



Washington 2017 DSM Annual Conservation Report & Cost- Effectiveness Analysis

June 1, 2018

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1 Executive Summary

The 2017 Demand-Side Management (DSM) Annual Report summarizes Avista Utilities' (Avista) annual energy efficiency achievements for its Washington electric and natural gas customers. These programs are intended to deliver all cost-effective conservation with the funding provided through Avista's Schedules 91 and 191, also known as the "Tariff Rider" which is a system benefit charge applied to all electric and natural gas retail sales.

2017 is the second year of the fourth Biennial Conservation Plan (BCP) for Washington's Energy Independence Act (Initiative 937 or I-937). Avista's annual target as reported in the 2017 Annual Conservation Plan is 53,743 MWh. In 2017, Avista acquired 76,493 MWh (gross verified savings) in Washington, or 142% of its annual target. In the 2016-2017 biennium, Avista acquired 141,331 MWh (gross verified savings) in Washington, or 185% of its target as filed in the 2016-17 BCP of 76,257 MWh. The primary driver for electric savings is the nonresidential prescriptive lighting program. Residential Home Energy Reports, residential lighting efforts, and Site Specific projects also contributed a significant amount to the overall savings contribution.

In 2017, Avista's natural gas efficiency portfolio delivered 1,046,356 therms in savings (gross verified savings), achieving 169% of the Company's 2017 natural gas target of 620,310 therms as noted in the 2017 Annual Conservation Plan. The primary driver for the natural gas savings is residential prescriptive HVAC measures. Residential water heat measures and nonresidential prescriptive and Site Specific HVAC also contributed a fair amount to the overall savings contribution.

In 2017, over \$7.1 million in rebates were provided directly to Washington residential customers to offset the cost of implementing these energy efficiency measures. All programs within the residential portfolio contributed over 33,376 MWh and over 773,000 therms to the annual energy savings. In addition, more than 2,000 prescriptive and site specific nonresidential projects were incented. Additionally, the Small Business program installed over 17,000 individual measures. Avista's tariff rider funded more than \$9.9 million for energy efficiency incentives in nonresidential and small business applications. Nonresidential programs realized over 41,930 MWh and 270,000 therms in annual first-year energy savings.

A summary of acquired savings in 2017 by sector is provided for both fuels in Tables ES-1 and ES-2.

Table ES-1: 2017 Washington Electric Energy Savings (Gross Verified)

Segment	kWh (Conservation + Conversions)	Conversions	I-937 kWh Total (Conservation Only)
Residential	33,376,237	10,237,036	23,139,201
Low Income	710,204	518,748	191,457
Nonresidential	41,930,099	1,070,262	40,859,838
Subtotal	76,016,541	11,826,045	64,190,495
Distribution	476,000	-	476,000
Total	76,492,541	11,826,045	64,666,495

Table ES-2: 2017 Washington Natural Gas Savings (Gross Verified)

Segment	Therms
Residential	773,030
Low Income	3,034
Nonresidential	270,293
Total	1,046,356

The above mentioned acquisition has been delivered through local energy efficiency programs managed by the utility or third-party contractors. Avista also funds a regional market transformation effort through the Northwest Energy Efficiency Alliance (NEEA), however, reported electric energy savings, cost-effectiveness and other related information is specific to local programs unless otherwise noted. The savings indicated above are gross verified savings based on the 2016-2017 evaluation of the programs.

1.1 Cost-Effectiveness

Avista judges the effectiveness of the energy efficiency portfolio based upon a number of metrics. Two of the most commonly applied metrics are the TRC (total resource cost) test, a benefit-to-cost test from the customer perspective including all measure costs and non-energy benefits and excluding incentives. The other is the PAC (program administrator cost) test also known as the UCT (utility cost test). The PAC is a benefit-to-cost test from the utility perspective including incentives and excluding net costs and non-energy benefits of participants related to energy efficiency services. Both tests provide insight as to the net value to all customers. At present, the Washington Utilities and Transportation Commission has requested that Avista



operate its natural gas energy efficiency programs under the PAC test rather than the TRC test.

Benefit-to-cost ratios in excess of 1.00 indicate that the benefits exceed the costs. In 2017, the gross TRC benefit-to-cost ratios were 1.80 for electric and 0.64 for natural gas. The PAC test benefit-to-cost ratios were 3.32 for electric and 2.46 for natural gas. Tables ES-3 and ES-4 present the TRC cost-effectiveness results for the electric portfolio and the PAC test results for the natural gas portfolio.

Table ES-3: 2017 WA Electric Total Resource Cost (TRC) (Gross)

	Regular Income Portfolio	Low Income Portfolio**	Overall Portfolio
Electric Avoided Costs	\$63,412,484	\$764,444	\$64,176,928
Natural Gas Avoided Costs	-\$4,123,424	-\$136,658	-\$4,260,082
Non-Energy Benefits	\$9,625	\$189,604	\$199,229
TRC Benefits	\$59,298,684	\$817,391	\$60,116,074
Non-Incentive Utility Costs	\$2,366,990	\$35,560	\$2,402,550
Customer Costs	\$29,981,292	\$936,097	\$30,917,389
TRC Costs	\$32,348,281	\$971,657	\$33,319,938
TRC Ratio	1.83	0.84	1.80
Residual* TRC Benefits	\$26,950,402	-\$154,266	\$26,796,136

*The "Residual TRC" is used to denote the difference between TRC benefits and costs. The term "Residual" is used in lieu of the term "Net" as not to be confused with TRC benefits and costs where Net to Gross adjustments have been applied.

**Includes costs funded to the CAP agencies.



Table ES-4: 2017 WA Natural Gas Program Administrator Cost (PAC) (Gross)

	Regular Income Portfolio	Low Income Portfolio	Overall Portfolio
Natural Gas Avoided Costs	\$9,054,943	\$27,193	\$9,082,136
Electric Avoided Costs	\$0	\$0	\$0
PAC Benefits	\$9,054,943	\$27,193	\$9,082,136
Non-Incentive Utility Costs	\$311,608	\$7,193	\$318,801
Incentive Costs	\$2,328,197	\$1,038,510	\$3,366,707
PAC Costs	\$2,639,806	\$1,045,703	\$3,685,508
PAC Ratio	3.43	0.03	2.46
Net PAC Benefits	\$6,415,138	-\$1,018,510	\$5,396,628

1.2 Tariff Rider Balances

As of the start of 2017, the Washington electric tariff rider balance was underfunded by \$8,283,048. During 2017, \$15.7 million in tariff rider revenue was collected to fund electric energy efficiency while \$21.8 million was expended to operate energy efficiency programs. The \$6.1 million under-collection of tariff rider funding resulted in a year-end, underfunded balance of \$14.4 million, which aligns with the 2017 increase in energy efficiency savings. The primary driver for the underfunded balance was the unanticipated high participation in the nonresidential lighting program in 2017. Please see Section 10 for more details.

The Washington gas tariff rider balance was underfunded by \$1,410,964 as of the start of 2017. During 2017, \$5.0 million in tariff rider revenue was collected to fund natural gas energy efficiency while \$4.3 million was expended to operate natural gas energy efficiency programs. The under-collection of tariff rider funds resulted in a year-end, underfunded balance of \$626,653.

1.3 Third-Party Evaluation

Nexant, Inc., in partnership with Research Into Action, (the evaluation team) was retained as the Company's external evaluator to independently measure and verify the portfolio energy savings for the 2016-2017 biennium period. The energy efficiency savings and associated cost-effectiveness results presented in this 2017 Annual Report are based on the evaluation findings and are presented as gross, verified savings.

The impact and process evaluation reports can be found in the Appendix.



1.4 2017 Program Highlights, Challenges and Changes

Avista practices active management and continuous process improvement when delivering energy efficiency programs. Through the evaluation team's on-going evaluation activities and through internal active management, Avista recognizes program successes and challenges throughout the biennium and practices continuous process improvement to strive for the delivery of successful and cost-effective energy efficiency programs. Some of Avista's 2017 program highlights as well as some challenges are described below.

- Hard to Reach Markets: A highlight for 2017 is Avista's participation in the Small-Medium Business Program that started in mid-2015 with an initial contract period of 2 years with SBW Consulting. This program was well received by our hard to reach small business customers and the contract was extended to the end of 2017 which resulted in a successful year. As the program was coming to a close, Avista chose to leverage the industry knowledge and capabilities of its existing conservation vendor, SBW by hiring them to perform the Company's Multifamily Direct Install Pilot Program. This pilot program is designed to target a hard-to-reach segment of rental customers living in complexes of 4 or more units. Traditionally, this demographic has been identified as underserved in Avista's region and the efforts of SBW help to serve these customers.
- Lighting Programs: The Company's Residential and Non-Residential Lighting Programs experienced an unprecedented level of conservation achievement throughout the biennium. The Company's lighting offerings maintained a high level of cost effectiveness while providing customers with access to affordable LED lighting. As the market transforms, the Company adapts its offerings, incentives, and savings values. During 2017, the Company discontinued incentives for CFL product buy-downs to align with the current market conditions and transitioned its efforts to LED lamps and fixtures only.
- Residential Prescriptive: Avista experienced significant growth in the Residential rebates program in 2017. Processed rebates grew 47% over 2016 resulting in 13,953 requests completed. The main areas responsible for this growth were the Fuel Conversions and Lighting. These two programs accounted for the majority of rebate requests. Fuel conversions continue to drive the Residential Rebates program and Avista attributes some of the growth to partnering with our local HVAC contractors to better market the savings to the customer. This effort materialized through the integration of a preferred HVAC contractor list that would be provided on the website to customers that expressed an interest in fuel conversions or furnace efficiency upgrades.
- Home Energy Reports: The OPower/Oracle Home Energy Report program ended in 2017 with the last report sent in December of that year. Avista's Home Energy Report has been a successful avenue to achieve conservation for our customers. As the report program comes to an end, Avista looks to incorporate new behavior programs by leveraging new technologies such as Advanced Metering Infrastructure (AMI) and an alternative customer energy use comparison system.

- **Low-Income Measures:** The Company is pleased that, through work with our advisory group, it was successful in identifying and adding new measures for Washington and Idaho customers in 2017. By working with our advocates and advisors, the Company saw a substantial increase in the number of Approved Measures available for the 2017 program year. While it is understood that cost-effective energy efficiency programs are a main requirement, the ability to serve the low income customer cost effectively is a constant challenge. Avista has taken steps to pay for the value of the energy saved which in some cases becomes an amount that is not meaningful to the agency to install.

Continuing the integrated resource planning and conservation potential assessment processes, Avista reviews existing and potential programs as part of the DSM business planning process. In 2017, through adaptive management, programs were modified to reflect updated savings and cost information that affected incentive levels.

