Exh. JMK-1T

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

DOCKET NO. UE-22_____

DOCKET NO. UG-22_____

DIRECT TESTIMONY OF

JAMES M. KENSOK

REPRESENTING AVISTA CORPORATION

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. Would you 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 33-year information technology career. I joined Avista in June of 1996. I have been in the Information Services Department for approximately 25 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 costs associated with, the Company's Information Service/Information Technology (IS/IT) programs, projects and security. These costs are comprised of the capital investments for a range of IS/IT projects that support systems used by the Company, as well as cyber and physical security projects and costs. I will explain why our

information technology and security investments are necessary in the time frames indicated and why investments in technology are necessary. In addition, I provide an overview of the IS/IT expenses that Avista is pro forming into this general rate case. A table of contents for my testimony is as follows:

Table of Contents

Q. Are you sponsoring any exhibits in this proceeding?

A. Yes. I am sponsoring Exh. JMK-2. Exh. JMK-2 contains the capital business cases related to the 2021 projects I discuss later in my testimony, as well as the business cases related to the 2022 through 2024 provisional short-lived, large distinct, ongoing programs and mandatory and compliance projects I support.

II. IS/IT OVERVIEW

Q. How are Avista's technology investments linked to supporting business processes?

A. Avista's technology investments fall into two major areas: (1) enabling technology and (2) business and operating application systems. Avista also takes an enterprise-wide approach

to security and disaster recovery (resiliency) that links our technology investments with protecting our people, our assets, and our facilities.

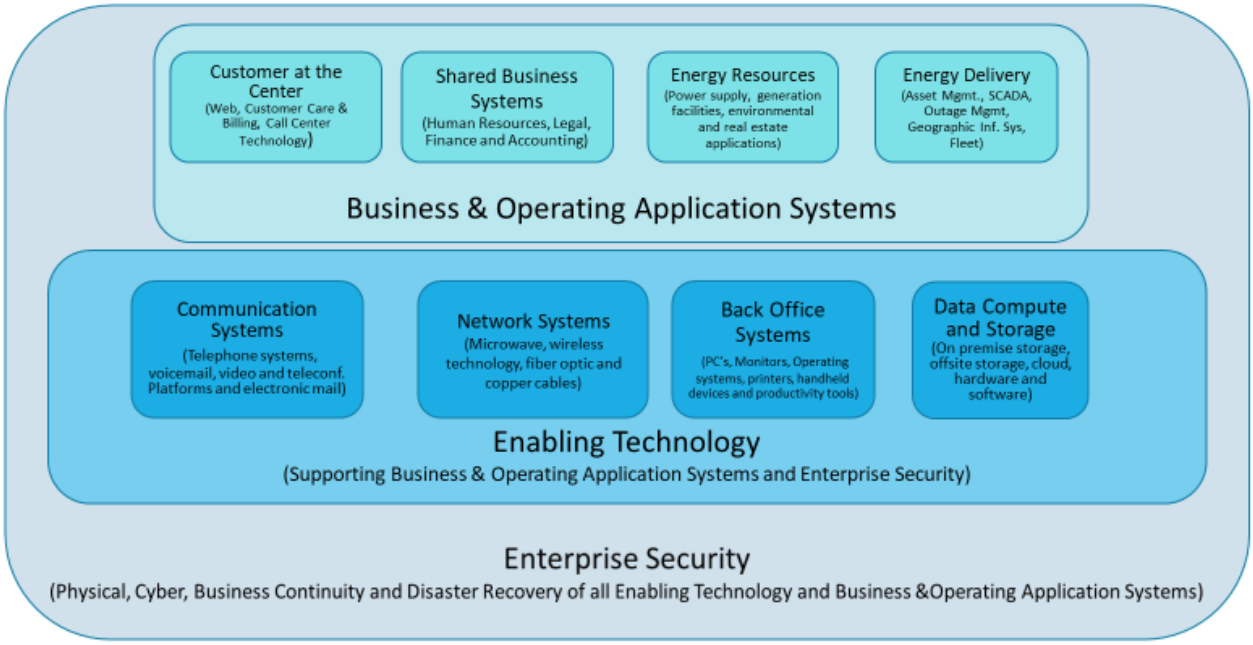
Specifically, "enabling technology" consists of the technology infrastructure such as data storage, and endpoint compute hardware, (e.g., Personal Computers (PC), Laptops, Smartphones, and Wireless Network Access Devices). Enabling technology also includes operating systems, network transport connectivity (e.g., microwave radios, routers and switches). Additionally, enabling technology includes databases and data schemas, integration software, business intelligence tools, communication and collaboration platforms, etc. necessary to enable business capabilities through business application systems. It is the foundation on which we deliver energy safely and reliably, meet business objectives, and deliver value for our customers through business and operating application systems.

"Business and operating application systems" are dependent on a reliable infrastructure that delivers the technology foundation for the "Customer at the Center" strategy (as discussed by Company witnesses Mr. Vermillion and Mr. Magalsky). Some of the capabilities within these areas include: electric and natural gas service design in the field for prompt installation of new electric or natural gas service, fleet vehicle use and maintenance, the minimization of maintenance outages on generating plant, to name a few. Business application systems help business capabilities by automating business processes to optimize efficiencies and add functionality.

Illustration No. 1 below shows the relationship between the areas of Enabling Technologies, Business & Operating Application Systems, and Enterprise Security and how those fit into the different capital business cases discussed later in my testimony. Enabling technology is there to support the business applications technology, and just as importantly, neither of the two can co-exist without proper security to protect the information that is used to make business

decisions and deliver energy to our customers.

Illustration No. 1- Business Technology Structure:



III. IS/IT PRIORITIZATION, DELIVERY AND GOVERNANCE PROCESS

Q. How are the enabling technologies and business and operating application systems business cases prioritized within IS/IT?

A. The IS/IT department uses a decision tree designed by Gartner[1] for both enabling technologies and business and operating application systems to help organize capital projects into three categories: run, grow and transform[2].

[1] Gartner is a research and advisory company, which delivers technology-related insights to its clients to make right decisions. It operates through the following segments: Research, Consulting and Conferences. https://www.gartner.com/smarterwithgartner/align-it-functions-with-business-strategy-using-the-run-grow-transform-model/

[2] The "run" category includes technology projects aimed at running the day-to-day business. The "grow" category projects are focused on developing and enhancing systems to enable business growth including new customers. Finally, the "transform" category are projects that aid the Company in addressing new customer and employee needs that recently have included remote work and mobile transactions. It also includes new operating models such as outage restoration and wildfire resiliency.

Q. Did Avista consider alternatives to technology investments?

A. Alternatives are considered to determine if opportunities are available using existing technology and/or changes to business processes as well as new technology options. For example, a growing alternative to the traditional "buy or build" approach has been Software as a Service (SaaS), whereby the software asset that once was in Avista's data center on site, is now in the technology vendor's data center (cloud environment). Assessments on the feasibility of SaaS are performed by the Company on a case-by-case to determine how the benefits might outweigh the costs and/or other risks.

Q. As discussed above, the software industry is shifting delivery of application technology solutions from a "buy or build" model to SaaS. Please explain how Avista is handling this transition, and what impact this has on capital and operation & maintenance costs?

A. On site solutions presently run in Avista's onsite data center. They require capital investments in licensing and infrastructure, and on-premise personnel and support agreements to operate and maintain them at required levels. Vendor managed cloud solutions range widely in what they deliver. They can range from delivering data and information only, or running applications and storing data, to fully replicating all the infrastructure, computing power and storage necessary to the point that only an internet connection is needed to make it useful. In general terms, as solutions move across the spectrum of fully on premise to fully vendor-managed cloud-based, the cost to implement and run those solutions shifts along the spectrum from capital investment to expense. This is a result of the accounting treatment of cloud-based SaaS solutions moving the Company from capital investments in licensing, infrastructure and implementation to outsourcing those components as services, and the expenses entailed.

Q. Does this mean that Avista will be making fewer capital investments as technology solutions shift to the cloud?

A. No. The need for technology investment will continue to increase as traditionally mechanical and manual functions within different business areas of the Company move more towards digitalization. This will further drive the need to take advantage of the opportunities digital technologies provide when incorporated into business processes and interactions with our customers and within the utility. In addition, it is likely not all our vendors are moving to the cloud, meaning we need to continue to invest in and support on-premise solutions, as well as network infrastructure (which is part of IS/IT investment) throughout our service territory. As mentioned above, Avista will continue to evaluate SaaS on a case-by-case basis to determine how the benefits might outweigh the costs and/or other risks.

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

A. Technology evolves in short cycles, as new and sometimes more improved technologies can perform more efficiently than older ones. Therefore, Avista's technology leadership teams continuously re-evaluate alternatives in technology investments, recommending to the Technology Planning Group (TPG – comprised of Directors from each business area) the best sets of technology investments.

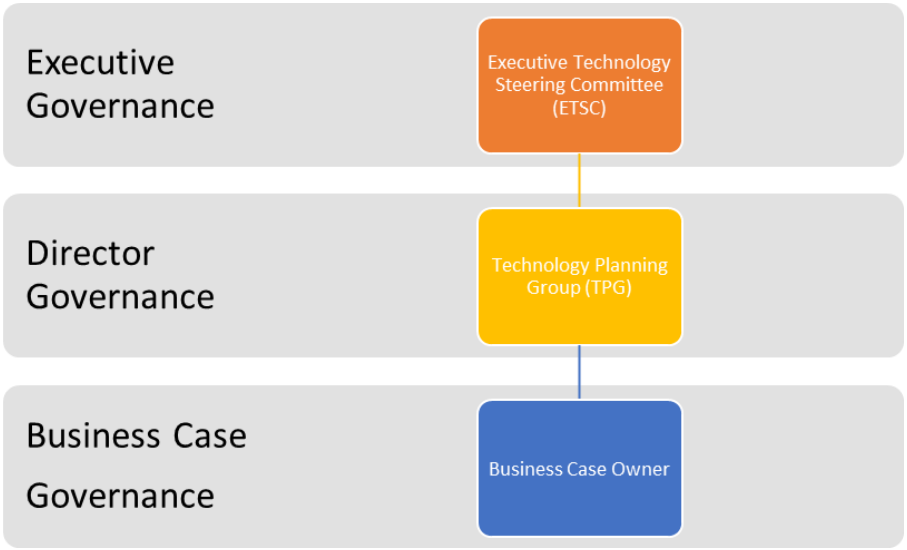
Through our technology programs, Avista evaluates and plans the direction of its information technology portfolio. A team of IS/IT professionals, managers, and directors guide technology programs by analyzing the benefits and costs of investing in new technology and maintaining existing technology. The team considers whether the current technology environment is stable and secure (e.g., run-the-business), so that it is in Avista's and its customers' best interests to maintain it, and if so, for how long. If not, other options that may better suit the technology

needs of Avista and its customers are discussed. The technology programs also evaluate the risks of not making an immediate technology change or delaying a change to a later date.

Q. What are the governance or cost controls for all business cases with technology investments?

A. There are three levels of governance that occur within technology business cases. Executive, Director, and Business Case Governance detailed below in Illustration No. 2.

Illustration No. 2 – Technology Governance Structure



Under each business case there are two more levels of governance depending if it is a program or project through Program Steering Committees and Project Steering Committees. Both have cost control responsibilities to manage and therefore meet regularly to stay on track. Governance committee responsibilities are described further below.

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

- Project prioritization and risk
- Approving program funding requests

- New project initiation and sequencing

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

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

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

Project Steering Committees meet at defined intervals documented in the Charter of the project and are facilitated by an assigned Project Manager from within the IS/IT PMO. Project Steering Committees may or may not be necessary depending on the size of the project. In addition, Project Steering Committees may not meet on a monthly or regular basis if the project is on track with all the above deliverables and may only communicate with stakeholders via email or other communication methods.

