Research and Reference Material. Retrieved from https://www.gartner.com/en/information-technology

1.5.2 For asset replacement, include graphical or narrative representation of metrics associated with the current condition of the asset that is proposed for replacement.

Not applicable, as the investment under this program business case is to maintain performance and capacity standards in each respective endpoint compute and productivity technology.

This program will manage technology replacement according to manufacturer product roadmaps with an objective to maintain infrastructure performance and align infrastructure assets with business demand for capacity.

Although this is not the optimal solution, the recommended funding level will address 75% of obsolete products and capacity constraints, which will introduce risk associated with technology systems' reliability, interoperability, and capacity. The investment required to address obsolete technology products will be deferred to subsequent years, thereby creating a bow-wave of backed up technology obsolescence that at some point will need to be addressed. This is no different than pushing out buying winter tires for your car into the next winter. However, doing this every winter may eventually catch up with you. The likelihood of technology impact to automated business processes will increase. To minimize the impact of this risk, the Program Steering Committee will manage project sequence according to the investment priority documented in Section 3.2.

Option	Capital Cost	Start	Complete
Recommended Solution – Address 75% obsolete products and capacity constraints	**$22.4 M**	**01 2021**	**12 2025**
Alternative #1 - Address 100% of obsolete products and capacity constraints (recommended)	$32.1 M	01 2021	12 2025
Alternative #2 - Address 50% obsolete products and capacity constraints	$16.1 M	01 2021	12 2025

Endpoint Compute and Productivity Systems

2.1 Describe what metrics, data, analysis or information was considered when preparing this capital request.

The funds request was based on a calculation of the asset lifecycle associated with each technology asset, the scope of the technology footprint across our service territory, and historical project costs for technologies previously refreshed under this business case. Through regular reviews, the program balances the need to meet system performance and reliability standards for the various technologies under this program within annual budget allocations, and their respective technology lifecycles. These reviews can result in calling for additional investment under this program from time to time for technology either falling behind technology lifecycles or predetermined performance and reliability standards.

A product obsolescence working group, consisting of Technology Domain Architects, maintains technology roadmaps to inform Program Steering Committee members of project demand. Project demand is assessed against funding constraints each year and prioritized based on risk of technology impact to the business. Various data points inform the team's decisions and recommendations, which include, but are not limited to vendor-driven obsolescence, compute capacity and storage, historical project costs for similar type projects, etc.

2.2 Discuss how the requested capital cost amount will be spent in the current year (or future years if a multi-year or ongoing initiative). (i.e. what are the expected functions, processes or deliverables that will result from the capital spend?)**. Include any known or estimated reductions to O&M as a result of this investment.**

[Offsets to projects will be more strongly scrutinized in general rate cases going forward *(ref. WUTC Docket No. U-190531 Policy Statement)*, therefore it is critical that these impacts are thought through in order to support rate recovery.]

The funding requested under the Endpoint Compute and Productivity Business Case will be invested in technology, such as:

- Personal Computer (PC) systems
- Vehicle PC mounting systems
- Tablets
- Print, Scan, & Fax systems
- Global Positioning Systems (GPS)
- Digital scale systems
- Uninterruptable Power Supplies (UPS)
- Other endpoint computer systems
- PC Operating Systems (OS)
- Virtual PC Systems
- Virtualized application systems
- End user PC productivity tools
- Remote PC management systems
- Configuration management systems

- Mobile computing systems
- Battery management systems

Investment in these technologies can result in added O&M expenses from increase in licenses from time to time. However, not funding this business case may result in removing automated business functions, which will either cause delay in meeting business and customer demands or completely change whether we can even respond to business and customer demands. There are no O&M reductions or offsets resulting from these investments, as this technology enables the Avista workforce to perform their day-to-day job functions in delivering gas and electric service to our customers.

Reliance on obsolete technology for automated business process presents significant risk that may only be solved with the reinstatement of manual process. Sustaining automated business process by replacing automation with workforce would increase labor expense.

Additionally, with the rapid pace of technological change, technology vendors require continuous upgrades to maintain system maintenance and support, which can include security patching, bug fixes, version upgrades, interoperability, and compatibility with other technologies. These upgrades can in turn drive subsequent system replacements, creating a cascading event of change. Therefore, vendor roadmaps and technology asset lifecycles are data points that inform on how best to plan replacements, while meeting business value and strategic alignment, within the constraints of resource capacity and funding, which in turn can result in deferred replacement introducing the risk of technology failure.

2.3 Outline any business functions and processes that may be impacted (and how) by the business case for it to be successfully implemented.

All Avista business functions are affected by this business case, as it enables all day-to-day work activities and automated business processes. From service center to call center to field work, every worker requires endpoint technology to perform their business function and deliver gas and electric service to our customers.

2.4 Discuss the alternatives that were considered and any tangible risks and mitigation strategies for each alternative.

Address 100% of obsolete products and capacity constraints
This is the optimal solution. This option fully addresses and minimizes the likelihood of technology impact to automated business process.

Address 75% of obsolete products and capacity constraints

This will introduce risk associated with technology systems reliability, interoperability and capacity. The investment required to address obsolete technology products is deferred to subsequent years. The likelihood of technology impact to business is increased. To minimize the impact of this risk, the Program Steering Committee will manage project sequence according to the investment priority documented in Section 3.2.

Address 50% of obsolete products and capacity constraints

This will introduce risk associated with technology systems reliability, interoperability and capacity. The investment required to address obsolete technology products is deferred to subsequent years. The likelihood of technology impact to business is increased. Interoperability constraints may force unplanned funding requests. Multi-year, complex projects are at risk of completion prior to product obsolescence. This option impacts the workforce.

2.5 Include a timeline of when this work will be started and completed. Describe when the investments become used and useful to the customer. spend, and transfers to plant by year.

This business case is a program that transfers to plant the total cost of each project at the completion of every project, which can straddle calendar years. Quarterly forecasts capture changes in transfers to plant based on project status.

2.6 Discuss how the proposed investment aligns with strategic vision, goals, objectives and mission statement of the organization.

The technology investments under this business case program align with Avista's vision to deliver 'better energy for life' to our customers and in the area of 'Perform', which calls for "our focus on performance today to serving our customers well and unlocking pathways to growth."

Each investment under this business case program allows Avista to deliver electric and gas services to our customers.

2.7 Include why the requested amount above is considered a prudent investment, providing or attaching any supporting documentation. In addition, please explain how the investment prudency will be reviewed and re-evaluated throughout the project

The reason that the technology investment under this program business case is prudent is because the Avista workforce requires this technology every day to deliver gas and electric service to our customers either in an office, customer

service center or in the field. Alternatives to each technology are considered, yet not investing in it is not an option as automated business process would either stop or be removed, thereby crippling our workforce's ability to deliver gas and electric service to our customers, respond to compliance requirements, and conduct business operations and reporting. Additionally, a two-tiered governance structure overseeing this business case program meets regularly to oversee and make decisions on the needs, benefits, costs, and risks of each investment.

2.8 Supplemental Information

2.8.1 Identify customers and stakeholders that interface with the business case

Nearly all Avista's workforce interface with the technology investments under this business case. Selected leaders in organizational business units, known as technology stakeholders, work closely with the technology teams to help with business roadmaps, use case definition, gather non-functional requirements, test design and deployment approaches to inform technology investments.

2.8.2 Identify any related Business Cases

The technology investment under this business case allows for the deployment and use of outputs from other business cases, such as application access and delivery on personal computers and servers, connecting to a virtual private network or cloud service, managing data storage and compute, security updates and patching, etc.

3.1 Steering Committee or Advisory Group Information

The Endpoint Compute & Productivity Systems Business Case has two levels of governance: The Program Steering Committee and the Project Steering Committee.

3.2 Provide and discuss the governance processes and people that will provide oversight

Program Steering Committee

This business case is a program of related projects. The Program Steering Committee consists of members in management positions that are identified and responsible for prioritizing the projects within this program. The Steering Committee is also held accountable for the financial performance of this program. The Program Steering Committee will have regular meetings to review the progress of the program and to make decisions on the following topics:

- Project prioritization and risk
- Approving business case funding requests
- New project initiation and sequencing

The Program will be facilitated and administrated by an assigned Program Manager within the Enterprise Technology (ET) Project Management Office (PMO) Department. The project queue will be reviewed periodically and will consist of projects needed to maintain the reliability and performance of all endpoint compute & productivity systems.

Technology product roadmaps identify investment demand that is generally not fully funded. Technology product investments are prioritized in this manner:

1) Safety Systems
2) Control Systems
3) Customer Facing Systems
4) Back Office Systems

Project Steering Committee

Project Steering Committees act as the governing body over each individual project within the program and will consist of key members in management positions that are identified as responsible for the successful completion of the scope of work identified in the Charter document for the Project. The Project Steering Committee is responsible to provide guidance and make decisions on key issues that affect the following topics:

- Scope
- Schedule
- Budget
- Project Issues
- Project Risks

The Project Steering Committee will meet at the defined intervals documented in the Charter of the project and will be facilitated by an assigned Project Manager from within the ET PMO Department.

3.3 How will decision-making, prioritization, and change requests be documented and monitored

The governance structure under this business case program is responsible for decision-making, prioritization, and change requests. Through the regular Program Steering Committee Meetings, the team reviews and balances planned work versus unplanned work to determine prioritization, as well as pending project change requests. Any change request requiring either an increase or decrease of funds is reviewed at the upcoming Technology Planning Group meeting before it is submitted to the Capital Planning Group for consideration.

Endpoint Compute and Productivity Systems

The undersigned acknowledge they have reviewed the **Endpoint Compute & Productivity Systems** Business Case and agree with the approach it presents. Significant changes to this will be coordinated with and approved by the undersigned or their designated representatives.

Signature:	DocuSigned by: Walter Roys 28978793A9C64D0...	Date:	Jul-30-2020 | 11:48 AM PDT
Print Name:	Walter Roys		
Title:	System Engineering Manager		
Role:	Business Case Owner		
Signature:	DocuSigned by: James B Corder 7002E4872104449...	Date:	Aug-03-2020 | 3:16 PM PDT
Print Name:	Jim Corder		
Title:	IT Director		
Role:	Business Case Sponsor		
Signature:	DocuSigned by: Karen Schuh 0D892330AD2944F...	Date:	Aug-03-2020 | 3:45 PM PDT
Print Name:	Karen Schuh		
Title:	IT Program Manager		
Role:	Steering/Advisory Committee Review		
Signature:	DocuSigned by: 6436C8EEF402467...	Date:	Aug-03-2020 | 3:46 PM PDT
Print Name:	Andy Leija		
Title:	ET PMO Manager		
Role:	Steering/Advisory Committee Review		

Template Version: 05/28/2020

Index for Business Case Justification Narratives Related to 2020 Pro Forma Plant Group Technology Capital Additions

Land Mobile Radio & Real Time Communication Systems

EXECUTIVE SUMMARY

Avista's service territory consists of urban and rural environments with topologically difficult to reach areas. The remoteness of some locations, along with the temperature variances through the annual seasons can present additional challenges to field staff required to work under those conditions. Additionally, commercial cellular or telecommunication services are not offered in some of these locations, as they are not cost effective for commercial vendors to deploy. Finally, during unplanned emergency events, commercial telecommunication services are overloaded with the public reaching friends and family members affected by the event, thereby exacerbating the need for a separate land mobile radio and real-time communication system, much like those used by emergency service personnel.

As a Company that maintains critical infrastructure for gas and electric systems, we are required to do it safely and reliably to provide essential services to our customers. This requires that our staff communicate with one another in real time across our service territory to establish situational awareness and reduce the risk of a safety incident. The Land Mobile Radio & Real Time Communications System business case consists of mobile radio and communication technology solutions that enable our staff to communicate with each other in the field and office in real time.

The investments under this program provide the communication technology that enables real time 24 x 7 x 365 communication with our gas and electric field staff in ever changing conditions. The costs associated with each solution can vary by the solution deployed. However, due to the remoteness and topology of our service territory, some of the technology investments in field radio sites on mountain tops can be costly but provide a valuable service to our customers in unplanned weather events, and most importantly bring safety to our field staff. Not investing in increasing radio coverage across our service territory can result in 'dead zones' with no radio coverage that may increase the safety risks of our field staff who rely on radio communication to perform their jobs.

VERSION HISTORY

Version	Author	Description	Date	Notes
1.0	Walter Roys	Initial BCJN Draft	6/2017	
1.1	Walter Roys	Updated Investment Driver	7/2019	
2.0	Walter Roys	Revision of BCJN to new template	7/2020	
2.1	Walter Roys	Error in calculation of Alt. #2	8/2020	Revised calculation

Land Mobile Radio & Real Time Communication Systems

GENERAL INFORMATION

Requested Spend Amount	$24,509,809
Requested Spend Time Period	5 years
Requesting Organization/Department	Enterprise Technology
Business Case Owner | Sponsor	Walter Roys | Jim Corder
Sponsor Organization/Department	Enterprise Technology
Phase	Monitor/Control
Category	Program
Driver	Performance & Capacity

1. BUSINESS PROBLEM

1.1 What is the current or potential problem that is being addressed?

Avista's service territory is approximately 30,000 square miles across four northwestern states with nearly 7,800 miles of natural gas distribution mains, 19,000 miles of electric distribution lines, and 2,750 miles of electric transmission lines. Although many of these miles of gas and electric infrastructure run through urban and suburban areas to heat and power homes and businesses, some infrastructure travels across remote and hard to reach locations, such as steep canyons and mountain tops. As a pacific northwest region with four seasons, some of these remote locations can be even more difficult to reach in harsh weather conditions yet must be maintained safely and reliably. To add to it, commercial cellular or telecommunication services are not offered in these remote locations, thereby leaving communication service gaps.In other words, if there were commercial offerings, during an unplanned emergency event, the services could be overloaded with customers trying to reach friends or family members affected by the event and resulting in communication latency or unavailability.

The lack of radio communication coverage in these remote locations presents risk to our field workers who are required to respond to events throughout the year and must communicate with one another in real time across our service territory to establish situational awareness and reduce the risk of a safety incident.

1.2 Discuss the major drivers of the business case *(Customer Requested, Customer Service Quality & Reliability, Mandatory & Compliance, Performance & Capacity, Asset Condition, or Failed Plant & Operations)* **and the benefits to the customer**

The Land Mobile Radio & Real Time Communications Systems Business Case is driven by managing technology replacement according to manufacturer product roadmaps with an objective to maintain infrastructure performance and align infrastructure assets with business demand for capacity.

All Avista customers benefit from maintaining communication systems, as this technology enables the Avista workforce to perform their day-to-day job functions in delivering gas and electric service to our customers. Additionally, assets that fail due to not being replaced within their technology lifecycle are replaced by the Technology Failed Asset business case, which tracks technology asset failures, and is also used as a data point to inform the technology lifecycles under this business case.

1.3 Identify why this work is needed now and what risks there are if not approved or is deferred

Mobile radio coverage is an essential safety requirement for field staff working throughout our service territory to maintain a safe and reliable gas and electric infrastructure, and even more so in remote and hard to reach locations. Every day that goes by of lacking radio coverage can result in a safety incident, whereby field staff requiring emergency assistance could not communicate with either dispatch, a nearby co-worker, or emergency services. In some of these hard to reach locations, small logging roads can be buried in deep snow a few miles in from a paved road, thereby extensively prolonging any response should an emergency incident occur. Deferring the investments under this program puts field staff's lives at risk by lacking radio coverage in high risk areas.

1.4 Identify any measures that can be used to determine whether the investment would successfully deliver on the objectives and address the need listed above.

Vendor roadmaps and technology asset lifecycles are data points that inform on how best to plan replacements, while meeting business value and strategic alignment, within the constraints of resource capacity and funding, which in turn can result in deferred replacement introducing the risk of technology failure. Ongoing reviews of vendor roadmap and technology asset lifecycle alignment provide necessary information to track how much of our investment in technology is lagging behind the vendor roadmap, and thereby introducing risk.

1.5 Supplemental Information

1.5.1 Please reference and summarize any studies that support the problem

The Enterprise Technology team references various technology vendor and third-party resources to stay informed and recommend decisions on the various technology investments. A few sample sources are included below:

Barreca, Stephen L. (1998-2000). *Technology Lifecycles and Technology Obsolescence*. Retrieved from http://bcri.com/products/publications.htm

Gartner Industry Research and Reference Material. Retrieved from https://www.gartner.com/en/information-technology

1.5.2 For asset replacement, include graphical or narrative representation of metrics associated with the current condition of the asset that is proposed for replacement.

Not applicable, as the investment under this program business case is to maintain performance and capacity standards in each respective endpoint compute and productivity technology.

The Land Mobile Radio & Real Time Communications Systems business case will represent projects that are driven by performance and capacity for the following technology systems:

- Private 2-way Land Mobile Radio (LMR) System for field operations; and
- Radio Telephone Command and Control System (RTCCS) used by Dispatch and System Operations to perform critical radio and telephone communication to field personnel.

The Land Mobile Radio (LMR) system facilitates critical communication between field personnel, dispatch, system operations, and other end users. This radio system is used for normal day to day operation work, coordinating responses to outage events, switching and tagging procedures, communication with external agencies including Public Safety entities, and several other uses. It is a business-critical system used to maintain day to day operations and respond to emergency situations.

This program is in place to provide reliable LMR functionality at all times throughout Avista's service territory. The system contributes to the health and safety of employees, contractors, and the public.

Option	Capital Cost	Start	Complete
Recommended Solution – Address 100% obsolete products, unit growth, and expand radio coverage area at a reduced pace	$24,509,809	01 2021	12 2025
Alternative #1 - Address 100% obsolete products,	$40,037,939	01 2021	12 2025

unit growth, and radio coverage area			
Alternative #2 – Address 100% of obsolete products and unit growth without expanding coverage	$18,000,000	01 2021	12 2025
Alternative #3 – Expand radio coverage area only	$12,500,000	01 2021	12 2025
Alternative #4 – Retire assets and remove automation	$1,900,000	01 2021	12 2025

2.1 Describe what metrics, data, analysis or information was considered when preparing this capital request.

The funds request was based on a calculation of the asset lifecycle associated with each technology asset, the scope and scale of the technology, and the project costs for technologies previously refreshed under this business case. Additionally, funds requested include coverage expansion costs for additional radio sites based on coverage analyses, and historical site acquisition costs.
Through regular reviews, the program balances the need to provide radio coverage across our service territory and maintain performance and reliability standards for the various technologies under this program within annual budget allocations, and their respective technology lifecycles, which can result in calling for additional investment under this program from time to time for technology either falling behind technology lifecycles or predetermined performance, coverage, and reliability standards.

2.2 Discuss how the requested capital cost amount will be spent in the current year (or future years if a multi-year or ongoing initiative). (i.e. what are the expected functions, processes or deliverables that will result from the capital spend?)**. Include any known or estimated reductions to O&M as a result of this investment.**

[Offsets to projects will be more strongly scrutinized in general rate cases going forward *(ref. WUTC Docket No. U-190531 Policy Statement)*, therefore it is critical that these impacts are thought through in order to support rate recovery.]

The funding requested under the Land Mobile Radio & Real Time Communications Systems business case will be invested in technology, such as:

- Private 2-way Land Mobile Radio (LMR) System
- Radio Telephone Command and Control System (RTCCS)

Investment in these technologies can result in added O&M expenses from increase in licenses from time to time. However, not funding this business case may result in removing automated business functions, which will put field workers at risk by not having radio communications across our service territory. There are no O&M reductions or offsets resulting from these investments, as this technology enables the Avista workforce to perform their day-to-day job functions in delivering gas and electric service to our customers.

Reliance on obsolete technology for automated business process presents significant risk, and in this case cannot be achieved manually.

Additionally, with the rapid pace of technological change, technology vendors require continuous upgrades to maintain system maintenance and support, which can include security patching, bug fixes, version upgrades, interoperability, and compatibility with other technologies. These upgrades can in turn drive subsequent system replacements, creating a cascading event of change. Therefore, vendor roadmaps and technology asset lifecycles are data points that inform on how best to plan replacements, while meeting business value and strategic alignment, within the constraints of resource capacity and funding, which in turn can result in deferred replacement introducing the risk of technology failure.

2.3 Outline any business functions and processes that may be impacted (and how) by the business case for it to be successfully implemented.

All Avista field operations, dispatch, and system operations are affected by the technology invested under this business case program, as it is a critical tool that is heavily relied on for communication across our service territory.

2.4 Discuss the alternatives that were considered and any tangible risks and mitigation strategies for each alternative.

Retire assets and remove automation
This option assumes the assets would not be replaced upon failure and be removed from service due to product incompatibility or business or safety risk.

The basis for measuring the business impact of not funding this business case is realizing the loss of business process automation. As products reach the manufacturer-defined planned obsolescence, business process automation is jeopardized, and business risk is increased as manufacturers cease product maintenance and support. This condition would drive action. The alternative would lead to a mitigation plan of having to re-instate manual business process or eliminate the business process.

This option bears the cost of asset retirement for failed assets. Failed assets are estimated to be 50% of obsolete products. The retirement cost is estimated at 10% of the cost to replace the asset.

Address 100% obsolete products, unit growth, and radio coverage area (recommended)

This is the optimal solution. This option fully addresses and minimizes the likelihood of technology failure and impact to automated business process. It also expands the radio coverage area, adding value for employees, contractors, and the public by enabling safe and reliable radio communications in certain areas of poor coverage.

Address 100% of obsolete products and unit growth
Addressing 100% of obsolete products and unit growth will minimize likelihood of technology failure and impact to automated business process. However, this option does not address expanding the radio coverage area. This introduces risk to employees, contractors, and the public in areas where radio communications are unavailable.

Expand radio coverage area
This option addresses expansion of the radio coverage area, adding value for employees, contractors, and the public by enabling safe and reliable radio communications in certain areas of poor coverage. However, this option does not address obsolete products within the program and introduces risk associated with technology systems reliability and interoperability. The investment required to address obsolete technology products is deferred to subsequent years. The likelihood of technology failure and impact to business is increased.

2.5 Include a timeline of when this work will be started and completed. Describe when the investments become used and useful to the customer. spend, and transfers to plant by year.

This business case is a program that transfers to plant the total cost of each project at the completion of every project, which can straddle calendar years. Quarterly forecasts capture changes in transfers to plant based on project status.

2.6 Discuss how the proposed investment aligns with strategic vision, goals, objectives and mission statement of the organization.

The technology investments under this business case program align with Avista's vision to deliver 'better energy for life' to our customers and in the area of 'Perform', which calls for "our focus on performance today to serving our customers well and unlocking pathways to growth."

Each investment under this business case program allows Avista to deliver electric and gas services to our customers.

2.7 Include why the requested amount above is considered a prudent investment, providing or attaching any supporting documentation. In addition, please explain how the investment prudency will be reviewed and re-evaluated throughout the project

The reason that the technology investment under this program business case is prudent is because the Avista workforce requires this technology every day to deliver gas and electric service to our customers either in dispatch and system operations, and in the field. Alternatives to each technology are considered, yet not investing in it is not an option as automated business process, such as radio communication could not be replicated manually, thereby crippling our workforce's ability to deliver gas and electric service to our customers in a safe and reliable way. Additionally, a two-tiered governance structure overseeing this business case program meets regularly to oversee and make decisions on the needs, benefits, costs, and risks of each investment.

2.8 Supplemental Information

2.8.1 Identify customers and stakeholders that interface with the business case

Nearly all operations and field staff interface with the Land Mobile Radio (LMR) system, which facilitates critical communication between field personnel, dispatch, system operations, and other end users.

2.8.2 Identify any related Business Cases

There are not related business cases associated with this business case program.

3.1 Steering Committee or Advisory Group Information

The **Land Mobile Radio (LMR) & Real Time Communication Systems** Business Case has two levels of governance; The Program Steering Committee and the Project Steering Committee.

3.2 Provide and discuss the governance processes and people that will provide oversight

Program Steering Committee

This business case is a program of related projects. The Program Steering Committee consists of members in management positions that are identified and responsible for prioritizing the projects within this program. The Steering Committee is also held accountable for the financial performance of this program. The Program Steering Committee will have regular meetings to review the progress of the program and to make decisions on the following topics:

- Project prioritization and risk
- Approving business case funding requests
- New project initiation and sequencing

The Program will be facilitated and administrated by an assigned Program Manager within the Enterprise Technology (ET) Project Management Office (PMO) Department. The project queue will be reviewed periodically and will consist of projects needed to maintain the reliability and performance of all LMR and real time communication systems.

Project Steering Committee
Project Steering Committees act as the governing body over each individual project within the program and will consist of key members in management positions that are identified as responsible for the successful completion of the scope of work identified in the Charter document for the Project. The Project Steering Committee is responsible to provide guidance and make decisions on key issues that affect the following topics:

- Scope
- Schedule
- Budget
- Project Issues
- Project Risks

The Project Steering Committee will meet at the defined intervals documented in the Charter of the project and will be facilitated by an assigned Project Manager from within the ET PMO Department.

3.3 How will decision-making, prioritization, and change requests be documented and monitored

The governance structure under this business case program is responsible for decision-making, prioritization, and change requests. Through the regular Program Steering Committee Meetings, the team reviews and balances planned work versus unplanned work to determine prioritization, as well as pending project change requests. Any change request requiring either an increase or decrease of funds is reviewed at the upcoming Technology Planning Group meeting before it is submitted to the Capital Planning Group for consideration.

Land Mobile Radio & Real Time Communication Systems

The undersigned acknowledge they have reviewed the **Land Mobile Radio & Real Time Communication Systems Business Case** and agree with the approach it presents. Significant changes to this will be coordinated with and approved by the undersigned or their designated representatives.

Signature:	DocuSigned by: Walter Roys 28978793A9C64D0...	Date:	Aug-25-2020 | 7:58 AM PDT
Print Name:	Walter Roys		
Title:	System Engineering Manager		
Role:	Business Case Owner		
Signature:	DocuSigned by: James B Corder 7002E4872104449...	Date:	Aug-25-2020 | 12:22 PM PDT
Print Name:	Jim Corder		
Title:	IT Director		
Role:	Business Case Sponsor		

Template Version: 05/28/20

Digital Grid Networks

EXECUTIVE SUMMARY

Technology that enables Avista's safety, control, customer-facing, and backoffice systems is critical to the operations that serve our gas and electric customers. It is found in many different environments from office locations to mountaintop sites to generation plants across our service territory. Managing our network technologies to optimize communications and operations in the field for our crews, inspectors, employees, contractors and customers is critical to our ability to provide safe and reliable service. Technology investments under the Digital Grid Network business case are needed to expand and maintain these network assets in support of system reliability and business productivity throughout our service territory, ensuring our ability to appropriately and timely respond to the needs of our customers.

The technology solutions under the Digital Grid Network business case will vary by site location and the systems supported in each facility or environment. They will include, but not limited to, emergency and safety systems, control systems, customer systems, and enterprise back office productivity systems. This infrastructure is core to utility operations, thus demanding reliable networks utilizing commercial carrier services and private network solutions. The cost of each technology will vary with the type of solution identified for the appropriate level of network capacity and data classifications to be transported. Avista and its customers will experience the benefits through ongoing system reliability.

The technology solutions to meet performance standards and reliability requirements can vary between use cases. Solution costs can also vary depending on the magnitude of the technology footprint or vendor licensing model(s). As enabling technology, our private transport investments benefits all Avista customers, as it optimizes cost and productivity by not reverting to manual business processing, which would result in increased labor costs, human error, and overall processing delays. Because technology is evolving so quickly, this program undergoes regular review of the levels of investment and utilization to meet performance and capacity standards, and reliability requirements, while balancing against pre-established budget allocations. These reviews can result in calling for additional investment under this program for technology at risk of poor network system performance and system unavailability.

VERSION HISTORY

Version	Author	Description	Date	Notes
1.0	*Jim Ogle*	*Initial BCJN Draft*	*6/2017*	
2.0	*Shawna Kiesbuy*	*Revision of BCJN to new template*	*7/2020*	

Digital Grid Networks

GENERAL INFORMATION

Requested Spend Amount	$12,819,204
Requested Spend Time Period	5 years
Requesting Organization/Department	Enterprise Technology
Business Case Owner | Sponsor	Shawna Kiesbuy | Jim Corder
Sponsor Organization/Department	Enterprise Technology
Phase	Execution
Category	Program
Driver	Performance & Capacity

1. BUSINESS PROBLEM

1.1 What is the current or potential problem that is being addressed?

Technology that enables Avista's safety, control, customer-facing, and backoffice systems is critical to the operations that serve our gas and electric customers. It is found in many different environments from office locations to mountaintop sites to generation plants across our service territory. Managing our network technologies to optimize communications and operations in the field for our crews, inspectors, employees, contractors and customers is critical to our ability to provide safe and reliable service. Technology investments under the Digital Grid Network business case are needed to expand and maintain these network assets in support of system reliability and business productivity throughout our service territory, ensuring our ability to appropriately and timely respond to the needs of our customers.

The technology solutions under the Digital Grid Network business case will vary by site location and the systems supported in each facility or environment. They will include, but not limited to, emergency and safety systems, control systems, customer systems, and enterprise back office productivity systems. This infrastructure is core to utility operations, thus demanding reliable networks utilizing commercial carrier services and private network solutions. The cost of each technology will vary with the type of solution identified for the appropriate level of network capacity and data classifications to be transported. Avista and its customers will experience the benefits through ongoing system reliability.

1.2 Discuss the major drivers of the business case *(Customer Requested, Customer Service Quality & Reliability, Mandatory & Compliance, Performance & Capacity, Asset Condition, or Failed Plant & Operations)* **and the benefits to the customer**

The main driver behind this program is asset performance and capacity in alignment with asset management strategies driven by technology lifecycles that are based on manufacturer product roadmaps and planned obsolescence. The technology solutions within this program undergo regular review to balance performance and capacity against the asset management strategy within the predetermined budget allocations.

