Exhibit No. __(KKS-1T)

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

DOCKET NO. UE-16_______

DOCKET NO. UG-16_______

DIRECT TESTIMONY OF

KAREN K. SCHUH

REPRESENTING AVISTA CORPORATION

I. INTRODUCTION

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

A. My name is Karen K. Schuh. I am employed by Avista Corporation as a Senior Regulatory Analyst in the State and Federal Regulation Department. My business address is 1411 East Mission, Spokane, Washington.

Q. Please briefly describe your educational background and professional experience.

A. I graduated from Eastern Washington University in 1999 with a Bachelor of Arts Degree in Business Administration, majoring in Accounting. After spending six years in the public accounting sector, I joined Avista in January of 2006. Since 2006, I have worked in various positions within the Company in the Finance Department (Plant Accounting and Resource Accounting) and joined the State and Federal Regulation Department as a Regulatory Analyst in 2008. Currently, as a Senior Regulatory Analyst, I am responsible for, among other things, preparing the capital pro forma and cross check adjustments in determination of revenue requirements for all jurisdictions.

Q. What is the scope of your testimony?

A. My testimony and exhibits in this proceeding will cover the Company's capital investments in utility plant from September 30, 2015 through June 30, 2018, which includes the Company's proposal for an 18-month rate plan, further discussed by Company witness Mr. Morris. As explained by Company witness Ms. Andrews, the Company is basing its electric and natural gas revenue increase requested in this case on its electric and natural gas Attrition Studies. However, as explained by Company witness Ms. Smith, the Company is also presenting a traditional electric Pro Forma Study using modified historical test period results with limited, pro forma adjustments, (modified test year Pro Forma) including Washington's share of certain capital projects I have described later in my testimony. I am also presenting explanation and documentation supporting general plant, enterprise technology plant, natural gas distribution plant and other plant additions that are incorporated into Ms. Smith's 2017 Pro Forma and Cross Check Studies, as well as the Company's Cross Check Studies for the January - June 2018 six-month period.

A table of contents for my testimony is as follows:

Q. Are you sponsoring any exhibits?

A. Yes. I am sponsoring Exhibit Nos. __(KKS-2) through (KKS-7) which were prepared by me or under my direction, and have been included to provide supporting information for the capital investment described in this testimony. Exhibit No.__(KKS-2) shows actual and planned capital expenditures from 2011 through 2020. Exhibit No.__(KKS-3) depicts the increases in costs of transmission substations, transmission equipment, distribution substations, and distribution equipment that the utility industry has experienced over the past fifty years. Exhibit No. __(KKS-4) lists and describes the capital projects included in this case. Exhibit No. __(KKS-5) includes business cases, cover sheets and other project justification information relating to each of the projects included in this case. Exhibit Nos.__(KKS-6) and __(KKS-7) represent the last two capital progress reports that the Company filed with the Commission in March of 2015 and September of 2015.

II. CAPITAL ADDITIONS FROM SEPTEMBER 30, 2015 THROUGH JUNE 30, 2018

Q. Please summarize the three electric and natural gas studies the Company proposed for this case, including, (1) modified test year Pro Forma Studies, (2) the Cross Check Studies, and (3) the Attrition Studies?

A. As discussed by Ms. Andrews, the Company prepared its modified test year Pro Forma Studies in response to the recent Commission Order 05, where the Commission states:

> "In a rate proceeding with claims of attrition-related earnings erosion, it is necessary to first develop a modified test year upon which the addition of an attrition adjustment may be considered."[1]

The Company used the thresholds defined in Order 05 of one-half of one percent of the Company's rate base (i.e., above $6.3 million for electric and $1.17 million for natural gas) to determine the capital additions included in the modified test year Pro Forma Studies.

The Company prepared Cross Check Studies, as it has in prior years, in order to provide separate analyses to compare with the Company's electric and natural gas Attrition Studies. The Cross Check Studies incorporate all capital additions that are expected to be in

[1] Docket Nos. UE-150204 and UG-150205 *(consolidated)*, page 16, paragraph 35.

service during the 2017 rate year and the January – June 2018 rate period on an AMA basis.[2] The Cross Check Studies provide revenue requirement results that can be used to determine the reasonableness of the results from the Attrition Studies.

Q. How were the capital additions developed for each of these studies?

A. Avista started with rate base for the historical test year, which, for this case, is the average-of-monthly-averages ("AMA") for the twelve months ended September 30, 2015. Adjustments were made to include actual additions for the period October 1, 2015 through December 31, 2015 on an AMA basis, together with the associated accumulated depreciation ("AD") and accumulated deferred federal income taxes ("ADFIT")[3/4]. These adjustments include annualizing the associated depreciation expense on the plant-in-service at September 30, 2015 and for actual additions through December 31, 2015. These adjustments were made to determine rate base at for 2015 on an AMA basis, which reflects the most recent historical period information.

The Company then reviewed the planned capital projects for 2016 and determined a threshold for the electric and natural gas modified test year Pro Forma Studies capital projects according to the Company's most recent Commission Order 05.[5] The Company has identified

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[2] Capital investment related to customer growth beyond September 30, 2015 was excluded from the Pro Forma studies and Cross Check studies as explained later.

[3] The revenue-producing capital for the period ended September 30, 2015, was adjusted separately to a December 31, 2015 AMA basis in Ms. Andrews Attrition Analysis as shown in Exhibit Nos.___(EMA-2) and (EMA-3), because the Attrition Analysis reflects the growth in customers and growth in revenue from the test year to the rate year. The revenue-producing distribution plant for the twelve-months-ended September 30, 2015 capital additions for the Pro Forma and Cross Check Studies was not adjusted for customer growth beyond the test period, because the Pro Forma and Cross Check Studies do not include growth in customers and revenue beyond the historical test year.

[4] For each of the periods October-December 2015, as well as 2016, 2017 and six months ended June 2018, distribution-related capital expenditures associated with connecting new customers to the Company's system were excluded. The Pro Forma and Cross Check Studies do not include the increase in revenues from growth in the number of customers from the historical test year to the 2017 and 6 months ended June 2018 rate year, and therefore, the growth in plant investment associated with customer growth should also be excluded.

[5] Docket Nos. UE-150204 and UG-150205 (Consolidated), Order 05, Paragraph 39 and 40.

Pro Forma projects that are one-half of one percent of the Company's rate base (i.e., above $6.3 million for electric and $1.17 million for natural gas).

The remaining planned capital projects below the threshold for 2016 were included in the Cross Check Studies for 2016, together with the associated AD and ADFIT ona 2016 AMA basis. This includes associated depreciation expense for the capital additions. The associated ADFIT includes repairs and bonus tax depreciation expected through 2016 on an AMA basis[6]. These specific capital additions are identified later in my testimony. In addition, the plant-in-service for 2015 AMA was adjusted to a 2016 AMA basis.

Additionally, my testimony also includes 2017 capital additions[7] for the Cross Check studies, together with the associated AD and ADFIT on a 2017 AMA basis. This includes associated depreciation expense for the capital additions. The associated ADFIT includes repairs and bonus tax depreciation expected through 2017 on an AMA basis[8]. These specific capital additions are identified later in my testimony. In addition, the plant-in-service at December 31, 2016 AMA was adjusted to a 2017 AMA basis.

Finally, my testimony also includes capital additions[9] for the January – June 2018 six-month period for the Cross Check studies, together with the associated AD and ADFIT. This includes associated depreciation expense for the capital additions. The associated ADFIT includes repairs and bonus tax depreciation for January - June 2018 on an AMA basis[10]. These specific capital additions are identified later in my testimony. In addition, the plant-in-service at for 2017 AMA was adjusted to a January - June 2018 AMA basis. Tables depicting the

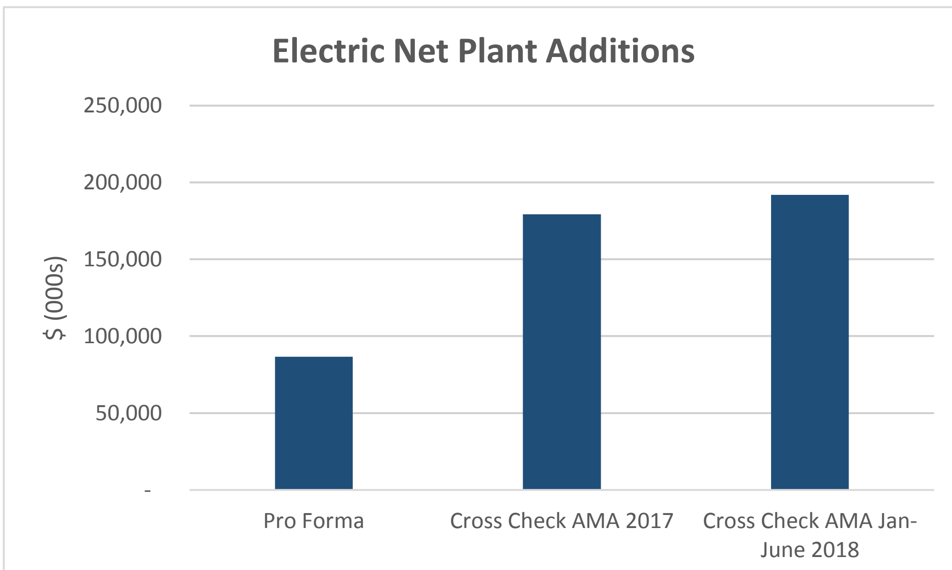
[6] The IRS extended bonus depreciation through 2019. The Company has included the appropriate levels of bonus depreciation in accordance with this for the years 2016- June 30, 2018.
[7] Id footnote 2
[8] Id. Footnote 5.
[9] Id. footnote 2
[10] Id. Footnote 5.

electric and natural gas adjustments for the Pro Forma and Cross Check studies for October 2015 through June 30, 2018 are shown later in my testimony at Tables 7 through 10.

