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BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF THE APPLICATION	)	CASE NO. AVU-E-21-01
OF AVISTA CORPORATION FOR THE	)	CASE NO. AVU-G-21-01
AUTHORITY TO INCREASE ITS RATES	)	
AND CHARGES FOR ELECTRIC AND	)	DIRECT TESTIMONY
NATURAL GAS SERVICE TO ELECTRIC	)	OF
AND NATURAL GAS CUSTOMERS IN THE	)	JAMES M. KENSOK
STATE OF IDAHO	)	
	)	

FOR AVISTA CORPORATION

(ELECTRIC & NATURAL GAS)

I. INTRODUCTION

Q.   Please state your name, employer and business address.

A.   My name is James M. Kensok. I am employed by Avista Corporation as the Vice-President, Chief Information Officer (CIO) and Chief Information Security Officer (CISO). My business address is 1411 E. Mission Avenue, Spokane, Washington.

Q.   Mr. Kensok, please provide information pertaining to your educational background and professional experience?

A.   I am a graduate of Eastern Washington University with a Bachelor of Arts Degree in Business Administration, majoring in Management Information Systems and from Washington State University with an Executive MBA. I have experience through direct application and management of Information Services over the course of my 34-year information technology career. I joined Avista in June of 1996. I have been in the Information Services Department for approximately 23 years in a variety of management roles directing and leading information systems, infrastructure technology and security strategy, system delivery and operations, complex communication networks, cyber security, applications development, outsourcing agreements, contract negotiations, technical support, cost management, and data management. I was appointed Vice-President and Chief Information Officer in January of 2007 and Chief Security Officer in January of 2013.

Q.   What is the scope of your testimony in this proceeding?

A.   I will provide an overview of, and discuss capital additions and expenses associated with, the Company's Information Service/Information Technology (IS/IT) programs, projects and security included in the Company's filed case over its proposed Two-Year Rate Plan. These costs are comprised of the capital investments for a range of IS/IT

1   projects that support systems used by the Company, as well as cyber and physical security

2   projects and costs. I will explain why our information technology and security investments

3   are necessary in the time frames indicated and why investments in technology are necessary.

4   While I discuss this plan in detail within my testimony and exhibits, Company witness Ms.

5   Andrews incorporates the capital additions, and incremental expenses associated with the

6   Company's IS/IT costs included in the Company's request for rate relief over the Two-Year

7   Rate Plan effective September 1, 2021 and ending August 31, 2023.

8   A table of contents for my testimony is as follows:

9   **Table of Contents**

15
16   **Q.   Are you sponsoring any exhibits in this proceeding?**

17   A.   Yes. I am sponsoring Exhibit No. 13, Schedule 1, which includes the

18   Information Technology Capital Project Business Cases.

19

20   **II. IS/IT OVERVIEW**

21   **Q.   Why is technology important to Avista and its customers?**

22   A.   Avista provides critical support for virtually every aspect of modern society

23   across our service territory, and technology is the catalyst that enables the business capabilities

24   to reach our customers at scale, in near-real time, and across varying terrain and circumstance.

25   It allows us to quickly pivot to support work-from-home and work-from-anywhere business

26   needs for many of our customers. It allows for new work arrangements for our staff to meet

1 physical distance requirements for those in critical operations roles. It allows us to provide

2 power and natural gas for critical services like healthcare and government operations in the

3 face of catastrophic events like pandemics and natural disasters (wind and fire).

4   The COVID-19 pandemic has challenged utilities in their readiness for the future. It

5 has greatly emphasized digitalization as a necessity to enabling today's utility business, as

6 well as highlighted opportunities for how we might accelerate structural changes to our energy

7 delivery systems, the need for digital solutions, and the redesigning of underlying business

8 processes. For example:

9   • Work-from-home and work-from-anywhere requirements triggered by public

10   health and employee safety requirements have accelerated back- and front-office

11   digitalization and adoption of new employee collaboration technologies and digital

12   customer engagement platforms.

13   • Functions that are critical to the integrity and functional readiness of power

14   systems — like network control and power plant operation — face serious

15   challenges from the enhanced service continuity and workforce physical

16   distancing requirements.

17   • Redesign work processes and reimagine business capabilities to sustain utility

18   operations in the new work environment, by including technology capabilities for

19   employee productivity, customer engagement, and operations processes.

20 **Q.   How do technology investments align with Avista's investment drivers to**

21 **sustain business processes and to deliver on strategic goals, which include customer, our**

22 **people, perform, and invent?**

1   A.   Avista's technology investments generally fall under the Performance and

2   Capacity investment drivers to meet defined performance criteria, such as transaction response

3   time for energy bill inquiry, and to manage the performance level of technology assets based

4   on a demonstrated need or financial analysis. Some of these needs include system availability

5   of 99.8% and system utilization capacity of 50% average, which in turn informs the level of

6   investment in business continuity and disaster recovery. These performance criteria vary from

7   one technology solution to another and can be driven by technology vendor roadmaps

8   surfacing new requirements and customer expectations. In some cases, one vendor-driven

9   requirement can result in cascading changes to establish new performance criteria for systems

10   to perform effectively. An example of this is when business application such as a Customer

11   Relationship Management system requires an upgrade to a web browser, like the new version

12   of Microsoft in order to perform effectively resulting in acceptable transaction response time

13   and high system availability to meet customer needs.

14   As the pace of technology continues to change rapidly, systems quickly are becoming

15   more complex requiring automation to manage them. This drives investments in system

16   automation tools such as Cloud Access Security Broker (CASB) security software. A cloud

17   access security broker is software that sits between cloud service users and cloud applications

18   (e.g., Amazon). CASB monitors all activity and enforces security policies helping to manage

19   performance and capacity of applications like Amazon Web Services. More importantly,

20   customers must navigate these complex technologies with the confidence that they can

21   transact business with Avista and other service providers in a secure manner. By focusing on

22   maintaining the performance and capacity of technology solutions, it aligns directly with our

23   strategic goals, which focus on putting customers at the center, empowering our people,

1   optimizing our people and system performance, and providing a secure platform for our

2   customers to conduct business with Avista.

3   **Q.   How is Avista's technology investments structured to support business**

4   **processes?**

5   A.   Avista's technology investments fall into two major areas: enabling technology

6   and business and operating application systems. Additionally, we take an enterprise-wide

7   approach to security and disaster recovery (resiliency) that envelopes our technology

8   investment efforts to protect our people, our assets, and our facilities. Our business

9   continuity/resiliency plan was tested this year during our COVID-19 pandemic response,

10 exacerbated by windstorms and wildfires that resulted in wide-spread outages throughout our

11 service territory. Our enabling technology (e.g., data/voice networks, customer and

12 electric/gas asset management databases) along with the business and operating applications

13 such as our Website, SCADA applications, and Outage Management System performed very

14 well.

15   Specifically, enabling technology, consists of the technology infrastructure (such as

16 data, endpoint compute and storage that includes hardware such as Personal Computers (PC)

17 Laptops, Smartphones and Digital Storage. Enabling technology also includes operating

18 systems, network transport connectivity which include devices like routers and switches.

19 Additionally, enabling technology includes databases and data schemas, integrations, business

20 intelligence tools, communication and collaboration platforms, etc. necessary to enable

21 business capabilities through business application systems. It is the foundation on which we

22 deliver energy safely and reliably, meet business objectives, and create value for our

23 customers.

1   Illustration No. 1 below shows the relationship between Enabling Technologies,

2   Business & Operating Application Systems and Enterprise Security and how those fit into the

3   different capital business cases discussed later in my testimony.

4   **Illustration No. 1- Business Technology Structure:**
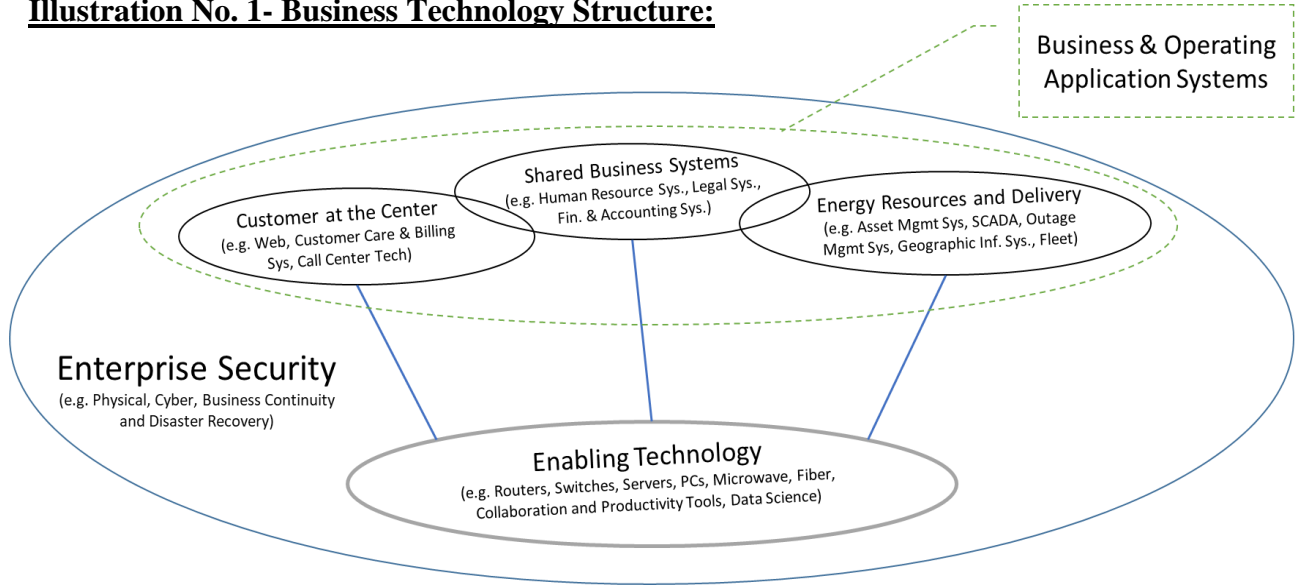
13   Business and operating application systems are represented above as customer at the

