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BEFORE THE IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF THE APPLICATION)	CASE NO. AVU-E-15-05
OF AVISTA CORPORATION FOR THE)	
AUTHORITY TO INCREASE ITS RATES)	
AND CHARGES FOR ELECTRIC AND)	
NATURAL GAS SERVICE TO ELECTRIC)	DIRECT TESTIMONY
AND NATURAL GAS CUSTOMERS IN THE)	OF
STATE OF IDAHO)	BRYAN A. COX
_____)	

FOR AVISTA CORPORATION

(ELECTRIC ONLY)

1 I. INTRODUCTION

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

4 A. My name is Bryan A. Cox. I am employed by
5 Avista Corporation as Director, Transmission Operations.
6 My business address is 1411 East Mission, Spokane,
7 Washington.

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

10 A. I am a 1992 graduate of Gonzaga University with
11 a degree in Mathematics and a 2009 graduate of the
12 University of Washington's Foster School of Business with
13 a Masters Degree in Business Administration. I joined the
14 Company in 1997 and have spent 17 years in various
15 technical and leadership positions in Information
16 Technology, Natural Gas Delivery, Strategic Planning and
17 Gas and Electric Construction Services. Over the last two
18 years I have led the West Electric Operations group which
19 delivers service to most of our Washington operations as
20 well as more recently the System Operations Department. I
21 am a member of the Capital Planning Group that manages the
22 five-year Company capital budget.

1 **Q. What is the scope of your testimony?**

2 A. My testimony presents Avista's transmission
3 revenues and expenses for the 2016 and 2017 two-year rate
4 period. I also discuss Avista's Transmission and
5 Distribution capital expenditures, for the period January
6 2015 through the 2017 rate year. Company witness Ms.
7 Andrews has included these adjustments in her Pro Forma
8 adjustments, which incorporates Idaho's share of both pro
9 forma 2016 and 2017 rate year adjustments for transmission
10 revenues, expenses and capital additions described further
11 in my testimony.¹

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

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19 **Q. Are you sponsoring an exhibit?**

20 A. Yes. Exhibit No. 9, Schedule 1, provides the
21 transmission revenue and expense adjustments for 2016 and
22 2017.

¹ Idaho's share of the transmission revenues are also included in the Power Cost Adjustment (PCA) authorized base. See Company witness Mr. Johnson's Exhibit No. 6, Schedule 1, for the PCA proposed net power supply expenses included in this case.

1 II. TRANSMISSION EXPENSES FOR 2016 AND 2017

2 Q. Please describe the adjustments to the twelve
3 months ended December 31, 2014 test year transmission
4 expenses to arrive at transmission expenses for the 2016
5 and 2017 rate years.

6 A. Adjustments were made in this filing to
7 incorporate updated information for any changes in
8 transmission expenses from the January 2014 through
9 December 2014 test year to the 2016 rate year, and for
10 incremental changes in expenses from the 2016 rate year to
11 the 2017 rate year. Each expense item described below is
12 at a system level and is included in Exhibit No. 9,
13 Schedule 1. The changes in expenses and a description of
14 each are summarized in Table No. 1, below, and an
15 explanation of each change follows the Table.

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TABLE NO. 1		
Transmission Expense Adjustment		
	(1) 2016	(2) 2017
	Rate Year	Rate Year
	(System)	(System)
Northwest Power Pool (NWPP)	\$ 18,000	\$ 3,000
Colstrip Transmission	7,000	(7,000)
ColumbiaGrid Funding	62,000	5,000
ColumbiaGrid Planning and Expansion Agreement (PEFA)	68,000	5,000
Order 1000 Functional Agreement	(50,000)	25,000
NERC Critical Infrastructure Protection(CIP)	(8,000)	-
OASIS Expenses	8,000	-
BPA Power Factor Charge	(56,000)	-
PEAK Reliability	453,000	93,000
WECC Administration Dues	(46,000)	72,000
WECC - Loop Flow	(34,000)	-
Addy (BPA substation)	-	-
Hatwai (BPA substation)	-	-
Total Change in Transmission Expense	\$422,000	\$196,000

(1) Represents the change in expense above or below the December 31, 2014 historical test year level.

(2) Represents the change in expense above or below the December 31, 2016 rate year level.

Northwest Power Pool (NWPP) (2016: \$18,000; 2017: \$3,000) - Avista pays its share of the NWPP operating costs. The NWPP serves the electric utilities in the Northwest by facilitating coordinated power system operations and planning, including contingency generation reserve sharing, Columbia River water coordination and providing support to coordinated regional transmission planning. Avista's share of the costs for 2016 is \$76,000, an increase of \$18,000. Avista's share of the

1 costs for 2017 is \$79,000, an incremental increase of
2 \$3,000 from 2016.

3 Colstrip Transmission (2016: \$7,000; 2017: \$-7,000) -
4 Avista is required to pay its portion of the O&M costs
5 associated with its joint ownership share of the Colstrip
6 transmission system pursuant to the Colstrip Transmission
7 Agreement. Under this agreement, NorthWestern Energy
8 (NWE) operates and maintains the Colstrip transmission
9 system. In accordance with NWE's proposed Colstrip
10 transmission plan provided to the Company, NWE will bill
11 Avista an estimated \$303,000 for Avista's share of the
12 Colstrip O&M expense during the 2016 rate year period.
13 This is an increase of \$7,000 from the actual expense of
14 \$296,000 incurred during the 2014 test year. This amount
15 is expected to return to the \$296,000 expense level in
16 2017, reducing expenses by \$7,000 for the 2017 rate year.

17 ColumbiaGrid Funding (2016: \$62,000; 2017: \$5,000) -
18 Avista became a member of the ColumbiaGrid regional
19 transmission organization in 2006. ColumbiaGrid's purpose
20 is to enhance transmission system reliability and
21 efficiency, provide cost-effective coordinated regional
22 transmission planning, develop and facilitate the
23 implementation of solutions relating to improved use and
24 expansion of the interconnected Northwest transmission

1 system, and support effective market monitoring within the
2 Northwest and the entire Western interconnection. Avista
3 supports ColumbiaGrid's general developmental and regional
4 coordination activities under the ColumbiaGrid Fourth
5 Funding Agreement, signed July 1, 2010, and supports
6 specific functional activities under the Planning and
7 Expansion Functional Agreement. Avista's ColumbiaGrid
8 general funding expenses for the 2014 test year were
9 \$126,000, while 2016 and 2017 rate year general funding
10 expenses are expected to be \$188,000 and \$193,000,
11 respectively.

12 ColumbiaGrid Planning and Expansion Agreement (PEFA)
13 (2016: \$68,000; 2017: \$5,000) - The ColumbiaGrid Planning
14 and Expansion Functional Agreement (PEFA) was accepted by
15 the Federal Energy Regulatory Commission (FERC) on April
16 3, 2007, and Avista entered into the PEFA on April 4,
17 2007. Coordinated transmission planning activities under
18 the PEFA allow the Company to meet the coordinated
19 regional transmission planning requirements set forth in
20 FERC's Order 890 issued in February 2007, and outlined in
21 the Company's Open Access Transmission Tariff.

22 Actual PEFA expenses for the 2014 test year were
23 \$146,000. The Company's PEFA for 2016 and 2017 are
24 \$214,000 and \$219,000, respectively, and reflect

1 ColumbiaGrid's increasing staffing levels to support PEFA
2 activities and the reallocation of a portion of
3 ColumbiaGrid's administrative expenses (previously paid
4 under the general funding agreement) to these functional
5 agreements.

6 Order 1000 Functional Agreement (2016: -\$50,000;
7 2017: \$25,000) - FERC Order 1000 requirements are
8 implemented under the Order 1000 Functional Agreement
9 which was executed by Avista on December 13, 2013,
10 followed by the Amended and Restated Order 1000 Functional
11 Agreement, signed on November 11, 2014 (Order 1000
12 Agreement). The contract called for a \$50,000 payment late
13 in 2014 that covered two years of payments for 2015 and
14 2016. Beginning in 2017, this contract calls for an
15 annual payment of \$25,000.