Q. How did the results of the modified test year Pro Forma Studies and the Cross Check Studies compare?

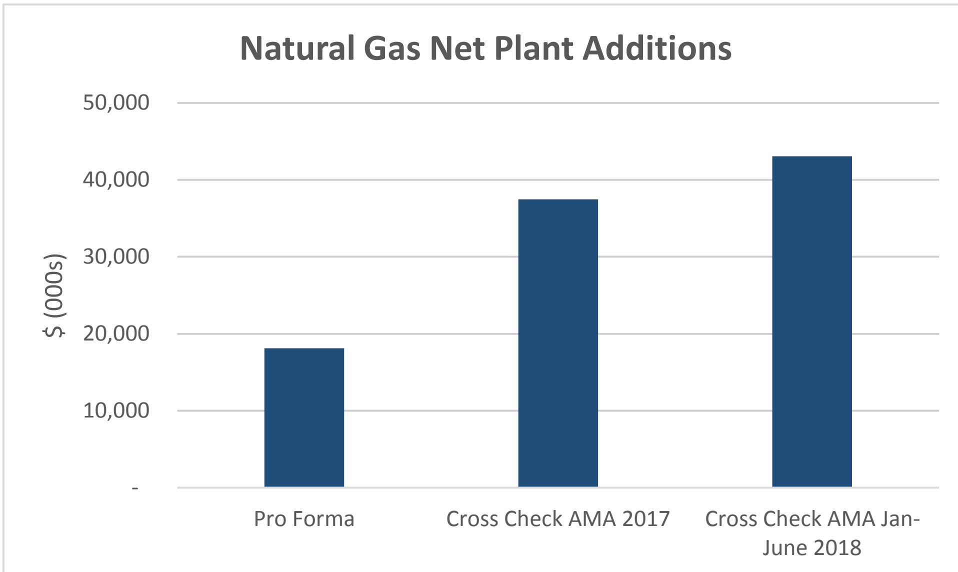
A. The chart below shows the relationship of the electric net plant additions when comparing the electric modified test year Pro Forma Study and the Cross Check Study.

Illustration No. 1:



The following illustration shows a similar comparison for natural gas net plant adjustments:

Illustration No. 2:



These illustrations show that the modified test year Pro Forma net plant adjustments, fall well below the Company's Cross Check adjustments to arrive at plant-in-service during the 2017 and January - June 2018 rate periods. This demonstrates that the modified test-year Pro Forma Studies do not reflect the level of rate base that will be experienced by the Company during the 2017 and January - June 2018 rate periods. This is discussed further by Ms. Smith[11] and Ms. Andrews where they compare the Pro Forma and Cross Check Studies results to the Company's Attrition Studies.

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[11]See Exhibit Nos. _(JSS-2) and _(JSS-3), pages 6-10 (Pro Forma results); 11-12 (2017 Cross Check results) and pages 13-14 (June 2018 period ending Cross Check results).

III. CAPITAL PLANNING AND REVIEW

Q. Please describe Avista's capital planning process.

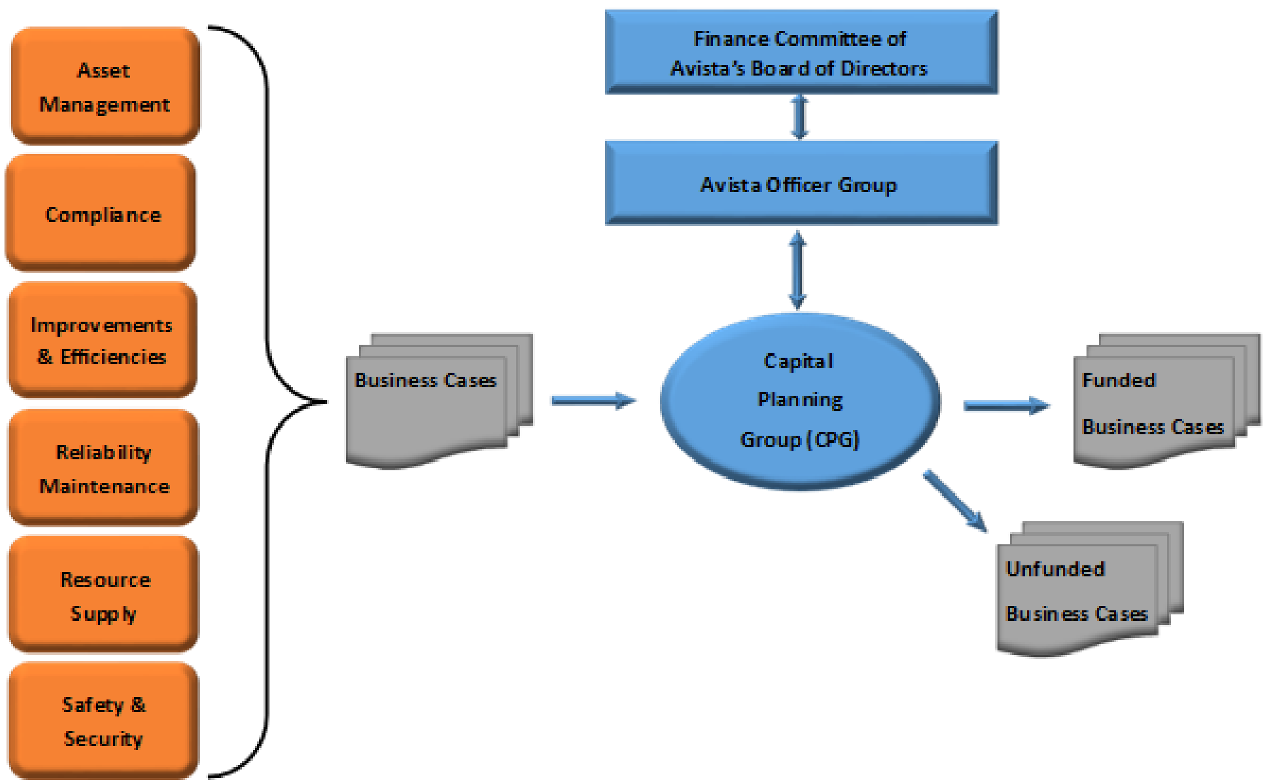
A. Avista utilizes a comprehensive capital planning and budgeting process. Capital expenditure assessment and cross-company prioritization enables the allocation of limited resources to the highest impact projects and programs. The Company also employs a systematic review process to adjust course as required. The capital planning and budgeting process at Avista begins with engineers and subject matter experts performing studies and gathering data about our assets to determine the type and level of work that is needed to keep our system operating in a safe, reliable and efficient manner. The identified work is then prioritized at the department level for the ensuing five-year period. For each project or program that meets the departmental screening, a business case is completed and submitted for consideration of funding. A business case is a summary document that provides a description of the capital project or program as well as additional information and support. Components of a business case generally include: the project description, project alternatives, cost summary, an assessment score, justification for the project (e.g., mandatory, resource requirements, etc.), milestones, and key performance indicators. The assessment score is comprised of a business risk assessment with a risk analysis using mitigated enterprise risk management definitions, a financial assessment focusing on customer internal rate of return (IRR) as the key proxy for attractiveness, a strategic assessment which is a dimension aimed at evaluating alignment with corporate initiatives, and project/program risk to quantify the level of certainty around the projected costs and timeline. The assessment score is one data point that is considered when prioritizing capital funding. Other considerations include, but are not limited to, the availability/utilization of crews, compliance requirements, work efficiency, safety, reliability, and partial funding versus an "all or nothing" approach. Business cases, cover sheets and other project justification information relating to each of the projects included in this rate case filing, have been provided in Exhibit No. ___(KKS-5).

Completed business cases are submitted to the Capital Planning Group ("CPG"). The CPG is a group of internal director level employees that represent the capital intensive areas of the Company. The CPG meets monthly to review the submitted business cases and prioritize funding to limit the total capital spending to the level set by Company officers. Due to the large amount of funding requests and the limitation of the capital budget, some program requests are scaled back, some projects may not get funding, and some activities may be deferred or delayed.

Once funding is prioritized for the coming five-year period, the CPG meets with Company officers to review all business case submissions and the funding prioritization. The Company officers provide feedback and ultimately approve a capital budget that is then reviewed with the Finance Committee of the Board of Directors ("FC") for their approval of the spending for the first year of the five-year plan. The five-year capital plan is reviewed with the FC to keep them apprised of the longer-term capital spending plan. The status of the planned versus actual capital spend is reviewed with the FC at least twice a year in accordance with their calendar of reviews and actionable items.

During the year, the CPG meets monthly to review the status of the capital projects and programs, and approve or decline new business cases and spending adjustments to current projects and programs as well as monitoring the overall capital spend. As a result of the constrained capital spend level, capital projects must be prioritized so that the dollars flow where they are most needed. As unexpected, high-priority capital projects arise, the capital projects for the year must be reprioritized to limit the total spend to the amount established by the Company and approved by the FC. This can cause some projects to be delayed so that higher-priority projects can be completed.[12] Indeed, there were $54 million of unfunded projects in 2013, and $55 million of unfunded projects in 2014. The following flow chart (also appearing in Mr. Thies' testimony) depicts the capital planning process described above.