14   center (as discussed by Company witnesses Mr. Vermillion and Mr. Magalsky), shared

15   business systems and energy resources enable business capabilities. Some of the capabilities

16   within these areas include: providing customers with near real-time information on outages

17   and estimated restoration times or automated bill-pay options, electric and natural gas service

18   design in the field for prompt installation of new electric or natural gas service, storm damage

19   assessment for quicker restoration efforts, fleet vehicle use and driving data to plan vehicle

20   maintenance and increase driver safety, real-time vibration monitoring for large generators to

21   optimize performance and avoid maintenance outages, track training courses for employees

22   to meet compliance requirements, and many more. Business application systems enable

23   business capabilities by automating business processes to optimize efficiencies and add

1   functionality that cannot be duplicated manually at scale. Some examples of this include a

2   three-dimensional imaging of system planning, geographic spatial positioning of assets in the

3   field, near real-time information on system performance, or storage of volumes of compliance

4   data to meet annual requirements from various agencies. Together, both platforms (enabling

5   technology and business and operating application systems) work symbiotically to enable

6   business capabilities. Enabling technology does not exist just to exist, just as business

7   application and operating systems cannot exist without enabling technology. And just as

8   importantly, neither of the two can co-exist without proper security to protect the information

9   that is used to make business decisions and deliver energy to our customers.

10

11   **III. IS/IT PRIORITIZATION, DELIVERY AND GOVERNANCE PROCESS**

12   **Q.   How are the enabling technologies and business and operating application**

13   **systems business cases and projects mentioned above prioritized within IS/IT?**

14   A.   The IS/IT department uses a decision tree designed by Gartner[1] for both

15   enabling technologies and business and operating application systems to help organize capital

16   projects into three categories: Run, Grow and Transform. The definition of those categories

17   are as follows:

18   • Run – This includes technology projects aimed at running the day-to-day
19   business. (e.g., Outage Management, Web, IVR, SCADA, Financial)
20
21   • Grow – These projects are focused on developing and enhancing systems to
22   enable business growth including new customers.
23
24   • Transform- These projects aid the Company in, addressing new customer and
25   employee needs that more recently have included remote work and mobile
26   transactions. It also includes new operating models such as outage restoration

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[1] Gartner - https://www.gartner.com/smarterwithgartner/align-it-functions-with-business-strategy-using-the-run-grow-transform-model/

1   and wildfire resiliency.
2
3   **Q.   Please describe any material changes that impacted Avista's**
4   **technology programs since your last rate filing.**

5   A.   Historically, a majority of Avista's technology investment business cases have
6   been classified under the asset condition investment drivers, this was due to the stride of
7   technological change outpacing the life of the asset. However, over the last few years, the lives
8   of technology assets are not adequate to support the enabling technologies and business and
9   operating applications and therefore, have been reclassified under the performance and
10   capacity investment driver. This investment driver more closely aligns with the need to
11   upgrade technology systems due to the capacity and performance expectations of the
12   Company and our customers.

13   Another material change that has impacted the IS/IT area is the Company's response
14   to COVID-19 pandemic as discussed earlier in my testimony. The Company needed to quickly
15   deploy additional devices such as laptops and monitors, increase network capacity in both
16   hardware and bandwidth in order to create an efficient working environment for employees
17   and maintain acceptable customer support levels. The Company responded by quickly
18   deploying over 1,000 employees to work remotely in a matter of a few weeks. This would not
19   have been possible if the Company wasn't already in the process of creating and implementing
20   strong enabling technologies and business and operating technology applications (e.g., Skype,
21   field automation).

22   **Q.   Did Avista consider alternatives to technology investments?**

23   A.   Alternatives are considered to determine if opportunities are available using
24   existing technology and/or changes to business processes as well as new technology options.

1   For example, a growing alternative to the traditional "buy or build" approach has been

2   Software as a Service (SaaS), whereby the software asset that once was in Avista's data center

3   on premise, is now in the technology vendor's data center (cloud environment). SaaS

4   assessments are performed by the Company on a case-by-case to determine how the benefits

5   might outweigh the costs and/or other risks.

6   **Q.   Describe the alternatives evaluated and how the solutions were chosen.**

7   A.   Technology evolves in short cycles, as new and sometime more improved

8   technologies can perform more efficiently than older ones. Therefore, Avista's technology

9   leadership teams continuously re-evaluate alternatives in technology investments,

10   recommending to the Technology Planning Group (TPG – comprised of Directors from each

11   business area) the best sets of technology investments to set priority across the technology

12   investment portfolio, balancing business value and customer benefits.

13   Through our technology programs, Avista evaluates and plans the direction of its

14   information technology portfolio. A team of IS/IT professionals, managers, and directors

15   guide technology programs by analyzing the benefits and costs of investing in new technology

16   and maintaining existing technology. The team considers whether the current technology

17   environment is stable and secure (e.g., run-the-business), so that it is in Avista's and its

18   customers' best interests to maintain it, and if so, for how long. If not, other options that may

19   better suit the technology needs of Avista and its customers are discussed. The technology

20   programs also evaluate the risks of not making an immediate technology change or delaying

21   a change to a later date.

22   Technology business cases are governed under the Technology Planning Group (TPG)

23   and Executive Technology Steering Committee (ETSC). The TPG sets priority across the

1   technology investment portfolio, balancing business value and customer benefits, and based

2   on the ETSC's guidance. An additional filter is applied following this vetting by the TPG and

3   respective business case owners considering resource capacity, risk assessment criteria, and

4   alternatives. Alternative criteria can include cost to implement, operate, and maintain;

5   complexity of system or technology; economies of scale and scope to leverage previous

6   technology investments; available skillsets, and long-term technology roadmaps that enable

7   safe and reliable energy to our customers.

8   **Q.**   **Describe Avista's project management process that was used to**

9   **manage technology projects.**

10   A.   Avista manages its technology projects by following Avista's Project Delivery

11   Process (APDP) Framework. The APDP framework is in alignment with industry best practice

12   that is outlined by the Project Management Institute® (PMI).[2] The APDP framework was

13   developed to establish a standardized practice in project management at Avista across all areas

14   of capital investment. Avista's technology department has a Project Management Office

15   (PMO), congruent with the APDP Framework, which acts as a center of excellence to maintain

16   project management standards for project delivery. Each technology investment is overseen

17   by a project manager to monitor scope, schedule, and budget. Each project is also governed

18   by a steering committee for proper oversight. Additionally, Avista's technology department

19   uses a Project and Portfolio Management tool (CA Technologies) to manage portfolios,

20   programs, and hundreds of parallel inflight projects. Our technology teams also perform their

21   work assignments using 'waterfall' and 'agile' methodologies. In addition to governance and

22   tracking of each project, the IS/IT department also has a layer of governance at the business

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[2] https://www.pmi.org/

1   case level consisting of management and other IS/IT stakeholders of the overarching business

2   case.

3

4   **III. ENTERPRISE TECHNOLOGY CAPITAL PROJECTS**

5   The Enterprise Technology capital projects planned to be transferred to plant in service

6   during 2020 - 2023 are shown in Table No. 1 below. An explanation of each of the projects

7   follows the table.

