BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

DOCKET NO. UE-17_____

DOCKET NO. UG-17_____

EXH. JMK-2

JAMES M. KENSOK

REPRESENTING AVISTA CORPORATION

Enterprise Technology Capital Projects - Index of Business Case Justification Narratives

Microwave Refresh Business Case

1 GENERAL INFORMATION

Requested Spend Amount	$25,156,206
Requesting Organization/Department	Enterprise Technology
Business Case Owner	Mike Busby
Business Case Sponsor	Jim Corder
Sponsor Organization/Department	Enterprise Technology
Category	Project
Driver	Asset Condition

1.1 Steering Committee or Advisory Group Information

The Microwave Refresh Business Case will be managed by a Steering Committee comprised of Managers and Directors from project stakeholder business units across the company for the purpose of guiding scope, schedule, and budget for all projects contained in the Business Case. Management of individual projects in this Business Case will be performed in Clarity, Enterprise Technology's Project & Portfolio Management (PPM) tool.

2 BUSINESS PROBLEM

Avista's microwave infrastructure is a critical component of the overall network backbone for voice and data transmission across all service territories. The current equipment is past its useful life and no longer supplied or supported by the manufacturer.

The Microwave Refresh Business Case has a purpose of:

- Replacing Avista's aging microwave technology with current technology to provide for high speed voice and data communications that support all areas of Avista's business across all jurisdictions. Current technology is past its useful life and unsupported by the manufacturer.
- Maintaining up-time and reliability of communication paths through system redundancy. Current microwave system carries data for Gas and Electric Operations, Avista corporate back office, Land Mobile Radio (LMR), Hydro Electric Dam (HED) Generation sites, Gas Telemetry, and Supervisory Control and Data Acquisition (SCADA)

MAJOR DRIVERS

- Avista's current microwave technology systems are past their useful life. Average age of all equipment is over 20 years old. Manufacturer

replacement parts are no longer available and systems are no longer supported.

- Bandwidth on the current analog microwave system limits transfer speeds. Implementation of the Alcatel/Nokia system will allow for increased data transfer speeds thereby decreasing latency for critical communications.
- Many of the communication sites to be replaced under this Business Case not only serve as primary communication paths for critical data, but also as a redundant paths during network outages. Maintaining redundant paths allows for business continuity in the event of an outage.

3 PROPOSAL AND RECOMMENDED SOLUTION

Option	Capital Cost	Start	Complete
Do nothing	$0	N/A	N/A
Replacement of legacy system with new Microwave technology	$25,156,206	01/2012	12/2022
Fiber Optic Cable	$49,620,000	01/2012	12/2022

All existing microwave systems in the company were evaluated and determined to be obsolete. The recommended solution is to use a risk-based approach to prioritize and replace Avista's existing legacy microwave equipment across all current communication sites over a period of 10 years from 2012-2022.

Other options were considered, but ultimately deemed inadequate or cost prohibitive. Alcatel-Lucent/Nokia is the manufacturer chosen to provide equipment and services to support this initiative. This platform provides a single network management solution console containing monitoring tools that allow for easier troubleshooting and remote configuration during network outages. The Alcatel platform not only provides a high quality product, but has been adopted in the industry by companies such as AT&T, Verizon, State and Federal agencies, and the Department of Defense (DOD) to handle critical data transport.

ALTERNATIVES CONSIDERED

Fiber Optic Cable Data Transport – High speed fiber optic cable was considered as a viable option for Microwave replacement, but ultimately deemed cost prohibitive. The average cost of designing, purchasing, and installing fiber optic cable is estimated at $60,000 per linear mile. Avista currently operates 827 total miles of point-to-point microwave shots in its WA, ID, and OR service territories. Using these figures, the total cost to run fiber optic cable in place of microwave would be $49,620,000. Realistically, the cost would be much higher because fiber paths (aerial or buried) would likely not be installed in straight-line paths between communication sites.

Microwave Refresh Business Case

BUDGET JUSTIFICATION

Business Case budget amount reflects the total estimated cost of legacy microwave system replacement through the year 2022. 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, age of equipment remaining to be replaced, 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 plan.

STRATEGIC ALIGNMENT & VISION

The Microwave Refresh efforts align with Avista's commitment to invest in its infrastructure to achieve optimal lifecycle performance – safely, reliably, and at a fair price. To accomplish this, Avista has negotiated a multi-year cost optimized purchasing model with Alcatel-Lucent/Nokia that offers large volume discounts on both equipment and professional services. This partnership will help ensure Avista can strengthen and expand its data network to accommodate the current needs, as well as favorably position the company to accommodate anticipated increased data volume.

CUSTOMERS & STAKEHOLDERS

The Microwave system benefits all areas of the business by facilitating data communications between sites and critical systems. Primary stakeholder groups include Gas and Electric Operations, LMR system users, HED staff, and SCADA.

4 APPROVAL AND AUTHORIZATION

The undersigned acknowledge they have reviewed the **Microwave Refresh** Business Case and agree with the approach it presents and that it has been approved by the steering committee or other governance body identified in Section 1.1. The undersigned also acknowledge that significant changes to this will be coordinated with and approved by the undersigned or their designated representatives.

Signature:		Date:	04/2017
Print Name:	Michael Busby		
Title:	IT Operations Manager		
Role:	Business Case Owner		
Signature:		Date:	04/2017
Print Name:	Jim Corder		
Title:	Infrastructure Technology and Security Director		
Role:	Business Case Sponsor		

5 VERSION HISTORY

[Version #	Implemented By	Revision Date	Approved By	Approval Date	Reason
1.0	**Matt Reding**	**03/17/2017**	**Jim Corder**	**04/14/2017**	**Initial version**

Template Version: 02/24/2017

1 GENERAL INFORMATION

Requested Spend Amount	$22,850,000
Requesting Organization/Department	Enterprise Technology
Business Case Owner	Mike Littrel
Business Case Sponsor	Josh DiLuciano
Sponsor Organization/Department	Energy Delivery Technology Projects
Category	Project
Driver	Asset Condition

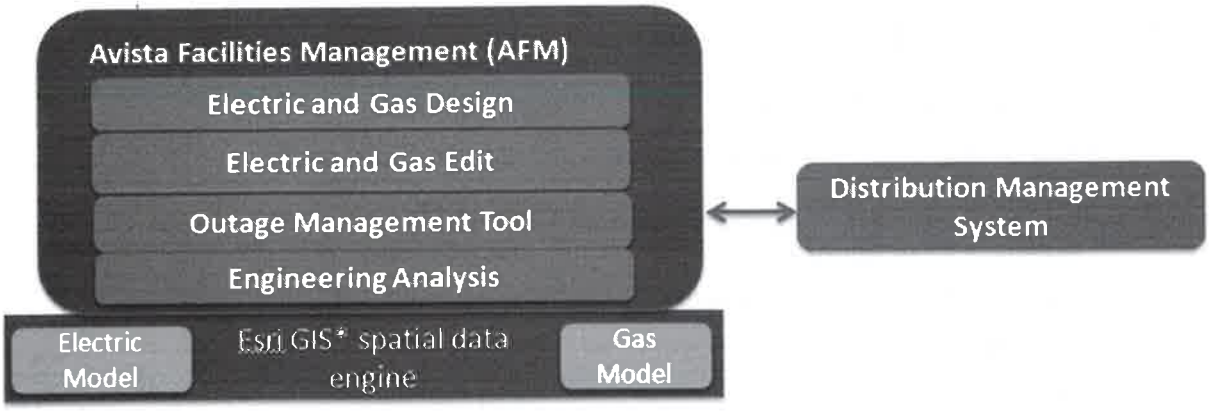
1.1 Steering Committee or Advisory Group Information

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 monthly at the ETSC, and to stakeholder groups overall progress.

2 BUSINESS PROBLEM

Avista Facility Management (AFM) is the legacy custom-coded system that the utility uses to manage the location and current operating state of its electric and gas assets (e.g. pipes, poles and wires).

Avista's AFM system has been used for nearly two decades, reached technology obsolescence, and in some components exceeded its useful life. 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, 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 design and edit, do not have the full complement of desired functionality and are unreliable at times due to the outdated architecture. For example, when a new simple configuration request is surfaced, the change cannot always be implemented, as the custom code and architecture will not allow it. In addition, Avista uses a significant amount of paper maps and manual processes in the field that result in inefficient work practices, delays in customer response times, and duplicative efforts that can result in potential errors.



*GIS - Geographic Information System

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 Design tools are applications for the design of electric and gas facilities.
- 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 to determine the current operating state.

3 PROPOSAL AND RECOMMENDED SOLUTION

Option	Capital Cost	Start	Complete
Do nothing	$0		
Replace the custom AFM applications with Commercial Off The Shelf Applications	$22.85 M	06/2015	12/2019

Do Nothing Alternative

The do nothing alternative is not an option as this legacy custom system has reached technology obsolescence and cannot be supported. It 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 to the functionality it can provide to our staff as they serve both gas and electric customers. The current system 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 GIS platform is a corner stone to a utility's ability to provide responsive service across its territory.