Illustration No. 3:



Q. What actions are being taken to provide continuous improvement to the capital planning process?

[12] If circumstances indicate the capital spend for a year will exceed the level previously approved by the Finance Committee of the Board, the additional capital spend is presented to the Finance Committee for approval.

A. A group of employees with financial and operational knowledge have been directed to review each submitted business case for completeness and validity prior to the request being submitted to the CPG for approval. In order to allow for ample time to review business case funding submissions, a strict adherence to submission deadlines has been adopted. Prior to submittal to the CPG for funding decisions, each business case will be required to have director level support to ensure that department level prioritization has occurred. Additional improvements will come through educating project and program managers on the importance of accurately planning the monthly capital spend and transfers to plant. Further, the business case document will be refined as the capital planning process continues to mature and develop, and the Company will have a continued focus on project management best practices.

Q. What is driving the significant investment in new utility plant?

A. As Company witnesses Mr. Thies, Ms. Rosentrater, Mr. Kinney and Mr. Cox explain in their testimony, it is necessary to add or upgrade generation facilities and expand transmission and distribution facilities, due in part to asset management programs, compliance with state and federal requirements, improvements and efficiencies, reliability, maintenance, resource supply, and safety and security.

A significant factor in the growth in net plant investment or rate base is the cost today of new utility equipment and facilities, as compared to the cost of the older facilities that are now being replaced. Some of the facilities we are replacing or upgrading were installed 40-60 years ago, or even before that time. The cost to replace these facilities today is many times more expensive than when they were installed decades ago.

Q. What data is available that depicts the increase in the cost of utility plant assets that have been added in recent years, as compared to the cost of the facilities being replaced?

A. The Handy-Whitman Index Manual[13] provides cost comparison information over time for several major categories of plant. Exhibit No. ___(KKS-3) depicts the increases in costs of transmission substations, transmission equipment, distribution substations, and distribution equipment that the utility industry has experienced over the past fifty years. These charts show what these categories of plant have cost historically on a relative scale. For example, on Page 4 of Exhibit No. ___(KKS-3), and also shown in Illustration No. 4 below, distribution poles (FERC Account 361) fifty years ago would have a cost of approximately 9% - 10% of the current replacement cost.

[13] "The Handy-Whitman Index of Public Utility Construction Costs", is published by Whitman, Requardt and Associates, Baltimore, Maryland, published in May 2015. The Handy-Whitman Indices of Public Utility Construction Costs show the level of costs for different types of utility construction. Separate indices are maintained for general items of construction, such as reinforced concrete, and specific items of material or equipment, such as pipe or turbo-generators. Handy-Whitman Index numbers are used to trend earlier valuations and original cost at prices prevailing at a certain date.

<u>Illustration No. 4:</u>

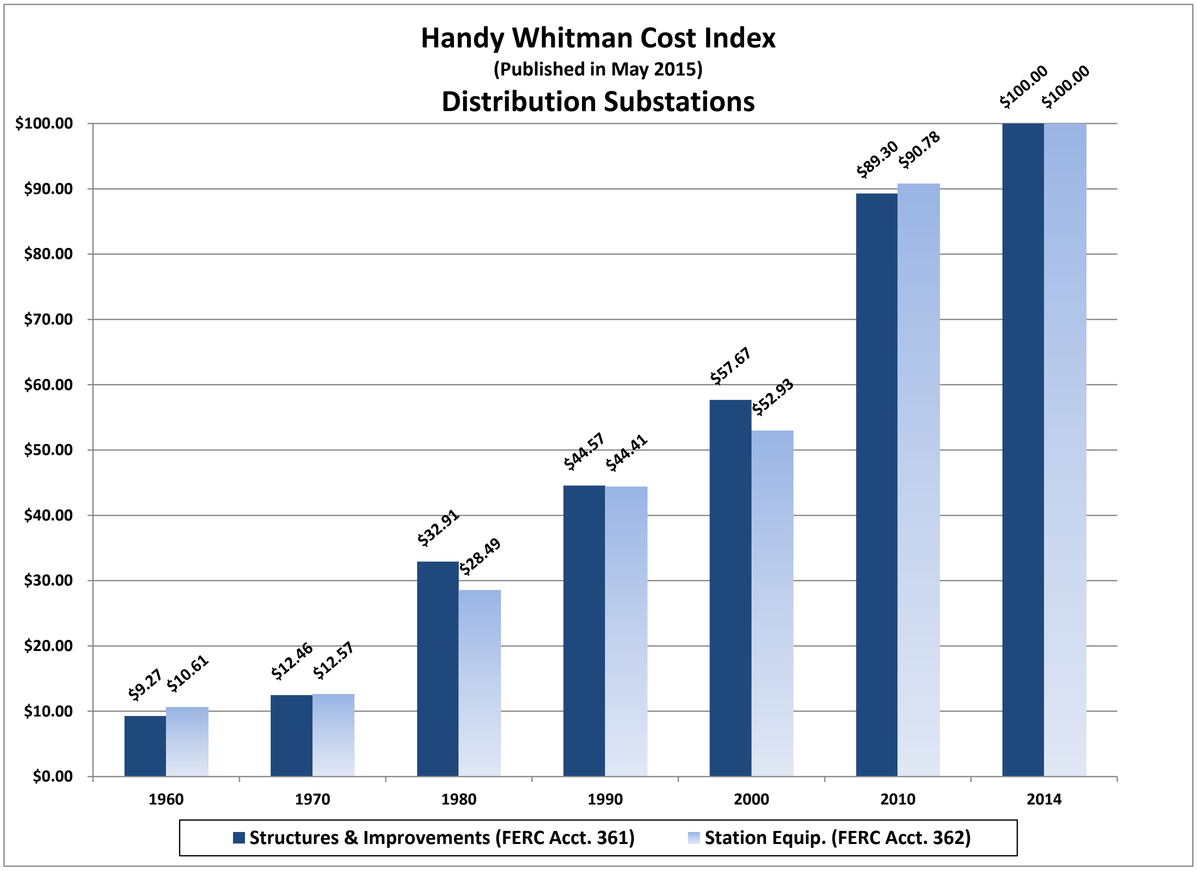


Illustration No. 4 above and Exhibit No. ___(KKS-3), show that the cost of the equipment and facilities that are being added today are many times more expensive than those same facilities installed in the past. Our retail rates are "cost-based" and reflect the low cost of the old equipment serving customers. When the equipment is replaced, it requires an increase in rates to reflect the much higher cost of the new equipment.

Q. With respect to Avista's capital additions through 2016 included in the Pro Forma Studies, would there be operation and maintenance (O&M) savings associated with the replacement of some of the aging equipment?

A. Yes. In some instances there will be a reduction to O&M associated with the investment, and O&M cost savings have been identified and reflected in this filing. However, on a net basis, we will continue to experience increased O&M costs to maintain a system that continues to age. Our general practice is to attempt to replace our aging equipment before it fails, because it is not only less costly to replace this equipment on a systematic, planned basis, but it also results in more reliable service to customers, which is expected by all utility stakeholders. If our practice were to avoid replacing utility equipment until it failed, the reliability of our system would suffer.

Therefore, it is imperative that we continue every year to reinvest and upgrade a portion of our utility system, in addition to the investments needed to meet mandatory reliability requirements. The reinvestment and upgrades actually serve, to a large extent, to slow the growth of annual O&M costs, but does not result in a year-over-year reduction to overall O&M costs.

IV. CAPITAL ADDITIONS DETAIL

Q. Please provide a summary of the capital projects for 2016 through June 30, 2018.

A. Exhibit No.__(KKS-4), details the system-level capital projects that were, or will be, transferred to plant from January 1, 2016 through June 30, 2018. A listing and/or description of the capital projects and their system costs is provided below:

Generation:

The electric generation projects that will transfer to plant-in-service are described in detail in Mr. Kinney's direct testimony, Exhibit No.__(SJK-1T). A listing of these projects on a system basis are included in Table No. 1 below.

TABLE NO. 1

Generation / Production Capital Projects (System)

Business Case Name	2016 $(000's)	2017 $(000's)	6 Mos. Ended June 2018 $ (000's)
Modified Test Year Pro Forma Projects:			
Colstrip Thermal Capital	$ 12,292		
Cabinet Gorge Unit 1 Refurbishment	14,702		
Post Falls South Channel Replacement	14,092		
Nine Mile Rehab	73,193		
Little Falls Plant Upgrade	22,892		
	$ 137,171		
Cross Check Projects			
Spokane River License Implementation	$ 1,007	$ 17,764	$ 382
Kettle Falls Stator Rewind		7,930	
Peaking Generation	500	500	
Colstrip Thermal Capital		12,432	2,518
Cabinet Gorge Automation Replacement		2,342	
CG HED - Gantry Crane Replacement		3,500	
KF CT Control Upgrade		667	
KFGS Reverse Osmosis System	4,750		
Nine Mile Rehab		3,814	
Generation DC Supplied System Upgrade	700	1,033	
Coyote Springs LTSA	730	730	360
Noxon Station Service	1,477	1,172	118
Little Falls Plant Upgrade		11,470	4,780
Base Load Hydro	1,149	1,149	248
Regulating Hydro	5,786	3,533	883
Base Load Thermal Plant	2,200	2,200	
Clark Fork Settlement Agreement	6,093	4,226	1,226
Hydro Safety Minor Blanket	75	80	43
	$ 24,468	**$ 74,541**	**$ 10,557**
Total Planned Generation Capital Projects	**$ 161,640**	**$ 74,541**	**$ 10,557**

Electric Transmission:

The electric transmission projects that will transfer to plant-in-service are described in detail in Mr. Cox's direct testimony, Exhibit No.__(BAC-1T). A listing of these projects and system costs are included in Table No. 2 below.