1.3 Identify why this work is needed now and what risks there are if not approved or is deferred

The risks of not approving this business case at the level to which it can maintain the balance of optimal performance against meeting its asset management strategy can result in unplanned failures, which result in unplanned labor and non-labor costs, risk of delay to procure and replace the failed asset, increased safety risks in sending field staff in extreme weather conditions to remote locations, as well as downtime to the critical operations and safety systems supported. New investments will be required when existing assets do not provide adequate capacity, performance, and functionality.

1.4 Identify any measures that can be used to determine whether the investment would successfully deliver on the objectives and address the need listed above.

Executing planned projects will provide optimum performance and capacity as we refresh assets prior to the asset's obsolescence. In this way, the business case should be able to support the asset lifecycles and reduce the risk of failing assets affecting critical business systems, processes and infrastructure reliability.

1.5 Supplemental Information

1.5.1 Please reference and summarize any studies that support the problem

Reference materials that support the needed changes in Network technology are maintained by Technology Domain Architects within each respective technology area.

1.5.2 For asset replacement, include graphical or narrative representation of metrics associated with the current condition of the asset that is proposed for replacement.

This business case is aligned with Performance & Capacity.

Option	Capital Cost	Start	Complete
Asset replacement for optimized performance and capacity	$12,819,204	01 2021	12 2025
Do not fund the program	$0	01 2021	12 2025

2.1 Describe what metrics, data, analysis or information was considered when preparing this capital request.

The main driver behind this program is performance and capacity aligned with asset management strategies driven by technology lifecycles that are based on manufacturer product roadmaps, which can compound planned obsolescence. The asset management strategy is critical to optimize the overall lifecycle value of the product and reduce potential for failure or unplanned outages. Tracking of the assets' installation and lifecycle durations are maintained to plan the program projects over the course of future years driving the annual budget request to maintain the refresh roadmap.

2.2 Discuss how the requested capital cost amount will be spent in the current year (or future years if a multi-year or ongoing initiative). (i.e. what are the expected functions, processes or deliverables that will result from the capital spend?). Include any known or estimated reductions to O&M as a result of this investment.

This business case includes network solutions for both expansion requirements and systematic refresh of existing devices that provide access to our digital grid field and wide area networks. Life cycle schedules allow for a known number of assets, by type, to be refreshed based on impact and likelihood of realized risk to the environment. Historical costs and timelines provide indicators in support of the requested allocations above.

Through roadmapping activities and known pressures on existing network capacity, expansion work has been identified for each year. Again, using historical data along with current product cost estimates, the team developed a

cost plan for work by year. Combined with the refresh work cost estimates, the overall business case request amount is determined.

[Offsets to projects will be more strongly scrutinized in general rate cases going forward *(ref. WUTC Docket No. U-190531 Policy Statement)*, therefore it is critical that these impacts are thought through in order to support rate recovery.]

2.3 Outline any business functions and processes that may be impacted (and how) by the business case for it to be successfully implemented.

The projects in this program are standalone projects within the Digital Grid Network business case but are dependent on length of construction season and other geographically similar but unrelated work being performed at impacted substations. Through those projects, business functions and processes might be impacted but the technology upgrades being made at the varied locations throughout Avista's service territory should strive to increase performance and capacity for employees in their daily work life.

2.4 Discuss the alternatives that were considered and any tangible risks and mitigation strategies for each alternative.

Alternative 1: FUND PROGRAM BASED ON OPTIMIZED PERFORMANCE AND ASSET MANAGEMENT

Funding the Digital Grid Network business case minimally each year based on a reduced capital plan and request incremental increases as projects are completed. This would result in ad-hoc funding requests to the Capital Planning Group for work approved outside of the 5-year capital planning process.

Alternative 2: DO NOT FUND THE PROGRAM

Digital Grid Network projects would not be funded. Enterprise network access from our field locations, optimization and/or unfunded capacity management could result in minimized network capacity reducing the ability to communicate with field assets and members of our workforce at field area locations across our geographic territory.

2.5 Include a timeline of when this work will be started and completed. Describe when the investments become used and useful to the customer. spend, and transfers to plant by year.

The Digital Grid Network business case is managed as a program of projects planned yearly. All individual projects are managed through the PMO, which follows the Project Management Institute (PMI) standards. Throughout the year,

the business case's projects are Initiated, Planned, Executed, and then Completed with a Transfer to Plant for the scope requests which over the course of a calendar year equates to the funded budget allocation.

2.6 Discuss how the proposed investment aligns with strategic vision, goals, objectives and mission statement of the organization.

This is a program with discrete projects that align with Avista's vision, mission and strategic objectives:

- The Digital Grid Network business case investments align with Avista's commitment to invest in its infrastructure to achieve optimal lifecycle performance – safety, reliability, and at a fair price. Network technologies that allow for communication with field area assets and workforce in the field are critical in support of the bulk electric system. The implementation of these network technologies will continue to enable and support these critical communications in a manner that is much safer to all workers and at all locations across Avista.

2.7 Include why the requested amount above is considered a prudent investment, providing or attaching any supporting documentation. In addition, please explain how the investment prudency will be reviewed and re-evaluated throughout the project

Throughout the course of a year, all project requests are vetted before the Steering Committee to validate the request against the business case purpose and making sure the request can be delivered within the approved funding allocation.

2.8 Supplemental Information

Identify customers and stakeholders that interface with the business case

Within the Digital Grid Network business case, the discrete projects interface with various internal Avista groups such as ET engineering, Substation

engineering, GPSS and Generation Plants, the Telecommunications Shop, along with our internal business partners at various office and remote facilities.

Steering Committee members include Business Case Sponsors, Directors and Managers within the Enterprise Technology group along with the Business Case Owner.

The ET Business Case Owner works in conjunction with the Project Management Office (PMO), the assigned Program Manager, and subsequent Project Managers.

The ET Business Case Owner is accountable and responsible for all Business Case related activities and assignments.

2.8.1 Identify any related Business Cases

There are no related business cases.

3.1 Steering Committee or Advisory Group Information

Steering Committee members are invaluable to the project and will provide approval on scope, schedule, and budget related changes. Additionally, they will provide approval on issues and risks pertaining to project deliverables outlined in this document, which also typically have an impact on the scope, schedule, or budget of a project. Steering Committee members will also provide approval on Change Requests, Go-Live, and the Approval to Close document. For the High Voltage Protection business case, the Steering Committee will consist of the Directors and Managers within ET, Energy Delivery, GPSS and the Business Case Owner.

3.2 Provide and discuss the governance processes and people that will provide oversight

The Enterprise and Control Network Infrastructure Business Case has two levels of governance; The Program Steering Committee and the Project Steering Committee.

Program Steering Committee

This business case is a program of related projects. The Program Steering Committee consists of members in management positions that are identified and responsible for prioritizing the projects within this program. The Steering Committee is also held accountable for the financial performance of this

program. The Program Steering Committee will have regular meetings to review the progress of the program and to make decisions on the following topics:

- Project prioritization and risk
- Approving business case funding requests
- New project initiation and sequencing

The Program will be facilitated and administrated by an assigned Program Manager within the Enterprise Technology (ET) Project Management Office (PMO) Department. The project queue will be reviewed periodically in order to plan and sequence work to the levels of funding allocation received.

Project Steering Committee

Project Steering Committees act as the governing body over each individual project within the program and will consist of key members in management positions that are identified as responsible for the successful completion of the scope of work identified in the Charter document for the Project. The Project Steering Committee is responsible to provide guidance and make decisions on key issues that affect the following topics:

- Scope
- Schedule
- Budget
- Project Issues
- Project Risks

The Project Steering Committee will meet at the defined intervals documented in the Charter of the project and will be facilitated by an assigned Project Manager from within the ET PMO Department.

3.3 How will decision-making, prioritization, and change requests be documented and monitored

Project prioritization is evaluated by the management team on a monthly basis. Each program and project steering committee meet regularly and oversees scope, schedule and budget within their respective programs and projects and inform the Business Case owner of any changes needing escalation to the TPG or CPG for decision-making around resource or funding constraints.

Any changes in funding or scope are documented at the Business Case level, via Change Request document that is presented to the CPG on a monthly basis and evaluated by the CPG for approval.

Changes in scope, schedule, or budget are also documented through a 'Change Request' at the project level and reviewed and approved through a formal workflow process. All Enterprise technology projects in this business case are managed through the PMO, which follows the Project Management Institute (PMI) standards. Projects initiate with a 'Charter' to begin the planning process. When planning is complete, a 'Project Management Plan (PMP)' is created and approved as the projects baseline for scope, schedule and budget. At the end of execution, an 'Approval to Go Live' is submitted and approved prior to implementation (Transfer to Plant). After the technology is in service and out of the warranty period, the Project Manager will hold a Lessons Learned, and subsequently submit an 'Approval to Close' prior to finishing the project. All Monitor and Control documentation and Changes Requests are documented and stored to ensure a comprehensive audit trail.

The undersigned acknowledge they have reviewed the Facilities Driven Technology Improvements business case and agree with the approach it presents. Significant changes to this will be coordinated with and approved by the undersigned or their designated representatives.

Signature:	DocuSigned by: Shawna Kiesbuy 3CD905A81B984C3...	Date:	Aug-04-2020 | 10:44 AM PDT
Print Name:	Shawna Kiesbuy		
Title:	Sr. Manager, Network Engineering		
Role:	Business Case Owner		

Signature:	DocuSigned by: James B Corder 7002E4872104449...	Date:	Aug-07-2020 | 1:01 PM PDT
Print Name:	Jim Corder		
Title:	IT Director		
Role:	Business Case Sponsor		

Signature:		Date:	
Print Name:			
Title:			
Role:	Steering/Advisory Committee Review		

Enterprise and Control Network Infrastructure

EXECUTIVE SUMMARY

Technology that enables Avista's safety, control, customer-facing, and backoffice systems is critical to the operations that serve our gas and electric customers. It is found in many different environments from office locations to mountaintop sites to generation plants across our service territory. Managing our network technologies to optimize communications and operations of the enterprise and control systems in these locations is extremely important. Technology investments under the Enterprise and Control Network Infrastructure business case are needed to expand and maintain these network assets in support of system reliability and business productivity throughout our service territory, ensuring our ability to appropriately respond to the needs of our customers.

The technology solutions under the Enterprise and Control Network Infrastructure business case will vary by site location and the systems supported in each facility or environment. They will included, but are not limited to, emergency and safety systems, control systems, customer systems, and enterprise back office productivity systems. This infrastructure is core to utility operations, thus demanding reliable networks utilizing commercial carrier services and private network solutions. The cost of each solution will vary with the type of solution identified for the appropriate level of network access at each site. Avista and its customers will experience the benefits through ongoing system reliability.

The main driver behind this program is asset performance and capacity in alignment with asset management strategies driven by technology lifecycles that are based on manufacturer product roadmaps and planned obsolesces. The technology solutions within this program undergo regular review to balance the asset management strategy within the predetermined budget allocations. The risks of not approving this business case at the level to which it can maintain the balance of meeting its asset management strategy can result in unplanned failures, which result in unplanned labor and non-labor costs, risk of delay to procure and replace the failed asset, increased safety risks in sending field staff in extreme weather conditions to remote locations, as well as downtime to the critical operations and safety systems supported. New investments will be required when existing assets do not provide adequate capacity, performance, and functionality.

VERSION HISTORY

Version	Author	Description	Date	Notes
1.0	*Jim Ogle*	*Initial BCJN Draft*	*6/2017*	
2.0	*Shawna Kiesbuy*	*Revision of BCJN to new template*	*7/2020*	

Enterprise and Control Network Infrastructure

GENERAL INFORMATION

Requested Spend Amount	$35,365,826
Requested Spend Time Period	5 years
Requesting Organization/Department	Enterprise Technology
Business Case Owner | Sponsor	Shawna Kiesbuy | Jim Corder
Sponsor Organization/Department	Enterprise Technology
Phase	Execution
Category	Program
Driver	Performance & Capacity

1. BUSINESS PROBLEM

1.1 What is the current or potential problem that is being addressed?

Technology that enables Avista's safety, control, customer-facing, and backoffice systems is critical to the operations that serve our gas and electric customers. It is found in many different environments from office locations to mountaintop sites to generation plants across our service territory. Managing our network technologies to optimize communications and operations of the enterprise and control systems in these locations is extremely important. Technology investments under the Enterprise and Control Network Infrastructure business case are needed to expand and maintain these network assets in support of system reliability and business productivity throughout our service territory, ensuring our ability to appropriately respond to the needs of our customers.

1.2 Discuss the major drivers of the business case *(Customer Requested, Customer Service Quality & Reliability, Mandatory & Compliance, Performance & Capacity, Asset Condition, or Failed Plant & Operations)* and the benefits to the customer

The main driver behind this program is asset performance and capacity in alignment with asset management strategies driven by technology lifecycles that are based on manufacturer product roadmaps and planned obsolescence. The technology solutions within this program undergo regular review to balance the asset management strategy within the predetermined budget allocations.

1.3 Identify why this work is needed now and what risks there are if not approved or is deferred

The risks of not approving this business case at the level to which it can maintain the balance of meeting its asset management strategy can result in unplanned failures, which result in unplanned labor and non-labor costs, risk of delay to

procure and replace the failed asset, increased safety risks in sending field staff in extreme weather conditions to remote locations, as well as downtime to the critical operations and safety systems supported. New investments will be required when existing assets do not provide adequate capacity, performance, and functionality.

1.4 Identify any measures that can be used to determine whether the investment would successfully deliver on the objectives and address the need listed above.

Executing planned projects will refresh assets prior to the asset's obsolescence and in this way, the business case should be able to support the asset lifecycles and reduce the risk of failing assets affecting critical business systems, processes and infrastructure reliability.

1.5 Supplemental Information

1.5.1 Please reference and summarize any studies that support the problem

Reference materials that support the needed changes in Network technology are maintained by Technology Domain Architects within each respective technology area.

1.5.2 For asset replacement, include graphical or narrative representation of metrics associated with the current condition of the asset that is proposed for replacement.

This business case is aligned with Performance & Capacity; not Asset Management.

Option	Capital Cost	Start	Complete
Asset replacement for optimized performance and capacity	$35,365,826	01 2021	12 2025
Do not fund the program	$0	01 2021	12 2025

2.1 Describe what metrics, data, analysis or information was considered when preparing this capital request.

The main driver behind this program is performance and capacity aligned with asset management strategies driven by technology lifecycles that are based on manufacturer product roadmaps, which can compound planned obsolescence. The asset management strategy is critical to optimize the overall lifecycle value of the product and reduce potential for failure or unplanned outages. Tracking of the assets' installation and lifecycle durations are maintained to plan the program projects over the course of future years driving the annual budget request to maintain the refresh roadmap.

2.2 Discuss how the requested capital cost amount will be spent in the current year (or future years if a multi-year or ongoing initiative). (i.e. what are the expected functions, processes or deliverables that will result from the capital spend?)**. Include any known or estimated reductions to O&M as a result of this investment.**

This business case includes network solutions for both expansion requirements and systematic refresh of existing devices that provide access to our enterprise and control networks. Life cycle schedules allow for a known number of assets, by type, to be refreshed based on impact and likelihood of realized risk to the environment. Historical costs and timelines provide indicators in support of the requested allocations above.

Through roadmapping activities and known pressures on existing network capacity, expansion work has been identified for each year. Again, using historical data along with current product cost estimates, the team developed a cost plan for work by year. Combined with the refresh work cost estimates, the overall business case request amount is determined.

[Offsets to projects will be more strongly scrutinized in general rate cases going forward *(ref. WUTC Docket No. U-190531 Policy Statement)*, therefore it is critical that these impacts are thought through in order to support rate recovery.]

2.3 Outline any business functions and processes that may be impacted (and how) by the business case for it to be successfully implemented.

The projects in this program are standalone projects within the Enterprise and Control Network Infrastructure business case but are dependent on length of construction season and other geographically similar but unrelated work being performed at impacted substations. Through those projects, business functions and processes might be impacted but the technology upgrades being made at the varied locations throughout Avista's service territory should strive to increase performance and capacity for employees in their daily work life.

2.4 Discuss the alternatives that were considered and any tangible risks and mitigation strategies for each alternative.

Alternative 1: FUND PROGRAM BASED ON OPTIMIZED PERFORMANCE AND ASSET MANAGEMENT

Funding the Enterprise and Control Network Infrastructure business case minimally each year based on a reduced capital plan and request incremental increases as projects are completed. This would result in ad-hoc funding requests to the Capital Planning Group for work approved outside of the 5-year capital planning process.

Alternative 2: DO NOT FUND THE PROGRAM

Enterprise and Control Network Infrastructure projects would not be funded. Enterprise network access, optimization and/or unfunded capacity management could result in minimized network capacity reducing the ability to perform ordinary and necessary daily business operations. Control network access, optimization and/or unfunded capacity management could result in minimized control network capacity reducing the ability to manage and control our generation and control system assets.

2.5 Include a timeline of when this work will be started and completed. Describe when the investments become used and useful to the customer. spend, and transfers to plant by year.

The Enterprise and Control Network Infrastructure business case is managed as a program of projects planned yearly. All individual projects are managed through the PMO, which follows the Project Management Institute (PMI) standards. Throughout the year, the business case's projects are Initiated, Planned, Executed, and then Completed with a Transfer to Plant for the scope requests which over the course of a calendar year equates to the funded budget allocation.

2.6 Discuss how the proposed investment aligns with strategic vision, goals, objectives and mission statement of the organization.

This is a program with discrete projects that align with Avista's vision, mission and strategic objectives:

- The Enterprise and Control Network Infrastructure business case investments align with Avista's commitment to invest in its infrastructure to achieve optimal lifecycle performance – safety, reliability, and at a fair price. Network communications that monitor and control Avista enterprise networks and control networks are critical in support of the bulk electric system. The implementation of these network technologies will continue to enable and support these critical communications in a manner that is much safer to all workers and at all locations across Avista.

2.7 Include why the requested amount above is considered a prudent investment, providing or attaching any supporting documentation. In addition, please explain how the investment prudency will be reviewed and re-evaluated throughout the project

Throughout the course of a year, all project requests are vetted before the Steering Committee to validate the request against the business case purpose and making sure the request can be delivered within the approved funding allocation.

2.8 Supplemental Information

Identify customers and stakeholders that interface with the business case

Within the Enterprise and Control Network Infrastructure business case, the discrete projects interface with various internal Avista groups such as ET engineering, Substation engineering, GPSS and Generation Plants, the Telecommunications Shop, along with our internal business partners at various office and remote facilities.

Steering Committee members include Business Case Sponsors, Directors and Managers within the Enterprise Technology group along with the Business Case Owner.

The ET Business Case Owner works in conjunction with the Project Management Office (PMO), the assigned Program Manager, and subsequent Project Managers.

The ET Business Case Owner is accountable and responsible for all Business Case related activities and assignments.

2.8.1 Identify any related Business Cases

There are no related business cases.

3.1 Steering Committee or Advisory Group Information

Steering Committee members are invaluable to the project and will provide approval on scope, schedule, and budget related changes. Additionally, they will provide approval on issues and risks pertaining to project deliverables outlined in this document, which also typically have an impact on the scope, schedule, or budget of a project. Steering Committee members will also provide approval on Change Requests, Go-Live, and the Approval to Close document. For the High Voltage Protection business case, the Steering Committee will consist of the Directors and Managers within ET, Energy Delivery, GPSS and the Business Case Owner.

3.2 Provide and discuss the governance processes and people that will provide oversight

The Enterprise and Control Network Infrastructure Business Case has two levels of governance; The Program Steering Committee and the Project Steering Committee.

Program Steering Committee

This business case is a program of related projects. The Program Steering Committee consists of members in management positions that are identified and responsible for prioritizing the projects within this program. The Steering Committee is also held accountable for the financial performance of this program. The Program Steering Committee will have regular meetings to review the progress of the program and to make decisions on the following topics:

- Project prioritization and risk
- Approving business case funding requests
- New project initiation and sequencing

The Program will be facilitated and administrated by an assigned Program Manager within the Enterprise Technology (ET) Project Management Office (PMO) Department. The project queue will be reviewed periodically in order to plan and sequence work to the levels of funding allocation received.

Project Steering Committee

Project Steering Committees act as the governing body over each individual project within the program and will consist of key members in management positions that are identified as responsible for the successful completion of the scope of work identified in the Charter document for the Project. The Project Steering Committee is responsible to provide guidance and make decisions on key issues that affect the following topics:

- Scope

- Schedule
- Budget
- Project Issues
- Project Risks

The Project Steering Committee will meet at the defined intervals documented in the Charter of the project and will be facilitated by an assigned Project Manager from within the ET PMO Department.

3.3 How will decision-making, prioritization, and change requests be documented and monitored

Project prioritization is evaluated by the management team on a monthly basis. Each program and project steering committee meet regularly and oversees scope, schedule and budget within their respective programs and projects and inform the Business Case owner of any changes needing escalation to the TPG or CPG for decision-making around resource or funding constraints.

Any changes in funding or scope are documented at the Business Case level, via Change Request document that is presented to the CPG on a monthly basis and evaluated by the CPG for approval.

Changes in scope, schedule, or budget are also documented through a 'Change Request' at the project level and reviewed and approved through a formal workflow process. All Enterprise technology projects in this business case are managed through the PMO, which follows the Project Management Institute (PMI) standards. Projects initiate with a 'Charter' to begin the planning process. When planning is complete, a 'Project Management Plan (PMP)' is created and approved as the projects baseline for scope, schedule and budget. At the end of execution, an 'Approval to Go Live' is submitted and approved prior to implementation (Transfer to Plant). After the technology is in service and out of the warranty period, the Project Manager will hold a Lessons Learned, and subsequently submit an 'Approval to Close' prior to finishing the project. All Monitor and Control documentation and Change Requests are documented and stored to ensure a comprehensive audit trail.

The undersigned acknowledge they have reviewed the Facilities Driven Technology Improvements business case and agree with the approach it presents. Significant changes to this will be coordinated with and approved by the undersigned or their designated representatives.

Signature:	DocuSigned by: Shawna Kiesbuy 3CD905A81B984C3...	Date:	Jul-31-2020 | 8:58 AM PDT
Print Name:	Shawna Kiesbuy		
Title:	Sr. Manager, Network Engineering		

Enterprise and Control Network Infrastructure

Role:	Business Case Owner		
Signature:	DocuSigned by: James B Corder 7002E4872104448...	Date:	Aug-03-2020 | 5:52 PM PDT
Print Name:	Jim Corder		
Title:	IT Director		
Role:	Business Case Sponsor		
Signature:		Date:	
Print Name:			
Title:			
Role:	Steering/Advisory Committee Review		

Fiber Network Leased Service Replacement

EXECUTIVE SUMMARY

Technology that enables Avista's safety, control, customer-facing, and backoffice systems is critical to the operations that serve our gas and electric customers. Avista utilizes leased fiber optic cables to transport primarily Emergency and Control network data. Avista's current contracts for leased fiber network services expire in 2027. Transitioning Avista's Emergency and Control network data from leased network services to private network infrastructure will align with the long-term network strategy to maintain control of these critical data sources and reduce expense costs to the company.

The technology solutions under the Fiber Network Leased Service Replacement business case will vary by site location. There are 54 known outstanding segments to be replaced and they are represented in the estimated build costs per segment, which collectively provides the overall funding need. Failure to accomplish this work by the end of the existing lease date would add significant costs to the leased circuits still in service at the end of the contract. Avista and its customers can experience the benefits through ongoing system reliability and appropriate oversight and management of our networks serving our Emergency and Control network data. The main driver behind this project is performance and capacity, driven by the total cost of ownership of the networks required for Emergency and Control data and assets.

VERSION HISTORY

Version	Author	Description	Date	Notes
1.0	Michael Busby	Original business case request	7/2017	
1.1	Michael Beil	Updated investment driver	7/2019	
2.0	Shawna Kiesbuy	Narrative added to new template	7/2020	

Fiber Network Leased Service Replacement

GENERAL INFORMATION

Requested Spend Amount	$15,200,000
Requested Spend Time Period	5 years
Requesting Organization/Department	Enterprise Technology
Business Case Owner | Sponsor	Shawna Kiesbuy | Jim Corder
Sponsor Organization/Department	Enterprise Technology
Phase	Execution
Category	Program
Driver	Performance & Capacity

1. BUSINESS PROBLEM

1.1 What is the current or potential problem that is being addressed?

Avista utilizes leased fiber optic cable to transport primarily Safety and Control (S&C) data. The leased fiber is an operating expense. The lease rates were established during the sale of Avista Communication's subsidiary. An Indefensible Right to Use (IRU) was established to benefit Avista Utilities with rates well below market. The IRU expires in 2027 with an option to renew for 5 years.

Transitioning Avista's S&C network data from leased network services to private network infrastructure aligns with the long-term network strategy and will reduce risk along with Operate & Maintain (O&M) costs to the company.

The project work started in 2018 and identified at least 54 segments and a total of approximately 200 miles of leased fiber to be replaced with Avista owned private fiber. The anticipated complexity associated with rights of ways, permitting, construction and coordination with other parties such as city/county planning departments, contractors and internal Avista departments, or to partner with complementary projects, will influence the pace of work to complete the transition to private fiber is important to successfully meet the 2027 deadline.

1.2 Discuss the major drivers of the business case *(Customer Requested, Customer Service Quality & Reliability, Mandatory & Compliance, Performance & Capacity, Asset Condition, or Failed Plant & Operations)* and the benefits to the customer

Investment in private network transport and technology to service S&C communication systems is an established industry standard. The private network investment is designed to best fit the communication requirements of industrial control and safety systems. The reliability and predictability of a private network is a business value. Public carrier leased services are best fit for customer and back office communications. The investment in private network is tied to the Performance & Capacity investment driver.

1.3 Identify why this work is needed now and what risks there are if not approved or is deferred

The work to move from leased fiber to private fiber is timebound by the expiration of lease agreements all of which are due to end by 2027. As noted above, there are many factors that can consume periods of time per segment to complete the work and therefore any delays in executing on this work would risk the ability to finalize work and therefore terminate contracts for leased segments per current agreements. There is also benefit to the company by having full control over fiber segments for these critical E&C communication paths.

While the current agreements may allow for extension of the lease terms, there are increased O&M costs to do so. Avista is proactively working to prevent any additional O&M costs by implementing privately owned fiber prior to having to execute on any lease extensions.

1.4 Identify any measures that can be used to determine whether the investment would successfully deliver on the objectives and address the need listed above.

Timely implementation and transfer to plant such that all segments are completed prior to an IRU or segment lease expiration will determine success. The completion and transfer to plant will occur over time as each segment/project is completed.

1.5 Supplemental Information

1.5.1 Please reference and summarize any studies that support the problem

The leased fiber terms detail costs associated with the expiration date.

1.5.2 For asset replacement, include graphical or narrative representation of metrics associated with the current condition of the asset that is proposed for replacement.

This business case is aligned with Performance & Capacity.

Option	Capital Cost	Start	Complete
Recommended Solution - Replace each identified segment of leased fiber optic cable with Avista owned/private fiber to meet the fiber lease agreement deadline.	$15,200,000	01 2021	12 2025
Alternative #1 – Fund at 80%, and risk not meeting the fiber lease agreement deadline in 2027, resulting in higher unplanned O&M annual costs	$12,160,000	01 2021	12 2025
Do not fund the program	$0	01 2021	12 2025

2.1 Describe what metrics, data, analysis or information was considered when preparing this capital request.

The requested amount of $15,200,000 reflects the total estimated cost of implementing Avista privately owned fiber optic cable for all applicable IRU segments through the year 2025. Yearly allocation and project prioritization are

set based on the output of annual budget planning activities. These activities take into account estimated completion dates of in-flight work, areas of high risk, and length of the construction season. Adjustments are requested and approved by the Steering Committee throughout each calendar year to accommodate any changes to the plan.

2.2 Discuss how the requested capital cost amount will be spent in the current year (or future years if a multi-year or ongoing initiative). (i.e. what are the expected functions, processes or deliverables that will result from the capital spend?)**. Include any known or estimated reductions to O&M as a result of this investment.**

The technology improvements invested under this business case benefit all customers across our service territory by investing in the privately-owned fiber optic cable segments thereby mitigating the potential of increased O&M costs for leased fiber in the future and having full control of the fiber. With management oversight from the Program Steering Committee, projects initiated through the Fiber Network Leased Service Replacement (FNLSR) business case, will be reviewed and sequenced in this business case on a per project basis spending the funded capital up to the approved allocation.

[Offsets to projects will be more strongly scrutinized in general rate cases going forward *(ref. WUTC Docket No. U-190531 Policy Statement)*, therefore it is critical that these impacts are thought through in order to support rate recovery.]

2.3 Outline any business functions and processes that may be impacted (and how) by the business case for it to be successfully implemented.

The projects in this FNLSR business case are standalone projects but are dependent on length of construction season, right of way approvals, permitting and other similar but potentially unrelated work being performed at or near each identified segment. Through those projects, business functions and processes might be impacted but the technology upgrades being made at the varied locations throughout Avista's service territory should strive to increase performance and capacity for employees in their daily work life while providing a safe and reliable infrastructure for Avista to deliver energy to customers.

2.4 Discuss the alternatives that were considered and any tangible risks and mitigation strategies for each alternative.

Alternative 1: Fund at 80%, and risk not meeting the fiber lease agreement deadline in 2027, resulting in higher unplanned O&M annual costs

Funding the FNLSR business case minimally each year based on a reduced capital plan and request incremental increases as projects are completed. This would result in ad-hoc funding requests to the Capital Planning Group (CPG) for work approved outside of the 5-year capital planning process. Risks related to the FNLSR work, such as proactively working to reduce O&M costs and

providing the private fiber to carry S&C communication, would be mitigated at a much slower pace than if the program were funded as requested, and may resulotin higher unplanned O&M annual costs if the 2027 deadline is missed.

Alternative 2: Do not fund the program

FNLSR projects would not be funded and therefore the planned move from leased fiber to privately owned fiber that provides the benefits noted above would not be achieved.