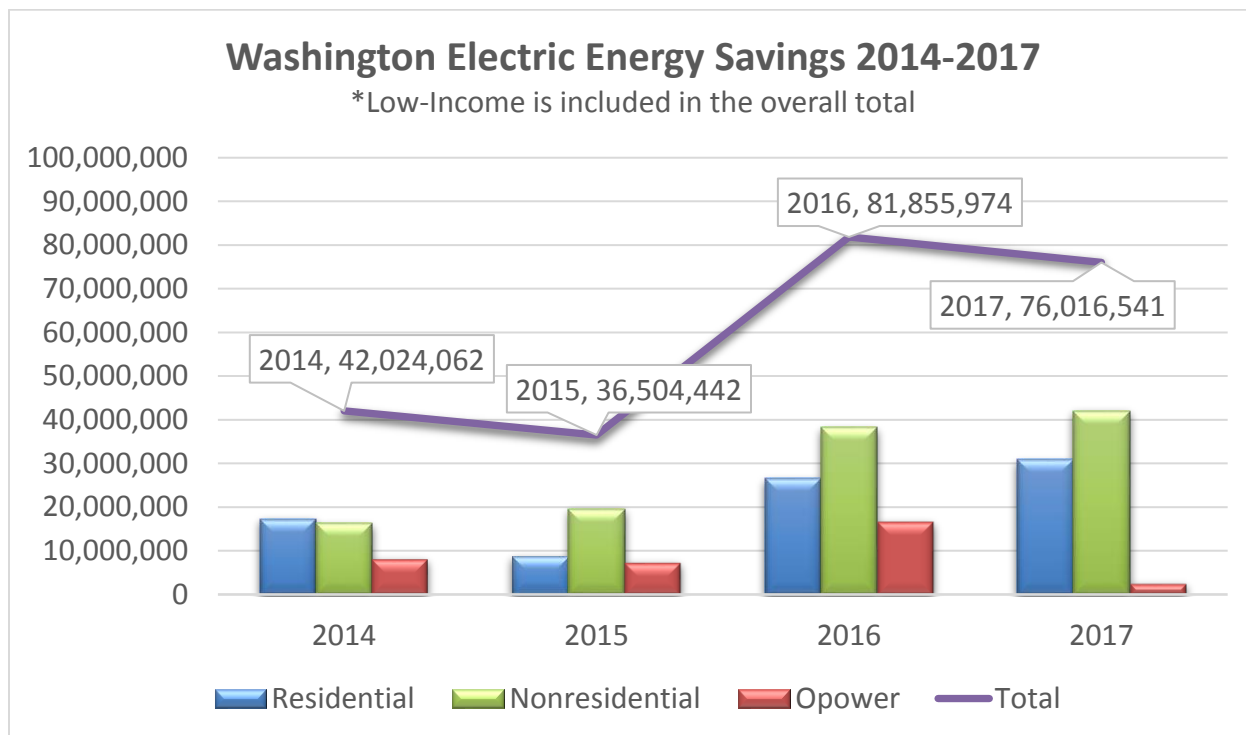
In 2017, the Company began implementation of iEnergy/DSM Central which is an enterprise DSM software intended to manage data across multiple internal software programs and allow the DSM team to utilize the information in one place. This software will also be a benefit to external stakeholders including regulators, advisors, and trade allies. The Company is on pace to functionalize the software in 2018 with the bulk of its programs managed in the program by 2020.

Though the nature of this report is to look backwards on the performance of the previous year, successes and lessons from this process are applied during the forward-looking business planning process to inform and improve program design, including program modification and termination where necessary. Avista remains committed to continuing to deliver responsible and cost-effective energy efficiency programs to our customers.

1.5 2017 Portfolio Trends

Avista experienced increased savings in 2017 compared to its previous years and much of the change is attributed to the increasing popularity of LED lighting, TLED lighting and Fuel Conversions. Avista's 76,016,541 kWh of energy savings from 2017 is lower than its 2016 acquisition of 81,855,974 kWh, however, this is due to the majority of the two-year Home Energy Report program savings being recognized in 2016. Savings acquired through the Company's residential program increased from 26,571,967 kWh in 2016 to 33,376,237 kWh in 2017, a 26% increase. Nonresidential programs increased their conservation acquisition from 38,226,358 kWh in 2016 to 41,930,099 kWh in 2017, a 10% increase.

Figure ES-1: Washington Electric Energy Savings¹



Of Avista’s overall Electric savings portfolio, Non-Residential Prescriptive programs obtained 44% of the savings in 2017. This program, combined with Residential Lighting and Fuel Conversions, achieved 81% of the overall savings for 2017. See figure ES-2 for an illustration of these components.

¹ For the purpose of comparing the 2014-2017 trend analysis data, please note that the savings numbers for 2014 are unverified gross, 2015 is verified gross, 2016 is adjusted reported gross, and 2017 is verified gross.

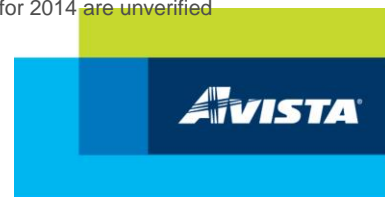
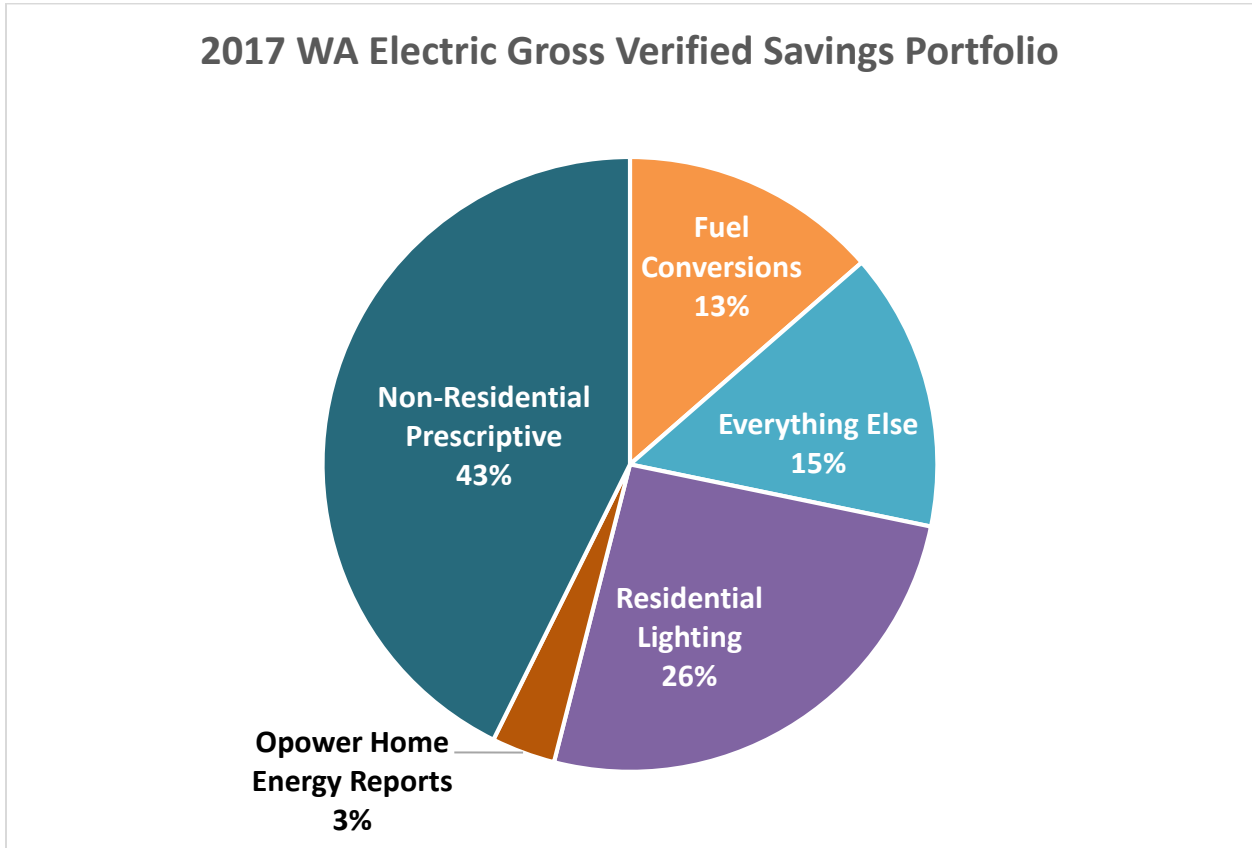


Figure ES-2: 2017 Washington Electric Savings Portfolio



Note: The two-year Opower/Oracle Home Energy Report program acquired 19,035,123 kWh of savings during the 2016-2017 period. Of this amount, 16,511,583 kWh was recognized in 2016 and 2,523,540 kWh in 2017. For additional Opower/Oracle information, see Section 4.1.8.



2 Cost-Effectiveness

The 2017 Demand-Side Management (DSM) Annual Report summarizes the Company’s annual energy efficiency achievements of its DSM programs.

Cost-effectiveness was reviewed using four of the five California Standard Practice Tests including the Total Resource Cost (TRC), Program Administrator Cost (PAC), Participant, and Rate Impact Measure (RIM) tests. For this annual report, Sections 2.1 through 2.3 present the cost-effectiveness of Avista’s DSM programs based on gross verified savings (utilizing evaluation findings and locked unit energy savings (UES) values as applicable) and methods consistent with those laid out in the California Standard Practice Manual for Economic Analysis of Demand-Side Programs and Projects as modified by the Council. Shown below in Table 2-2 through Table 2-13 are results for these four California Standard Practice Tests - Total Resource Cost, Program Administrator Cost, Participant, and Rate Impact Measure for electric and natural gas. Table 2-1 summarizes the allocation of cost-effectiveness components as a cost or benefit to each cost-effectiveness test.

Table 2-1: Cost-Effectiveness Component Inputs

Component	Program Administrator Cost Test (PAC)	Total Resource Cost (TRC)	Participant Cost Test (PCT)	Rate Impact Measure (RIM)
Utility Energy & Capacity Avoided Costs	Benefit	Benefit		Benefit
Non-Utility Energy & Capacity Energy Costs		Benefit	Benefit	
Non-Energy Benefit Impacts		Benefit	Benefit	
Incremental Equipment and Installation Costs		Cost	Cost	
Program Non-incentive (admin) Costs	Cost	Cost		Cost
Incentive Payments	Cost		Benefit	Cost

The cost-effectiveness calculations only include non-energy benefits where the values are reasonably defensible and quantifiable for a limited number of measures, including water savings, equipment replacement and operation and maintenance benefits. The calculations also include health and human safety non-energy benefits (dollar for dollar) for the low-income programs. Non-energy benefits that are not included, because they are not easily quantifiable, include benefits for arrearage, health/safety/comfort, system reliability, and site specific air emissions to name a few.

Included in Avista’s cost effectiveness results are measures implemented for low-income



households. In regards to these efforts, WAC 480-109-100(10) provides that:

(a) A utility may fully fund low-income conservation measures that are determined by the implementing agency to be cost-effective consistent with the *Weatherization Manual* maintained by the department. Measures identified through the priority list in the *Weatherization Manual* are considered cost-effective. In addition, a utility may fully fund repairs, administrative costs, and health and safety improvements associated with cost-effective low-income conservation measures. (b) A utility may exclude low-income conservation from portfolio-level cost-effectiveness calculations. (c) A utility must count savings from low-income conservation toward meeting its biennial conservation target. Savings may be those calculated consistent with the procedures in the *Weatherization Manual*.

Low-Income conservation items have been separately identified from the Regular Income portfolio in the following cost effective results tables. For those items, the costs associated with low-income also includes amounts funded to the Community Action Program (CAP) agencies.

Cost effectiveness results within this report are based on gross verified savings. Energy savings reported by Avista's implementation team (both external and internal to Avista) were evaluated by the Company's external evaluator and realization rates have been applied to all measures that are not utilizing a deemed unit energy savings value from the Regional Technical Forum (RTF). The savings estimates, and therefore the cost effectiveness results, represent gross energy acquisition.

The "Residual TRC" is used to denote the difference between TRC benefits and costs. The term "Residual" is used in lieu of the term "Net" as not to be confused with TRC benefits and costs where Net to Gross adjustments have been applied.

Avoided costs used for the cost-effectiveness valuation of the 2017 natural gas programs are the avoided costs from the most recently filed electric and natural gas IRPs.

In summary, electric and natural gas gross TRC is 1.80 and 0.64, respectively. Electric and natural gas PAC test benefit-cost ratios are 3.32 and 2.46, respectively. Table 2-2 through Table 2-13 illustrate electric, natural gas, and combined fuel cost-effectiveness, respectively. Regular income includes all programs offered in the residential and nonresidential sectors (not including NEEA) and low-income includes all programs offered in the low-income sector.