TABLE NO. 2
Transmission Capital Projects (System)

Business Case Name	2016 $(000's)	2017 $(000's)	6 Mos. Ended June 2018 $ (000's)
Modified Test Year Pro Forma Projects:			
Reliability Improvements:			
Noxon Switchyard Rebuild	**$ 11,500**		
Cross Check Projects:			
Reliability Compliance Projects:			
Transmission - NERC Low Priority Mitigation	$ 1,675	$ 3,000	
Transmission - NERC Medium Priority Mitigation	2,576	1,000	
SCADA - SOO & BUCC	1,002	1,044	460
Environmental Compliance	50	50	21
Contractual Requirements:			
Tribal Permits and Settlements	314	281	126
Colstrip Transmission	568	398	216
Reliability Improvements:			
Noxon Switchyard Rebuild		6,700	
Substation - Station Rebuilds	4,260	5,640	
Westside Rebuild Phase One	2,525		
S Region Voltage Control	5,000		
SCADA Completion		1,000	2,000
Transmission - Reconductors and Rebuilds	17,559	20,830	
Spokane Valley Transmission Reinforcement	1,340	7,200	
Reliability Replacements:			
Storms	1,000	1,000	502
Substation - Capital Spares	5,200	4,565	1,515
Substation - Asset Mgmt. Capital Maintenance	4,100	4,100	1,670
Transmission - Asset Management	1,772	1,000	515
	$ 48,942	**$ 57,808**	**$ 7,025**
Total Planned Transmission Capital Projects	**$ 60,442**	**$ 57,808**	**$ 7,025**

Electric Distribution:

The electric distribution projects that will transfer to plant-in-service are described in detail in Ms. Rosentraters's direct testimony, Exhibit No.__(HLR-1T). A listing of these projects and system costs are included in Table No. 3 below.

TABLE NO. 3
Distribution Capital Projects (System)

Business Case Name	2016 $(000's)	2017 $(000's)	6 Mos. Ended June 2018 $ (000's)
Cross Check Projects:			
Meter Minor Blanket	$ 347	$ 347	$ 173
Elec Replacement/Relocation	2,750	1,670	830
Distribution Minor Rebuild	8,609	6,375	3,255
Storms	2,090	1,645	875
Primary URD Cable Replacement	200	231	190
Street Light Management	1,500	2,353	1,189
Substation - Asset Mgmt. Capital Maintenance	18	51	46
Worst Feeders	1,500	2,499	
Distribution Transformer Change-Out Program	7,654	7,354	2,603
Distribution Wood Pole Management	7,840	12,000	7,912
Substation - New Distribution Stations	2,794	275	
Washington AMI		34,420	17,025
Harrington Upgrades	2,150		
Spokane Electric Network	2,300	2,300	805
Transmission - Reconductors and Rebuilds	3,600	1,500	
Dist Grid Modernization	6,359	10,393	5,725
Segment Reconductor and FDR Tie Program	2,856	3,175	315
Distribution Line Protection	125	125	45
Environmental Compliance	350	350	150
Franchising for WSDOT	494	9	1
Hallett and White - Add Capacity*	1,000	1,725	
	$ 54,536	**$ 88,798**	**$ 41,140**

<u>General Plant:</u>

Q. Please discuss the drivers for the Company's general plant capital projects that will be completed from January 1, 2016 through June 30, 2018.

A. Avista's Facilities Department is the driver for most of the general plant capital additions in the upcoming years. They have reviewed many of Avista's physical facilities (i.e., buildings, property, etc.) and determined that in certain areas the following issues need to be addressed: customer and employee parking, material storage, employee office space, safety, the needs of the Company's Fleet Department and reducing offsite leased office space. Further, many of our service centers throughout our service territory were built between 1950 and 1970 and are now requiring extensive maintenance and capital investment as they are reaching the end, or beyond their useful life.

Q. How does Avista's Facilities Department prioritize capital projects before they are submitted to the CPG?

A. The overall process to prioritize projects in the Facilities Department is as follows: facilities managers and project managers meet and identify issues, propose solutions, and review the potential solutions for viability. Stakeholders from other areas of the Company such as Environmental, Real Estate, Operations, Supply Chain and other directly affected groups are then brought in to discuss and weigh in on the project and potential solutions. If these groups agree, then the project is presented to Facilities Management for approval. If approved, a business case is developed and presented to the CPG.

In addition, the facilities department has completed an internal building survey of all of the service centers and rated each one on its existing condition. Using this information they then met with stakeholders from Operations, Environmental, Real Estate, and other directly related decision makers and discussed the business needs in each region, taking into account current and future materials storage needs, expansion possibilities, current offsite storage yards, environmental issues, and other factors, to rate whether each site warranted capital upgrades only, or possible sale and replacement. Based on this discussion, sites were identified for possible replacement or upgrade and a capital plan was created for all other sites.

Q. Please provide a brief description of the general plant-related capital projects that are included in the Company's electric and natural gas Pro Forma Studies and those included in the Company's electric and natural gas Cross Check Studies for January 1, 2016 through June 30, 2018?

A. As shown in Table No. 4 below for 2016, the Company has included general plant projects (on a system basis) totaling $19 million for the modified test year Pro Forma Studies. The remaining general plant projects for 2016, 2017 and January - June 2018 (for the Cross Check studies) total $9.1 million, $17.6 million, and $3.0 million respectively, on a system basis. Details about these general plant-related capital projects are discussed below.

TABLE NO. 4
General Plant Capital Projects (System)

Business Case Name	2016 $(000's)	2017 $(000's)	6 Mos. Ended June 2018 $ (000's)
Modified Test Year Pro Forma Projects:			
New Downtown Netwk Bldg	$ 9,600		
COF Long-Term Restructuring Plan	9,550		
	$ 19,150		
Cross Check Projects			
New Airport Hangar		$ 1,500	
Clark Fork Engineering Building		1,089	
Apprentice Training	60	60	30
Structures and Improvements/Furniture	3,600	3,600	1,801
Capital Tools & Stores Equipment	2,400	2,400	1,200
COF LngTrm Restruct Ph2	2,991	8,979	
	$ 9,051	**$ 17,628**	**$ 3,031**
Total Planned General Plant Capital Projects	**$ 28,201**	**$ 17,628**	**$ 3,031**

The following planned general plant projects are included in the Company's modified test year Pro Forma Studies:

New Downtown Network Building– 2016: $9,600,000

This business case is to purchase a 2.32 acre lot with two existing office bldgs. This will provide a new service center for the Generation Production Substation Support (GPSS), outside operations, utilitymen, and downtown Spokane natural gas and electric crews. This project encompasses renovating one building, construction of a new 17,000 square foot warehouse, 10,000 square feet of new vehicle canopies, and approximately 20,000 square feet of new storage/parking lots. This will consolidate the downtown crews and equipment onto one site rather than several sites that are scattered around downtown Spokane, as well as provide new equipment such as overhead cranes and welding bays. In addition, the renovation of the existing 22,000 square foot building will provide additional office space for Company projects, such as the AMI project. O&M offsets occur in this business case as the Company will reduce expenses related to leased property throughout the Spokane area. Offsets are expected to be $229,000 annually beginning in 2016. Washington's portion of these offsets are $122,000 Electric and $34,000 Natural Gas. See Exhibit No.__(KKS-5), Section 2, pages 13 through 16 for business case and other information related to this project.

Central Office Facility ("COF") Long Term Campus Restructuring Plan – 2016: $9,550,000

The COF campus restructuring plan, phase one, is a two-year, multiple project plan to address material storage, field recovery operations, and office space needs. Over the past few years, our warehouse material inventory has increased and presently the materials are scattered in multiple locations in the COF, because they outgrew their allocated space. The campus restructuring will increase and consolidate their storage area, resulting in greater efficiencies for the warehouse and field crews. In addition, two new structures will be built to consolidate transformer recovery (both PCB and non-PCB), hazardous waste & material, and investment recovery (recycling) operations. This will improve the safety and efficiencies for collection of all field recovery materials, as well as provide a one-stop drop location for field crews (instead of the three different locations on the COF right now). Due to an increase in employees and a reduction in leased office space, Avista is also remodeling two existing areas in our service building that will provide approximately 30 new cubicles, meeting rooms, and offices. This will help accommodate our new growth and may allow employees in leased office space to return to the COF. O&M Offsets are anticipated to be approximately $43,000 in 2016 and $60,000 in 2017 for a total of $103,000 on a system level. Washington's allocated portion of these offsets are $81,000 Electric and $22,000 Natural Gas. See Exhibit No.__(KKS-5), Section 2, pages 1 through 4 for business case and other information related to this project.

The following projects are included in the Company's Cross Check Studies for the years 2016, 2017 and half of 2018 (For the following capital projects, see Exhibit No.__(KKS-5) for business cases supporting these projects, as well as additional support for certain projects, filed with the Company's case):

New Airport Hanger – 2017: $1,500,000

In 2017 Avista will lose the lease on its existing airport hangar. The owner is losing their lease and the hangar will be demolished. Avista will have to lease a new space or buy land and build a hangar. An additional option includes lease the property and build a hangar on the leased property in exchange for a 30 to 50 year lease.