IV. 2021 INVESTMENTS IN TECHNOLOGY PROGRAMS AND ENTERPRISE SECURITY

Q. Are you supporting the capital additions in 2021 as a part of your testimony in this case?

A. Yes. Table No. 1 below provides a listing of the 2021 test year capital additions by Business Case type in my areas of responsibility.

Table No. 1: 2021 Test Year Capital Additions

Project #	ET Business Case Type	Business Case	2021 TTP (System)	Exh. JMK-2 Page #
Enterprise Technology				
1	Enabling Technology	Basic Workplace Technology Delivery	$ 1,176,219	3
2	Enabling Technology	Data Center Compute and Storage Systems	755,378	12
3	Enabling Technology	Digital Grid Network	4,225,030	22
4	Enabling Technology	Endpoint Compute and Productivity Systems	2,675,401	32
5	Enabling Technology	Enterprise & Control Network Infrastructure	7,464,532	43
6	Enabling Technology	Enterprise Communication Systems	3,497,771	52
7	Enabling Technology	Enterprise Data Science	21,497	62
8	Enabling Technology	Environmental Control & Monitoring Systems	770,888	70
9	Enabling Technology	ET Modernization & Operational Efficiency - Technology	2,028,219	80
10	Enabling Technology	Fiber Network Lease Service Replacement	2,117,782	91
11	Enabling Technology	High Voltage Protection (HVP) Refresh	98,382	100
12	Enabling Technology	Land Mobile Radio & Real Time Communication Systems	663,532	109
13	Enabling Technology	Technology Failed Assets	540,472	119
14	Enabling Technology	Technology Refresh to Sustain Business Process	812,952	128
15	Bus. & Op Application Tech.	Atlas	2,616,023	133
16	Bus. & Op Application Tech.	Energy Delivery Modernization & Operational Efficiency	5,109,410	142
17	Bus. & Op Application Tech.	Energy Delivery Operational Efficiency & Shared Services[1]	648,749	142
18	Bus. & Op Application Tech.	Energy Resources Modernization & Operational Efficiency	1,801,118	153
19	Bus. & Op Application Tech.	Financial & Accounting Technology	4,542,932	163
20	Bus. & Op Application Tech.	Human Resources Technology	184,769	174
21	Bus. & Op Application Tech.	Legal & Compliance Technology	134,675	187
22	Security	Enterprise Business Continuity	171,368	197
23	Security	Enterprise Security	3,016,699	202
24	Security	Facilities and Storage Location Security	293,841	208
25	Security	Generation, Substation & Gas Location Security	2,070,675	213
26	Security	NERC CIP Compliance	77,500	218
27	Security	Payment Card Industry Compliance (PCI)	595,565	224
Total Enterprise Technology			**$ 48,111,377**	
Exh. JMK-1T Total 2021 Capital Additions			**$ 48,111,377**	

Q. Please provide an overview of the technology programs made by Avista in 2021.

A. Table No. 1 above provides the listing of ET and Security business cases in 2021. These are organized by business case type as discussed earlier in my testimony of Enabling Technology, Business and Operating Application Technology, and Enterprise Security. Business cases shown in Table No. 1 are provided in Exh. JMK-2.

Q. Would you please explain how the capital additions for 2021 were decided on?

A. Yes. As discussed by Company witness Mr. Baldwin-Bonney, Avista's capital witnesses, including myself, describe certain major business cases completed in 2021 and planned to be completed in 2022 through 2024. Although only nine months of 2021 is included in the test period for this case, all capital witnesses will be discussing business cases for the entirety of 2021 in their respective testimony. For these major business cases, my testimony and exhibits provide an overview of the need for the investments made and detail how those business cases benefit our customers. Additionally, many of the 2022-2024 business cases discussed later in my testimony are similar to projects and programs which occurred in 2021. The information that supports those 2021 business cases also help to support several business cases that continue and will be transferred to plant in 2022-2024.

Q. For the 2021 capital additions for which you are responsible, is the Company seeking to include all of those investments in general rates in this case?

A. Yes, it is.

Q. Has the Company calculated and included a description of any offsetting factors to the capital additions in this case?

A. For those capital additions that have direct offsets, I have included a description of the offsets in the Business Case description. Company witness Ms. Andrews provides an explanation of how the direct offsets are factored into the revenue requirement of this case, an explanation of the Company's "2% efficiency" adjustment included in this case, and a description of indirect offsets associated with the Business Cases in this case.[3]

Q. Generally, what alternatives were considered for the above Enabling

[3] See detailed direct O&M offsets, "2% efficiency" adjustment O&M offset, and indirect offsets by Business Case, by witness, as well as individual Business Case Offset Forms, at Exh. EMA-5.

Technologies, Business & Operating Application Technology, and Enterprise Security programs?

A. Alternatives considered for each program can vary and may include the type of technology solutions available in the market, the total cost of ownership for the technology, the option to do the work differently, such as leasing or hiring a service, running the technology asset longer by purchasing extended warranties, or running the technology to failure for technology assets with an available sparing model. Additional alternatives considered under each program include balancing the performance and capacity requirements for each respective technology investment impacted by vendor-driven technology obsolescence lifecycles. For example, how long can an upgrade be deferred before business risks become greater than the necessary upgrade. This can lead to security risks by the vendors no longer offering system patches or system reliability risks as systems can become incompatible with one another. Where there are reasonable alternatives, the evaluation of those is discussed in each business case (business case documents for the projects I am sponsoring have been included in Exh. JMK-2).

Q. Do Enabling Technologies, Business & Operating Application Technology, and Enterprise Security programs have completion timelines?

A. Technology investments can fall into programs with both ongoing or defined timelines. All projects transfer to plant at the completion of every project timeline, which at times can extend over several calendar years. This includes projects that fall within a program, as well as those that are standalone projects. Quarterly forecasts capture changes in transfers-to-plant schedules and costs determined by project status. There are a few business cases that have specific timelines and they are discussed below under each of those specific business cases.

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

Q. Projects 1 through 14 are defined as "Enabling Technology". How do the Enabling Technology projects benefit Avista Customers?

A. Enabling technology benefits our customers by providing the underlying technology infrastructure required to connect with our customers over the phone, web, text, mobile, or the ability to process billing, meter reads, or communicate outages and restoration times during an unplanned outage. It also enables our field workers to safely connect over the radio network across rugged remote locations or during storm restoration efforts that require significant field coordination to maintain employee safety. It is the foundation to delivering natural gas and electric service safely and reliably to our customers.

Project #1 – Basic Workplace Technology Delivery (*Enabling Technology)*

Q. Please describe the Company's Basic Workplace Technology Program.

A. This business case represents basic hardware and software that end users need to perform day-to-day job functions. This generally includes personal computers, tablets, print/copy/scan systems, television displays, monitors, telephones, etc., and the basic software productivity tools. Without Basic Workplace Technology Delivery hardware and software, productivity is significantly impacted

Q. Where can more information be found related to this program?

A. The supporting business case for this program can be found in Exh. JMK-2, beginning on p. 3. The information included in this business case includes more information on the problem and major drivers being addressed with this project, why the work is needed now (and risks if the project is deferred), business impacts, alternatives that were considered and any tangible

risks/mitigation strategies for each alternative.

Q. How does this program benefit Avista's customers?

A. This program invests in technology for offices, customer service centers and in the field to allow the Avista workforce to serve our customers without extended periods of downtime.

Q. What capital investments for this project/business case/program has or will be completed in 2021?

A. The total capital investment is $1,176,219 in 2021.

Q. Are there any direct offsets associated with this project?

A. No, there are not. However, the Company has included a 2% efficiency adjustment for this project in 2022, 2023 and 2024, as it has for several other projects. That efficiency adjustment for this project is explained by Ms. Andrews and included in her Adjustments 4.03 and 5.09.

Project #2 - Data Center Compute and Storage Systems (*Enabling Technology)*

Q. Please describe the Company's Data Center Compute and Storage Systems Program.

A. This is investment in server technology required to process and store massive amounts of data to automate and enable business processes that support natural gas and electric customers across service territories. The technology solutions to meet performance standards and reliability requirements can vary from hardware and software upgrades in an on-premise data center, offsite storage, or service provider (cloud) facility, or in operating technology to optimize compute and storage capacity. Avista's office, call center, and field staff require on-demand information to meet customer needs, when providing natural gas and electric service to customers

across our service territory. The information can be critical to prevent, reduce, or optimize an outcome that benefits our customers. Data center processing and storage investment benefits all Avista customers, as it optimizes cost and productivity by not reverting to manual business processing, which would result in increased labor costs, human error, and overall processing delays.

Q. Where can more information be found related to this program?

A. The supporting business case for this program can be found in Exh. JMK-2, beginning on p. 12, which includes more information on this project, why the work is needed now (and risks if the project is deferred), business impacts, alternatives that were considered.

Q. What capital investments for this project/business case/program has or will be completed for 2021?

A. The total capital investment is $755,378 in 2021.

Q. Are there any direct offsets associated with this project?

A. No, there are not. However, the Company has included a 2% efficiency adjustment for this project in 2022, 2023 and 2024, as it has for several other projects. That efficiency adjustment for this project is explained by Ms. Andrews and included in her Adjustments 4.03 and 5.09.

Project #3 - Digital Grid Network (*Enabling Technology*)

Q. Please describe the Company's Digital Grid Program.

A. This program provides network solutions that optimize technology communication and operations for field crews, inspectors, employees, contractors, and customers, and is critical to maintain the ability of providing safe and reliable electric and natural gas service. Technology

investments under the Digital Grid Network program are necessary for expanding and maintaining network assets for system reliability and business productivity throughout our service territory.

Q. How does this program benefit Avista's customers?

A. The Digital Grid business investments expand and maintain network assets in support of system reliability and business productivity, ensuring our ability to appropriately and timely respond to the needs of our customers.

Q. Where can more information be found related to the program?

A. The supporting business case for the program can be found in Exh. JMK-2, beginning on p. 22. The information included in this business case includes more information on the problem and major drivers being addressed with this project, why the work is needed now (and risks if the project is deferred), business impacts, alternatives that were considered and any tangible risks/mitigation strategies for each alternative, timelines, and governance, among other things. The total capital investment is $4,225,030 in 2021. While there are no direct offsets associated with this project, the Company has included a 2% efficiency adjustment for this project in 2022, 2023 and 2024. That adjustment for this project is included in Ms. Andrews' adjustments 4.03 and 5.09.

Project #4 – Endpoint Compute and Productivity Systems (*Enabling Technology)*

Q. Please describe the Company's Endpoint Compute and Productivity Systems Program.

A. This program addresses technology obsolescence by delivering technology solutions required to support day-to-day operations. Technology solutions under this program include, but are not limited to, Personal Computer (PC) hardware and operating systems, various handheld devices, printers, configuration and management systems as well as productivity toolsets

like Microsoft Office365. Each technology under this program undergoes regular review of utilization and performance levels to determine if expected performance standards are being met and to review the capacity requirements to maintain system reliability under the established budget constraints. These reviews can result in the periodic need for additional investments to address technology that is falling behind determined lifecycles performance standards. Instances where performance is waning or not meeting standards can pose risk to computing system reliability.

Q. How does this program/project benefit Avista's customers?

A. Avista's customers benefit from technology investment in end-user hardware and software assets that ensure access to and interface with systems of record to support a safe and reliable infrastructure and meet compliance requirements. Additionally, and as part of keeping up with vendor-driven technology obsolescence, Avista's technology team manages technology lifecycle plans to maintain system reliability. For example, Avista is replacing rugged laptop PC's and related mounting equipment in vehicles during 2021 due to product end-of-life and limited vendor support. These are devices used by line crews, cathodic inspection, relay and telecom shops, and electric and natural gas meter shops. These rugged devices span across all safety, control, customer and back office systems, and hundreds of applications required to safely and securely deliver energy to our customers.