2.1 Electric Cost Effectiveness Results

Table 2-2: 2017 WA Electric Total Resource Cost (TRC) (Gross)

	Regular Income Portfolio	Low Income Portfolio	Overall Portfolio
Electric Avoided Costs	\$63,412,484	\$764,444	\$64,176,928
Natural Gas Avoided Costs	-\$4,123,424	-\$136,658	-\$4,260,082
Non-Energy Benefits	\$9,625	\$189,604	\$199,229
TRC Benefits	\$59,298,684	\$817,391	\$60,116,074
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Non-Incentive Utility Costs	\$2,366,990	\$35,560	\$2,402,550
Customer Costs	\$29,981,292	\$936,097	\$30,917,389
TRC Costs	\$32,348,281	\$971,657	\$33,319,938
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TRC Ratio	1.83	0.84	1.80
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Residual TRC Benefits	\$26,950,402	-\$154,266	\$26,796,136

Table 2-3: 2017 WA Electric Program Administrator Cost (PAC) (Gross)

	Regular Income Portfolio	Low Income Portfolio	Overall Portfolio
Electric Avoided Costs	\$63,412,484	\$764,444	\$64,176,928
Natural Gas Avoided Costs	-\$4,123,424	-\$136,658	-\$4,260,082
PAC Benefits	\$59,289,059	\$627,786	\$59,916,845
<hr/>			
Non-Incentive Utility Costs	\$2,366,990	\$35,560	\$2,402,550
Incentive Costs	\$14,754,551	\$881,039	\$15,635,590
PAC Costs	\$17,121,541	\$916,598	\$18,038,139
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PAC Ratio	3.46	0.68	3.32
<hr/>			
Net PAC Benefits	\$42,167,518	-\$288,812	\$41,878,706



Table 2-4: 2017 WA Electric Participant Cost (PCT) (Gross)

	Regular Income Portfolio	Low Income Portfolio	Overall Portfolio
Electric Bill Reduction	\$82,681,193	\$958,081	\$83,639,274
Gas Bill Reduction	\$0	\$0	\$0
Non-Energy Benefits	\$9,625	\$189,604	\$199,229
Participant Benefits	\$82,690,817	\$1,147,685	\$83,838,503
<hr/>			
Customer Costs	\$29,981,292	\$936,097	\$30,917,389
Incentive Received	-\$14,754,551	-\$881,039	-\$15,635,590
Participant Costs	\$15,226,740	\$55,059	\$15,281,799
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Participant Ratio	5.43	20.84	5.49
Net Participant Benefits	\$67,464,077	\$1,092,627	\$68,556,704

Table 2-5: 2017 WA Electric Rate Impact Measure (RIM) (Gross)

	Regular Income Portfolio	Low Income Portfolio	Overall Portfolio
Electric Avoided Cost Savings	\$63,412,484	\$764,444	\$64,176,928
Non-Participant Benefits	\$63,412,484	\$764,444	\$64,176,928
<hr/>			
Electric Revenue Loss	\$82,681,193	\$958,081	\$83,639,274
Non-Incentive Utility Costs	\$2,366,990	\$35,560	\$2,402,550
Customer Incentives	\$14,754,551	\$881,039	\$15,635,590
Non-Participant Costs	\$99,802,734	\$1,874,679	\$101,677,413
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RIM Ratio	0.64	0.41	0.63
Net RIM Benefits	-\$36,390,250	-\$1,110,235	-\$37,500,485



2.2 Natural Gas Cost Effectiveness Results

Table 2-6: 2017 WA Natural Gas Total Resource Cost (TRC) (Gross)

	Regular Income Portfolio	Low Income Portfolio	Overall Portfolio
Natural Gas Avoided Costs	\$9,054,943	\$27,193	\$9,082,136
Electric Avoided Costs	\$0	\$0	\$0
Non-Energy Benefits	\$0	\$192,282	\$192,282
TRC Benefits	\$9,054,943	\$219,475	\$9,274,418
Non-Incentive Utility Costs	\$311,608	\$7,193	\$318,801
Customer Costs	\$13,282,345	\$904,079	\$14,186,424
TRC Costs	\$13,593,953	\$911,272	\$14,505,225
TRC Ratio	0.67	0.24	0.64
Residual TRC Benefits	-\$4,539,009	-\$691,797	-\$5,230,806

Table 2-7: 2017 WA Natural Gas Program Administrator Cost (PAC) (Gross)

	Regular Income Portfolio	Low Income Portfolio	Overall Portfolio
Natural Gas Avoided Costs	\$9,054,943	\$27,193	\$9,082,136
Electric Avoided Costs	\$0	\$0	\$0
PAC Benefits	\$9,054,943	\$27,193	\$9,082,136
Non-Incentive Utility Costs	\$311,608	\$7,193	\$318,801
Incentive Costs	\$2,328,197	\$1,038,510	\$3,366,707
PAC Costs	\$2,639,806	\$1,045,703	\$3,685,508
PAC Ratio	3.43	0.03	2.46
Net PAC Benefits	\$6,415,138	-\$1,018,510	\$5,396,628

Table 2-8: 2017 WA Natural Gas Participant (PCT) (Gross)

	Regular Income Portfolio	Low Income Portfolio	Overall Portfolio
Gas Bill Reduction	\$18,357,405	\$57,377	\$18,414,782
Electric Bill Reduction	\$0	\$0	\$0
Non-Energy Benefits	-\$1,042	\$192,282	\$191,240
Participant Benefits	\$18,356,364	\$249,659	\$18,606,022
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Customer Costs	\$13,282,345	\$904,079	\$14,186,424
Incentive Received	-\$2,328,197	-\$1,038,510	-\$3,366,707
Participant Costs	\$10,954,147	-\$134,431	\$10,819,716
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Participant Ratio	1.68	N/A	1.72
Net Participant Benefits	\$7,402,216	\$384,090	\$7,786,306

Table 2-9: 2017 WA Natural Gas Rate Impact Measure (RIM) (Gross)

	Regular Income Portfolio	Low Income Portfolio	Overall Portfolio
Gas Avoided Cost Savings	\$9,054,943	\$27,193	\$9,082,136
Non-Participant Benefits	\$9,054,943	\$27,193	\$9,082,136
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Gas Revenue Loss	\$18,357,405	\$57,377	\$18,414,782
Non-Incentive Utility Costs	\$311,608	\$7,193	\$318,801
Customer Incentives	\$2,328,197	\$1,038,510	\$3,366,707
Non-Participant Costs	\$20,997,211	\$1,103,080	\$22,100,290
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RIM Ratio	0.43	0.02	0.41
Net RIM Benefits	-\$11,942,267	-\$1,075,887	-\$13,018,154



2.3 Combined Fuel Cost Effectiveness Results

Table 2-10: 2017 WA Electric and Natural Gas Total Resource Cost (TRC) (Gross)

	Regular Income Portfolio	Low Income Portfolio	Overall Portfolio
Electric Avoided Costs	\$63,412,484	\$764,444	\$64,176,928
Natural Gas Avoided Costs	\$4,931,519	-\$109,465	\$4,822,054
Non-Energy Benefits	\$9,625	\$381,886	\$391,511
TRC Benefits	\$68,353,627	\$1,036,865	\$69,390,493
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Non-Incentive Utility Costs	\$2,678,598	\$42,752	\$2,721,350
Customer Costs	\$43,263,636	\$1,840,176	\$45,103,813
TRC Costs	\$45,942,234	\$1,882,929	\$47,825,163
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TRC Ratio	1.49	0.55	1.45
Residual TRC Benefits	\$22,411,393	-\$846,063	\$21,565,330

Table 2-11: 2017 WA Electric and Natural Gas Program Administrator Cost (PAC) (Gross)

	Regular Income Portfolio	Low Income Portfolio	Overall Portfolio
Electric Avoided Costs	\$63,412,484	\$764,444	\$64,176,928
Natural Gas Avoided Costs	\$4,931,519	-\$109,465	\$4,822,054
PAC Benefits	\$68,344,003	\$654,979	\$68,998,982
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Non-Incentive Utility Costs	\$2,678,598	\$42,752	\$2,721,350
Incentive Costs	\$17,082,749	\$1,919,548	\$19,002,297
PAC Costs	\$19,761,347	\$1,962,301	\$21,723,647
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PAC Ratio	3.46	0.33	3.18
Net PAC Benefits	\$48,582,656	-\$1,307,321	\$47,275,335

Table 2-12: 2017 WA Electric and Natural Gas Participant (PCT) (Gross)

	Regular Income Portfolio	Low Income Portfolio	Overall Portfolio
Electric Bill Reduction	\$82,681,193	\$958,081	\$83,639,274
Gas Bill Reduction	\$0	\$0	\$0
Non-Energy Benefits	\$8,583	\$381,886	\$390,469
Participant Benefits	\$101,047,181	\$1,397,344	\$102,444,525
Customer Costs	\$43,263,636	\$1,840,176	\$45,103,813
Incentive Received	-\$17,082,749	-\$1,919,548	-\$19,002,297
Participant Costs	\$26,180,888	-\$79,372	\$26,101,516
Participant Ratio	3.86	N/A	3.92
Net Participant Benefits	\$74,866,293	\$1,476,716	\$76,343,010

Table 2-13: 2017 WA Electric and Natural Gas Rate Impact Measure (RIM) (Gross)

	Regular Income Portfolio	Low Income Portfolio	Overall Portfolio
Avoided Cost Savings	\$72,467,427	\$791,637	\$73,259,064
Non-Participant Benefits	\$72,467,427	\$791,637	\$73,259,064
Revenue Loss	\$101,038,598	\$1,015,458	\$102,054,056
Non-Incentive Utility Costs	\$2,678,598	\$42,752	\$2,721,350
Customer Incentives	\$17,082,749	\$1,919,548	\$19,002,297
Non-Participant Costs	\$120,799,945	\$2,977,759	\$123,777,703
RIM Ratio	0.60	0.27	0.59
Net RIM Benefits	-\$48,332,518	-\$2,186,122	-\$50,518,640



3 Washington I-937 Acquisition of Conservation

On January 28, 2016, the Commission approved in Order No. 01 of Docket UE-152076 the Company's ten year Achievable Potential and Biennial Conservation Target. The Company's energy efficiency acquisition for the 2016-2017 Biennium is based upon a Conservation Potential Assessment (CPA) completed by a third-party consultant applying methodologies consistent with the Northwest Power and Conservation Council's (NWPCC) Sixth Power Plan. Avista's biennial target as reported in the 2016-17 Biennial Conservation Plan is 76,257 MWh. In 2016-17, Avista acquired 141,331 MWh (verified gross savings) in Washington, or 185% percent of its target (Table 3-2). The primary driver for electric savings is the nonresidential prescriptive lighting program. Residential Home Energy Reports, residential lighting efforts, and Site-Specific projects also contributed a significant amount to the overall savings contribution.

Avista's target as filed in its 2016-17 BCP is 76,257 MWh (Table 3-1). Avista's estimated annual electric energy savings associated with NEEA's electric market transformation efforts are 6,220 MWh for 2017.