Fund the Replacement of Custom AFM Applications

Justification for system replacement is based on a comprehensive assessment of AFM technologies, processes and functions that was performed in 2015 by a third party consultant as part of the project. The details of the assessment are available in the following supporting documents:

- Current State Report
- Future State Report
- Gap Analysis Report
- Industry Analysis Report
- Requirements Report
- Alternative Analysis

Customer Benefits

Improvement of electric and gas customer experience is at the core of AFM system replacement and enhancements. These new tools 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 the above mentioned AFM system changes, additional mobile tools extend the value of Avista's investment in the GIS system by providing field staff with lite versions for real-time editing and data collection. For example, the Mobile Design Tool enables functionality for a designer to perform designs at a job site, and is compatible with the office design tool.

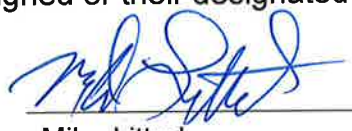
The Mobile tool provides field personnel with powerful functionality to meet customer responsiveness expectations, such provide electronic receipt and completion of construction work orders; access to GIS data in the field; capture of as-built configuration and materials; and document asset and compliance data electronically by taking advantage of a variety of data sources, including digital image data, keyed data, bar code scanned data, and Global Positioning System (GPS) location data.

Utility Benefits

Replacing the AFM tools improve worker productivity, asset data integrity, and the opportunity to reengineer work processes and methods to support a continual improvement program. COTS solutions also provide Avista with the ability to meet changing customer demands, respond to more stringent and detailed regulatory compliance requirements, enable effective operation of an increasingly complex and dynamic distribution grid, and provide new service offerings to gas and electric customers.

4 APPROVAL AND AUTHORIZATION

The undersigned acknowledge they have reviewed the **Atlas** Business Case and agree with the approach it presents and that it has been approved by the steering committee or other governance body identified in Section 1.1. The undersigned also acknowledge that significant changes to this will be coordinated with and approved by the undersigned or their designated representatives.

Signature:		Date:	04/2017
Print Name:	Mike Littrel		
Title:	Energy Delivery Project Manager		
Role:	Business Case Owner		
Signature:		Date:	04/2017
Print Name:	Josh DiLuciano		
Title:	Electrical Engineering Director		
Role:	Business Case Sponsor		
Signature:		Date:	04/2017
Print Name:	Jim Corder		
Title:	Infrastructure Technology and Security Director		
Role:	Business Case Sponsor		

5 VERSION HISTORY

Version	Implemented By	Revision Date	Approved By	Approval Date	Reason
1.0	Mike Littrel	04/19/2017	Josh DiLuciano	4/19/2017	Initial version

Template Version: 03/07/2017

1 GENERAL INFORMATION

Requested Spend Amount	$17,917,613
Requesting Organization/Department	IS/IT
Business Case Owner	Andy Leija
Business Case Sponsor	Jim Corder/Hossein Nikdel
Sponsor Organization/Department	IS/IT
Category	Program
Driver	Asset Condition

1.1 Steering Committee or Advisory Group Information

The Enterprise Technology Department serves as a shared service business unit that supports technology infrastructure and information systems for the enterprise. The **Technology Refresh to Sustain Business Processes** Business Case has three levels of governance: The Executive Technology Steering Committee (ETSC); Technology Planning Group (TPG) of Directors; and Program/Project Steering Committees. Applicable stakeholders and disciplines meet regularly to govern the business case and subsequent programs and projects (i.e. software delivery, electrical engineering, accounting, energy delivery, technology, etc.)

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.

Each program and project steering committee meet regularly to review the backlog of demand to that align with Avista's strategies. They oversee 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.

During an annual planning cycle (July – September), the Business Case owner surfaces the project demand for the upcoming five years to the TPG and ETSC. After review for resource capacity, strategic alignment, and risk, the investment plan is submitted to the CPG for funding consideration across all other Business Cases. The CPG then provides a revised funding allocation to each Business Case. The revised allocation then requires the TPG to review and revise the investment plan to fit within the new funding allocation. This establishes the annual investment plan under this Business Case. Steering committees prioritize technology asset risk within the two constraints (resource capacity and funding) for each year. Technology asset refresh funding is generally assigned priority in this sequence: Safety, Energy Control, Customer Facing, and Back Office.

2 BUSINESS PROBLEM

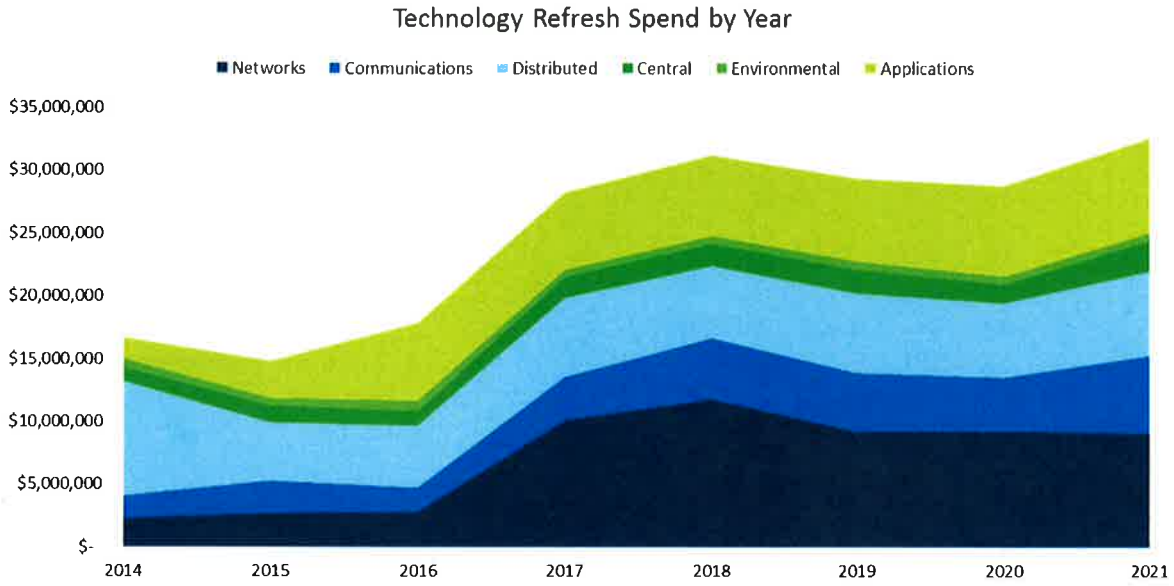
The Technology Refresh to Sustain Business Processes program is in place to provide for replacement of existing technology in alignment with the manufacturer product roadmaps for application and technology lifecycles. Not only is the asset condition of technology subject to the traditional mortality 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 is available in the market. Reliance on obsolete technology for automated business process presents significant risk that may only be solved with the reinstatement of manual process. Sustaining 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 Avista 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.

Below is a graph that illustrates the technology replacement demand across the six technology domains (Networks, Communications, Distributed, Central,

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

Environmental and Applications) under this Business Case. As you can see, the greatest increase is in Networks and Applications.



The Annual Investment Plan reviewed by the TPG and ETSC monitors the risks of deferred replacements or upgrades to maintain a stable and reliable application and computing platform that allows for the safe and reliable operation of our electric and natural gas infrastructures, as well as deliver on customer demands.

3 PROPOSAL AND RECOMMENDED SOLUTION

Option	Capital Cost	Start	Complete
Do nothing (No funding)	$1.9 MM	01 2017	12 2017
Fund at current level	**Approx. $18 MM**	**01 2017**	**12 2017**
Fund at lower level	< $18 MM	01 2017	12 2017

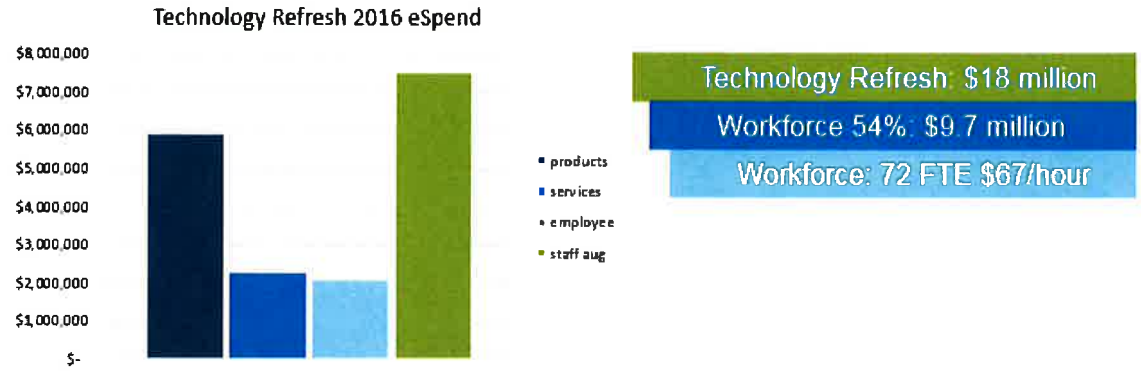
The monetized value of "no funding" alternative is $1.9 million per year

The basis for measuring the business impact of not funding the Technology Refresh to Sustain Automated Business Process Business Case program is realizing the loss of business process automation. As technology products reach manufacturer planned or real obsolescence, they then cease product maintenance and product support, the automation value is jeopardized and business risk is increased. This condition would drive action. The "no funding" alternative would lead to a mitigation plan of having to remove the automation.

Funding at current level analysis

According to Avista's technology asset management system of record, which stores over 10,000 assets, 25% of the in-service assets are beyond manufacturer lifecycle. The Business Case owner analyzed project demand, resource capacity, and pace

of change, and determined that the 2016 funding level is adequate to maintain a balance among the constraints (demand, capacity, funding). The results of the analysis were presented to the ETSC and TPG, with the recommendation and requested an annual analysis to validate the investment portfolio, while managing the risk of deferring technology upgrades and replacements.