Q. Where can more information be found related to the program?

A. The supporting business case for the program can be found in my exhibit, Exh. JMK-2, beginning on p. 32. The total capital investment is $2,675,401 in 2021 on a system basis. The Company has included a 2% efficiency adjustment for this project in 2022, 2023 and 2024. That adjustment for this project is included in Ms. Andrews' adjustments 4.03 and 5.09.

Project #5 - Enterprise & Control Network Infrastructure (*Enabling Technology)*

Q. Please describe the Company's Enterprise & Control Network Infrastructure.

A. This program provides technology network solutions that support a variety of site locations and systems within each facility environment. This technology includes, but is not limited to, emergency and safety systems, control systems, customer systems, and enterprise back office productivity systems. The technology within this program undergoes regular review to balance the asset management strategy within predetermined budget allocations while mitigating risks of unplanned failures.

Q. How does this program/project benefit Avista's customers?

A. Without continuous investment in the Enterprise and Control Network Infrastructure business case, Avista's telecommunication backbone would become unreliable. This, in turn, would have significant consequences for every other business process that uses various network transportation paths to move data, information or communication. The infrastructure is a necessary core capability for utility operations that requires reliable networks in conjunction with commercial carrier and private network solutions to maintain system reliability for Avista customers.

Q. Does this program have a target completion date?

A. Yes. This business case will sunset in 2022 after the completion of two projects. For better visibility and tracking, this business case has been divided in to three new Business Cases for 2021-2024, consisting of Enterprise Network Infrastructure, Control and Safety Network Infrastructure, and Network Backbone Infrastructure. This is discussed later in my testimony.

Q. Where can more information be found related to this program?

A. The supporting business case for this program can be found in Exh. JMK-2,

beginning on p. 43. The total capital investment is $7,464,532 on a system basis for 2021. The Company has included a 2% efficiency adjustment for this project in 2022, 2023 and 2024. That adjustment for this project is included in Ms. Andrews' adjustments 4.03 and 5.09.

Project #6 - Enterprise Communication Systems (*Enabling Technology)*

Q. Please describe the Company's Enterprise Communication Systems program.

A. All Avista business functions are affected by this program, as it enables all day-to-day work activities and automated business processes around communications. From service center to call center to field work, every worker requires communications systems technology to perform their business function and deliver natural gas and electric service to our customers. Every customer service call is enabled by this technology, which includes telephone systems, voicemail, faxes, and the interactive voice response (IVR), which has been extremely helpful during peak call volumes. Communications technology has also been critical in keeping our workforce connected, while many of our staff are required to work remotely to minimize risk to those in roles of critical operations. These investments include video- and tele-conferencing platforms, electronic mail, instant messaging and calendar systems to support a digital workforce that during the COVID-19 pandemic are proving to be very effective in supporting remote work during 'stay at home' orders issued by state governments throughout our service territory.

Q. How does this program benefit Avista's customers?

A. The Enterprise Communication Systems business case benefits Avista's customers by enabling the communication between employees to be able to provide safe, reliable service and also by enabling communication to our customers. The total capital investment is $3,497,771 in 2021 on a system basis. The supporting business case for this program can be found in Exh. JMK-

2, beginning on p. 52. The Company has included a 2% efficiency adjustment for this project in 2022, 2023 and 2024. That adjustment for this project is included in Ms. Andrews' adjustments 4.03 and 5.09.

Project #7 - Enterprise Data Science *(Enabling Technology)*

Q. Please describe the Company's Enterprise Data Science program.

A. This program addresses the need to use data and analytics across the enterprise to empower our employees to better serve our customers and the communities across our service territory. The Data Science Business Case started sunsetting in 2020 and the only costs in 2021 represent trailing costs. There should not be any ongoing capital costs in 2022. The supporting business case for this program can be found in Exh. JMK-2, beginning on p. 62. The total capital investment is $21,497 in 2021 on a system basis. There are no direct or indirect offsetting benefits related to this business case in 2021 or in 2022-2024.

Project #8 - Environmental Control & Monitoring Systems (*Enabling Technology)*

Q. Please describe the Company's Environmental Control & Monitoring Systems Program.

A. This program addresses various technology requirements for distinct site locations and supporting systems. Examples of technology solutions may include uninterrupted power sources to allow systems to continue operating while waiting for an auxiliary power source to come online, such as an emergency generator. For mountain top locations, heated and cooled enclosures are critical to ensuring technology housed in that facility is maintained at the proper temperature despite changes in outside weather.

Q. How does this program benefit Avista's customers?

A. This business case will benefit customers by maintaining refresh cycles ahead of the assets' obsolescence, which reduces the risk of unplanned failures. The supporting business case for this program can be found in Exh. JMK-2, beginning on p. 70. The total capital investment is $770,888 in 2021 on a system basis. The Company has included a 2% efficiency adjustment for this project in 2022, 2023 and 2024. That adjustment for this project is included in Ms. Andrews' adjustments 4.03 and 5.09.

Project #9 - ET Modernization & Operational Efficiency - Technology (*Enabling Technology*)

Q. Please describe the Company's ET Modernization & Operational Efficiency - Technology program.

A. This program was designed to keep up with supporting the growth of business application technology and complexity. The program invests in the platforms and tools to address the needs of the IS/IT department to support business applications. These technology platforms and tools provide functional enhancements that address ongoing changes in the workplace, provide increased employee efficiency through the reduction of steps required to complete a task, and make better use of Avista resources. The technology tools and systems under this program benefit all Avista customers, as they support business application systems throughout the Company.

The supporting business case for this program can be found in Exh. JMK-2, beginning on p. 80. The total capital investment is $2,028,219 in 2021 on a system basis. The Company has included a 2% efficiency adjustment for this project in 2022, 2023 and 2024. That adjustment for this project is included in Ms. Andrews' adjustments 4.03 and 5.09.

Project #10 - Fiber Network Lease Service Replacement – (*Enabling Technology)*

Q. Would you please describe the Company's Fiber Network Lease Service Replacement Program?

A. Yes. This project is a multi-year effort to transition, by 2027, Avista's use of leased fiber optic cable, which transports primarily Emergency and Control network data, to a private network infrastructure. This transition aligns to the Company's network strategy, reduces operating costs, and gains control over the 54 fiber segments for these critical communication paths. The technology investments under this business case benefit customers by investing in the privately-owned fiber optic cable segments thereby mitigating the potential of increased O&M costs for leased fiber in the future and having full control over the fiber.

Q. Does the Fiber Network Lease Service Replacement program have any target completion date?

A. Yes. The underlying agreement expires in 2027 with an option to renew for (5) five years. To reduce leasing costs and maintain control of critical infrastructure, Avista will not renew the leased fiber agreement. Therefore, if this program stays on schedule and maintains the appropriate priority, it will sunset in 2027 or 2028.

The supporting business case for this program can be found in Exh. JMK-2, beginning on p. 91. The total capital investment is $2,117,782 in 2021. The Company has included a 2% efficiency adjustment for this project in 2022, 2023 and 2024. That adjustment for this project is included in Ms. Andrews' adjustments 4.03 and 5.09.

Project #11 – High Voltage Protection (HVP) Refresh (*Enabling Technology)*

Q. Please describe the Company's High Voltage Protection Refresh program.

A. Technology investments under the High Voltage Protection business case are needed to provide high voltage protection for communication circuits in high voltage areas in support of employee and public safety, system reliability, and business productivity throughout our service territory. Avista is required to provide high voltage protection for leased communication circuits in high voltage areas newer than September 12, 1994 under an FCC Tariff. If Avista does not meet the tariff requirements, telecommunication companies can 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.

The supporting business case for this program can be found in Exh. JMK-2, beginning on p. 100. The total capital investment is $98,382 in 2021 on a system basis. There are no direct or indirect offsetting benefits related to this business case in 2021 or in 2022-2024.

Project #12 - Land Mobile Radio & Real Time Communication Systems (*Enabling Technology)*

Q. Please describe the Company's Land Mobile Radio & Real Time Communication Systems program.

A. This program addresses the essential safety requirement of delivering mobile radio coverage for field staff working throughout the service territory. The investments under this program provide the communication technology that enables real time communication with natural gas and electric field staff. Due to the remoteness and topology of the service territory, the technology investments span a wide range across field radio sites where traditional commercial cellular or telecommunication services are not available. The Land Mobile Radio & Real Time

Communications Systems facilitates critical communication between field personnel, dispatch, system operations, and other end users. This radio system is used for normal day to day operation work, coordinating responses to outage events, switching and tagging procedures, communication with external agencies including Public Safety entities, and several other uses. It is a business-critical system used to maintain day to day operations and respond to emergency situations. The supporting business case for this program can be found in Exh. JMK-2, beginning on p. 109. The total capital investment is $663,532 in 2021 on a system basis. The Company has included a 2% efficiency adjustment for this project in 2022, 2023 and 2024. That adjustment for this project is included in Ms. Andrews' adjustments 4.03 and 5.09.

Project #13 - Technology Failed Assets (*Enabling Technology)*

Q. Please describe the Company's Technology Failed Assets Program.

A. This program includes a range of solutions from computers to hand-held radios carried by field staff to printers in remote offices to networking equipment. Sometimes technology assets fail prior to being refreshed as part of a lifecycle management program. Any failed asset can cause downtime for an employee or system resulting in significant disruption to daily operations across the service territory depending on where and to what asset the failure occurred. To support these types of unplanned failures, the Technology Failed Assets program was established and consists of technology assets meant for rapid deployment as failures occur and when repairs are not feasible. A technology inventory is maintained to quickly restore business automation. This program provides benefits to customers by providing a technology inventory to quickly restore business automation and reduce the downtime caused by the failure.

The supporting business case for the program can be found in Exh. JMK-2, beginning on

p. 119. The total capital investment is $540,472 in 2021. The Company has included a 2% efficiency adjustment for this project in 2022, 2023 and 2024. That adjustment for this project is included in Ms. Andrews' adjustments 4.03 and 5.09.

Project #14 - Technology Refresh to Sustain Business Process (*Enabling Technology)*

Q. Please describe the Company's Technology Refresh to Sustain Business Process.

A. This particular business case was determined to sunset at the end of 2018, as projects were completed. The majority of the ongoing projects were completed in 2019, except for one (Mission In-Building Cellular Booster Refresh). This project refreshes existing cellular signal amplifiers to support LTE 4G voice and data at Avista's Mission campus and service building. Due to building infrastructure and cellular carrier technology obsolescence, many users experience a poor signal or no signal at all on their LTE capable smart phones.

These devices are a significant tool for business communications that support all our customers, the signal strength needs to be upgraded to a cellular carrier-supported signal. The supporting business case for this program can be found in Exh. JMK-2, beginning on p. 128. The total capital investment is $812,952 in 2021 on a system basis. The Company has included a 2% efficiency adjustment for this project in 2022, 2023 and 2024. That adjustment for this project is included in Ms. Andrews' adjustments 4.03 and 5.09.

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

Q. Please describe major investments in Business and Operating Application

Technology in 2021.

A. All the Business and Operating Applications Technology projects included in the Company's case are shown in Table No. 1 as projects 15 through 21, which are discussed below.

Project #15 - Atlas

Q. Please describe the Company's Atlas program.

A. This is a multi-year year program to strategically replace the suite of custom Geographic Information System (GIS) applications known as Avista Facility Management (AFM). AFM is the system of record for spatial electric facilities in Washington and Idaho and natural gas facility data in Washington, Idaho and Oregon, and provides the connectivity model to support GIS engineering and analysis applications. AFM is a cornerstone to Avista's ability to provide responsive service across its territory. Replacing AFM will enable Avista to take advantage of commercial GIS applications that provide improved mobile and desktop functionality, increased collaboration capabilities and increased reliability.