Table 3-1 Avista Proposed 2016-2017 Biennial Conservation Target

Savings Category	Target 2016-17 Savings (MWh)
End-Use Efficiency Measures (CPA)	76,613
Less NEEA	(6,220)
End-Use Efficiency Measures Subtotal	70,393
Plus Distribution Efficiency	2,082
Plus Generation Efficiency	151
5% increase (decoupling)	3,631
2016-2017 Proposed Biennial Conservation Target	76,257



Table 3-2: 2016-17 Washington Electric Energy Savings (Verified Gross)

Segment	kWh (Conservation + Conversions)	Conversions	I-937 kWh Total (Conservation Only)
Residential	74,884,313	15,730,750	59,153,563
Low Income	1,208,151	811,211	396,940
Nonresidential	82,546,350	1,810,107	80,736,243
Subtotal	158,638,814	18,352,068	140,286,745
Generation	384,000	N/A	384,000
Distribution	660,000	N/A	660,000
Total	159,682,814	18,352,068	141,330,745



4 Programs

4.1 Residential

The Company's residential portfolio is composed of several approaches to engage and encourage customers to consider energy efficiency improvements within their home.

Prescriptive rebate programs are the main component of the portfolio, but are augmented by a variety of other interventions. These include: upstream buy-down of low-cost lighting and water saving measures, select distribution of low-cost lighting and weatherization materials, direct-install programs and a multi-faceted, multichannel outreach and customer engagement effort.

Over \$7.1 million in rebates were provided directly to Washington residential customers to offset the cost of implementing these energy efficiency measures. All programs within the residential portfolio contributed over 33,376 MWh and over 773,000 therms to the annual energy savings.

4.1.1 Program Changes

Program changes made at the beginning of 2017 to the residential programs include the addition of new program offerings, discontinuation of programs, and changes to eligibility or incentive levels. Avista communicates program changes once the Annual Conservation Plan is finalized and those changes become effective at the beginning of the year. In addition, some program changes are made throughout the year as necessary but these are less typical.

For nonresidential programs, rebates were updated to reflect business planning analysis to include inputs such as new unit energy savings (UES) and cost values. Changes were effective January 1, 2017 and Avista accepted rebate applications through March 31, 2017 for 2016 measures and amounts. This 90-day grace period is designed to allow for a smooth transition when incentive levels change. This provides a timely and balanced approach that gives adequate time for customers close out their "in process" projects in a fair and non-disruptive way.

The following outlines additions, adjustments and discontinuations of residential programs and incentive levels that took place during the 2017 program year.

4.1.1.1 Residential Program Discontinuations

The following measures and/or programs were discontinued from the residential portfolio:

- Effective August 1, 2017 we no longer pay on CFL product buy-downs through the Simple Steps (CLEAResult) Program. We moved to only paying on LED lamps and

fixtures.

4.1.1.2 Residential Program Adjustments

Existing rebate amounts were increased, and savings values adjusted for the following measures:

- Effective October 1, 2017 the Table of Eligible Measures and Annual Generator Busbar Savings and the Product Incentive Ranges were amended in our CLEARResult contract.

The remaining sub-sections outline each residential program offered in 2017 and the verified participation, incentives, and energy savings, among other program achievements.

4.1.2 HVAC Program

Electric customers with electric home heat are eligible for a rebate for the installation of a variable speed motor on their forced air heating equipment (\$100 rebate), or a conversion of electric straight resistance space heat to an air source heat pump (\$900 rebate). Natural gas customers are eligible for a rebate for the installation of a high efficiency furnace or boiler (\$300). Both electric and natural gas customers are also eligible for the installation of a smart thermostat. See Table 4-1 and Table 4-2 for 2017 first-year program participation, incentives received, and gross verified achieved.

4.1.3 Water Heat Program

The Water Heat Program offers a \$180 incentive for a high efficiency natural gas tankless water heater, \$200 incentive for heat pump water heaters, \$7 buydown for Simple Steps, Smart Savings showerheads and \$35 buydown for Simple Steps, Smart Savings clothes washers (reflected in point of purchase price). See Table 4-3 and Table 4-4 for 2017 first-year program participation, incentives received, and gross verified achieved.

4.1.4 ENERGY STAR HOMES

Avista customers with a certified ENERGY STAR Home or ENERGY STAR / ECORated Manufactured Home are eligible for a \$1,000 or \$800 rebate, respectively. Eligible homes must be all electric to qualify for these rebate levels. Alternatively, customers who subscribe to Avista electric service for lighting and appliances and natural gas service for space and water heating are eligible for a program rebate of \$650 regardless of construction type. See Table 4-5 and Table 4-6 for 2017 first-year program participation, incentives received, and gross verified achieved.

4.1.5 Fuel Efficiency

The Fuel Efficiency Program offers incentives for converting existing straight resistance electric space heat to a natural gas furnace (\$1,500 rebate); and/or converting their existing electric water heater to a natural gas water heater (\$750 rebate). Homes that implement both the furnace and water heat conversions receive a \$2,250 rebate. The program also offers an incentive for the conversion of electric to natural wall heaters (\$1,300 rebate). See Table 4-7 for 2017 first-year program participation, incentives received, and gross verified achieved.

4.1.6 Residential Lighting

Avista continues to participate in the regional manufacturer buy-down of CFL lamps (up until 8-1-17), specialty bulbs, LED bulbs, and showerheads through Northwest Energy Efficiency Alliance (NEEA) and its contactor and some self-directed giveaways. The Simple Steps showerhead savings are tallied under Avista's Water Heat program. See Table 4-8 for 2017 first-year program participation, incentives received, and gross verified achieved.

4.1.7 Shell

The primary measures included in the Shell Program are wall, attic, floor insulation, duct sealing, and window replacements. Incentives are offered per square foot and vary from \$0.15/sf for insulation measures to \$3.54/sf for windows. See Table 4-9 and Table 4-10 for 2017 first-year program participation, incentives received, and gross verified achieved.

4.1.8 Opower/Oracle Home Energy Reports

Avista launched a Home Energy Reports program in June 2013, targeting 48,300 Washington and high use electric customers. As of December, 2015, Avista had 31,936 customers still in the HER program. In January of 2016, Avista 'refilled' their existing Home Energy Reports Program by 16,369 customers bringing total distribution to approximately 48,305 electric customers in Washington that received home energy reports throughout the duration of the 2016-2017 biennium, unless they opted-out or moved.

Table 4-11). At the beginning of 2017, 44,855 treatment customers remained in the program. 2017 was the final year of the issuance of Opower/Oracle home energy reports to the high electric usage customers in Washington and Idaho. In the future, Avista hopes to initiate a new behavior program using the newly installed Advanced Metering Infrastructure (AMI) system.

See Table 4-12 for 2017 program participation, incentives received, and gross verified savings. The majority of the two-year (2016 - 2017) Home Energy Report program savings are recognized in the first year of the program.



Table 4-1: 2017 WA Electric HVAC Program Summary²

Measure	Project Count	Incentives	kWh Savings	Therms Savings	kWh Avoided Costs	Therms Avoided Cost	Non-Energy Benefits	Customer Incremental Costs	Non-Incentive Utility Costs
E Smart Thermostat DIY with Electric Heat	37	\$2,731	22,510	-	\$19,228	\$0	\$0	\$8,157	\$1,093
E Smart Thermostat Paid Install with Electric Heat	47	\$4,771	27,575	-	\$24,844	\$0	\$0	\$26,733	\$1,413
E Variable Speed Motor	963	\$80,317	379,491	-	\$492,668	\$0	\$0	\$1,252,465	\$28,016
E Electric To Air Source Heat Pump	63	\$45,510	218,364	(319)	\$235,106	-\$2,083	\$0	\$476,147	\$13,369
E Electric to Ductless Heat Pump	52	\$23,405	110,177	-	\$143,036	\$0	\$0	\$393,029	\$8,134
Total	1,162	\$156,734	758,117	(319)	\$914,882	-\$2,083	\$0	\$2,156,531	\$52,025

Table 4-2: 2017 WA Natural Gas HVAC Program Summary²

Measure	Project Count	Incentives	kWh	Therms	kWh Avoided Costs	Therms Avoided Costs	Non-energy Benefits	Customer Incremental Costs	Non-incentive Utility Costs
G Multifamily Furnace	38	\$1,984	-	758	\$0	\$5,273	\$0	\$108,715	\$43
G Natural Gas Boiler	44	\$13,785	-	6,021	\$0	\$56,595	\$0	\$368,696	\$464
G Natural Gas Furnace	3,872	\$1,215,084	-	530,695	\$0	\$5,737,753	\$0	\$2,516,800	\$47,035
G Smart Thermostat DIY with Natural Gas Heat	525	\$40,804	-	25,191	\$0	\$175,196	\$0	\$102,922	\$1,436
G Smart Thermostat Paid Install with Natural Gas Heat	844	\$87,703	-	40,293	\$0	\$280,221	\$0	\$580,785	\$2,297
G Storm Windows with Natural Gas Heat	3	\$455	-	116	\$0	\$638	\$0	\$14,652	\$5
Total	5,326	\$1,359,815	-	603,075	\$0	\$6,255,675	\$0	\$3,692,570	\$51,281

² All kWh and therm values reported in this table are gross, excluding the effect of applicable NTG ratios.



Table 4-3: 2017 WA Electric Water Heat Program Summary³

Measure	Project Count	Incentives	kWh	Therms	kWh Avoided Costs	Therms Avoided Costs	Non-energy Benefits	Customer Incremental Costs	Non-incentive Utility Costs
Simple Steps Showerheads	1,561	\$14,080	163,142	-	\$96,032	\$0	\$0	\$13,202	\$5,461
Simple Steps Clothes Washers	234	\$30,861	17,082	-	\$11,923	\$0	\$0	\$21,453	\$678
E Heat Pump Water Heater	58	\$11,803	75,748	-	\$85,042	\$0	\$0	\$111,596	\$4,836
Total	1,853	\$56,744	255,972	-	\$192,998	\$0	\$0	\$146,251	\$10,975

Table 4-4: 2017 WA Natural Gas Water Heat Program Summary³

Measure	Project Count	Incentives	kWh	Therms	kWh Avoided Costs	Therms Avoided Costs	Non-energy Benefits	Customer Incremental Costs	Non-incentive Utility Costs
Simple Steps Showerheads	1,561	\$10,221	-	6,274	\$0	\$27,601	\$0	\$13,202	\$226
G Tankless Water Heater	963	\$201,012	-	88,981	\$0	\$489,052	\$0	\$1,026,723	\$4,009
Total	2,524	\$211,234	-	95,256	\$0	\$516,652	\$0	\$1,039,925	\$4,235

³ All kWh and therm values reported in this table are gross, excluding the effect of applicable NTG ratios.



Table 4-5: 2017 WA ENERGY STAR Homes Electric Program Summary⁴

Measure	Project Count	Incentives	kWh Savings	Therms Savings	kWh Avoided Costs	Therms Avoided Cost	Non-Energy Benefits	Customer Incremental Costs	Non-Incentive Utility Costs
E Energy Star Home - Manufactured, Furnace	14	\$11,202	123,657	-	\$130,659	\$0	\$2,308	\$42,000	\$7,430
E Energy Star Home - Stick Built, WA	1	\$295	1,015	81	\$1,072	\$655	\$0	\$886	\$61
Total	15	11,498	124,672	81	\$131,732	\$655	\$2,308	\$42,886	\$7,491

Table 4-6: 2017 WA ENERGY STAR Homes Natural Gas Program Summary⁴

Measure	Project Count	Incentives	kWh	Therms	kWh Avoided Costs	Therms Avoided Costs	Non-energy Benefits	Customer Incremental Costs	Non-incentive Utility Costs
G Energy Star Home - Natural Gas Only	6	\$4,073	-	2,588	\$0	\$27,979	\$0	\$18,000	\$229
Total	6	\$4,073	-	2,588	\$0	\$27,979	\$0	\$18,000	\$229

⁴ All kWh and therm values reported in this table are gross, excluding the effect of applicable NTG ratios.