16 NERC Critical Infrastructure Protection (2016:
17 -\$8,000) - The Company has purchased several software and
18 hardware products to assist in protecting critical
19 transmission control systems from intrusion and to meet
20 applicable NERC standards. These products provide for
21 physical security, intrusion detection, virus protection,
22 vulnerability assessment, electronic perimeter security
23 and backup/recovery of critical control systems. The

1 Company's 2016 and 2017 rate year expense is \$50,000, a
2 decrease of \$8,000 from the 2014 actual test year expense.

3 OASIS Expenses (2016: \$8,000) - These Open Access
4 Same-time Information System (OASIS) expenses are
5 associated with travel and training costs for transmission
6 pre-scheduling and OASIS personnel. This travel is
7 required to monitor and adhere to NERC reliability
8 standards, regional criterion development, and FERC OASIS
9 requirements. The increase in costs to \$8,000 for the
10 2016 and 2017 rate years is due to the availability of the
11 necessary training in relation to the technical users'
12 individual schedules. The absence of any travel expenses
13 in the test year was due, in large part, to Avista hosting
14 an OASIS schedulers meeting in Spokane (for which costs of
15 approximately \$6,330 were attributed to another account)
16 instead of traveling to this meeting.

17 Bonneville Power Factor Charge (2016: -\$56,000) -
18 Power factor charge costs are associated with the
19 Bonneville Power Administration's (Bonneville) General
20 Transmission Rate Schedule Provisions. Avista is aware of
21 Bonneville's Initial Proposal in its BP-16 Rate Case,
22 filed December 10, 2014, that is proposing eliminating
23 this Power Factor Charge. Accordingly, Avista has removed
24 this expense for the 2016 and 2017 rate years.

1 Peak Reliability - Reliability Coordination
2 (2016: \$453,000; 2017: \$93,000) - The Company's Peak
3 Reliability (Peak) fees are scheduled to increase from the
4 amount paid in the historical test year, \$168,000, to
5 \$621,000 in the 2016 rate year and \$714,000 in the 2017
6 rate year. The large increase in 2016 is attributable to
7 the FERC requirement that the WECC reliability
8 coordination function be corporately and physically
9 separated from the remaining WECC requirements and
10 obligations. This "bifurcation" is primarily the result
11 of a transmission system outage in the Pacific Southwest
12 on September 8, 2011. A reference to the disturbance
13 including "Causes and Recommendations" may be found at
14 [http://www.ferc.gov/legal/staff-reports/04-27-2012-ferc-](http://www.ferc.gov/legal/staff-reports/04-27-2012-ferc-nerc-report.pdf)
15 [nerc-report.pdf](http://www.ferc.gov/legal/staff-reports/04-27-2012-ferc-nerc-report.pdf). Another reason for the large variance is
16 that Peak was not fully staffed during the test period.
17 Expenses will ramp up during 2015 to the 2016 amount. The
18 increase in 2017 of \$93,000 is based upon Peak's
19 projections of its funding requirement.

20 WECC - Administration Dues (2016: -\$46,000; 2017:
21 \$72,000) - WECC is the designated Regional Entity under
22 federal statute responsible for coordinating and promoting
23 Bulk Electric System reliability throughout the western
24 interconnection. WECC is responsible for monitoring and

1 measuring Avista's compliance with the standards and has
2 substantially increased its staff and other resources to
3 meet these FERC requirements. The Company's test year
4 WECC dues and fees were \$531,000. The Company's totals
5 for dues and fees in the 2016 and 2017 rate years are
6 expected to be \$485,000 and \$557,000, respectively.
7 Similar to Peak, there is not a direct comparison to prior
8 years because of the aforementioned FERC mandated
9 bifurcation of the reliability coordination portion of
10 WECC's responsibilities.

11 WECC - Loop Flow (2016: -\$34,000) - Loop Flow charges
12 are spread across all transmission owners in the West to
13 compensate utilities that make system adjustments to
14 eliminate transmission system congestion throughout the
15 operating year. WECC Loop Flow charges can vary from year
16 to year since the costs incurred are dependent on
17 transmission system usage and congestion. Loop Flow
18 expenses for the 2014 test year were \$34,000. These
19 expenses were rolled into the WECC annual dues beginning
20 in 2015.

21 Addy Substation (\$0) - The Company pays operation and
22 maintenance fees to Bonneville associated with a 115kV
23 circuit breaker in Bonneville's Addy Substation that
24 provides a direct interconnection for Avista's retail

1 load. In the test year the expenses were \$9,000 and these
2 are anticipated to remain unchanged for the 2016 and 2017
3 rate years.

4 Hatwai Substation (\$0) - The Company pays operation
5 and maintenance fees to Bonneville associated with a 230kV
6 circuit breaker owned by Avista but located in
7 Bonneville's Hatwai Substation. In the test year the
8 expenses were \$23,000 and these are expected to remain
9 unchanged for the 2016 and 2017 rate years.

10

11 **III. TRANSMISSION REVENUES FOR 2016 AND 2017**

12 **Q. Please describe the adjustments to 2014 test**
13 **year transmission revenues to arrive at transmission**
14 **revenues for the 2016 and 2017 rate years.**

15 A. Adjustments have been made in this filing to
16 incorporate updated information for transmission revenue
17 during the 2016 rate year as compared to the historical
18 test year, and to reflect incremental 2017 revenues
19 compared to 2016 levels. Each revenue item described
20 below is at a system level and is included in Exhibit No.
21 9, Schedule 1. Table No. 2 below provides a summary of
22 the changes in transmission revenues, and an explanation
23 of each change follows the Table.

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TABLE NO. 2		
Transmission Revenue Adjustment		
	(1) 2016	(2) 2017
	Rate Year	Rate Year
	(System)	(System)
Borderline Wheeling Transmission	\$103,000	\$ -
Borderline Wheeling Low Voltage	8,000	-
Borderline Wheeling Ancillary Revenues	666,000	-
Seattle/Tacoma Main Canal	41,000	(3,000)
Seattle/ Tacoma Summer Falls	-	-
OASIS nf & stf Whl (Other Whl)	41,000	-
PP&L - Dry Gulch	(12,000)	-
Spokane Waste to Energy Plant	-	-
Grand Coulee Project	-	-
Palouse Wind Transmission	-	2,200,000
Palouse Wind O & M	-	-
Stimson Lumber	-	-
BPA Parallel Operating Agreement	-	-
Morgan Stanley Capital Group	-	-
Hydro Tech Systems - Meyers Falls	-	-
Kootenai Electric	15,000	-
BPA Excess Transmission Sales	(529,000)	-
	<u>\$333,000</u>	<u>\$2,197,000</u>

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- (1) Represents the change in revenue above or below the twelve months ended December 31, 2014 test year level.
- (2) Represents the incremental change in revenue above or below the twelve months ended December 31, 2016 rate year level.

Borderline Wheeling - Transmission (2016: \$103,000) -
 The Company provides borderline wheeling service (wheeling service over transmission facilities for service to loads of other utilities within the Company's system footprint).
 Total revenue for the transmission portion of borderline wheeling activities for the test year was \$6,233,000.
 Total revenue in the 2016 and 2017 rate years has been set at \$6,336,000, representing an increase of \$103,000 from

1 the test year. Revenue projections from each are
2 determined as follows:

3 • **Bonneville Power Administration** - Network Integration
4 Transmission Service revenue is determined based upon
5 a three-year average for the 2012 to 2014 time
6 period, resulting in a figure of \$6,236,000 for the
7 2016 and 2017 rate years compared to \$6,126,000 for
8 the test year. The Company has in the past used a
9 five-year average for determining BPA borderline
10 wheeling revenue, but is proposing to use a three-
11 year average at this time in order to be consistent
12 with the three-year average used in all other
13 instances where the Company determines transmission
14 revenues that are based upon variable customer load
15 figures (e.g. Grant County PUD and PacifiCorp Dry
16 Gulch). By changing from the five-year average to
17 the three-year average in this filing, revenue is
18 increased by \$35,000, from \$6,201,000 to \$6,236,000.

19 • **Grant County PUD** - Power transfer revenue is
20 determined using a three-year average (2012-2014)
21 resulting in a figure of \$28,000 for the 2016 and
22 2017 rate years compared to \$29,000 for the test
23 year.

1 • **Consolidated Irrigation District** - Point-to-Point
2 Transmission Service revenue for the 2014 test period
3 was \$32,000. Under the current contract (with a term
4 from 10/1/2011 to 9/30/2016) and an expected follow-
5 on contract this revenue is expected to remain
6 substantially the same during the 2016 and 2017 rate
7 years.

8 • **East Greenacres Irrigation District** - Point-to-Point
9 Transmission Service revenue for the 2014 test period
10 was \$15,000. Under the current contract (with a term
11 from 10/1/2014 to 9/30/2019) this revenue will be
12 \$11,000 for the 2016 and 2017 rate years.