1 **Table No. 1 – Enterprise Technology Capital Additions:**

Enterprise Technology Capital Projects (System) In $(000's)					
Business Case Name	Project Type	2020	2021	2022	2023[1]
Mandatory and Compliance - Enabling Technology					
High Voltage Protection (HVP) Refresh	Enabling Technology	$ 256	$ 358	$ 192	$ 191
Failed Plant and Operations					
Technology Failed Assets	Enabling Technology	983	617	555	-
Asset Condition - Enabling Technology					
Technology Refresh to Sustain Business Process	Enabling Technology	(2)	563	-	-
Performance and Capacity - Enabling Technology					
Basic Workplace Technology Delivery	Enabling Technology	1,139	440	440	296
Data Center Compute and Storage Systems	Enabling Technology	2,192	496	1,924	1,981
Digital Grid Network	Enabling Technology	1,985	1,404	3,573	936
Endpoint Compute and Productivity Systems	Enabling Technology	5,492	2,878	3,979	621
Enterprise & Control Network Infrastructure	Enabling Technology	6,432	6,966	5,595	852
Enterprise Communication Systems	Enabling Technology	2,851	1,757	1,358	535
Enterprise Data Science	Enabling Technology	1,314	-	-	-
Environmental Control & Monitoring Systems	Enabling Technology	869	1,089	900	664
ET Modernization & Operational Efficiency - Technology	Enabling Technology	2,216	1,869	1,681	1,092
Facilities Driven Technology Improvements	Enabling Technology	149		147	73
Fiber Network Lease Service Replacement	Enabling Technology	1,002	2,054	1,881	319
Land Mobile Radio & Real Time Communication Systems	Enabling Technology	1,927	3,295	2,070	3,109
Asset Condition - Business & Operational Application Technology					
Atlas	Business & Op Technology	2,352	2,131	3,125	2,234
Energy Delivery Modernization	Business & Op Technology	486	-	-	-
Outage Management System & Advanced Distribution Management System	Business & Op Technology	-	-	4,984	-
Performance and Capacity - Business & Operational Application Technology					
Energy Delivery Operational Efficiency & Shared Services	Business & Op Technology	3,348	389	-	-
Energy Delivery Modernization & Operational Efficiency	Business & Op Technology	-	5,463	3,290	1,498
Energy Resources Modernization & Operational Efficiency	Business & Op Technology	1,843	939	2,888	103
Financial & Accounting Technology	Business & Op Technology	361	3,514	1,753	1,217
Human Resources Technology	Business & Op Technology	874	700	830	203
Legal & Compliance Technology	Business & Op Technology	509	323	267	-
Mandatory and Compliance - Security					
CIP v5 Transition - Cyber Asset Electronic Access	Enterprise Security	446	-	-	-
Payment Card Industry Compliance (PCI)	Enterprise Security	1,211	-	-	-
NERC CIP Compliance	Enterprise Security	-	99	250	-
Customer Service Quality and Reliability - Security					
Enterprise Security	Enterprise Security	5,331	1,249	749	-
Facilities and Storage Location Security	Enterprise Security	415	246	171	461
Generation, Substation & Gas Location Security	Enterprise Security	253	483	260	123
Telecommunication & Network Distribution location Security	Enterprise Security	-	63	-	125
Enterprise Business Continuity	Enterprise Security	-	302	100	12
Total Planned Enterprise Technology Capital Projects		**$ 46,236**	**$ 39,687**	**$ 42,959**	**$ 16,645**

(1) Includes system pro forma capital for the period of January 1, 2023 through August 31, 2023.

22 **Q.   Please provide an overview of the significant technology programs made**

23 **by Avista in 2020 and estimated 2021 through August 31, 2023.**

1   A.   Table No. 1 above provides the listing of significant IS/IT business cases for

2   the period 2020 through August 31, 2023. These business cases are summarized into the

3   investment drivers of Failed Plant and Operations, Performance and Capacity, Asset

4   Condition, Mandatory and Compliance and Customer Service Quality and Reliability as

5   further explained by Ms. Schultz. These are also organized by project type as discussed earlier

6   in my testimony of <u>Enabling Technology</u>, <u>Business and Operating Application Technology</u>,

7   and <u>Enterprise Security</u>. Business cases for each project shown in Table No. 1 are provided

8   in Exhibit No. 13, Schedule 1.

9   **Q.   Before discussing each project, generally were there any offsetting O&M**

10   **Costs for Enabling Technologies, Business & Operating Application Technology, and**

11   **Enterprise Security programs?**

12   A.   Yes. The Company calculated retirements on a total Company basis and

13   included these as an offsetting cost to future depreciation expense in each Pro Forma Capital

14   Adjustment. These offsets are included by Ms. Schultz, as she sponsors the electric and natural

15   gas Pro Forma Capital Additions Adjustments (3.08), (3.09), (3.10), (22.01), and (22.02) as

16   discussed in her testimony.

17   **Q.   Again, generally, what alternatives were considered for the above**

18   **Enabling Technologies, Business & Operating Application Technology, and Enterprise**

19   **Security programs?**

20   A.   Alternatives considered for each program can vary and may include the type

21   of technology solutions available in the market, the total cost of ownership for the technology,

22   the option to do the work differently, such as leasing or hiring a service, running the

23   technology asset longer by purchasing extended warranties, or running the technology to

1   failure for technology assets with an available sparing model. Additional alternatives

2   considered under each program include balancing the performance and capacity requirements

3   for each respective technology investment impacted by vendor-driven technology

4   obsolescence lifecycles. For example, how long can an upgrade be deferred before business

5   risks become greater than the necessary upgrade. This can lead to security risks by the vendors

6   no longer offering system patches or system reliability risks as systems can become

7   incompatible with one another.

8   **Q.**   **Do Enabling Technologies, Business & Operating Application**

9   **Technology, and Enterprise Security programs have completion timelines?**

10   A.   Technology investments can fall into programs with both ongoing and defined

11   timelines, as well as projects with defined timelines. All projects transfer to plant the total cost

12   of each project at the completion of every project timeline, which at times can straddle

13   calendar years. This includes projects that fall within a program, as well as those that are

14   standalone projects. Quarterly forecasts capture changes in transfers to plant schedules and

15   costs determined by project status.

16   **Q.**   **What is the governance or cost controls for all business cases with**

17   **Enterprise Technology investments?**

18   A.   There are three levels of governance that occur within Enterprise Technology

19   business cases. Executive Officer, Director, and Business Case Governance detailed below in

20   Illustration No. 2.

1 **Illustration No. 2 – Technology Governance Structure**
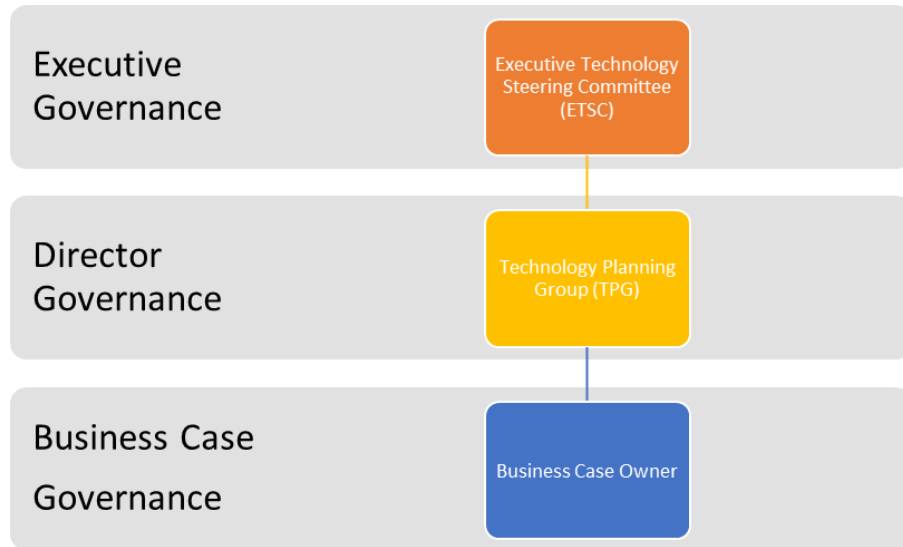
10   Under each business case there are two more levels of governance depending if it is a

11 program or project through Program Steering Committees and Project Steering Committees.

12 Both have cost control responsibilities to manage, and therefore must and do meet regularly

13 to stay on track. Governance committee responsibilities are described further below.

14 **Program Steering Committee -** The Program Steering Committee consists of
15 members in management positions that are identified and responsible for prioritizing
16 the projects within each respective program. The Program Steering Committee is
17 accountable for the financial performance of the program and hold regular meetings
18 to review the progress of the program and make decisions on the following topics:

20 • Project prioritization and risk
21 • Approving program funding requests
22 • New project initiation and sequencing

24 The program is facilitated and administrated by an assigned Program Manager within
25 the IS/IT PMO. The project queue is reviewed periodically and consists of projects
26 needed to meet program goals for technology solutions under each respective program.

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

1
2   •   Scope
3   •   Schedule
4   •   Budget
5   •   Project Issues
6   •   Project Risks
7
8   Project Steering Committees meet at defined intervals documented in the Charter of
9   the project and are facilitated by an assigned Project Manager from within the IS/IT
10   PMO.
11

12   **Information Related to "Enabling Technology" Projects Listed in Table No. 1**

13   **Q.   Please describe the investments in <u>Enabling Technology</u> from 2020 to**

14   **August 31, 2023 included in Table No. 1.**

15   A.   As previously mentioned, enabling technology consists of the infrastructure

16   technology required to enable business and operating application systems that in turn enable

17   business capabilities. For comparison purposes, it is the concrete footings, the framing, the

18   roof, the conduit and drywall that transform materials into a house that people make into a

19   home. Below are the <u>Enabling Technologies</u> that are Failed Plant & Operations, Performance

20   and Capacity, and Mandatory and Compliance as defined by Ms. Schultz.

21   **High Voltage Protection Upgrade for Substations – 2020: $256,000; 2021: $358,000;**
22   **2022: $192,000; 2023: $191,000**
23
24   Telecommunication facilities, including Phone, Communication Switches, SCADA, and
25   Metering & Monitoring systems, are commonly co-located inside Avista's high voltage
26   substations. This requires communications technicians to work in close association with our
27   high-voltage electrical equipment. Avista has implemented new high-voltage protection &
28   isolation standards that are designed to lower potential risks to our personnel and equipment.
29   The decision to make this technology investment at this time will ensure implementation of
30   the clearance changes required to meet the new standards and will result in a safer working
31   environment for our crews who work near high voltage electrical equipment. If we delay or
32   cancel this high voltage protection upgrade investment, Avista crews will be at a higher risk
33   of injury or death. A few examples of substation locations that were or are in the process of
34   being upgraded include Sandpoint, Addy, Roxboro, and Kettle Falls.