Funding at a lower level

As described above, funding the Technology Refresh to Sustain Automated Business Process Business Case at a lower level would increase the number of technology assets that would need to be deferred, thereby increasing risk of technology obsolescence, losing maintenance and support, and reducing automation efficiencies. Annual investment planning efforts will inform ETSC and TPG of the risks associated with continuous deferrals.

The Business Case aligns directly with the Asset Condition driver and Avista's strategic initiatives of providing a Safe and Reliable Infrastructure and delivering more value to more customers and strengthen engagement. As a shared service, a majority of the IS/IT Business Case supports automated business functions, which many departments depend on to manage costs and maintain staff efficiencies. Concomitantly, many of the technology solutions (devices, systems, applications, etc.) provide direct support to all Avista customers, while the remaining provide indirect benefit through operational efficiencies, field mobility, and safer conditions.

4 APPROVAL AND AUTHORIZATION

The undersigned acknowledge they have reviewed the **Technology Refresh to Sustain Automated Business Process** Business Case and agree with the approach it presents and that it has been approved by the steering committee or other governance body identified in Section 1.1. The undersigned also acknowledge that significant changes to this will be coordinated with and approved by the undersigned or their designated representatives.

Signature:		Date:	04/2017
Print Name:	Andy Leija		
Title:	IT Delivery Manager		
Role:	Business Case Owner		
Signature:		Date:	04/2017
Print Name:	Hossein Nikdel		
Title:	Application System Planning Director		
Role:	Business Case Sponsor		
Signature:		Date:	04/2017
Print Name:	Jim Corder		
Title:	Infrastructure Technology and Security Director		
Role:	Business Case Sponsor		

5 VERSION HISTORY

Version	Implemented By	Revision Date	Approved By	Approval Date	Reason
1.0	**Andy Leija**	**04/12/17**	**ET Directors**	**04/14/17**	**Initial version**

Template Version: 03/07/2017

AvistaUtilities.com (AU.com) Redesign

1 GENERAL INFORMATION

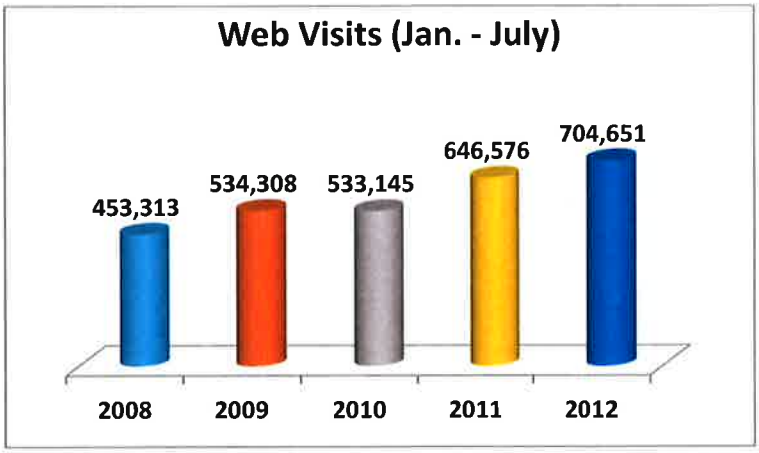
Requested Spend Amount	$ 12,604,683
Requesting Organization/Department	Enterprise Technology
Business Case Owner	Dana Anderson
Business Case Sponsor	Kevin Christie and Jim Kensok
Sponsor Organization/Department	Customer Solutions
Category	Project
Driver	Customer Service Quality & Reliability

1.1 Steering Committee or Advisory Group Information

This project is governed by a project level steering committee as set forth in the project charter. The steering committee is composed of representation from the key business and technical areas. In this case it was composed of representation from Customer Services, Treasury, Finance, Digital Communications and IS/IT. The steering committee is scheduled to meet on a monthly basis and is charged with approving changes and adjustments to scope, schedule and budget.

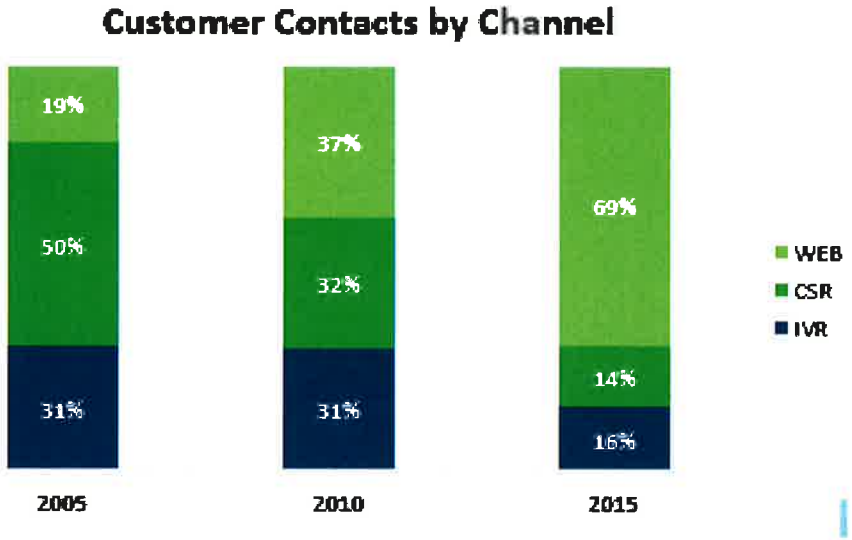
2 BUSINESS PROBLEM

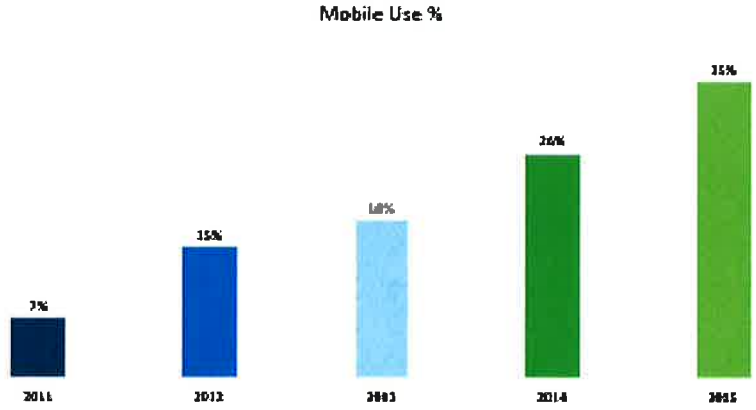
Interest in interacting with Avista via the web continues to increase. In fact, **since 2002, our web usage has increased 282%**. To capture this growing market, and to drive costs out of the business by providing more self-service functionality, AvistaUtilities.com was launched in January 2008 on the new SharePoint website platform. This launch provided customers with increased self-service transaction functionality, as well as enhanced content management functionality. Since its launch, mobile services have been added and the site usage continues to grow. Since 2008 alone, we've seen an **increase in web usage by more than 55%**. To date, we conservatively process more than **$250,000 per day in transactions through the web** and an average of 68% of all customer contacts are made through electronic channels—with 42% belonging to the web and 26% belonging to the Enterprise Voice Portal (EVP). We've experienced a **12% increase in web transactions over 2011 alone**. All this tells us what we already know—the web is a critical and increasingly important channel for our customers who are interested in self-service.



AvistaUtilities.com (AU.com) Redesign

UPDATE 2017: The web is now the single largest channel of customer engagement for the company, and the technology platform it sits on has outlived its useful life, now nearing 10 years in production. Not only has web traffic and demand for self-service continued to increase, but web satisfaction and ability to complete transactions has declined. See data below:





AvistaUtilities.com (AU.com) Redesign

While we've continued to make improvements to our website since our launch in 2008, we now find ourselves with outdated functionality and usability that's far from perfect. Currently, while our website still ranks well among industry standards and with our own metrics such as Forsee and Net Insights. With the emergence of the iPhone and other mobile application technologies, customers are looking for easier and faster ways to self-serve. Currently, according to Forsee data, **14% of our customers are not successful** in completing online transactions via the web, and must alternately pick up the phone to make contact with a customer service rep, thus driving up our cost of service. Estimated data shows that if we could help just one out of four of these customers self-serve, we could potentially **cut 24,000 calls per year** and **save nearly $100,000 per year.**

Annual Impact	Est. Calls Avoided	Est. Savings in Avoided Call Center Labor
Could not find online payment option	5,000	$19,000
Could not find what they needed	3,000	$13,000
Process was too confusing/Unable to complete	16,000	$65,000
Total	**24,000**	**$97,000**

UPDATE 2017: According to Foresee results, now 19% of customers are unable to complete transactions on average, creating an even higher opportunity to drive costs out of the business while more effectively serving our customers.

ALTERNATIVES CONSIDERED

When the project team originally evaluated the web redesign project, they did so knowing that the technology platform would need to be enhanced, updated, or replaced given how long it had been in production and the updates to systems connecting to the site, as well as the platform itself.

An alternative would have been to not invest in a more robust platform, site, and self-service functionality. This option would have likely resulted in maintenance costs for staff, as well as a less than ideal customer experience (see declining satisfaction above).