13 • **Spokane Tribe** - Point-to-Point Transmission Service
14 revenue for the 2014 test period was \$30,000. Under
15 a new contract (with a term from 1/1/2015 to
16 12/31/2019) this revenue will be \$29,000 for the 2016
17 and 2017 rate years.

18 Borderline Wheeling - Low Voltage (2016: \$8,000) -
19 The Company provides borderline wheeling service (wheeling
20 service over low-voltage distribution facilities for
21 service to loads of other utilities within the Company's
22 system footprint). Total revenues for the low voltage
23 portion of borderline wheeling activities for the test
24 year was \$1,072,000. Total revenue in the 2016 and 2017

1 rate years has been set at \$1,080,000, representing an
2 increase of \$8,000 from the test year, including the
3 following components:

- 4 • **Bonneville Power Administration** - Wheeling revenue
5 over low-voltage facilities for the 2014 test period
6 was \$929,000. Revenue for the 2016 and 2017 rate
7 years is expected to remain substantially the same.
- 8 • **Consolidated Irrigation District** - Electric
9 Distribution Service revenue for the 2014 test period
10 was \$80,000. Under the current contract (with a term
11 from 10/1/2011 to 9/30/2016) and an expected follow-
12 on contract, this revenue is expected to remain
13 substantially the same during the 2016 and 2017 rate
14 years.
- 15 • **East Greenacres Irrigation District** - Electric
16 Distribution Service revenue for the 2014 test period
17 was \$45,000. Under the current contract (with a term
18 from 10/1/2014 to 9/30/2019) this revenue will be
19 \$51,000 for the 2016 and 2017 rate years, an increase
20 of \$6,000.
- 21 • **Spokane Tribe** - Electric Distribution Service revenue
22 for the 2014 test period was \$18,000. Under a new
23 contract (with a term from 1/1/2015 to 12/31/2019)

1 this revenue will be \$20,000 for the 2016 and 2017
2 rate years.

3 Borderline Wheeling - Ancillary Revenues (\$666,000) -

4 The Company provides various ancillary services in
5 association with long-term firm transmission service
6 provided under its Open Access Transmission Tariff.
7 Ancillary services revenue for the test year was \$919,000.
8 Revenue in the 2016 and 2017 rate years has been set at
9 \$1,585,000, representing an increase of \$666,000 from the
10 test year. Ancillary services are necessary to support
11 the transmission of electric power from one point to
12 another given the obligations of balancing areas and
13 transmitting utilities within those balancing areas to
14 maintain reliable operation of the interconnected
15 transmission system. The revenue projection is based upon
16 an ancillary services rate of \$8.94 per kW multiplied by
17 billing determinants of 2% (regulation and frequency
18 response), 1.5% (Operating Reserves - Spinning) and 1.5%
19 (Operating Reserves - Supplemental), applied to a
20 customer's monthly peak load. The components of the
21 ancillary revenues for 2016 and 2017 are as follows:

- 22 • **Bonneville Power Administration** - Ancillary services
23 revenue is estimated based upon three-year average
24 load figures for the 2012-2014 time period, resulting

1 in estimated revenues of \$1,570,000 for the 2016 and
2 2017 rate years compared to \$906,000 for the 2014
3 test year. Prior to October 1, 2014, when a change
4 in WECC reliability standards became effective, BPA
5 self-provided all of its operating reserve
6 obligations. This revenue increase is the result of
7 BPA now paying the Company for the operating
8 reserves.

9 • **Consolidated Irrigation District** - Ancillary services
10 revenue was \$6,000. Under the current contract (with
11 a term from 10/1/2011 to 9/30/2016) and an expected
12 follow-on contract, this revenue is expected to
13 remain substantially the same during the 2016 and
14 2017 rate years.

15 • **East Greenacres Irrigation District** - Ancillary
16 services revenue is estimated based upon three-year
17 average load figures for the 2012-2014 time period,
18 resulting in estimated revenue of \$4,000 for the 2016
19 and 2017 rate years compared to \$4,000 for the 2014
20 test year.

21 • **Spokane Tribe** - Ancillary services revenue is
22 estimated based upon three-year average load figures
23 for the 2012-2014 time period, resulting in estimated

1 revenue of \$5,000 for the 2016 and 2017 rate years
2 compared to \$3,000 for the 2014 test period.

3 Seattle and Tacoma - Main Canal Project
4 (2016: \$41,000; 2017: -\$3,000) Effective March 1, 2008,
5 the Company entered into long-term point-to-point
6 transmission service arrangements with the City of Seattle
7 and the City of Tacoma to transfer output from the Main
8 Canal hydroelectric project, net of local Grant County PUD
9 load service, to the Company's transmission
10 interconnections with Grant County PUD. Service is
11 provided during the eight months of the year (March
12 through October) in which the Main Canal project operates,
13 and the agreements include a three-year ratchet demand
14 provision. Revenues under these agreements totaled
15 \$320,000 during the test year. Revenues for the 2016 and
16 2017 rate years are expected to be \$361,000 and \$358,000
17 respectively, based on ratchet demand estimates.

18 Seattle and Tacoma - Summer Falls Project (\$0) -
19 Effective March 1, 2008, the Company entered into long-
20 term use-of-facilities arrangements with the City of
21 Seattle and the City of Tacoma to transfer output from the
22 Summer Falls hydroelectric project across the Company's
23 Stratford Switching Station facilities to the Company's
24 Stratford interconnection with Grant County PUD. Charges

1 under this use-of-facilities arrangement are based upon
2 the Company's investment in its Stratford Switching
3 Station and are not impacted by the Company's transmission
4 service rates under its Open Access Transmission Tariff.
5 Revenues under these two contracts totaled \$74,000 in the
6 test year and are expected to remain unchanged for the
7 2016 and 2017 rate years.

8 OASIS Non-Firm and Short-Term Firm Transmission
9 Service (2016: \$41,000) - OASIS is an acronym for Open
10 Access Same-time Information System. This is the system
11 used by electric transmission providers for selling
12 available transmission capacity to eligible customers.
13 The terms and conditions under which the Company sells its
14 transmission capacity via its OASIS are pursuant to FERC
15 regulations and Avista's Open Access Transmission Tariff.
16 The Company calculates its rate year adjustments using a
17 three-year average of actual OASIS Non-Firm and Short-Term
18 Firm revenue. OASIS transmission revenue may vary
19 significantly depending upon a number of factors,
20 including current wholesale power market conditions,
21 forced or planned generation resource outage situations in
22 the region, the current load-resource balance status of
23 regional load-serving entities, and the availability of
24 parallel transmission paths for prospective transmission

1 customers. The use of a three-year average is intended to
2 strike a balance in mitigating both long-term and short-
3 term impacts to OASIS revenue. A three-year period is
4 intended to be long enough to mitigate the impacts of non-
5 substantial temporary operational conditions (for
6 generation and transmission) that may occur during a given
7 year, and it is intended to be short-enough so as to not
8 dilute the impacts of long-term transmission and
9 generation topography changes (e.g., major transmission
10 projects which may impact the availability of the
11 Company's transmission capacity or competing transmission
12 paths, and major generation projects which may impact the
13 load-resource balance needs of prospective transmission
14 customers). However, if there are known events or factors
15 that occurred during the period that would cause the
16 average to not be representative of future expectations,
17 then adjustments may be made to the three-year average
18 methodology. In this filing, the Company is using a three
19 year average for the time period of January 2012 to
20 December 2014. The OASIS revenue for the test year was
21 \$2.861 million and the three-year average results in 2016
22 and 2017 rate year revenues of \$2.902 million.

23 PacifiCorp Dry Gulch (2016: -\$12,000) - Revenue under
24 the Dry Gulch use-of-facilities agreement has been

1 adjusted to \$220,000 for the 2016 and 2017 rate years,
2 which is a \$12,000 decrease from the test year actual
3 revenue of \$232,000. The Company is calculating its
4 adjustment using a three-year average of actual revenue.
5 Revenue under the Dry Gulch Transmission and
6 Interconnection Agreement with PacifiCorp varies depending
7 upon PacifiCorp's loads served via the Dry Gulch
8 Interconnection and the operating conditions of
9 PacifiCorp's transmission system in this area. The use of
10 a three-year average is intended to mitigate the impacts
11 of potential annual variability in the revenues under the
12 contract. The contract includes a twelve-month rolling
13 ratchet demand provision and charges under this agreement
14 are not impacted by the Company's open access transmission
15 service tariff rates.