1   **Technology Failed Assets – 2020: $983,000; 2021: $617,000; 2022: $555,000**
2   The Infrastructure Technology Failed Assets business case represents work that is driven by
3   asset failures. Infrastructure technology assets experience failures due to manufacture defects,
4   human error, natural disasters, malicious actors, or age/runtime of the equipment. These
5   failures can or may occur within or after an asset's end of life. Depending on the asset, it may
6   be more cost effective to replace versus repairing. As there are higher failure rates related to
7   assets used for mobility, the most common hardware covered under this business case are
8   laptops, tablets, and mobile phones. This business case is planning for laptop, mobile phone,
9   printer, field area network, audio visual devices, and monitor replacements when the assets
10 fail.

11

12 **Technology Refresh to Sustain Business Process – 2020: ($2,000); 2021: $563,000**
13 The Technology Refresh to Sustain Business Processes program is in place to provide for
14 technology refresh of existing technology in alignment with the roadmaps for application and
15 technology lifecycles. Aging technology is the driving factor behind this project. This program
16 is sunsetting in 2021 and only includes one project for the Mission Campus Cell Booster-
17 Phase 1. This cell booster installation is estimated to be complete in 2021.

18

19 **Basic Workplace Technology – 2020: $1,139,000; 2021: $440,000; 2022: $440,000; 2023:**
20 **$296,000**
21 This business case represents hardware and software that end users need to perform day-to-
22 day job functions. This may generally include personal computers, tablets, print/copy/scan
23 systems, television displays, monitors, telephones, etc., and the basic software productivity
24 tools. Without Basic Workplace Technology Delivery hardware and software, productivity is
25 significantly impacted and can become a blocking factor, as some job functions are extremely
26 difficult to perform without digital productivity tools. For example, a new worker would not
27 be able to adequately meet job function performance requirements in a customer call center
28 without a personal computer and telephone.

29

30 Additionally, Basic Workplace Technology Delivery deployments that fall under this business
31 case are often in short notice, and minimum inventory quantities are maintained to meet
32 business value time frames. The business case is structured in such a way to handle both
33 planned and unplanned short-cycle business demand to deliver basic technology items to all
34 job functions and office areas.

35

36 **Data Center Compute and Storage Systems – 2020: $2,192,000; 2021: $496,000; 2022:**
37 **$1,924,000; 2023: $1,981,000**
38 This business case represents projects that are driven by performance and capacity of the
39 following technologies: data center compute technology, which includes both on premise
40 servers and cloud services; remote office compute and storage; application systems to manage
41 compute and storage technology, server operating systems (OS); data storage systems; data
42 center racks and power distribution units (PDU); and backup and recovery systems.

43

44 Key projects addressing the work to replace and update data center compute and storage
45 systems are as follows: Primary Storage Refresh (annually), Linux RH6 Operating System
46 Replacement, Headquarter Data Center Improvements, Data Storage System Replacement,

and Headquarter Compute Replacement, which is a server technology replacement project in the main data center.

Digital Grid Network Expansion – 2020: $1,985,000; 2021: $1,404,000; 2022: $3,573,000; 2023: $936,000

This business case represents work to expand network systems to support digital endpoints throughout the service territory in support of work that will be conducted within the Grid Modernization and Washington AMI business cases. Projects within this business case are Rural Digital Grid Satellite Implementation, Fixed Network 3G Cellular Replacement, and Field Area Network Expansion. Continuous investment in this business is necessary to keep up with demands on an aging infrastructure that supports multiple use cases. Not investing in this business case may result in reduced quality and performance of our network system to transmit information, data and communication for back office transactions, operation systems, and customer service centers, across our service territory.

Endpoint Compute and Productivity Systems – 2020: $5,492,000; 2021: $2,878,000; 2022: $3,979,000; 2023: $621,000

Endpoint Compute and Productivity Systems include refreshing end-user hardware and software assets that ensure access to and interface with all corporate applications required for employees and contractors to perform their jobs in a safe, reliable and efficient manner. Hardware that falls under this business case are: personal computers, virtualized application deployments, tablets, printing, scanning, monitors, touch, global positioning systems, cellular modems, scales, uninterruptable power supplies and peripherals used in all areas of the Company from corporate office users, Customer Service, overseas application development, remote office and mobile field workers. Larger projects in this business case include updates or replacement of end of life or obsolete assets across the company: Microsoft Office System Replacement, Drafting Printers refresh, Citrix Infrastructure upgrade, Windows 10 Deployment, Microsoft Product Updates and Rugged Laptop refresh. In 2020, the Company removed some of the projects for the Endpoint Compute (e.g. Employee onboarding hardware and software) and is now recording them in a new business case called Basic Workplace Technology. This business case is described in further detail below.

Enterprise & Control Network Infrastructure – 2020: $6,432,000; 2021: $6,966,000; 2022: $5,595,000; 2023: $852,000

The Enterprise and Control Network technology systems provide the data and voice communication foundation for corporate and control systems and automated business processes. The Enterprise and Control Network systems business case projects are driven by performance and capacity related issues on the following technologies: Network Switching; Network Routing; Network Load balancing; Network Optimization; Network communication links; Time Delay Multiplexed (TDM) systems; Virtual Private Network (VPN) systems; Microwave and other telecommunication systems; Global Positioning Systems (GPS); Time Synchronization; Network media converters; and Applications used to monitor and manage systems. Key projects within this business case are: Wireless Access Point Enhancements, Wireless Local Area Network (WLAN) Controller upgrade, Cisco AnyConnect Client Refresh, CMS refresh, Wide Area Network Improvement Project (WIP), and several Company-wide projects to upgrade end of life devices (switches, routers, etc.).

Enterprise Communication Systems – 2020: $2,851,000; 2021: $1,757,000; 2022: $1,358,000; 2023: $535,000

This business case enables the Company to manage technology replacement, as well as to address asset growth driven by business need for enterprise communication systems such as: instant messaging systems, contact center automatic call distribution system, contact center scheduling and Quality Assurance systems, customer interactive voice response (IVR), voice recording, electronic mail and calendar, voicemail, telephone, teleconferencing, video conferencing, conference room technology, media walls, enhanced 911 emergency services, paging and application systems to manage enterprise communication technology. Larger projects within this business case that address enterprise communication systems include: Electronic Mail System upgrade; Mission cell booster upgrade phase 2; Customer Service application upgrade projects, such as Verint Call Center Application Refresh and Virtual Hold System.

Enterprise Data Science – 2020: $1,314,000

This program addresses the need to democratize data and analytics, across the enterprise to empower our employees to use expertise, ingenuity, and innovation with tools to better serve our customers and the communities across our service territory. The program acts as a Center of Excellence to help migrate further towards managing data and is intended to unlock additional value contained in Avista's enterprise data assets, using analytic tools that enhance enterprise capabilities. Value is delivered through the development of use-cases as jointly scoped and prioritized with each of the requesting business units. Aside from the business insights derived through use-cases developed, this program also supports change management of new analytics tools and skills development within the enterprise to promote self-service. Through the implementation of this program, users can access enterprise information more easily, better understand what the data means including how it may be related to other disparate data sets and 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. Some examples of customer benefits delivered under the program 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., 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 low-income funding for energy efficiency programs, LIRAP analysis that shows at risk customers that may qualify for energy program assistance).
  • Excavation Risk Tool – develop a model that identifies the highest risk excavation calls made to 811 "Call Before You Dig" to mitigate risk of damage before excavation commences.
  • Bill Prediction Statistical Analysis & Visualization – enables better understanding of how well customer bill predictions are performing, enabling more insights into the program accuracy that lead to continuous improvement of said predictions.

Environmental Control & Monitoring Systems – 2020: $869,000; 2021: $1,089,000; 2022: $900,000; 2023: $664,000

The Environmental Control and Monitoring systems ensure reliable operation of Telecom facilities by managing the performance and capacity of assets that support safety, control, customer facing and back office automated business processes. Assets require specific operating environments to prevent physical damage, such as temperature, humidity, and power supply voltages. Environmental Control and Monitoring systems monitor and control these environmental parameters and alert operational personnel when they fall outside of optimal conditions. The alarms allow operational personnel to respond to issues that may cause damage to other assets well in advance of any failure resulting in loss of business automation processes. This business case represents projects that are driven by performance and capacity-related issues to the following assets in Telecom facilities: emergency generation systems; DC power supply plants; fire protection systems; HVAC systems; Remote Terminal Unit (RTU) technologies; microwave towers; UPS systems support; and applications systems used to monitor and manage the environment.

ET Modernization & Operational Efficiency - Technology – 2020: $2,216,000; 2021: $1,869,000; 2022: $1,681,000; 2023: $1,092,000

The Enterprise Technology (ET) Modernization and Operational Efficiency business case supports the technologies and processes necessary to support application implementation, application development, delivery automation, application operations, application support, and data delivery. The focus is on the tools and systems used by ET personnel to deliver solutions to the rest of the organization. These efforts can be divided into the following activities: ET Portfolio Management – Clarity PPM; Application Lifecycle Management (ALM) Tools, which includes Microsoft Azure DevOps, TaskTop, and Microsoft Visual Studio / MSDN; and Shared Systems and Tooling, which include AppDynamics, BizTalk / Application Programming Interface (API), Shared Project Licensing, Tableau, Databases and Small Application Packaging upgrades/updates. Key projects represented in this business case are: Azure DevOps upgrade/enhancements, API Management Tool, Cognos upgrade/enhancements/ licensing, Globalscape upgrade, Java AMC upgrade, and upgrades to Adobe Applications (Flash, Reader, Creative Suite).