2.5 Include a timeline of when this work will be started and completed. Describe when the investments become used and useful to the customer. spend, and transfers to plant by year.

The FNLSR business case is managed as a program of projects planned yearly. All individual projects are managed through the PMO, which follows the Project Management Institute (PMI) standards. Throughout the year, the business case's projects are Initiated, Planned, Executed, and then Completed with a Transfer to Plant for the scope requests which over the course of a calendar year equates to the funded budget allocation.

2.6 Discuss how the proposed investment aligns with strategic vision, goals, objectives and mission statement of the organization.

This is a program with discrete projects that align with Avista's vision, mission and strategic objectives:

- The FNLSR business case aligns with Avista's commitment to invest in its infrastructure to achieve optimal lifecycle performance – safety, reliability, and at a fair price. Data communications that monitor and control Avista systems are critical in the support of energy delivery. The move from leased to privately owned fiber will continue to enable and support critical communications in a manner that increases reliability and manage costs.

2.7 Include why the requested amount above is considered a prudent investment, providing or attaching any supporting documentation. In addition, please explain how the investment prudency will be reviewed and re-evaluated throughout the project

Throughout the course of a year, all project requests are vetted before the Steering Committee to validate the request against the business case purpose and making sure the request can be delivered within the approved funding allocation.

2.8 Supplemental Information

Identify customers and stakeholders that interface with the business case

Within the FNSLR business case, the discrete projects interface with various internal Avista groups such as Enterprise Technology engineering, Transmission and Distribution, Real Estate, the Telecommunications Shop, along with other internal business partners at various office and substation facilities.

Steering Committee members include Business Case Sponsors, Directors and Managers within the Enterprise Technology group along with the Business Case Owner.

The ET Business Case Owner works in conjunction with the Project Management Office (PMO), the assigned Program Manager, and subsequent Project Managers.

The ET Business Case Owner is accountable and responsible for all Business Case related activities and assignments.

2.8.1 Identify any related Business Cases

There are no related business cases. FNLSR is a standalone business case.

3.1 Steering Committee or Advisory Group Information

Steering Committee members are invaluable to the project and will provide approval on scope, schedule, and budget related changes. Additionally, they will provide approval on issues and risks pertaining to project deliverables outlined in this document, which also typically have an impact on the scope, schedule, or budget of a project. Steering Committee members will also provide approval on Change Requests, Go-Live, and the Approval to Close document. For the FNLSR business case, the Steering Committee will consist of the Directors and Managers within ET, Energy Delivery, GPSS and the Business Case Owner.

3.2 Provide and discuss the governance processes and people that will provide oversight

The FNLSR Business Case has two levels of governance; The Program Steering Committee and the Project Steering Committee.

Program Steering Committee

This business case is a program of related projects. The Program Steering Committee consists of members in management positions that are identified and responsible for prioritizing the projects within this program. The Steering Committee is also held accountable for the financial performance of this program. The Program Steering Committee will have regular meetings to review the progress of the program and to make decisions on the following topics:

- Project prioritization and risk
- Approving business case funding requests
- New project initiation and sequencing

The Program will be facilitated and administrated by an assigned Program Manager within the Enterprise Technology (ET) Project Management Office (PMO) Department. The project queue will be reviewed periodically in order to plan and sequence work to the levels of funding allocation received.

Project Steering Committee

Project Steering Committees act as the governing body over each individual project within the program and will consist of key members in management positions that are identified as responsible for the successful completion of the scope of work identified in the Charter document for the Project. The Project Steering Committee is responsible to provide guidance and make decisions on key issues that affect the following topics:

- Scope
- Schedule
- Budget
- Project Issues
- Project Risks

The Project Steering Committee will meet at the defined intervals documented in the Charter of the project and will be facilitated by an assigned Project Manager from within the ET PMO Department.

3.3 How will decision-making, prioritization, and change requests be documented and monitored

Project prioritization is evaluated by the management team on a monthly basis. Each program and project steering committee meet regularly and oversees scope, schedule and budget within their respective programs and projects and inform the Business Case owner of any changes needing escalation to the Technology Planning Group (TPG) or CPG for decision-making around resource or funding constraints.

Any changes in funding or scope are documented at the Business Case level, via a Change Request document that is presented to the CPG on a monthly basis and evaluated by the CPG for approval.

Changes in scope, schedule, or budget are also documented through a 'Change Request' at the project level and reviewed and approved through a formal workflow process. All Enterprise Technology projects in this business case are managed through the PMO, which follows the Project Management Institute (PMI) standards. Projects initiate with a 'Charter' to begin the planning process. When planning is complete, a 'Project Management Plan (PMP)' is created and approved as the projects baseline for scope, schedule and budget. At the end of execution, an 'Approval to Go Live' is submitted and approved prior to implementation (Transfer to Plant). After the technology is in service and out of the warranty period, the Project Manager will hold a Lessons Learned, and subsequently submit an 'Approval to Close' prior to finishing the project. All Monitor and Control documentation and Changes Requests are documented and stored to ensure a comprehensive audit trail.

The undersigned acknowledge they have reviewed the Fiber Network Leased Service Replacement business case and agree with the approach it presents. Significant changes to this will be coordinated with and approved by the undersigned or their designated representatives.

Signature:	DocuSigned by: Shawna Kiesbuy 3CD905A81B984C3...	Date:	Jul-31-2020 | 9:00 AM PDT
Print Name:	Shawna Kiesbuy		
Title:	Sr. Manager, Network Engineering		
Role:	Business Case Owner		

Signature:	DocuSigned by: James B Corder 7002E4872104449...	Date:	Jul-31-2020 | 5:17 PM PDT
Print Name:	Jim Corder		
Title:	Director, Information Technology		
Role:	Business Case Sponsor		

Signature:		Date:	
Print Name:			
Title:			
Role:	Steering/Advisory Committee Review		

Fiber Network Leased Service Replacement

Technology Failed Assets

EXECUTIVE SUMMARY

Technology assets enable automated business processes. These technology assets range from computers to hand-held radios carried by our field staff to printers in remote offices to networking equipment. Sometimes these technology assets fail prior to being refreshed as part of a lifecycle management program. These failures can be caused by manufacture defects, human error, natural disasters, malicious actors, or age/runtime of equipment. In those cases, the failed asset can cause downtime for an employee or system resulting in significant disruption to daily operations across our service territory depending on where and to what asset the failure occurred.

To support these types of unplanned failures, the Technology Failed Assets business case was established and consists of in-portfolio technology assets for rapid replacement of assets as they fail and when repairs are not feasible. A technology inventory is maintained to quickly restore business automation. They can include, but not be limited to laptops, mobile phone and tablets, printers, field area network (FAN) equipment, monitors, audio-visual equipment, routers, switches, servers, and fiber cable. The cost of each technology solution will vary depending on the type of asset, scope of failure, required lead time, and location. However, funding for this business case has been calculated based on predictable technology asset failure rates over the last three years. For unpredictable failed assets, additional funding requests will be made to replace the failed asset.

Since technology asset failures will happen across Avista's territory, having budget allocation available to quickly replace a failed asset is critical to the daily operations of the Company. If the Technology Failed Assets business case funding is not approved, replacement of failed assets will result in individual requests for funding each time an asset fails potentially extending the downtime of a system until the funding is approved and the asset is replaced.

VERSION HISTORY

Version	Author	Description	Date	Notes
1.0	Mike Beil	BCJN 1.0 Created	7/2019	
2.0	Mike Beil	BCJN 2.0 Revised	7/2020	

Technology Failed Assets

GENERAL INFORMATION

Requested Spend Amount	$3,028,400
Requested Spend Time Period	*5 years*
Requesting Organization/Department	Enterprise Technology
Business Case Owner | Sponsor	Mike Beil | Jim Corder
Sponsor Organization/Department	Enterprise Technology
Phase	Execution
Category	Program
Driver	Failed Plant & Operations

1. BUSINESS PROBLEM

1.1 What is the current or potential problem that is being addressed?

Technology assets enable automated business processes. These technology assets range from computers and mobile devices to radio systems and pole-mounted network devices. Sometimes these technology assets fail prior to being refreshed as part of a lifecycle management program. These failures can be caused by manufacture defects, human error, natural disasters, malicious actors, or age/runtime of equipment. In those cases, the failed asset can cause downtime and loss of performance for an employee or system resulting in significant disruption to daily operations across our service territory depending on where and to what asset the failure occurred.

1.2 Discuss the major drivers of the business case *(Customer Requested, Customer Service Quality & Reliability, Mandatory & Compliance, Performance & Capacity, Asset Condition, or Failed Plant & Operations)* and the benefits to the customer

The main driver for this program is Failed Plant & Operations which is also related to asset management strategies being driven by technology lifecycles and technology obsolescence. As outlined in section 1.1 of this Business Case Justification Narrative, at times technology may unexpectedly fail. This program provides a technology inventory to quickly restore business automation and reduce the downtime caused by the failure.

1.3 Identify why this work is needed now and what risks there are if not approved or is deferred

Since technology asset failures will happen across Avista's territory, having budget allocation available to quickly replace a failed asset is critical to the daily operations of the company. If the Technology Failed Assets business case funding is not approved, replacement of failed assets will result in individual requests for funding each time an asset fails potentially extending the downtime of a system until the funding is approved and the asset is replaced.

Technology Failed Assets

1.4 Identify any measures that can be used to determine whether the investment would successfully deliver on the objectives and address the need listed above.

Since the main driver behind this program is Failed Plant & Operations, the success of this program can be measured by the timely replacement of failed technology assets and restoration of automated business processes and overall productivity.

1.5 Supplemental Information

1.5.1 Please reference and summarize any studies that support the problem

See below for supporting details

1.5.2 For asset replacement, include graphical or narrative representation of metrics associated with the current condition of the asset that is proposed for replacement.

Asset Type	Avg. Failures/Yr.	Avg. Cost	Forecast
Printers	16	$3,724	$59,584
Monitors	40	$295	$11,800
Mobile Phones	50	$904	$45,200
Personal Computer	42	$1,326	$55,692
Field Area Network-Devices	40	$10,407	$416,280
AV Devices	3	$3,586	$10,758
Other Failed Technology	6	$3,245	$19,470
			$618,784

Option	Capital Cost	Start	Complete
Funding based on previous 3-year failure rates (Recommended)	$ 3,028,400	01 2021	12 2025
Request funding when needed	$0	01 2021	12 2025
Funding based on 5% failure rates of all technology assets	$6,225,000	01 2021	12 2025

2.1 Describe what metrics, data, analysis or information was considered when preparing this capital request.

To support these types of unplanned failures, the Technology Failed Assets business case was established and consists of in-portfolio technology assets for rapid replacement of assets as they fail and when repairs are not feasible. A technology inventory is maintained to quickly restore business automation. They can include, but

not be limited to laptops, mobile phone and tablets, printers, field area network (FAN) equipment, monitors, audio-visual equipment, routers, switches, servers, and fiber cable. The cost of each technology solution will vary depending on the type of asset, scope of failure, required lead time, and location. However, funding for this business case has been calculated based on predictable technology asset failure rates over the last three years. For unpredictable failed assets, additional funding requests will be made to replace the failed asset.

2.2 Discuss how the requested capital cost amount will be spent in the current year (or future years if a multi-year or ongoing initiative). (i.e. what are the expected functions, processes or deliverables that will result from the capital spend?)**. Include any known or estimated reductions to O&M as a result of this investment.**

The requested capital cost amount per year has been calculated to replace failed assets based on a three-year failure history. This level of funding is critical to maintain an inventory of in-portfolio assets to be available for rapid replacement during failures or unplanned outages (i.e. laptops, mobile phones, field area network equipment, etc.). The funding amounts within this program undergo regular review to balance the asset failure forecast within the predetermined budget allocations. Since technology asset failures will happen across Avista's territory, having budget allocation available to quickly replace a failed asset is critical to the daily operations of the Company.

[Offsets to projects will be more strongly scrutinized in general rate cases going forward *(ref. WUTC Docket No. U-190531 Policy Statement)*, therefore it is critical that these impacts are thought through in order to support rate recovery.]

2.3 Outline any business functions and processes that may be impacted (and how) by the business case for it to be successfully implemented.

Since technology asset failures will happen across Avista's territory, having budget allocation available to quickly replace a failed asset is critical to the daily operations of the Company. Each time an asset fails, Avista employees and customers can be affected by the downtime related to the automated process not performing. Rapid replacement of the asset is critical to maintain safety and performance.

2.4 Discuss the alternatives that were considered and any tangible risks and mitigation strategies for each alternative.

Alternative 1: Request Funding when Needed

Funding will only be requested once an asset fails beyond repair. The risk with this alternative is additional down time of our automation systems due to the time needed to request/approve funding to replace the failed asset.

Alternative 2: Funding based on 5% failure rates of all technology assets

Funding would be based on an assumed 5% failure rate of all technology assets. Each assets lifecycle is managed under a different business case. This option assumes a 5% funding level of the sum of all technology business cases which manage technology asset lifecycles.

2.5 Include a timeline of when this work will be started and completed. Describe when the investments become used and useful to the customer. spend, and transfers to plant by year.

The Technology Failed Assets business case is managed as a program of blanket projects which manage the replacement of failed assets tracking their used and usefulness on a monthly cadence. All individual projects set up for unplanned asset failures are managed through the PMO, which follows the Project Management Institute (PMI) standards. These projects are Initiated, Planned, Executed, and then Completed with a Transfer to Plant for the installed assets. Over the course of a calendar year, the blanket projects, along with the individual projects, equate to the funded budget.

2.6 Discuss how the proposed investment aligns with strategic vision, goals, objectives and mission statement of the organization.

This is a program with discrete projects that align with Avista's vision, mission and strategic objectives:

- To provide Better Energy for Life, you need systems that perform at an optimal level to deliver electricity and gas in a safe and reliable manner. The team supporting asset failures are highly skilled and responsive to the needs of these systems so critical business services continue to be delivered without interruption. The Technology Failed Assets Business Case aligns with Avista's "Perform" Strategic Focus Area.

2.7 Include why the requested amount above is considered a prudent investment, providing or attaching any supporting documentation. In addition, please explain how the investment prudency will be reviewed and re-evaluated throughout the project

Based on the individual asset data listed above, the requested funding amount will allow for an inventory of in-portfolio technology assets for rapid replacement of assets as they fail and when repairs are not feasible. Since the projects within the business case are evaluated monthly for used and usefulness, the forecasted failures and subsequent planned costs are also adjusted monthly based on failure rates. If there are trends appearing in the failure rates resulting in a higher velocity of spend in one asset area versus another, forecasted costs will be adjusted to make sure dollars are available across all projects.

2.8 Supplemental Information

2.8.1 Identify customers and stakeholders that interface with the business case

Within the Technology Failed Assets business case, the projects interface with various internal Avista groups such as ET Engineering, the Telecommunications Shop, various operations teams, and procurement to name a few.

Steering Committee members include Business Case Sponsors, Directors and Managers within the Enterprise Technology group long with the Business Case Owner.

The ET Business Case Owner works in conjunction with the Project Management Office (PMO), and assigned Program Manager, and subsequent Project Managers.

The ET Business Case Owner is accountable and responsible for all Business Case related activities and assignments.

2.8.2 Identify any related Business Cases

There are no related business cases currently.

3.1 Steering Committee or Advisory Group Information

Steering Committee members are invaluable to the project and will provide approval on scope, schedule, and budget related changes. For the Technology Failed Assets business case, the Steering Committee will consist of the Directors and Managers within ET and the Business Case Owner.

3.2 Provide and discuss the governance processes and people that will provide oversight

The Technology Failed Assets Business Case has two levels of governance; The Program Steering Committee and the Project Steering Committee.

Program Steering Committee

This business case is a program of related projects. The Program Steering Committee consists of members in management positions that are identified and responsible for prioritizing the projects within this program. The Steering Committee is also held accountable for the financial performance of this program. The Program Steering Committee will have regular meetings to review the progress of the program and to make decisions on the following topics:

- Project prioritization and risk
- Approving business case funding requests
- New project initiation and sequencing

The Program will be facilitated and administrated by an assigned Program Manager within the Enterprise Technology (ET) Project Management Office (PMO) Department.

Product roadmaps identify investment demand that is generally not fully funded. Product investments are prioritized in this manner:

1) Safety Systems
2) Control Systems
3) Customer Facing Systems
4) Back Office Systems

Project Steering Committee

Project Steering Committees act as the governing body over each individual project within the program and will consist of key members in management positions that are identified as responsible for the successful completion of the scope of work identified in the Charter document for the Project. The Project Steering Committee is responsible to provide guidance and make decisions on key issues that affect the following topics:

- Scope
- Schedule
- Budget
- Project Issues
- Project Risks

The Project Steering Committee will meet at the defined intervals documented in the Charter of the project and will be facilitated by an assigned Project Manager from within the ET PMO Department.

3.3 How will decision-making, prioritization, and change requests be documented and monitored

Project prioritization is evaluated by the management team on a monthly basis. Each program and project steering committee meet regularly and oversees scope, schedule and budget within their respective programs and projects and inform the Business Case owner of any changes needing escalation to the TPG or CPG for decision-making around resource or funding constraints.

Any changes in funding or scope are documented at the Business Case level, via Change Request document that is presented to the CPG on a monthly basis and evaluated by the CPG for approval.

Changes in scope, schedule, or budget are also documented through a ‘Change Request’ at the project level and reviewed and approved through a formal workflow process. All Enterprise technology projects in this business case are managed through the PMO, which follows the Project Management Institute (PMI) standards. Projects initiate with a ‘Charter’ to begin the planning process. When planning is complete, a ‘Project Management Plan (PMP)’ is created and approved as the projects baseline for scope, schedule and budget. At the end of execution, an ‘Approval to Go Live’ is submitted and approved prior to implementation (Transfer to Plant). After the technology is in service and out of the warranty period, the Project Manager will hold a Lessons Learned, and subsequently submit an

'Approval to Close' prior to finishing the project. All Monitor and Control documentation and Change Requests are documented and stored to ensure a comprehensive audit trail.

Technology Failed Assets

The undersigned acknowledge they have reviewed the Technology Failed Assets and agree with the approach it presents. Significant changes to this will be coordinated with and approved by the undersigned or their designated representatives.

Signature:	DocuSigned by: 520A95BB502F439...	Date:	Jul-30-2020 | 1:40 PM PDT
Print Name:	Mike Beil		
Title:	Mgr., IT Operations Engineering		
Role:	Business Case Owner		
Signature:	DocuSigned by: 7002E4872104449...	Date:	Aug-03-2020 | 3:18 PM PDT
Print Name:	Jim Corder		
Title:	IT Director		
Role:	Business Case Sponsor		
Signature:		Date:	
Print Name:			
Title:			
Role:	Steering/Advisory Committee Review		

Template Version: 05/28/2020

Environmental Control & Monitoring Systems

EXECUTIVE SUMMARY

Technology that enables Avista's safety, control, customer-facing, and backoffice systems is critical to the operations that serve our gas and electric customers. It is found in many different environments from office locations to mountaintop sites to call centers across our service area. Managing the facility and power environments to optimally run the systems housed in these locations is extremely important, as environmental condition changes can adversely affect them. The parameters monitored and controlled include but are not limited to temperature, humidity, fire protection, and backup power supply systems. If these parameters should fall outside of the device specification levels, it can cause damage to the technology equipment impacting business automation processes.

The technology solutions under the Environmental Control & Monitoring Systems business case will vary by site location and systems supported in each facility or environment. They may include uninterrupted power sources to allow systems to continue operating while waiting for an auxiliary power source to come online, such as an emergency generator. In fact, on a mountain top, heated and cooled enclosures are critical to assuring technology housed in that facility is maintained at the proper temperature despite changes in outside weather. The cost of each solution will vary with the type of solution identified for each site. However, location can also affect cost based on the remoteness and extreme conditions affecting that particular location. Avista and its customers can experience the benefits through ongoing system reliability.

The main driver behind this program is asset condition aligned with asset management strategies driven by technology lifecycles that are based on manufacturer product roadmaps, which can compound planned obsolescence. The asset management strategy is critical to optimize the overall lifecycle value of the product and reduce potential for failure or unplanned outages. The technology solutions under this program undergo regular review to balance the asset management strategy within the predetermined budget allocations. The risks of not approving this business case at the level to which it can maintain the balance of meeting its asset management strategy can result in unplanned failures, which result in unplanned labor and non-labor costs, risk of delay to procure and replace the failed asset, increase safety risk to send field staff in extreme weather conditions to remote locations, as well as downtime to the critical operations and safety systems that it supports.

VERSION HISTORY

Version	Author	Description	Date	Notes
1.0	Michael Busby	Original business case request	7/2017	
1.1	Michael Beil	Updated investment driver	7/2019	
2.0	Michael Busby	Narrative added to new template	7/2020	

Environmental Control & Monitoring Systems

GENERAL INFORMATION

Requested Spend Amount	$5,000,000
Requested Spend Time Period	*5 years*
Requesting Organization/Department	Enterprise Technology
Business Case Owner | Sponsor	Michael Busby | Jim Corder
Sponsor Organization/Department	Enterprise Technology
Phase	Execution
Category	Program
Driver	Asset Condition

1. BUSINESS PROBLEM

1.1 What is the current or potential problem that is being addressed?

Technology that enables Avista's safety, control, customer-facing, and back office systems is critical to the operations that serve our gas and electric customers. It is found in many different environments from office locations to mountaintop sites to call centers across our service area. Managing the facility and power environments to optimally run the systems housed in these locations is extremely important, as environmental condition changes can adversely affect them. The parameters monitored and controlled include but are not limited to temperature, humidity, fire protection, and backup power supply systems. If these parameters should fall outside of the device specification levels, it can cause damage to the technology equipment impacting business automation processes.

1.2 Discuss the major drivers of the business case *(Customer Requested, Customer Service Quality & Reliability, Mandatory & Compliance, Performance & Capacity, Asset Condition, or Failed Plant & Operations)* and the benefits to the customer

The main driver behind this program is asset condition aligned with asset management strategies driven by technology lifecycles that are based on manufacturer product roadmaps, which can compound planned obsolescence. The asset management strategy is critical to optimize the overall lifecycle value of the product and reduce potential for failure or unplanned outages.

1.3 Identify why this work is needed now and what risks there are if not approved or is deferred

The technology solutions under this program undergo regular review to balance the asset management strategy within the predetermined budget allocations. The risks of not approving this business case at the level to which it can maintain the balance of meeting its asset management strategy can result in unplanned failures, which result in unplanned labor and non-labor costs, risk of delay to procure and replace the failed asset, increase safety risk to send field staff in extreme weather conditions to remote locations, as well as downtime to the critical operations and safety systems that it supports.

1.4 Identify any measures that can be used to determine whether the investment would successfully deliver on the objectives and address the need listed above.

The main driver behind this program is asset condition aligned with asset management strategies driven by technology lifecycles. Executing planned projects will refresh assets prior to the asset's obsolescence and in this way, the business case should be able to support the asset lifecycles and reduce the risk of failing assets affecting critical business systems and processes.

1.5 Supplemental Information

1.5.1 Please reference and summarize any studies that support the problem

See below for supporting details.

1.5.2 For asset replacement, include graphical or narrative representation of metrics associated with the current condition of the asset that is proposed for replacement.

EMERGENCY GENERATORS (EGEN)

Emergency Generator assets are located at facilities where critical technologies are located. We currently have 16 generators in portfolio. They have a 20-year life cycle.

Age	Count
0-5 Yrs.	2
5-10 Yrs.	7
10-15 Yrs.	1
15-20 Yrs.	1
20-25 Yrs.	0
> 25 Yrs.	5
Total	**16**

We have 5 generators that are past their end of life and need to be refreshed. We have 2 generators that will reach their end of life over the next 5 years.

UNINTERRUPTIBLE POWER SYSTEMS (UPS)

Uninterruptible power systems used to provide AC or DC power voltages to equipment during the loss of utility power events and/or during emergency generator startup. We currently have 59 UPS systems in portfolio. They have a 5-year life cycle.

Age	Count
0-1 Yrs.	5
1-2 Yrs.	9
2-3 Yrs.	5
3-4 Yrs.	16

4-5 Yrs.	4
> 5 Yrs.	20
Total	**59**

We have 20 UPS systems beyond their end of life. 4 of these will be addressed in 2020.

DC RECTIFIERS

DC Rectifier systems are used to convert AC power to DC power. Some of Avista's technology assets have DC power supply requirements. We have 69 DC Rectifiers in portfolio. They have a 10-year life cycle.

Age	Count
0-3 Yrs.	6
3-6 Yrs.	6
6-9 Yrs.	25
9-12 Yrs.	7
12-15 Yrs.	0
> 15 Yrs.	25
Total	**69**

We have 25 Rectifiers beyond their end of life. We will have 7 more Rectifiers reach their end of life within the next 5 years.

DC BATTERIES

DC Batteries store electrical energy used to provide power to technology equipment during loss of AC power event. We have 2 type of DC batteries in portfolio. A standard and a "Long Life" Valve Regulated Lead Acid (VRLA) battery. The Standard VRLA battery has a 5-year life cycle. The "Long Life" VRLA battery has a 15-year life cycle. We currently have 55 Standard VRLA battery banks and 11 "Long Life" Battery banks in portfolio.

5 Year Lifespan	
Age	**Count**
0-1 Yrs.	2
1-2 Yrs.	11
2-3 Yrs.	4
3-4 Yrs.	1
4-5 Yrs.	1
> 5 Yrs.	36
Total	**55**

15 Year Lifespan	
Age	**Count**
0-3 Yrs.	0
3-6 Yrs.	0
6-9 Yrs.	1
9-12 Yrs.	1
12-15 Yrs.	5
> 15 Yrs.	4
Total	**11**

36 of the Standard VRLA battery banks are beyond their end of life, 14 of which are planned to be replaced in 2020. 4 “Long Life” VRLA battery banks are beyond their end of life. 6 “Long Life” VRLA Battery banks will reach end of life over the next 5 years.

HVAC SYSTEMS

HVAC Systems monitor and control the environments temperature and/or humidity. Avista’s technology assets may experience physical damage if operated in temperatures and/or humidifies outside of their specifications. We do not currently have a good inventory of our old HVAC systems. The old HVAC systems are simple in wall Air conditioning units. As they are failing, we are replacing them with a more industrial grade systems with heat pump capabilities. There are 9 new HVAC systems in portfolio. The new HVAC systems have a 20-year life cycle. None of them will reach end of life within the next 5 years.

Option	Capital Cost	Start	Complete
Optimized Asset Replacement	$5,000,000	01 2021	12 2025
Asset Replacement when Obsolete	$7,965,000	01 2021	12 2025
Asset Replacement upon Failure	$6,207,500	01 2021	12 2025

2.1 Describe what metrics, data, analysis or information was considered when preparing this capital request.

The main driver behind this program is asset condition aligned with asset management strategies driven by technology lifecycles that are based on manufacturer product roadmaps, which can compound planned obsolescence. The asset management strategy is critical to optimize the overall lifecycle value of the product and reduce potential for failure or unplanned outages. Tracking of the assets’ installation and lifecycle durations are maintained to plan the program projects over the course of future years driving the annual budget request to maintain the refresh roadmap.

2.2 Discuss how the requested capital cost amount will be spent in the current year (or future years if a multi-year or ongoing initiative). (i.e. what are the expected functions, processes or deliverables that will result from the capital spend?)**. Include any known or estimated reductions to O&M as a result of this investment.**

The requested capital cost amount per year has been calculated to deliver projects which align with the asset lifecycles that are based on manufacturer product roadmaps. This asset management strategy is critical to optimize the overall lifecycle value of the product and reduce potential for failure or unplanned outages. The technology solutions under this program undergo regular review to balance the asset management strategy within the predetermined budget allocations. The risks of not approving this business case at the level to which it can maintain the balance of meeting its asset management strategy can result in unplanned failures, which result in unplanned labor and non-labor costs, risk of delay to procure and replace the failed asset, increase safety risk to send field staff in extreme weather conditions to remote locations, as well as downtime to the critical operations and safety systems that it supports.

2.3 Outline any business functions and processes that may be impacted (and how) by the business case for it to be successfully implemented.

Technology that enables Avista's safety, control, customer-facing, and back office systems is critical to the operations that serve our gas and electric customers. It is found in many different environments from office locations to mountaintop sites to call centers across our service area. Managing the facility and power environments to optimally run the systems housed in these locations is extremely important, as environmental condition changes can adversely affect them. The parameters monitored and controlled include but are not limited to temperature, humidity, fire protection, and backup power supply systems. If these parameters should fall outside of the device specification levels, it can cause damage to the technology equipment impacting business automation processes. Maintaining the environmental assets through this business case allows for the refresh of the asset proactively in order to not affect the critical business functions and processes housed at these locations.

2.4 Discuss the alternatives that were considered and any tangible risks and mitigation strategies for each alternative.

Alternative 1: Asset Replacement When Obsolete

This alternative maintains all Environmental Control and Monitoring systems in alignment with product lifecycles. This is not the recommended option because it would result in high variability in funding and staffing levels throughout the 5-year plan.

Alternative 2: Asset Replacement upon Failure

This alternative replaces equipment only upon failure. This option introduces high risk to the company because failed assets will create significant loss of automated business processes. Mitigating this loss will result in increased asset management costs to maintain spare inventory. These costs are not accounted for in the estimate. This option assumes 50% of all obsolete assets will fail or become incompatible.

2.5 Include a timeline of when this work will be started and completed. Describe when the investments become used and useful to the customer. spend, and transfers to plant by year.

The Environmental Control and Monitoring Systems business case is managed as a program of projects planned yearly which align with asset lifecycles that are based on manufacturer product roadmaps. All individual projects are managed through the PMO, which follows the Project Management Institute (PMI) standards. Throughout the year, the business case's projects are Initiated, Planned, Executed, and then Completed with a Transfer to Plant for the installed assets which over the course of a calendar year equates to the funded budget. Within this business case, there is one blanket project for battery refreshes which Transfers to Plant on a monthly basis.