16 Spokane Waste to Energy Plant (\$0) - Spokane Waste to
17 Energy pays a use-of-facilities charge for the ongoing use
18 of its interconnection to Avista's transmission system.
19 The 2016 and 2017 rate year revenues associated with the
20 use-of-facilities charge are \$28,000 in each respective
21 year, the same as the test year.

22 Grand Coulee Project Hydroelectric Authority (\$0) -
23 The Company provides operations and maintenance services
24 on the Stratford-Summer Falls 115kV Transmission Line to

1 the Grand Coulee Project Hydroelectric Authority under a
2 contract signed in March 2006. These services are
3 provided at a fixed annual fee. Annual charges under this
4 contract totaled \$8,100 in the test year and will remain
5 the same for the 2016 and 2017 rate years.

6 Palouse Wind (2016: \$0; 2017: \$2,200,000) - Palouse
7 Wind signed a transmission service contract with the
8 Company based on its initial intent to sell the output
9 from a wind facility to an entity other than Avista.
10 Avista has since signed a power purchase agreement with
11 Palouse Wind which voided its need for transmission
12 service. Palouse Wind intends to delay use of the 100 MW
13 of reserved transmission service for up to five years,
14 unless they are able to re-market the capacity. However,
15 according to Avista's Open Access Transmission Tariff
16 (Tariff) and the contract signed with Avista, Palouse Wind
17 must pay an annual reservation fee equal to one month's
18 service charge to extend its start date for service. The
19 test year included a \$200,000 extension of service payment
20 and the 2016 rate year also includes an expected payment
21 amount of \$200,000, per the terms of Avista's Tariff.
22 After 2016, Palouse Wind may not make any further requests
23 to delay commencement of service under the terms of the
24 Tariff. Accordingly, the Company must project the

1 commencement of service as of January 1, 2017,
2 notwithstanding Palouse Wind's ability to pay for service
3 that it may not use, increasing revenues expected for the
4 2017 rate year to \$2,400,000, an increase of \$2,200,000.

5 Palouse Wind O&M (\$0) - Per Avista's interconnection
6 agreement with the Palouse Wind project, the
7 interconnection customer pays O&M fees associated with
8 directly-assigned interconnection facilities owned and
9 operated by Avista. O&M revenue for the test year was
10 \$52,000. Revenue during the 2016 and 2017 rate years is
11 expected to remain unchanged.

12 Stimson Lumber Agreement (\$0) - Low-voltage
13 facilities associated with the Company's Plummer
14 Substation are dedicated for use by Stimson Lumber
15 resulting in annual low voltage use-of-facilities revenue
16 of \$9,000. The 2016 and 2017 rate year revenues from this
17 agreement are also \$9,000 per year.

18 Bonneville Power Administration - Parallel Capacity
19 Support (\$0) - Avista and Bonneville executed a Parallel
20 Operation Agreement on December 12, 2012, wherein Avista
21 provides Bonneville with parallel transmission capacity in
22 support of Bonneville's integration of several wind
23 resource projects. Avista provides ongoing parallel
24 capacity support under the agreement at a monthly charge

1 of \$266,000. Revenue for the test year was \$3,192,000.
2 The 2016 and 2017 rate years reflect the same amount,
3 \$3,192,000.

4 Morgan Stanley - Point-to-Point Transmission Service
5 (\$0) - Morgan Stanley Capital Group has purchased 25 MW of
6 Long-Term Firm Point-to-Point Transmission Service from
7 January 1, 2013 to December 31, 2017. The test year
8 included revenues of \$600,000, and the 2016 and 2017 rate
9 years reflect the same amount, \$600,000.

10 Hydro Tech Systems Agreement (\$0) - Low-voltage
11 facilities in the Company's Greenwood Substation are
12 dedicated for use by the Meyers Falls generation project
13 resulting in annual low voltage use-of-facilities revenue
14 of \$6,000 during the test year. The 2016 and 2017 rate
15 year revenues from this agreement are also \$6,000.

16 Kootenai Electric Cooperative Fighting Creek (KEC)
17 (2016: \$15,000) - KEC has purchased 3 MW of Long-Term Firm
18 Point-to-Point Transmission Service from April 1, 2014 to
19 March 31, 2019. The test year included revenues of
20 \$73,000. Revenue for the 2016 and 2017 rate years will
21 increase to \$88,000.

22 BPA Excess Transmission Sales (2016: -\$529,000) - In
23 December of 2013, with the completion of a new 230kV
24 interconnection with the Bonneville Power Administration

1 (BPA), the Company was able to directly integrate its
2 Lancaster Generating Station into its transmission system.
3 As a result of this effort, the Company was also able to
4 terminate a 150MW Point-to-Point (PTP) transmission
5 contract with the Bonneville Power Administration. The
6 termination language of the PTP contract specified certain
7 notification periods for termination. Pursuant to its
8 terms, this contract could not be terminated until August
9 of 2014. During the nine months between completion of the
10 Lancaster interconnection project and the effective
11 termination date of the PTP contract, the Company actively
12 re-marketed its BPA PTP capacity that was considered
13 surplus to its load service requirements. This marketing
14 effort resulted in a cost offset (revenue) of
15 approximately \$529,000 in 2014. The 150MW of PTP
16 transmission capacity was terminated in August of 2014.
17 This cost offset will not continue beyond the test period,
18 therefore 2016 and 2017 revenues associated with this item
19 will be \$0.

1 **IV. TRANSMISSION AND DISTRIBUTION CAPITAL PROJECTS**

2 **Q. Please provide the basis for the Company's**
3 **capital transmission projects that will be completed from**
4 **January 1, 2015 through December 31, 2017.**

5 A. Avista must continuously invest in its
6 transmission system to maintain reliable customer service
7 and meet mandatory reliability standards. The capital
8 transmission projects are planned and constructed to meet
9 either compliance requirements, improve system
10 reliability, fix broken equipment, or replace aging
11 equipment that is anticipated to fail.

12 Included in the compliance requirements are the North
13 American Electric Reliability Corporation (NERC)
14 standards, which are national standards that utilities
15 must meet to ensure interconnected system reliability.
16 Beginning June 2007, compliance with these standards was
17 made mandatory and failure to meet the requirements could
18 result in monetary penalties of up to \$1 million per day,
19 per infraction. The majority of the reliability standards
20 pertain to transmission planning, operation, and equipment
21 maintenance. The standards require utilities to plan and
22 operate their transmission systems in such a way as to
23 avoid the loss of customers or impact to neighboring
24 utility systems due to the loss of transmission

1 facilities. The transmission system must be designed so
2 that the loss of up to two facilities simultaneously will
3 not impact the interconnected transmission system. The
4 transmission system must be operated at all times such
5 that a loss of a facility will not result in a System
6 Operating Limit exceedance. If such an exceedance occurs,
7 it must be mitigated prior to the loss of the next
8 facility. This mitigation can include system
9 configuration changes, generation changes, or removal of
10 firm load from the transmission system. These
11 requirements drive the need for Avista to continually
12 invest in its transmission system. Avista is required to
13 perform system planning studies in both the near term (1-5
14 years) and long term (5-10 years). If a potential
15 violation is observed in the future years, then Avista
16 must develop a project plan to ensure that the violation
17 is fixed prior to it becoming a real-time operating issue.
18 Avista plans for the future projects and attempts to
19 ensure that both the design and construction of the
20 required projects are completed prior to the time the
21 projects are needed. Avista will continue to have a need
22 to develop these compliance-related projects as system
23 load grows, new generation is interconnected, and the
24 system functionality and usage changes.

1 Avista capital transmission project requirements are
2 developed through system planning studies, engineering
3 analysis, or scheduled upgrades or replacements. The
4 larger specific projects that are developed through the
5 system planning study process typically go through a
6 thorough internal review process that includes multiple
7 stakeholder reviews to ensure all system needs are
8 adequately addressed. For the smaller specific projects,
9 Avista doesn't perform a traditional cost-benefit
10 analysis. Projects are selected to meet specific system
11 needs or equipment replacement. However, both project
12 cost and system benefits are considered in the selection
13 of the final projects.