Facilities Driven Technology Improvements – 2020: $149,000; 2021: $0; 2022: $147,000; 2023: $73,000

The Facilities Driven Technology Improvements business case dove-tails structure and improvement requests that require an infrastructure technology improvement. The technology solutions can range from network cabling to audio visual expansion to computer and phone improvements, etc. The cost of each solution can also vary depending on the type of improvement request. However, because not all improvements will have a technology requirement, such as asphalt replacement or addressing structural issues, this program has been funded at 10% of the Structures and Improvements business case budget allocation for any given year, based on historical trends.

The technology improvements invested under this program, which integrate with the Facilities Structures and Improvements business case, benefit all customers across our service territory by investing in the technology solution while the facility is being improved, thereby bringing

1   current outdated technology infrastructure or adding it to meet changing business demands.
2   However, service and jurisdiction are evaluated at the onset of each respective Structures and
3   Improvements project. The risks of not approving this business case and its funding request
4   will result in not being able to support the technology improvements associated with the
5   manager-requested structures and improvements.
6
7   **Fiber Network Lease Service Replacement – 2020: $1,002,000; 2021: $2,054,000; 2022:**
8   **$1,881,000; 2023: $319,000**
9   The Company utilizes leased fiber optic cables to transport primarily Emergency and Control
10   data. The current contracts for leased fiber network services is due to expire starting in 2025.
11   Transitioning the Company's Emergency and Control network data from leased network
12   services to a private network infrastructure aligns with the long-term network strategy and
13   will reduce both risk and O&M costs to the Company. The project representing this work
14   commenced in 2018 due to the anticipated complexity associated with rights of ways,
15   permitting, construction, and coordination with other parties (city/county planning
16   departments) to take advantage of complementary projects. Data and voice communications
17   supporting all Avista service areas can and does traverse these currently leased lines as will
18   future Company owned lines that replace them. Projects include scheduled completion of at
19   least 3 segments: Rathdrum CT to Rathdrum Substation, Dollar Road Natural Gas Service
20   Center to Millwood, and Hub (Morris Center) to 3rd and Hatch.
21
22   **Land Mobile Radio & Real Time Comm Systems – 2020: $1,927,000; 2021: $3,295,000;**
23   **2022: $2,070,000; 2023: $3,109,000**
24   This business case represents projects that are driven by performance and capacity for the
25   following technology systems: Private 2-way Land Mobile Radio (LMR) System for field
26   operations, and Radio Telephone Command and Control System (RTCCS) used by Dispatch
27   and System Operations to perform critical radio and telephone communication to field
28   personnel. This business case also covers expansion of additional sites for LMR. Key projects
29   for this business case are: LMR Coverage Enhancements, Real Time Control Radio System
30   Refresh, and Mobile RF Repeater Expansion.
31
32
33   **Q.   How do the Enabling Technology projects benefit Avista Customers?**

34   A.   Enabling technology benefits our customers by providing the underlying

35   technology infrastructure required to connect with our customers over the phone, web, text,

36   or the ability to process billing, meter reads, or communicate outages and restoration times

37   during an unplanned outage. It also enables our field workers to safely connect over the radio

38   across rugged remote locations or during storm restoration efforts that require significant field

39   coordination to maintain employee safety. As the foundation to delivering natural gas and

1 electric service safely to our customers, investing in enabling technology is a benefit to

2 Avista's customers that is no different than investing in roads, bridges, and other necessary

3 infrastructure that benefits drivers by allowing them to get to and from work or play.

4

5 **Information Related to "Business and Operating Application Technology" Projects**
6 **Listed in Table No. 1**
7

8 **Q.   Please describe major investments in Business and Operating Application**

9 **Technology in 2020 through August 31, 2023.**

10 A.   Business and Operating Application Systems are the engines that allow

11 companies like Avista to deliver value at scale to our customers across our entire service

12 territory. They produce, store, and compute information that allow decision-making and

13 automate what once were manual processes. This is more than digitizing a document that was

14 once printed on a piece of paper. Today, business application systems integrate information

15 to produce opportunities for fine tuning to remove waste and unnecessary steps or handoffs,

16 which all result in optimization of time and cost. These efficiencies are continuously pursued

17 in the benefit of our customers, as it results in the delivery of energy more efficiently and are

18 described in detail below.

19 **Project Atlas (Avista Facilities Management Replacement) – 2020: $2,532,000; 2021:**
20 **$2,131,000; 2022: $3,125,000; 2023: $2,234,000**
21 Avista Facility Management (AFM) is the legacy custom-coded system that the utility uses to
22 manage the location and current operating state of its critical electric and gas assets (e.g. pipes,
23 poles and wires). Environmental Systems Research Institute (ESRI) GIS serves as the
24 foundational data structure on which AFM applications are built or rely on. AFM is the system
25 of record for spatial electric and natural gas facility data and provides the connectivity model
26 to support the AFM applications. This program replaces legacy custom-coded systems with
27 COTS technology common in the utility industry. Project examples include the replacement
28 of the Electric and Gas Design tools, which are applications for the design of electric and
29 natural gas facilities, as well as Electric and Gas Edit tools inherent in the system used for
30 data edits prior to committing final data changes and additions. These tools also include a

mobile version for in-the-field updates by field staff, enabling real time changes in the system, as well as meeting customer responsiveness expectations. For the reliability of system records and the efficiency reasons stated above, this technology investment is made at this time. If we delay or cancel this AFM technology investment, Avista risks not having up to date information on our natural gas and electric assets that could result in harm to our customers, crews and business operations.

Energy Delivery Modernization – 2020: $486,000

This business case supports the ability to refresh technologies that have been enabled to meet business requirements throughout the Energy Delivery business area including: Gas Engineering and Operations, Electric Engineering and Operations, Asset Management and Supply Chain, Facilities, Fleet Operations, and Metering. The major applications in the Energy Delivery Program portfolio include: Geospatial platform environment – ArcGIS solutions (ESRI), Enterprise Asset Management System – Maximo Solutions; Time Series Operational Data – Plant Intelligence (PI) Solutions; Mobile Workforce Management – Mobile Dispatch solutions; Fleet Asset and Work Order Management; Crew Planning and Scheduling – Crew Manager Solutions; System Operations Outage Management – CROW; Transmission Planning – PowerWorld solutions; Metering solutions which include OpenWay, OpenWay Riva, MV90, Field Collection System (FCS), Fixed Network, and TWACS (two-way automatic communication system); Flight Tracker, and Global Mapper.

Key projects for 2020 in the Energy Delivery Modernization business case that address upgrades of the major applications are the Flight Tracker upgrade, PI upgrade, as well as Serveron, Synergi and Global Mapper Upgrades. This work enables Avista to maintain system maintenance and support, which includes security patching, bug fixes, version upgrades, interoperability, and compatibility with other technologies thereby ensuring application functionality and reliability.

Outage Management & Advanced Distribution Management System –2022: $4,984,000

Avista's Outage Management Tool (OMT) is an in-house developed custom application that supports outage analysis, management and restoration. OMT provides the functionality to help manage the overall cycle of electric outage and restoration processes for the Idaho and Washington service territories. It works in synchronization with Avista's Distribution Management System (DMS), feeding it current operating state data of its electric assets to monitor and control Avista's electric distribution network efficiently and reliably. The DMS is a commercial application used to monitor and control the distribution grid. It relies on the GIS data to determine the current operating state. Because of its reliance on the outdated, custom-built OMT, Avista is not getting full benefit from the DMS capabilities, which in turn results in two systems running at a different pace. The OMT application and data model have been used for nearly two decades and have reached technology obsolescence.

Replacing Avista's OMT and DMS with a commercial Outage Management System (OMS) and Advanced Distribution Management System (ADMS) will improve field and office worker productivity, provide more accurate data, and provide the ability to reengineer work processes and methods to support the continuous improvement of Avista's outage management and restoration program. An OMS/ADMS solution also provides Avista with the

ability to respond to more stringent and detailed regulatory compliance reporting requirements, enables effective operation of an increasingly complex and dynamic distribution grid, and delivers more accurate Estimated Restoration Time (ERT) information to electric customers during outages. The improved ERT accuracy and restoration status for customers will improve customer confidence in the information which will reduce the number of calls received by our customer service representatives, as well as call durations.

The work is scheduled to start in 2022 so that it can be completed while the current data model used by OMT is still supported by the vendor. If the work is not completed on schedule, there will be significant risks and costs to maintain OMT with the existing data model and application version.

Energy Delivery Operational Efficiency & Shared Services – 2020: $3,348,000; 2021: $389,000

This business case supports the ability to expand business functionality using technology throughout the Energy Delivery business area including: Gas Engineering and Operations, Electric Engineering and Operations, Asset Management and Supply Chain, Facilities, Fleet Operations and Metering. The projects represented herein support the need to meet business requirements by enhancing existing functionality or adding brand new functionality for users across the Energy Deliver business area.