Table 4-7: 2017 WA Electric Fuel Conversion Program Summary⁵

Measure	Project Count	Incentives	kWh	Therms	kWh Avoided Costs	Therms Avoided Costs	Non-energy Benefits	Customer Incremental Costs	Non-incentive Utility Costs
E Electric To Natural Gas Furnace	487	\$770,701	2,340,206	(158,532)	\$3,038,135	-\$1,217,896	\$0	\$2,093,608	\$172,765
E Electric To Natural Gas Furnace & Water Heat	919	\$2,242,081	6,760,341	(464,737)	\$5,774,537	-\$2,398,437	\$0	\$5,336,500	\$328,371
E Electric To Natural Gas Wall Heater	36	\$46,810	165,513	(11,380)	\$141,377	-\$58,730	\$0	\$153,824	\$8,039
E Electric To Natural Gas Water Heater	391	\$292,370	926,651	(67,301)	\$677,456	-\$347,330	\$0	\$1,058,712	\$38,524
E Multifamily Electric to Natural Gas Furnace	33	\$11,552	44,325	(3,168)	\$37,861	-\$16,350	\$0	\$118,471	\$2,153
Total	1,866	\$3,363,515	10,237,036	(705,118)	\$9,669,366	-\$4,038,743	\$0	\$8,761,114	\$549,852

Table 4-8: 2017 WA Electric Residential Lighting Program Summary⁵

Measure	Project Count	Incentives	kWh	Therms	kWh Avoided Costs	Therms Avoided Costs	Non-energy Benefits	Customer Incremental Costs	Non-incentive Utility Costs
Simple Steps LED	780,065	\$1,689,403	19,189,147	-	\$13,808,135	\$0	\$0	\$1,990,675	\$844,138
Simple Steps CFL	14,088	\$10,471	181,209	-	\$80,653	\$0	\$0	\$19,528	\$4,931
Customer Outreach LEDs (Residential)	834	\$0	9,199	-	\$6,620	\$0	\$0	\$10,245	\$405
Total	794,987	\$1,699,874	19,379,555	-	\$13,895,407	\$0	\$0	\$2,020,448	\$849,473

⁵All kWh and therm values reported in this table are gross, excluding the effect of applicable NTG ratios.



Table 4-9: 2017 WA Electric Shell Program Summary⁶

Measure	Project Count	Incentives	kWh	Therms	kWh Avoided Costs	Therms Avoided Costs	Non-energy Benefits	Customer Incremental Costs	Non-incentive Utility Costs
E Attic Insulation With Electric Heat	9	\$1,536	2,165	-	\$2,811	\$0	\$318	\$10,253	\$160
E Floor Insulation With Electric Heat	2	\$317	585	-	\$760	\$0	\$71	\$1,474	\$43
E Wall Insulation With Electric Heat	2	\$403	913	-	\$1,186	\$0	\$57	\$1,443	\$67
E Window Replc from Double Pane W Electric Heat	13	\$6,151	8,986	-	\$11,666	\$0	\$0	\$97,877	\$663
E Window Replc from Single Pane W Electric Heat	204	\$38,297	84,579	-	\$64,134	\$0	\$0	\$1,088,389	\$3,647
Total	230	\$46,703	97,229	-	\$80,556	\$0	\$445	\$1,199,435	\$4,581

Table 4-10: 2017 WA Natural Gas Shell Program Summary⁶

Measure	Project Count	Incentives	kWh	Therms	kWh Avoided	Therms Avoided Costs	Non-energy Benefits	Customer Incremental Costs	Non-incentive Utility Costs
G Attic Insulation With Natural Gas Heat	33	\$6,178	-	2,163	\$0	\$10,497	\$0	\$35,181	\$86
G Floor Insulation With Natural Gas Heat	2	\$96	-	25	\$0	\$175	\$0	\$935	\$1
G Wall Insulation With Natural Gas Heat	13	\$3,811	-	801	\$0	\$3,060	\$0	\$16,009	\$25
G Window Replc With Natural Gas Heat	779	\$194,754	-	69,122	\$0	\$747,332	\$0	\$5,571,394	\$6,126
Total	827	\$204,839	-	72,111	\$0	\$761,065	\$0	\$5,623,519	\$6,239

⁶ All kWh and therm values reported in this table are gross, excluding the effect of applicable NTG ratios.



Table 4-11: Opower/Oracle Participation Summary

State	Initial 2017 Participating Customers
WA	44,855

Table 4-12: 2017 WA Electric Residential Opower/Oracle Program Summary

Measure	Project Count	Incentives	kWh	Therms	kWh Avoided Costs	Therms Avoided Costs	Non-energy Benefits	Customer Incremental Costs	Non-incentive Utility Costs
Opower/Oracle Home Energy Reports	1	\$0	2,523,540	-	\$233,250	\$0	\$0	\$0	\$224,314



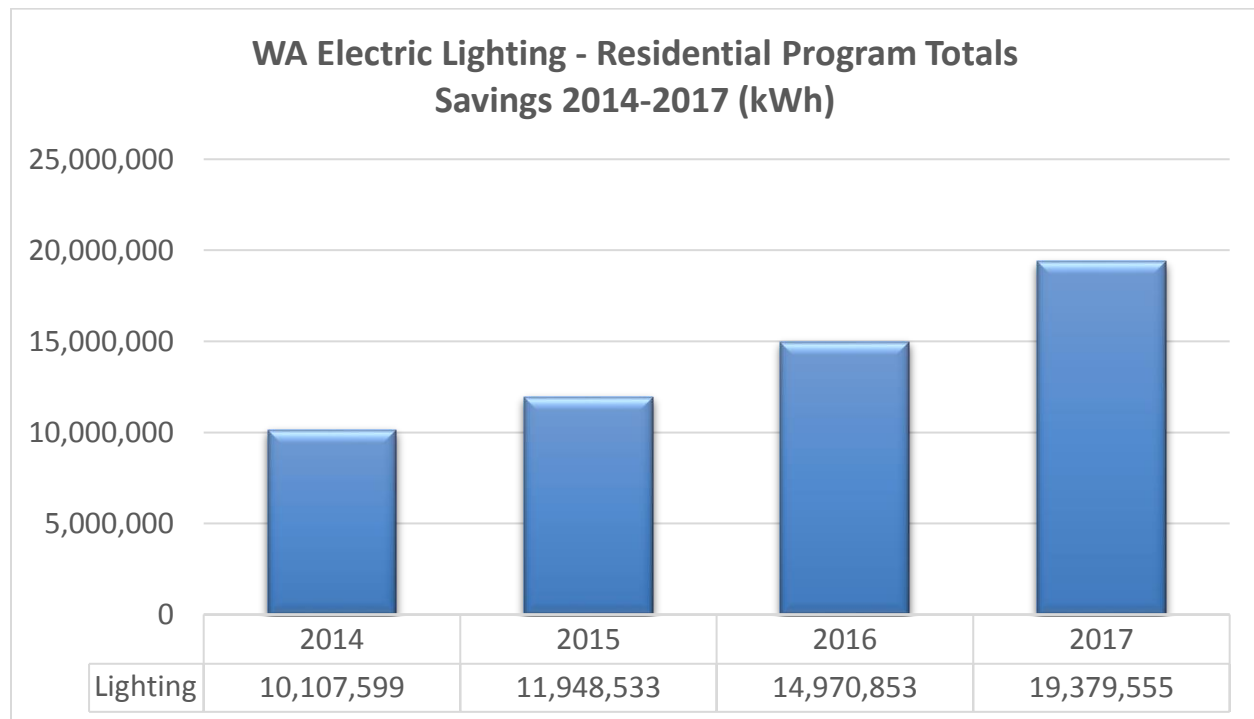
4.1.9 Residential Trend Analysis

During 2017, the company’s residential programs achieved a 26% increase in savings from the previous year with the total annual savings increasing from 26,571,967 kWh in 2016 to 30,852,580 kWh in 2017⁷. The largest contributors to the 2017 overall savings were Avista’s residential lighting and fuel efficiency programs.

4.1.9.1 Residential Lighting

In 2017, the residential lighting program obtained 19,379,555 kWh of savings which represents 26% of the overall savings achieved by Avista’s portfolio. Over the years, Avista has seen an increase in participation from the residential lighting program and 2017 continues that trend with a 29% increase in savings over 2016. The below graph illustrates the trend of residential lighting between 2014 and 2017.

Figure 4-1: Washington Electric Lighting Trend Analysis⁸



4.1.9.2 Residential Fuel Efficiency Program

The Fuel Efficiency Program obtained 10,237,036 kWh of savings in 2017 which is an increase from the 9,766,855 achieved in 2016. In total, the Company served 1,866 customers in 2017 with the majority choosing to convert both their furnace and water heater (utilizing the “combo

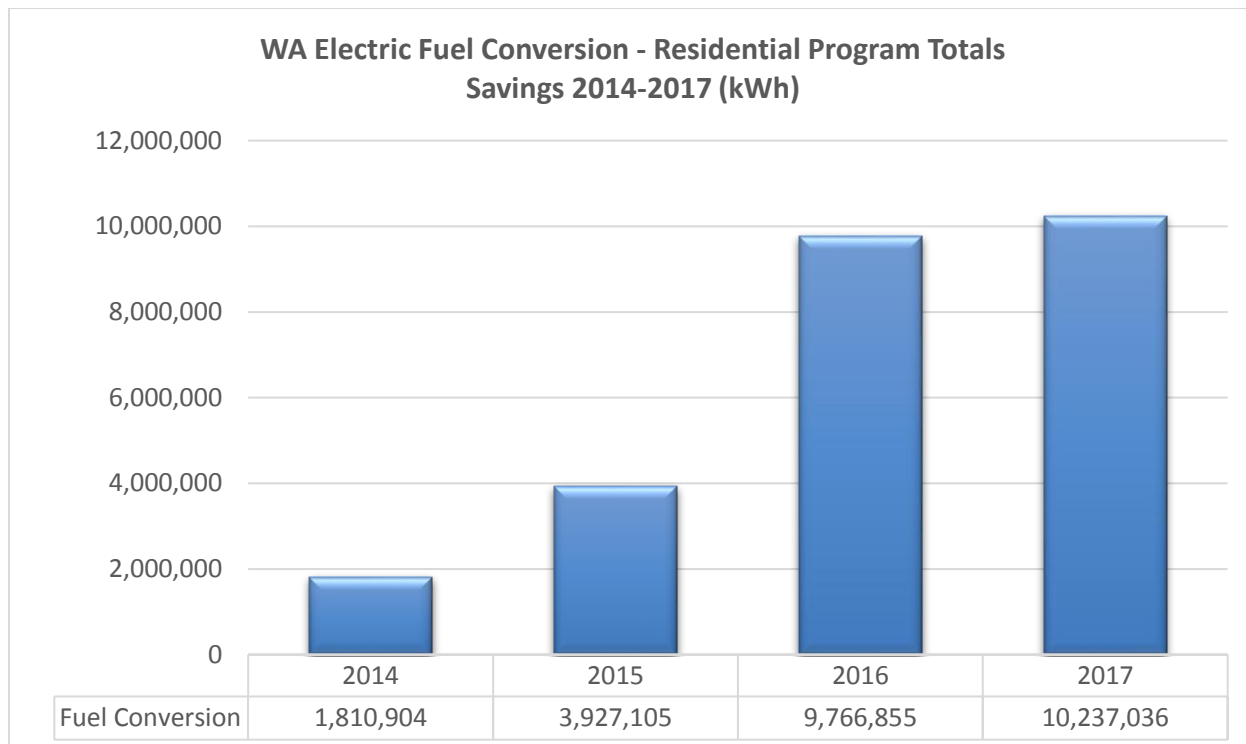
⁷ Amounts exclude the Opower/Oracle Home Energy Reports of 16,511,583 kWh in 2016 and 2,523,540 in 2017 for comparability reasons.