2.6 Discuss how the proposed investment aligns with strategic vision, goals, objectives and mission statement of the organization.

This is a program with discrete projects that align with Avista's vision, mission and strategic objectives:

- To provide Better Energy for Life, you need systems that function at an optimal level to deliver electricity and gas in a safe and reliable manner. The team supporting the environmental control and monitoring systems is highly skilled and responsive to the needs of these systems so critical business services continue to be delivered without interruption.

2.7 Include why the requested amount above is considered a prudent investment, providing or attaching any supporting documentation. In addition, please explain how the investment prudency will be reviewed and re-evaluated throughout the project

Based on the individual asset data listed above, the requested funding amount will allow for a group of discrete projects each year which will strive to maintain a refresh cycle ahead of the assets' obsolescence reducing the risk of unplanned failures, which result in unplanned labor and non-labor costs, risk of delay to procure and replace the failed asset, increase safety risk to send field staff in extreme weather conditions to remote locations, as well as downtime to the critical operations and safety systems that it supports.

2.8 Supplemental Information

2.8.1 Identify customers and stakeholders that interface with the business case

Within the Environmental Control and Monitoring Systems business case, the projects interface with various internal Avista groups such as ET engineering, the Telecommunications Shop, real estate, contracting, and accounts payable to name a few. While in the field, the teams also interface with landowners, local governments, environmental groups, and others related to mountaintop sites, office locations, and shared substations.

Steering Committee members include Business Case Sponsors, Directors and Managers within the Enterprise Technology group long with the Business Case Owner.

The ET Business Case Owner works in conjunction with the Project Management Office (PMO), and assigned Program Manager, and subsequent Project Managers.

The ET Business Case Owner is accountable and responsible for all Business Case related activities and assignments.

2.8.2 Identify any related Business Cases

There are no related business cases currently.

3.1 Steering Committee or Advisory Group Information

Steering Committee members are invaluable to the project and will provide approval on scope, schedule, and budget related changes. Additionally, they will provide approval on issues and risks pertaining to project deliverables outlined in this document, which also typically have an impact on the scope, schedule, or budget of a project. Steering Committee members will also provide approval on Change Requests, Go-Live, and the Approval to Close document. For the Environmental Control and Monitoring business case, the Steering Committee will consist of the Directors and Managers within ET and the Business Case Owner.

3.2 Provide and discuss the governance processes and people that will provide oversight

The Environmental Control and Monitoring systems Business Case has two levels of governance; The Program Steering Committee and the Project Steering Committee.

Program Steering Committee

This business case is a program of related projects. The Program Steering Committee consists of members in management positions that are identified and responsible for prioritizing the projects within this program. The Steering Committee is also held accountable for the financial performance of this program. The Program Steering Committee will have regular meetings to review the progress of the program and to make decisions on the following topics:

- Project prioritization and risk
- Approving business case funding requests
- New project initiation and sequencing

The Program will be facilitated and administrated by an assigned Program Manager within the Enterprise Technology (ET) Project Management Office (PMO) Department. The project queue will be reviewed periodically and will consist of projects needed to maintain the reliability and performance of all Environmental Control and Monitoring systems.

Product roadmaps identify investment demand that is generally not fully funded. Product investments are prioritized in this manner:

1) Safety Systems
2) Control Systems
3) Customer Facing Systems
4) Back Office Systems

Project Steering Committee

Project Steering Committees act as the governing body over each individual project within the program and will consist of key members in management positions that are identified as responsible for the successful completion of the scope of work identified in the Charter document for the Project. The Project Steering Committee is responsible to provide guidance and make decisions on key issues that affect the following topics:

- Scope
- Schedule
- Budget
- Project Issues
- Project Risks

The Project Steering Committee will meet at the defined intervals documented in the Charter of the project and will be facilitated by an assigned Project Manager from within the ET PMO Department.

3.3 How will decision-making, prioritization, and change requests be documented and monitored

Project prioritization is evaluated by the management team on a weekly basis. Each program and project steering committee meet regularly and oversees scope, schedule and budget within their respective programs and projects and inform the Business Case owner of any changes needing escalation to the TPG or CPG for decision-making around resource or funding constraints.

Any changes in funding or scope are documented at the Business Case level, via Change Request document that is presented to the CPG on a monthly basis and evaluated by the CPG for approval.

Changes in scope, schedule, or budget are also documented through a 'Change Request' at the project level and reviewed and approved through a formal workflow process. All Enterprise technology projects in this business case are managed through the PMO, which follows the Project Management Institute (PMI) standards. Projects initiate with a 'Charter' to begin the planning process. When planning is complete, a 'Project Management Plan (PMP)' is created and approved as the projects baseline for scope, schedule and budget. At the end of execution, an 'Approval to Go Live' is submitted and approved prior to implementation (Transfer to Plant). After the technology is in service and out of the warranty period, the Project Manager will hold a Lessons Learned, and subsequently submit an 'Approval to Close' prior to finishing the project. All Monitor and Control documentation and Change Requests are documented and stored to ensure a comprehensive audit trail.

Environmental Control & Monitoring Systems

The undersigned acknowledge they have reviewed the Environmental Control & Monitoring Systems business case narrative and agree with the approach it presents. Significant changes to this will be coordinated with and approved by the undersigned or their designated representatives.

Signature:	DocuSigned by: Michael Busby 947B03559AC4470...	Date:	Jul-30-2020 | 1:40 PM PDT
Print Name:	Michael Busby		
Title:	Mgr., IT Operations		
Role:	Business Case Owner		
Signature:	DocuSigned by: James B Corder 7002E4872104449...	Date:	Aug-03-2020 | 3:17 PM PDT
Print Name:	Jim Corder		
Title:	IT Director		
Role:	Business Case Sponsor		
Signature:		Date:	
Print Name:			
Title:			
Role:	Steering/Advisory Committee Review		

Template Version: 05/28/2020

Enterprise Communications

EXECUTIVE SUMMARY

Communication is at the very essence of human interaction, and thus a pillar of business processes. The most basic form of communication among human beings is face-to-face, which allows for both verbal and non-verbal signals to be exchanged, resulting in the most riches of interaction. However, today's world requires that communication be conducted beyond face-to-face to reach people regardless of time and location. Moreover, it enables business processes beyond people, but across systems that communicate with one another to exchange data in near-real time, such as a phone call, or to make information available on demand like an email waiting in your inbox accessible from any mobile device or location.

The primary driver for the Enterprise Communication Systems business case is performance and capacity, whereby the Company balances the need to meet performance standards and system reliability for the various technologies under this program with annual budget allocations, and their respective technology lifecycles.

Being no different than most businesses, Avista requires continuous communication among our staff and customers throughout our service territory. However, to do it effectively, we require communication technology for greater agility, flexibility, and scalability to enable many business processes, such as 24 x 7 x 365 communication with our gas and electric customers by telephone, fax, or email. Additionally, email, instant messaging, text and collaboration platforms support a digital workforce that during the COVID-19 pandemic proved very effective in supporting remote work during 'stay at home' orders issued by state governments throughout our service territory.

The costs associated with each solution can vary by the scale of the solution deployed, as well as vendor licensing models. Therefore, each technology under this program undergoes regular review of the levels of utilization and performance to determine if it is meeting the expected performance standards and capacity requirements to maintain system reliability under the established budget allocations. These reviews can result in calling for additional investment under this program from time to time for technology either falling behind technology lifecycles or predetermined performance standards, which can pose risk to communication system reliability or degradation that may delay communication channels and result overall processing delays.

VERSION HISTORY

Version	Author	Description	Date	Notes
1.0	Walter Roys	Initial BCJN Draft	6/2017	1.0
1.1	Walter Roys	Update Investment Driver	7/2019	1.1
2.0	Walter Roys	Revision of BCJN to new template	7/2020	2.0

Enterprise Communications

GENERAL INFORMATION

Requested Spend Amount	$13,084,123
Requested Spend Time Period	*5 years*
Requesting Organization/Department	Enterprise Technology
Business Case Owner | Sponsor	Walter Roys | Jim Corder
Sponsor Organization/Department	Enterprise Technology
Phase	Monitor/Control
Category	Program
Driver	Performance & Capacity

1. BUSINESS PROBLEM

1.1 What is the current or potential problem that is being addressed?

Communication technology enables business processes beyond people exchanging information, but across systems that communicate with one another to exchange data in near-real time.

Communications technology is not only subject to the traditional mortality rate or lifecycle, but it is compounded by planned obsolescence, also known as technology obsolescence[1]. Technology obsolescence is defined as when the technology asset, although within its functional lifespan, is technologically flawed or no longer meets the need of users or customers, as expectations increase due to newer and more powerful technology (with greater performance or capacity) that is available in the market.

Additionally, with the rapid pace of technological change, technology vendors require continuous upgrades to maintain system maintenance and support, which can include security patching, bug fixes, version upgrades, interoperability, and compatibility with other technologies.

1.2 Discuss the major drivers of the business case *(Customer Requested, Customer Service Quality & Reliability, Mandatory & Compliance, Performance & Capacity, Asset Condition, or Failed Plant & Operations)* and the benefits to the customer

The Enterprise Communications Systems Business Case is driven by managing technology replacement according to manufacturer product roadmaps with an objective to maintain infrastructure performance and align infrastructure assets with business demand for capacity. Therefore, the major driver for this business case is Performance & Capacity.

[1] Barreca, Stephen L. (1998-2000). *Technology Lifecycles and Technology Obsolescence*. Retrieved from http://bcri.com/products/publications.htm

All Avista customers benefit from maintaining communication systems, as this technology enables the Avista workforce to perform their day-to-day job functions in delivering gas and electric service to our customers.

1.3 Identify why this work is needed now and what risks there are if not approved or is deferred

All Avista business functions are affected by this business case, as it enables all day-to-day work activities and automated business processes around communications. From service center to call center to field work, every worker requires communications systems technology to perform their business function and deliver gas and electric service to our customers. Every customer service call is enabled by this technology. Communications technology has been critical in keeping our workforce connected, while many of our staff are required to work remotely to minimize risk to those in roles of critical operations.

Reliance on obsolete communications technology for automated business process presents significant risk that may only be solved with the reinstatement of manual process, which can result in delay response times to meet business demands and customer needs. Additionally, in some cases there is no manual solution that can replace automated communication systems that provide near-real time communication solutions.

1.4 Identify any measures that can be used to determine whether the investment would successfully deliver on the objectives and address the need listed above.

Vendor roadmaps and technology asset lifecycles are data points that inform on how best to plan replacements, while meeting business value and strategic alignment, within the constraints of resource capacity and funding, which in turn can result in deferred replacement introducing the risk of technology failure. Ongoing reviews of vendor roadmap and technology asset lifecycle alignment provide necessary information to track how much of our investment in technology is lagging behind the vendor roadmap, and thereby introducing risk.

1.5 Supplemental Information

1.5.1 Please reference and summarize any studies that support the problem

The Enterprise Technology team references various technology vendor and third-party resources to stay informed and recommend decisions on the various technology investments. A few sample sources are included below:

Barreca, Stephen L. (1998-2000). *Technology Lifecycles and Technology Obsolescence*. Retrieved from http://bcri.com/products/publications.htm

Directions on Roadmaps, Independent IT Planning Information and Advisory Service focused exclusively on Microsoft enterprise software and services. Retrieved from https://www.directionsonmicrosoft.com/
Gartner Industry Research and Reference Material. Retrieved from https://www.gartner.com/en/information-technology

1.5.2 For asset replacement, include graphical or narrative representation of metrics associated with the current condition of the asset that is proposed for replacement.

Not applicable, as the investment under this program business case is to maintain performance and capacity standards in each respective enterprise communications technology.

This program will manage technology replacement according to manufacturer product roadmaps with an objective to maintain infrastructure performance and align infrastructure assets with business demand for capacity.

The recommended solution is to address approximately 75% of obsolete products and capacity constraints (Recommended). This will introduce risk associated with technology systems reliability, interoperability and capacity. The investment required to address obsolete technology products is deferred to subsequent years. The likelihood of technology impact to business is increased. To minimize the impact of this risk, the Program Steering Committee will manage project sequence according to the investment priority documented in section 3.2.

Option	Capital Cost	Start	Complete
Recommended Solution – Address ~75% of obsolete products and capacity constraints	$13,084,123	01/2021	12/2025
Alternative #1 - Address 100% obsolete products and capacity constraints	$17,195,000	01/2021	12/2025
Alternative #2 - Address 50% of obsolete products and capacity constraints	$8,597,000	01/2021	12/2025

2.1 Describe what metrics, data, analysis or information was considered when preparing this capital request.

The funds request was based on a calculation of the asset lifecycle associated with each technology asset, the scope of the technology footprint across our service territory, and historical project costs for technologies previously refreshed under this business case. Through regular reviews, the program balances the need to meet system performance and reliability standards for the various technologies under this program within annual budget allocations, and their respective technology lifecycles. These reviews can result in calling for additional investment under this program from time to time for technology either

falling behind technology lifecycles or predetermined performance and reliability standards.

A product obsolescence working group, consisting of Technology Domain Architects, maintains technology roadmaps to inform Program Steering Committee members of project demand. Project demand is assessed against funding constraints each year and prioritized based on risk of technology impact to the business. Various data points inform the team's decisions and recommendations, which include, but are not limited to vendor-driven obsolescence, compute capacity and storage, historical project costs for similar type projects, etc.

2.2 Discuss how the requested capital cost amount will be spent in the current year (or future years if a multi-year or ongoing initiative). (i.e. what are the expected functions, processes or deliverables that will result from the capital spend?)**. Include any known or estimated reductions to O&M as a result of this investment.**

The funding requested under the Enterprise Communication Systems Business Case will be invested in the following technologies:

- Instant messaging systems
- Contact Center automatic call distribution system
- Contact Center scheduling and QA systems
- Customer interactive voice response (IVR) system
- Voice recording systems
- Electronic mail and calendar system
- Voicemail system
- Telephone systems
- Teleconferencing systems
- Video conferencing systems
- Conference room technology
- Media Walls
- Enhanced 911 emergency services
- Electronic fax systems
- Paging systems
- Application systems to manage enterprise communication technology

Investment in these technologies can result in added O&M expenses from licensing increases from time to time. However, not funding this business case may result in removing automated business functions, which will either cause delay in meeting business and customer demands or completely change whether we can even respond to business and customer demands. There are no O&M reductions or offsets resulting from these investments, as this technology enables the Avista workforce to perform their day-to-day job functions in delivering gas and electric service to our customers.

Reliance on obsolete technology for automated business process presents significant risk that may only be solved with the reinstatement of manual process. Sustaining automated business process by replacing automation with workforce would increase labor expense.

Additionally, with the rapid pace of technological change, technology vendors require continuous upgrades to maintain system maintenance and support, which can include security patching, bug fixes, version upgrades, interoperability, and compatibility with other technologies. These upgrades can in turn drive subsequent system replacements, creating a cascading event of change. Therefore, vendor roadmaps and technology asset lifecycles are data points that inform on how best to plan replacements, while meeting business value and strategic alignment, within the constraints of resource capacity and funding, which in turn can result in deferred replacement introducing the risk of technology failure.

2.3 Outline any business functions and processes that may be impacted (and how) by the business case for it to be successfully implemented.

All Avista business functions are affected by this business case, as it enables all day-to-day work and communications activities and automated business processes. From service center to call center to field work, every worker requires enterprise communication technology to perform their business function and deliver gas and electric service to our customers. This technology is even more important in a work from home environment to keep employees and departments connected while minimizing risk to essential employees.

2.4 Discuss the alternatives that were considered and any tangible risks and mitigation strategies for each alternative.

Retire assets and remove automation

This option assumes the assets would not be replaced upon end of life and be removed from service due to product incompatibility, business risk or safety risk.

The basis for measuring the business impact of not funding this business case is realizing the loss of business process automation. As products reach the manufacturer-defined planned obsolescence, business process automation is jeopardized, and business risk is increased as manufacturers cease product maintenance and support. This condition would drive action. The alternative could lead to a mitigation plan of having to re-instate manual business process or eliminate the business process.

Address 100% of obsolete products and capacity constraints

This is the optimal solution. This option fully addresses and minimizes the likelihood of technology impact to automated business process.

Address 50% of obsolete products and capacity constraints
This will introduce risk associated with technology systems reliability, interoperability and capacity. The investment required to address obsolete technology products is deferred to subsequent years. The likelihood of technology impact to business is increased. Interoperability constraints may force unplanned funding requests. Multi-year, complex projects are at risk of completion prior to product obsolescence. This option impacts the workforce.

2.5 Include a timeline of when this work will be started and completed. Describe when the investments become used and useful to the customer. spend, and transfers to plant by year.

This business case is a program that transfers to plant the total cost of each project at the completion of every project, which can straddle calendar years. Quarterly forecasts capture changes in transfers to plant based on project status.

2.6 Discuss how the proposed investment aligns with strategic vision, goals, objectives and mission statement of the organization.

The technology investments under this business case program align with Avista's vision to deliver 'better energy for life' to our customers and in the area of 'Perform', which calls for "our focus on performance today to serving our customers well and unlocking pathways to growth."

Each investment under this business case program allows Avista to deliver electric and gas services to our customers.

2.7 Include why the requested amount above is considered a prudent investment, providing or attaching any supporting documentation. In addition, please explain how the investment prudency will be reviewed and re-evaluated throughout the project

The reason that the technology investment under this program business case is prudent is because communication is at the very essence of human interaction, and thus a pillar of business processes. As such, the Avista workforce requires this technology every to deliver gas and electric service to our customers either in an office, customer service center or in the field. Alternatives to each technology are considered, yet not investing in it is not an option as automated business process would either stop or be removed, thereby crippling our workforce's ability to deliver gas and electric service to our customers, respond to compliance requirements, and conduct business operations and reporting. Additionally, a two-tiered governance structure overseeing this business case program meets regularly to oversee and make decisions on the needs, benefits, costs, and risks of each investment.

2.8 Supplemental Information

2.8.1 Identify customers and stakeholders that interface with the business case

Nearly all Avista's workforce interface with the technology investments under this business case. Selected leaders in organizational business units, known as technology stakeholders, work closely with the technology teams to help with business roadmaps, use case definition, gather non-functional requirements, test design, and deployment approaches to inform technology investments.

2.8.2 Identify any related Business Cases

The technology investment under this business case requires deployment and use of outputs from other business cases, specifically delivery on personal computers and servers, connecting to a virtual private network or cloud service, security updates and patching, etc.

3.1 Steering Committee or Advisory Group Information

The **Enterprise Communication Systems** Business Case has two levels of governance; The Program Steering Committee and the Project Steering Committee.

3.2 Provide and discuss the governance processes and people that will provide oversight

Program Steering Committee

This business case is a program of related projects. The Program Steering Committee consists of members in management positions that are identified and responsible for prioritizing the projects within this program. The Steering Committee is also held accountable for the financial performance of this program. The Program Steering Committee will have regular meetings to review the progress of the program and to make decisions on the following topics:

- Project prioritization and risk
- Approving business case funding requests
- New project initiation and sequencing

The Program will be facilitated and administrated by an assigned Program Manager within the Enterprise Technology (ET) Project Management Office (PMO) Department. The project queue will be reviewed periodically and will consist of projects needed to maintain the reliability and performance of all enterprise communication systems.

Technology product roadmaps identify investment demand that is generally not fully funded. Technology product investments are prioritized in this manner:

1) Safety Systems
2) Control Systems
3) Customer Facing Systems
4) Back Office Systems

Project Steering Committee

Project Steering Committees act as the governing body over each individual project within the program and will consist of key members in management positions that are identified as responsible for the successful completion of the scope of work identified in the Charter document for the Project. The Project Steering Committee is responsible to provide guidance and make decisions on key issues that affect the following topics:

- Scope
- Schedule
- Budget
- Project Issues
- Project Risks

The Project Steering Committee will meet at the defined intervals documented in the Charter of the project and will be facilitated by an assigned Project Manager from within the ET PMO Department.

3.3 How will decision-making, prioritization, and change requests be documented and monitored

The governance structure under this business case program is responsible for decision-making, prioritization, and change requests. Through the regular Program Steering Committee Meetings, the team reviews and balances planned work versus unplanned work to determine prioritization, as well as pending project change requests. Any change request requiring either an increase or decrease of funds is reviewed at the upcoming Technology Planning Group meeting before it is submitted to the Capital Planning Group for consideration.

Enterprise Communications

The undersigned acknowledge they have reviewed the Enterprise Communications Systems and agree with the approach it presents. Significant changes to this will be coordinated with and approved by the undersigned or their designated representatives.

Signature:	DocuSigned by: Walter Roys 28978793A9C64D0...	Date:	Jul-30-2020 | 11:51 AM PDT
Print Name:	Walter Roys		
Title:	System Engineering Manager		
Role:	Business Case Owner		
Signature:	DocuSigned by: James B Corder 7002E4872104449...	Date:	Aug-03-2020 | 5:43 PM PDT
Print Name:	Jim Corder		
Title:	IT Director		
Role:	Business Case Sponsor		
Signature:	DocuSigned by: Karen Schuh 0D892330AD2944F...	Date:	Aug-03-2020 | 6:36 PM PDT
Print Name:	Karen Schuh		
Title:	IT Program Manager		
Role:	Steering/Advisory Committee Review		
Signature:	DocuSigned by: 6456C8EEE402467...	Date:	Aug-04-2020 | 7:27 AM PDT
Print Name:	Andy Leija		
Title:	ET PMO Manager		
Role:	Steering/Advisory Committee Review		

Template Version: 05/28/2020

ET Modernization and Operational Efficiency

EXECUTIVE SUMMARY

As the utility industry undergoes transformation into digitalization, the growth of business application technology continues to enable automation and manual business processes to provide safe and reliable gas and electric service to our customers. This growth in business application technology creates an intricate tapestry that require ancillary tools and systems to deliver and support Company-wide solutions. Essentially, business application technology requires shared platforms and management tools to increase the quality, stability, and delivery velocity to meet business goals and meet expectations from our customers.

The Enterprise Technology ("ET") Modernization and Operational Efficiency Business Case is primarily driven by performance and capacity to support business application implementation, development, operations, support, delivery automation, and data delivery. Put another way, this program focuses on the tools and systems used by the technology teams to deliver solutions to the rest of the organization.

The cost of these solutions varies by scale of footprint and vendor licensing models. Therefore, technology under this program undergoes regular review of the levels of utilization and performance to determine if it is meeting the expected performance standards and capacity requirements to maintain business application system reliability under the established budget allocations, and their respective technology lifecycles. These reviews can result in calling for additional investment under this program from time to time for technology either falling behind technology lifecycles or predetermined performance standards. The technology tools and systems under this program benefit all Avista customers, as they support business application systems throughout the Company. Not approving this business case or its recommended funding can pose risks to the reliability of the tools and systems the technology team uses to support the rest of the organization.

VERSION HISTORY

Version	Author	Description	Date	Notes
1.0	Jason Pegg	Initial BC Narrative 1.0	7/2017	1.0
2.0	Andy Leija	Revised BC Narrative 2.0	7/2020	2.0

ET Modernization and Operational Efficiency

GENERAL INFORMATION

Requested Spend Amount	$10,252,000
Requested Spend Time Period	*5 Years*
Requesting Organization/Department	Enterprise Technology
Business Case Owner | Sponsor	Andy Leija | Hossein Nikdel, Pat Dever, Clay Storey, Jim Corder, Jim Kensok
Sponsor Organization/Department	Enterprise Technology
Phase	Execution
Category	Program
Driver	Performance & Capacity

1. BUSINESS PROBLEM

1.1 What is the current or potential problem that is being addressed?

The growth in business application technology, as part of the transformation of the utility industry, requires ancillary tools and systems to deliver and support Company-wide technology solutions. Essentially, business application technology requires shared platforms and management tools to increase the quality, stability, and delivery velocity to meet business goals and meet expectations from our customers. These platforms and tools fit into two categories, those shared across the entire Avista Organization and those specific to the needs of the Enterprise Technology (ET) department as tools to support business applications.

1.2 Discuss the major drivers of the business case *(Customer Requested, Customer Service Quality & Reliability, Mandatory & Compliance, Performance & Capacity, Asset Condition, or Failed Plant & Operations)* and the benefits to the customer

The Enterprise Technology Modernization and Operational Efficiency (ETMOE) Business Case is primarily driven by performance and capacity to support business application implementation, development, operations, support, delivery automation, and data delivery. Put another way, this program focuses on the tools and systems used by the technology teams to deliver solutions to the rest of the organization. The technology tools and systems under this program benefit all Avista customers, as they support business application systems throughout the Company.

1.3 Identify why this work is needed now and what risks there are if not approved or is deferred

These technology platforms and tools provide functional enhancements that address ongoing changes in the workplace, provide increased employee efficiency through the reduction of steps required to complete a task, and make better use of Avista resources. They shift efforts from inefficient processes to more value-driven activities by leveraging the technology to meet both planned and unplanned business needs.

Not approving the technology investments under this business case results in technology platforms and tools falling behind their technology vendor required upgrades, which in turn hinders any support needed for business applications or information storage and workflow management used daily for investment planning and delivery, managed file transfers, pre-production testing, and technology lifecycle management. For example, this is very similar to not furnishing a mechanic with either the tools or equipment necessary and required to fix a car when it breaks down or does not perform as expected. The technology teams would be hindered in their ability to assist or repair business applications and their respective information storage and workflows when they become unresponsive or inoperable, especially for reoccurring issues where root cause analysis is necessary to prevent future events or incidents.

1.4 Identify any measures that can be used to determine whether the investment would successfully deliver on the objectives and address the need listed above.

Vendor roadmaps and technology asset lifecycles are data points that inform on how best to plan replacements for existing technology under the ETMOE program, while meeting business value and strategic alignment, within the constraints of resource capacity and funding, which in turn can result in deferred replacement introducing the risk of technology failure. Ongoing reviews of vendor roadmap and technology asset lifecycle alignment provide necessary information to track how much of our investment in technology is lagging behind the vendor roadmap, and thereby introducing risk to supporting business application systems and their corresponding and respective automated business processes.

1.5 Supplemental Information

1.5.1 Please reference and summarize any studies that support the problem

ET Modernization and Operational Efficiency Monthly Stakeholder and Steering Committee teams references various technology vendor and third-party resources to stay informed and recommend decisions on the various technology investments. A few sample sources are included below:

- Roadmaps for specific platforms and tools, such as Opentext (for Enterprise Content Management) and Biztalk (for Enterprise Service Bus) are examples of vendor roadmaps regularly referenced.
- Gartner Industry Research and Reference Material. Retrieved from https://www.gartner.com/en/information-technology

1.5.2 For asset replacement, include graphical or narrative representation of metrics associated with the current condition of the asset that is proposed for replacement.

Not applicable, as the investment under this program business case is to maintain performance and capacity standards in each respective technology that falls within it.

Option	Capital Cost	Start	Complete
Recommended Solution – Fund at level to sustain existing technology tools and enterprise-wide systems, including required license renewals	$10.252 M	01 2021	12 2025
Alternative #1 – Reduced funding by deferring license renewal funding requests into the in-year CPG review process	$8.7 M	01 2021	12 2025
Alternative #2 – Reduced funding by removing IT Service Management investment to upgrade outdated Tracker/Resource Library custom-coded system	$8.252 M	01 2021	12 2025

2.1 Describe what metrics, data, analysis or information was considered when preparing this capital request.

These estimates were derived from calculated employee and contract labor costs for the primary teams working in this business case area, as well as historical trends, product roadmaps and high-level industry estimates for technology products. High level estimates are collected by the business level subject matter expert(s), technology domain architect(s), and delivery management team(s).

Upstream investment in enhancements and upgrades to these platforms can result in savings by not incurring downstream costs when applications break, or simply stated, avoid costs associated with system inoperability that can hinder worker productivity. Non-production systems (such as Azure DevOps) allows the organization to test enhancements, upgrades and new implementations prior to deployment in production. This results in reduced errors in production systems, which could also affect employees and customers negatively, from untested changes or upgrades.

2.2 Discuss how the requested capital cost amount will be spent in the current year (or future years if a multi-year or ongoing initiative). (i.e. what are the expected functions, processes or deliverables that will result from the capital spend?)**. Include any known or estimated reductions to O&M as a result of this investment.**

[Offsets to projects will be more strongly scrutinized in general rate cases going forward *(ref. WUTC Docket No. U-190531 Policy Statement)*, therefore it is critical that these impacts are thought through in order to support rate recovery.]

The funding requested under the ETMOE Business Case will be invested in technology, such as:

- **IT Incident and Asset Management** – Replacements for existing, custom-coded, and outdated IT incident and asset management tools (Tracker and Resource Library) to support Avista's technology service workflows, incident, and asset management.
- **Content and Workflow Platforms** – Enhancement and upgrades for platforms that allow for content storage and sharing, such as ECM and SharePoint, as well as organizational workflows.
- **Non-production Environment & Data Management** – Enhancements and new system implementations required to support continuous integration, QA and other automations, data management, and new development environments (which improves developer efficiency and overall systems security).
- **ET Portfolio Management** – Ongoing enhancements to portfolio and project management systems to support the evolving needs of technology investment planning and delivery, while capturing contemporaneous project artifacts that document governance.
- **Application Lifecycle Management Tools** – Ongoing enhancements to the systems and platforms that support application development, delivery, and integration for consistent deployment and delivery of changes and upgrades on a multitude of business application systems that enable business processes across the organization.
- **Shared Systems and Tooling** – Ongoing enhancements to and expansion of automation and tracking tools (such as AppDynamics) that provide Operations and Software Development teams with insight into application usage, issues, network connectivity, and more. Also includes integration of systems across Avista utilizing Microsoft Biztalk to assist in process and information sharing for platforms supported by other business cases such as CC&B and Maximo.
- **Managed File Transfer** – Ongoing enhancements to and expansion of Avista's managed file transfer system (GlobalScape), which allows for the secure transfer of data from one location to another, both internally and externally. This can include transactions with sensitive and highly sensitive information.