Q. How does this program/project benefit Avista's customers?

A. Improvement of customer experience is at the core of the Atlas Program. The proposed next generation applications will enable Avista workers, office and field, to respond to customer requests faster; provide information to customers that is more accurate, timely and complete; and improve customer experience when interacting with Avista. By investing in new commercial solutions, Avista gains the ability to more fully integrate with natural gas and electric planning and analysis tools. This leads to a better understanding of infrastructure weaknesses that may exist and be able to proactively reinforce those areas improving reliability for the customers.

Q. Does the Atlas program have any target completion date?

A. Yes. The total program budget for the 12-year plan is estimated to be $30 million. For 2020 through 2026, Avista will be focused primarily on the project timeline and deliverables which configure and deploy mobile GIS mapping and data applications. The supporting business case for this program can be found in Exh. JMK-2, beginning on p. 133. The total capital investment is $2,616,023 in 2021 on a system basis. The Company has included a 2% efficiency adjustment for this project in 2022, 2023 and 2024. That adjustment for this project is included in Ms. Andrews' adjustments 4.03 and 5.09.

Project #16 - Energy Delivery Modernization & Operational Efficiency

Q. Please describe the Company's Energy Delivery Modernization and Operational Efficiency Program.

A. This 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, and Metering. These technologies are used to automate and augment business solutions bringing efficiencies and capabilities to support the delivery of energy to 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, and 3) modernizing existing technologies in accordance with product lifecycles and technical roadmaps, typically through product or system upgrades.

Major applications supported in this business case include Enterprise Asset Management system (Maximo), mobile workforce management, crew planning and schedules, system operations support, and metering support, among other things. The supporting business case for

this program can be found in Exh. JMK-2, beginning on p. 142. The total capital investment is $5,109,410 in 2021 on a system basis.

Q. Are there any direct offsetting benefits associated with this project?

A. Yes, a system total of $100,000 for 2022, $100,000 for 2023 and $100,000 for 2024 has been calculated and included in the Company's revenue requirement as a reduction. These savings are a result of avoiding extended support costs as a result of an upgrade to Maximo. Those offsets are included in Ms. Andrews' adjustments 4.03 and 5.09.

Project #17 – Energy Delivery Operational Efficiency & Shared Services

Q. Please describe the Company's Energy Delivery Operational Efficiency & Shared Services program.

A. This business case supports the ability to expand business functionality through the use of 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 Delivery business area. This business case will sunset in 2021 and similar projects and work will be completed under the Energy Delivery Modernization and Operational Efficiency business case described above in project #16.

Q. How does this program/project benefit Avista's customers?

A. 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.

Q. Where can more information be found related to this program?

A. The supporting business case for this program can be found in Exh. JMK-2, beginning on p. 142. The total capital investment is $648,749 in 2021 on a system basis.

Q. Are there any direct offsets associated with this project?

A. No, there are not as this business case will sunset in 2021 and similar work and projects will be completed under the Energy Delivery Modernization & Operational Efficiency business case described above in project #16. Please refer to that project for offsets in 2022 and beyond.

Project #18 - Energy Resources Modernization & Operational Efficiency

Q. Please describe the Company's Energy Resources Modernization & Operational Efficiency program.

A. This program supports the application-related technology initiatives for all areas within Energy Resources, which includes Power Supply, Gas Supply, Generation Production Substation Support (GPSS), and Environmental and Real Estate. Application refresh projects are necessary to maintain updates, upgrades and/or replacements to existing Energy Resource applications, to respond to changing business needs and/or technical obsolescence. These refreshes or upgrades are essential to remain current, maintain compatibility, reliability and address security vulnerabilities. The Energy Resources programs supported in this business case include support for Avista's energy risk management and energy trading operations, including Avista's Decision Support System (ADSS), Nucleus (Avista's energy transaction book of record), and Energy Risk Management system, among other items.

The supporting business case for this program can be found in Exh. JMK-2, beginning on

p. 153. The total capital investment is $1,801,118 in 2021 on a system basis. The Company has included a 2% efficiency adjustment for this project in 2022, 2023 and 2024. That adjustment for this project is included in Ms. Andrews' adjustments 4.03 and 5.09.

Project #19 - Financial & Accounting Technology

Q. Please describe the Company's Financial & Accounting program.

A. This program supports financial applications critical to maintaining the financial health and compliance of regulatory requirements through the completion of reoccurring business processes. The business processes change on a frequent basis, driven by several factors and is dictated by the lifecycles of the applications governed in the business case, further requiring resources and adaptive technology solutions. Investment in this program supports Company applications including Oracle e-Business Suite, PowerPlan (for fixed assets and tax), depreciation forecasting, supply chain support, and FERC reporting, among other things. The supporting business case for this program can be found in Exh. JMK-2, beginning on p. 163. The total capital investment is $4,542,932 in 2021 on a system basis. The Company has included a 2% efficiency adjustment for this project in 2022, 2023 and 2024. That adjustment for this project is included in Ms. Andrews' adjustments 4.03 and 5.09.

Project #20 – Human Resources Technology

Q. Please describe the Company's Human Resources Technology program.

A. The Human Resources Technology (HRT) Business Case sponsors the technology related applications that support the Human Resources (HR) business areas strategic initiatives. The HR business area includes Benefits, Occupational Health, Avista First Care Clinic,

HRIS/Payroll, Employee Relations, Leadership and Organizational Development, Corporate Training and Development, HR Shared Services, Recruiting, Equity-Inclusion-Diversity, HR Analytics and Compliance, Craft & Technical Training, Apprenticeships and Safety. The supporting business case for this program can be found in Exh. JMK-2, beginning on p. 174. The total capital investment is $184,769 in 2021 on a system basis.

Q. Are there any direct offsetting benefits associated with this project?

A. Yes, a system total of $16,300 for 2022, $16,300 for 2023 and $16,300 for 2024 has been calculated and included in the Company's revenue requirement as a reduction. Those offsets, which are related to reducing costs of printing, copier maintenance and filing of paper documents, are included in Ms. Andrews' adjustments 4.03 and 5.09.

Project #21 – Legal & Compliance Technology

Q. Please describe the Company's Legal & Compliance Technology program.

A. The various business entities within Avista rely on the legal and compliance systems to ensure business operations are done in the most efficient and cost-effective manner. The legal and compliance technology systems vary from the simple to complex and require continuous management of the enhancements needed to meet the internal and external business requirements. The supporting business case for this program can be found in Exh. JMK-2, beginning on p. 187. The information included in this business case includes more information on the problem and major drivers being addressed with this project, why the work is needed now (and risks if the project is deferred), business impacts, alternatives that were considered and any tangible risks/mitigation strategies for each alternative, timelines, and governance, among other things. The total capital investment is $134,675 in 2021 on a system basis. The Company has included a

2% efficiency adjustment for this project in 2022, 2023 and 2024. That adjustment for this project is included in Ms. Andrews' adjustments 4.03 and 5.09.

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

Q. Please describe any major changes in "Security"?

A. In the Spring of 2021, President Biden's Administration launched a 100-day initiative to secure our nation's critical infrastructure. The initiative focused primarily on improving cybersecurity of industrial control systems of electric utilities. The initiative represents swift, aggressive actions to confront cyber threats from adversaries who seek to compromise critical systems that are essential to U.S. national and economic security.

Secondarily, in July of 2021, the Biden Administration expanded the initiative to include natural gas pipelines. The initiative established voluntary cybersecurity goals, as well as mandatory requirements that clearly outline expectations for owners and operators of critical infrastructure. The voluntary goals and mandatory requirements are based on cybersecurity 'best practice.' Investments to meet the new mandatory obligations required a reprioritization of 2021 planned investments in various areas of Enterprise Security, Business Continuity, and Disaster Recovery. Furthermore, should requirements continue to change, based on ever-changing cyberthreats, further reprioritization will continue in future years.

Q. Please describe major investments in "Security" – Cyber and Physical Security, Business Continuity, and Compliance.

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, TSA, 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, business continuity, and compliance programs. Investments in "Security" primarily fall into cyber and physical security, followed by investments in business continuity and meeting new compliance requirements. Investments in "Security" included in the Company's case are shown in Table No. 1 as projects 22 through 27.

Project #22 - Enterprise Business Continuity

Q. Please describe the Company's Enterprise Business Continuity program.

A. 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. Severe storms, natural 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 dependent on data, communication networks, and computer systems. Investments under this business case focus on the Company's ability to avoid, reduce downtime, and recover from an event.

Q. How does this program benefit Avista's customers?

A. The Enterprise Business Continuity Program is to prevent the prolonged failure of any of these resources. Any prolonged failure could have a significant impact on Avista's ability to sustain gas and electric operations for its customers. The supporting business case for this program can be found in Exh. JMK-2, beginning on p. 197. The total capital investment is $171,368 in 2021 on a system basis. The Company has included a 2% offset adjustment for this project in 2022, 2023 and 2024. That adjustment for this project is included in Ms. Andrews' adjustments 4.03 and 5.09.

Project #23 - Enterprise Security

Q. Please describe the Company's Enterprise Security program.

A. 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 to ensure they are effective in preventing and detecting modern attacks.

Q. How does this program/project benefit Avista's customers?

A. Investing in physical and cyber security is a direct benefit to our customers, as it is critical to the protection of the natural gas and electric infrastructure. It is also protecting the Company's sensitive customer, employee, operating, and financial information. Unable to predict when or where the next attack will occur requires a proactive security posture to identify, protect, detect, respond, and recover from any incident type. This may include a physical breach to a Company facility, such as a construction yard or substation targeted for copper wire or precious metals that can be cashed in for recycling, or a data breach to capture sensitive customer

information or operational data critical to delivering electric and natural gas service that can be used to perpetuate future attacks on the Company or its customers. In either case, theft of a physical or cyber asset can result in unanticipated costs to remediate damages, risk the safety and reliability of the energy system, or release sensitive data that the Company stewards.

The supporting business case for this program can be found in Exh. JMK-2, beginning on p. 202. The total capital investment is $3,016,699 in 2021 on a system basis. The Company has included a 2% offset adjustment for this project in 2022, 2023 and 2024. That adjustment for this project is included in Ms. Andrews' adjustments 4.03 and 5.09.

Project #24 – Facilities & Storage Location Security

Q. Please describe the Company's Facilities & Storage Location Security program.

A. This business case maintains security at our facilities and storage locations. Security remains a concern at these locations. The 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 gas and electricity. A physical security incident at any of these locations may harm people, damage equipment, or even restrict our ability to respond to customers. Investments under this business case are prioritized based on risk to the people, equipment, and assets in each of the Company's facilities and storage locations. Company vehicles, tools, equipment, and spare parts often used to maintain our energy infrastructure and respond to emergencies may be affected without continuous investment in physical security protections at our facilities and storage locations. The total capital investment is $293,841 in 2021 on a system basis. The supporting business case for this program can be found in Exh. JMK-2, beginning on p. 208. The Company

has included a 2% offset adjustment for this project in 2022, 2023 and 2024. That adjustment for this project is included in Ms. Andrews' adjustments 4.03 and 5.09.

Project #25 – Generation, Substation & Gas Location Security

Q. Please describe the Company's Generation, Substation & Gas Location Security program.

A. 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 difficult to protect. A physical security incident at any of these locations could deny, degrade or disrupt the delivery of energy. 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 generation, substation and gas locations. Not investing in this business case can leave gaps in how Avista secures and protects its generation, substation and natural gas facilities, potentially impacting our ability to maintain system performance and reliability.