Application expansion projects 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 application expansion efforts. Key projects within this business case are GIS Enhancements Packages 2 and 3; Maximo Enhancements Packages; CROW Enhancements Package, AssetWorks Enhancements, PI Enhancements Package; and Arcos Enhancements. This business case will be sunsetting in 2021 and will be replaced by Energy Delivery Modernization & Operational Efficiency.

Energy Delivery Modernization & Operational Efficiency – 2021: $5,463,000; 2022: $3,290,000; 2023: $1,498,000

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

1 compliance requirements will be at risk. Although these are the primary purposes of this
2 business case, other benefits include cost savings, safety, regulatory compliance and
3 innovative customer-focused products and services. A large portion of the work that occurred
4 in Energy Delivery Operational Efficiency & Shared Services business case described above,
5 will be occurring in this business case when that business case sunsets in 2021.
6
7 **Energy Resources Modernization & Operational Efficiency – 2020: $1,843,000; 2021:**
8 **$939,000; 2022: $2,888,000; 2023: $103,000**
9 This program supports the technology-related application projects required for both expansion
10 and refresh activities required within the Energy Resources business area. This program is
11 required to support the application-related technology initiatives for all areas of energy
12 Resources – including Gas Supply. The business program functions that require major
13 application support include the following: Energy Risk Management and Energy Trading
14 which includes Nucleus, Avista Decision Support System (ADSS), and Settlement Solutions;
15 Gas Forecasting – Nostradamus, and CROW Outage Management; and Fuel Inventory
16 Management – WeighWiz.
17
18 **Financial & Accounting Technology – 2020: $361,000; 2021: $3,514,000; 2022:**
19 **$1,753,000; 2023: $1,217,000**
20 This business case supports technologies for Finance and Accounting groups which include:
21 Accounting, Tax, Finance Planning and Analysis, Treasury and Trust, Risk Management, and
22 Internal Audit. The financial and accounting business processes are critical to the routine
23 operations of Avista. Work within this business case addresses changing accounting standards
24 and regulations that require frequent updates to the financial systems in order to support
25 accurate and timely financial and accounting business processes, as well as the need to manage
26 enhancements to meet internal and external business requirements. Major applications in the
27 Financial & Accounting Technology business case are: Oracle Enterprise Business Suite
28 (EBS), Power Plan (PP), EPBCS Budget system, Utilities International Planner, BancTec
29 Systems, and a small number of commercial off-the-shelf and in-house developed applications
30 to support various accounting requirements.
31
32 **Human Resources Technology – 2020: $874,000; 2021: $700,000; 2022: $830,000; 2023:**
33 **$203,000**
34 The Human Resources Technology business case supports the technology-related application
35 projects required for both expansion and refresh activities required within the Human
36 Resources business area. This program is required to support the application related
37 technology initiatives for all areas of Human Resources including Human Resources Labor
38 and Employee Relations, Leadership and Organizational Development, Human Resources
39 Shared Services, Craft Training, Safety, and Internal Communications. The largest
40 applications within the Human Resources business case portfolio are the Ultimate Product
41 Suite and Skillsoft / SumTotal Learning Management System. Key projects for 2020, in
42 particular, include Enterprise Health & Safety System, Enterprise Content Management
43 (Labor Relations), Employee Engagement system enhancements (Intranet and Mobility), and
44 Ultipro Enhancements.

Legal & Compliance Technology – 2020: $509,000; 2021: $323,000; 2022: $267,000
This business case represents projects that will ensure constant management of enhancements to meet internal and external business requirements for the following business areas: Legal, Environmental Affairs, Real Estate, Claims Management, Corporate Compliance, FERC Compliance, Reliability Compliance, and Ethics Compliance. The main applications are CATSWeb, Claims Management System, Valuemation, Serengeti Law, DocuSign, and a small number of commercial off-the-shelf and in-house developed applications to support various legal and compliance applications.

Information Related to "Security" Projects Listed in Table No. 1

Q.   Please describe major investments in Enterprise Security – Physical and Cyber Security, Business Continuity, and Disaster Recovery in 2020 through August 31, 2023.

A.   Avista understands that a safe, reliable, and secure energy infrastructure is essential to the economies in the areas that we serve and our customer's way of life and that intruders can use a variety of cyber and physical attacks to try and disrupt the delivery of safe, reliable, and secure energy. Cyber and physical attacks can not only have a reliability impact but also can lead to data breaches, ransomware, or other costly system repairs and threaten employee safety. Based on information from our government partners in the Information Sharing and Analysis Centers (ISACs), FBI, DHS, and State Fusion Centers, we know the attacks continue to grow in size and complexity, and therefore it is prudent that Avista continues to invest in its cyber, physical and business continuity programs. Major investments in Enterprise Security fall into two areas: physical security and cybersecurity. The Enterprise Security projects included in the Company's case fall under the Mandatory and Compliance and Customer Service Quality and Reliability investment drivers as shown in Table No. 1 and are described in detail below.

Critical Infrastructure Protection v5 Transition – Cyber Asset Electronic Access – 2020: $446,000

Avista, as a regulated utility, is required to meet North American Electric Reliability Corporation ("NERC") Critical Infrastructure Protection ("CIP") Reliability Standards ("Standards"). Specifically, Avista has been complying with CIP Version.3 Standards ("CIPv3") and needs to transition to CIP Version.5 Standards (CIPv5).

This Business Case will support achieving compliance for Low Impact Bulk Electric System Cyber Systems by implementing electronic access controls. While this requirement is for electric service critical infrastructure protections, a component of the security is to detect and respond to cyber-attacks. A cyber-attack can affect all, gas and electric, infrastructure in the event that a security vulnerability has been exploited. A few key projects for 2020 in this business case are Electronic Access per site and Cyber Transient Assets per site. Not investing in this business case will result in not meeting required NERC CIP Reliability Standards.

Payment Card Industry Compliance (PCI) – 2020: $1,211,000

Avista accepts credit cards over the phone, in person and through the Company's website for both electric and/or natural gas services. Credit cards are becoming the most common form of payment and have become an expectation with Avista's customers. As a company that accepts credit card payments, Avista is subject to the Payment Card Industry (PCI) standards. These standards specify controls that must be in place in order to meet the standards and be compliant. Failure to achieve and maintain PCI compliance will result in fines and the ability to continue accepting credit cards can be revoked. There are two projects finishing in 2020 in this category, PCI Web Site Payment Compliance and PCI Phone Payment Compliance to further meet the requirements of the Payment Card Industry standards.

NERC CIP Compliance –2021: $99,000; 2022: $250,000

Avista, as a regulated utility, is required to meet North American Electric Reliability Corporation ("NERC") Critical Infrastructure Protection ("CIP") Standards. NERC CIP standards continue to evolve to address emerging threats. To achieve and maintain compliance with NERC CIP standards, an estimated $250,000 annual investment is necessary. This business case will fund cyber and physical security improvements to achieve and maintain NERC CIP compliance.

Being compliant with NERC CIP standards benefits customers by reducing the risk of electric service interruptions associated with cyber or physical attacks. The requested funding amount is intended to achieve and maintain compliance with the effective dates defined by NERC CIP. Not being compliant and accepting fines is not considered a viable alternative, as it puts Avista's cyber and physical security posture at risk and increases costs due to penalties. The recommended solution is to implement the controls necessary to achieve compliance.

Enterprise Security – 2020: $5,331,000; 2021: $1,249,000; 2022: $749,000

Physical security investments are vital to protecting our people, assets, and information and are the first line of defense to deter an intruder from harming our employees or gaining access to critical resources. Fencing, lighting, access control, and cameras all play a role in deterring, detecting, delaying, and responding to intrusions. Physical security technology is also

transforming. Legacy systems are analog while newer systems are digital. These modern systems run on traditional IT networks rather than being stand-alone systems and have advanced capabilities. For example, legacy cameras only show a fixed view and are not capable of using Artificial Intelligence (AI) to identify objects or activity within their field of view. Instead, they must rely upon humans for detection which can be costly and prone to mistakes. The newer systems use AI and can alert based on someone entering a restricted area, identify if they left anything behind, and record traits of the individual like the color of clothing and even perform facial recognition. Adopting this newer technology allows for quicker detection and response to events that may impact our people, assets, and information.

Not only are physical security systems advancing, but so are cybersecurity systems. Threat actors continue to evolve their tactics in response to our defenses and therefore investments that were effective in the past, need to be enhanced with an upgrade or paired with another solution to help mitigate new risk. Firewalls, anti-virus, and intrusion detection systems all continue to evolve and release enhancements to ensure they are effective in preventing and detecting modern attacks. An example of this is the shift from using signatures to detect security events to using attack patterns. Signature-based detection relies upon the piece of malware being known so a vendor can write a detection signature. Pattern-based detection does not rely upon signatures. Instead, algorithms are used, and they monitor behavior and system activity to spot patterns that match malicious behavior. The advantage of this approach is new malware can be detected in real-time rather than having to wait for a signature to be released by the vendor. This increases the speed at which Avista can detect and respond to cybersecurity events which decrease the likelihood of a cyber intruder being successful.

For 2020 in particular, the Company increased or refreshed security across the enterprise, including Firewall updates, Antivirus updates, malware monitoring and web filtering.