⁸ For the purpose of comparing the 2014-2017 trend analysis data, please note that the savings numbers for 2014 are unverified gross, 2015 is verified gross, 2016 is adjusted reported gross, and 2017 is verified gross.



measure”). In the prior year, Avista served 811 customers with a similar share pursuing the combo measure. In 2014, Avista’s fuel efficiency tariff was revised and increased incentives for electric to natural gas conversions. The electric to natural gas furnace conversion incentive has been revised over the years ranging from \$900 in 2014 and increasing to \$2,300 in 2016. During 2016, Avista revised the incentive to \$1,500 and the program has maintained this incentive level throughout 2017. The below graph illustrates the trend in savings for the 2014-2017 periods.

Figure 4-2: Washington Electric Fuel Conversion Trend Analysis⁹



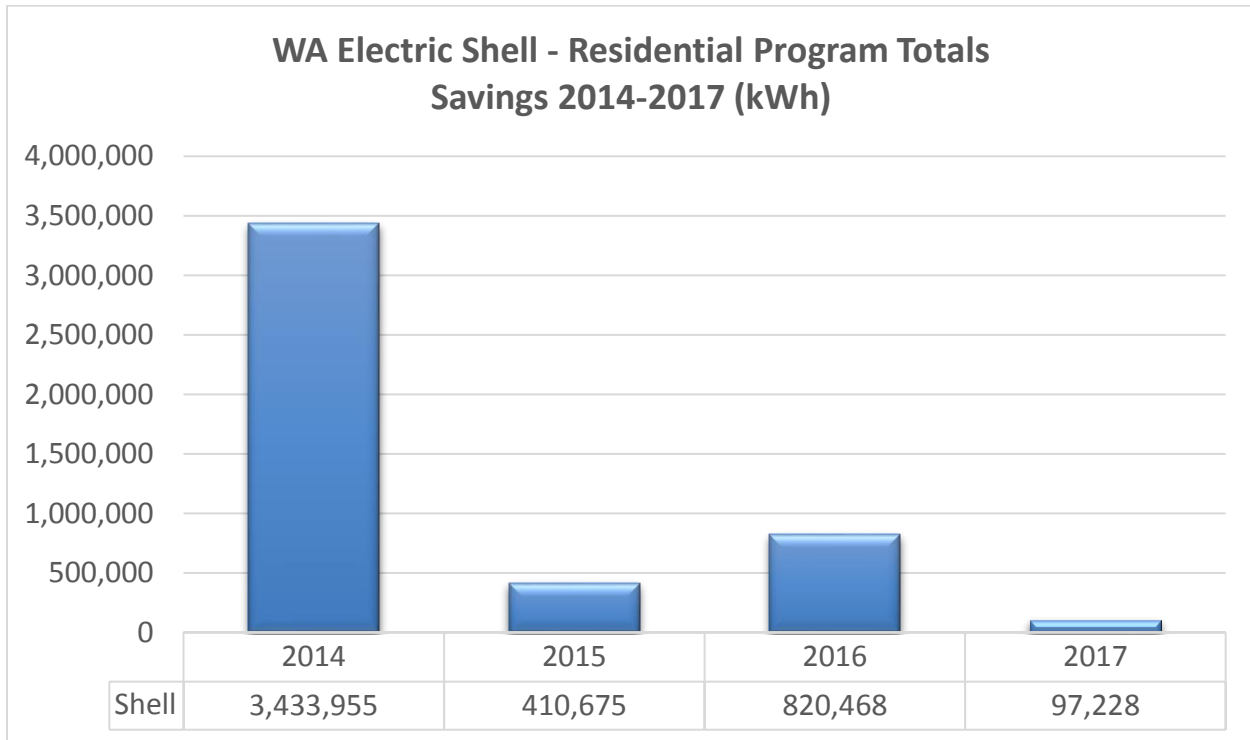
4.1.9.3 Residential Shell Programs

The residential shell program obtained residential savings of 97,229 kWh in 2017 which represents less than 1% of the overall savings achieved in Avista’s portfolio. While the Company’s reported savings in 2017 were higher than in 2016, the evaluated savings resulted in a realization rate of 27% which had a sizable effect on the amount of savings recognized in 2017. Please see the Impact Evaluation report for more details. The savings derived from the residential shell program are primarily attributed to low u-factor window replacements. Because of the low realization rate, the Company will re-evaluate the UES value used for these measures to ensure the most appropriate value is used. The below graph illustrates the changes to the shell program between 2014 and 2017.

⁹ For the purpose of comparing the 2014-2017 trend analysis data, please note that the savings numbers for 2014 are unverified gross, 2015 is verified gross, 2016 is adjusted reported gross and 2017 is verified gross.



Figure 4-3: Washington Electric Shell Trend Analysis¹⁰



4.1.9.4 Opower/Oracle Home Energy Reports

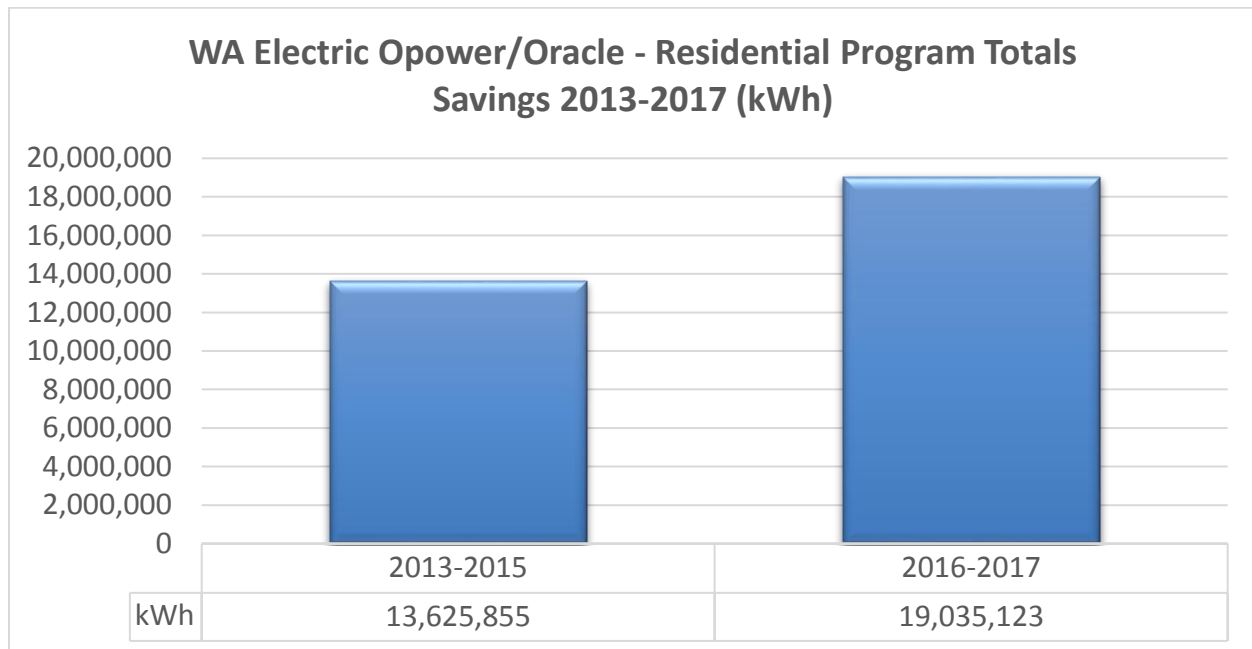
Energy efficiency savings derived from Avista’s behavior program continue to contribute a large percentage to the company’s overall portfolio of savings. 2017 represented the second year of Opower/Oracle’s 2016-2017 Home Energy Report cycle which achieved 19,035,123 kWh over the two year time period. For 2017, the incremental savings, after applying a realization ratio of 103%, is 2,523,540 kWh. In 2016, the Company reported 16,511,583 kWh from the Opower/Oracle Home Energy Reports Program and the savings reported in 2017 represents the remainder of the two year savings.

Prior to the 2016-2017 biennium, the Home Energy Reports were conducted over a two and a half year span rather than its current two year span. The below graph illustrates the comparison of the prior two and half year program with the current two year program.

¹⁰ For the purpose of comparing the 2014-2017 trend analysis data, please note that the savings numbers for 2014 are unverified gross, 2015 is verified gross, 2016 is adjusted reported gross and 2017 is verified gross.



Figure 4-4: Washington Electric Opower/Oracle Trend Analysis



4.2 Low Income

The Company leverages the infrastructure of six network Community Action Program (CAP) agencies and one tribal weatherization organization to deliver energy efficiency programs for the Company’s low income residential customers in the Washington service territory. CAP agencies have resources to income qualify, prioritize and treat clients homes based upon a number of characteristics. In addition to the Company’s annual funding, the agencies have other monetary resources that they can leverage when treating a home with weatherization or other energy efficiency measures. The agencies either have in-house or contract crews to install many of the efficiency measures of the program.

4.2.1 Program Changes

In 2017, the Company continued to reimburse Community Action Agencies for 100% of the cost of installation for most energy efficiency measures defined on the “Approved” list, and continued to offer an additional “Qualified Rebate List” of other energy efficiency measures. This rebate list allows the agencies to receive partial reimbursement for measures that are not as cost-effective as those on the Approved List (or found in the Washington Weatherization Manual’s priority list) but are still necessary for the homes overall functionality. Measures found in Washington’s Weatherization Manual priority list are deemed cost-effective for Washington CAP agencies and 100% funded regardless of whether or not they fell below a TRC of 1.0). The reimbursement amount is only equal to the avoided cost energy value of the improvement. This approach focuses the agency towards installing measures that have the greatest cost-effectiveness, from

the utility perspective, but still offers an opportunity to fund other measures if needed. To allow for additional flexibility, the agency may also choose to utilize their Health and Safety dollars to fully fund the cost of the measures on the Rebate list.

4.2.2 2017 Program Details

Eligible efficiency improvements are similar to those offered under the traditional residential rebate programs, as well as mirroring a variety of the same measures found on the state program priority list. An Avista approved measure list is provided to the agencies in an attempt to manage the cost-effectiveness of the low income program from a utility perspective (Table 4-13).

The agencies are given discretion to spend their allotted funds on either electric or natural gas efficiency improvement based on the need of the clients. The program includes improvements to insulation, infiltration, ENERGY STAR® doors and refrigerators along with fuel conversion from electric resistance space and water heat to natural gas. Avista’s funding covers the full cost of the improvement from the Approved Measures list.

Table 4-13: 2017 Low Income Program Approved Measure List

Electric Measures	Natural Gas Measures		
<ul style="list-style-type: none"> • Air infiltration • Duct sealing • Insulation for attic, walls, floors, and ducts • LED lighting 	<ul style="list-style-type: none"> • Air infiltration • Duct sealing • ENERGY STAR doors • ENERGY STAR windows • High efficiency furnace (90% AFUE) • High efficiency gas water heater • Insulation for attic, walls, floors, and ducts 		
	<table border="1"> <thead> <tr> <th data-bbox="738 1291 1443 1329">Fuel Conversion Measures</th> </tr> </thead> <tbody> <tr> <td data-bbox="738 1329 1443 1453"> <ul style="list-style-type: none"> • Electric to natural gas furnace • Electric to natural gas water heat • Electric to ductless heat pump </td> </tr> </tbody> </table>	Fuel Conversion Measures	<ul style="list-style-type: none"> • Electric to natural gas furnace • Electric to natural gas water heat • Electric to ductless heat pump
Fuel Conversion Measures			
<ul style="list-style-type: none"> • Electric to natural gas furnace • Electric to natural gas water heat • Electric to ductless heat pump 			

Along with the Approved Measure List, Avista has also established a “Rebate List” of eligible measures. The Rebate List allows the agencies to receive funding for other measures that are not as cost-effective as those on the Approved List but are still necessary for the homes’ overall functionality. This measure list is outlined in Table 4-14.