This program benefits Avista customers as the enhancements maintain and add to Avista's security posture to minimize the risks associated with physical attacks at Avista Generation, Substation and Gas Locations. The supporting business case for this program can be found in Exh. JMK-2, beginning on p. 213. The total capital investment is $2,070,675 in 2021 on a system basis. The Company has included a 2% offset adjustment for this project in 2022, 2023 and 2024. That adjustment for this project is included in Ms. Andrews' adjustments 4.03 and 5.09.

Project #26 – NERC CIP Compliance

Q. Please describe the Company's NERC CIP Compliance program.

A. Avista, as a regulated utility, is required to meet North American Electric Reliability Corporation ("NERC") Critical Infrastructure Protection ("CIP") Standards. NERC CIP standards are dynamic and change in response to the threats and risks that NERC monitors to maintain North American electric grid reliability. These changes surface as either new standards or changes to existing standards that can result in additional cyber and physical security investments to meet them. Avista's Security program works closely with NERC CIP stakeholders to recommend solutions that will meet new compliance standards.

Being compliant with NERC CIP standards benefits customers by reducing the risk of electric service interruptions associated with cyber or physical attacks. The supporting business case for this program can be found in Exh. JMK-2, beginning on p. 218. The total capital investment is $77,500 in 2021 on a system basis.

Q. Are there any direct offsetting benefits associated with this project?

A. No, there are not, as investment in this project is required for compliance purposes.

Project #27 – Payment Card Industry Compliance (PCI)

Q. Please describe the Company's Payment Card Industry Compliance Program.

A. Avista accepts credit card payments 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. PCI standards specify controls that must be in place to be compliant and accept credit

card payments. Failure to achieve and maintain compliance will result in fines and the ability to continue accepting our customers' preferred payment of choice.

The supporting business case for this program can be found in Exh. JMK-2, beginning on p. 224. This business case will sunset in 2021 with trailing costs in 2022. Similar work included in this business case will take place in the security compliance business case in 2022 and beyond. The total capital investment is $595,565 in 2021 on a system basis.

Q. Are there any direct offsets associated with this project?

A. No, there are not. This is a compliance business case and similar projects will be held under the Security Compliance business case in 2022 and beyond. Therefore, no offsets were calculated as it is a required business case.

V. 2022 -2024 PROVISIONAL SHORT-LIVED PROJECTS, LARGE DISTINCT PROJECTS, ONGOING TECHNOLOGY PROGRAMS AND MANDATORY AND COMPLIANCE PROJECTS

Q. Are you supporting the 2022-2024 capital additions as a part of your testimony in this case?

A. Yes. Table No. 2 below provides a listing of the 2022-2024 capital additions by major category in my areas of responsibility. As explained by Ms. Andrews, these projects are grouped into the following categories: (1) Short-Lived Assets; (2) Large Distinct Projects, (3) Mandatory and Compliance, and (4) Programmatic.

Table No. 2: Provisional 2022-2024 Capital Additions

WA GRC Plant Group	Project #	ET Business Case Type	Business Case	2022 TTP (System)	2023 TTP (System)	2024 TTP (System)	Exh. JMK-2 Page #
Short-Lived Assets							
	28	Enabling Technology	Basic Workplace Technology Delivery*	$ 813,479	$ 800,005	$ 800,003	3
	29	Enabling Technology	Control and Safety Network Infrastructure	1,324,039	1,282,468	1,485,787	227
	30	Enabling Technology	Data Center Compute and Storage Systems*	1,260,205	2,063,801	1,972,626	12
	31	Enabling Technology	Endpoint Compute and Productivity Systems*	3,498,321	3,416,996	5,681,768	32
	32	Enabling Technology	Enterprise Communication Systems*	1,472,733	2,482,488	2,115,997	52
	33	Enabling Technology	Enterprise Network Infrastructure	2,235,285	2,341,928	1,544,361	236
	34	Enabling Technology	ET Modernization & Operational Efficiency - Technology*	1,564,548	2,002,429	2,053,458	80
	35	Enabling Technology	Network Backbone	188,444	3,879,878	3,686,842	246
	36	Bus. & Op Application	Atlas*	1,452,641	2,948,867	2,119,113	133
	37	Bus. & Op Application	Energy Delivery Modernization & Operational Efficiency*	5,560,672	3,449,859	5,789,674	142
	38	Bus. & Op Application	Energy Resources Modernization & Operational Efficiency*	2,727,599	2,679,478	2,695,981	153
	39	Bus. & Op Application	Financial & Accounting Technology*	1,788,284	2,775,001	2,150,001	163
	40	Bus. & Op Application	Human Resources Technology*	499,529	500,002	500,000	174
	41	Bus. & Op Application	Legal & Compliance Technology*	400,015	413,072	339,598	187
	42	Bus. & Op Application	Outage Management System & Advanced Distribution Management System (OMS & ADMS)	-	10,000,000	15,000,000	256
	43	Security	Enterprise Business Continuity*	93,045	422,064	100,000	197
	44	Security	Enterprise Security*	972,340	1,137,498	1,400,499	202
	45	Security	Facilities and Storage Location Security*	210,919	489,088	345,587	208
	46	Security	Generation, Substation & Gas Location Security*	332,159	459,001	545,002	213
Total Short-Lived Assets				**$ 26,394,257**	**$ 43,543,923**	**$ 50,326,297**	
Large Distinct Projects							
	47	Enabling Technology	Digital Grid Network*	$ 2,801,323	$ 2,121,419	$ 2,461,518	22
	48	Enabling Technology	Land Mobile Radio & Real Time Communication Systems*	3,569,746	1,005,328	3,028,940	109
Total Large Distinct Projects				**$ 6,371,069**	**$ 3,126,747**	**$ 5,490,458**	
Mandatory & Compliance							
	49	Enabling Technology	High Voltage Protection (HVP) Refresh*	$ 226,712	$ 336,542	$ 190,320	100
	50	Security	Identity and Access Governance (IAG)	672,255	418,119	191,368	264
	51	Security	Security Compliance	250,001	250,001	244,774	272
Total Mandatory & Compliance				**$ 1,148,968**	**$ 1,004,662**	**$ 626,462**	
Programmatic							
	52	Enabling Technology	Enterprise & Control Network Infrastructure*	$ 3,243,307	$ -	$ -	43
	53	Enabling Technology	Environmental Control & Monitoring Systems*	1,123,937	964,347	887,389	70
	54	Enabling Technology	Fiber Network Lease Service Replacement*	1,392,970	1,687,126	1,392,938	91
	55	Enabling Technology	Technology Failed Assets*	611,563	556,208	556,198	119
Total Programmatic				**$ 6,371,777**	**$ 3,207,681**	**$ 2,836,525**	
Exh. JMK-1T Total 2022-2024 Provisional Capital Additions				**$ 40,286,071**	**$ 50,883,013**	**$ 59,279,742**	

* These Business Cases were described in detail earlier in testimony.

Q. These projects, taken as a whole, are all characterized as "provisional" in nature. What does that mean?

A. As explained by Ms. Andrews, projects for 2022 through 2024 have been characterized as provisional. First, as provisional, the Company has segregated the capital

investments into category designations discussed in the Commission's "Used and Useful Policy Statement," dated January 31, 2020 in Docket U-190531, including capital investments grouped as "Large and Distinct", "Programmatic", "Short-Lived" and "Mandatory and Compliance," for ease of review and audit. Second, "provisional" designates these capital additions as subject to final "review and refund" in a future period. Ms. Andrews discusses the Company's proposal for Provisional Reporting for capital additions, by year, for 2022 through 2024.

Q. It appears that project or program numbers 28, 30-32, 34, 36-41, 43-49 and 52-55 listed above in Table No. 2 are duplicative of projects and programs previously listed in Table No. 1, and which are fully described in the previous section of your testimony. Is that the case?

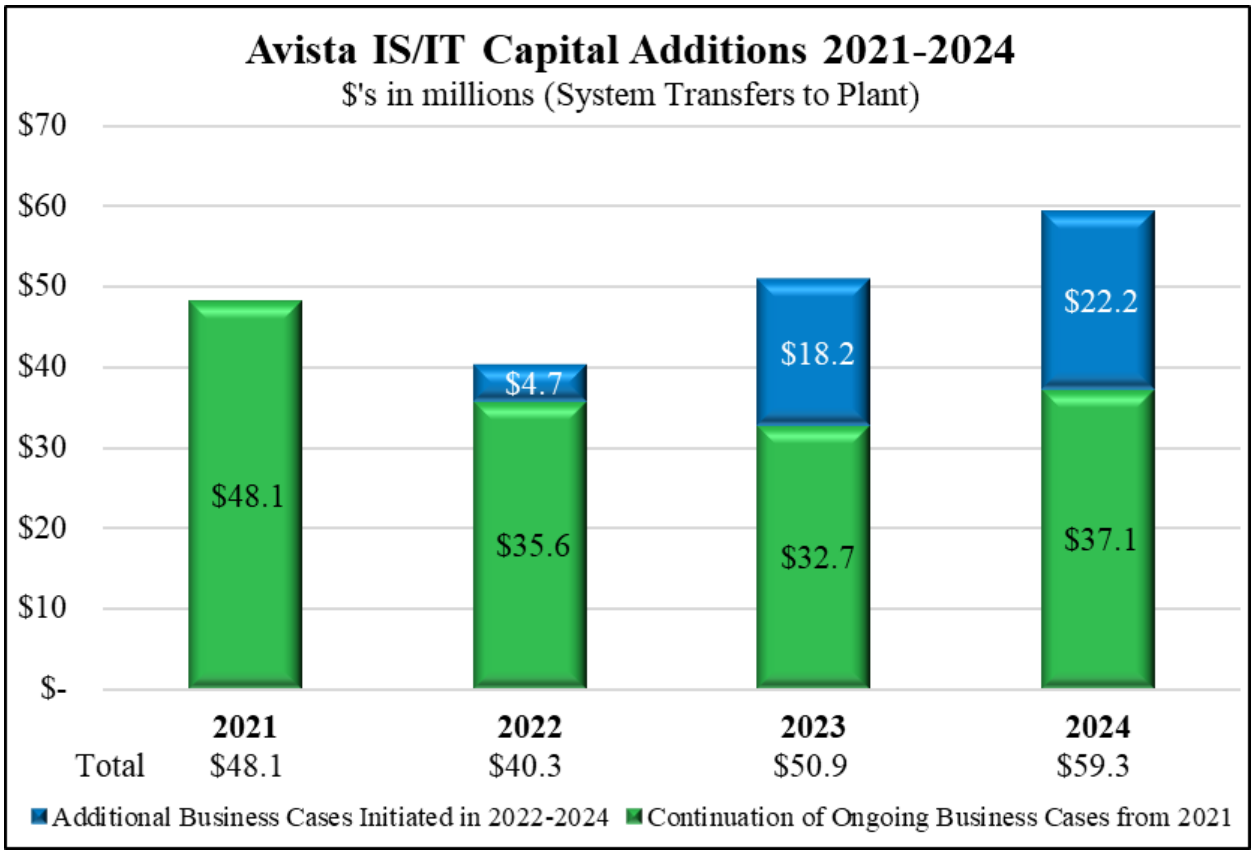
A. Yes, the above listed investments were either ongoing programs or projects that had investments in 2021, and which will continue to occur in 2022 through 2024.

Q. Is all of the support for these projects and programs in 2022 through 2024 the same as you described previously for 2021?

A. Yes, the support is the same, and therefore I will not repeat that same information for these programs in this section of testimony. For those projects not included in Table No. 1 above, and which are being introduced for 2022-2024, I will provide a brief description of each project below.

The following illustration portrays the IS/IT Capital Investment from 2021 through 2024 included in this case, distinguishing between what are ongoing projects from 2021, and new projects introduced in 2022-2024.