Clark Fork Engineering Building – 2017: $1,089,000

This project is related to the Construction of engineering and operations office space at Cabinet Gorge Hydro Electric Facility for use by Plant Engineers, Plant Manager, and visiting Staff. The existing building has been converted from a former guest house, and is in poor condition, and inadequate for current needs. This building serves as our headquarters in this area.

Apprentice Training – 2016: $60,000; 2017: $60,000; January – June 2018: $30,000

This program is for on-going capital improvements to support the training needed for journeyman workers, apprentices and pre-apprentices. Capital expenditures under this program include items such as: building new facilities or expanding existing facilities, purchase of training equipment, or build out of realistic utility field infrastructure used to train employees.

Structures and Improvements/Furniture –2016: $3,600,000; 2017: $3,600,000; January – June 2018: $1,801,000

This program is for the Capital Maintenance, Improvements, and Furniture at 50 plus Avista offices and service centers (over 700,000 square feet in total). Many of the included service centers were built in the 1950's and 1960's and are starting to show signs of severe aging. The program includes capital projects in all construction disciplines (roofing, asphalt, electrical, plumbing, HVAC, energy efficiency projects etc.).

Capital Tools & Stores Equipment – 2016: $2,400,000; 2017: $2,400,000; January – June 2018: $1,200,000

This category includes equipment utilized in warehouses throughout the service territory, such as forklifts, manlifts, shelving, cutting/binding machines, etc. Expenditures in this category also include large tools and instruments used throughout the Company for natural gas and/or electric construction and maintenance work, distribution, transmission, or generation operations, telecommunications, and some fleet equipment not permanently attached to the vehicle.

Central Office Facility ("COF") Long-Term Restructure Phase 2 - 2016: $2,991,000; 2017: $8,979,000

Avista's COF Long Term Restructuring Plan, Phase 2 involves the construction of a new Fleet Vehicle Garage and four story parking structure. By the end of 2015, facilities projects will add approximately 183 new cubicles. Our parking lots are beyond maximum capacity. The Company currently leases space from Burlington Northern for employee parking. This lease space could be at risk in the future, if Burlington needs the space. The Fleet garage is over 50 years old and is constrained. The new garage will allow for maintenance of Compressed Natural Gas vehicles as the current building does not allow for this. Once Fleet is relocated, there will be a distinct separation between operational/service vehicles and employee vehicles. This separation will increase safety by eliminating intermingling of pedestrians in work areas. The office building & parking garage is projected to allow the Call Center and any leased facilities to come back to the COF. The Ross Park conversion to office space will cover any future employee expansion that will occur.

<u>Enterprise Technology:</u>

Q. Please discuss the drivers for the Company's enterprise technology projects that will be completed from January 1, 2016 through June 30, 2018.

A. The utility industry is undergoing a period of renewal, calling for technology in all areas of our business. Specific drivers that prompt capital projects during the January 2016 to June 30, 2018 time period include: (1) a transition from legacy custom-coded applications to commercial off-the-shelf solutions to increase security and reliability (i.e., outage management system), allow flexibility and scalability, and forecast system lifecycle planning, (2) continuous upgrades of Operating System and Database software to maintain vendor maintenance and support, (3) technology infrastructure investment, such as communication equipment on mountain tops and radios in fleet vehicles to increase worker safety during unplanned outages or emergency events, (4) network infrastructure efforts respond to an ever increasing demand for secure data transfer, sensor technology (i.e., plant intelligent software), reliability and redundancy.

Q. How does Avista's technology department prioritize capital projects before they are submitted to the Capital Planning Group?

A. Avista's Information Systems and Technology department uses program steering committees for project identification and prioritization. The steering committees prioritize projects using criteria such as (1) support of operational control, safety and compliance requirements, (2) customer facing and supporting solutions, and (3) maintaining back-office technology. Specifically, technology replacement projects are in alignment with roadmaps for application and technology lifecycles to provide a stable and reliable application and computing platform to allow for the safe and reliable operation of our electric and natural gas infrastructure. Technology expansion efforts anticipate growth in work requirements, strategic initiatives and technology shifts.

Q. Please provide a brief description of the enterprise technology-related capital projects that are included in the Company's Pro Forma Studies and those included in the Company's Cross Check Studies for January 1, 2016 through June 30, 2018?

A. As shown in Table No. 5 below for 2016, the Company has included enterprise technology projects (on a system basis) totaling $18 million for the modified test year Pro Forma Studies. The remaining enterprise technology capital projects for 2016, 2017 and January – June 2018 (for the Cross Check Studies) total $25.8 million, $88.5 million, and $22.9 million respectively, on a system basis. Details about these technology-related capital projects are discussed below.

TABLE NO. 5 Enterprise Technology Capital Projects (System)			
Business Case Name	**2016** **$(000's)**	**2017** **$(000's)**	**6 Mos. Ended** **June 2018** **$ (000's)**
Modified Test Year Pro Forma Projects:			
Technology Refresh to Sustain Business Process	**$ 18,001**		
Cross Check Projects:			
Mobility in the Field		$ 650	$ 400
Next Generation Radio Refresh	6,000	375	
Enterprise Security	1,360	2,500	2,200
Customer Facing Technology	286	4,000	2,000
High Voltage Protection for Substations	887		
AFM COTS Migration	3,800	11,500	
AvistaUtilities.com Redesign	5,536		
Enterprise Business Continuity Plan	664	450	225
Technology Expansion to Enable Business Process	2,742	13,700	6,975
Technology Refresh to Sustain Business Process		17,250	9,600
Microwave Refresh	4,543	4,000	1,500
WA AMI Hardware/Software/Communication		34,081	
	$ 25,816	**$ 88,506**	**$ 22,900**
Total Planned Enterprise Technology Capital Projects	**$ 43,817**	**$ 88,506**	**$ 22,900**

The following planned Enterprise Technology capital projects are included in the Company's <u>modified test year Pro Forma Studies</u>:

Technology Refresh Program – 2016: $18,001,000

The Company manages an ongoing program to systematically replace aging and obsolete technology under "refresh cycles" that are timed to optimize hardware/software system changes or industry trends. An example of technology managed under this program is the fleet of personal computers and other computing devices used by field operations, power plant operators, call centers, and our general office employees. See Exhibit No.__(KKS-5), Section 6, pages 59 through 64 for business case and other information related to this project.

The following projects are included in the Company's <u>Cross Check Studies</u> for the years 2016, 2017 and half of 2018 (For the following capital projects see Exhibit No.__(KKS-5) for business cases supporting these projects as well as additional support for certain projects, filed with the Company's case.):

Mobility in the Field - 2017: $650,000; January – June 2018: $400,000

This program is designed to increase the Company's mobility in the field using mobile devices. A Mobile Road Map Team has documented at least 30 near-term opportunities where mobile technology could be used in the field and provide substantial benefit and savings. These Mobile opportunities are planned to be completed in phases over a five-year period. Phases already complete, include 'Visibility in the Field' which enabled Gas Leak Survey and Gas Service Dispatch that provided spatial maps in the field using mobile devices. Other planned opportunities include, View GIS Layers, Multiple Maps in the Field, Gas Exposed Pipe Report, Capture Facility Data, and Damage Assessment.

The many benefits would include operations improvements to reduce compliance risk, reduce duplicate effort, more timely entry of data, along with improved tools and information in the field.

Next Generation Radio Refresh – 2016: $6,000,000; 2017: $375,000

This project is refreshing Avista's 20-year-old Land Mobile Radio system. The Company maintains this private system because no public provider is capable of supporting communications throughout our rural service territory. And, since our systems comprise a portion of our nation's critical infrastructure, Avista is required to have a communication system that will operate in the event of a disaster. This project fulfills a mandate from the Federal Communications Commission that all licensees in the Industrial/Business Radio Pool migrate to spectrum efficient narrowband technology .

Enterprise Security Program – 2016: $1,360,000; 2017: $2,500,000; January – June 2018: $2,200,000

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

<u>Cyber Security</u>

The security of our electric and natural gas infrastructure is a significant priority at a national and state level, and is of critical importance to Avista. Threats from cyber space, including viruses, phishing, and spyware, continue to test our industry's capabilities. And while these malicious intentions are often unknown, it is clear the methods are becoming more advanced and the attacks more persistent. In addition to these threats, the vulnerabilities of hardware and software systems continue to increase, especially with industrial control systems such as those supporting the delivery of energy. For these reasons, Avista must continue to advance its cyber security program and invest in security controls to prevent, detect, and respond to these increasingly frequent and sophisticated attacks.

<u>Physical Security</u>

While considerable attention is focused on cyber security, physical security also remains a concern for our industry. Physical security encompasses the aspects of employee safety and the protective security of our facilities and critical infrastructure. Acts of theft, vandalism, and sabotage of critical infrastructure not only results in property losses, but can also directly impact our ability to serve customers. Securing remote unmanned or unmonitored critical infrastructure is difficult, especially when traditional tools such as perimeter fencing by itself are not adequate. In response to these challenges, the Company has focused its resources on additional physical security protection (i.e., lighting and crash barriers), remote detection and response technology, which is creating the need for additional physical security items, expertise and technology.