Table 4-14: 2017 Low Income Program Rebate Measure List

Electric Measures	Natural Gas Measures
<ul style="list-style-type: none"> • Heat pump water heaters • ENERGY STAR refrigerators • ENERGY STAR doors • ENERGY STAR windows • Electric to air source heat pump 	

Individually, the annual contract for each agency allows them to spend their annually allotted funds on either natural gas or electric efficiency measures at their discretion, and charge a 15 percent administration fee towards the cost of each measure. In addition, up to 15 percent of their annual funding allocation may be used towards Health and Safety improvements in support of energy efficiency measures installed in the home. It is at the agencies' discretion whether or not to utilize their funds for health and safety and other home repairs to ensure the habitability of the home where the energy efficiency improvements were installed. Refer to Table 4-16 and Table 4-17 for low income program participation and savings details for the 2017 program year.

4.2.3 Low-Income Outreach

In partnership with the Company's DSM efforts, Avista's Consumer Affairs department conducts conservation education and outreach for our low income, senior and vulnerable customers. The company reaches the target population through workshops, energy fairs, mobile and general outreach. Each of these methods include demonstrations and distribution of low-cost and no-cost materials with a focus on energy efficiency, conservation tips and measures, and information regarding energy assistance that may be available through agencies. Low income and senior outreach goals increase awareness of energy assistance programs such as the Avista Low Income Rate Assistance Program (LIRAP), the Low Income Home Energy Assistance Program (LIHEAP) and Project Share.

The company has recognized the following educational strategies as efficient and effective activities for delivering the energy efficiency and conservation education and outreach:

- Energy Conservation workshops for groups of Avista customers where the primary target audiences are seniors and low income participants.
- Energy Fairs where attendees can receive information about low cost/no cost methods to weatherize their home; this information is provided in demonstrations and limited samples. In addition, fair attendees can learn about billing assistance and demonstrations of the online account and energy management tools. Community partners that provide services to low income populations and support to increase



personal self-sufficiency are invited, at no cost, to host a booth to provide information about their services and how to access them.

- Mobile Outreach is conducted through the Avista Energy Resource Van (ERV) where visitors can learn about effective tips to manage their energy use, bill payment options and community assistance resources.

General Outreach is accomplished by providing energy management information and resources at events (such as resource fairs) and through partnerships that reach our target populations. General Outreach also includes bill payment options and assistance resources in senior and low income publications.

In 2017, Avista participated in 174 events including workshops, energy fairs, mobile outreach events, and general outreach partnerships and events reaching approximately 14,518 customers in Washington and Idaho. Table 4-15 is an overview of different activities by type in WA.

Table 4-15: 2017 WA Low Income Outreach Event and Bulb Giveaway Summary

Description	Number of Events/Activities	Contacts	LEDs
Energy Fairs	2	1,270	2,540
Outreach	51	5,560	5,922
Mobile	30	3,227	3,641
Workshops	29	1,031	1,644
Total	112	11,088	13,747



Table 4-16: WA 2017 Electric Low-Income Measures Summary¹¹

Measure	Project Count	Incentives	kWh Savings	Therms Savings	kWh Avoided Costs	Therms Avoided Cost	Non-Energy Benefits	Customer Incremental Costs*	Non-Incentive Utility Costs
CFL Bulbs	19	\$2,277	2,246	-	\$735	\$0	\$0	\$2,344	\$34
Customer Outreach LEDs (Low Income)	11,974	\$0	122,824	-	\$88,382	\$0	\$0	\$64,719	\$4,111
E Air Infiltration	29	\$30,623	8,923	-	\$9,607	\$0	\$0	\$27,159	\$447
E Duct Sealing	7	\$3,614	2,959	-	\$3,225	\$0	\$0	\$3,205	\$150
E Energy Star Doors	6	\$3,078	482	-	\$1,090	\$0	\$4,332	\$2,730	\$51
E Energy Star Windows	6	\$3,357	53	-	\$114	\$0	\$1,409	\$2,977	\$5
E Health And Safety	29	\$63,040	0	-	\$0	\$0	\$70,363	\$56,792	\$0
E INS - Attic	26	\$59,704	4,429	-	\$8,609	\$0	\$0	\$75,482	\$400
E INS - Duct	8	\$10,628	718	-	\$704	\$0	\$0	\$9,426	\$33
E INS - Floor	34	\$127,938	22,935	-	\$51,807	\$0	\$0	\$138,355	\$2,410
E INS - Wall	4	\$7,039	1,278	-	\$2,887	\$0	\$0	\$6,243	\$134
E To G Furnace Conversion	55	\$294,261	328,613	(11,943)	\$426,617	-\$91,750	\$82,500	\$260,972	\$19,845
E To G H2O Conversion	62	\$223,392	190,134	(9,855)	\$144,173	-\$44,907	\$31,000	\$198,120	\$6,706
E To Heat Pump Conversion	9	\$52,088	24,609	-	\$26,496	\$0	\$0	\$87,572	\$1,233
Total	12,268	\$881,039	710,204	(21,798)	\$764,444	-\$136,658	\$189,604	\$936,097	\$35,560

*Customer incremental costs are the incremental measure cost absent any incentive. Therefore, the values should not be zero for the low income program. These incremental values are used in cost-effectiveness calculations.

¹¹ All kWh and therm values reported in this table are gross, excluding the effect of applicable NTG ratios.



Table 4-17: 2017 WA Natural Gas Low-Income Measures Summary¹²

Measure	Project Count	Incentives	kWh	Therms	kWh Avoided Costs	Therms Avoided Costs	Non-energy Benefits	Customer Incremental Costs*	Non-incentive Utility Costs
G Air Infiltration	99	\$127,542	-	590	\$0	\$4,101	\$0	\$110,901	\$1,085
G Duct Sealing	16	\$11,698	-	144	\$0	\$999	\$0	\$10,172	\$264
G Energy Star Doors	47	\$51,012	-	110	\$0	\$1,195	\$33,934	\$44,356	\$316
G Energy Star Windows	67	\$164,008	-	236	\$0	\$2,551	\$15,738	\$142,609	\$675
G HE Furnace	34	\$138,664	-	622	\$0	\$4,322	\$23,720	\$120,571	\$1,143
G HE WH 50G	1	\$3,018	-	2	\$0	\$9	\$0	\$2,624	\$2
G Health And Safety	49	\$159,312	-	0	\$0	\$0	\$118,889	\$139,597	\$0
G INS - Attic	81	\$183,168	-	734	\$0	\$7,935	\$0	\$159,269	\$2,099
G INS - Duct	9	\$9,767	-	84	\$0	\$538	\$0	\$8,493	\$142
G INS - Floor	38	\$123,520	-	194	\$0	\$2,094	\$0	\$107,404	\$554
G INS - Wall	38	\$66,801	-	319	\$0	\$3,449	\$0	\$58,085	\$912
Total	479	\$1,038,510	-	3,034	\$0	\$27,193	\$192,282	\$904,079	\$7,193

*Customer incremental costs are the incremental measure cost absent any incentive. Therefore, the values should not be zero for the low income program. These incremental values are used in cost-effectiveness calculations.

¹² All kWh and therm values reported in this table are gross, excluding the effect of applicable NTG ratios.



4.3 Nonresidential

The nonresidential energy efficiency market is delivered through a combination of prescriptive and site-specific offerings. Any measure not offered through a prescriptive program is automatically eligible for treatment through the site-specific program, subject to the criteria for participation in that program. Prescriptive paths for the nonresidential market are preferred for measures that are relatively small and uniform in their energy efficiency characteristics.

In 2017, more than 2,000 prescriptive and site specific nonresidential projects were incented. Additionally, the Small Business program installed over 17,000 individual measures. Avista's tariff rider funded more than \$9.9 million for energy efficiency incentives in nonresidential and small business applications. Nonresidential programs realized over 41,930 MWh and 270,000 therms in annual first-year energy savings. Table 4-18 through Table 4-23 provide detail on the electric, natural gas, and dual fuel nonresidential programs.

4.3.1 Program Changes

Program changes made at the beginning of 2017 to the nonresidential programs could include the addition of new program offerings, discontinuation of programs, and changes to eligibility or incentive levels. Avista communicates program changes once the Annual Conservation Plan is finalized and those changes become effective at the beginning of the year. In addition, some program changes are made throughout the year as necessary but these are less typical.

For nonresidential programs, rebates were updated to reflect business planning analysis to include inputs such as new unit energy savings (UES) and cost values. Changes were effective January 1, 2017 and Avista accepted rebate applications through March 31, 2017 for 2016 measures and amounts. This 90 day grace period allows for a smooth transition when rebate programs change to allow enough time for customers in the pipeline to complete their projects yet close out changes in a timely but balanced approach.

The remaining sub-sections outline each nonresidential program offered in 2017 and the verified participation, incentives, and energy savings, among other program achievements.

4.3.2 Prescriptive Path

Prescriptive paths do not require pre-project contracting, as the site-specific program does, and thus lend themselves to streamlined administrative and marketing efforts. Incentives are established for these prescriptive programs by applying the incentive formula contained within Schedules 90 and 190 to a prototypical installation. Actual costs and savings are tracked, reported and available to the third-party impact evaluator. When applicable, the prescriptive measures utilize RTF unit energy savings. See Table 4-18 and Table 4-19 for 2017 first-year

program participation, incentives received, and savings achieved.

4.3.3 Site Specific Path

Site specific is the most comprehensive offering of the nonresidential segment. Avista's Account Executives work with nonresidential customers to provide assistance in identifying energy efficiency opportunities. Customers receive technical assistance in determining potential energy and cost savings as well as identifying and estimating incentives for participation. Site specific incentives are capped at seventy percent of the incremental project cost for all projects with simple paybacks of less than 15 years. All projects must have a measure life of 10 years or more. Site specific projects include appliances, compressed air, HVAC, industrial process, motors (non-prescriptive), shell and lighting, with the majority being HVAC, lighting and shell. See Table 4-20 and Table 4-21 for 2017 first-year program participation, incentives received, and savings achieved.

4.3.4 Small Business Program

The Small Business (SB) program is administered by SBW consulting and is a direct installation/audit program providing customer energy-efficiency opportunities by: (1) directly installing appropriate energy-saving measures at each target site, (2) conducting a brief on-site audit to identify customer opportunities and interest in existing Avista programs, and (3) providing materials and contact information so that customers are able to follow up with additional energy efficiency measures under existing programs. This program is only available to customers who receive electric and/or natural gas service under Rate Schedule 11 in Washington and Idaho. Schedule 11 customers typically use less than 250,000 kWh per year. See Table 4-22 and Table 4-23 for 2017 first-year program participation, incentives received, and savings achieved.