Illustration No. 3 – IS/IT Plant Investment (System Transfers to Plant)



As you can see from this illustration, most of the capital investment relates to ongoing, multi-year efforts that continue over time, at various funding levels. The rationale and justification for these ongoing projects, however, does not change over time, only the funding levels. New incremental projects are highlighted below.

Q. Is the Company proposing that the "provisional" capital projects for 2022 through 2024 receive their final review in this case?

A. No, it is not. As discussed by Company witness Ms. Andrews, the provisional capital for 2022 through 2024 will be finally reviewed annually, beginning in 2023, in accordance with the process outline by her.

Q. Before describing the 2022-2024 capital projects that you sponsor in your

testimony, in general, has the Company applied offsets against the projects you discuss below?

A. Yes, as discussed earlier in my testimony, the Company included an offsets adjustment sponsored by Ms. Andrews. This adjustment incorporates either direct offsets calculated for business cases, or an efficiency adjustment if applicable.

Q. Turning back to Table No. 2, please describe those projects which were not described previously in your testimony.

A. Certainly. The following projects are classified as Short-Lived Assets during the provisional period of 2022 through 2024.

Project #29 – Control and Safety Network Infrastructure (Enabling Technology) – ($1,324,039 in 2022, $1,282,468 in 2023, and $1,485,787 in 2024): The Control and Safety Network Infrastructure business case invests in network assets that deliver reliable network communication solutions that allow Avista to manage and operate our electric grid assets, gas network assets and safety communication systems. 2022 projects include investments in Advanced Metering network infrastructure enhancements, replacing end of life assets that mitigate cyber and network security risks on the very networks that allow Avista to operate and control our generation assets, and refreshing legacy end-of-life network equipment that meets compliance requirements for field worker communications. The supporting business case for this program can be found in Exh. JMK-2, beginning on p. 227.

Project #33 – Enterprise Network Infrastructure (Enabling Technology) – ($2,235,285 in 2022, $2,341,928 in 2023, and $1,544,361 in 2024): The Enterprise Network Infrastructure

business case invests in network assets that deliver network capacity and reliability for day to day enterprise business productivity and back office system traffic. These investments deliver the enterprise network infrastructure that serve access to data from one endpoint, system and/or user to another. 2022 projects include investment in a new network impact analysis solution that allows us to optimize and baseline our network load and capacity; and investments that remove cyber risks from our network by replacing end of life assets that carry and serve enterprise network traffic at remote office sites, substations, district offices and generation plants; investments that replace end of life enterprise network traffic load balancing solutions. The supporting business case for this program can be found in Exh. JMK-2, beginning on p. 236.

Project #35 – Network Backbone Infrastructure (Enabling Technology) – ($188,444 in 2022, $3,879,878 in 2023, and $3,686,842 in 2024): The Network Backbone Infrastructure business case invests in network assets that deliver and expand data and communication transport networks in support of system reliability and business productivity for Avista. This network backbone infrastructure is the transmission system to our digital network. Across Avista, we move very large amounts of enterprise, control and safety traffic types all via our network backbone infrastructures. 2022 projects include investment in legacy end of life microwave transport system assets, private fiber infrastructure investments and access points, and assets that manage the movement and prioritization of traffic over this infrastructure. The supporting business case for this program can be found in Exh. JMK-2, beginning on p. 246.

Q. When looking at Table No. 2 and the above projects #29, #33 and #35, it appears that these are new business cases for 2022. Please describe if the nature of this work

occurred in another business case in 2021.

A. Projects #29, #33 and #35 were previously included as one business case in 2021 under the Enterprise & Control Network Infrastructure (Project #52 in Table No. 2 above). The only remaining projects in Enterprise & Control Network Infrastructure in 2022, include inflight projects that have been carried over from 2021. After these projects complete, this business case will sunset going forward.

Q. Why did the Company choose to separate Project #52- Enterprise & Control Network Infrastructure business case going forward?

A. The Company chose to break apart this large business case for several reasons. The first reason was to provide more visibility into the projects and to help prioritize the projects under each functional area. In addition, even though these three business cases have similar assets they are implementing with routers, switches, microwaves, etc. they are based on functional area and align more closely with the resources completing the work.

Q. Please continue to describe those projects which were not described previously in your testimony.

A. Certainly. The last project is classified as Short-Lived Assets and Business & Operating Application Technology during the provisional period of 2022 through 2024.

Project #42 – Outage Management System & Advanced Distribution Management System (OMS & ADMS) (Business & Operating Application Technology) – ($10,000,000 in 2023, and $15,000,000 in 2024): 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 electric and gas 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. The supporting business case for this program can be found in Exh. JMK-2,

beginning on p. 256.

Q. Would you please explain the additional Mandatory and Compliance Projects included in 2022 – 2024?

A. Yes, those are provided below.

Project #50 – Identity and Access Governance (IAG) (Security) – ($672,225 in 2022, $418,119 in 2023, and $191,368 in 2024): - Avista's current Identity and Access Governance (IAG) program. IAG is a framework of business processes, policies and technologies that facilitates the management of electronic or digital identities. With an IAG framework in place, management can control user access to critical information. Avista's present system is highly manual, time consuming, cumbersome and prone to human error. This has led to consistent failures of related controls around access to systems or facilities for individuals who have either changed roles in the Company or left the Company and should no longer have previous role access. The external audit scrutiny over the continued failures of these controls has also increased. The recommended solution will implement an IAG program that includes a technical solution, as well as revise and improve processes for validating, auditing, and reporting system privileges for individuals across the Company. The IAG program will create role-based profiles, define system privileges, automate access management, and facilitate regular user access review and validation. This solution will benefit Avista and its customers by adhering to the security principle of 'least privilege', whereby individuals are limited access only to information and resources necessary to perform their current and intended job functions. It also reduces the risk associated with individuals having broad access to systems or to facilities their roles no longer require. The supporting business case for this

program can be found in Exh. JMK-2, beginning on p. 264.

Project #51 – Security Compliance (Security)- – ($250,001 in 2022, $250,001 in 2023, and $244,744 in 2024): This business case was originally titled NERC CIP Compliance (as described under Project #26, in Table No. 1). It was focused on the cyber and physical security investments needed to meet new NERC CIP standards. In response to various compliance agencies requiring updates or improvements to Avista's cyber and physical security, the Company determined that a broader scope was necessary to achieve and maintain NERC CIP, Western Electricity Coordinating Council (WECC), Transportation Security Administration (TSA), Payment Card Industry (PCI), Federal Energy Regulatory Commission (FERC), and other emerging security compliance-driven requirements. Being compliant with industry standards and government agency mandates benefits customers by reducing the risk of electric and gas service interruptions associated with cyber or physical attacks. Not being compliant is not a viable alternative, as it puts Avista's cyber and physical security posture at risk. The supporting business case for this program can be found in Exh. JMK-2, beginning on p. 272.

Q. Are there any direct offsets associated with these project?

A. The Company has included a 2% efficiency adjustment for these projects in 2022, 2023 and 2024, and those have been included in Ms. Andrews' adjustments 4.03 and 5.09. The only project that does not have an efficiency adjustment is Project #51, Security Compliance, as investment in this project is required for compliance purposes.

Q. Does this conclude the provisional 2022 through 2024 capital additions included in the Company's case for your areas of responsibility?

A. Yes, it does.

VI. IS/IT OPERATING AND MAINTENANCE EXPENSES

Q. Please describe the general make-up of IS/IT Operating & Maintenance (O&M) costs.

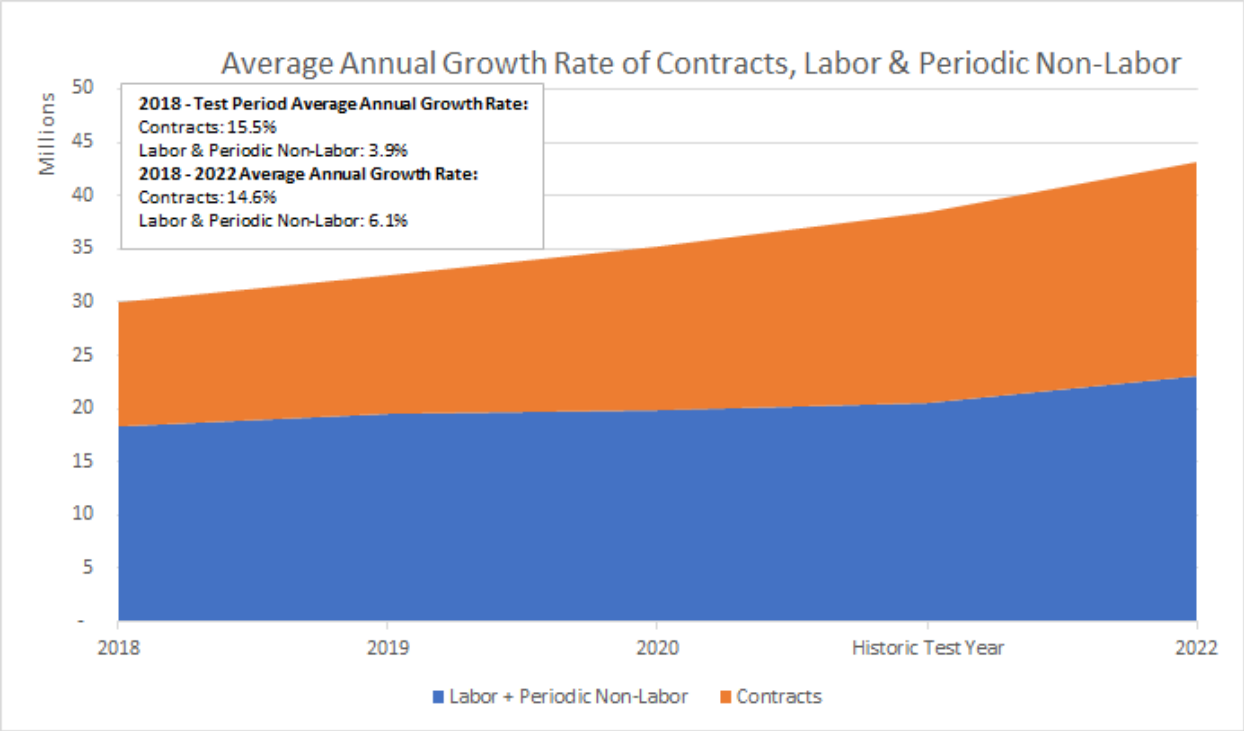
A. IS/IT O&M consists of centralized expense for labor and non-labor security, information services and technology expenses primarily driven by increasing trends of software vendors changing how they license and deliver software solutions, and by capital investment across all areas of the company, including Energy Delivery, Energy Resources, Customer, HR, Finance, IS/IT, etc. In general, for any investment the Company makes that is enabled, supported, or secured by technology and requires ongoing licensing, maintenance and support, those expenses will be centralized in IS/IT O&M. The expense impact of annual and multi-year operating agreements surrounding capital investment reflects most of the overall incremental increase and are primarily driven by the digital transformation of the utility. Keeping pace with emerging technologies and taking advantage of the opportunities digital technologies provide, drive the need for the Company to convert analog information into digital form and to incorporate digital technologies into business processes and interactions with our customers and within the utility itself. Some examples of investment that support the Company's digital transformation include Project Compass, Enterprise Content Management, Customer at the Center Platform, Automated Metering Infrastructure (AMI), Human Machine Interface, Project Atlas and Enterprise Security, to name a few.

Illustration No. 4 below, displays all IS/IT O&M expense from 2018 through 2022. As discussed by Ms. Andrews, the Company has pro formed IS/IT expense using known and measurable expenses as of 2022 only, as reflective of the level of expenses in Rate Year 1 beginning December 2022. No incremental adjustment was included within the pro formed Rate

Year 2 sponsored by Ms. Andrews.