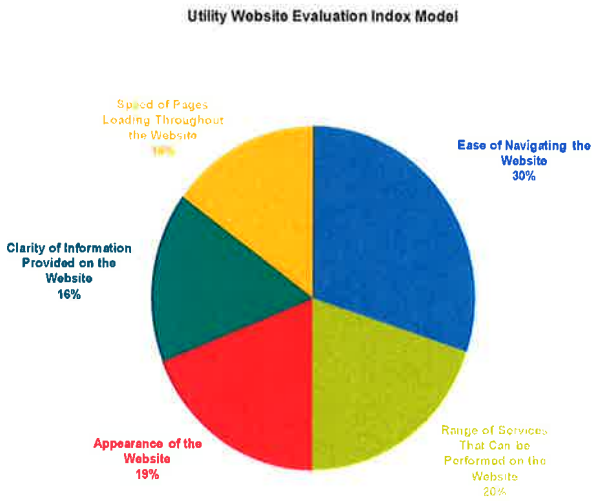
AvistaUtilities.com (AU.com) Redesign

Given industry trends for customer expectations and self-service, the company concluded that it was in the best interest of our customers to invest in a platform, and subsequent services, that could provide a more secure, user-friendly, and mobile capable website.

3 PROPOSAL AND RECOMMENDED SOLUTION

Option	Capital Cost	Start	Complete
Do nothing	$0		
Complete refresh of the website	$12.6M	01 2013	06 2017
Same as "do nothing"			

In 2011, the multi-stakeholder AU.com management team determined there were four primary areas of focus for updating the site: improving navigation, updating the look and feel of the overall site, creating a new homepage layout, and improving self-service and search functionality.

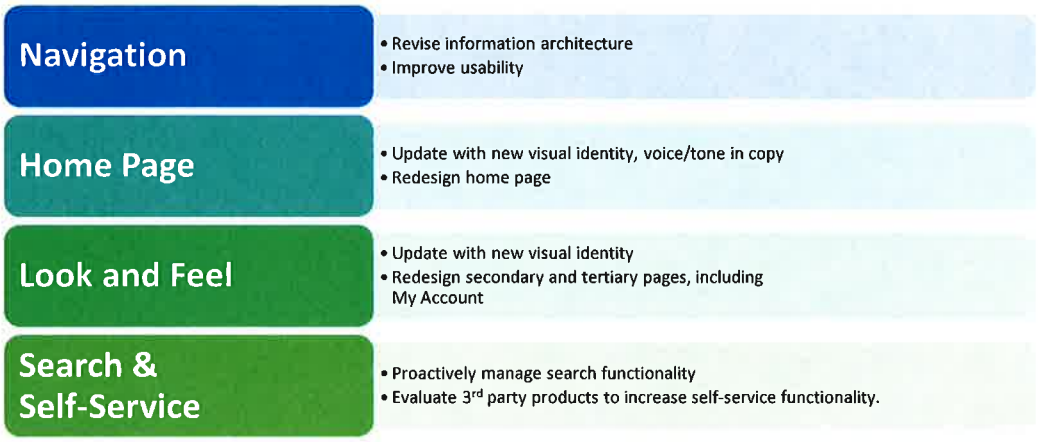


These categories were developed based on multiple sources of data from Net Insights, E-Source, JD Power, Sixth Man Marketing, Acquity and Forsee. Because our site was originally developed in 2006-2007 and launched in 2008, standards and best practices have greatly involved. Understanding that **five years in the web world is an eternity**, standards such as **text heavy pages** are no longer considered acceptable by customers. With the emergence of app driven devices like the iPhone, customers are looking for quicker ways to get the information they need. Indeed, **80% of web traffic is focused on transactions**, yet billing and payment options remains one of our top searched items. In addition, while our navigation/information architecture remains product focused, more and more sites are moving toward customer focused layouts. According to JD Power, **30% of a customer's satisfaction is driven by the ease of navigating the site**, with another 20% driven by the range of services that can be performed.

The goals for the refreshed AvistaUtilities.com website are:

Update for 2017: The proposed timeframe for delivering on the objectives below was originally three years, however due to changing business priorities and significant changes in the public facing website technology providers, the final objective will not be delivered until 2017.

AvistaUtilities.com (AU.com) Redesign



Update for 2017:

Objective:
To improve the overall customer experience, more effectively connect to customers via their preferred communication channels, increase customer self-service, and reduce calls to customer service representatives. To provide a platform of innovation for Avista's customer focused initiatives.

Phoenix is a multi-phased program that includes:

- Complete web replacement
- Migration of our website address from avistautilities.com to myavista.com
- Improved search capabilities and analytic packages
- Enhanced outage map
- Creation of text and native mobile app channels
- Improved payment processing integrated with new channels
- An ecommerce engine
- Ongoing digital enhancements

AvistaUtilities.com (AU.com) Redesign

4 APPROVAL AND AUTHORIZATION

The undersigned acknowledge they have reviewed the **AvistaUtilities.com (Au.com) Revised** Business Case and agree with the approach it presents and that it has been approved by the steering committee or other governance body identified in Section 1.1. The undersigned also acknowledge that significant changes to this will be coordinated with and approved by the undersigned or their designated representatives.

Signature:	Dana Anderson	Date:	4-19-17
Print Name:	Dana Anderson		
Title:	Director, Corporate Communications		
Role:	Business Case Owner		
Signature:		Date:	4/19/17
Print Name:	Kevin Christie		
Title:	VP Customer Solutions		
Role:	Business Case Co-Sponsor		
Signature:	Jim Kensok	Date:	4-19-17
Print Name:	Jim Kensok		
Title:	VP Chief Information & Security Officer		
Role:	Business Case Co-Sponsor		

5 VERSION HISTORY

Version	Implemented By	Revision Date	Approved By	Approval Date	Reason
1.0	Kelly Conley	4/18/17	Dana Anderson	4/18/20147	Initial version

Template Version: 03/07/2017

Customer Facing Technology Program

1 GENERAL INFORMATION

Requested Spend Amount	$5,000,000
Requesting Organization/Department	Customer Solutions
Business Case Owner	Dana Anderson
Business Case Sponsor	Kevin Christie
Sponsor Organization/Department	Customer Solutions
Category	Program
Driver	Customer Service Quality & Reliability

1.1 Steering Committee or Advisory Group Information

This program is administered by the Customer Solutions management team that is facilitated by a Senior Product Manager. The team prioritizes the projects under this programs scope and surfaces those to the IS/IT PMO for execution.

2 BUSINESS PROBLEM

Customer expectations continue to rise. Gone are the days when a drive up drop box for payments is acceptable. Additionally, customers continue to expect more value for their energy and have interest in a variety of offerings that can simplify their interactions with Avista and give them more information about and control over their energy use. This, combined with the expansive growth of technology, creates an expectation that information is easy to find, payments are easy to make, communications are proactive, timely, and personal, and tools that provide these opportunities are part of the overall energy package.

In an effort to keep pace with customer demands and quickly changing technologies, Avista intends to expand on the foundational technologies established during previous business cases, and offer more channels of choice including self-service options that meet customer needs and help reduce overall business cost. A primary example of a project funded under the Customer Facing Technology Program business case is the expansion of our outage mobile app to include payments, SMS messaging around payments and billing, and "pay by text" functionality. Expanding our mobile options can reduce call center volumes, resulting in reduced hold times and enhanced customer satisfaction. It can also increase adoption of electronic billing and payment transactions, which can lead to lower processing costs. Efforts like this, focused around putting tools at a customer's fingertips, supports the worldwide trend of consumer preference for mobile devices.

In addition, customers are interested in new products and services such as online service/job request tracking, appointment scheduling, appointment notifications, mobile energy management in the home, such as smart home offerings, and expansion of mobile applications and customer notification options.

Customers are beginning to face a time with an increasing amount of energy related choices such as solar, storage, electric vehicles and the associated charging options, and energy efficient equipment. In this array of increasing choice, customers are looking to Avista to

offer guidance and advice as they make these energy decisions. Avista has responded to this need with tools such as our HVAC dealer network, Furnace Filter program, Solar Estimator, and our soon to be launched Home Energy Marketplace. These programs are a start, but many other future opportunities will arise that will help us advise our customers and these should be part of this business case. In the short term, this could include Smart Home and/or Load Disaggregation.

As customer expectations have changed, companies are expected to deliver fast, easy, personalized, and intuitive self-service. According to Forrester Research, 77 percent of US consumers say "valuing my time" is the most important part of good online customer service. They're looking for more than correct answers or quick response times. They want a consistent experience from their first interaction to the resolution of their issue. Today's customer compares Avista to all brands with which they interact. Accenture refers to this phenomenon as "liquid expectations." For example, even if Apple's products don't compete with yours, customers are comparing your website to Apple.com. New customers reach adulthood every year and the expectations for self-service and digital engagement will continue to increase. Funding the Customer Facing Technology Project ensures that Avista can continue focusing on delivering value to our customers and making it easier for them to interact with us.

The major metrics for this program are customer satisfaction scores, web satisfaction scores, channel growth, and transaction success rates.

3 PROPOSAL AND RECOMMENDED SOLUTION

Option	Capital Cost	Start	Complete
Do nothing	$0		
Recommended solution	$19,000,000	01 2016	12 2021
Slower pace of change	$2,500,000	01 2016	12 2021

Alternative #1 – Slower pace of change

Implement customer solution capabilities and improvements at a slower pace than outlined in the attached information.