14 **Q. Did the Company consider any efficiency gains or**
15 **offsets when evaluating the transmission projects to**
16 **include in the Company's case?**

17 A. Yes. The Company evaluated each project and
18 determined that some of the 2015, 2016 and 2017 capital
19 transmission projects will result in efficiency gains and
20 potential offsets or savings, and the Company has included
21 those where applicable. The primary offsets result in
22 loss savings from reconditioning heavily-loaded
23 transmission or distribution facilities. For these
24 projects, an analysis was performed to determine the

1 savings. The assumed avoided energy cost to determine the
2 savings was \$44 MWh, which is the 20 year life cycle cost
3 calculated in Avista's 2013 Integrated Resource Plan (see
4 page *iii*). However, not all projects will result in loss
5 savings or other offsets. Avista has maintenance
6 schedules for certain equipment. These maintenance cycles
7 range from 5-15 years depending on the equipment. Unless
8 the replacement of equipment occurs in the same year as
9 the scheduled maintenance, there will not be any savings.

10 Appropriate maintenance and replacement strategies
11 generally improve system reliability over several years on
12 the assets they target. However, several other factors
13 can impact the overall reliability, such as weather and
14 external forces, and can cause significant variation.
15 Furthermore, each year as we replace old equipment with
16 new, the remainder of our system gets another year older,
17 which continues to generate additional failures on our
18 system.

19 **Q. Please describe each of the transmission**
20 **projects planned for the period January 1, 2015 to**
21 **December 31, 2017.**

22 A. The major capital transmission investment (on a
23 system basis) for projects to be completed from January 1,

1 2015 to December 2017 are shown in Table No. 3 and
 2 described below.

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TABLE NO. 3					
ELECTRIC TRANSMISSION (SYSTEM)					
	2015		2016		2017
	System	O&M Offsets	System	O&M Offsets	System
I. Reliability Compliance:					
Substation - 115 kV Line Relay Upgrades	\$ 1,230	\$ -	\$ -	\$ -	\$ -
Transmission - NERC Low Priority Mitigation	500	-	2,000	-	3,000
Transmission - NERC Medium Priority Mitigation	3,306	-	2,251	-	-
SCADA - SOO & BUCC	1,061	-	1,002	-	1,044
Total Reliability Compliance	6,097	-	5,253	-	4,044
II. Contractual Requirements:					
Colstrip Transmission/PNACI	491	-	497	-	516
Tribal Permits and Settlements	1,430	-	316	-	297
Clearwater Sub Upgrades	500	-	500	-	-
Total Contractual Requirements	2,421	-	1,313	-	813
III. Reliability Improvements:					
Substation - Distribution Station Rebuilds	250	-	3,565	-	2,865
Spokane Valley Transmission Reinforcement	3,468	-	7,440	-	-
Noxon Switchyard Rebuild	9,906	-	500	-	7,700
Westside Rebuild Phase One	-	-	1,780	-	-
South Region Voltage Control	-	-	4,900	-	-
Lewiston Mill Rd. 115 kV Substation	684	-	-	-	-
Total Reliability Improvements	14,308	-	18,185	-	10,565
IV. Reliability Replacement:					
Storms	1,000	-	890	-	883
Substation - Asset Mgmt. Capital Maintenance	1,647	-	3,300	-	3,300
Substation - Capital Spares	3,250	-	4,915	-	1,200
Transmission - Asset Management	1,813	-	1,772	-	1,780
Total Reliability Replacement:	7,710	-	10,877	-	7,163
V. Reliability Compliance and Improvements:					
Environmental Compliance	434	-	350	-	350
Reconductors and Rebuilds	11,776	15	21,161	15	18,327
Total Reliability Compliance and Improvements	12,210	15	21,511	15	18,677
	\$ 42,746	\$ 15	\$ 57,139	\$ 15	\$ 41,262

34 **I. Reliability Compliance Projects:**

35

36 **Substation - 115kV Line Relay Upgrades - 2015:**
 37 **\$1,230,000; 2016:\$0; 2017:\$0**

38 This project involves the replacement of older
 39 protective 115 kV system relays with new micro-
 40 processor relays to increase system reliability by
 41 reducing the amount of time it takes to sense a
 42 system disturbance and isolate it from the system.
 43 This project is required to meet Reliability
 44 Compliance under NERC Standards: TOP-004-2 R1-R4,

1 TPL-002-0a R1-R3, and TPL-003-0a R1-R3 and will be
2 completed in 2015.

3
4 **Transmission - NERC Low Priority Mitigation - 2015:**
5 **\$500,000; 2016: \$2,000,000; 2017: \$3,000,000**

6 This program reconfigures insulator attachments,
7 and/or rebuilds existing transmission line
8 structures, or removes earth beneath transmission
9 lines in order to mitigate ratings/sag discrepancies
10 found between "design" and "field" conditions as
11 determined by LiDAR survey data. This program was
12 undertaken in response to the October 7, 2012 North
13 American Electric Reliability Corporations (NERC)
14 "NERC Alert" - Recommendation to Industry,
15 "Consideration of Actual Field Conditions in
16 Determination of Facility Ratings". This Capital
17 Program covers mitigation work on Avista's "Low
18 Priority" 115kV transmission lines. Mitigation brings
19 lines in compliance with the National Electric Safety
20 Code (NESC) minimum clearances values.

21
22 **Transmission - NERC Medium Priority Mitigation -**
23 **2015: \$3,306,000; 2016: \$2,251,000; 2017: \$0**

24 This program reconfigures insulator attachments,
25 and/or rebuilds existing transmission line
26 structures, or removes earth beneath transmission
27 lines in order to mitigate ratings/sag discrepancies
28 found between "design" and "field" conditions as
29 determined by LiDAR survey data. This program was
30 undertaken in response to the October 7, 2012 North
31 American Electric Reliability Corporations (NERC)
32 "NERC Alert" - Recommendation to Industry,
33 "Consideration of Actual Field Conditions in
34 Determination of Facility Ratings". This Capital
35 Program covers mitigation work on Avista's "Medium
36 Priority" 230 kV and 115 kV transmission lines.
37 Mitigation brings lines in compliance with the
38 National Electric Safety Code (NESC) minimum
39 clearances values.

40
41 **SCADA-SOO&BUCC - 2015: \$1,061,000; 2016: \$1,002,000;**
42 **2017: \$1,044,000**

43 This program replaces and/or upgrades existing
44 electric and gas control center telecommunications
45 and computing systems as they reach the end of their
46 useful lives, require increased capacity, or cannot
47 accommodate necessary equipment upgrades due to

1 existing constraints. Included are hardware,
2 software, and operating system upgrades, as well as
3 deployment of capabilities to meet new operational
4 standards and requirements. Some system upgrades may
5 be initiated by other requirements, including NERC
6 reliability standards, growth, and external projects
7 (e.g. Smart Grid). Examples of upgrades to be
8 completed under this program are Critical
9 Infrastructure Protection version 5 (NERC
10 requirement), Gas Control Room Management (PHMSA
11 requirement), WECC RC Advanced Applications, and
12 Technology Refresh (network and storage).
13

14 **II. Contractual Requirements:**

15
16 **Colstrip Transmission - 2015: \$491,000; 2016:**
17 **\$497,000; 2017: \$516,000**

18 As a joint owner of the Colstrip Transmission
19 projects, Avista pays its ownership share of all
20 capital improvements. Northwestern Energy either
21 performs or contracts out the capital work associated
22 with the joint owned facilities.
23

24 **Tribal Permits - 2015: \$1,430,000; 2016: \$316,000;**
25 **2017: \$297,000**

26 The Company has approximately 300 right-of-way
27 permits on tribal reservations that need to be
28 renewed. The costs include labor, appraisals, field
29 work, legal review, GIS information, negotiations,
30 survey (as needed), and the actual fee for the
31 permit.
32

33 **Clearwater Substation Upgrade - 2015: \$500,000; 2016:**
34 **\$500,000; 2017: \$0**

35 This project includes a series of station upgrades to
36 improve 115 kV system reliability in the Lewiston
37 area. This part of the project will construct a new
38 115 kV line terminal in order to install a new bus
39 sectionalizing breaker. In addition, the project
40 replaces an older 115 kV oil circuit breaker and
41 installs standard 115 kV air switches in place of the
42 existing sliding link bus switches, which are
43 dangerous to operate and a reliability concern.

1 **III. Reliability Improvements:**

2
3 **Substation - Distribution Station Rebuilds - 2015:**
4 **\$250,000; 2016: \$3,565,000; 2017: \$2,865,000**

5 This program replaces and/or rebuilds existing
6 substations as they reach the end of their useful
7 lives, require increased capacity, or cannot
8 accommodate necessary equipment upgrades due to
9 existing physical constraints. Included are Wood
10 Substation rebuilds as well as upgrading stations to
11 current design and construction standards. Some
12 station rebuilds may be initiated by other
13 requirements, including obligation to serve, growth,
14 and external projects. Examples of Idaho substation
15 rebuilds to be completed under this program in the
16 next five years are Big Creek, South Lewiston and
17 Kamiah.