As demonstrated, IS/IT labor and periodic (typically usage-based monthly, not quarterly/annual) non-labor expenses remain relatively flat from 2018 through the test year, increasing at an annual average growth rate (AAGR) of 3.9%. During this same period, known and measurable contracts increase at an AAGR of 15.5%.[4] The addition of 2022 pro forma shifts the AAGR of labor and periodic non-labor from 3.9% to 6.1% and from 15.5% to 14.6% for known and measurable contracts. The resulting change is driven largely by the requirement to support investments as discussed in IS/IT capital testimony, as well as in non-IS/IT investments with new technology implemented as part of the solution and an increasing trend of software vendors changing how they license and deliver software solutions.

Illustration No. 4: Average Annual Growth Rate of Contracts, Labor & Periodic Non-Labor:



[4] Known and measurable contracts refer to contracts currently entered into by the Company and other parties.

Q. Please summarize the incremental IS/IT O&M expenses beyond the Company's 12 months-ended September 2021 historical test period, included in this case.

A. In Ms. Andrews' Electric and Natural Gas Pro Forma Studies, she has pro formed security, information services, and technology expenses. IS/IT has narrowed the scope of incremental expenses to known and measurable items that will be in place during the rate period beginning in December 2022. It includes incremental employee labor driven by compliance of cyber security and application patching requirements dictated by the Department of Homeland Security's (DHS) Transportation Security Administration (TSA). Also included is the non-labor impact of annual and multiyear agreements for products and services, licensing, and maintenance fees for a range of centralized information services. These incremental expenditures are necessary to support the Company's cyber and general security, emergency operations readiness, electric and natural gas facilities and operations support, and customer services.

Q. Will you please provide a summary table showing the O&M expenses pro formed by the Company in this case?

A. Yes. Please see Table No. 3 below. This table includes the incremental labor and non-labor expenses pro formed in the case, above test period levels, reflecting known and measurable 2022 expenses, representative of Rate Year 1. No incremental adjustment for Rate Year 2, above Rate Year 1 levels, is known at this time.

Table No. 3 – Total Pro Formed Expenses - Rate Year 1

Total Pro Formed Expenses	2022 Incremental	
Labor	$	469,000
Non Labor	$	2,124,678
Grand Total	**$**	**2,593,678**

Q. What is driving the increase in labor O&M expense of $469,000 in Rate Year 1?

A. There are two compliance requirements driving the increase in labor O&M, resulting in incremental labor expense for six new employees above test period levels, reflected in Rate Year 1 (and Rate Year 2). The first compliance driver is in response to the ongoing cybersecurity threat to pipeline systems. Department of Homeland Security's TSA announced the issuance of Security Directives that impact Avista and require us to implement a number of security protections. While TSA oversees natural gas, the protections are overarching and protect Avista operations as a whole. For example, the latest directive places an emphasis on vulnerability management and the time to patch a vulnerability. This is due to the uptick in the number of vulnerabilities per year and the speed at which they are exploited. As a point of reference, from 2015 to 2018 the number of vulnerabilities increased from 6,487 to 17,305, while at the same time the adaptability, sophistication, and speed at which cyber adversaries were targeting and exploiting known vulnerabilities have also increased.[5] For example, just recently (Dec. 10, 2021), a newly discovered vulnerability has put companies worldwide, including Avista, at risk. Hackers launched more than 1.2 million attacks on companies globally within days of the discovery. The incident response by our teams includes detecting the vulnerability in our systems, protecting our systems where it is discovered, and remedying those systems with vulnerability patches as they become available. In response to the Security Directives, Avista is having to make capital and O&M investments to comply with the directives. The capital costs will reoccur every 3-5 years and

[5] Paraphrased from "Reducing the Significant Risk of Known Exploited Vulnerabilities", Cybersecurity & Infrastructure Security Agency, November 3, 2021: https://www.cisa.gov/sites/default/files/publications/Reducing_the_Significant_Risk_of_Known_Exploited_Vulnerabilities_211103.pdf

follow the investment refresh cycle, and the O&M costs will be sustained year over year. To support this work, Avista has pro formed expense into this case related to three new (incremental) "TSA Compliance" employees.

The second compliance driver is in relation to the 2021 IBEW Labor Article 16 Negotiations for a new contract with our bargaining unit ("Negotiations"). During megotiations, numerous grievances were filed alleging infringement upon work by non-bargaining employees due to the introduction and implementation of new technology platforms that replaced legacy systems traditionally supported by bargaining unit employees. The 2021 negotiations offered an opportunity to provide a reset in the relationship and establish a path for future relations that acknowledges the skills and expertise of all areas yet enables a productive environment for the growth and development of employees and systems. These three new (incremental) bargaining unit positions will be embedded in our engineering teams to work alongside our engineers when designing and developing new technology solutions and ensure our bargaining unit employees will be adequately trained to support the new technology platforms. These new technician jobs will also be responsible for updating and maintaining our training program for the bargaining unit employees as new technology platforms are introduced. These new positions along with changes in process and procedures will ensure the new technology platforms will have adequately trained support staff and well-maintained documentation for the full life cycle of the technology platform. This will result in an overall increase in efficiency and effectiveness of the technology platform for our customers.

In this case, the O&M incremental labor costs include 6 new employee positions amounting to $469,000 annually. See Table No. 4 below for a list of the positions expected to be filled by end of Q1 2022.

Table No. 4: Pro Formed IS/IT Employees Above Test Period Levels

Driver	Role	Annual O&M Impact
TSA Compliance	Operating Technology Security Engineer	$ 60,000
TSA Compliance	Distributed Systems Technician	$ 65,000
TSA Compliance	Vulnerability Management Analyst	$ 118,000
Article 16 Negotiations	Network Delivery System Technician	$ 10,000
Article 16 Negotiations	Network Operations System Technician	$ 108,000
Article 16 Negotiations	Communication Operations System Technician	$ 108,000
		$ 469,000

Q. What is driving the increase in non-labor O&M expense of $2,124,678 as shown in Table No. 3 earlier?

A. The main driver is capital investment in Enabling Technology, Business & Operating Application Systems, and Enterprise Security from areas across the Company as described earlier in my testimony. As digitalization drives technology further and further into areas of the utility that traditionally were not as technology dependent, nearly all capital investment - regardless of what functional area it supports - include technology components that result in incremental increase to licensing, support and maintenance expense for those systems.

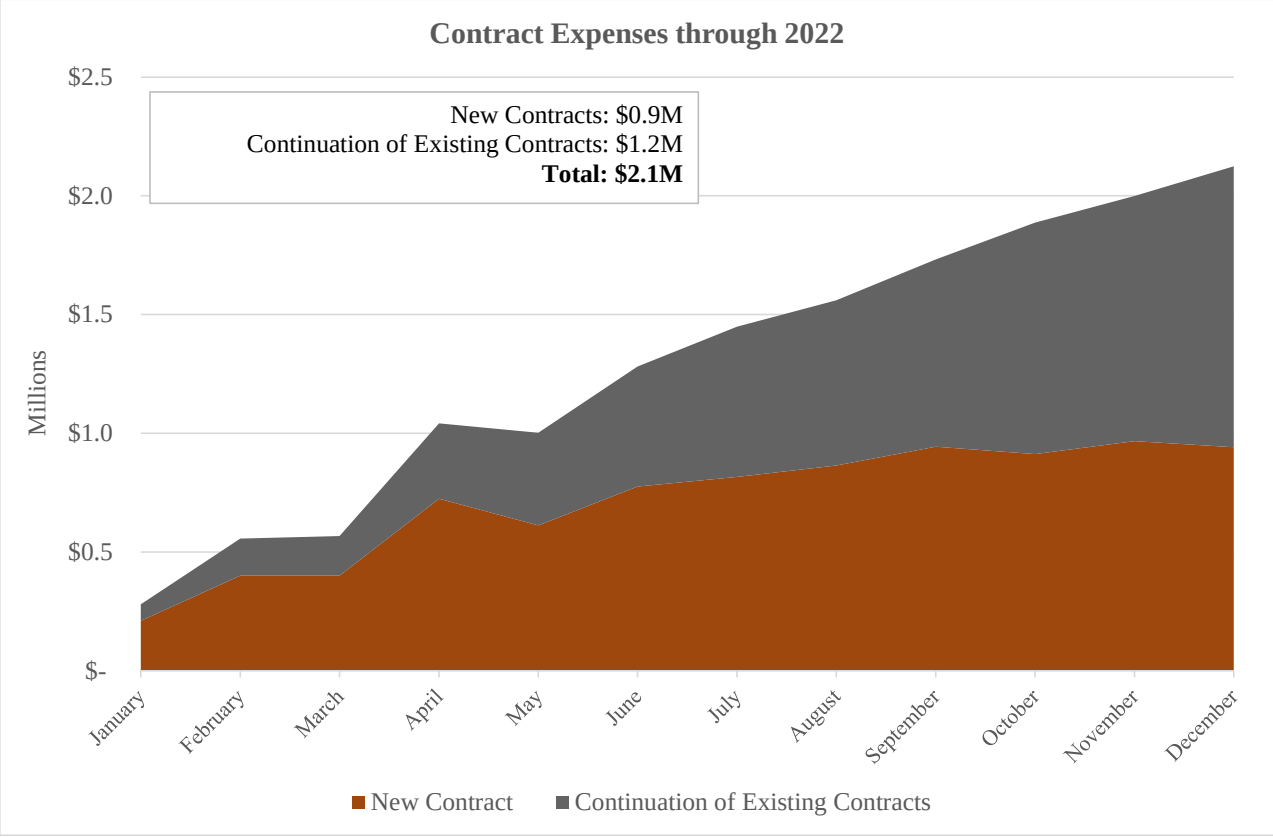
Another significant driver is the increasing trend of software vendors changing how they license and deliver software solutions; examples include a shift from a perpetual license to a subscription license, or from an on-premise solution to a cloud-based solution. In addition, software vendors regularly increase the cost of ongoing maintenance and support to keep up with the cost of enhancing, fixing and supporting their products, and to align with market driven forces such as annual consumer price index increases and inflation.

As digital transformation increases the number and complexity of systems dependent on information technology, the Company prudently negotiates annual and multi-year agreements to

normalize, control and manage IS/IT expense to the benefit of our customers. The non-labor incremental increase in this adjustment is the result of known and measurable expense from those annual and multi-year agreements currently in place or continuation of agreements expected, that have increased beyond the 12-months ended September 2021 historical test period.

Illustration No.5 below shows a picture of the incremental pro forma adjustment included in this case. In the visual below, the legend "*Contract"* represents known and measurable expense from annual and multi-year contractual agreements through 2022 and beyond. The *Continuation of Contract* label represents the continuation of known and measurable expense that will continue beyond existing contract end dates. The total of these incremental expenses pro formed by the Company for Rate Year 1, above test period levels is $2.13 million.

Illustration No. 5: Contracts and Continuations from Test Year for Rate Year 1 and 2:



These contracts are critical to the ongoing support and maintenance of the Company's Enabling, Business & Operating Application Systems and Enterprise Security systems. The breakdown of these costs are listed below in Table No. 5, representing the primary areas of growth in IS/IT O&M, as discussed above.

Table No. 5: Non-Labor Incremental System Expense (System) for Rate Year 1:*

General Tech Type	Historic Test Year	2022 Incremental
Enabling Technology	$ 4,054,582	$ 196,712
Business & Operating Application Systems	12,117,137	1,724,941
Enterprise Security	1,730,281	203,025
Grand Total	**$ 17,902,001**	**$ 2,124,678**

*No incremental adjustment for Rate Year 2, above Rate Year 1 levels, is known at this time.