Facilities and Storage Locations Security – 2020: $415,000; 2021: $246,000; 2022: $171,000; 2023: $461,000
This business case represents projects that cover the physical security at the Company's facility and storage locations across all its electric and natural gas service territory. These locations contain people, equipment and material that are critical to support our day-to-day operations and in turn the delivery of safe and reliable energy. A physical security incident at any of these locations may harm people, damage equipment, or even restrict our ability to respond to our customers. In addition, physical attacks can also give intruders access to critical cyber equipment, which can lead to a cyber security event. Therefore, this creates the need for additional physical security protections, at all facility and storage locations. Not investing in this business case can leave gaps in how Avista secures and protects its facilities that house people, equipment, and material, potentially affecting our ability to maintain system performance and reliability.

Generation, Substation & Gas Location Security – 2020: $253,000; 2021: $483,000; 2022: $260,000; 2023: $123,000
This business case covers physical security at the Company's generation, substation and gas locations. These locations contain equipment that is critical to the delivery of safe and reliable energy. Many of these locations are remote, unmanned and vulnerable, which makes them

1   difficult to protect. A physical security incident at any of these locations could deny, degrade
2   or disrupt the delivery of energy. In addition, physical attacks can also give intruders access
3   to critical cyber equipment, which can lead to a cyber security event. Therefore, this creates
4   the need for additional physical security protections, at all generation, substation and gas
5   locations. Projects that will represent the work in this business case for 2020 support Model
6   Office Substation Security and Substation Access Control. Not investing in this business case
7   can leave gaps in how Avista secures and protects its generation, substation and natural gas
8   facilities, potentially impacting our ability to maintain system performance and reliability.
9
10 **Telecommunication & Network Distribution location Security – 2021: $63,000; 2022: $0,**
11 **2023: $125,000**
12 Security is an expectation of companies today by customers. Especially companies considered
13 critical infrastructure. Protecting communication infrastructure is vital as many of Avista's
14 business processes depend on network communications and without them, they could not
15 function which could have an impact on our day to day operations that are needed to support
16 our customers. Not funding these investments can pose risks to the assets Avista depends on
17 to conduct business and delivery safe and reliable energy.
18
19 **Enterprise Business Continuity – 2021: $302,000; 2022: $100,000; 2023: $12,000**
20 Avista has developed and maintains an Enterprise Business Continuity Program to continually
21 enhance and improve the Company's emergency response, business continuity, and disaster
22 recovery capabilities to ensure the continuity of its critical business process and systems under
23 crisis conditions. The program includes the key areas of technology recovery, alternate
24 facilities, and overall business processes. The effort of developing and continuously
25 improving the program ensures the readiness of systems, procedures, processes, and people
26 required to support our customers and our communities in the event of a disaster.
27
28 This request funds projects that benefit Avista customers by mitigating service interruptions
29 due to a disaster by continually enhancing and improving emergency response, business
30 continuity, and disaster recovery capabilities. Not investing in this business case can pose
31 risks to the business processes and systems that support the delivery of safe and reliable
32 energy.
33
34

35 **IV. IS/IT OPERATING AND MAINTENANCE EXPENSES**

36 **Q.   Please summarize the incremental IS/IT O&M expenses beyond the**

37 **Company's 2019 historical test period, included in this case.**

38   A.   In Company witness Ms. Andrews' Electric and Natural Gas Pro Forma Study,

39 she has pro formed security, information services, and technology expenses, including non-

40 labor costs associated with products and services, licensing and maintenance fees, and other

1   costs for a range of information services programs that will be in place during the Two-Year

2   Rate Plan beginning September 1, 2021 and ending August 31, 2023. Specifically, Ms.

3   Andrews adjusts the actual level of IS/IT expense included in the 2019 test year to include

4   2020 and 2021 known increases in expense for Rate Year 1 (effective September 1, 2021

5   thorough August 31, 2022. Next, Ms. Andrews adjusts the IS/IT expense level included in

6   Rate Year 1, to reflect incremental 2022 expenses in Rate Year 2 (effective September 1, 2022

7   thorough August 31, 2023), above Rate Year 1 levels.

8   These incremental expenditures (2020 through 2022) are necessary to support

9   Company cyber and general security, emergency operations readiness, electric and natural gas

10   facilities and operations support, and customer services. In this case, IS/IT has narrowed the

11   scope of incremental expenses to known and measurable non-labor items for 2020 and 2021.

12   These incremental expenses are based on having a contractual agreement in place, are pre-

13   paid costs, or are the continuation of costs for products and services that have increased

14   beyond the 2019 historical test period. Incremental 2023 expenses are planned expense

15   increases similar to 2020 ad 2021 expenses. Further detail supporting these IS/IT incremental

16   expenses have been included with Ms. Andrews' workpapers and provided with the

17   Company's filed case.

18   **Q.   What is driving the increase in these non-labor O&M expense categories?**

19   A.   The main driver of the increase in these non-labor expenses is IS/IT capital

20   investments in Enabling Technology, Business & Operating Application Systems, and

21   Enterprise Security as described above in the IS/IT overview. Capital investments in

22   technology result in increases to product support and maintenance expenses for each of the

23   systems. Another significant driver of increased non-labor expense is the continuing trend of

1   software vendors changing how they license and deliver software solutions; examples include

2   a shift from a perpetual license to a subscription license, or from an on-premises solution to a

3   cloud-based solution. In addition, software vendors regularly increase the cost of ongoing

4   maintenance and support to keep up with the cost of enhancing, fixing and supporting their

5   products, and to align with market driven forces such as annual consumer price index

6   increases.

7   Table No. 2 below categorizes the non-labor incremental system expense increases

8   included in this case into the types of capital investment and underlying general functional

9   areas that can drive incremental increases.

10   **Table No. 2 - Non-Labor Incremental System Expense (System):**

11

	2019	2020 incremental	2021 incremental	2022 Incremental
Security Systems	1,113,209	173,950	(101,447)	(11,342)
Enabling Technology	3,322,807	532,446	523,625	(107,656)
Business & Operating Application Systems	8,526,707	1,152,132	2,073,944	1,027,875
Grand Total	12,962,722	1,858,528	2,496,123	908,877

15   A.   As discussed above, Idaho's share of the system incremental 2020 and 2021

16   increased IS/IT expenses shown in Table No. 2 above, were pro formed by Ms. Andrews into

17   Rate Year 1. Whereas, Idaho's share of the incremental 2022 IS/IT system expense shown in

18   Table No. 2, was pro formed by Ms. Andrews into Rate Year 2.

19   The primary incremental non-labor O&M expenses include Hardware and Software

20   License support and maintenance, and Software Services and Subscriptions. Hardware and

21   Software License support and maintenance are costs associated with a traditional licensing

22   model where a capital asset license is purchased along with the required license support and

23   maintenance costs. Support and maintenance costs are the ongoing expense portion associated

1   with vendor provided security patches, bug fixes, incremental upgrades, and expert technical

2   support with pre-determined service level agreements. Software Services and Subscriptions

3   are costs associated with a less traditional but increasingly more common licensing model

4   where all or most of the license cost is considered ongoing expense, rather than a capital asset

5   license. Examples can include items like Software as a Service (SaaS), data feeds, or site

6   license subscriptions. Costs in this category range from solutions that enable or supplement

7   on premise systems, to complete end-to-end solutions (infrastructure, networks, computing,

8   storage, hosting, etc.) with little to no on premise footprint.

9   The incremental expenses included in this case, on a system basis, are categorized by

10   general cost types as shown below in Table No. 3:

11   **Table No. 3 Non-Labor O&M (System)**

12

✚ General Cost Types	2019	2020 incremental	2021 incremental	2022 Incremental
Dedicated Voice and Data Circuits	79,734	5,203	7,474	8,132
Hardware License Support	1,453,479	(60,814)	278,275	(6,342)
Professional Services	359,070	99,426	5,790	0
Radio Tower Site Leases	252,410	6,866	2	0
Software License Support	7,558,935	748,216	377,942	300,005
Software Services and Subscriptions	3,259,095	1,059,632	1,826,640	607,082
Grand Total	**12,962,722**	**1,858,528**	**2,496,123**	**908,877**

18   As discussed in the direct testimony of Ms. Andrews, and shown in Table Nos. 2 and

19   3 above, the total incremental IS/IT non-labor O&M expenses included in this general rate

20   case above 2019 levels is approximately $4.35 million (system) for Rate Year 1 ($1.858

21   million [2020] + $2.496 million [2021]), or $0.85 million allocated to Idaho electric

22   operations and $0.22 million allocated to Idaho natural gas operations. For Rate Year 2, the

23   total incremental IS/IT non-labor O&M expenses included above Rate Year 1, is

1 approximately $0.9 million (system), or $200,000 allocated to Idaho electric operations and

2 $50,000 allocated to Idaho natural gas operations .

