

APPENDIX A

2016 Avista Washington Electric Impact Memorandum

MEMORANDUM



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To: Dan Johnson, Amber Gifford; Avista

From: Lynn Roy; Nexant

Re: WA 2016 Electric Impact Memorandum

In 2016, Avista offered a suite of nonresidential, residential and low income programs to customers in their Washington service territory. The programs incented Avista's customers to purchase and implement energy savings measures in their homes and businesses through prescriptive rebates, buy-down offerings, direct installs, and site specific rebates. This memo outlines the adjusted reported electric savings values for the 2016 program year. Net-to-gross values have not been applied to the savings values, except in those cases where the deemed energy savings value is based on market baseline and therefore is a net value.

Total 2016 Washington Electric Savings

The following table outlines the total reported and adjusted reported electric savings for the 2016 program year in Avista's Washington service territory, by nonresidential sector, residential sector, and low income sector. The reported savings values are from Avista's Saleslogix and Customer Care and Billing database and from data provided by third-party implementers not tracked in Avista's databases. The adjusted reported savings are calculated through the application of adjustment factors based on any discrepancies found during the evaluation team's review of the reporting databases. Savings are broken out by sector in the remainder of this memo.

Table 1: 2016 Total Reported and Adjusted Reported Gross Savings for Washington Electric

Sector	Reported Savings (kWh)	Adjusted Reported Savings (kWh)
Nonresidential - Conservation	47,872,836	37,420,578*
Nonresidential – Fuel Conversion	805,779	805,779
Nonresidential Total	48,678,615	38,226,357
Residential - Conservation	33,306,263	33,316,696
Residential - Fuel Conversion	8,806,008	9,766,855
Residential Total	42,112,271	43,083,551
Low Income - Conservation	269,513	272,438
Low Income - Fuel Conversion	273,628	273,628
Low Income Total	543,141	546,066
Total Conservation	81,448,612	71,009,712
Total Fuel Conversion	9,885,415	10,846,262
Total Conservation + Fuel Conversion	91,334,027	81,855,974

*See page 3 for explanation on the difference between the reported and adjusted reported savings for the nonresidential-conservation savings values.

The Fuel Efficiency Program reports an interactive gas effect associated with the electric HVAC measures that are converted to gas measures. The negative savings are the negative avoided costs associated with the fuel conversions and are incorporated in the electric cost-effectiveness calculations. Table 2 summarizes the fuel conversion interactive terms by sector.

Table 2: 2016 Reported and Adjusted Reported Gross Fuel Conversions for Washington Electric

Sector	Reported Savings (therms)	Adjusted Reported Savings (therms)
Nonresidential – Fuel Conversion	(36,109)	(36,109)
Residential - Fuel Conversion	(398,754)	(435,806)
Low Income - Fuel Conversion	(10,507)	(10,507)
Total Fuel Conversion	(445,370)	(482,422)

Nonresidential Savings

Table 2 outlines the reported and adjusted reported gross electric savings for the 2016 nonresidential programs in Avista’s Washington service territory. An adjustment factor was applied to the reported savings to account for any errors found by the evaluation team.

Table 3: 2016 Nonresidential Reported and Adjusted Reported Savings for Washington Electric

Program and Measure Category	Reported Savings (kWh)	Adjustment Factor	Adjusted Reported Savings (kWh)
AirGuardian	25,735	100%	25,735
ESG PSC Case Lighting	862,310	100%	862,310
ESG PSC Cases	228,026	100%	228,026
ESG PSC Controls	151,659	100%	151,659
ESG PSC Motors	55,404	100%	55,404
ESG SS Case Doors	120,191	100%	120,191
ESG SS Cases	120,114	100%	120,114
ESG SS Lighting	35,707	100%	35,707
PSC Fleet Heat	16,000	100%	16,000
PSC Food Service Equipment	72,029	100%	72,029
PSC Green Motors Rewind	33,651	100%	33,651
PSC Insulation	7,674	100%	7,674
PSC Lighting Exterior	3,372,743	100%	3,372,743
PSC Lighting Interior	36,042,267	71%*	25,590,010
PSC Motor Controls HVAC	140,890	100%	140,890
SS Appliances	61,424	100%	61,424
SS HVAC Combined	679,707	100%	679,707
SS HVAC Heating	21,885	100%	21,885
SS Industrial Process	477,332	100%	477,332
SS Lighting Exterior	536,945	100%	536,945
SS Lighting Interior	2,772,786	100%	2,772,786
SS Multifamily	2,443	100%	2,443
SS Multifamily - Fuel Conversion	805,779	100%	805,779
SS Shell	267,113	100%	267,113
Small Business	1,768,801	100%	1,768,801
Total	48,678,615	79%	38,226,357

*The evaluation team conducted document reviews and onsite verification activities on a sample of 2016 nonresidential projects. Based on these activities, the evaluation team calculated an interim realization rate of 71% for the prescriptive lighting measures. One of the factors behind this realization rate is based on the evaluation team's review of TLED measures incented in the 2016 program year.