18
19 **Spokane Valley Transmission Reinforcement - 2015:**
20 **\$3,468,000; 2016: \$7,440,000; 2017: \$0**

21 The Spokane Valley Transmission Reinforcement Project
22 includes rebuilding 4.4 miles of the Beacon - Boulder
23 #2 115 kV Transmission Line, constructing the new
24 Irvin Switching Station, rebuilding 1.75 miles of the
25 Irvin - Opportunity 115 kV Tap, installing four 115
26 kV circuit breakers at Opportunity Substation, and
27 constructing a new 2.2 mile 115 kV transmission line
28 from Irvin to Millwood/Inland Empire Paper. The
29 completion of these projects is required to mitigate
30 existing and future performance and reliability
31 issues of the Transmission System in the Spokane
32 Valley. Opportunity Substation is presently under
33 construction; the Irvin-Millwood line is under
34 construction; Irvin Substation construction will
35 break ground in 2015 and be energized in 2016; and
36 the Beacon-Boulder line will then be able to be
37 rebuilt.

38
39 **Noxon Switchyard Rebuild - 2015: \$9,906,000; 2016:**
40 **\$500,000; 2017: \$7,700,000**

41 The existing Noxon Rapids 230 kV Switchyard requires
42 reconstruction due to the present age and condition
43 of the equipment in the station. The existing bus
44 has suffered a number of recent failures and is
45 configured as a single bus with a tiebreaker
46 separating the East and West buses. The station is
47 the interconnection point of the Noxon Rapids

1 Hydroelectric development as well as a principal
2 interconnection point between Avista and BPA, and, as
3 such, is a significant asset in the reliable
4 operation of the Western Montana Hydro Complex.
5 Equipment outages within the Station (planned or
6 unplanned) can cause significant curtailments of the
7 local generation output. Due to the significance of
8 the station, a complete rebuild will require
9 coordination with Avista's Energy Resources
10 Department and neighboring utilities, primarily BPA.
11 The Noxon Switchyard Rebuild Project is proposed to
12 be a Greenfield Double Bus Double Breaker 230 kV
13 switching station to replace the existing Noxon
14 Switchyard.

15

16 **Westside Rebuild Phase I - 2015: \$0; 2016:**
17 **\$1,780,000; 2017: \$0**

18 Phase I of this project will extend the existing
19 Westside Substation and the 115 kV and 230 kV buses
20 to allow for a new 250 MVA Autotransformer. This
21 installation will eliminate overloads for credible
22 bus outages and tie breaker failure contingencies in
23 the Spokane area. This is the first phase of a three
24 phase project.

25

26 **South Region Voltage Control - 2015: \$0; 2016:**
27 **\$4,900,000; 2017: \$0**

28 Avista's south region 230 kV, primarily around
29 Lewiston-Clarkston, experiences excessive high
30 voltage during light load periods. Voltages exceed
31 equipment ratings over 35% of the time. Operation of
32 equipment outside of equipment ratings imposes
33 potential legal and regulatory risks to the Company
34 on top of increasing large scale outage
35 possibilities. With automatic control, existing
36 overvoltages can be reduced, if not eliminated, on
37 the 230kV buses at Dry Creek, Lolo, and N.Lewiston,
38 as well as Moscow and Shawnee.

39

40 **Lewiston Mill Rd. 115 kV Substation - 2015: \$684,000;**
41 **2016: \$0; 2017: \$0**

42 A new 115-13 kV substation is required to serve the
43 sawmill for the Idaho Forest Group in Lewiston near
44 Clearwater Paper Co. This new substation will have
45 one 20 MVA transformer, 115 kV Circuit Switcher,
46 panelhouse, full SCADA/Communications, and two 13 kV
47 distribution feeder bays. The transmission will tap

1 the existing Clearwater-Lolo #2 line with associated
2 air switches for isolation. This substation is
3 required for Avista to serve this customer.
4

5 **IV. Reliability Replacements:**
6

7 **Storms - 2015: \$1,000,000; 2016: \$890,000; 2017:**
8 **\$883,000**

9 This program will replace cross arms, poles and
10 structures as required due to storms and fires on
11 distribution and transmission lines.
12

13 **Substation Asset Management Capital Maintenance -**
14 **2015: \$1,647,000; 2016: \$3,300,000 ; 2017: \$3,300,000**

15 Avista has several different equipment replacement
16 programs to improve reliability by replacing aged
17 equipment that is beyond its useful life. These
18 programs include transmission air switch upgrades,
19 restoration of substation rock and fencing, recloser
20 replacements, replacement of obsolete circuit
21 switchers, substation battery replacement, meter
22 replacements and upgrades, relay replacements, high
23 voltage fuse upgrades, transformer replacements,
24 breaker replacements, installation of diagnostic
25 monitors, substation air switch replacements, and
26 voltage regulator replacements. All of these
27 individual projects improve system reliability and
28 customer service.
29

30 **Substation - Capital Spares - 2015: \$3,250,000; 2016:**
31 **\$4,915,000; 2017: \$1,200,000**

32 This program maintains our fleet of Power
33 Transformers and High Voltage Circuit Breakers. This
34 fleet of critical apparatus is capitalized upon
35 receipt and placed in service for both planned and
36 emergency installations as required. The annual
37 program expenditures may vary significantly in years
38 when a 230/115 autotransformer is purchased. In
39 years without an autotransformer purchase, only minor
40 variations will occur based on planned projects as
41 well as replenishing apparatus fleet levels required
42 for adequate capital spares. Acquisition of these
43 capital items requires long lead times, so sufficient
44 levels of safety-stock must be maintained to avoid
45 service interruptions.
46

1 **Transmission - Asset Management - 2015: \$1,813,000;**
2 **2016: \$1,772,000; 2017: \$1,780,000**

3 This item includes Transmission Minor Rebuilds in ER
4 2057, and Air Switch Replacements in ER 2254.
5 Transmission Minor Rebuilds are developed using data
6 received from the prior year's Wood Pole Inspection
7 Program. Minor rebuilds may also use data received
8 from annual Aerial Patrol Inspections. Both
9 inspection programs are undertaken to maintain
10 compliance with NERC Standard FAC-501-WECC-1. Air
11 Switch Replacements are made based either on
12 condition, capacity, or functionality issues.
13 Prioritization of installations and replacements are
14 made from information provided by Avista System
15 Operations, Operations Offices, or Substation
16 Engineering.

17
18 **V. Reliability Compliance and Improvements:**

19
20 **Environmental Compliance - 2015: \$434,000; 2016:**
21 **\$350,000; 2017: \$350,000**

22 This item includes implementation of Forest Service
23 Special Use Permits, waste oil disposal, including
24 PCBs, and environmental compliance requirements
25 related to storm water management, water quality
26 protection, property cleanup and related issues.

27
28 **Transmission Reconductors and Rebuilds - 2015:**
29 **\$11,776,000; 2016: \$21,161,000; 2017: \$18,327,000**

30 This program reconductors and/or rebuilds existing
31 transmission or distribution lines as they reach the
32 end of their useful lives, require increased
33 capacity, or present a risk management issue.
34 Projects include: ER 2310 - West Plains Transmission
35 Reinforcement (Garden Springs-Sunset Rebuild), ER
36 2550 - Pine Creek-Burke-Thompson, ER 2557 - 9CE-
37 Sunset Rebuild, ER 2423-System Condition Rebuild
38 (Bronx-Cabinet Rebuild), ER 2457 -Benton-Othello
39 Rebuild, ER 2564 - Devils Gap-Lind Structure
40 Replacement, ER 2574-Chelan-Stratford River Crossing
41 Rebuild, ER 2577-BEN-M23 Structure Replacement.

42
43 O&M Offsets exist for several items included in this
44 project. To calculate the amount of savings to be
45 reflected in our rate year, reduced line losses are
46 multiplied against the avoided energy cost of \$44 per
47 MWh to arrive at the total energy savings.

1 Benton-Othello 115 will experience an incremental
2 reduction in line losses of 225 MWh in both 2015 and
3 2016 - 450 MWh total. After applying the avoided
4 energy cost per MWh of \$44, this equates to \$19,800
5 (\$6,990 Idaho) of total offsets on a system basis.