Reliance on obsolete technology for automated business process presents significant risk that may only be solved with the reinstatement of manual process. In some cases, reinstating manual processes is not even an option, as technology has completely introduced system requirements in information storage, access, and transactions among systems greater and faster than any human being is able to store, access, or transact. Sustaining automated business process by replacing automation with workforce would increase labor expense in the few areas where removing business process automation is possible.

Additionally, with the rapid pace of technological change, technology vendors require continuous upgrades to maintain system maintenance and support, which can include security patching, bug fixes, version upgrades, interoperability, and compatibility with other technologies. These upgrades can in turn drive subsequent system replacements. Therefore, vendor roadmaps and technology asset lifecycles are data points that inform on how best to plan replacements, while meeting business value and strategic alignment, within the constraints of resource capacity and funding, which in turn can result in deferred replacement introducing the risk of technology failure.

Impacts to O&M can occur and be both positive and negative as a result of multi-year, pre-pay license agreements that are capitalized under this business case. However, these changes can vary from year to year depending on the system or tool up for license renewal and the licensing model being offered by the technology vendor. This makes forecasting product license renewal costs quite challenging.

2.3 Outline any business functions and processes that may be impacted (and how) by the business case for it to be successfully implemented.

These technology platforms are used by all areas of the organization, or they furnish tools for the technology team to support other business application systems. The business function or processes that may be impacted include, but are not limited to:

- Meeting gas Maximum Allowable Operating Pressure (MAOP) compliance document storage requirements and labor relations bargaining unit documentation and decisions;
- Workflow management used daily for Accounts Payable invoice processing and approvals;
- Investment planning and delivery for technology investments across the organizations, including project management and artifact storage and approval workflows:
- Near real time transaction of data from enterprise systems, such as our customer care billing and asset management system;

- Managed file transfers for internal and external movement of information among systems and third parties;
- Pre-production environment testing and quality assurance tools to minimize or avoid errors in production systems from upgrades or changes to application business systems;
- Root cause analyses tool to identify cause for faster operational remediation;
- Information storage for technology lifecycle management, and
- Workflow processes for technology incident management and change approval.

2.4 Discuss the alternatives that were considered and any tangible risks and mitigation strategies for each alternative.

Alternative #1 – Reduced funding by deferring license renewal funding requests into the in-year CPG review process

One alternative is to defer funding to support license renewals to in-year requests from the Capital Planning Group (CPG). For example, multi-year, pre-pay renewal for a root cause identification and analysis tool, such as App Dynamics could be deferred until the renewal year with a funding request to the CPG. The risk of deferring this funding request is that if the funds are not available during the required period, the license renewal can lapse, thereby leaving the system out of software license compliance and in some cases losing access to functionality from the technology vendor.

Alternative #2 – Reduced funding by removing IT Service Management investment to upgrade outdated Tracker/Resource Library custom-coded system

This alternative would remove the IT Service Management project from the roadmap and replace it with a smaller amount of funding ($100,000 per year) to attempt enhancements to our existing tools, Tracker and Resource Library. This Alternative runs the risk of keeping Avista on tools that are written in outdated, custom code. There is also no guarantee that these existing systems can be enhanced to the degree necessary to meet the required capabilities of technology asset management and incident management.

So, while feasible, these funding alternatives reduce efficiencies, increase complexity in system interoperability, and add risk to system reliability, which can put our workforce at peril of not being able to perform their job functions.

2.5 Include a timeline of when this work will be started and completed. Describe when the investments become used and useful to the customer. spend, and transfers to plant by year.

This business case is a program that transfers to plant the total cost of each sub-project at the completion of every project, which can straddle calendar years. Quarterly forecasts capture changes in transfers to plant based on project status.

2.6 Discuss how the proposed investment aligns with strategic vision, goals, objectives and mission statement of the organization.

The technology investments under this business case program align with Avista's vision to deliver 'better energy for life' to our customers and in the area of 'Perform', which calls for "our focus on performance today to serving our customers well and unlocking pathways to growth."

Each investment under this business case program allows Avista to maintain system reliability to deliver electric and gas services to our customers.

2.7 Include why the requested amount above is considered a prudent investment, providing or attaching any supporting documentation. In addition, please explain how the investment prudency will be reviewed and re-evaluated throughout the project

The platforms and tools under the ETMOE Business Case provide essential functions to Avista's workforce and customers throughout all service territories. These vital systems require systematic upgrades and enhancements to maintain reliability, interoperability, and reduce security vulnerabilities.

The reason that the technology investment under this program business case is prudent is because the Avista workforce requires this technology every day to deliver gas and electric service to our customers either in an office, customer service center or in the field. Alternatives to each technology are considered, yet not investing in it is not an option as automated business process would either stop or be removed, thereby crippling our workforce's ability to deliver gas and electric service to our customers, respond to compliance requirements, and conduct business operations and reporting. Additionally, a two-tiered governance structure overseeing this business case program meets regularly to oversee and make decisions on the needs, benefits, costs, and risks of each investment.

2.8 Supplemental Information

2.8.1 Identify customers and stakeholders that interface with the business case

Nearly all Avista's workforce interface with the technology investments under this business case, depending on the application systems being used to perform any given business function. In some cases, the technology investments are primarily interfacing with the technology operations teams whose job is to support business application systems.

The stakeholders that interface directly with the business case include, the ETMOE Business Case Sponsors and Owner who work in conjunction with the assigned Program Manager, and subsequent Project Managers. The Business Technology Analyst (BTA) team is also engaged at all levels.

2.8.2 Identify any related Business Cases

The ET Modernization and Operational Efficiency Business Case works closes with all other Enterprise Technology business cases to determine which platforms and tools provide functionality to all areas of the business, as opposed to department specific platforms and tools that respond to specific business unit needs.

3.1 Steering Committee or Advisory Group Information

The **ETMOE** Business Case consists of Program Steering Committees and the Project Steering Committee for respective project investments.

The ET Modernization and Operational Efficiency Business Case has four levels of governance: The Executive Technology Steering Committee (ETSC); Technology Planning Group (TPG) of Directors; Integrated Oversight Committee (IOC), and Program/Project Steering Committees. Applicable stakeholders and disciplines meet regularly to govern the business case and subsequent programs and projects.

The IOC evaluates and compares all the application portfolio project priorities on a weekly basis, utilizing risk, capacity, and other situational factors to ensure each planned project is meeting critical milestones. The TPG sets priority across the technology investment portfolio, balancing: strategic alignment, business value, and customer benefits, as driven by the strategic initiatives established by the ETSC.

The Capital Planning Group (CPG), an independent body, establishes funding allocations for each Business Case across the enterprise. The Business Case is largely limited by the funding allocation and resource capacity (staff) to meet its goals. The funding is generally established at the Business Case level by the CPG. The resource capacity constraint is generally managed by the TPG and the Business Case owner. Once the two constrains are established, the Business Case owner will work with steering committee(s) to set project priority

and sequence over a five-year planning period, subject to additional funding changes as directed by the CPG.

3.2 How will decision-making, prioritization, and change requests be documented and monitored

The governance structure under this business case program is responsible for decision-making, prioritization, and change requests. Through the regular Program Steering Committee Meetings, the team reviews and balances planned work versus unplanned work to determine prioritization, as well as pending project change requests. Any change request requiring either an increase or decrease of funds is reviewed at the upcoming Technology Planning Group meeting before it is submitted to the Capital Planning Group for consideration.

The undersigned acknowledge they have reviewed the *Enterprise Technology Modernization and Operational Efficiency* and agree with the approach it presents. Significant changes to this will be coordinated with and approved by the undersigned or their designated representatives.

Signature:	DocuSigned by: 6456C8EEF402467...	Date:	Jul-30-2020 | 7:03 PM PDT
Print Name:	Andy Leija		
Title:	IT Manager		
Role:	Business Case Owner		
Signature:	DocuSigned by: Hossein Nikdel E4E2D9C7EE4747F...	Date:	Jul-31-2020 | 7:44 AM PDT
Print Name:	Hossein Nikdel		
Title:	Director, App and Sys Planning		
Role:	Business Case Sponsor		
Signature:	DocuSigned by: 8D6F68B1784E4BA...	Date:	Aug-01-2020 | 8:03 AM PDT
Print Name:	Pat Dever		
Title:	Director, Data Science		
Role:	Business Case Sponsor		
Signature:	DocuSigned by: Clay Storey 870F93F79C1D4B6...	Date:	Jul-31-2020 | 2:54 PM PDT
Print Name:	Clay Storey		
Title:	Director, Enterprise Security		
Role:	Business Case Sponsor		

ET Modernization and Operational Efficiency

Signature:	DocuSigned by: James B Corder 7002E487210444...	Date:	Aug-03-2020 | 3:20 PM PDT
Print Name:	Jim Corder		
Title:	Director, Infrastructure Technology		
Role:	Business Case Sponsor		

Signature:	DocuSigned by: Jim Kensok 733AFC4130114FA...	Date:	Aug-03-2020 | 3:26 PM PDT
Print Name:	Jim Kensok		
Title:	Chief Info. & Security Officer		
Role:	Business Case Sponsor		

Data Center Compute and Storage Systems

EXECUTIVE SUMMARY

Business processes require automated technology solutions to meet the overwhelming need for data and information to make decisions. All industries are reliant on the ability to produce, transmit, analyze, and store information to meet various business requirements. This digitalization is resulting in an ever-growing need for data processing and storage for on-demand requests and decision-making. Avista is no different. The Company produces, transmits, analyzes, and stores meter data, telemetry data, asset data, customer billing data, geographic information systems data, etc. Data processing and storage requires high reliability no different than our electric and gas grids supplying customers with power and gas. The Data Center Compute and Storage Systems business case is a program of investments in server technology required to process and store massive amounts of data to automate and enable business processes that support our gas and electric customers across our service territory.

The technology solutions to meet performance standards and reliability requirements can vary from hardware and software upgrades in an on-premise data center, offsite storage, or service provider (cloud) facility, or in operating technology to optimize compute and storage capacity. Solution costs can also vary depending on the magnitude of the technology footprint or vendor licensing model(s). As enabling technology, data center processing and storage investment benefits all Avista customers, as it optimizes cost and productivity by not reverting to manual business processing, which would result in increased labor costs, human error, and overall processing delays. Because technology is evolving so quickly, this program undergoes regular review of the levels of investment and utilization to meet performance and capacity standards, and reliability requirements, while balancing against pre-established budget allocations. These reviews can result in calling for additional investment under this program for technology at risk of poor application system performance and system unavailability.

VERSION HISTORY

Version	Author	Description	Date	Notes
1.0	Walter Roys	Initial BCJN Draft	6/2017	
2.0	Walter Roys	Revision of BCJN to new template	7/2020	

Data Center Compute and Storage Systems

GENERAL INFORMATION

Requested Spend Amount	$9,856,000
Requested Spend Time Period	5 years.
Requesting Organization/Department	Enterprise Technology
Business Case Owner | Sponsor	Walter Roys | Jim Corder
Sponsor Organization/Department	Enterprise Technology
Phase	Monitor/Control
Category	Program
Driver	Performance & Capacity

1. BUSINESS PROBLEM

1.1 What is the current or potential problem that is being addressed?

Technology is not only subject to the traditional mortality rate or lifecycle, but it is compounded by planned obsolescence, also known as technology obsolescence.[1] That is, whereby, the technology asset although within its functional lifespan is technologically flawed or no longer meets the need of users or customers, as expectations increase due to newer and more powerful technology that is available in the market. Data center compute and storage technology is no different.

Additionally, with the rapid pace of technological change, technology vendors require continuous upgrades to maintain system maintenance and support, which can include security patching, bug fixes, version upgrades, interoperability, and compatibility with other technologies. Additionally, the endpoint compute and productivity technology is necessary to enable the capabilities that align with our strategic goals of putting our customers at the center.

1.2 Discuss the major drivers of the business case *(Customer Requested, Customer Service Quality & Reliability, Mandatory & Compliance, Performance & Capacity, Asset Condition, or Failed Plant & Operations)* and the benefits to the customer

The Data Center Compute and Storage Systems Business Case is driven by managing technology replacement according to manufacturer product roadmaps with an objective to maintain infrastructure performance and align infrastructure assets with business demand for capacity. Therefore, it falls under the Performance and Capactiy investment driver.

[1] Barreca, Stephen L. (1998-2000). *Technology Lifecycles and Technology Obsolescence*. Retrieved from http://bcri.com/products/publications.htm

All Avista customers benefit from maintaining data center compute and storage systems, as this technology enables the Avista workforce to perform their day-to-day job functions in delivering gas and electric service to our customers. Additionally, assets that fail due to not being replaced within their technology lifecycle are replaced by the Technology Failed Asset business case, which tracks technology asset failures, and is also used as a data point to inform the technology lifecycles under this business case.

1.3 Identify why this work is needed now and what risks there are if not approved or is deferred

Avista's office, call center, and field staff require on-demand information to meet customer expectations when providing gas and electric service to customers across our service territory. The information can be critical to prevent, reduce, affect, or optimize an outcome that benefits our customers.

Reliance on obsolete technology that stores and computes many of our on-premise business applications to automate business processes presents significant risk that may only be solved with the reinstatement of manual process. Sustaining automated business process by replacing automation with workforce would increase labor expense, and delay response times to meet customer needs.

1.4 Identify any measures that can be used to determine whether the investment would successfully deliver on the objectives and address the need listed above.

Vendor roadmaps and technology asset lifecycles are data points that inform on how best to plan replacements, while meeting business value and strategic alignment, within the constraints of resource capacity and funding, which in turn can result in deferred replacement introducing the risk of technology failure. Ongoing reviews of vendor roadmap and technology asset lifecycle alignment provide necessary information to track how much of our investment in technology is lagging behind the vendor roadmap, and thereby introducing risk.

1.5 Supplemental Information

1.5.1 Please reference and summarize any studies that support the problem

The Enterprise Technology team references various technology vendor and third-party resources to stay informed and recommend decisions on the various technology investments. A few sample sources are included below:

Barreca, Stephen L. (1998-2000). *Technology Lifecycles and Technology Obsolescence*. Retrieved from http://bcri.com/products/publications.htm

Directions on Roadmaps, Independent IT Planning Information and Advisory Service focused exclusively on Microsoft enterprise software and services. Retrieved from https://www.directionsonmicrosoft.com/

Gartner Industry Research and Reference Material. Retrieved from https://www.gartner.com/en/information-technology

1.5.2 For asset replacement, include graphical or narrative representation of metrics associated with the current condition of the asset that is proposed for replacement.

Not applicable, as the investment under this program business case is to maintain performance and capacity standards in each respective data center compute and storage technology.

The data center compute and storage technology systems provide the infrastructure foundation for basically all automated business process.

The recommended solution is to address 75% of obsolete products and capacity constraints (Recommended). This will introduce risk associated with technology systems reliability, interoperability and capacity. The investment required to address obsolete technology products is deferred to subsequent years. The likelihood of technology impact to business is increased. To minimize the impact of this risk, the Program Steering Committee will manage project sequence according to the investment priority documented in section 3.2.

Option	Capital Cost	Start	Complete
Alternative #1: Retire assets and remove automation	$1,338,700	01/2020	12/2024
Alternative #2: Address 100% obsolete products and capacity constraints	$17,649,867	01/2020	12/2024
Alternative #3: Address 75% obsolete products and capacity constraints (recommended)	$13,237,400	01/2020	12/2024
Alternative #4: Address 56% obsolete products and capacity constraints (submitted)	**$9,856,000**	**01 2021**	**12 2025**
Alternative #5: Address 40% obsolete products and capacity constraints	$7,060,000	01/2020	12/2024

2.1 Describe what metrics, data, analysis or information was considered when preparing this capital request.

The funds request was based on a calculation of the asset lifecycle associated with each technology asset, the scope of the technology footprint across our service territory, and historical project costs for technologies previously refreshed under this business case. Through regular reviews, the program balances the need to meet system performance and reliability standards for the various technologies under this program within annual budget allocations, and

their respective technology lifecycles. These reviews can result in calling for additional investment under this program from time to time for technology either falling behind technology lifecycles or predetermined performance and reliability standards.

A product obsolescence working group, consisting of Technology Domain Architects, maintains technology roadmaps to inform Program Steering Committee members of project demand. Project demand is assessed against funding constraints each year and prioritized based on risk of technology impact to the business. Various data points inform the team's decisions and recommendations, which include, but are not limited to vendor-driven obsolescence, compute capacity and storage, historical project costs for similar type projects, etc.

2.2 Discuss how the requested capital cost amount will be spent in the current year (or future years if a multi-year or ongoing initiative). (i.e. what are the expected functions, processes or deliverables that will result from the capital spend?)**. Include any known or estimated reductions to O&M as a result of this investment.**

[Offsets to projects will be more strongly scrutinized in general rate cases going forward *(ref. WUTC Docket No. U-190531 Policy Statement)*, therefore it is critical that these impacts are thought through in order to support rate recovery.]

The funding requested under the Data Center Compute and Storage Business Case will be invested in technology, such as:

- Data center compute technology, which includes both on premise servers and cloud services
- Remote office compute and storage
- Application systems to manage compute and storage technology
- Server operating systems (OS)
- Data storage systems
- Data center racks and power distribution units (PDU)
- Backup and recovery systems

Investment in these technologies can result in added O&M expenses from increase in licenses from time to time. However, not funding this business case may result in removing automated business functions, which will either cause delay in meeting business and customer demands or completely change whether we can even respond to business and customer demands. There are no O&M reductions or offsets resulting from these investments, as this technology enables the Avista workforce to perform their day-to-day job functions in delivering gas and electric service to our customers.

Reliance on obsolete technology for automated business process presents significant risk that may only be solved with the reinstatement of manual process. Sustaining automated business process by replacing automation with workforce would increase labor expense.

Additionally, with the rapid pace of technological change, technology vendors require continuous upgrades to maintain system maintenance and support, which can include security patching, bug fixes, version upgrades, interoperability, and compatibility with other technologies. These upgrades can in turn drive subsequent system replacements, creating a cascading event of change. Therefore, vendor roadmaps and technology asset lifecycles are data points that inform on how best to plan replacements, while meeting business value and strategic alignment, within the constraints of resource capacity and funding, which in turn can result in deferred replacement introducing the risk of technology failure.

2.3 Outline any business functions and processes that may be impacted (and how) by the business case for it to be successfully implemented.

All Avista business functions are affected by this business case, as it enables all day-to-day work activities and automated business processes. From service center to call center to field work, every worker requires endpoint technology to perform their business function and deliver gas and electric service to our customers.

2.4 Discuss the alternatives that were considered and any tangible risks and mitigation strategies for each alternative.

Retire assets and remove automation
This option assumes the assets would not be replaced upon end of life and be removed from service due to product incompatibility, business risk or safety risk.

The basis for measuring the business impact of not funding this business case is realizing the loss of business process automation. As products reach the manufacturer-defined planned obsolescence, business process automation is jeopardized, and business risk is increased as manufacturers cease product maintenance and support. This condition would drive action. The alternative could lead to a mitigation plan of having to re-instate manual business process or eliminate the business process.

This option bears the cost of asset retirement for failed assets. The retirement cost is estimated at 10% of the cost to replace the asset.

Address 100% of obsolete products and capacity constraints
This is the optimal solution. This option fully addresses and minimizes the likelihood of technology impact to automated business process.

Address 75% of obsolete products and capacity constraints (Recommended)

This will introduce risk associated with technology systems reliability, interoperability and capacity. The investment required to address obsolete technology products is deferred to subsequent years. The likelihood of technology impact to business is increased. To minimize the impact of this risk, the Program Steering Committee will manage project sequence according to the investment priority documented in section 3.2.

Address 40% of obsolete products and capacity constraints

This will introduce risk associated with technology systems reliability, interoperability and capacity. The investment required to address obsolete technology products is deferred to subsequent years. The likelihood of technology impact to business is increased. Interoperability constraints may force unplanned funding requests. Multi-year, complex projects are at risk of completion prior to product obsolescence. This option impacts the workforce.

2.5 Include a timeline of when this work will be started and completed. Describe when the investments become used and useful to the customer. spend, and transfers to plant by year.

This business case is a program that transfers to plant the total cost of each sub-project at the completion of every project, which can straddle calendar years. Quarterly forecasts capture changes in transfers to plant based on project status.

2.6 Discuss how the proposed investment aligns with strategic vision, goals, objectives and mission statement of the organization.

The technology investments under this business case program align with Avista's vision to deliver 'better energy for life' to our customers and in the area of 'Perform', which calls for "our focus on performance today to serving our customers well and unlocking pathways to growth."

Each investment under this business case program allows Avista to deliver electric and gas services to our customers.

2.7 Include why the requested amount above is considered a prudent investment, providing or attaching any supporting documentation. In addition, please explain how the investment prudency will be reviewed and re-evaluated throughout the project

The reason that the technology investment under this program business case is prudent is because the Avista workforce requires this technology every day to deliver gas and electric service to our customers either in an office, customer service center or in the field. Alternatives to each technology are considered, yet not investing in it is not an option as automated business process would

either stop or be removed, thereby crippling our workforce's ability to deliver gas and electric service to our customers, respond to compliance requirements, and conduct business operations and reporting. Additionally, a two-tiered governance structure overseeing this business case program meets regularly to oversee and make decisions on the needs, benefits, costs, and risks of each investment.

2.8 Supplemental Information

2.8.1 Identify customers and stakeholders that interface with the business case

Nearly all Avista's workforce interface with the technology investments under this business case, depending on the application systems being used to perform any given business function.

2.8.2 Identify any related Business Cases

The technology investment under this business case allows for upgrade and refresh of the compute and storage from investments in other business cases, such as all business application systems, security systems, operations tools, etc. Basically, almost every software application used by Avista to conduct business functions is either processed or stored in servers refreshed under this business case.

3.1 Steering Committee or Advisory Group Information

The **Data Center Compute & Storage Systems** Business Case has two levels of governance; The Program Steering Committee and the Project Steering Committee.

3.2 Provide and discuss the governance processes and people that will provide oversight

Program Steering Committee

This business case is a program of related projects. The Program Steering Committee consists of members in management positions that are identified and responsible for prioritizing the projects within this program. The Steering Committee is also held accountable for the financial performance of this program. The Program Steering Committee will have regular meetings to review the progress of the program and to make decisions on the following topics:

- Project prioritization and risk
- Approving business case funding requests
- New project initiation and sequencing

The Program will be facilitated and administrated by an assigned Program Manager within the Enterprise Technology (ET) Project Management Office (PMO) Department. The project queue will be reviewed periodically and will consist of projects needed to maintain the reliability and performance of all Data Center Compute & Storage Systems.

Technology product roadmaps identify investment demand that is generally not fully funded. Technology product investments are prioritized in this manner:
1) Safety Systems
2) Control Systems
3) Customer Facing Systems
4) Back Office Systems

Project Steering Committee
Project Steering Committees act as the governing body over each individual project within the program and will consist of key members in management positions that are identified as responsible for the successful completion of the scope of work identified in the Charter document for the Project. The Project Steering Committee is responsible to provide guidance and make decisions on key issues that affect the following topics:

- Scope
- Schedule
- Budget
- Project Issues
- Project Risks

The Project Steering Committee will meet at the defined intervals documented in the Charter of the project and will be facilitated by an assigned Project Manager from within the ET PMO Department.

3.3 How will decision-making, prioritization, and change requests be documented and monitored

The governance structure under this business case program is responsible for decision-making, prioritization, and change requests. Through the regular Program Steering Committee Meetings, the team reviews and balances planned work versus unplanned work to determine prioritization, as well as pending project change requests. Any change request requiring either an increase or decrease of funds is reviewed at the upcoming Technology Planning Group meeting before it is submitted to the Capital Planning Group for consideration.

Data Center Compute and Storage Systems

The undersigned acknowledge they have reviewed the **Data Center Compute and Storage Systems Business Case** and agree with the approach it presents. Significant changes to this will be coordinated with and approved by the undersigned or their designated representatives.

Signature:	DocuSigned by: Walter Roys 28978793A9C64D0...	Date:	Jul-30-2020 | 11:50 AM PDT
Print Name:	Walter Roys		
Title:	System Engineering Manager		
Role:	Business Case Owner		
Signature:	DocuSigned by: James B Corder 7002E4872104449...	Date:	Aug-03-2020 | 5:53 PM PDT
Print Name:	Jim Corder		
Title:	IT Director		
Role:	Business Case Sponsor		
Signature:	DocuSigned by: Karen Schuh 0D892330AD2944F...	Date:	Aug-03-2020 | 6:38 PM PDT
Print Name:	Karen Schuh		
Title:	IT Program Manager		
Role:	Steering/Advisory Committee Review		
Signature:	DocuSigned by: 6456C8EEE402467...	Date:	Aug-04-2020 | 7:29 AM PDT
Print Name:	Andy Leija		
Title:	ET PMO Manager		
Role:	Steering/Advisory Committee Review		

Template Version: 05/28/2020

Enterprise Data Science

EXECUTIVE SUMMARY

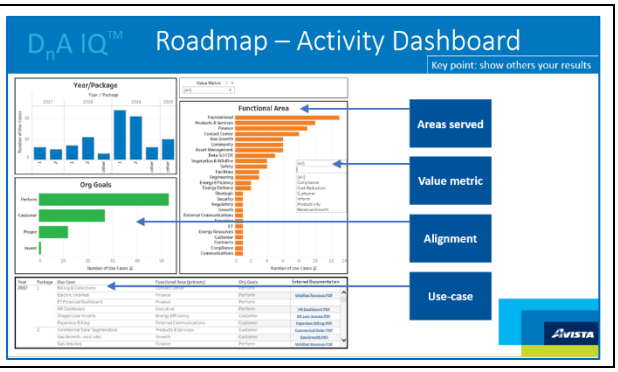
Enterprise Data Science is a program of opportunity. Our vision is that by democratizing data and analytics, across the enterprise, we thereby empower our people to use their expertise, ingenuity, and innovation to better serve our customers, communities and people. The program acts as a Center of Excellence to help migrate the company further towards managing data as an enterprise asset. The Data Science team delivers value thru the development of use-cases as jointly scoped and prioritized with each of the requesting business units. Aside from the business insights derived thru use-cases developed by this team, this program also supports change management of new analytics tools and skills development within the enterprise to promote self-service. The budget for this program primarily consists of capital labor resources.

The Data Science program maintains an active dashboard, displayed below, of use-cases delivered since program inception in 2017. Each use-case is tagged with the following:

- alignment with organizational goals (i.e., perform, customer, people, invent)
- functional area served (i.e., facilities, contracts, veg mgmt, etc.)
- value metric - categorized as either compliance, cost reduction, customer, inform, productivity, or revenue growth

Investment drivers of program:

1. *performance & capacity* (PRIMARY) - drive efficiencies enterprise wide
2. *customer service quality* - provide customers with information that allows them to make choices that matter most to them
3. *asset condition* - provide data and analysis that analyze asset performance
4. *customer requested* - support new products and services that serve the customer



Enterprise Data Science Business Case – Key Info	
Capital Cost	5-year Program **$9,100,000** (2021-2025)
Jurisdiction	All jurisdictions (allocation)
Timeline	This is ongoing program (2021-2025); with expectations to continue 2025+

Alternatives	Risks (of alternatives)
Disband program *all employees repurposed*	Business Units exclusively perform data analytics, assuming the skills & capacity are available; analytic results could be non-uniform across org
Scale-back program *some employees repurposed*	Enterprise could fall behind peers with analytic skills development, thereby impacting investment drivers
Contract with 3rd Party for Data Science Services	Costs are higher with 3rd party; use-case flexibility would be reduced

VERSION HISTORY

v	Author	Description	Date	Notes
1.0	*Pat Dever*	*Initial Business Case*	*Nov 2016*	*Start of program*
1.1	*Nolan Steiner*	*Change Request 2020-2024*	*July 2019*	
2.0	*Nolan Steiner*	*Business Case 2021-2025*	*July 2020*	

Enterprise Data Science

GENERAL INFORMATION

Requested Spend Amount	$9,100,000
Requested Spend Time Period	5 years (2021-2025)
Requesting Organization/Department	ET / Data Science (X-09)
Business Case Owner | Sponsor	Nolan Steiner | Pat Dever
Sponsor Organization/Department	ET / Data Science (X-09)
Phase	Execution
Category	Program
Driver (Primary)	Performance & Capacity

1. BUSINESS PROBLEM

1.1 What is the current or potential problem that is being addressed?

This program is intended to unlock additional value contained in Avista's enterprise data assets, using analytic tools that enhance our enterprise capabilities. Through the implementation of this program, users will be able to access enterprise information more easily, better understand what the data means including how it may be related to other disparate data sets, and how to use analytic tools that help support the development of meaningful insights. The program has extracted key insights that benefit the customer and other stakeholders, which may be challenging to implement on an enterprise level in the absence of this program.

1.2 Discuss the major drivers of the business case *(Customer Requested, Customer Service Quality & Reliability, Mandatory & Compliance, Performance & Capacity, Asset Condition, or Failed Plant & Operations)* and the benefits to the customer

The Data Science program develops use-cases jointly with various business units across the enterprise, with each business unit having their own investment driver. Based upon the use-cases delivered by this program to date, it has predominantly supported the 'Performance & Capacity' investment driver. It should be noted this program already has, or has plans in future, to develop use-cases that support all investment drivers.

As to the benefits this program has delivered to the customer, those can vary by use-case. Some examples of customer benefits from prior use-cases include:

- *reduced operating costs* (i.e., customers mostly likely to switch to paperless billing)
- *products that matter to customers* (i.e., targeting customers most likely to adopt new products such as community solar, roof-top solar, natural gas, etc.)
- *low-income analysis* (i.e., analysis supporting need to increase Oregon low-income funding for energy efficiency programs, LIRAP analysis that shows at risk customers that may qualify for energy program assistance).