Regulatory Obligations

Advancing cyber threats continue to drive change in the regulatory landscape faced by the Company. Early in 2013, President Obama issued the Executive Order "Improving Critical Infrastructure Cyber security." The Order directed the National Institute of Standards and Technology to work with stakeholders in developing a voluntary framework for reducing cyber risks to critical infrastructure. The Framework consists of standards, guidelines, and best practices to promote the protection of critical infrastructure. The Federal Energy Regulatory Commission also issued Order 791 on November 22, 2013, approving the North American Electric Reliability Corporation Critical Infrastructure Protection Standards, Version 5. Both of these activities will increase our security-related operating costs because they require the Company's security controls and processes to conform to new standards, guidelines, and best practices.

Customer Facing Technology Program – 2016: $286,000; 2017: $4,000,000; January – June 2018: $2,000,000

New technologies continue to emerge at a rapid pace. The Company has already funded the development of foundational systems that will better allow us to keep pace with customer expectations and demands, through projects such as Project Compass. Customers continue to demand a more engaging user experience and access to data and tools that are comparable to technology industry leaders. Enhancing customer engagement across digital channels and providing customers with tools and resources to effectively manage their energy use and bill payment and management, makes it easier for them to do business with Avista.

High Voltage Protection Upgrade – 2016: $887,000

Telecommunication facilities, including Phone, Communication Switches, SCADA, and Metering & Monitoring systems, are commonly co-located inside the Company's high voltage substations. This requires communications technicians to work in close association with our high-voltage electrical equipment. The Company has implemented new high-voltage protection & isolation standards designed to lower potential risks to our personnel and equipment. This project will implement the clearance changes required to meet the new standards.

AFM COTS Migration – 2016:$3,800,000; 2017: $11,500,000

Avista Facility Maintenance (AFM) is an internally developed custom application that was built by Avista to manage the electric and gas facility & equipment data. This tool was created in the early 2000's and has been used by engineering and operations for the last decade to complete construction design, manage outages, plan work, and manage locations of assets. Originally the Geographical Information System (GIS) was implemented at Avista to manage the location of gas and electric facilities with an electronic mapping system that allowed for centralization. Over time, this system became heavily integrated with the customer system of record (Customer Care and Billing), the Asset system of record, and used to report outage information to customers. At this time 100% of Avista's electric & natural gas distribution systems are mapped in GIS. The existing data is used daily to maintain and operate Avista's infrastructure and to report on system characteristics.

There are technical and business risks associated with the AFM suite that must be addressed by replacing them with new commercial solutions. Some of these risks include the cost of extending current legacy solutions, ongoing support and maintenance of the tools, asset data integrity, and the increasingly complex distribution grid that requires improved IT systems to manage effectively.

This project will take advantage of commercial tools that provide improved application functions, capabilities and reliability. Improvement of customer experience is at the core of AFM system replacement and enhancements. These new tools will enable Avista workers, office and field, to respond to customer requests faster, provide information to customers that will be more accurate, timely, complete, and improve customer experience when they interact with Avista.

AvistaUtilities.com Redesign – 2016: $5,536,000

Like many businesses today, the Company is experiencing continued growth in the use of its customer website, Avistautilities.com. The website was originally built in 2006-2007, but because the technology landscape has advanced so quickly, the site does not meet current web best practices for customer usability and security. This project will update and improve the technology, overall web usability, security and customer satisfaction. The website is part of the Company's strategy to provide customers a more effective channel to meet their expectations for self-service options, including mobile, energy efficiency education, and to drive self-service as a means to lower transaction costs.

Enterprise Business Continuity Plan - 2016: $664,000; 2017: $450,000; January – June 2018: $225,000

Avista has developed and maintains an Enterprise Business Continuity Plan (Plan) to support the Company's emergency response, and to ensure the continuity of its critical business systems under crisis conditions. The framework includes the key areas of technology recovery, alternate facilities, and overall business processes. The effort of developing and continuously improving the Plan ensures the readiness of systems, procedures, processes, and people required to support our customers and our communities any time we are required to operate under critical emergency conditions.

Technology Expansion to Enable Business Processes– 2016: $2,742,000; 2017: $13,700,000; January – June 2018: $6,975,000

This program facilitates technology growth throughout the Company, including technology expansion for the entire workforce, business process automation and increased technology to support efficient business processes. For example; when trucks are added to the fleet, communication equipment needs to be added to the truck; as the Company hosts more customer data, disk storage needs to be expanded, as customers expand their use of the website, additional computing capacity is needed.

Technology Refresh to Sustain Business Processes–2017: $17,250,000; January – June 2018: $9,600,000

A detailed description of the technology refresh program is described above in the modified test year Pro Forma section.

Microwave Refresh – 2016: $4,543,000; 2017: $4,000,000; January – June 2018: $1,500,000

The Company manages an ongoing program to systematically-replace aging and obsolete technology under "refresh cycles" that are timed to optimize hardware/software system changes. This project will replace aging microwave communications technology with current technology to provide for high speed data communications. These communication systems support relay and protection schemes of the electrical transmission system. Reducing Avista's risk of failure of these critical communication systems will have a significant impact on Avista's transmission capacity and ability to serve our customers electrical needs.

WA AMI Hardware/Software/Communication – 2017: $34,081,000

These capital additions consist of the following components:

- Metering Communications Network -A specialized and secure communication system is required to carry data and communications between the advanced meter and the utility. And while there are various options available for providing this communication linkage, it often consists of three integrated systems referred to as the Neighborhood Area Network, the Field Area Network and the Wide Area Network.
- Meter Data Collection System (Head End System) - composed of computer hardware and software applications that control and coordinate the meter communication networks.
- Meter Data Management System - includes computer hardware and software applications that store, validate, edit, and analyze the interval consumption data, as well as coordinate specified metering commands.
- Data Analytics - This component of the AMI system includes computer hardware and software applications that provide deeper analysis of the advanced metering data.

Natural Gas Distribution:

Q. Please discuss the drivers for the Company's natural gas distribution projects that will be completed from January 1, 2016 through June 30, 2018.

A. There are many drivers of the natural gas capital transfers to plant in the next few years, such as, capacity limitations on the natural gas system, system reliability, regulatory compliance, public safety and health, employee safety and health, environmental impacts, availability of labor and materials and the prioritization of projects versus other needs in the system

Q. How does Avista's Natural Gas Engineering department prioritize these capital projects before they are submitted to the CPG?

A. Natural Gas Engineering uses several tools to prioritize capital projects such as the SynerGEE® computer-based modeling tool used to access system capacity and the Distribution Integrity Management Plan (DIMP) tools to access overbuilt pipe. Other ongoing safety and system reliability programs are also considered. Once the analysis of the factors influencing each individual project is complete, the projects are ranked accordingly in terms of priority. Projects are prioritized against the entirety of other projects in Avista's natural gas service territory, without regard to geographical location.

Q. Please provide a brief description of the natural gas distribution capital projects that are included in the Company's natural gas Pro Forma Study and those included in the Company's natural gas Cross Check Studies for January 1, 2016 through June 30, 2018?

A. As shown in Table No. 6 below, for 2016 the Company has included natural gas distribution projects (on a system basis) totaling $28.4 million for the modified test year

Pro Forma Study. The remaining capital natural gas distribution projects for 2016, 2017 and January – June 2018 (for the Cross Check Study) total $13.5 million, $45 million, and $22.9 million respectively, on a system basis. Details about the natural gas distribution-related capital projects are discussed below.

TABLE NO. 6
Natural Gas Distribution Capital Projects (System)

Business Case Name	2016 $(000's)	2017 $(000's)	6 Mos. Ended June 2018 $ (000's)
Modified Test Year Pro Forma Projects:			
Aldyl A Replacement	$ 18,885		
Gas Isolated Steel Replacement Program	3,550		
Gas Non-Revenue Program	6,000		
	$ 28,435		
Cross Check Projects			
Aldyl A Replacement		$ 19,263	$ 8,694
Gas Overbuilt Pipe Replacement Program	900	100	49
Gas Regulator Stn Replacement Program	800	800	345
Gas Deteriorated Steel Pipe Replacement Program	1,000		
Gas Telemetry Program	400	400	189
Gas PMC Program	3,728	2,790	1,434
Gas N-S Corridor Greene St HP Main Project		1,500	
Gas N Spokane Hwy 2 HP Main Reinforcement Project		2,000	
Gas Replacement Street and Highway Program	4,500	1,185	502
Gas Isolated Steel Replacement Program		2,301	890
Gas Cathodic Protection Program	1,000	375	162
Gas Non-Revenue Program		2,560	1,263
Gas Reinforcement Program	1,200	545	228
WA AMI Natural Gas		11,162	9,133
	$ 13,528	**$ 44,982**	**$ 22,889**
Total Planned Natural Gas Distribution Capital Projects	**$ 41,963**	**$ 44,982**	**$ 22,889**

*After revenue requirements were finalized it was determined that the Gas North-South Corridor Greene St. HP Main Project was delayed until 2018.

The following planned Natural Gas Distribution Capital projects are included in the Company's <u>modified test year Pro Forma Studies</u>:

Aldyl A Replacement – 2016: $18,885,000

The Company is continuing with a twenty-year program to systematically remove and replace select portions of the DuPont Aldyl A medium density polyethylene pipe in its natural gas distribution system in the States of Washington, Oregon and Idaho. None of the subject pipe is "high pressure main pipe," but rather, consists of distribution mains at maximum operating pressures of 60 psi and pipe diameters ranging from 1¼ to 4 inches. See Exhibit No.__(KKS-5), Section 3, pages 1 through 5 for business case and other information related to this project.