This alternative will delay the benefits to our customers which may generate dissatisfaction as well as prevent us from maximizing the benefits of previously funded core systems, such as the mobile application or the myavista.com website. Avista's web channel is experiencing increasing usage year over year but has a declining rate of customer satisfaction as a result of not investing in modernizing the channel.

Rising customer service expectations including digital requirements are not going away. In fact, customers will only demand more and more from any company they do business with. Avista's plans are to meet our customer's expectations and deliver the tools that will enable them to effectively manage and understand their energy use. By not moving forward with these investments, customer satisfaction will decline.

4 APPROVAL AND AUTHORIZATION

The undersigned acknowledge they have reviewed the **Customer Facing Technology Program** Business Case and agree with the approach it presents and that it has been approved by the steering committee or other governance body identified in Section 1.1. The undersigned also acknowledge that significant changes to this will be coordinated with and approved by the undersigned or their designated representatives.

Signature:	Dana Anderson	Date:	4-19-17
Print Name:	Dana Anderson		
Title:	Director, Corporate Communications		
Role:	Business Case Owner		
Signature:		Date:	4/19/17
Print Name:	Kevin Christie		
Title:	VP Customer Solutions		
Role:	Business Case Sponsor		

5 VERSION HISTORY

Version	Implemented By	Revision Date	Approved By	Approval Date	Reason
1.0	Kelly Conley	4/11/17	Dana Anderson	4/17/2017	Initial version

Template Version: 03/07/2017

High Voltage Protection (HVP) Refresh

1 GENERAL INFORMATION

Requested Spend Amount	$4,400,000
Requesting Organization/Department	Enterprise Technology
Business Case Owner	Michael Busby
Business Case Sponsor	Jim Corder
Sponsor Organization/Department	Enterprise Technology
Category	Mandatory
Driver	Mandatory & Compliance

1.1 Steering Committee or Advisory Group Information

This Business case will have a defined steering committee who will be responsible for allocating funding approved by the Capital Planning Group (CPG) to specific projects with scope that aligns with this business case. The steering committee will be comprised of managers and directors.

2 BUSINESS PROBLEM

Under CenturyLink (formerly known as Qwest Communications), Tariff FCC Number 1, Section 13.7, Avista is required to provide high voltage protection for communication circuits in high voltage areas newer than September 12, 1994. In order to balance the need for communications from devices at substation locations with safety of personnel and equipment, high voltage protection and isolation standards have changed. If Avista does not meet the tariff requirements, telecommunication companies have the ability to turn off communication circuits to substations until Avista electrically isolates the copper wire coming into a substation, thereby affecting phone, modem, SCADA, and other metering and monitoring systems at substations. This business case was created to meet the needs of this tariff and to minimize risk regarding personal safety for all workers in and around these high voltage areas.

3 PROPOSAL AND RECOMMENDED SOLUTION

Option	Capital Cost	Start	Complete	Risk Mitigation
Do nothing	$0	N/A		
Replace copper communication with Fiber	$4,400,000	01/2012	12/2018	

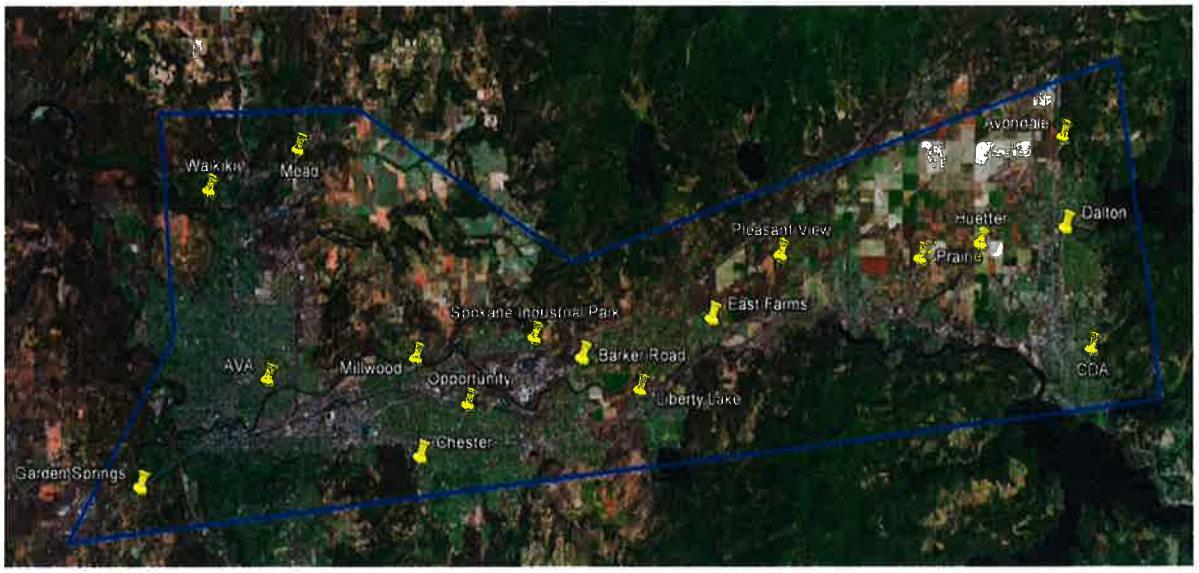
Avista facilities providing service to electric power generating, switching, or distribution station may require the use of Special High Voltage Protective (HVP) Apparatuses such as isolation or neutralization devices, or mutual drainage

transformers. These devices are located on the Avista side of the Point of Termination to protect against the effects of Ground Potential Rise (GPR) and induction caused by faults in a customer's electric power system.

These special protection precautions are intended to:

- Minimize electrical hazards to personnel
- Prevent electrical damage to telecommunications equipment and facilities
- Provide the required continuity of telecommunications transmission at times of power system faults

The risk of not replacing the High Voltage Protection with a system that meets the CenturyLink's requirements would result in termination of communication services by the carrier. This would impact Avista's ability to safely and reliably control and monitor our substation and transmission facilities. Based on the criticality of this risk, doing nothing was not an option.

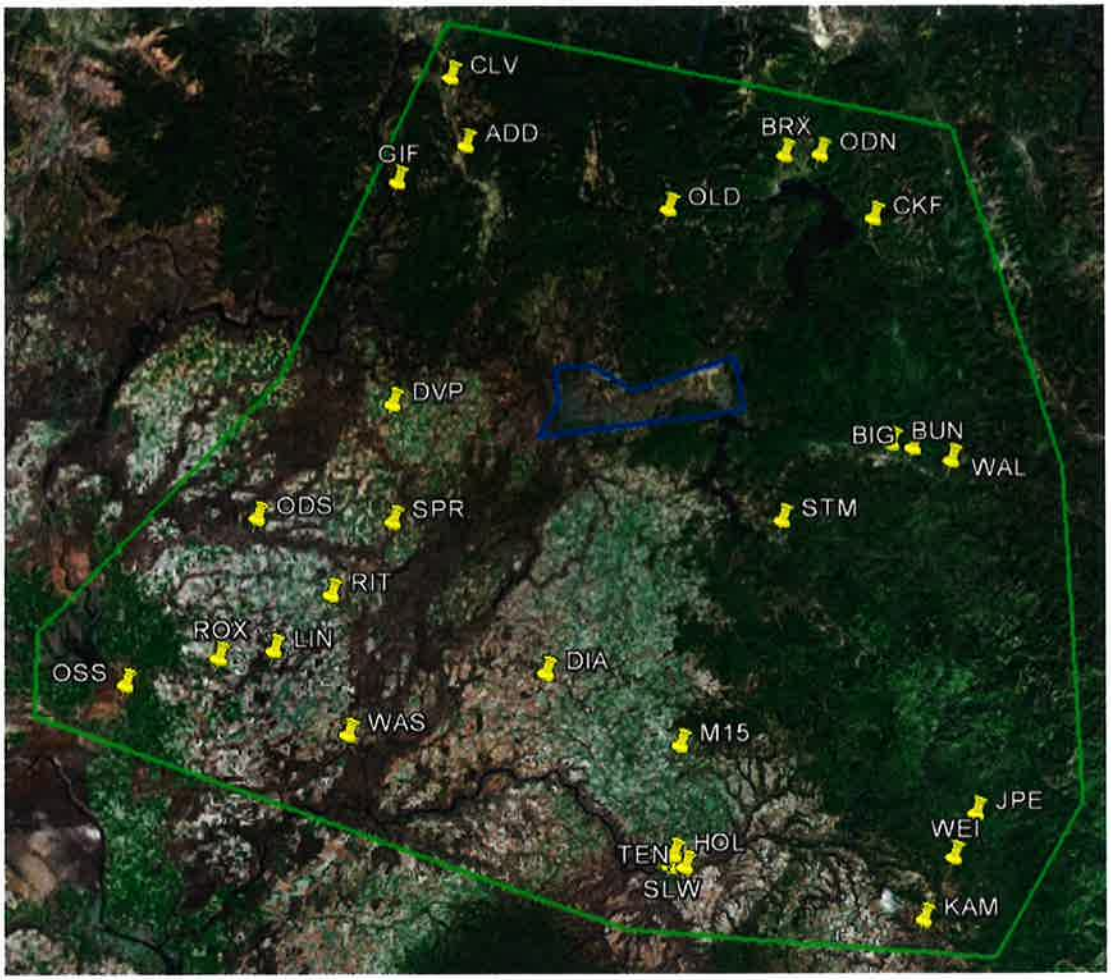


ALTERNATIVES CONSIDERED

The project team has weighed out alternatives that included expanding our private fiber infrastructure or moving the demarcation location outside the zone if influence (ZOI) and use a fiber optic High Voltage Protection system. The decision to extend private fiber or move the telecommunication demarcation outside the ZOI was determined on a case by case basis.