Q. What are the primary types of incremental IS/IT non-labor O&M expense?

A. The primary types of incremental non-labor O&M expenses include Hardware and Software License support and maintenance, and Software Services and Subscriptions. Hardware and Software License support and maintenance are costs associated with a traditional licensing model where a capital asset license is purchased along with the required license support and maintenance costs. Support and maintenance costs are the ongoing expense portion associated with vendor provided security patches, bug fixes, incremental upgrades, and expert technical support with pre-determined service level agreements. Software Services and Subscriptions are costs associated with a less traditional but increasingly more common licensing model where all or most of the license cost is considered ongoing expense, rather than a capital asset. Examples include items like Software as a Service (SaaS), data feeds, or site license subscriptions. Costs in this category range from solutions that enable or supplement on premise systems, to complete end-to-end solutions (infrastructure, networks, computing, storage, hosting, etc.) with little to no on-premise footprint. The incremental expenses included in this case, on a system basis, are re-

categorized and shown by general cost types below in Table No. 6:

Table No. 6: Non-Labor O&M (System)

General Cost Types	Historic Test Year	2022 Incremental
Dedicated Voice and Data Circuits	$ 81,035	$ 5,716
Hardware License Support	1,263,768	57,106
Professional Services	683,105	(4,035)
Radio Tower Site Leases	266,613	(2,415)
Rental Expense Equipment	102,055	(102,055)
Software License Support	8,747,967	786,251
Software Licenses and Subscriptions	6,722,046	1,419,522
Misc Services	35,413	(35,413)
Grand Total	**$ 17,902,001**	**$ 2,124,678**

As shown in Table No. 6, above, the total incremental IS/IT non-labor O&M expenses included in this general rate case above test period levels is approximately is approximately $2.1 million. The net effect of the labor and non-labor IS/IT expenses, as discussed above in Table Nos. 4 and 6, total approximately $2.6 million on a system basis, or $1.26 million allocated to Washington electric operations and $0.37 million allocated to Washington natural gas operations, as discussed by Ms. Andrews in Exh. EMA-1T, and shown in Exh. EMA-2 (electric) and Exh. EMA-3 (natural gas).

Q. Are IS/IT capital projects the only driver of incremental IS/IT O&M expense?

A. No. As described earlier in my testimony, information technology is prevalent throughout the utility and underpins most of the modern business and operating systems as a result of the digital transformation of the utility.

Q. Provide an example of a non-IS/IT driven capital investment that is driving incremental IS/IT O&M expense.

A. The Customer at the Center Platform is an initiative that consists of three program investment areas: Customer Experience Platform (CXP), Customer Facing Technology, and Customer Transactional Systems. These programs are described in further detail in Mr.

Magalsky's testimony as it is related to the Customer at the Center program. While components of Customer Facing Technology have been in service for several years and drive incremental IS/IT expense, more recently CXP and Customer Transactional Systems investments have gone into service in phases starting from 2018 through today and will continue. These non-IS/IT investments have driven increases in current and pro-formed IS/IT expense.

Q. Describe the incremental IS/IT O&M expense driven by the Customer at the Center Platform investments.

A. The Customer Experience Platform is built upon a cloud computing offering from Salesforce. Salesforce is an industry leading Customer Relationship Management (CRM) solution and is only available as a cloud computing service. The cloud computing services are billed on a per-user-per-month basis, thus resulting in an annual impact of $1.4 million as of 2021 on centralized O&M expense. This technology is enabling the business to achieve their objectives around Customer at the Center Platform, as described by Mr. Magalsky.

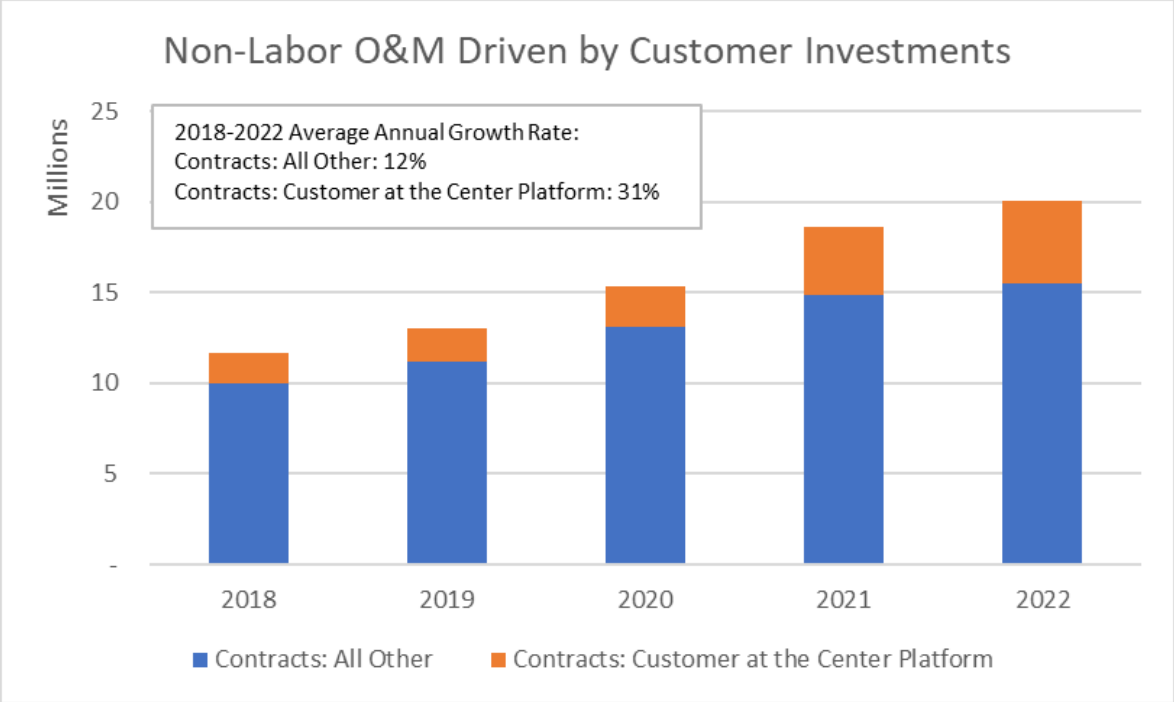
Additionally, in the Customer Facing Technology area, teams made improvements to technology for how customers report and check the status of power outages. The solution utilizes cloud computing technology to be able to meet the unpredictable demand. The costs associated with cloud computing services are split between monthly and annual billings and have resulted in a net impact of $149k in 2021 on our centralized O&M expense.

The above are a few examples of technology solutions that result in increases in our centralized O&M expenses. This is in addition to the historical software maintenance agreements, Oracle Support for our Customer Care and Billing and Meter Data Management solutions totaling $2.9 million annually, as of 2021, that have long been centralized in the IS/IT O&M expense budgets. Above are examples of increases described for 2021, although they are already reflected

in our historical test period in this case.

Illustration No. 6, below, is an example of one non-IS/IT investment area that drives IS/IT O&M. It displays the year over year change of known and measurable expense from annual and multi-year agreements demonstrating the impact of Customer at the Center Platform on all IS/IT contracts. As you can see, Customer at the Center Platform has grown at a rate more than twice that of all other IS/IT contracts.

Illustration No. 6: Non-Labor O&M Driven by Customer Investments



Q. Describe how technology system support and maintenance service contracts provide value and benefit customers.

A. Technology systems are becoming more integrated and complex as business transactions become more integrated and automated. These technology systems require regular maintenance activities to stay current on security vulnerability patching, software defect patching, and various software functionality changes. Due to the increase in complexity of these systems,

vendor support is needed to assist with root cause analysis when troubleshooting failures in the system. Without support and maintenance services for these technology systems the Company and our customers would experience longer system downtimes due to complexities of root cause analysis. In addition, the Company would be at increased risk of malicious activities in our technology systems if we did not have access to software vulnerability patches, and our ability to optimize and maintain the business value of the technology system would be degraded.

Q. How has Avista focused on managing its overall IS/IT expenses for the benefit of its customers?

A. Avista employs several approaches to regularly assess, review, and take action to manage and control IS/IT costs. One approach is through software application license acquisition, renewal, and recovery. A software analyst works in conjunction with our technical and business subject matter experts to negotiate right-sized licensing, and to review and validate the value and use of software applications to identify opportunities to reduce and remove unused license and maintenance costs prior to any renewal of software agreements.

An example of this practice from the current year occurred when ahead of the license renewal for our data analytics platform we analyzed license assignments and usage. Our team examined reporting from the platform to identify users that may not be fully leveraging the service or do not justify the assigned license cost. Additionally, we surveyed users to determine how the service was being used, and whether there was a lower cost/no cost alternative that would meet their needs.

Avista regularly evaluates all available purchasing options from our software vendors. As we approach the upcoming renewal of our Microsoft desktop business applications, we have identified an option to combine three currently licensed application suites under a single

purchasing SKU. This move is anticipated to create a cost savings of $173,052 over 3 years without any reduction in service or license entitlement. Additionally, by analyzing the available volume pricing tiers we have identified a potential opportunity to increase our licensed user count at onset of the agreement which may reduce the overall cost by an additional $78,437, while providing room for user growth over the next 3 years (and potentially reduce administrative overhead associated with processing license expansion orders).[6]

Another approach Avista takes to manage and control IS/IT costs is to identify opportunities to consider annual and multi-year agreements with software and service vendors when business needs align with the duration of the agreement. These agreements allow Avista to lock in pricing at or below current or expected market pricing, providing protection from adverse market conditions, which benefits both Avista and our customers. An additional way IS/IT looks to reduce expense over time is to seek further discounts from vendors in exchange for pre-payment of annual and multi-year agreements. Avista prudently approaches pre-payment of software agreements which are considered and agreed to when the benefits of prepayment outweigh the cost, or where the vendor requires it as part of the agreement.

Q. What are other methods Avista uses to manage its overall IS/IT expenses for the benefit of its customers?

A. Another method which has been discussed above is the use of digitalization, an industry-wide strategy that requires additional investment in IT's support capabilities. As existing and new services are digitalized, IT departments are experiencing a significant increase in workloads. Although these increasing workloads are expected, we actively work to decelerate the

[6] If during the process of the case, these contracts are renewed at a reduced cost then that included in the case, the Company will reflect Washington's share of the possible savings.

associated cost increases using automation technology and changes to our IT operating models.

In prior testimony we discussed how in 2019, IS/IT launched a multi-year effort to change the way our voice communications are deployed to our Electric and Gas Service Centers throughout our service territory. The Session Initiation Protocol (SIP) project is replacing local phone service with Voice over Internet Protocol (VoIP) service. One result of the project is cancelling the business phone service of multiple copper-based land lines (TDM circuits) in favor of delivering that phone call traffic to our service centers via our data circuits. This has resulted in cost savings from canceling the TDM circuits once the VoIP services are in place. In 2019, the project generated $57,997 in reduced expense. As an update to this long-term effort, IS/IT generated an additional reduction of $66,051 in 2020, and a further $54,069 reduction in 2021 YTD, and are reflected in the Company's test period. These reductions are a result of the project converting 24 Service Center sites to SIP and canceling TDM circuits at 18 sites throughout our service territory. Now that these calls are delivered through a centralized service and then via data circuits to these Service Centers, we have realized improved indirect benefits, in caller ID presentation, call quality improvements, and more reliable voice mail delivery.

Other examples of practices to manage and control IS/IT expense include training employees to use mobile devices to scan documents and temper investment in printing/scanning technology, and working with our Supply Chain department to negotiate volume rebates ($257,250 in discounts from 2020 across capital and expense projects), and early pay discounts ($160,181 in discounts from 2020, and $130,741 in 2021 through October, across capital and expense projects) for technology products and services procured each year.

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

A. Yes.