Isolated Steel Replacement – 2016: $3,550,000

The Company is implementing a special cathodic protection program for the purpose of finding and addressing isolated steel in its natural gas piping systems. See Exhibit No.__(KKS-5), Section 3, pages 37 through 40 for business case and other information related to this project.

Gas Non-Revenue Program - 2016: $6,000,000

This annual project will replace sections of existing natural gas piping that require replacement to improve the operation of the natural gas system but are not linked to new revenue. The project includes improvements in equipment and/or technology to improve system operation and/or maintenance, replacement of obsolete facilities, replacement of main to improve cathodic performance, and projects to improve public safety and/or improve system reliability. See Exhibit No.__(KKS-5), Section 3, pages 45 through 48 for business case and other information related to this project.

The following projects are included in the Company's <u>Cross Check Studies</u> for the years 2016, 2017 and half of 2018 (For the following capital projects see Exhibit No.__(KKS-5) for business cases supporting these projects as well as additional support for certain projects, filed with the Company's case.):

Aldyl A Replacement –2017: $19,263,000; January – June 2018: $8,694, 000

The Aldyl A Replacement project is described above in the modified test year Pro Forma Study section.

Overbuilt Pipe Replacement – 2016: $900,000; 2017: $100,000; January – June 2018: $49,000

This annual project will replace sections of existing gas piping that have experienced encroachment or have been "overbuilt", i.e., where a structure has been built on top of existing gas piping. It will address the replacement of sections of gas main that no longer can be operated safely and will identify and replace sections of main to improve public safety. All types of overbuilds will be addressed, with the primary focus of the project being overbuilds in manufactured home developments.

Regulator Station Reliability Replacement - 2016: $800,000; 2017: $800,000; January – June 2018: $345,000

This annual project upgrades or replaces various regulator stations within the natural gas distribution system, improving station reliability and reducing operation and maintenance costs. Existing stations require upgrades due to many factors, such as replacement of obsolete equipment and improvement in regulation technology.

Replace Deteriorating Steel Gas Systems – 2016: $1,000,000
This annual program will replace sections of existing steel gas piping that are suspect for failure or are showing signs of deterioration within the gas system. This program will address the replacement of sections of gas main with corrosion-related issues that no longer operate reliably and/or safely. Sections of the gas system require replacement due to many factors including material failures, environmental impact, increased leak frequency, or coating problems. The primary focus is to address corrosion related pipe issues.

Gas Telemetry – 2016: $400,000; 2017: $400,000; January – June 2018: $189,000
The projects will include the installation of six flow computers to replace existing aging systems. Additionally this project includes all new telemetry installations, to include both wireless and hard-wired.

Gas Planned Meter Change-Out (PMC) Program-Capital Replacements – 2016: $3,728,000; 2017: $2,790,000; January – June 2018: $1,434,000
This annual program will provide for replacement of gas meters and associated measurement equipment that are completed in association with the Gas Planned Meter Change-out (PMC) program. Avista is required by commission rules and an approved Tariff in WA, ID, and OR to test meters for accuracy and ensure proper metering performance. Execution of this program on an annual basis will ensure the continuation of reliable gas measurement. This program will include the labor and minor materials associated with the PMC program.

Gas North Spokane Hwy 2 HP Main Reinforcement–2017: $2,000,000
This project will reinforce the area north of the Kaiser Aluminum property along Highway 2. The distribution system in this area is not able to reliably serve customers on a design day. Additionally, Avista serves an asphalt plant located north of this location which cannot be reliably served in the spring and fall. Completion of this reinforcement will improve pressures in that area. Approximately 8,000 feet of 6 inch high pressure steel pipe will be installed.

Gas Replacement Street/Highways – 2016: $4,500,000; 2017: $1,185,000; January – June 2018: $502,000
This annual project will replace sections of existing natural gas piping that require replacement due to relocation or improvement of streets or highways in areas where natural gas piping is installed. Avista installs many of its facilities in public right-of-way under established franchise agreements. Avista is required under the franchise agreements, in most cases, to relocate its facilities when they are in conflict with road or highway improvements.

Isolated Steel Replacement –2017: $2,301,000; January – June 2018: $890,000
The Isolated Steel Replacement project is described above in the modified test year Pro Forma section.

Cathodic Protection – 2016: $1,000,000; 2017: $375,000; January – June 2018: $162,000
This annual project upgrades, replaces, or installs cathodic protection systems required to ensure compliance with Pipeline and Hazardous Material Safety Administration regulations regarding proper cathodic protection of steel mains.

Gas Non-Revenue Program - 2017: $2,560,000; January – June 2018: $1,263,000
The Gas Non-Revenue Program is described above in the modified test year Pro Forma section.

Gas Reinforcement – 2016: $1,200,000; 2017: $545,000; January – June 2018: $228,000
This annual project will reinforce portions of the existing natural gas system to ensure continued reliable service during a design day for areas that have had low pressure problems due to increased growth and/or system demand. This project will identify and install new sections of gas main to improve the operating reliability and performance of the gas distribution system. Execution of this program on an annual basis will ensure the continuation of reliable gas service that is of adequate pressure and capacity.

Washington Natural Gas AMI – 2017: $11,162,000; January – June 2018: $9,133,000
This project will replace existing metering systems in Washington with an advanced metering system. The natural gas portion of this project involves adding a encoder receiver to the existing natural meter (not replacing the meter itself). The replacement will install an AMI metering system that will include: encoder receivers, network, back-office systems, and a data repository.

<u>Other Plant:</u>

Q. Please discuss some of the drivers and prioritization for the Company's other plant projects that will be completed from January 1, 2016 through June 30, 2018.

A. The fleet department uses a vehicle management assessment tool to determine the life cycle for fleet assets. The Jackson Prairie Storage Facility project owners meet annually to prioritize capital needs of the facility. The transportation project and the Jackson Prairie Storage project costs (system) that will transfer to plant-in-service from January 1, 2016 through June 30, 2018 are included below:

<u>Fleet Budget</u> – 2016: $5,660,000; 2017: $7,700,000; January – June 2018: $3,850,000

Expenditures are for the scheduled replacement of trucks, off-road construction equipment and trailers that meet the Company's guidelines for replacement including age, mileage, hours of use and overall condition. This also includes additions to the fleet for new positions or crews working to support the maintenance and construction of our electric and natural gas operations.

Jackson Prairie Storage – 2016: $1,175,000; 2017: $1,117,000; January – June 2018: $605,000

These projects include various capital improvements that Avista and its partners will complete at the Jackson Prairie facility. The Company is 1/3 owner in the Jackson Prairie Storage Facility and as such, is a part of the Jackson Prairie Storage Management Committee that meets annually to discuss and approve the capital and O&M projects needed for this facility.

V. CAPITAL ADJUSTMENTS

Q. What is the change to electric rate base for the twelve months ended September 30, 2015 additions, after adding in the October through December 31, 2015 actual additions, as well as restate rate base to a calendar 2015 average-of-monthly average basis?

A. Electric rate base for capital investment as of year-end December 31, 2015 on an AMA basis increased $18,308,000, from $1,250,014,000 on an September 30, 2015 AMA basis to $1,268,322,000 on a calendar year 2015 AMA basis as shown in Table No. 7 below.

<u>Table No. 7</u>

(000's)	AMA Ratebase 12.31.15	AMA Ratebase Per Results of Operations 9.30.15	Difference 9.30.15 AMA and 12.31.15 AMA E-CAP15 Total Adjustment
Total Plant Cost	$ 2,411,404	$ 2,374,570	**$ 36,834**
Total Accumulated Depreciation	(831,518)	(823,973)	**(7,545)**
Total Accumulated DFIT	(311,564)	(300,583)	**(10,981)**
Net Rate Base	$ 1,268,322	$ 1,250,014	**$ 18,308**

Q. What is the change to <u>natural gas</u> rate base for the twelve months ended September 30, 2015, after adding in the October through December 2015 actual additions, as well as restate rate base to a calendar 2015 average-of-monthly average basis?

A. Natural gas net rate base for capital investment as of twelve-months-ended September 30, 2015, increased $6,105,000, from $235,011,000 on an AMA basis to $241,116,000 on a December 31, 2015 AMA basis. Table No. 8 below summarizes the adjustment included in the case.

Table No. 8:

(000's)	AMA Ratebase 12.31.15	AMA Ratebase Per Results of Operations 9.30.15	Difference 9.30.15 AMA and 12.31.15 AMA G-CAP15 Adjustment
Total Plant Cost	$ 458,579	$ 449,707	$ 8,872
Total Accumulated Depreciation	(149,883)	(149,072)	(811)
Total Accumulated DFIT	(67,580)	(65,624)	(1,956)
Net Rate Base	$ 241,116	$ 235,011	$ 6,105

Q. What is the change to electric rate base from 2015 on an AMA basis to January – June 2018 on an AMA basis?

A. Electric rate base increases $191,805,000, from $1,268,322,000 to $1,460,127,000, from 2015 AMA through the first half of 2018 on an AMA basis, as shown in Table No. 9 below.