The graphic below shows the locations that will be integrated into our existing private fiber communication network.

Below are the locations where Avista will be upgrading the High Voltage Protection system to a fiber optic system and move the telecommunication demarcation outside the zone of influence



BUDGET JUSTIFICATION

Business Case budget amount of $4,400,000 reflects the total estimated cost of implementing HVP solutions at all applicable substations through the year 2018. 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 plan.

STRATEGIC ALIGNMENT

The HVP initiative aligns with Avista's commitment to invest in its infrastructure to achieve optimal lifecycle performance – safely, reliably, and at a fair price. Data communications that monitor and control Avista substations are critical in the support of the bulk electric system. The implementation of HVP technology will continue to enable and support these critical communications, but in a manner that is much safer to all workers in and around the substation location.

4 APPROVAL AND AUTHORIZATION

The undersigned acknowledge they have reviewed the **High Voltage Protection (HVP)** Business Case and agree with the approach it presents and that it has been approved by the steering committee or other governance body identified in Section 1.1. The undersigned also acknowledge that significant changes to this will be coordinated with and approved by the undersigned or their designated representatives.

Signature:		Date:	04/2017
Print Name:	Michael Busby		
Title:	IT Operations Manager		
Role:	Business Case Owner		
Signature:		Date:	04/2017
Print Name:	Jim Corder		
Title:	Infrastructure Technology and Security Director		
Role:	Business Case Sponsor		

5 VERSION HISTORY

[Version #	Implemented By	Revision Date	Approved By	Approval Date	Reason
1.0	**Michael Busby**	**04/04/2017**	**Jim Corder**	**04/14/2017**	**Initial version**

Template Version: 02/24/2017

Next Generation Radio

1 GENERAL INFORMATION

Requested Spend Amount	$31,000,000
Requesting Organization/Department	Enterprise Technology
Business Case Owner	Walter Roys
Business Case Sponsor	Jim Corder
Sponsor Organization/Department	Enterprise Technology
Category	Mandatory
Driver	Mandatory & Compliance

1.1 Steering Committee or Advisory Group Information

This Business Case will be managed by a Steering Committee comprised of Managers and Directors from stakeholder business units across the company for the purpose of guiding scope, schedule, and budget for all projects contained in the Business Case.

2 BUSINESS PROBLEM

Avista's Land Mobile Radio (LMR) system is considered the most critical communication tool for field operations, from both a productivity view point and for personal and public safety. Currently, Avista's LMR system operates on a collection of licensed wideband Very High Frequency (VHF) 25 KHz channels. The Federal Communications Commission (FCC) has announced a mandate that all licensees operating on private VHF radio frequencies must narrowband channel bandwidth from 25 KHz to 12.5 KHz by January 1, 2013. Avista's existing LMR system is not compatible with narrowbanding, and therefore will need replacement.

Additionally, Avista Central Dispatch does not currently have the ability to use the LMR tool for field operations in the Oregon territory, reducing productivity and increasing risk to personal and public safety. The LMR system replacement will include an expansion to Oregon field operations in order to deploy a single radio system to be used by all jurisdictions.

MAJOR DRIVERS

- FCC Narrowbanding mandate for all privately licensed VHF and Ultra High Frequency (UHF) bands. Noncompliance with the FCC narrowbanding mandate will terminate Avista's current radio frequency (RF) spectrum license, resulting in complete shutdown of the LMR System.
- Avista's legacy VHF LMR system is past its useful life, equipment is no longer supported by the manufacturer, nor is it capable of being narrow banded.
- Avista's LMR system is considered the most critical communication tool for field operations, and provides reliable and private communication for Gas crews, Electric crews, and Central Dispatch.

3 PROPOSAL AND RECOMMENDED SOLUTION

Option	Capital Cost	Start	Complete	Risk Mitigation
Do nothing	$0	N/A		
Replacement of legacy system	$31,000,000	04/2008	05/2017	

RECOMMENDED SOLUTION

The recommended solution to the business problems identified above is to systematically replace Avista's legacy wideband LMR VHF system with a trunked, narrow banded VHF system. The new system will operate on a privately licensed 220MHz VHF spectrum using LMR product from Tait Communications. Avista will also utilize the engineering and design expertise of Gillespie, Prudhon & Associates (GP&A) in the implementation of the LMR system.

ESTIMATED COST IMPACT

The Next Generation Radio projects will begin in 2008 and will conclude in 2017 with a total projected cost of $31 Million. Included in this deployment will be 29 telecommunication sites, 26 Service Centers and offices, 615 mobile radios, 62 contractor issue mobile radios, and 38 desktop radio consoles. All of this spread across Avista's 30,000 square mile service territory in 4 states (WA, ID, MT, OR) to support a total of roughly 640,000 gas and electric customers. To maximize the value of both product and services procured, Avista will conduct formal Request for Proposals (RFP) in the selection of both the equipment manufacturer and implementation services.

ALTERNATIVES CONSIDERED

Commercial cellular communication systems: These systems alone do not have the coverage, capacity, or reliability to meet Avista's communication needs.

Listed below are benefits of the LMR System that are not available with commercial cellular or satellite communication solutions:

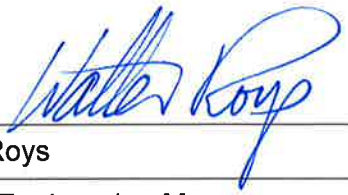
- Broadcast functionality for Gas and Electric Operations during:
  - Normal day-to-day operations. This includes dispatch to field worker communication, and crew to crew communications (talk groups).
  - Emergency situations such as Code 9 – Blowing Gas or a major electrical outage.
- Ground to air communication with Life Flight helicopter evacuation services during emergency situations
- Private point-to-point communication for electric conductor line stringing

STRATEGIC ALIGNMENT & VISION

The NGR project aligns with Avista's commitment to invest in its infrastructure to achieve optimum lifecycle performance – safely, reliably, and at a fair price.

4 APPROVAL AND AUTHORIZATION

The undersigned acknowledge they have reviewed the **Next Generation Radio (NGR)** Business Case and agree with the approach it presents and that it has been approved by the steering committee or other governance body identified in Section 1.1. The undersigned also acknowledge that significant changes to this will be coordinated with and approved by the undersigned or their designated representatives.

Signature:		Date:	04/2017
Print Name:	Walter Roys		
Title:	System Engineering Manager		
Role:	Business Case Owner		
Signature:		Date:	04/2017
Print Name:	Jim Corder		
Title:	Infrastructure Technology and Security Director		
Role:	Business Case Sponsor		

5 VERSION HISTORY

[Version #	Implemented By	Revision Date	Approved By	Approval Date	Reason
1.0	**Matt Reding**	**04/05/2017**	**Jim Corder**	**04/14/2017**	**Initial version**

Template Version: 02/24/2017

Enterprise Business Continuity

1 GENERAL INFORMATION

Requested Spend Amount	$ 450,000
Requesting Organization/Department	Enterprise Security
Business Case Owner	Clay Storey
Business Case Sponsor	Jim Corder
Sponsor Organization/Department	Enterprise Technology
Category	Program
Driver	Customer Service Quality & Reliability

1.1 Steering Committee or Advisory Group Information

This program is governed by the Enterprise Business Continuity Advisory Committee. This committee provides oversight of the Enterprise Business Continuity Program and its resources. In addition, individual projects funded by this business case have project level steering committees that oversee scope schedule and budget.

2 BUSINESS PROBLEM

Severe storms, national disasters and significant security events are unpredictable and while they may have a low probability they can have a high consequence. These types of low frequency high consequence events can have an impact on the resources Avista depends on for its operations. Many of Avista's critical business processes are now more than ever depended on data, communication networks and computer systems. A prolonged failure of any of these resources could have a significant impact on Avista's ability to sustain operations and operate our business.

In response to these significant hazards Avista has developed and maintains an Enterprise Business Continuity Program to continually enhance and improve the Company's emergency response, business continuity and disaster recovery capabilities to ensure the continuity of its critical business process and systems under crisis conditions. The program includes the key areas of technology recovery, alternate facilities, and overall business processes. The effort of developing and continuously improving the program ensures the readiness of systems, procedures, processes, and people required to support our customers and our communities any time we are required to operate under critical emergency conditions.

This program supports Avista's safe and reliable infrastructure strategy by implementing highly available and recoverable systems that support Avista's critical business processes. A Business Impact Assessment (BIA) typically drives the need for improvement projects, however some projects are funded based on quality issues with existing infrastructure following an annual exercise or actual event. Projects within this business case may also support regulatory requirements. The Enterprise Business Continuity Advisory Committee helps prioritize investments and manage the risk of addressing potential issues now or deferring it to future years.