6
7 Bronx-Cabinet will experience incremental reductions
8 in line losses of 755 MWh in both 2015 and 2016
9 (1,510 total). This equates to total offsets of
10 \$66,440 on a system level (\$23,450 Idaho Electric).

11 **Q. Please describe each of the distribution**
12 **projects planned for January 1, 2015 through**
13 **December 31, 2017.**

14 A. Distribution specific projects in Idaho are
15 necessary to meet capacity needs of the system, improve
16 reliability, and rebuild aging distribution substations
17 and feeders. The major capital distribution costs for
18 projects to be completed from January 1, 2015 to December
19 31, 2017 are shown in Table No. 4 and described below.

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TABLE NO. 4								
Electric Distribution								
2015			2016			2017		
System	ID	ID	System	ID	ID	System	ID	ID
		Savings/ (Costs)			Savings/ (Costs)			
I. Distribution Projects:								
Distribution Grid Modernization	\$14,081	\$10,114	\$ -	\$11,000	\$ 6,300	\$ -	\$13,000	\$10,300
Distribution Wood Pole Management	11,000	3,011	-	11,000	3,011	23	12,000	3,289
Meter Minor Blanket	5,806	1,121	-	5,806	1,121	-	4,977	971
Segment Reconductor and FDR Tie Program	3,894	1,017	-	3,809	1,562	-	4,175	1,141
Substation - Asset Mgmt. Capital								
Maintenance	2,679	935	-	1,519	530	(57)	1,551	541
Substation - Capital Spares	1,200	115	-	1,200	115	-	800	76
Substation - New Distribution Stations	1,995	-	-	75	9	-	2,323	723
Worst Feeders	2,435	739	-	2,000	698	-	2,000	698
Total Distribution Projects	43,090	17,051	-	36,409	13,345	(34)	40,826	17,740
II. Distribution Replacement Projects								
Distribution Line Protection	125	44	-	125	44	-	125	44
Distribution Minor Rebuild	8,300	2,601	-	8,300	2,601	-	8,300	2,601
Distribution Transformer Change-Out								
Program	4,700	1,282	-	4,700	1,282	-	1,100	300
Environmental Compliance	150	41	-	150	41	-	-	-
Electric Replacement/Relocation	2,403	1,479	-	2,500	1,479	-	2,600	1,479
Primary URD Cable Replacement	1,000	800	-	-	-	(282)	-	-
Reconductors and Rebuilds	2,892	1,009	-	2,500	872	-	2,500	872
Storms	2,000	539	-	1,900	512	-	2,000	539
Substation - Distribution Station								
Rebuilds	2,297	119	-	2,284	1,797	-	3,315	1,697
Street Light Management	1,500	133	165	1,500	191	90	1,500	191
Total Distribution Replacement Projects	25,367	8,047	165	23,959	8,819	(193)	21,440	7,724
Total Distribution Idaho Distribution	\$68,457	\$25,098	\$ 165	\$60,368	\$22,165	\$ (227)	\$62,266	\$25,464

I. Distribution Projects:

**Distribution Grid Modernization - Idaho - 2015:
\$10,114,000; 2016: \$6,300,000; 2017: \$10,300,000**

In 2012, Avista began a program to upgrade distribution feeders to reduce energy losses, improve operation of the feeders and increase long-term reliability. The program will replace poles, transformers, conductors and other equipment on rural and urban feeders. As part of the work, elements of Avista's Smart Grid will be installed as appropriate on these feeders. Electric circuits are selected based on a selection criteria including: 1) age of asset, 2) opportunity for line loss savings, 3) outage/reliability metrics, 4) opportunity for automation to increase efficiency and reliability and 5) workforce resource availability. Once selected, circuits are analyzed by engineering staff to determine the scope of work including structure replacement, line reroutes, conversion from overhead to underground, automation scheme, transformer & equipment replacement, and reconductor segments. This program along with other asset management

1 programs, uses the Distribution Feeder Management
2 Plan to provide direction and guidance to designers
3 and construction personnel.
4

5 **Distribution Wood Pole Management - Idaho - 2015:**
6 **\$3,011,000; 2016: \$3,011,000; 2017: \$3,289,000**

7 The distribution wood pole management program
8 evaluates wood pole strength of 5% of the wood pole
9 population each year such that the entire system is
10 inspected every 20 years. Avista has approximately
11 237,000 distribution wood poles and 33,000
12 transmission wood poles in its electric system.
13 Depending on the test results for a given pole, the
14 pole is either considered satisfactory, needing to be
15 reinforced with a steel stub, or needing to be
16 replaced. In addition to pole condition and
17 strength, inspection crews inspect crossarms,
18 insulators, transformers, guy wires, ground and
19 bonding wires, and primary and secondary conductors.
20 This project also funds the work required to resolve
21 those issues (i.e., potentially leaking transformers,
22 transformers containing more than or equal to 1 ppm
23 polychlorinated biphenyls (PCBs), failed arresters
24 and other visible issues). Transformers older than
25 1981 have the potential to have oil that contains
26 polychlorinated biphenyls (PCBs). These older
27 transformers present increased risk because of the
28 potential to leak oil that contains PCBs. Pre-81
29 transformers are replaced if the pole is replaced.
30 In 2017 WPM will begin to replace all pre-81
31 transformers regardless of whether the pole needs to
32 be replaced. Poles installed during the pre-World
33 War II buildup have reached the end of their useful
34 lives. Avista's Wood Pole Management program was put
35 into place to prevent the Pole-Rotten events and
36 Crossarm - Rotten events from increasing. The
37 Company estimates the cost of an event associated
38 with a bad wood pole based on crew response and labor
39 is approximately \$600. For 2016 we anticipate a
40 reduction of 110 events. We estimate that the O&M
41 offset for 2016 due to Wood Pole Management work is
42 \$66,000. This translates to an Idaho offset of
43 \$23,000.

1 **Meter Minor Blanket - Idaho - 2015: \$1,121,000; 2016:**
2 **\$1,121,000; 2017: \$971,000**

3 The existing power line carrier system for reading
4 meters has failed and is not repairable. This
5 project will replace the existing TURTLE meters with
6 TWACs meters and replace substation equipment with
7 TWACs equipment.

8
9 **Segment Reconductor and Feeder Tie program - Idaho -**
10 **2015: \$1,017,000; 2016: \$1,562,000; 2017: \$1,141,000**

11 This project improves the capacity and reliability of
12 the Company's distribution grid through targeted
13 reconductoring/rebuild projects. In Idaho, there are
14 thirteen (13) projects. These projects are
15 identified, prioritized, and coordinated through the
16 combined effort of Avista's central system planning
17 function together with the assistance of regional
18 operating engineer analysis and study. This is an
19 on-going effort to identify and mitigate the capacity
20 constrained portions of Avista's 18,000 mile
21 distribution grid. In addition to circuit capacity
22 projects, Avista constructs several new feeder tie
23 points annually in order to effect seasonal and or
24 permanent load shifts from either heavily loaded
25 circuits or to relieve substation transformer
26 loading.

27
28 **Substation Asset Management Capital Maintenance -**
29 **Idaho - 2015: \$935,000; 2016: \$530,000; 2017:**
30 **\$541,000**

31 Avista has several different equipment replacement
32 programs to improve reliability by replacing aged
33 equipment that is beyond its useful life. These
34 programs include transmission air switch upgrades,
35 restoration of substation rock and fencing, recloser
36 replacements, replacement of obsolete circuit
37 switchers, substation battery replacement, meter
38 replacements and upgrades, relay replacements, high
39 voltage fuse upgrades, transformer replacements,
40 breaker replacements, installation of diagnostic
41 monitors, substation air switch replacements, and
42 voltage regulator replacements. All of these
43 individual projects improve system reliability and
44 customer service. The equipment is replaced when its
45 useful life has been exceeded. The System-Install
46 Autotransformer Diagnostic Monitor program is one of
47 the projects included in Substation Asset Management

1 Capital Maintenance. This program includes
2 additional incremental costs in 2016 of \$162,000, of
3 which \$57,000 is Idaho's share. This amount is the
4 net of additional potential O&M costs of \$170,300
5 less the positional annual O&M savings of \$8,217.
6 These additional O&M Costs have been included in the
7 Company's O&M Offset adjustment.
8

9 **Substation - Capital Spares - Idaho - 2015: \$115,000;**
10 **2016: \$115,000; 2017: \$76,000**