1.3 Identify why this work is needed now and what risks there are if not approved or is deferred

This program was developed in 2016 in order to leverage new technologies to help drive more efficient and prudent decision making. For Avista and its customers to benefit from the data driven economy, data and analytics need to take on a more active and dynamic role in supporting customer activities, which this program has taken on within the enterprise.

Data is the raw material for any decision and many key initiatives at Avista. Data comes both from within and outside Avista, and modern technology enables us to harness and use it differently than in prior years. Data exists everywhere: at rest, in motion, on-premise and in the cloud. Data volume, variety and velocity is ever-increasing, which can be challenging to capture and retrieve without the right tools in place. With ongoing cost pressures within the enterprise, the Data Science program can sort thru large amounts of data to help identify cost-reduction, productivity or risk-reduction opportunities.

Stopping or delaying this program will likely put Avista at a competitive disadvantage to other companies that are similarly adopting data and analytic platforms and tools to serve their customers or other stakeholders. Likewise, with a robust ongoing Data Science program at Avista, this program helps positively differentiate our company with insights into higher customer satisfaction, customer retention, positive community relations, enhanced employee engagement, or other stakeholder benefits.

1.4 Identify any measures that can be used to determine whether the investment would successfully deliver on the objectives and address the need listed above.

The Data Science program tracks several key metrics associated with each completed use-case, with a summary dashboard published and available for reference. The program attempts to serve a balance of internal competing needs, rather than focus exclusively on one functional area or one organizational goal. As such, each use-case is described and tagged with the following:

- *Organizational goals*: how the use-case aligns with 'perform, customer, people, or invent.' The program has developed use cases aligned with each of the four organization goals of the enterprise.
- *Functional area served*: identification of which department or functional group has benefitted from the results (i.e., facilities, contracts, vegetation management, asset management, customer service, products and services, etc.)
- *Value metric*: a categorized description of value, bucketed into either 'compliance, cost reduction, customer, inform, productivity, or revenue growth'

1.5 Supplemental Information

1.5.1 Please reference and summarize any studies that support the problem

Capgemini Consulting authored a report in 2016 that provided a roadmap for developing a Data Science program at Avista (report: "Future State Executive Summary – Data Science Program") Location: *https://avistacorp-*

my.sharepoint.com/:p:/p/pat_dever/EYsdBrTwLi5Fm-O7XOySQ6ABBQs1ReAhN1fIjKDw36JPRQ?e=dfGvea

1.5.2 For asset replacement, include graphical or narrative representation of metrics associated with the current condition of the asset that is proposed for replacement.

n/a

Option	Capital Cost	Start	Complete
[Recommended Solution] – Staffing up to proposed budget	$9,100,000	01 2021	12 2025
Disband Program (repurpose/eliminate staff)	$0	01 2021	n/a
Scale-back Program (reduce staff)	>$0 and <$9,100,000	01 2021	12 2025
Contract with 3rd party for data science services	>$9,100,000	01 2021	12 2025

2.1 Describe what metrics, data, analysis or information was considered when preparing this capital request.

The historical spending trend of the Enterprise Data Science program has been at or near the annual requested amounts shown in this Business Case for the past several years. We expect the trend to be similar over the 5-year horizon from 2021-2025. The business case owner and sponsor have previously managed to then approved budgets and will continue to manage current and future spending to the approved budget resulting from the Funds Request corresponding with this Business Case.

2.2 Discuss how the requested capital cost amount will be spent in the current year (or future years if a multi-year or ongoing initiative). (i.e. what are the expected functions, processes or deliverables that will result from the capital spend?). Include any known or estimated reductions to O&M as a result of this investment.

This Business Case is primarily comprised of capital labor resources, with minimal O&M allocation for the entire Data Science program. The proportion of capital labor resources is forecasted to continue for the duration of the 5-year capital plan horizon. As mentioned previously, this program develops use-cases on behalf of other business units, some of which may lead to cost reductions or productivity enhancements within the business units themselves. Those results and budget impacts are monitored within the respective business units.

[Offsets to projects will be more strongly scrutinized in general rate cases going forward *(ref. WUTC Docket No. U-190531 Policy Statement)*, therefore it is critical that these impacts are thought through in order to support rate recovery.]

2.3 Outline any business functions and processes that may be impacted (and how) by the business case for it to be successfully implemented.

The results of each use-case are delivered to the business units for their further assessment and/or adoption into existing processes. Any process changes are managed

and valued at the business unit level. Data Science often delivers automated updates of use-case results for ongoing benefit to the requesting business unit.

2.4 Discuss the alternatives that were considered and any tangible risks and mitigation strategies for each alternative.

Avista Data Science Team - Data is a valuable asset that can be used to gain new insights and uncover hidden opportunities. It is a renewable resource that can be used to gain insights across the enterprise. It is important to have a team of Data Analysts, Engineers and Scientists that fully understand our business and culture. By exposing our data assets to business analysts, we gain significant value toward business outcomes.

Outsource Data Science to 3rd Party – Knowing our business and culture are keys to the success of using data to help inform the business. Outsourcing the analyst work would miss opportunities and reduce the continuity of the program.

2.5 Include a timeline of when this work will be started and completed. Describe when the investments become used and useful to the customer. spend, and transfers to plant by year.

This program delivers two packages per year, each package containing completed use-cases for the applicable period. The packages delivered are considered used-and-useful, and transferred to plant as part of the routine Project Management protocol for such transfers. The use-cases in each package serve each of the four organizational goals of our company, including 'customer'. Documentation of use-cases and packages is completed according to protocol and retrievable as needed.

2.6 Discuss how the proposed investment aligns with strategic vision, goals, objectives and mission statement of the organization.

This is a program that completes use-cases to serve business unit requests, as they are further defined and prioritized based upon available resources and then-relevant business needs. As stated previously, this program is intended to provide insights using data to enable more informed decision making – whether that decision making is at the strategic level, operational level, or exploratory level. Each use case is tagged with one of the organizational goals of the company (customer, people, perform, invent) to ensure alignment between the program and the corporate strategic vision.

2.7 Include why the requested amount above is considered a prudent investment, providing or attaching any supporting documentation. In addition, please explain how the investment prudency will be reviewed and re-evaluated throughout the project

The requested amount is a prudent investment to develop a regimented data and analytics program that delivers useful business insights for more informed decision making. The investment supports our people in learning new tools to advance competencies necessary to improve Avista's competitive position for advanced analytics. These analytics and resulting insights will enable us to continually improve how we serve the customer, our people, and innovative solutions to new challenges as they arise.

2.8 Supplemental Information

2.8.1 Identify customers and stakeholders that interface with the business case

2.8.2 Identify any related Business Cases

The below listed business cases are related, but not dependent upon Enterprise Data Science. Data Science will be able to leverage value from these other business cases, and vice versa, from an analytics standpoint.

- Sales Force – CXP
- AMI – Washington
- Energy Imbalance Market
- Data and Analytic Platform - AWS

3.1 Steering Committee or Advisory Group Information

The Data Science Steering Committee meets, at minimum, once per month to review budget (spend vs budget), as well as a review of active use cases and upcoming resource needs to fill near-term use-cases under consideration. Notes of Steering Committee meetings are archived for reference, and action items or priorities are also advanced where necessary as a result of such meetings.

3.2 Provide and discuss the governance processes and people that will provide oversight

The Project Manager assigned to Data Science coordinates the monthly SteerCo meetings and, in concert with the Data Science management team, develops the slide deck for discussion at SteerCo. Participants of the monthly SteerCo meeting include:

- Pat Dever – Chief Data Strategist
- Nolan Steiner – Manager Data Science
- Hossein Nikdel – Director Application and Innovation
- Mike Mudge – Data Deliver Manager
- Jason Pegg – Enterprise Data Architect
- Tom Heavey – Enterprise Application Architect
- Jim Kensok – VP, CIO

Outside of the formal SteerCo meetings, the Chief Data Strategist consults regularly with his manager, the VP CIO, to discuss issues and obtain input as needed.

3.3 How will decision-making, prioritization, and change requests be documented and monitored

Day-to-day decision making within the program is handled by the Data Science team, with the Director consulted for direction when needed. Ad hoc meetings occur several times per day, to discuss activity and progress of ongoing use-cases. For planning purposes, the Data Science team meets every two weeks for sprint planning to manage priorities within the team and across other teams in which there are dependencies. Every other week has a standing formal team meeting to address any other relevant issues that need to be shared for further discussed with the entire team. Decisions related to budgets are typically escalated first to the Manager Data Science, then to the Chief Data Strategist. Periodically, we may seek direction from VP of ET/IT to provide guidance and alignment.

Change requests to budgets, if warranted, are documented by the Data Science team, PMO and FP&A.

The undersigned acknowledge they have reviewed the Enterprise Data Science business case and agree with the approach it presents. Significant changes to this will be coordinated with and approved by the undersigned or their designated representatives.

Enterprise Data Science

Signature:	DocuSigned by: Nolan Steiner D43EC6B8C160442...	Date:	Jul-30-2020 | 10:12 AM PDT
Print Name:	Nolan Steiner		
Title:			
Role:	Business Case Owner		
Signature:	DocuSigned by: 8D6E68B1784E4BA...	Date:	Aug-01-2020 | 8:02 AM PDT
Print Name:	Pat Dever		
Title:			
Role:	Business Case Sponsor		
Signature:		Date:	
Print Name:			
Title:			
Role:	Steering/Advisory Committee Review		

Template Version: 05/28/2020

Energy Delivery Modernization and Operational Efficiency

EXECUTIVE SUMMARY

Energy Delivery Modernization and Operational Efficiency (EDMOE) as a business case supports both existing and new technologies leveraged by the Energy Delivery business areas including Gas Engineering & Operations, Electric Engineering & Operations, Asset Management & Supply Chain, Facilities, Fleet Operations & Metering. These technologies are used to automate and augment business solutions bringing efficiencies and capabilities to support the delivery of energy to our customers. This support includes the following: 1) improving the performance and capacity of business resources by implementing new functionality in existing technologies. 2) improving the performance and capacity of business resources by implementing overall new technologies. 3) modernizing existing technologies in accordance with product lifecycles and technical roadmaps, typically through product or system upgrades. Due to an increase in vendor-driven planned obsolescence, if these systems are not refreshed on a regular cadence, the ability of Avista to meet customer, regulatory and compliance requirements will be at risk. Although these are the primary purposes of this business case, other benefits include cost savings, safety, regulatory compliance and innovative customer-focused products and services.

The total program budget over the next five years is estimated to be $24.52M dollars. The funds in this business case will be utilized to fund the EDMOE Program as detailed in the supplemental information referenced in section 2.0 below. Though not exhaustive, the list of supported technologies includes the following major systems: GIS our geospatial information system, Maximo our enterprise work and asset management system, ECM our enterprise content management solution where this solution is used in support of energy delivery activities, PI our plant information system where this system is used to support our energy delivery activities, and Service Suite our mobile workforce management system. Beyond these major systems, there are other miscellaneous applications that are leveraged that also require periodic updates and enhancements. The years 2021-2025 will be focused on the systems and capabilities detailed below.

VERSION HISTORY

Version	Implemented By	Revision Date	Approved By	Approval Date	Reason
1.0	Michael Mudge	07/21/2018			Initial version
2.0	Michael Mudge	06/29/2020			Updated Template

Energy Delivery Modernization and Operational Efficiency

GENERAL INFORMATION

Requested Spend Amount	$24,520,000
Requested Spend Time Period	01/2021-12/2025
Requesting Organization/Department	Energy Delivery
Business Case Owner | Sponsor	Michael Mudge | Hossein Nikdel
Sponsor Organization/Department	Enterprise Technology
Phase	Execution
Category	Program
Driver	Performance & Capacity

1. BUSINESS PROBLEM

1.1 What is the current or potential problem that is being addressed?

The Energy Delivery business area utilizes a suite of technologies and applications in order to better and more efficiently execute ongoing business processes. As these business processes change, or new opportunities for better or more efficient business processes emerge, these technologies need to change as well. These changes often can be met through leveraging the capabilities of existing systems with minor modifications or configuration changes. We call these types of changes enhancements and set up minor programs to support these activities. Examples of this type of activity includes the GIS and Maximo enhancement packages. Sometimes these changes are larger and require a project of their own, but still leverage existing in portfolio products. Examples include the Centralized Planning and Scheduling project which leverages our GIS system, or Facilities asset management which will leverage our Maximo system. Other times these changes may require new systems altogether with new or different capabilities. Regardless, these changes require technology resources versed both in the changing business processes and the systems being leveraged in order to make the changes.

Additionally, this suite of technologies, whether the applications themselves or the technologies supporting them often require upgrades to keep them current with vendor lifecycle roadmaps. The performance of these upgrades often leverages the same resources as identified above, technology experts who understand both the capabilities of the systems themselves as well as strong familiarity with the business processes they support.

Under this business case, we are referring to the technologies and applications leveraged by the Energy Delivery business areas including Gas Engineering & Operations, Electric Engineering & Operations, Asset Management & Supply Chain, Facilities, Fleet Operations & Metering. These technologies are used to

automate and augment business solutions bringing efficiencies and capabilities to support the delivery of energy to our customers. This support includes the following: 1) improving the performance and capacity of business resources by implementing new functionality in existing technologies. 2) improving the performance and capacity of business resources by implementing overall new technologies. 3) modernizing existing technologies in accordance with product lifecycles and technical roadmaps, typically through product or system upgrades. Although these are the primary purposes of this business case, other benefits include cost savings, safety, regulatory compliance and innovative customer-focused products and services.

The current major applications included in the Energy Delivery Program portfolio include:

- Geospatial platform environment - ArcGIS solution(s) - Esri
- Enterprise Asset Management system – Maximo solution(s) - IBM
- Time Series Operational Data - Plant Intelligence (PI) solution(s) – OSIsoft
- Mobile Workforce Management – Mobile Dispatch solution(s) – ABB/Service Suite
- Fleet Asset & Work Order Management – FASuite solution(s) – Asset Works
- Crew Planning & Scheduling - Crew Manager solution(s) - Arcos
- System Operations Outage Management– CROW – Equinox
- Metering solution(s) – Itron
    - OpenWay Riva
    - MV90
    - Field Collection System (FCS)
    - Fixed Network
    - TWACS

1.2 Discuss the major drivers of the business case *(Customer Requested, Customer Service Quality & Reliability, Mandatory & Compliance, Performance & Capacity, Asset Condition, or Failed Plant & Operations)* **and the benefits to the customer**

At the core of the EDMOE business case is the ongoing support and development of the technologies that enable the Energy Delivery business areas including Gas Engineering & Operations, Electric Engineering & Operations, Asset Management & Supply Chain, Facilities, Fleet Operations & Metering. These technologies enable the workers in these various teams to respond to customer requests faster; provide information to customers that is more accurate, timely and complete; and improves customer satisfaction when they interact with Avista. Other benefits for the company and our customers include cost savings, safety, regulatory compliance and innovative customer-focused products and services. This business case supports the ongoing changes necessary to improve the performance and capacity of these business areas. Although performance and capacity are the key driver, this business case where necessary also supports the other major drivers listed.

1.3 Identify why this work is needed now and what risks there are if not approved or if the work is deferred

The suite of technologies managed under this business case and the business processes they enable in many cases are core to Avista's ability to deliver energy safely and reliably to our customers. These technologies and the business processes they support change on a continual basis based on both internal and external drivers. These drivers include continuous improvements in business process, continuous improvements in safety, changing compliance requirements, changing regulatory requirements, vendor driven change, product obsolescence, changes in customer expectations, as well as changes in system reliability.

Additionally, as these changes are ongoing in nature, they require a minimum level of staff capability to support these necessary changes. If the work is deferred or delayed, the technologies will not be in alignment with changing business processes, the technologies will not support improvements in safety, regulatory, or compliance, and the technologies will not be aligned with vendor driven change. Further, if deferred or delayed (meaning the labor required to do the work is made unavailable) when the work is funded the staff required to implement these changes will not be readily available or will likely be more expensive to hire.

1.4 Identify any measures that can be used to determine whether the investment would successfully deliver on the objectives and address the need listed above.

Each project within the EDMOE business case has a project charter which includes project costs, schedule, deliverables and benefits. Each project will have a steering committee assigned. Throughout the duration of each project the steering committee will be provided status reports on a monthly basis. These status reports will include updates on project scope, schedule and

budget, as well as any risks and/or issues that the project team is currently working on.

Each program within the EDMOE business case has a steering committee that prioritizes a backlog of required enhancements and changes in support of changing business process, cost savings, new safety, regulatory or compliance work, and customer driven requirements. These often result from technology demand related to transformations in the utility industry and continual changes required to meet expanding customer needs, as well as the drive to achieve operational efficiencies. Recent trends in the area of mobility, scalability, and the move towards Commercial off the Shelf (COTS) solutions that enhance and/or improve conventional business practices and processes also influence these efforts.

1.5 Supplemental Information

1.5.1 Please reference and summarize any studies that support the problem

The technologies and applications improved upon and delivered under this business case automate and enable key business processes used today to deliver safe and reliable energy to our customers. These technologies and applications require ongoing enhancements and sometimes replacement to keep them in line with changing business processes and with changing vendor roadmaps. Technical resources with specialized skills who are familiar with these supported business areas are required to make the ongoing changes. This business case supports the required changes, along with the technical resources, for technologies and applications that support the Energy Delivery business areas including Gas Engineering & Operations, Electric Engineering & Operations, Asset Management & Supply Chain, Facilities, Fleet Operations & Metering.

Option	Capital Cost	Start	Complete
Recommended Solution	$24.52 Million	01 2021	12 2025

2.1 Describe what metrics, data, analysis or information was considered when preparing this capital request.

A thorough review of the list of technologies and applications currently providing automation to Energy Delivery business processes was performed. Based on this cataloging, two types of activities were identified, projects and programs. Projects are typically used to support one-time major efforts such as software or platform upgrades, technology replacement or technology implementation. Programs are typically used to enhance existing technologies,

keeping the technology in line with existing and evolving business process or to facilitate implementation of additional digitization of business process using existing technologies. For projects, estimates were developed based on identified staffing requirements, software and hardware requirements (license and product costs), and professional service requirements. These were based on current scope and schedule estimates. For Programs providing ongoing enhancements or new functionality to support changing or developing business process the costs were estimated based on staffing, license, professional service, and product costs identified through historical trends.

2.2 Discuss how the requested capital cost amount will be spent in the current year (or future years if a multi-year or ongoing initiative). (i.e. what are the expected functions, processes or deliverables that will result from the capital spend?)**. Include any known or estimated reductions to O&M as a result of this investment.**

The costs incurred under this business case across the next five years will be spent on product licenses, hardware, professional services and labor in support of the technical systems in place across the Energy Delivery business area. Significant costs include the cost of ESRI term licenses, Labor and professional services costs to implement Maximo for Facilities Asset Management, Labor and Professional Services to implement a replacement for EngDraw, Labor costs to develop a new Gas Control Desk Logging solution, Labor to continue enhancements to our GIS system in support of business process, Labor to continue enhancements to our Maximo solution in support of business process, Labor to upgrade our Maximo solution in line with vendor product lifecycles, Labor to support enhancements to our Plant Information (PI) system in support of business process, Labor and hardware updates necessary to support enhancements and upgrades of our AMI head end platform in support of business process and vendor product lifecycles, Labor in support of upgrading MV90 and TWACS in line with vendor product lifecycles, Labor and professional services to support upgrading Mobil Dispatch in line with vendor lifecycles. Labor and professional services for smaller applications in line with vendor product lifecycles. The timelines for this work have been developed with the best information available today and represent ideal scenarios. It is subject to change based on priorities, availability of shared labor, and our ability to find appropriate professional services.

2.3 Outline any business functions and processes that may be impacted (and how) by the business case for it to be successfully implemented.

Each project and program within the EDMOE business case includes a business process and stakeholder analysis to determine the organization change management and training needs where necessary. This analysis is then used to deliver communication to the stakeholders throughout the project or program and where required is used to develop end user training.

Energy Delivery Modernization and Operational Efficiency

2.4 Discuss the alternatives that were considered and any tangible risks and mitigation strategies for each alternative.

Each Project under this business case is evaluated before inception to review alternatives, tangible risks, and mitigation strategies for each alternative prior to beginning. This evaluation is reviewed with stakeholders as part of the chartering process. For programs, each has its own steering committee to evaluate risks and prioritize the work prior to inception.

2.5 Include a timeline of when this work will be started and completed. Describe when the investments become used and useful to the customer. spend, and transfers to plant by year.

The timelines shown in the table below for this work has been developed with the best information available today and represent ideal scenarios. It is subject to change based on priorities, availability of shared labor, our ability to find appropriate professional services and current estimates of scope.

Projects/Programs/Licenses	2021	2022	2023	2024	2025
ESRI ELA (Licenses)	12/2021			Q1/2024-Q4/2024	
Facilities Asset Management - Maximo	Q1/2021-Q4/2021				
ECM Eng Draw Replacement	Q1/2021-Q4/2021				
Gas Control	Q1/2021-Q4/2021				
GIS Enhancements	Q1/2021-Q4/2021	Q1/2022-Q4/2022	Q1/2023-Q4/2023	Q1/2024-Q4/2024	Q1/2025-Q4/2025
Maximo Enhancements /Upgrade	Q1/2021-Q4/2021	Q1/2022-Q4/2022	Q1/2023-Q4/2023	Q1/2024-Q4/2024	Q1/2025-Q4/2025
PI Enhancements	Q1/2021-Q4/2021	Q1/2022-Q4/2022	Q1/2023-Q4/2023	Q1/2024-Q4/2024	Q1/2025-Q4/2025
AMI Enhancements /Upgrade	Q1/2021-Q4/2021	Q1/2022-Q4/2022	Q1/2023-Q4/2023	Q1/2024-Q4/2024	Q1/2025-Q4/2025
MV90 Upgrade	Q1/2021-Q4/2021			Q1/2024-Q4/2024	
TWACS Upgrade	Q1/2021-Q4/2021			Q1/2024-Q4/2024	

Service Suite Upgrade		Q1/2022-Q4/2022			
Misc. Upgrades	Q1/2021-Q4/2021	Q1/2022-Q4/2022	Q1/2023-Q4/2023	Q1/2024-Q4/2024	Q1/2025-Q4/2025

2.6 Discuss how the proposed investment aligns with strategic vision, goals, objectives and mission statement of the organization.

Avista has a as its mission to improve our customers lives through innovative energy solutions. Safely, Reliably, Affordably. Avista has as its Focus Areas: Our Customers, Our People, Perform, and Invent. This business case supports the Technologies in the Energy Delivery Business area. Half of all our customer contacts happen in the field as we work to service and deliver energy to meet our customer needs. Every interaction is an opportunity to better our customers lives through informed field workers who have the necessary information to do their job.

The systems that support these activities and are supported under this business case include Maximo our Work and Asset Management system, GIS our Geospatial Information System, and Mobile Dispatch/Service Suite our Mobile Work Management system. These systems are highly leveraged to enable the work our Field Workers perform for our customers and supports them doing so safely, reliably and affordably.

This business case also supports our Metering systems – MV90, TWACS, Fixed Network, and Itron RIVA. These systems are critical to obtaining our customers meter reads for proper billing. PI is our Engineering Analytics platform that collects sensor data from various distribution sensors including our Itron Riva Meters, this data is used to analyze the performance of our distribution system and to support making changes to improve efficiencies and identify anomalies requiring correction.

The Gas Control Desk is required to Log certain events pertaining to Avista's gas infrastructure. This is currently done in a homegrown shared access database application. The requirements for capturing gas control information has outgrown the capabilities of the application and Avista risks possible non-compliance status and subsequent monetary failures if a system failure were to occur. Moving to a centralized and supported application will benefit Avista and its customers by providing a more reliable method of recording gas events in order to keep our employees and customers safe and meet compliance with DOT regulations. Similarly, EngDraw is a twenty-year-old custom-built document management system that needs replacing. It is end of life, is

inefficient in searching for all necessary documents, and is not compatible with 3D files which are being used by Generation and soon by Substation. This leads to inefficiencies, safety risk, and data incompatibilities.

Today, Facilities Work and Asset Management is currently done manually using tools such as Microsoft Excel (spreadsheets) and Microsoft Exchange (email). This leads to inefficiencies, delays, and duplication in areas like communication, preventative maintenance, asset lifecycle information, and procurement planning. Without automation of some of these processes, the Facilities team will either need to increase staffing levels to keep up or risk continuing to fall behind on preventive maintenance and asset lifecycle planning. Benefits include (but not limited to) an anticipated productivity increase for all Facilities staff in planning, scheduling, and recording work. This includes all work types of project delivery, operate & maintain, and emergency break/fix. Asset information would be stored and updated from a central location. Another key benefit is mobile access to information in the field, which reduces paper and aids in productivity. All these anticipated benefits also support the proof of prudency required for Avista's capital investment in digital tools to support business process. Include why the requested amount above is considered a prudent investment, providing or attaching any supporting documentation. In addition, please explain how the investment prudency will be reviewed and re-evaluated throughout the project.

2.7 Include why the requested amount above is considered a prudent investment, providing or attaching any supporting documentation. In addition, please explain how the investment prudency will be reviewed and re-evaluated throughout the project.

Avista’s Energy Delivery and Shared Services technology systems are a necessity, as they provide essential functions to our employees and customers throughout all service territories. These vital systems require systematic upgrades and enhancements in order to maintain reliability, compatibility, and reduce security vulnerabilities.

This funding level will provide the appropriate technology and development to meet the periodic upgrades and enhancements prioritized by the Energy Delivery and Shared Services (ED) governance committee. This funding is necessary to mitigate the risk of unsupported applications, security liability, and significantly higher costs as a result of the deferment of upgrades and enhancements, etc.

Investment prudency is reviewed by the Steering Committee to ensure alignment of initiatives through judiciously selected and implemented projects. The funding requested as part of this program generally fits these initiatives and are assigned to specific projects (with Steering Committee oversight) as they are identified. Also, the Business Case owner will work with Steering Committee(s) to set project priority and sequence over a five-year planning period, subject to any additional funding changes as directed by the Capital Planning Group (CPG). Each program and project steering committee meet regularly to review the demand to ensure that it aligns with Avista’s strategies. The Steering Committee oversees scope, schedule and budget within their respective programs and projects and inform the Business Case owner of any changes needing escalation to the Technology Planning Group (TPG) or CPG for decision-making around resource or funding constraints.

2.8 Supplemental Information

2.8.1 Identify customers and stakeholders that interface with the business case

Customers will interface with the technology in this business case both through their interactions with Avista personnel who will be using the technologies and through map-based information that they will have access to through online methods such as the Avista website.

2.8.2 Identify any related Business Cases

None

3.1 Steering Committee or Advisory Group Information

The EDMOE Business Case has two levels of governance: The Executive Technology Steering Committee (ETSC), and Project Steering Committees. The committees review monthly project status reports, which identify project scope, schedule and budget, as well as any risks and/or issues that the project team is currently working on. The EDMOE Program Team reports progress monthly to the steering committees and other stakeholder groups.

3.2 Provide and discuss the governance processes and people that will provide oversight

The Steering Committee for each project in the EDMOE business case will be made up of stakeholders from across the functional business units and Enterprise Technology.

3.3 How will decision-making, prioritization, and change requests be documented and monitored

Monthly status reports to the steering committees will be used as the official review and approval process for prioritization and changes request. Risks, issues and changes requests will be documented in project logs and kept as artifacts of each project within Enterprise Technology's project management software system.

The undersigned acknowledge they have reviewed the **EDMOE** Business Case and agree with the approach it presents. Significant changes to this will be coordinated with and approved by the undersigned or their designated representatives.

Signature: DocuSigned by: 44C0BE3C52404B4... Date: Jul-31-2020 | 1:46 PM PDT

Energy Delivery Modernization and Operational Efficiency

Print Name:	Michael Mudge		
Title:	Application Delivery Manager		
Role:	Business Case Owner		
Signature:	DocuSigned by: Hossein Nikdel E4E2D9C7EE4747F...	Date:	Jul-31-2020 | 1:52 PM PDT
Print Name:	Hossein Nikdel		
Title:	Director of Applications and Systems Planning		
Role:	Business Case Sponsor		
Signature:	DocuSigned by: Josh DiLuciano A3C71874F6564DB...	Date:	Jul-31-2020 | 1:53 PM PDT
Print Name:	Josh DiLuciano		
Title:	Director of Electric Engineering		
Role:	Steering/Advisory Committee Review		

Template Version: 05/28/2020

Atlas

EXECUTIVE SUMMARY

Atlas is a multi-year year program to strategically replace the suite of custom Geographic Information System (GIS) applications known as Avista Facility Management (AFM). AFM is the system of record for spatial electric facilities in Washington and Idaho and gas facility data in Washington, Idaho and Oregon and provides the connectivity model to support GIS engineering and analysis applications. The AFM applications and data model have been used for nearly two decades and have reached technology obsolescence. The existing data model used by AFM is scheduled for end of life in 2023. The AFM is a cornerstone to Avista's ability to provide responsive service across its territory. If AFM is not replaced with a modern GIS platform, the ability of Avista to meet customer, regulatory, compliance requirements will be at risk. Replacing AFM will enable Avista to take advantage of commercial GIS applications that provide improved mobile and desktop functionality, increased collaboration capabilities and increased reliability.

Improvement of customer experience is at the core of Atlas Program. The proposed next generation applications will enable Avista workers, office and field, to respond to customer requests faster; provide information to customers that is more accurate, timely and complete; and improve customer experience when they interact with Avista. Avista benefits of replacing the AFM applications include improved worker productivity, improved asset data integrity, and the opportunity to reengineer work processes and methods, supporting a continual improvement program. New commercial solutions also provide Avista with the ability to meet changing demands of customers, enable effective operation of an increasingly complex and dynamic distribution grid, and provide the opportunity to create new service offerings to customers.