3 PROPOSAL AND RECOMMENDED SOLUTION

Option	Capital Cost	Start	Complete
Do not fund the program	$0		
Reduce program funding	$200,000		
Full funding	$450,000		

DO NOT FUND THE PROGRAM

Not funding the Enterprise Business Continuity Program would limit Avista's ability to address identified business continuity issues outside of technology refresh cycles which typically run 3-5 years. Not addressing high risk items until a refresh project puts the company at risk. There is also no guarantee that deferring the work until a future refresh project would address the gap because the future project may not be able to absorb the cost or scope of the issue.

REDUCE PROGRAM FUNDING

A reduction in funding for the Enterprise Business Continuity Program would also limit Avista's ability to address issues identified by BIA's, quality issues, exercises or other changes in the environment. A reduction in funding would push some projects into future years due to a lack of program funding. In some cases the deferred projects would be brought into future year refresh projects or maintained on a back log of Enterprise Business Continuity Program until funding is available.

FULLY FUND THE PROGRAM (RECOMMENDED)

At the current funding level Avista is able to address the highest risk business continuity issues outside of existing technology refresh cycles. It is recommended that this level of funding continue rather than potentially deferring the work 3-5 years since this program is meant to address high risk deficiencies in a shorter cycle than a typical refresh cycle.

4 APPROVAL AND AUTHORIZATION

The undersigned acknowledge they have reviewed the **Enterprise Business Continuity** Business Case and agree with the approach it presents and that it has been approved by the steering committee or other governance body identified in Section 1.1. The undersigned also acknowledge that significant changes to this will be coordinated with and approved by the undersigned or their designated representatives.

Signature:		Date:	04/2017
Print Name:	Clay Storey		
Title:	Security Engineering Senior Manager		
Role:	Business Case Owner		
Signature:		Date:	04/2017
Print Name:	Jim Corder		
Title:	Infrastructure Technology and Security Director		
Role:	Business Case Sponsor		

5 VERSION HISTORY

Version	Implemented By	Revision Date	Approved By	Approval Date	Reason
1.0	Clay Storey	3/14/2017	Jim Corder	04/14/2017	Initial version

Template Version: 03/07/2017

Enterprise Security

1 GENERAL INFORMATION

Requested Spend Amount	$ 3,200,000
Requesting Organization/Department	Enterprise Security
Business Case Owner	Clay Storey
Business Case Sponsor	Jim Corder
Sponsor Organization/Department	Enterprise Technology
Category	Program
Driver	Customer Service Quality & Reliability

1.1 Steering Committee or Advisory Group Information

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. The project steering committees are responsible for controlling scope, schedule and budget for each project.

2 BUSINESS PROBLEM

There are three primary drivers of capital spending for Enterprise Security: cyber security, physical security and regulatory standards. Each plays a critical role in supporting our delivery of safe and reliable energy to our customers.

Cyber Security

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 cyber space, 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 cyber security program and invest in security controls to prevent, detect, and respond to these increasingly frequent and sophisticated attacks.

Physical Security

While considerable attention is focused on cyber security, physical security also remains a concern for our industry. Physical security encompasses the aspects of employee safety and the protective security of our facilities and critical infrastructure. Acts of theft, vandalism, and sabotage of critical infrastructure not only results in property losses, but can also directly impact our ability to serve customers. Securing remote unmanned or unmonitored critical infrastructure is difficult, especially when traditional tools such as perimeter fencing by itself is not

adequate. This creates the need for additional physical security items, expertise and technology.

Regulatory Obligations

Advancing cyber threats continue to drive change in the regulatory landscape faced by the Avista. Early in 2013, President Obama issued the Executive Order "Improving Critical Infrastructure Cyber security." The Order directed the National Institute of Standards and Technology to work with stakeholders in developing a voluntary framework for reducing cyber risks to critical infrastructure. The Framework consists of standards, guidelines, and best practices to promote the protection of critical infrastructure. The Federal Energy Regulatory Commission also issued Order 791 on November 22, 2013, approving the North American Electric Reliability Corporation Critical Infrastructure Protection Standards, Version 5. Both of these activities increased our security-related costs because they require Avista's security controls and processes to conform to new standards, guidelines, and best practices. In addition Avista also has requirements under the Payment Card Industry (PCI) standards. These standards continue to change as updates are made to the standards on 1-2 cycle.

3 PROPOSAL AND RECOMMENDED SOLUTION

Option	Capital Cost	Start	Complete
Do not fund the program	$0		
Reduce program funding	$ 1,600,000		
Fully fund the program	$ 3,200,000		

The Enterprise Security business case provides funding for cyber, physical and compliance 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.

DO NOT FUND THE PROGRAM

Not funding the program increases the likelihood that a security incident may occur and cause harm to Avista's people, assets and information. The results of a security incident can lead to the inability to deliver energy, loss of customer information, and the failure of systems that support Avista's critical business processes. There are also potential downstream consequences to the public if Avista is not able to deliver safe and reliable energy. Avista's energy supports many other essential services such as health care, telecommunications and water. Avista also has several compliance related obligations that are constantly evolving and that mandate certain

security protections. Failure to achieve and maintain compliance can lead to fines and penalties.

REDUCE PROGRAM FUNDING

A reduction in program funding will impact expansion projects that address new risks and/or delay refresh projects that upgrade or replace aging infrastructure. Both expansion and refresh play an important role in addressing security risks at Avista. Inadequate funding would force Avista to primarily focus on maintaining what we have today and not address new emerging risks with expansion projects. Modern threats are constantly evolving in response to the baseline security technologies that companies maintain in portfolio. These systems are still important but it is equally important to continue to advance security capabilities with expansion projects as the threat environment changes.

FULLY FUND THE PROGRAM (RECOMMENDED)

Fully funding the program allows for proper investment in new as well as existing technologies. This level of funding helps minimize the likelihood and severity of a security incident. Currently about half of the funding amount goes towards cyber security investments and the other half addresses physical security investments. This creates a balance between cyber, physical, refresh, and expansion projects. Some of the cyber and physical projects are also addressing mandated compliance obligations. In addition, this level of investment allows Avista to continue to measure and see improvement in Avista's adoption of the NIST Cyber Security Framework. A lower funding amount would result in lower overall maturity level in the NIST Cyber Security Framework.

4 APPROVAL AND AUTHORIZATION

The undersigned acknowledge they have reviewed the **Enterprise Security** Business Case and agree with the approach it presents and that it has been approved by the steering committee or other governance body identified in Section 1.1. The undersigned also acknowledge that significant changes to this will be coordinated with and approved by the undersigned or their designated representatives.

Signature:		Date:	04/2017
Print Name:	Clay Storey		
Title:	Security Engineering Senior Manager		
Role:	Business Case Owner		
Signature:		Date:	04/2017
Print Name:	Jim Corder		
Title:	Infrastructure Technology and Security Director		
Role:	Business Case Sponsor		

5 VERSION HISTORY

Version	Implemented By	Revision Date	Approved By	Approval Date	Reason
1.0	**Clay Storey**	**3/14/2017**	**Jim Corder**	**04/14/2017**	**Initial version**

Template Version: 03/07/2017

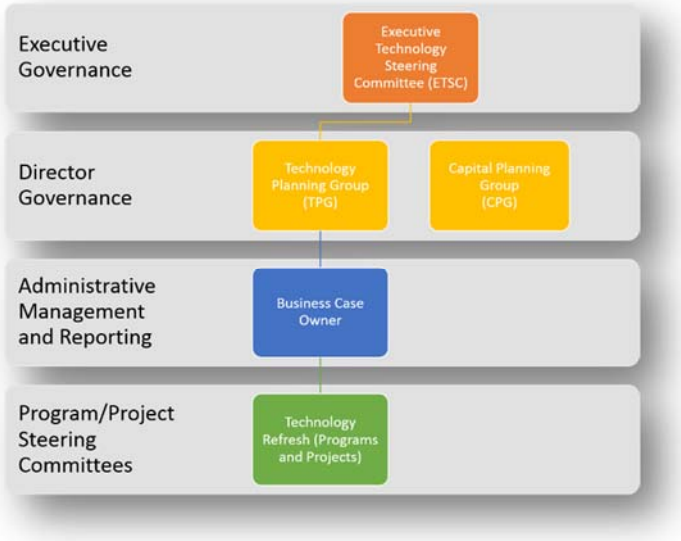
1 GENERAL INFORMATION

Requested Spend Amount	$14,000,000
Requesting Organization/Department	Enterprise Technology
Business Case Owner	Andy Leija
Business Case Sponsor	Jim Corder/Hossein Nikdel
Sponsor Organization/Department	IS/IT
Category	Program
Driver	Performance & Capacity

1.1 Steering Committee or Advisory Group Information

The Enterprise Technology Department serves as a shared service business unit that supports technology infrastructure and information systems for the enterprise. The Technology Expansion to Enable Business Process Business Case has three levels of governance: The Executive Technology Steering Committee (ETSC); Technology Planning Group (TPG) of Directors; and Program/Project Steering Committees. Applicable stakeholders and disciplines meet regularly to govern the business case and subsequent programs and projects (i.e. software delivery, electrical engineering, accounting, energy delivery, technology, etc.)

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.