Table No. 9:

(000's)	AMA Ratebase 12.31.15	AMA Ratebase Per Results of Operations 9.30.15	Difference 9.30.15 AMA and 12.31.15 AMA E-CAP15 Total Adj	2016 Adj	AMA 2016	All Other Plant Adj	AMI Adj	AMA 2017	AMI Adj	All Other Plant Adj	AMA Jan-Jun 2018
Total Plant Cost	$2,411,404	$ 2,374,570	$ 36,834	$185,544	$2,596,948	$168,736	$26,304	$2,791,988	$ 25,898	$ 63,793	$2,881,679
Total AD	(831,518)	(823,973)	(7,545)	(57,803)	(889,321)	(63,672)	(1,640)	(954,633)	(5,069)	(49,988)	(1,009,690)
Total ADFIT	(311,564)	(300,583)	(10,981)	(38,819)	(350,383)	(35,472)	(3,962)	(389,817)	(3,346)	(18,699)	(411,862)
Net Rate Base	$1,268,322	$ 1,250,014	$ 18,308	$ 88,922	$1,357,244	$ 69,593	$20,702	$1,447,539	$ 17,483	$ (4,894)	$1,460,127

Q. What is the change to natural gas rate base from 2015 on an AMA basis to January – June 2018 on an AMA basis?

A. Natural gas rate base increases $43,078,000, from $241,116,000 to $284,194,000, from 2015 AMA through the first half of 2018 on an AMA basis, as shown in Table No. 10 below.

Table No. 10:

(000's)	AMA Ratebase 12.31.15	AMA Ratebase Per Results of Operations 9.30.15	Difference 9.30.15 AMA and 12.31.15 AMA G-CAP15 Total Adj	2016 Adj	AMA 2016	All Other Plant Adj	AMI Adj	AMA 2017	AMI Adj	All Other Plant Adj	AMA Jan-Jun 2018
Total Plant Cost	$ 458,579	$ 449,707	$ 8,872	$ 34,735	$ 493,313	$ 27,343	$ 10,946	$531,602	$ 10,552	$ 12,274	$ 554,428
Total AD	(149,883)	(149,072)	(811)	(11,259)	(161,142)	(12,875)	(578)	(174,594)	(1,729)	(10,026)	(186,349)
Total ADFIT	(67,580)	(65,624)	(1,956)	(3,973)	(71,553)	(5,512)	(1,365)	(78,429)	(1,173)	(4,284)	(83,885)
Net Rate Base	$ 241,116	$ 235,011	$ 6,105	$ 19,503	$ 260,619	$ 8,957	$ 9,004	$278,580	$ 7,651	$ (2,036)	$ 284,194

Q. Did you factor in retirements for the October 2015 through June 30, 2018 Electric and Natural gas capital adjustments?

A. Yes. The Company used an estimate based on planned transfers-to-plant and historical retirements, and then allocated these by functional group to service and jurisdiction. Further detail is provided in my workpapers.

Q. How were the offsets determined for the October 2015 through June 30, 2018 plant investment?

A. Each Pro Forma capital addition was analyzed to determine any offsets (e.g., reduced O&M costs, reduced load losses, etc.). Maintenance records were reviewed to determine whether any specific maintenance costs were incurred in the test period that would be reduced or eliminated by the investment at the facility. Those costs were quantified and included as a reduction to O&M costs in the O&M Savings Pro Forma adjustment included by Ms. Smith in the revenue requirement as a part of her Pro Forma Study.

In addition, the output from generation assets is included in the AURORA$_{XMP}$ power cost model. Therefore, to the extent that the additional investments serve to either preserve or increase generation from the generation projects, the benefits are already reflected in the AURORA$_{XMP}$ model.

Q. What is the rationale behind the removal of capital expenditures for connecting new customers in the Pro Forma and Cross Check Studies?

A. The capital expenditures for the period October 2015 through June 30, 2018 exclude distribution-related capital expenditures that are associated with connecting new customers to the Company's system. Excluding these capital expenditures from the Pro Forma Studies and from the Cross Check Studies recognizes the fact that new customers provide incremental revenue that helps offset the costs associated with these distribution-related capital additions. Retail revenues for the Pro Forma Studies and the Cross Check Studies are based on historical test period loads, and do not include revenues from new customers beyond the test period.

VI. ADVANCED METERING INFRASTRUCTURE (AMI)

Q. Please briefly describe the Electric and Natural Gas AMI projects.

A. As Ms. Rosentrater discusses in detail in her testimony, the Company is planning to deploy advanced meters for its electric and natural gas customers in Washington. The project will deploy advanced meters beginning in 2017, to approximately 253,000 electric customers, and 155,000 natural gas customers. Through the Company's AMI project, a complete replacement of the existing electric meters will occur, and these meters will be replaced with a new digital advanced meter. Existing natural gas meters will be upgraded with a new digital communicating module referred to as an "Encoder Receiver Transmitter" or "ERT".

Q. Has the Company included any AMI capital costs in the Cross Check Studies adjustments above?

A. Yes. The Company has included a total of $105.7 million for 2017 through June 30, 2018. The $105.7 million relates to gross transfers to plant on an end of period basis from January 1, 2017 to June 30, 2018. The amount reflected in this case is the AMA level of capital totaling $50.2 million gross transfers to plant. The $105.7 million is broken out between electric distribution shown in Table No. 3 above of $51.4 million, natural gas distribution as shown in Table No. 5 above of $20.3 million, and enterprise technology as shown in Table No. 7 above as $34 million.

Q. Please describe the life expectancy of the AMI Meters and infrastructure.

A. AMI meters are expected to have a 15 year life. The Company is proposing in this case that a 15 year life be used instead of the current approved rate of approximately 29 years for Washington standard meters. The backend equipment (hardware and software) that will be supporting the AMI meters has a lifetime expectancy of normal hardware and software, and will be depreciated in accordance with the Company's most recent depreciation study.

Q. Upon installation of the new electric distribution meters, will the existing electric meters be fully depreciated on Avista's books?

A. No. As of December 31, 2015, the Company has approximately $20.2 million on its books related to the net book value of its existing electric distribution meters.

Q. How does the Company propose to account for the existing meters?

A. The Company plans to begin changing out meters in 2017, and plans to execute an agreement with a meter vendor in early 2016 in order to do so. When Avista executes an agreement with a meter vendor, it will be committing to remove and replace the existing electric meters with new meters. This commitment triggers, and requires, certain accounting to occur under Generally Accepted Accounting Principles (GAAP). As explained by the Company in its "Petition for an Order Authorizing Deferred Accounting Treatment related to the Undepreciated Net Book Value of the Company's Existing Meters," (Docket No. UE-160100) the Company is requesting to move the balance in plant accounts to a regulatory asset account at the time of signing an agreement. Based on the assumed undepreciated value of the meters at time of the final installation in 2020, the estimated net book value of the existing meters to transfer from electric distribution plant, and record as a regulatory asset in FERC Account 182.3 is $18.6 million at the time an agreement is signed. The Company requests that the its authorized rate of return be accrued on the unamortized balance of the regulatory asset until fully amortized[14].

The Company is proposing to amortize this regulatory asset balance over a fifteen-year period through FERC Account 407, starting in January of 2017, or approximately $1.2 million in amortization expense per year. In 2017, the Company will continue to depreciate the existing meters at approximately $834,000 compared to the test period depreciation expense of $918,000. Therefore, a net reduction in depreciation expense of $84,000 is included, in addition to the increase in amortization expense of $1.2 million, for a net increase in expense of $1.1 million. Ms. Smith, within her electric Pro Forma Study, has reflected the

[14] Without approval from the WUTC for a full rate of return on the regulatory asset, the estimated write-off the Company would incur would be approximately $4.6 million based on the proposed 15-year amortization of the regulatory asset.

reduction to net plant and depreciation expense, as well as the inclusion of the regulatory asset and amortization expense in adjustment 3.07 – Pro Forma Meter Deferral and amortization.

VII. SUPPORTING DOCUMENTATION AND REPORTING FOR CAPITAL ADDITIONS

Q. What has the Company provided to the Commission regarding capital additions?

A. Starting in 2013, the Company provided capital reports on a quarterly basis as a result of the Commission's Order in the Company's 2012 general rate case.[15] In that case, the Commission ordered the Company to file quarterly progress reports showing budget-to-actual information on capital expenditures, including updates or changes to the overall capital expenditure plan. The five quarterly reports started in September of 2013 and continued through 2014.

Following the Company's next general rate case[16], the Company conferred with all parties to the case regarding additional details for reporting, and it was agreed by all parties that the capital reporting would be expanded to include more detailed information by expenditure request, including transfers-to-plant, budget vs. actual information and construction work in progress, all to be reported twice a year instead of quarterly. The first semi-annual report was filed on February 26, 2015, and is attached as Exhibit No.___(KKS-6). On September 1, 2015, the Company filed its second semi-annual report attached as Exhibit No.___(KKS-7).

[15] Docket No. UE-120436 & UG-120437 (Consolidated), Order No. 09.
[16] Docket No. UE-140188 & UG-140189 (Consolidated).

Q. How did the Company address the Commission's order to work with Staff on documenting Avista's capital spending plans?

A. In the Company's last general rate case, the Commission stated:[17]

> Before seeking further rate increases for its electric service, the Company must provide more analysis showing how it plans and prioritizes investments in its distribution system, and how those decisions impact system reliability and economy. Staff asserts that the examination of Avista's capital spending plans and results is called for, and we agree. We encourage the Company to work with Staff on this issue.

The Company has provided additional details regarding electric distribution plant in Ms. Rosentrater's testimony, as well as additional documentation in Exhibit No. ___(KKS-5). In addition, the Company has included in Exhibit No.___(KKS-5) additional documentation for <u>all</u> other capital projects included in the Company's modified test year Pro Forma and Cross Check adjustments. The Company contacted Commission staff on February 9, 2016 to discuss the level of information included in this filing.

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

A. Yes, it does.

[17] Docket Nos. UE-150204 and UG-150205, Order 05, p. 52, ¶ 141.