The total program budget is estimated to $27.0M dollars. The funds in this business case will be utilized to fund the phases of the Atlas Program as detailed in the supplemental information referenced in section 1.5 below. The years 2020-2024 will be primarily focused on the project timeline and deliverables detailed in the Utility Network Advantage Program Report, while also supporting Mobility in the Field initiative which configures and deploys mobile GIS mapping and data applications.

VERSION HISTORY

Version	Author	Description	Date	Notes
1.0	Mike Littrel	Initial draft of business case	04/2017	
2.0	*Mike Littrel*	*Updated buisnes case format*	*07/2020*	

GENERAL INFORMATION

Requested Spend Amount	$27,000,000
Requested Spend Time Period	06/2015 – 12/2024
Requesting Organization/Department	Enterprise Technology
Business Case Owner | Sponsor	Mike Littrel | Josh DuLuciano
Sponsor Organization/Department	Energy Delivery Technology Projects
Phase	Execution
Category	Program
Driver	Asset Condition

1. BUSINESS PROBLEM

1.1 What is the current or potential problem that is being addressed?

Avista's AFM system has been used for nearly two decades and has reached technology obsolescence. The technology no longer meets the business needs, and has exceeded its useful life. The software has already undergone two major conversions to extend the life to this point. The first was a programing language conversion from Microsoft Visual Basic to Microsoft .NET because Visual Basic was no longer a supported language. The second was a geometric precision change to support the requirements of the integration with Maximo. Both of these changes achieved their goals, however the code is now more fragile which increased the complexity of supporting AFM. Additionally, the existing system is custom built and requires continual maintenance and support by internal staff whose skillset is becoming scarce, as the fundamental code and architecture is complex and outdated. In parallel, most of the staff who were part of the original custom build of the AFM system, have long since moved on. Certain AFM applications, such as electric and gas edit and Outage Management Tool, do not have the full complement of desired functionality and are unreliable at times due to the outdated architecture. When a new configuration request is surfaced, the change cannot always be implemented, as the custom code and architecture will not allow it. The existing data model used by the AFM applications is scheduled for end of life in 2023. It is important to begin the transition to the next generation GIS technology while there is still staffing to support the AFM system, and the data model is still supported, because delaying will increase the risk of customer impact caused by increasing system issues.

1.2 Discuss the major drivers of the business case *(Customer Requested, Customer Service Quality & Reliability, Mandatory & Compliance, Performance & Capacity, Asset Condition, or Failed Plant & Operations)* **and the benefits to the customer**

Improvement of electric and gas customer experience is at the core of the Atlas Program. These new tools will enable Avista workers, office and field, to respond to customer requests faster; provide information to customers that is more accurate, timely and complete; and improve customer satisfaction when they interact with Avista.

In addition to replacing traditional desktop GIS applications, additional mobile tools will extend the value of Avista's investment in the GIS system by providing field staff with applications for near real-time editing and data collection. For example, the Mobile Design Tool will enable functionality for a designer to perform designs at a job site, providing an improved customer experience, and will be fully compatible with the desktop design tool. In addition, the Mobile tools will provide field personnel with powerful functionality to meet customer responsiveness expectations; Global Positioning System (GPS) guided turn by turn directions to work locations; electronic receipt sent to the customer's communication preference (email, text, etc.) at completion of work orders; access to GIS data in the field; capture of as-built configuration, compliance data and materials electronically by taking advantage of a variety of data sources, including digital image data, keyed data, bar code scanned data, and GPS location data.

New commercial solutions also provide Avista with the ability to more fully integrate with gas and electric planning and analysis tools. This will lead to a better understanding of where weakness in the infrastructure may exist and proactively reinforce those areas improving reliability for the customers.

1.3 Identify why this work is needed now and what risks there are if not approved or is deferred

The AFM applications and data model have been used for nearly two decades and have reached technology obsolescence. Continuing to utilize AFM would continue to create Operating and Maintenance cost pressure while also creating risks and lost opportunities. Additionally, any investment in the current system is a sunk cost, as the system is limited in the functionality it can provide to our staff as they serve both gas and electric customers. The current system is highly customized and cannot leverage industry GIS platforms to share data sets that provide field and office workers with more information about our assets and those of other agencies, such as local, county and state governments. The existing data model used by the AFM applications is scheduled for end of life in 2023. The GIS platform is a cornerstone to Avista's ability to provide responsive service across its territory, if it is not replaced with a modern GIS platform the ability of Avista to meet current and future customer, regulatory, and compliance requirements will be at risk.

1.4 Identify any measures that can be used to determine whether the investment would successfully deliver on the objectives and address the need listed above.

Each project within the Atlas program will have a project charter which includes project costs, schedule, deliverables and benefits. Each project will have a steering committee assigned. Throughout the duration of each project the steering committee will be provided status reports on a monthly basis. These status reports will include updates on project scope, schedule and budget, as well as any risks and/or issues that the project team is currently working on.

1.5 Supplemental Information

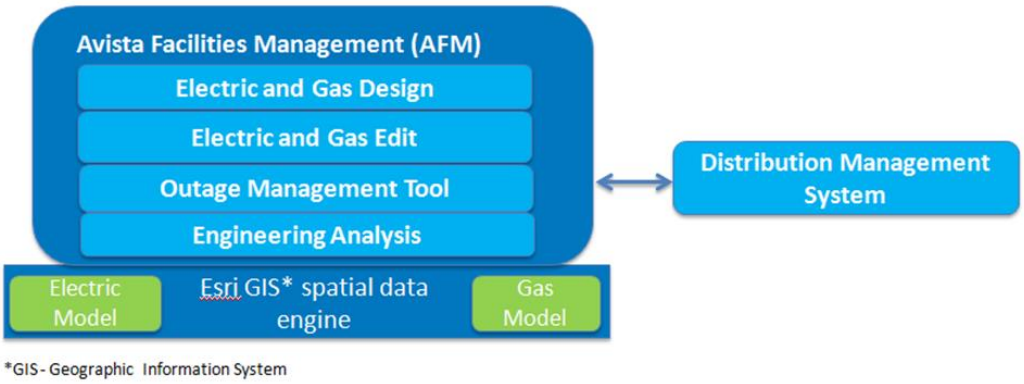
1.5.1 Please reference and summarize any studies that support the problem

Justification for system replacement is based on comprehensive assessments of AFM technologies, processes and functions that were performed in 2015 and 2019 by third-party consultants as part of the project planning process. The details of the assessments are available in the following supporting documents:

- Current State Report
- Future State Report
- Gap Analysis Report
- Industry Analysis Report
- Requirements Report
- Alternative Analysis Report
- Utility Network Advantage Program Report
- Atlas Roadmap

The Esri ArcGIS product will continue to be the foundational spatial data engine for next generation application delivered through Atlas. Esri is the industry standard for GIS, so continuing to use that platform provides the highest level of access to commercial applications and standard integration to other enterprise applications. The replacement will take place through a series of targeted and incremental projects to maximize value and minimize risk.

1.5.2 For asset replacement, include graphical or narrative representation of metrics associated with the current condition of the asset that is proposed for replacement.



ESRI GIS serves as the foundational data structure on which AFM applications are built or rely on. AFM is the system of record for spatial electric and gas facility data and provides the connectivity model to support the AFM applications. The following is a brief description of AFM tools.

- Electric and Gas Edit are tools inherent in the system used for data edits prior to committing final data changes and additions.
- Outage Management Tool is an in-house developed application that supports outage analysis and management.
- Engineering Analysis is a commercial tool used for engineering analysis modeling.
- Distribution Management System is a commercial application used to monitor and control the distribution grid. It relies on the GIS data from AFM to determine the current operating state.

The AFM applications and data model have been used for nearly two decades and have reached technology obsolescence. Continuing to utilize AFM would continue to create Operating and Maintenance cost pressure while also creating risks and lost opportunities. Additionally, any investment in the current system is a sunk cost, as the system is limited in the functionality it can provide to our staff as they serve both gas and electric customers.

Option	Capital Cost	Start	Complete
Recommended Solution - Replace the custom AFM applications with Commercial Off The Shelf Applications	$27.0M	06/2015	12/2024
Alternative - Continue to utilize the custom AFM applications	$7.0M	06/2015	12/2024

2.1 Describe what metrics, data, analysis or information was considered when preparing this capital request.

Detailed documentation from industry experts as listed in section 1.5 above, along with project costs from recent comparable projects at Avista were used to determine the amount of the capital funds request and duration of the business case.

2.2 Discuss how the requested capital cost amount will be spent in the current year (or future years if a multi-year or ongoing initiative). (i.e. what are the expected functions, processes or deliverables that will result from the capital spend?)**. Include any known or estimated reductions to O&M as a result of this investment.**

The funds in this business case will be utilized to fund the phases of the Atlas Program as detailed in the supplemental information referenced in section 1.5 above. The years 2020-2024 will be primarily focused on the project timeline and deliverables detailed in the Utility Network Advantage Program Report, while also supporting Mobility in the Field initiative which configures and deploys mobile GIS mapping and data applications.

2.3 Outline any business functions and processes that may be impacted (and how) by the business case for it to be successfully implemented.

Each project within the Atlas Program will include a business process and stakeholder analysis to determine the organization change management and training needs. This analysis will then be used to deliver communication to the stakeholders throughout the project and develop end user training.

2.4 Discuss the alternatives that were considered and any tangible risks and mitigation strategies for each alternative.

The current suite of AFM solutions has a recent history of performance challenges which may only be mitigated with considerable investment or replacement. Continuing to invest in a custom system with no vendor support is not a sustainable long-term solution. There are network management functionality limitations and performance related issues with the current data model that are addressed in Esri's new data model and platform. The support by Esri for the current solution will be ending in the near future – January 2024.

2.5 Include a timeline of when this work will be started and completed. Describe when the investments become used and useful to the customer. spend, and transfers to plant by year.

The work was started in 2015 and is scheduled to complete in December 2024. The Atlas Program has been and will continue to be divided into discrete projects than when possible have a duration of one calendar year or less. This will allow the capital expenditure for a given year to be transferred to plant in that year.

2.6 Discuss how the proposed investment aligns with strategic vision, goals, objectives and mission statement of the organization.

Having a modern GIS will enable Avista to meet the changing needs in energy delivery such as Distributed Generation and Smart Grids with Grid Edge Intelligence. It will also enable the ability to model complex network and equipment such as electric substations, gas regulator stations to provide a more accurate view of the assets in the field. The increased accuracy and currency of the data along with modern mobile applications will provide field personnel with powerful functionality to meet customer responsiveness expectations. Finally the advanced modelling will enable improved analysis and reporting capabilities.

2.7 Include why the requested amount above is considered a prudent investment, providing or attaching any supporting documentation. In addition, please explain how the investment prudency will be reviewed and re-evaluated throughout the project.

The AFM applications and data model have been used for nearly two decades and have reached technology obsolescence. Continuing to utilize AFM would continue to create Operating and Maintenance cost pressure while also creating risks and lost opportunities. Additionally, any investment in the current system is a sunk cost, as the system is limited in the functionality it can provide to our staff as they serve both gas and electric customers. Replacing AFM will enable Avista to take advantage of commercial GIS applications that provide improved mobile and desktop functionality, increased collaboration capabilities and increased reliability far beyond the what can be achieved with AFM.

2.8 Supplemental Information

2.8.1 Identify customers and stakeholders that interface with the business case

Customers will interface with the technology in this business case both through their interactions with Avista personnel who will be using the technology and through map-based information that they will have access to through online methods such as the Avista website.

2.8.2 Identify any related Business Cases

The work in the business case (specifically the new data model) is related to the work in the Outage Management System and Advanced Distribution Management System business case.

3.1 Steering Committee or Advisory Group Information

The Atlas Business Case has two levels of governance: The Executive Technology Steering Committee (ETSC), and Project Steering Committees. The committees review monthly project status reports, which identify project scope, schedule and budget, as well as any risks and/or issues that the project team is currently working on. The Atlas Program Team reports progress monthly to the steering committees and other stakeholder groups.

3.2 Provide and discuss the governance processes and people that will provide oversight

The Steering Committee for each project in the Atlas Program will be made up of stakeholders from across the functional business units and Enterprise Technology.

3.3 How will decision-making, prioritization, and change requests be documented and monitored

Monthly status reports to the steering committees will be used as the official review and approval process for prioritization and change requests. Risks, issues and change requests will be documented in project logs and kept as artifacts of each project within Enterprise Technology's project management software system.

Atlas

The undersigned acknowledge they have reviewed the **Atlas** Business Case and agree with the approach it presents. Significant changes to this will be coordinated with and approved by the undersigned or their designated representatives.

Signature:	DocuSigned by: Michael Littrel 9DBE7FC6208484AF...	Date:	Jul-30-2020 | 10:02 AM PDT
Print Name:	Mike Littrel		
Title:	Manager of Energy Delivery Technology Projects		
Role:	Business Case Owner		

Signature:	DocuSigned by: Josh DiLuciano A3C71874E6564DB...	Date:	Jul-30-2020 | 10:15 AM PDT
Print Name:	Josh DiLuciano		
Title:	Director of Electric Engineering		
Role:	Business Case Sponsor		

Signature:	DocuSigned by: Hossein Nikdel E4E2D9C7EE4747E...	Date:	Jul-30-2020 | 10:28 AM PDT
Print Name:	Hossein Nikdel		
Title:	Director of Applications and Systems Planning		
Role:	Steering/Advisory Committee Review		

Template Version: 05/28/2020

Energy Resources Modernization and Operational Efficiency Technology

GENERAL INFORMATION

Requested Spend Amount	$15,815,000
Requested Spend Time Period	*5 years*
Requesting Organization/Department	Energy Resources
Business Case Owner | Sponsor	Brian Hoerner | Jason Thackston
Sponsor Organization/Department	Enterprise Technology
Phase	Execution
Category	Program
Driver	Performance & Capacity

1. BUSINESS PROBLEM

1.1 What is the current or potential problem that is being addressed?

This program is required to support the application-related technology initiatives for all areas within Energy Resources. These areas include Power Supply, Gas Supply, Generation Production Substation Support (GPSS), and Environmental & Real Estate

Application refresh projects are necessary due to the continuous requirement to provide updates, upgrades and/or replacements on existing Energy Resources applications, as they are required to respond to changing business needs and/or technical obsolescence. Application refreshes/upgrades are essential in order to remain current, maintain compatibility, reliability, and address security vulnerabilities.

Application expansion projects result from demand related to transformations in the utility and continuous technology progression required to achieve operational efficiencies and strategic objectives. Recent trends in the areas of mobility, scalability, and employee experience, require technological expansion of conventional business practices and processes.

1.2 Discuss the major drivers of the business case *(Customer Requested, Customer Service Quality & Reliability, Mandatory & Compliance, Performance & Capacity, Asset Condition, or Failed Plant & Operations)* and the benefits to the customer

The primary investment driver for the Energy Resources Business Program is Performance and Capacity. A secondary investment driver, nearly as important as the first, is Asset Condition.

Many of the applications and respective projects in this Business Case provide direct support to Avista customers, while the remaining provide many indirect benefits.

Some benefits to upgrades and enhancements to these systems include:

- Promoting Risk Management
- Utilizing technology to make more informed decisions
- Monitoring of generation facilities
- Sharing generation resources to provide a more efficient use of renewable energy at the lowest available cost

- Advancing the 'Innovation and Performance' focus
- Increasing productivity and efficiency
- Maintaining compliance with all FERC, NERC, and FCC rules

1.3 Identify why this work is needed now and what risks there are if not approved or is deferred

The projects and initiatives listed above provide functional enhancements that address ongoing changes in the workplace, provide increased employee efficiency through the reduction of steps required to complete a task, and make better use of Avista resources. They shift costs from inefficient processes to more value-driven activities.

The primary alternative to these projects is to use existing systems as-is and to not put new systems in place. This perpetuates inefficiencies as employees are less efficient and effective.

Working through these projects as suggested, reduces Avista's overall risk exposure by ensuring Avista is using funds in the most cost-efficient manner and by maintaining a culture of performance and innovation, which has a positive impact on our employees and customers.

1.4 Identify any measures that can be used to determine whether the investment would successfully deliver on the objectives and address the need listed above.

The Energy Resources business team utilizes technology as a critical component to meeting their strategic objectives. Some success measurements would include; risk avoidance, system reporting, and better forecasting results.

Constraints are possible and risks hinder the delivery of the outlined objectives. In these circumstances, the Business Case owner will work with Steering Committee(s) to set project priority and sequence over a five-year planning period, subject to any additional funding changes as directed by the Capital Planning Group (CPG). Each program and project Steering Committee meets regularly to review the demand to ensure that it aligns with Avista's strategies. The Steering Committee oversees scope, schedule and budget within their respective programs and projects and inform the Business Case owner of any changes needing escalation to the Technology Planning Group (TPG) or CPG for decision-making around resource or funding constraints.

1.5 Supplemental Information

1.5.1 Please reference and summarize any studies that support the problem

- Information regarding the EIM Program and Scope can be found via this link: **EIM Program Scope**

1.5.2 For asset replacement, include graphical or narrative representation of metrics associated with the current condition of the asset that is proposed for replacement. NA

The recommended solution to ensure that Energy Resources can meet these initiatives and their timelines over the next five years is to follow the recommended application refresh and

expansion requirements for Energy Resources applications. The requested allocation is based primarily on compatibility, reliability, security, and safety. Additional criteria considers maintaining operational efficiencies and aligning with strategic objectives. Conventional business practices and processes must be scalable, provide mobility, and focus on the employee and customer experience.

The project roadmap for the next five years includes refreshing and/or expansion initiatives made possible by these core Energy Resources systems

- **Energy Risk Management and Energy Trading** – Managing Avista's collection of energy assets, asset position, and relationships within the various energy markets. Supported applications include:
    - **Nucleus** – An energy risk management and energy trading tool enhanced and maintained by Avista, captures all wholesale energy transactions, including significant metering data and forward pricing curves, provides data for tracking energy positions, credit monitoring, compliance reporting, financial reporting, accounting, and market drivers.
    - **Avista Decision Support System (ADSS)** – Forecasting and decision support for Energy Traders and Planners, developed and maintained by Avista. (NOTE: The ADSS development is funded via its own business case through 2021. Only enhancements and updates in 2021 and beyond are included here.)
    - **Settlement Solutions** – Commercial software solution to support Avista's sales activity and submission of bids into the California Independent System Operator (CAISO) market. The application provides functionality in the areas of CAISO invoice payments, analysis, and reconciliation, as well as the ability to submit bids into the CAISO markets with a high degree of speed and flexibility.
- **Gas Forecasting** – Understanding the supply, demand, and market influences on natural gas volume and prices. Supported applications include:
    - **Nostradamus** – An off-the-shelf industry solution used in gas forecasting.
- **Work Management / Project Management** – Asset management, preventative/ unplanned work management, and construction project/portfolio management for Generation Production and Substation Support (GPSS). Supported applications include:
    - **Maximo for GPSS** – Work and Asset Management utilizing modules of Maximo, an off-the-shelf industry solution provided by IBM and used in various Avista business units.
    - **Oracle Primavera (P6)** – Enterprise Project and Portfolio Management tool used for project portfolio management, scheduling, risk analysis, and collaboration., provided by Oracle. Implementation is forecasted for late 2020-early 2021.
- **Generation Plant and Substation Operations** – Control and monitoring of operations at all plants and substations from a single location. Supported applications include:

- **Ignition** (replacing Wonderware) – An off-the-shelf industry solution under the Human Machine Interface (HMI) called Ignition that handles control and monitoring of most Avista generation and substation locations.
- **Stackvision** - Software that is used for monitoring the stack emissions at the Rathdrum Combustion Turbine.

- **Fuel Inventory Management** – Management of Avista's biomass fuel (in the form of logging and mill wood waste) at its Kettle Falls thermal plant. Supported applications include:
  - **WeighWiz** – Part of an off-the-shelf Log Inventory and Management System (LIMS) dedicated to timber and wood products procurement and management
- **Energy Imbalance Market (EIM)** - a real-time energy wholesale market that permits the western region to share generation resources over a large geographic area, resulting in a more efficient use of renewable energy at the lowest available cost for our customers. The EIM program is currently funded under its own business case until the implementation and entry into the market in 2022. The Energy Resources Business Case will then consume the ongoing optimization and enhancements for these associated applications currently forecasted in 2023:
  - **Asset Operations**
    - **Generation Outage Management System (GOMS)** – Performs functions to submit planned and unplanned outages to CAISO for the generation units.
    - **Transmission Outage Management System (TOMS)** – Performs functions to submit planned and unplanned outages to CAISO for the transmission lines.
  - **GenManager Front Office (EIM only)**
    - **PRSC Bidding & Scheduling System** – Performs Merchant functions to submit bids and base schedules to CAISO for participating resources.
    - **EESC Scheduling System** – Performs Entity (Balancing Authority) functions to submit base schedules for both participating resources and non-participating resources.
  - **Energy Accounting**
    - **Energy Accounting System** – Performs meter verification, estimation and editing (VEE) for generation and interchange metering to produce and share Settlement Quality Meter Data (SQMD) with CAISO.
  - **SettleCore**
    - **PRSC Settlement System** – Performs Merchant settlement functions for the participating resources and activities.
    - **EESC Settlement System** – Performs Entity settlement functions for non-participating resources and transmission resources.
  - **Visual Analytics**

- **Performance & Analytics System** – Performs a near real-time market analytic functions in a visual display.

- **Licensing / Cross-Functional / Other** – Not every project fits nicely into one of the initiatives above. Some are cross-functional, and some are simply good ideas that continue to improve upon Avista's workplace (OATI)**.**

Upcoming technology-related initiatives for the Energy Resources business area include the move towards utilizing Oracle Primavera Enterprise Project and Portfolio Management, replacing the ABB Sendout system used for Avista's Gas Integrated Resource Plan (IRP), continuous improvements to work management processes via the Maximo Anywhere application, as well as HMI enhancements to optimize the generation and substation monitoring. This business case will support these initiatives along with required refresh projects.

These projects are within industry norms for like-sized Energy Resources departments within like-sized utilities and are accepted and widely adopted approaches used within the energy industry.

Capturing every detail of every project over the course of the next five years is not possible. This is part of why the Steering Committee exists – to help propel Avista forward in its initiatives through intelligently selected and implemented projects. The funding requested as part of this program generally fits these initiatives and will be assigned to specific projects (with Steering Committee oversight) as they are identified.

Option	Capital Cost	Start	Complete
Recommended Solution	*$15,815,000*	*01 2021*	*12 2025*
➢ *Alternative #1 – Waterline (see section 2.4)*	*$12,015,000*	*01 2021*	*12 2025*
➢ *Alternative #2 - Not Funding (see section 2.4)*	*$0*	*01 2021*	*12 2025*

2.1 Describe what metrics, data, analysis or information was considered when preparing this capital request.

As part of the 5-year planning process, Enterprise Technology and the Energy Resources department leaders meet to review the technology demand that is derived from maintaining the current 'core' systems currently in place, as well as enhancements or new technology that enables the business to meet their strategic initiatives.

These estimates were developed based on the historical trends for enhancement work (Nucleus, Maximo & ADSS), and the product roadmaps for upgrades and licensing renewals, as well as high-level estimates for new product technologies. High level estimates are collected by the business level subject matter expert(s), technology domain architect(s), and delivery management team(s). The schedule was developed with the most recently available information and is subject to change pending risks, competing priorities, dependencies, etc.

Energy Resources Modernization and Operational Efficiency Technology

2.2 Discuss how the requested capital cost amount will be spent in the current year (or future years if a multi-year or ongoing initiative). (i.e. what are the expected functions, processes or deliverables that will result from the capital spend?)**. Include any known or estimated reductions to O&M as a result of this investment.**

Due to budget constraints within ET Applications and the Energy Resources Business Case over the past couple of years, the majority of 2021 will be focused on ensuring we are as current as we need to be to maintain support, compatibility, reliability and security. After 2021, the goal is to maintain that standard, while moving toward more strategic objectives, such as the Primavera implementation, and potentially replacing some outdated systems to create efficiencies and cost savings. Many of the enhancements planned for Maximo GPSS will create significant value quantitatively and qualitatively. The ABB Sendout System is on the roadmap for replacement which will dramatically impact operational O&M needed to continuously handle break/fixes due to updating aging technology.

2.3 Outline any business functions and processes that may be impacted (and how) by the business case for it to be successfully implemented.

The function of Energy Resources and associated technology is critical to Avista's ability to function. Although there is not a direct touchpoint within every area of the company, the ability for this business area and job functions to succeed, is dependent on the understanding and support of Avista's employees and contractors.

This Business Case intends to grow significantly with many of the major initiatives and new technologies that will be supported under Energy Resources. (ADSS, HMI, EIM).

2.4 Discuss the alternatives that were considered and any tangible risks and mitigation strategies for each alternative.

- Alternative #1 - Funding at a Lower Level (or the Waterline).

The Waterline is bottom-up estimate for technology that is required to enable and sustain automated business processes of existing Enterprise Applications to essentially 'run the company'. These investments allow the company to continue to extract value from the initial technology investment that supports essential functions and delivers efficiency at the appropriate level of quality and performance. Without this investment, systems can fall out of support based on technology vendor-driven lifecycles, as well as degrade appropriate levels of performance and capacity needed to sustain existing automated or technology-supported business processes or to keep automated solutions in line with changing business processes. Estimates include labor and non-labor forecasts based on historical trends and anticipated expenses, which support the skillset, product, and licensing entitlements required to keep the systems current. Waterlines can be fluid for various reasons and therefore are calibrated annually. This alternative has a number of factors working against it.

If this Business Case was funded at the waterline, it would result in the need to run the projects at a slower pace or defer existing system enhancements. This alternative would cause a decline in the number of enhancements implemented and efficiencies gained each year. While the work would likely get pushed to future years, the ability to meet planned strategic objectives would be delayed even further.

In short, while feasible, funding at a lower level reduces the timing of efficiency gains, adds risk that Avista would have to take extra measures to retain functions and could impact Avista's ability to run the business, such as keeping up with periodic EIM market enhancements incorporated by the CAISO. It would increase the number of software application assets that would need to be deferred, thereby increasing risk of obsolescence, losing maintenance and support, and reducing automation efficiencies.

- Alternative #2 - Not Funding (Retire assets and remove automation)

This option assumes the assets would not be replaced upon failure and be removed from service due to product incompatibility or business or safety risk.

The basis for measuring the business impact of not funding this business case is realizing the loss of business process automation. As products reach the manufacturer-defined planned obsolescence, business process automation is jeopardized, and business risk is increased as manufacturers cease product maintenance and support. This condition would drive action. The alternative would lead to a mitigation plan of having to re-instate manual business process or eliminate the business process.

This option bears the cost of asset retirement for failed assets. Failed assets are estimated to be 50% of obsolete products. The retirement cost is estimated at 10% of the cost to replace the asset.

2.5 Include a timeline of when this work will be started and completed. Describe when the investments become used and useful to the customer. spend, and transfers to plant by year.

This is a program with discrete projects and packages that typically run annually and Transfer to Plant within that same year. There are times that a project may start in Q3/Q4 of one year and Transfer to Plant the following year. Typically, application projects will Transfer to Plant about 60 days prior to the project completion date (due to the post implementation warranty period and to capture the trailing charges).

The goal is to break out large/complex projects into smaller projects (phases) to avoid scope creep, budget overages, and ensure the work can be properly prioritized. The first phase of every project would be scoped at the Minimum Viable Product (MVP), and subsequent phases would be scoped accordingly, based on the next highest priority after MVP. This also allows for more accurate Transfer to Plant forecasts.

2.6 Discuss how the proposed investment aligns with strategic vision, goals, objectives and mission statement of the organization.

This is a program with discrete projects and packages that align with Avista's vision, mission and strategic objectives:

- To provide Better Energy for Life, you need Power and Gas Supply and Generation. The Energy Resources team is dedicated to the safe and reliable systems that are necessary to meet Avista's vision.
- To improve our customers' lives through innovative energy solutions, we also need to have technology systems and processes that ensure we are making good decisions, and consistently improving our ability to provide power utilizing innovative technology that enables safety, reliability, and is cost effective.

- This program definitely enables people and performance but is also steadily making its impact with innovation. The Energy Resources area uses some technology that may be considered a differentiator in the marketplace (ADSS/Nucleus). The roadmap consists of other technology solutions that will allow for more innovation opportunity, once implemented (EIM, HMI).

2.7 Include why the requested amount above is considered a prudent investment, providing or attaching any supporting documentation. In addition, please explain how the investment prudency will be reviewed and re-evaluated Energy Resources throughout the project

Avista's Energy Resources technology systems are a necessity, as they provide essential functions to Avista. These vital systems require systematic upgrades and enhancements in order to maintain reliability, compatibility, and reduce security vulnerabilities.

This funding level will provide the appropriate technology and development to meet the periodic upgrades and enhancements prioritized by the Energy Resources and Enterprise Technology (ET) governance committee. This funding is necessary to mitigate the risk of unsupported applications, security liability, and significantly higher costs as a result of the deferment of upgrades and enhancements.

Investment prudency is reviewed by the Steering Committee to ensure alignment of initiatives through judiciously selected and implemented projects. The funding requested as part of this program generally fits these initiatives and are assigned to specific projects (with Steering Committee oversight) as they are identified. Also, the Business Case owner will work with Steering Committee(s) to set project priority and sequence over a five-year planning period, subject to any additional funding changes as directed by the Capital Planning Group (CPG). Each program and project steering committee meets regularly to review the demand to ensure that it aligns with Avista's strategies. The Steering Committee oversees scope, schedule and budget within their respective programs and projects and inform the Business Case owner of any changes needing escalation to the Technology Planning Group (TPG) or CPG for decision-making around resource or funding constraints.

2.8 Supplemental Information

2.8.1 Identify customers and stakeholders that interface with the business case

The Energy Resources Steering Committee members include Business Case Sponsors, Directors and Managers within Energy Resources, Finance, and the Enterprise Technology (ET) Business Case Owner.