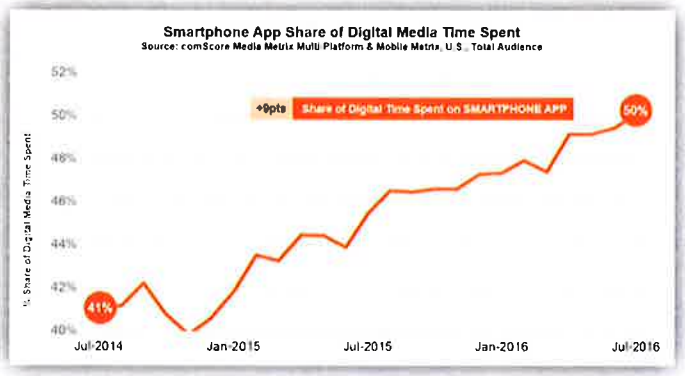
The Business Case is largely limited by the funding allocation and resource capacity (staff) to meet its goals. The funding is generally established at the Business Case level by the CPG. The resource capacity constraint is generally managed by the TPG and the Business Case owner. Once the two constrains are established, the Business Case owner will work with steering committee(s) to set project priority and sequence over a five year planning period.

Each program and project steering committee meet regularly to review the backlog of demand to that align with Avista's strategies. They oversee 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.

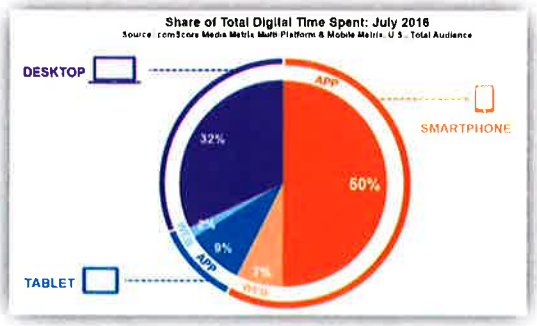
During an annual planning cycle (July – September), the Business Case owner surfaces the project demand for the upcoming five years to the TPG and ETSC. After review for resource capacity, strategic alignment, and risk, the investment plan is submitted to the CPG for funding consideration across all other Business Cases. The CPG then provides a revised funding allocation to each Business Case. The revised allocation then requires the TPG to review and revise the investment plan to fit within the new funding allocation. This establishes the annual investment plan under this Business Case. Steering committees prioritize technology requests within the two constraints (resource capacity and funding) for each year.

2 BUSINESS PROBLEM

The utility industry is undergoing a transformation that is driving technology demand to meet ever-changing customer needs and increase operational efficiencies. Specifically, customers' adoption of mobile and web technology is growing at a faster pace than ever before, challenging industries who in the past were never affected.



According to a 2016 study[1], Americans are spending over 50% of their time on digital media. That is a 9% increase from 2014.

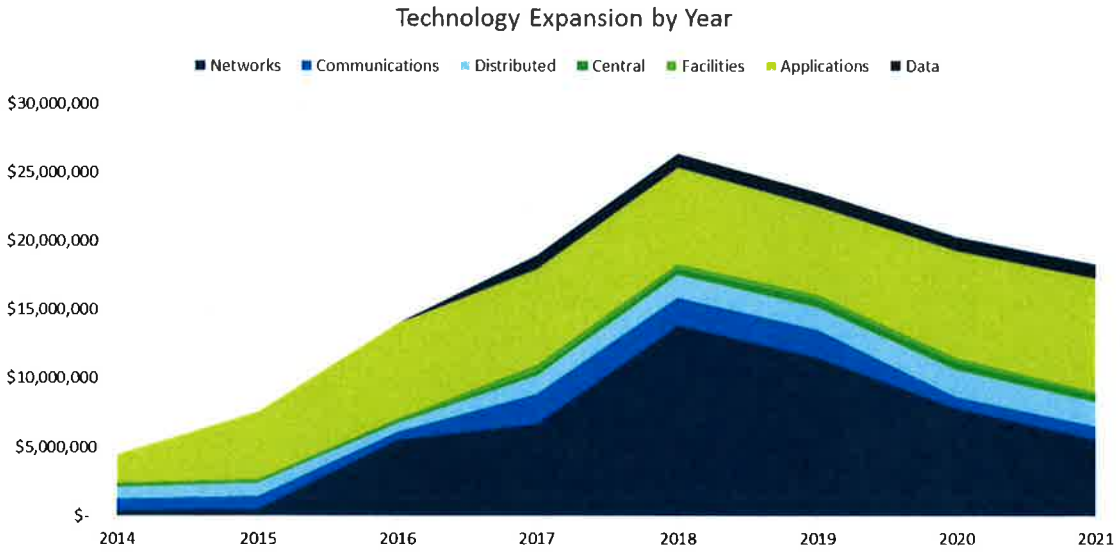


The increase in time spent on digital media is largely driven by the rapid growth in mobile penetration and consumer demand for immediacy, whereby consumers have 24/7/365 access to information, communication, and payment capabilities. In the same study, comScore found that much of consumer digital use was on their smartphone device through the use of apps. This phenomenon results in consumer demand for swift and easy access to their utility service provider to pay

[1] The 2016 U.S. Mobile App Report. http://www.comscore.com/Insights/Blog/Smartphone-Apps-Are-Now-50-of-All-US-Digital-Media-Time-Spent

their bills, order new services, monitor outage maps, learn of new offerings that relate to their particular needs or lifestyles, and more. For example, environmentally conscious consumers may be interested in managing their carbon footprint beyond the choices they make at home and elect to pursue alternative energy resources, set up auto-payments, or be alerted when coming close to hitting certain therm or kilowatt hour preset thresholds.

Congruently, and as illustrated in the graph below, Avista has clearly seen an increase demand for performance and capacity in network, application and data projects, whereby new Commercial Off The Shelf (COTS) application systems that enhance or improve conventional business practices and processes to increase operational efficiencies, mobility and scalability, also require digital infrastructure capable of capturing, processing, transmitting and storing large sets of data for daily use.



Additionally, security threats are on the rise requiring additional and continuous enhancements and changes to protect utility infrastructure and customer information and their transactions. The increase in cyberattacks that result in data breaches can not only reduce customer confidence, but result in catastrophic events to operation systems that manage energy services (i.e. generation, transmission and distribution).

Consumers also expect utilities to do more with either less or the same[2], including staffing a digital workforce that understand the energy field while also able to respond using technology solutions that are common to consumers in their daily lives. This resource constraint is compounded by the fact that more than half of the utility workforce is eligible to retire in the next 4-6 years,[3] which presents a need for

[2] 2016-17 WA UTC staff rate case rejection; 2016-17 Oregon Public Utility
[3] http://www.elp.com/articles/2015/04/solving-the-aging-workforce-dilemma-in-today-s-utility-industry.html

a flexible workforce that can be both knowledgeable and responsive.

3 PROPOSAL AND RECOMMENDED SOLUTION

Option	Capital Cost	Start	Complete
Do nothing	$0		
Alternative #1: Reduce Funding	$7 MM	01 2017	12 2017
Recommended Solution	$14 MM	01 2017	12 2017

Do Nothing
This customer expected magic is only achieved through capital investment in digital 'smart' infrastructure, data responsive integrated systems, varied customer communication channels, and continuous operational efficiencies. Thus, doing nothing is not an option. The risks associated with not funding this Business Case will result in stifling customer demands, any operational efficiencies, and result in maintaining manual processes and practices that can result in longer wait times at a minimum and at worse, the inability to respond to certain requests at all.

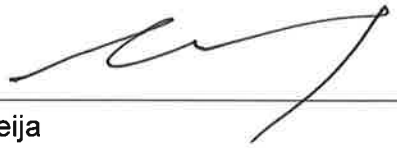
Alternative #1
The alternative, which is to fund this business case at less than the requested amount, would result in degrading Avista's infrastructure to a point that the level of risk is no longer acceptable and that strategic objectives will be negatively impacted.

Recommended Solution
The Technology Expansion to Enable Business Processes program is in place to automate business processes, add functionality and enhancements to existing tools or systems, and fund additional software licenses of existing COTS systems. The recommended solution addresses many type of technology investment projects across offices, substations, plants, meters, and datacenters. Infrastructure investment examples include hardware, software, fiber optic products, services for inside and outside construction, while application enhancements further operational efficiencies by leveraging COTS solutions, increase security controls, and improve Avista's responsiveness.

As stated above in the Steering Committee section, this business case is an annual program that has various levels of cross-functional governance and manages transfers to plant forecasts at the project level. It aligns with Avista's Vision of delivering reliable energy service and the choices that matter most to our customers, and the Safe and Reliable Infrastructure strategy. Depending on the projects approved for funding during a given year, stakeholders and customers vary.

4 APPROVAL AND AUTHORIZATION

The undersigned acknowledge they have reviewed the **Technology Expansion to Enable Business Process** Business Case and agree with the approach it presents and that it has been approved by the steering committee or other governance body identified in Section 1.1. The undersigned also acknowledge that significant changes to this will be coordinated with and approved by the undersigned or their designated representatives.

Signature:		Date:	4-18-2017
Print Name:	Andy Leija		
Title:	IT Delivery Manager		
Role:	Business Case Owner		
Signature:		Date:	4-18-2017
Print Name:	Hossein Nikdel		
Title:	Application System Planning Director		
Role:	Business Case Sponsor		
Signature:		Date:	APRIL 2017
Print Name:	Jim Corder		
Title:	Infrastructure Technology and Security Director		
Role:	Business Case Sponsor		

5 VERSION HISTORY

Version	Implemented By	Revision Date	Approved By	Approval Date	Reason
1.0	**Andy Leija**	**04/12/17**	**ET Directors**	**04/14/17**	**Initial version**

Template Version: 03/07/2017