Specifically, in the 2016 program year, Avista offered two prescriptive lighting measures for TLEDs:

- 1-Lamp T12/T8 Fixture to 1-Lamp LED 8W to 15W, incentivized at \$15 per lamp

- 1-Lamp T12/T8 Fixture to 1-Lamp LED 16W to 23W, incentivized at \$10 per lamp

As early project applications were submitted, Avista became aware that TLED lamps were labeled under a lower wattage than their DLC product specifications. TLED lamps were found in the market with a labeled wattage of 14-15W, while the Design Lights Consortium (DLC) testing indicated that these lamps consume 17-18W. The evaluation team believes that this discrepancy is because TLED lamp power consumption is subject to different ballast configurations. Thus, a TLED in a low ballast factor (LBF) ballast may only consume 14W, but in a normal ballast factor (NBF) ballast, the same lamp uses 17W. The DLC maintains performance data for its certified lamps as tested with a 0.89 ballast factor.

An issue was identified where program guidelines required DLC listed lamps and customers were selecting lamps based on the DLC listing. Early on in 2016 some customers who installed DLC listed lamps were paid a lower incentive based on the DLC listed wattage rather than the lamp labeled wattage. Avista agreed that this could be confusing to customers who met the written program requirements of installing DLC listed lamps and applied for incentives based on the lamp's listed wattage. Avista clarified that customers should be paid based on the wattage printed on the lamp packaging. Avista communicated clarifications to customers and vendors regarding measure eligibility recognizing that some DLC listed TLEDs may have the same wattage on both the TLED lamp and packaging as well as the DLC listed wattage and some may differ. This potential delta along with other energy savings data such as hours of use would be evaluated by the evaluation team.

After the 2016 year had ended, the evaluation team applied a realization rate to the total savings associated with these measures. Because Avista has adjusted the savings associated with this measure for the 2017 program year, the evaluation team believes that the final realization rate for the 2016-2017 evaluation period will increase. In addition, the measure category remains cost-effective on a Total Resource Cost (TRC) basis with the application of the 71% realization rate for the 2016 program year.

Residential Savings

Table 3 outlines the reported and adjusted reported gross electric savings for the 2016 residential measures offered in Avista's Washington service territory. Savings are reported by measure type to align with the data utilized in the cost-effectiveness analysis. An adjustment factor was applied to the reported savings to account for any errors found by the evaluation team.

Table 4: 2016 Residential Reported and Adjusted Reported Gross Savings for Washington Electric

Measure Type	Reported Savings (kWh)	Adjustment Factor	Adjusted Reported Savings (kWh)
E Attic Insulation With Electric Heat	23,919	94%	22,375
E Electric To Air Source Heat Pump	382,834	108%	413,700
E Electric To Natural Gas Furnace	1,761,754	117%	2,054,052
E Electric To Natural Gas Furnace & Water Heat	6,031,457	112%	6,754,103
E Electric To Natural Gas Wall Heater	120,252	100%	120,252
E Electric To Natural Gas Water Heater	892,545	94%	838,448
E Electric Water Heater	220	126%	278
E Energy Star Home - Manufactured, Furnace	47,929	100%	47,929
E Energy Star Home - Manufactured, Heat Pump	8,780	100%	8,780
E Floor Insulation With Electric Heat	5,568	59%	3,305
E Smart Thermostat DIY with Electric Heat	8,761	96%	8,414
E Smart Thermostat Paid Install with Electric Heat	20,400	100%	20,434
E Variable Speed Motor	326,616	100%	325,299
E Wall Insulation With Electric Heat	20,303	70%	14,225
E Window Replc from Double Pane W Electric Heat	247,857	100%	247,857
E Window Replc from Single Pane W Electric Heat	462,176	115%	530,912
G Attic Insulation With Natural Gas Heat	1,116	0%	-
G Natural Gas Furnace	3,302	0%	-
G Window Replc With Natural Gas Heat	73,164	0%	-
E Manuf Floor Insulation With Electric Heat	1,924	93%	1,794
Customer Outreach LEDs	650	100%	650
Opower Home Energy Reports	16,511,583	100%	16,511,583
Simple Steps CFL	14,970,203	100%	3,432,945
Simple Steps LED			11,537,258
Simple Steps Showerheads	137,638	100%	137,638
Simple Steps Clothes Washers	51,319	100%	51,319
Total	42,112,271	102%	43,083,551

Low Income Savings

Table 4 outlines the reported and adjusted reported gross electric savings for the 2016 Low Income program in Avista's Washington service territory. Savings are reported by measure type to align with the data utilized in the cost-effectiveness analysis. An adjustment factor was applied to the reported savings to account for any errors found by the evaluation team.

Table 5: 2016 Low Income Reported and Adjusted Reported Savings for Washington Electric

Measure Type	Reported Savings (kWh)	Adjustment Factor	Adjusted Reported Savings (kWh)
CFL Bulbs	701	100%	701
E Air Infiltration	19,498	100%	19,498
E Duct Sealing	5,864	100%	5,864
E Energy Star Doors	7,538	100%	7,538
E Energy Star Refrigerator	2,475	100%	2,475
E Energy Star Windows	19,274	100%	19,274
E HE Water Heater	162	100%	162
E INS - Attic	16,015	100%	16,015
E INS - Duct	7,534	100%	7,534
E INS - Floor	80,435	100%	80,435
E INS - Wall	15,960	100%	15,960
E To G Furnace Conversion	174,554	100%	174,554
E To G H2O Conversion	83,479	100%	83,479
E To Heat Pump Conversion	15,595	100%	15,595
Customer Outreach CFLs	1,770	100%	1,770
Customer Outreach LEDs	92,287	103%	95,212
Total	543,141	101%	546,066