The ET Business Case Owner works in conjunction with the Project Management Office (PMO), and assigned Program Manager, and subsequent Project Managers. The Business Technology Analyst (BTA) is also engaged at all levels and serves as a liaison between ET and Energy Resources.

The ET Business Case Owner is accountable and responsible for all Business Case related activities and assignments, but the Energy Resources team is regularly consulted, informed as this directly impacts Energy Resources stakeholders. This model is conducive to a strong partnership, which is key to

managing all of the dynamic intricacies throughout the course of the budget year.

2.8.2 Identify any related Business Cases

This Business Case is a program that has been functioning for the last 4 years (prior to 2017, the majority of these projects were in the Technology Refresh and Technology Expansion Business Cases).

3.1 Steering Committee or Advisory Group Information

The Energy Resources Steering Committee members include Business Case Sponsors, Directors and Managers within Energy Resources, and the Business Case Owner.

3.2 Provide and discuss the governance processes and people that will provide oversight

The Energy Resources Business Case has four levels of governance: The Executive Technology Steering Committee (ETSC); Technology Planning Group (TPG) of Directors; Integrated Oversight Committee (IOC), and Program/Project Steering Committees. Applicable stakeholders and disciplines meet regularly to govern the business case and subsequent programs and projects.

The IOC evaluates and compares all of the application portfolio project priorities on a weekly basis, utilizing risk, capacity, and other situational factors to ensure each planned project is meeting critical milestones. The TPG sets priority across the technology investment portfolio, balancing: strategic alignment, business value, and customer benefits, as driven by the strategic initiatives established by the ETSC. The Capital Planning Group (CPG), an independent body, establishes funding allocations for each Business Case across the enterprise.

The Business Case is largely limited by the funding allocation and resource capacity (staff) to meet its goals. The funding is generally established at the Business Case level by the CPG. The resource capacity constraint is generally managed by the TPG and the Business Case owner. Once the two constrains are established, the Business Case owner will work with steering committee(s) to set project priority and sequence over a five-year planning period, subject to additional funding changes as directed by the CPG.

3.3 How will decision-making, prioritization, and change requests be documented and monitored

Project prioritization is evaluated by the management team on a weekly basis through the IOC. Each program and project steering committee meets regularly and oversees scope, schedule and budget within their respective programs and projects and inform the Business Case owner of any changes needing escalation to the TPG or CPG for decision-making around resource or funding constraints.

Any changes in funding or scope are documented at the Business Case level, via Change Request document that is presented to the CPG on a monthly basis and evaluated by the CPG for approval.

Changes in scope, schedule, or budget are also documented through a ‘Change Request’ at the project level and reviewed and approved through a formal workflow

process. All Enterprise technology projects in this business case are managed through the PMO, which follows the Project Management Institute (PMI) standards. Projects initiate with a 'Charter' to begin the planning process. When planning is complete, a 'Project Management Plan (PMP)' is created and approved as the projects baseline for scope, schedule and budget. At the end of execution, an 'Approval to Go Live' is submitted and approved prior to implementation (Transfer to Plant). After the technology is in service and out of the warranty period, the Project Manager will hold a Lessons Learned, and subsequently submit an 'Approval to Close' prior to finishing the project. All Monitor and Control documentation and Change Requests are documented and stored to ensure a comprehensive audit trail.

The undersigned acknowledge they have reviewed the *Energy Resources Technology Business Case Narrative* and agree with the approach it presents. Significant changes to this will be coordinated with and approved by the undersigned or their designated representatives.

Signature:	DocuSigned by: Brian Hoerner 3AE7BA99E1F54CF...	Date:	Jul-31-2020 | 8:37 AM PDT
Print Name:	Brian Hoerner		
Title:	Application Delivery Manager		
Role:	Business Case Owner		
Signature:	DocuSigned by: Jason Thackston EC91BEE9033645C...	Date:	Aug-03-2020 | 5:09 AM PDT
Print Name:	Jason Thackston		
Title:	Sr. VP Energy Resources & Env. Comp. Officer		
Role:	Business Case Sponsor		
Signature:	DocuSigned by: Jason Lang 43C4EE894DAD4A5...	Date:	Aug-06-2020 | 8:06 AM PDT
Print Name:	Jason Lang, Andy Vickers, Scott Kinney, Jody Morehouse, Bruce Howard		
Title:	Dir. of Finance, Risk & Asst Treasurer; Dir Gen Prod Sub Support; Dir. of Power Supply; Dir of Gas Supply, Sr. Dir. Environmental Affairs		
Role:	Steering/Advisory Committee Review		

Template Version: 05/28/2020

DocuSigned by: Andy Vickers 8E5EBAEFABB04AA... Aug-04-2020 | 8:28 AM PDT

DocuSigned by: Jody C.S. Morehouse 87E641DEAECE4FC... Aug-04-2020 | 8:32 AM PDT

DocuSigned by: Scott Kinney 50D41B164A3B414... Aug-06-2020 | 3:31

DocuSigned by: Bruce Howard CDB9B5DDD0114A5... Aug-04-2020 | 11:

Finance and Accounting Technology Business Case

EXECUTIVE SUMMARY

The Finance and Account Technology business case supports the financial application that are critical to Avista Corporation financial health and regulatory requirements. This enables Avista to provide Better Energy for Life for our customers. The financial applications vary from simple to complex and require ongoing management of the enhancements to meet the internal and external business requirements.

The financial systems primarily serve the all Avista's customers and operations throughout our service territories. To maintain the business processes, application and systems supported by this business case it is recommend being funded at $15,540,000 for the next five years or $2,500,000 to $3,500,000 per year. This funding level will provide the appropriate technology and development labor to complete periodic upgrades in order to maintain patched and supported systems. The funding level will also maintain the development staff required to enhance the technology solutions to keep pace with business process drift or change.

This is a program business case and is intended to run year over year to maintain the business applications and keep pace with changes in the business processes. If this business case if not funded at the recommended level the it will result in a reduction in technical staff which result in the loss of institutional business process and technology knowledge and will increase the risk to the financial health of the company. Additionally, a lower funding amount will increase the risk to the company through the delay of upgrades resulting in either unsupported applications being used (audit risk) or significantly higher costs for upgrades.

VERSION HISTORY

Version	Author	Description	Date	Notes
2.0	*Graham Smith*	*First draft of the Executive Summary*	*7/1/2020*	
2.1	*Leianne Raymond*	*BC Justification Narrative*	*7/22/2020*	*Edits to Narrative*
2.2	*Leianne Raymond*	*BC Justification Narrative*	*7/29/2020*	*Removed watermark and added alternatives*

Finance and Accounting Technology Business Case

GENERAL INFORMATION

Requested Spend Amount	$15,540,000
Requested Spend Time Period	5 years
Requesting Organization/Department	Finance, Accounting, Financial Planning and Analysis.
Business Case Owner | Sponsor	Graham Smith | Ryan Krasselt
Sponsor Organization/Department	Enterprise Technology
Phase	Execution
Category	Program
Driver	Performance & Capacity

1. BUSINESS PROBLEM

1.1 What is the current or potential problem that is being addressed?

The Finance and Accounting business area utilizes a collection of business applications to complete the reoccurring business processes. These business processes change on a frequent basis which is driven by a number of factors. The frequency of the change is dictated by the lifecycles of the applications governed in this business case and these changes require resources and technology solutions. This business case provides the resources to keep the systems and automation processes in line with the changes in business process, as well as ensuring the systems are current in their lifecycle to maintain supportability, compatibility, security, and reliability.

1.2 Discuss the major drivers of the business case *(Customer Requested, Customer Service Quality & Reliability, Mandatory & Compliance, Performance & Capacity, Asset Condition, or Failed Plant & Operations)* and the benefits to the customer

The primary driver of this business case is performance and capacity, with asset condition being secondary. As mentioned above, maintaining systems to align with current state business process, is what allows this business area to operate in an efficient manner. The lifecycle management of the applications under this business case are also critical to maintain supportability and performance of the applications. These lifecycles are largely dictated by the technology solutions that we use. All of this work is being done to enable efficiencies and reduce risks to allow Avista to serve internal and external customers. Without properly managed business processes or lifecycles of these applications, our customers would potentially see difficulty in our ability to report company financials, which could jeopardize the ability for our customers to trust our integrity, and the services that we provide.

1.3 Identify why this work is needed now and what risks there are if not approved or is deferred

The projects and initiatives this Business Case supports orderly management of the business processes and technology utilized by this business area. Not funding at a consistent level year over year will result in inconsistent fluctuations in forecasts, as well as risking the functionality and support of the application.

By not performing incremental upgrades and improvements to the business applications, the risk of either failure of those business processes or failure of the applications that support those business processes, increases. Additionally, by not funding the requested amount, it will impact the technology staff that is used to support these applications. That technology staff gains valuable insights and knowledge into the internal workings of Avista and the applications and the loss of those team members could result in significant setbacks. It takes between six to nine months to gain the business process knowledge and understanding to be able to efficiently support these systems. Technology progresses on a constant basis and work is required to be able to keep pace with those advancements.

1.4 Identify any measures that can be used to determine whether the investment would successfully deliver on the objectives and address the need listed above.

A measurement that can be used to track this business case over a longer period of time is evaluation of the 'vendor provided' support timeline in comparison to the version that is being utilized in Avista's portfolio of applications.

1.5 Supplemental Information

1.5.1 Please reference and summarize any studies that support the problem

For asset replacement, include graphical or narrative representation of metrics associated with the current condition of the asset that is proposed for replacement.

Option	Capital Cost	Start	Complete
Recommended Solution	$15,540,000	01 2021	12 2025
➢ *Alternative #1 – Waterline (see section 2.4)*	*$7,600,000*	*01 2021*	*12 2025*
➢ *Alternative #2 - Not Funding (see section 2.4)*	*$0*	*01 2021*	*12 2025*

2.1 Describe what metrics, data, analysis or information was considered when preparing this capital request.

As part of the 5-year planning process, Enterprise Technology and the Finance and Accounting department leaders meet to review the technology demand that is derived from maintaining the current 'core' systems currently in place, as well as enhancements or new technology that enables the business to meet their strategic initiatives.

These estimates were developed based on the historical trends for enhancement work (EBS/PP), the product roadmaps for upgrades and licensing renewals, as well as high-level estimates for new product technologies. High level estimates are collected by the business level subject matter expert(s), technology domain architect(s), and delivery management team(s). The schedule was developed with the most recently available information and is subject to change pending risks, competing priorities, dependencies, etc.

2.2 Discuss how the requested capital cost amount will be spent in the current year (or future years if a multi-year or ongoing initiative). (i.e. what are the expected functions, processes or deliverables that will result from the capital spend?)**. Include any known or estimated reductions to O&M as a result of this investment.**

This business case is in place to reduce the risk to the back-office business operations, specifically related to finance and accounting area. There are no direct reductions to O&M investments by this capital investment, however not investing in this program on a year over year basis will result in increased expense for the application defects as a result of a non-supported platform. Additionally, not keeping the systems in line with current business processes will also result in inefficiency in work process, which creates increasing O&M pressure.

2.3 Outline any business functions and processes that may be impacted (and how) by the business case for it to be successfully implemented.

The business process supported by the business case impact all of the financial transactions for the company. Failure to support these systems may impact the creation of a new accounting project for a new customer request construction project to the payment of an invoice. These are critical functions of the company and require technology to be executed efficiently and successfully.

2.4 Discuss the alternatives that were considered and any tangible risks and mitigation strategies for each alternative.

- Alternative #1 - Funding at a Lower Level (or the Waterline).

The Waterline is bottom-up estimate for technology that is required to enable and sustain automated business processes of existing Enterprise Applications to essentially 'run the company'. These investments allow the company to continue to extract value from the initial technology investment that supports essential functions and delivers efficiency at the appropriate level of quality and performance. Without this investment, systems can fall out of support based on technology vendor-driven lifecycles, as well as degrade appropriate levels of performance and capacity needed to sustain existing automated or technology-supported business processes or to keep automated solutions in line with changing business processes. Estimates include labor and non-labor forecasts based on historical trends and anticipated expenses, which support the skillset, product, and licensing entitlements required to keep the systems current. Waterlines can be fluid for various reasons and therefore are calibrated annually. This alternative has a number of factors working against it.

If this Business Case was funded at the waterline, it would result in the need to run the projects at a slower pace or defer existing system enhancements. This alternative would cause a decline in the number of enhancements implemented and efficiencies gained each year. While the work would likely get pushed to future years, the ability to meet planned strategic objectives would be delayed even further. Both of these actions would increase the risks for the company concerning its financial viability.

In short, while feasible, funding at a lower level reduces the timing of efficiency gains, adds risk that Avista would have to increase the number of software application assets that would need to be deferred, thereby increasing risk of obsolescence, losing maintenance and support, and reducing automation efficiencies.

- Alternative #2 - Not Funding (Retire assets and remove automation)

This option assumes the assets would not be replaced upon failure and be removed from service due to product incompatibility or business or safety risk.

The basis for measuring the business impact of not funding this business case is realizing the loss of business process automation. As products reach the manufacturer-defined planned obsolescence, business process automation is jeopardized, and business risk is increased as manufacturers cease product maintenance and support. This condition would drive action. The alternative would lead to a mitigation plan of having to re-instate manual business process or eliminate the business process.

This option bears the cost of asset retirement for failed assets. Failed assets are estimated to be 50% of obsolete products. The retirement cost is estimated at 10% of the cost to replace the asset.

2.5 Include a timeline of when this work will be started and completed. Describe when the investments become used and useful to the customer. spend, and transfers to plant by year.

Below is roadmap of the applications and business initiatives that this business case supports. Due to lower than requested funding of this business case a number of these applications are already past due for an upgrade to maintain supportability. Typical projects in the business case are generally 12 months less and transfer to plant within 60 days following implementation to accommodate trailing charges.

2021	2022	2023	2024	2025
EBS & database upgrade (continued)	Extract DB replacement	Extract DB replacement (continued)	EBS upgrade	EBS upgrade (continued)
Reconciliation and close automation (replace RED & JET; systematic account reconciliation)	PowerPlan upgrade (Tax and FA) continued	Consolidation / financial reporting improvements	Systematic calculation of tax	APx evaluation / replacement
PowerPlan upgrade (Tax and FA)	Reconciliation and close automation (continued)	Reconciliation and close automation (continued)	Systematic cash forecasting	Expense report solution review
Capital prioritization tool	Unitization pre-2012	Depreciation forecasting ph 2	Debt Database replacement	UI Planner evaluation (replace?)
Unitization support 2012-current	Oracle Business Network ph 2	Clarity integration for ET labor	PowerPlan Tax Fixed Assets (Saas)	Automated testing
EIM settlements	CPI (tax AFUDC) in PowerPlan	Robotic process automation	Automated testing	
FERC XBRL solution	Remittance improvements	Automate FERC reporting	UI Planner upgrade	
Oracle Business Network ph 1	PowerPlan upload as-built from Excel	Automated testing	Quickbooks upgrade (Saas?)	
Depreciation forecasting ph 1	Automated testing			
Quickbooks upgrade (Saas?)				
Upgrade UI Planner				
Automated testing				
PowerPlan FERC audit adjustments				

*Finance and Account Roadmap as of July 2020 and is subject to change.

2.6 Discuss how the proposed investment aligns with strategic vision, goals, objectives and mission statement of the organization.

This is a program with discrete project and packages that align with Avista's vision, mission, and strategic objectives:

- To provide Better Energy for Life, you need people. The Finance and Accounting teams are dedicated to the people of Avista and its customers. The technology in this business area is utilized as an investment, so that it can be updated as the market demands, and sustainable to meet ongoing business operations.
- To improve our customers' lives through innovative energy solutions, we also need skill resources and specialized technology solutions to meeting the many complicated financial requirements. The specialized technology solutions require continuous maintenance in order to meeting the ever-changing requirements and to perform at acceptable levels.
- The program embodies Avista's Focus Areas, particularly placing emphasis on the 'perform' aspect. The specialized technology solutions supported under this business case are force multiplier for the financial and accounting employees who without the technology would not be able to meet the needs of Avista.

2.7 Include why the requested amount above is considered a prudent investment, providing or attaching any supporting documentation. In addition, please explain how the investment prudency will be reviewed and re-evaluated throughout the project

This is program level business case and its investments are evaluated through program level governance. On a routine basis the technology team members meet with the business stakeholders and evaluate prior performance as well as input what should be done next.

Investment prudency is also reviewed by the Steering Committee to ensure alignment of initiatives through judiciously selected and implemented projects. The funding requested as part of this program generally fits these initiatives and are assigned to specific projects (with Steering Committee oversight) as they are identified. Also, the Business Case owner will work with Steering Committee(s) to set project priority and sequence over a five-year planning period, subject to any additional funding changes as directed by the Capital Planning Group (CPG). Each program and project steering committee meets regularly to review the demand to ensure that it aligns with Avista's strategies. The Steering Committee oversees scope, schedule and budget within their respective programs and projects and inform the Business Case owner of any changes needing escalation to the Technology Planning Group (TPG) or CPG for decision-making around resource or funding constraints.

2.8 Supplemental Information

2.8.1 Identify customers and stakeholders that interface with the business case

Our customer and shareholders interface with this business case by having a financially viable company.

2.8.2 Identify any related Business Cases

Because of the company's highly integrated business processes all of the Technology Business cases have relation to each other. The business

cases are divided to provide a clear understanding of the resources required to maintain and enhance a highly integration company.

3.1 Steering Committee or Advisory Group Information

This business case is governed by a steering committee made up of the principle managers of the finance and accounting areas and facilitated by the application delivery manager and business product manager.

The roles include but are not limited to:

Director of Accounting, Director of Financial Planning and Analysis, Manager Projects and Fixed Assets Accounting, Manager or Financial Systems, Manager Resource Accounting, Manager of Asset Management, and Manager Treasury.

3.2 Provide and discuss the governance processes and people that will provide oversight

The Finance and Accounting Business Case has four levels of governance: The Executive Technology Steering Committee (ETSC); Technology Planning Group (TPG) of Directors; Integrated Oversight Committee (IOC), and Program/Project Steering Committees. Applicable stakeholders and disciplines meet regularly to govern the business case and subsequent programs and projects.

The IOC evaluates and compares all of the application portfolio project priorities on a weekly basis, utilizing risk, capacity, and other situational factors to ensure each planned project is meeting critical milestones. The TPG sets priority across the technology investment portfolio, balancing: strategic alignment, business value, and customer benefits, as driven by the strategic initiatives established by the ETSC. The Capital Planning Group (CPG), an independent body, establishes funding allocations for each Business Case across the enterprise.

The Business Case is largely limited by the funding allocation and resource capacity (staff) to meet its goals. The funding is generally established at the Business Case level by the CPG. The resource capacity constraint is generally managed by the TPG and the Business Case owner. Once the two constrains are established, the Business Case owner will work with steering committee(s) to set project priority and sequence over a five-year planning period, subject to additional funding changes as directed by the CPG.

3.3 How will decision-making, prioritization, and change requests be documented and monitored

Project prioritization is evaluated by the management team on a weekly basis by the IOC. Each program and project steering committee meets regularly and oversees scope, schedule and budget within their respective programs and projects and inform the Business Case owner of any changes needing escalation to the TPG or CPG for decision-making around resource or funding constraints.

Any changes in funding or scope are documented at the Business Case level, via Change Request document that is presented to the CPG on a monthly basis and evaluated by the CPG for approval.

Finance and Accounting Technology Business Case

Changes in scope, schedule, or budget are also documented through a 'Change Request' at the project level and reviewed and approved through a formal workflow process. All Enterprise technology projects in this business case are managed through the PMO, which follows the Project Management Institute (PMI) standards. Projects initiate with a 'Charter' to begin the planning process. When planning is complete, a 'Project Management Plan (PMP)' is created and approved as the projects baseline for scope, schedule and budget. At the end of execution, an 'Approval to Go Live' is submitted and approved prior to implementation (Transfer to Plant). After the technology is in service and out of the warranty period, the Project Manager will hold a Lessons Learned, and subsequently submit an 'Approval to Close' prior to finishing the project. All Monitor and Control documentation and Change Requests are documented and stored to ensure a comprehensive audit trail.

The undersigned acknowledge they have reviewed the Finance and Accounting Technology Business Case and agree with the approach it presents. Significant changes to this will be coordinated with and approved by the undersigned or their designated representatives.

Signature:	DocuSigned by: B82F4A1323EA41F...	Date:	Aug-03-2020 | 7:56 AM PDT
Print Name:	Graham Smith		
Title:	Application Delivery Manager		
Role:	Business Case Owner		
Signature:	DocuSigned by: Ryan Krasselt 02B36C66587D411...	Date:	Aug-03-2020 | 1:17 PM PDT
Print Name:	Ryan Krasselt		
Title:	VP and Controller		
Role:	Business Case Sponsor		
Signature:	DocuSigned by: Jason Lang 43C4EE894DAD4A5...	Date:	Aug-03-2020 | 3:38 PM PDT
Print Name:	Jason Lang, Lauren Pendergraft, Adam Munson, Daniel Loutzenhiser, Hossein Nikdel		
Title:	Dir. Fin. Risk, & Asst. Treasurer, Dir. Fin. Planning & Analysis, Dir. of Accounting, Dir. Tax – Asst. Treasurer, Director of Application Development		
Role:	Steering/Advisory Committee Review		

Template Version: 05/28/2020

DocuSigned by: Lauren Pendergraft 34CAC240AE4C461... Aug-04-2020 | 8:29 AM PDT

DocuSigned by: Adam Munson 6E1D6C3DB5334D2... Aug-05-2020 | 7:39 AM PDT

DocuSigned by: Daniel Loutzenhiser 88AD6120CBA84C6... Aug-04-2020 | 10:46 AM PDT

DocuSigned by: Hossein Nikdel E4E2D9C7EE4747F... Aug-04-2020 | 8:37 AM PDT

Enterprise Security

EXECUTIVE SUMMARY

Cyber security measures along with physical security is an expectation of all companies today by its customers. Especially companies considered critical infrastructure that are required to meet specific compliance standards. Protecting vital electric and gas services from cyber-attacks greatly benefits Avista's customers. In addition to protecting gas and electric services, cyber and physical security tools mitigate risks like theft and vandalism on Avista properties and identity theft and payment transactions from online attacks.

The capital budget request of $12,900,000 for Enterprise Security funds the technology, tools, and systems that benefit all Avista customers as the funded projects maintain and enhance Avista's security posture to minimize the risks associated with cyber intrusions. Not approving this business case or its recommended funding can pose risks to the systems that Avista depends on to conduct business and delivery safe and reliable energy.

VERSION HISTORY

Version	Author	Description	Date	Notes
Draft	Andru Miller	Initial draft of original business case	6/30/2020	

GENERAL INFORMATION

Requested Spend Amount	$12,900,000
Requested Spend Time Period	5 years
Requesting Organization/Department	Security
Business Case Owner | Sponsor	Clay Storey | Clay Storey
Sponsor Organization/Department	
Phase	Choose an item.
Category	Program
Driver	Performance & Capacity

1. BUSINESS PROBLEM

1.1 What is the current or potential problem that is being addressed?

The security of our electric and natural gas infrastructure is a significant priority at a national and state level and is of critical importance to Avista. Threats from cyberspace, including viruses, phishing, and spyware, continue to test our industry's capabilities. And while these malicious intentions are often unknown, it is clear the methods are becoming more advanced and the attacks more persistent. In addition to these threats, the vulnerabilities of hardware and software systems continue to increase, especially with industrial control systems such as those supporting the delivery of energy. For these reasons, Avista must continue to advance its cybersecurity program and invest in security controls to prevent, detect, and respond to these increasingly frequent and sophisticated attacks.

1.2 Discuss the major drivers of the business case and the benefits to the customer

Performance & Capacity is the primary driver for the business case as the projects it funds address security risks with the use of technology that keeps our systems secure and reliable.

1.3 Identify why this work is needed now and what risks there are if not approved or is deferred

Addressing security risks has been and will continue to be an ongoing issue. If the funding is not approved or is deferred, this increases the likelihood of a security event that could impact Avista's operations.

1.4 Identify any measures that can be used to determine whether the investment would successfully deliver on the objectives and address the need listed above.

Avista utilizes third party assessments to evaluate the effectiveness of its security posture. These assessments, along with utility industry forums, counsels, and organizations provide Avista with a strong baseline from which to measure its security capabilities and channel the appropriate level of investment to mitigate identified risks.

1.5 Supplemental Information

1.5.1 Please reference and summarize any studies that support the problem

N/A

1.5.2 For asset replacement, include graphical or narrative representation of metrics associated with the current condition of the asset that is proposed for replacement.

Security assets such as firewalls, intrusion prevention, anti-virus, and endpoint protection systems must be regularly updated or replaced as they reach their end of life so they don't become unreliable and become a security risk due to not being able to be patched.

The Enterprise Security business case provides funding for cyber and physical security-related projects and supports Avista's safe and reliable infrastructure strategy. The projects funded by this business case protect Avista's people,

assets, and information. Without proper security protection the risk to Avista's people, assets, and information increases.

Option	Capital Cost	Start	Complete
Address 80% of obsolete technology and emerging risks (Recommended)	$12,900,000	01 2021	12 2025
Address 40% of obsolete technology and emerging risks	$5,400,000	01 2021	12 2025
Address 100% of obsolete technology and emerging risks	$22,500,000	01 2021	12 2025

2.1 Describe what metrics, data, analysis or information was considered when preparing this capital request.

The capital dollar request was derived from the historical annual spend implementing security measures to reasonably mitigate risks based on input from the programs governing body. It also takes into account estimates of in-flight projects and a 1% per year increase for inflation for future projects.

2.2 Discuss how the requested capital cost amount will be spent in the current year (or future years if a multi-year or ongoing initiative). (i.e. what are the expected functions, processes or deliverables that will result from the capital spend?)**. Include any known or estimated reductions to O&M as a result of this investment.**

This business case supports simultaneous projects over multiple years. This business case expects to continue to deliver security systems that contribute to threat reduction. Each project within the business case evaluates the potential impact on O&M costs and staffing.

[Offsets to projects will be more strongly scrutinized in general rate cases going forward *(ref. WUTC Docket No. U-190531 Policy Statement)*, therefore it is critical that these impacts are thought through in order to support rate recovery.]

2.3 Outline any business functions and processes that may be impacted (and how) by the business case for it to be successfully implemented.

Security systems, processes, and procedures can have an impact on business functions. As a business case with multiple projects, Avista's project management office (PMO) tools and processes will be leveraged to coordinate and collaborate through standardized change management any changes to business functions.

2.4 Discuss the alternatives that were considered and any tangible risks and mitigation strategies for each alternative.

The first alternative strategy would be to fund the business case at roughly half the recommended budget amount (40%). This alternative significantly

increases the risk of using outdated security systems to provide safe and reliable service to Avista's customers.

The second alternative would fully fund the business case and allow Avista the ability to implement new security systems as they become available and replace existing systems well before the end of their serviceability.

2.5 Include a timeline of when this work will be started and completed. Describe when the investments become used and useful to the customer. spend, and transfers to plant by year.

Since this business case is comprised of projects running concurrently over multiple years, each one designates its own completion date and transfer-to-plant.

2.6 Discuss how the proposed investment aligns with strategic vision, goals, objectives and mission statement of the organization.

The projects funded by this business case protect Avista's people, assets and information. Without proper security protection the risk to Avista's people, assets and information increases.

2.7 Include why the requested amount above is considered a prudent investment, providing or attaching any supporting documentation. In addition, please explain how the investment prudency will be reviewed and re-evaluated throughout the project

Security measures to protect critical infrastructure is not only prudent, but required. Reasonable and appropriate security measures are an expectation from Avista's customers. The prudency of the program's investments will be evaluated by its governing body every month and adjusted as necessary.

2.8 Supplemental Information

2.8.1 Identify customers and stakeholders that interface with the business case

The Enterprise Security business case significantly impacts all of Avista's staff and its customers. Each project within the business case must carefully consider stakeholders and effected customers during the chartering process.

2.8.2 Identify any related Business Cases

This Enterprise Security business case replaced the following business cases:

- Enterprise Security Systems Refresh
- Enterprise Security Systems Expansion

3.1 Steering Committee or Advisory Group Information

The Enterprise Security Committee will provide monthly recommendations and guidance based on security operations center updates, business case financial updates, and industry recommendations.

3.2 Provide and discuss the governance processes and people that will provide oversight

The Enterprise Security Committee acts as the custodian and governance body of security resources and investments which includes the Enterprise Security Business Case. This group meets monthly and is composed of directors and managers from most of the lines of business. In addition, each project funded by the Enterprise Security Business Case has project-level steering committees.

3.3 How will decision-making, prioritization, and change requests be documented and monitored

Project Steering Committees act as the governing body over each project within the program and will consist of key members in management positions that are identified as responsible for the successful completion of the scope of work identified in the Charter document for the Project. The Project Steering Committee is responsible to provide guidance and make decisions on key issues that affect the following topics: scope, schedule, budget, project issues, and project risks.

The Project Steering Committee will meet at the defined intervals documented in the Charter of the project, and will be facilitated by an assigned Project Manager from within the PMO Department.

The undersigned acknowledge they have reviewed the Enterprise Security business case and agree with the approach it presents. Significant changes to this will be coordinated with and approved by the undersigned or their designated representatives.

Signature:	DocuSigned by: Clay Storey B70F95F7961D4B6...	Date:	Aug-07-2020 | 9:31 PM PDT
Print Name:	Clay Storey		
Title:	Director of Security, IT & Security Management		
Role:	Business Case Owner		

Enterprise Security

Signature:	DocuSigned by: Clay Storey B70F95F7961D4B6...	Date:	Aug-07-2020 | 9:31 PM PDT
Print Name:	Clay Storey		
Title:	Director of Security, IT & Security Management		
Role:	Business Case Sponsor		
Signature:		Date:	
Print Name:			
Title:			
Role:	Steering/Advisory Committee Review		

Template Version: 05/28/2020