3   Table No. 4 below provides examples of incremental expenses that have contractual

4 agreements in place, are pre-paid costs, or are the continuation of costs for products and

5 services that have increased beyond the 2019 historical test period:

6 **Table No. 4: Examples of IS/IT Incremental Expenses (System)**

Source of Increase	Functional Area	General Cost Type	Primary Driver of Increase	Incremental Expense
Incident Response Services	Enterprise Security	Professional Services	Investment in Incident Response Services for Guaranteed Response Time	$ 53,008
Security events are becoming more sophisticated which is driving the need to have specialized response resources available to assist in the event of a security incident. Avista has increased its incident response retainer, which allows Avista to have defined service levels to respond to security events in Operational Technology areas such as at a Substation, Generation Plant or Control Center.				
Firewall Refresh	Enterprise Security	Software Service and Subscription	Investment in advanced capabilities and avoidance of technology obsolescence	$ 110,072
Firewalls protect against unauthorized cyber access to the Company's systems. Software subscriptions are required for advanced features to be fully functional.				
Secure Mobile Productivity Management	Enabling Technology	Software Service and Subscription	Investment in Mobility and Security	$ 353,000
Avista invests in mobile technology which enables our workforce to connect and communicate rapidly and efficiently with each other and our customers. The solution provides substation ally greater mobile technology protections for identity and access management, endpoint management, information protection and identity-driven security. Additional benefits include multifactor authentication and Cloud Access Security Broker (CASB) which enables Avista to enforce its security policies on cloud services.				
API Management Platform	Business & Operating Apps	Software Service and Subscription	Investment in System Integrations and Security	$ 133,836
An Application Programming Interface (API) is a set of functions and procedures allowing the creation of applications that support the accessing of system features and/or data between systems. Avista's customers will benefit as end users of higher-functioning applications across multiple device types (computers, cell phones, tablets, etc.). Avista's ability to more easily integrate disparate information amongst its internal and external systems means better visibility into customer touchpoints (service calls, outages, etc.), faster reaction times to market changes, and improved coordination of Avista assets.				
Call Center Solution	Business & Operating Apps	Software Service and Subscription	Investment in Customer Experience	$ 363,446
This Call Center Enterprise Analytics solutions will deliver value to our customers from the AMI deployment, help our customers understand what loads/appliances are impacting their energy usage and what steps the customer can take to reduce their monthly usage and subsequently reduce their bill. Additionally, this functionality will allow Avista to better execute targeted Energy Efficiency campaigns, understand loads and identify non-wire alternatives for system planning.				
Customer Experience Platform (CXP)	Business & Operating Apps	Software Service and Subscription	Investment in Customer Experience	$ 1,339,980
These costs are in support of the Company's Customer Experience Platform (CXP). More information to describe investments in CXP is provided in testimony from Company witness Kelly Magalsky. In summary, the CXP is foundational to Avista's customer at the center strategy. These investments will provide our employees with visibility and access to valuable information across channels and systems, thus enabling personalized and cross-channel customer experiences.				

1   **Q.   Who speaks to the Customer Experience Platform O&M Expenses listed**

2   **in the table above?**

3   A.   This expense will be discussed further in Mr. Magalsky's testimony as it is

4   related to the Customer at the Center program.[3]

5   **Q.   Describe how technology system support and maintenance service**

6   **contracts provide value and benefit customers.**

7   A.   Technology systems are becoming more integrated and complex as business

8   transactions become more integrated and automated. These technology systems require

9   regular maintenance activities to stay current on security vulnerability patching, software

10 defect patching, and various software functionality changes. Due to the increase in complexity

11 of these systems, vendor support is needed to assist with root cause analysis when

12 troubleshooting failures in the system. Without support and maintenance services for these

13 technology systems, the Company and our customers would experience longer system

14 downtimes due to complexities of root cause analysis. The Company would be at increased

15 risk of malicious activities in our technology systems if we did not have access to software

16 vulnerability patches, and our ability to optimize and maintain the business value of the

17 technology system would be degraded if we did not have access to software defect fixes or

18 software functionality changes. Support and maintenance services provided by the technology

19 system vendors indirectly benefit customers, for if we were not able to optimize and maintain

20 the business value of our technology systems, we would see a loss of business automation

21 functionality and an in turn an increase in operational labor that would be necessary to

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[3] The Customer at the Center Platform consists of three program investment areas: Customer Experience Platform (CXP), Customer Facing Technology, and Customer Transactional Systems. These programs are described in further detail by Mr. Magalsky.

1   maintain service levels across our information technology systems.

2   **Q.   How has Avista focused on managing its overall IS/IT expenses for the**

3   **benefit of its customers?**

4   A.   Avista employs several approaches to regularly assess, review and take action

5   to manage and control IS/IT costs. One example is through our approach to software

6   application license acquisition, renewal and tracking. A software analyst works in conjunction

7   with our technical and business subject matter experts to negotiate right-sized licensing, and

8   to review and validate the value and use of software applications to identify opportunities to

9   reduce and remove unused license and maintenance cost prior to renewal of software

10   agreements. An example of this practice from the current year occurred when IS/IT engaged

11   with our Internal Audit Department to discuss the upcoming renewal of the Company's audit,

12   risk and compliance software. It was determined that the Company could switch vendors while

13   maintaining the needed functionality and, in the process, create a net reduction in pre-paid

14   technology expense of $81,219 in 2020. The impact of the 2020 reduction and the year-over-

15   year avoided cost is included in the current adjustment.

16   Avista also regularly looks for other solutions to its growing application needs. For

17   example, in 2019, the Company began evaluating options for implementing a Cloud Access

18   Security Broker (CASB) solution, in response to the growing use of cloud service

19   applications. The Company reviewed (3) three different options and decided to go with the

20   option that delivered a cost advantage by licensing multiple technologies under one enterprise

21   suite. Another approach Avista takes to manage and control IS/IT costs is to identify

22   opportunities to enter into multi-year agreements with software vendors whereby pricing is

23   set over the duration of the agreement. These agreements allow Avista to lock in pricing at or

1   below current or expected market pricing, providing protection from adverse market

2   conditions and normalizing costs over time, which benefits both Avista and our customers.

3   An additional way IS/IT looks to reduce expense over time is to seek further discounts from

4   vendors in exchange for pre-payment of multi-year agreements. Pre-payment of software

5   agreements reduces the administrative overhead of the invoice validation, approval and

6   payment process in addition to the reduction in operating expense over the duration of the

7   agreement.

8   **Q.   What are other methods Avista uses to manage its overall IS/IT expenses**

9   **for the benefit of its customers?**

10   A.   Another method is use of digitalization, an industry-wide strategy that requires

11   additional investment in IT's support capabilities. As existing services and new services are

12   digitalized, IT departments are experiencing significant increase in workloads. Although

13   these increasing workloads are expected, we actively work to decelerate the associated cost

14   increases using automation technology and changes to our IT operating models. For example,

15   in 2017 the Company implemented a performance monitoring tool that automates a portion of

16   the labor performed by our Information Systems teams. The automation helped to reduce the

17   labor requirement of performance monitoring tasks and our time to resolution when service

18   outages occur. The value these automation tools provide not only brings value to the year

19   they were implemented but sustained value year over year. IS/IT was then able to redeploy

20   that skilled operations labor onto more complex and pro-active task like incident prevention,

21   system optimization and load testing. These tasks directly contribute to a more favorable

22   customer experience via increased platform reliability and service availability. An example

23   of an operational model change is our effort to redirect a portion of our existing operations

1   labor force to seek out and resolve system level issues in pre-production

2   environments. Identifying defects early in the software development life cycle avoids the

3   more costly impact of finding defects after release.

4   The COVID-19 pandemic continues to cause tremendous and unprecedented change

5   across all industries, businesses, employers and workers; Avista is no exception. Through the

6   process of enabling nearly our entire workforce to work remotely, Avista sought to manage

7   and control cost where possible. For example, the Company's "lemonade stand" set up in the

8   lobby of our Mission headquarters where our workforce could come "check out" technology

9   such as monitors and keyboards. This successful approach to a difficult situation quickly and

10   significantly enhanced our workforce's productivity and allowed us to avoid costly shipping

11   or delivery charges as an alternative approach. IS/IT also reviewed queued work and work in

12   progress to delay or stop projects that would no longer provide the expected value in the wake

13   of the pandemic and work from home situation that has no known expected end date. An

14   example is the decision to halt all desk additions, moves, and changes, since most of Avista's

15   workforce was beginning to work remotely, which helped avoid costs that had little value

16   considering the undetermined time to return to the office for most of Avista's workforce. Only

17   a few business continuity requests for critical operations were processed, which included

18   standing up alternate facilities for system operations and hydro-electric dam operations.

19   In 2019, IS/IT launched a multi-year effort to change the way our voice

20   communications are deployed to our Electric and Gas Service Centers throughout our service

21   territory. The Session Initiation Protocol (SIP) project is replacing local phone service with

22   Voice over Internet Protocol (VoIP) service. One result of the project is cancelling the

23   business phone service of multiple copper-based land lines (TDM circuits) in favor of

1   delivering that phone call traffic to our service centers via our data circuits. This has resulted

2   in cost savings from canceling the TDM circuits once the VoIP services are in place. In 2019

3   the project generated $57,997 in reduced expense, and $74,711 YTD in 2020. The project has

4   converted 24 Service Center sites to SIP and facilitated canceling TDM circuits at 18 sites

5   throughout our service territory. Now that these calls are delivered through a centralized

6   service and then via data circuits to these Service Centers, we have realized improved caller

7   ID presentation, call quality improvements, and more reliable voice mail delivery.

8   Other examples of practices to manage and control IS/IT expense include training

9   employees to use mobile devices to scan documents and temper investment in

10   printing/scanning technology, and working with our Supply Chain department to negotiate

11   volume rebates ($232,852 in discounts from 2019 across capital and expense projects), and

12   early pay discounts ($222,998 in discounts from 2019 across capital and expense projects) for

13   technology products and services procured each year.

14   **Q.   Does this conclude your pre-filed direct testimony?**

15   A.   Yes.