11 This program maintains our fleet of Power
12 Transformers and High Voltage Circuit Breakers. This
13 fleet of critical apparatus is capitalized upon
14 receipt and placed in service for both planned and
15 emergency installations as required. The annual
16 program expenditures may vary significantly in years
17 when an Autotransformer (230/115 kV) is purchased.
18 In years without an Autotransformer purchase, only
19 minor variations will occur based on planned projects
20 as well as replenishing apparatus fleet levels
21 required for adequate capital spares. Acquisition of
22 these capital items requires long lead times, so
23 sufficient levels of safety-stock must be maintained
24 to avoid service interruptions.
25

26 **Substation - New Distribution Stations - Idaho -**
27 **2015: \$0; 2016: \$9,000; 2017: \$723,000**

28 This program adds new distribution substations to the
29 system in order to serve new and growing load as well
30 as for increased system reliability and operational
31 flexibility. New substations under this program will
32 require planning and operational studies,
33 justifications, and approved project diagrams prior
34 to funding. Planned new substation projects include
35 Tamarack (NE Moscow), Greenacres and Irvin (Spokane
36 Valley), and Lewiston Mill Road.
37

38 **Worst Feeders - Idaho - 2015: \$739,000; 2016:**
39 **\$698,000; 2017: \$698,000**

40 In 2009 Avista initiated a program to target the
41 reinforcement of the most underperforming electric
42 circuits. This program is coordinated with regional
43 engineers and focus treatment on those feeders (FDRs)
44 whose sustained outage statistics (SAIFI) and
45 customer experiencing multiple interruption (CEMI)
46 are at the top of the 'worst performing FDR list'.
47 Most of these circuits are rural in nature and many

1 involve dozens of miles of tree/forest exposed line
2 routes. In 2015, the circuits served from Gifford,
3 Colville, and Roxboro will be targeted for
4 reliability projects. Project scope often involves
5 the installation of midline breaker devices and may
6 involve circuit hardening, conversion from overhead
7 to underground, or circuit rerouting.

8
9 **II. Distribution Replacement Projects**

10
11 **Distribution Line Protection - Idaho - 2015; \$44,000;**
12 **2016: \$44,000; 2017: \$44,000**

13 Avista's Electric Distribution system is configured
14 into a trunk and lateral system. Lateral circuits
15 are protected via fuse-links and operate under fault
16 conditions to isolate the lateral in order to
17 minimize the number of affected customers in an
18 outage. Engineering recommends treatment of the
19 removal and replacement of Chance Cutouts, the
20 removal and replacement of Durabute cutouts and the
21 installation of cut-outs on un-fused lateral
22 circuits. This is a targeted program to ensure
23 adequate protection of lateral circuits and to
24 replace known defective equipment.

25
26 **Distribution Minor Rebuild - Idaho - 2015:**
27 **\$2,601,000; 2016: \$2,601,000; 2017: \$2,601,000**

28 This program is for distribution minor rebuilds as
29 requested by the customer or initiated by Avista.
30 Examples of construction work includes replacing
31 meters, services, transformers, primary overhead or
32 underground lines, or devices. This also includes
33 addressing trouble related jobs (i.e. replacing burnt
34 or damaged poles).

35
36 **Distribution Transformer Change Out Program - Idaho -**
37 **2015: \$1,282,000; 2016: \$1,282,000; 2017: \$300,000**

38 The Distribution Transformer Change-Out Program has
39 three main drivers. First, the pre-1981 distribution
40 transformers that are targeted for replacement
41 average 42 years of age and are a minimum of 30 years
42 old. Their replacement will increase the reliability
43 and availability of the system. Secondly, the
44 transformers to be replaced are inefficient compared
45 to current standards. Thirdly, pre-1981 transformers
46 have the potential to have oil containing PCBs. The
47 transformers to be removed early in the programs are

1 those that are most likely to have PCBs in the oil
2 and their replacement will reduce the risk of oil
3 spills containing PCBs.
4

5 **Environmental Compliance - Idaho - 2015: \$41,000;**
6 **2016: \$41,000; 2017: \$0**

7 This item includes implementation of Forest Service
8 Special Use Permits, waste oil disposal, including
9 PCBs, and environmental compliance requirements
10 related to storm water management, water quality
11 protection, property cleanup and related issues.
12

13 **Electric Replacement/Relocation - Idaho - 2015:**
14 **\$1,479,000; 2016: \$1,479,000; 2017: \$1,479,000**

15 This annual program will replace sections of existing
16 infrastructure that require replacement due to
17 relocation or improvement of streets or highways.
18 Requirements may come from our franchise agreements,
19 permits, or the Idaho Transportation Department.
20 Avista installs many of its facilities in public
21 right-of-way under established franchise agreements.
22 Avista is required under the franchise agreements, in
23 most cases, to relocate its facilities when they are
24 in conflict with road or highway improvements.
25

26 **Primary URD Cable Replacement - Idaho - 2015:**
27 **\$800,000; 2016: \$0; 2017: \$0**

28 This program involves replacing the first generation
29 of Underground Residential District (URD) cable.
30 This project has been ongoing for the past several
31 years and focuses on replacing a vintage and type of
32 cable that has reached its end of life and
33 contributes significantly to URD cable failures. The
34 Company estimates the cost of each underground outage
35 to be \$3,850. With the downward trend in underground
36 outages, it is projected that 45 outages will occur
37 in 2015, as compared to 72 in 2012. A five year plan
38 to inspect and maintain our padmount equipment will
39 add \$800,000 per year to O&M spending for the first
40 five years. Idaho's allocation of these additional
41 O&M costs is \$282,000 in 2016. These additional
42 costs have been included in the Company's O&M Offset
43 adjustment.

1 **Reconductors and Rebuilds - Idaho - 2015: \$1,009,000;**
2 **2016: \$872,000; 2017: \$872,000**

3 This program reconstructs and/or rebuilds existing
4 transmission or distribution lines as they reach the
5 end of their useful lives, require increased
6 capacity, or present a risk management issue.
7 Projects include: ER 2310 - West Plains Transmission
8 Reinforcement, ER 2550 - Pine Creek-Burke-Thompson,
9 ER 2557 - 9CE-Sunset Rebuild, ER 2423 - System
10 Condition Rebuild, ER 2457 - Benton-Othello Rebuild,
11 ER2556 - CDA-Pine Creek Rebuild, ER 2564 - Devils
12 Gap-Lind Major Rebuild, ER 2574 - Chelan-Stratford
13 River Crossing Rebuild, ER 2576 - Addy-Devils Gap
14 Reconductor, ER 2575 - Garden Springs-Silver Lake
15 Rebuild, ER 2582 - BEA-BEL-F&C-WAI Reconfiguration,
16 and ER 2577 - BEN-M23 Rebuild.

17
18 **Storms - Idaho - 2015: \$539,000; 2016: \$512,000;**
19 **2017: \$539,000**

20 Weather events associated with wind, lightning, rain,
21 and snow create a number of outage situations. This
22 program addresses these outage situations. Estimated
23 capital spend is based on historical averages.

24
25 **Substation - Distribution Station Rebuilds - Idaho -**
26 **2015: \$119,000; 2016: \$1,797,000; 2017: \$1,697,000**

27 This program replaces and/or rebuilds existing
28 substations as they reach the end of their useful
29 lives, require increased capacity, or cannot
30 accommodate necessary equipment upgrades due to
31 existing physical constraints. Included are Wood
32 Substation rebuilds as well as upgrading stations to
33 current design and construction standards. Some
34 station rebuilds may be initiated by other
35 requirements, including obligation to serve, growth,
36 and external projects. Examples of Idaho substation
37 rebuilds to be completed under this program in the
38 next five years are Big Creek, South Lewiston and
39 Kamiah.

40
41 **Street Light Management - Idaho - 2015: \$133,000;**
42 **2016: \$191,000; 2017: \$191,000**

43 This program is a five year planned replacement of
44 fixtures and 10 year planned replacement of
45 photocells. We anticipate there will be O&M savings
46 in 2015 of \$468,000 (\$165,000 ID) and an additional
47 offset in 2016 of \$254,000 (\$90,000 ID), resulting in

1 a total offset of \$722,000 (\$255,000 ID). The
2 offsets result from the conversion to 100 Watt street
3 lights from High Pressure Sodium. The savings come
4 from eliminating the labor, equipment, material, and
5 overhead costs associated with repairing older
6 lights.

7 Q. Does this complete your pre-filed direct
8 testimony?

9 A. Yes it does.