Direct-install measures include:

- Faucet aerators
- Showerheads
- Pre-rinse spray valves
- Screw-in LED's
- Smart power strips
- CoolerMisers
- VendingMisers

Table 4-18: 2017 WA Electric Nonresidential Prescriptive Measures Summary¹³

Measure	Project Count	Incentives	kWh Savings	Therms Savings	kWh Avoided Costs	Therms Avoided Cost	Non-Energy Benefits	Customer Incremental Costs	Non-Incentive Utility Costs
PSC Lighting Exterior	414	\$731,316	3,654,432	-	\$1,617,918	\$0	\$0	\$1,775,952	\$24,217
PSC Lighting Interior	1,178	\$5,514,376	27,263,252	-	\$17,086,224	\$0	\$6,871	\$7,158,219	\$255,742
AirGuardian	2	\$6,403	26,459	-	\$11,716	\$0	\$0	\$6,566	\$175
ESG PSC Case Lighting	24	\$20,963	115,233	-	\$41,500	\$0	\$0	\$27,436	\$621
ESG PSC Controls	4	\$3,589	21,163	-	\$10,440	\$0	\$0	\$3,680	\$156
ESG PSC Motors	47	\$31,062	309,454	-	\$180,821	\$0	\$0	\$33,318	\$2,706
PSC Food Service Equipment	31	\$14,958	123,858	-	\$62,143	\$0	\$0	\$232,889	\$930
PSC Green Motors Rewind	18	\$6,329	64,974	-	\$28,505	\$0	\$0	\$113,788	\$427
PSC Insulation	11	\$562	11,278	-	\$10,123	\$0	\$0	\$3,740	\$152
PSC Motor Controls HVAC	9	\$48,559	538,595	-	\$357,918	\$0	\$0	\$147,695	\$5,357
PSC MF Gas WH	1	\$683	4,726	-	\$220	\$0	\$0	\$2,106	\$3
Total	1,739	\$6,378,801	32,133,425	-	\$19,407,528	\$0	\$6,871	\$9,505,389	\$290,487

¹³ All kWh and therm values reported in this table are gross, excluding the effect of applicable NTG ratios.



Table 4-19: 2017 WA Natural Gas Nonresidential Prescriptive Measures Summary¹⁴

Measure	Project Count	Incentives	kWh Savings	Therms Savings	kWh Avoided Costs	Therms Avoided Cost	Non-Energy Benefits	Customer Incremental Costs	Non-Incentive Utility Costs
PSC Food Service Equipment	46	\$85,376	-	43,033	\$0	\$194,418	\$0	\$315,474	\$32,493
PSC Insulation	14	\$19,932	-	19,035	\$0	\$142,210	\$0	\$124,540	\$23,768
PSC Commercial HVAC	41	\$43,690	-	28,139	\$0	\$163,443	\$0	\$433,449	\$27,317
Total	101	\$148,999	-	90,207	\$0	\$500,071	\$0	\$873,463	\$83,578

¹⁴ All kWh and therm values reported in this table are gross, excluding the effect of applicable NTG ratios.



Table 4-20: 2017 WA Electric Nonresidential Site Specific Measures Summary¹⁵

Measure	Project Count	Incentives	kWh Savings	Therms Savings	kWh Avoided Costs	Therms Avoided Cost	Non-Energy Benefits	Customer Incremental Costs	Non-Incentive Utility Costs
ESG SS Case Doors	2	\$8,709	54,688	-	\$36,410	\$0	\$0	\$12,432	\$545
ESG SS Cases	5	\$15,911	249,492	(617)	\$165,566	-\$3,365	\$0	\$17,721	\$2,478
ESG SS Lighting	2	\$11,355	89,527	-	\$57,181	\$0	\$0	\$50,888	\$856
SS Appliances	3	\$6,090	32,436	-	\$349,229	\$0	\$0	\$20,477	\$5,227
SS HVAC Combined	4	\$75,545	576,215	-	\$2,441,837	\$0	\$0	\$328,346	\$36,549
SS HVAC Heating	3	\$803	26,269	-	\$17,085	\$0	\$0	\$47,030	\$256
SS Industrial Process	5	\$262,855	2,262,313	(10,664)	\$7,547,680	-\$58,162	\$0	\$1,052,621	\$112,972
SS Lighting Exterior	33	\$247,803	1,321,912	-	\$1,279,289	\$0	\$0	\$492,156	\$19,148
SS Lighting Interior	53	\$377,878	2,129,262	-	\$5,527,788	\$0	\$0	\$817,080	\$82,738
SS Multifamily – Fuel Conversion	8	\$1,607,732	1,070,262	(51,979)	\$49,295	-\$21,727	\$0	\$2,919,118	\$738
SS Shell	9	\$7,566	34,148	-	\$30,649	\$0	\$0	\$33,286	\$459
ESG SS Controls	9	\$78,168	503,290	-	\$546,668	\$0	\$0	\$134,182	\$8,182
ESG SS Motors	2	\$10,547	101,461	-	\$67,425	\$0	\$0	\$42,306	\$1,009
SS HVAC Cooling	1	\$5,366	25,259	-	\$17,034	\$0	\$0	\$18,696	\$255
SS Motor Controls Industrial	1	\$9,903	46,617	-	\$246,197	\$0	\$0	\$26,706	\$3,685
Total	140	\$2,726,229	8,523,151	(63,260)	\$18,379,335	-\$83,254	\$0	\$6,013,045	\$275,097

¹⁵ All kWh and therm values reported in this table are gross, excluding the effect of applicable NTG ratios.



Table 4-21: 2017 WA Gas Nonresidential Site Specific Measures Summary¹⁶

Measure	Project Count	Incentives	kWh Savings	Therms Savings	kWh Avoided Costs	Therms Avoided Cost	Non-Energy Benefits	Customer Incremental Costs	Non-Incentive Utility Costs
SS Appliances	3	\$7,226	-	4,306	\$0	\$17,959	\$0	\$12,297	\$3,001
SS HVAC Combined	5	\$245,237	-	96,785	\$0	\$562,157	\$0	\$1,022,753	\$93,955
SS HVAC Heating	6	\$91,619	-	36,181	\$0	\$210,149	\$0	\$910,028	\$35,123
SS Shell	7	\$8,373	-	3,556	\$0	\$26,567	\$0	\$52,866	\$4,440
ESG SS Case Doors	1	\$816	-	629	\$0	\$3,655	\$0	\$1,832	\$611
ESG SS Cases	6	\$15,708	-	7,743	\$0	\$44,974	\$0	\$31,175	\$7,517
ESG SS Controls	2	\$2,680	-	9,981	\$0	\$54,856	\$0	\$3,916	\$9,168
Total	40	\$371,660	-	159,181	\$0	\$920,317	\$0	\$2,034,867	\$153,815

Table 4-22: 2017 WA Electric Nonresidential Small Business Summary¹⁶

Measure	Project Count	Incentives	kWh Savings	Therms Savings	kWh Avoided Costs	Therms Avoided Cost	Non-Energy Benefits	Customer Incremental Costs	Non-Incentive Utility Costs
SB Appliances	651	\$34,032	193,837	-	\$41,921	\$0	\$0	\$0	\$13,385
SB Lighting	8,504	\$149,892	685,537	-	\$305,602	\$0	\$0	\$0	\$97,578
SB Water Heat	2,868	\$14,896	394,149	-	\$159,824	\$0	\$0	\$0	\$51,032
SB Audit	5,376	\$115,634	-	-	\$0	\$0	\$0	\$136,192	\$0
Total	17,399	\$314,454	1,273,523	-	\$507,346	\$0	\$0	\$136,192	\$161,995



Table 4-23: 2017 WA Gas Nonresidential Small Business Measures Summary¹⁶

Measure	Project Count	Incentives	kWh Savings	Therms Savings	kWh Avoided Costs	Therms Avoided Cost	Non-Energy Benefits	Customer Incremental Costs	Non-Incentive Utility Costs
SS Water Heat	2,868	\$27,578	-	20,905	\$0	\$73,183	\$0	\$0	\$12,231
Total	2,868	\$27,578	-	20,905	\$0	\$73,183	\$0	\$0	\$12,231

¹⁶ All kWh and therm values reported in this table are gross, excluding the effect of applicable NTG ratios.



4.3.5 Non-Residential Trend Analysis¹⁷

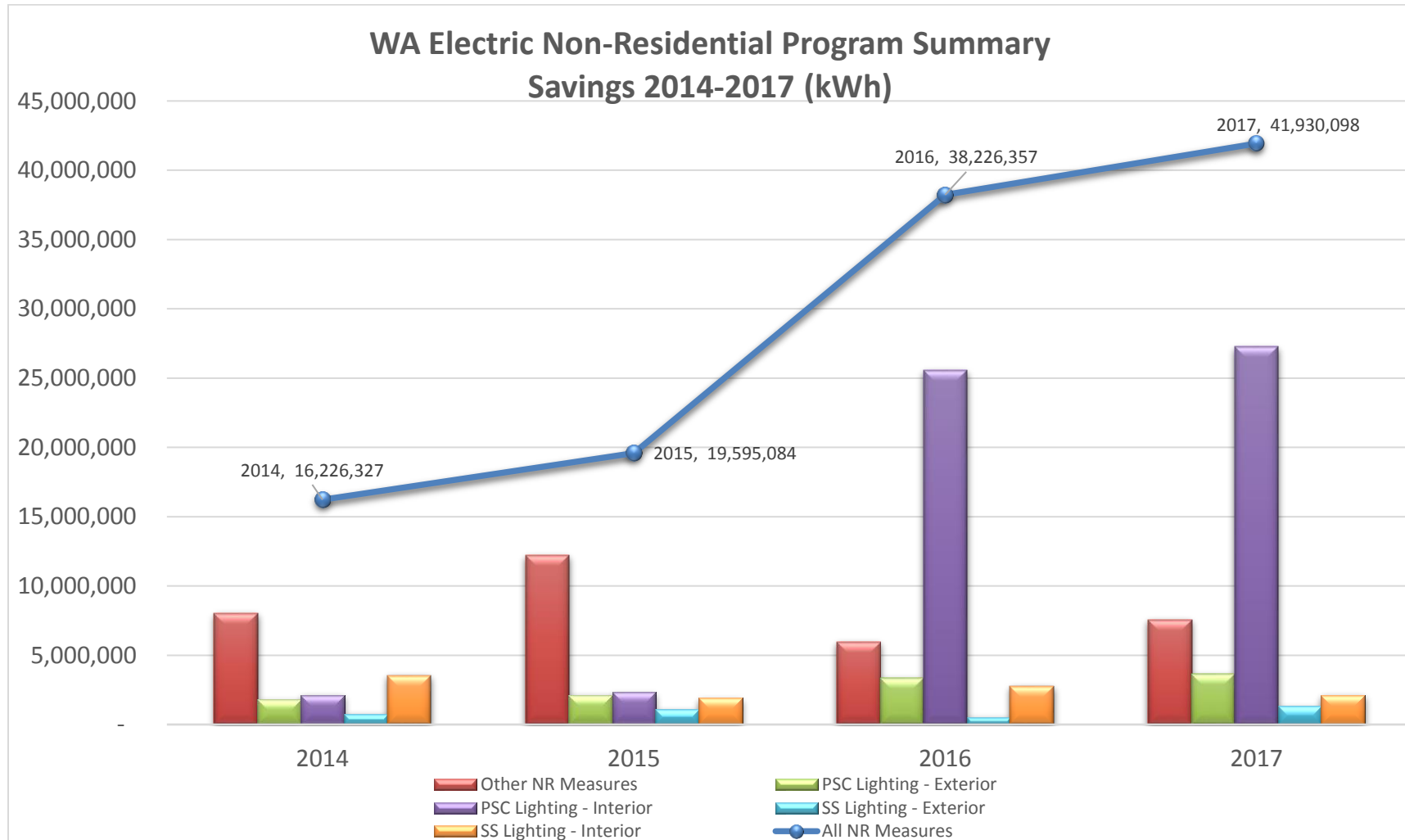
During 2017, total non-residential savings increased by 10% from the previous year with the total savings increasing from 38,226,357 kWh in 2016 to 41,930,098 kWh in 2017 (3,703,741 kWh change). The largest contributor to the overall savings for 2017 was a result of the company's prescriptive interior lighting program which obtained 27,263,252 kWh or 65% of overall non-residential savings. This amount is a slight increase over 2016 where the prescriptive program achieved 25,590,010 kWh savings and represented 67% of all non-residential savings.

Figure 4-5 below summarizes the savings achieved for the 2014-2017 annual periods highlighting the prescriptive interior lighting program's impact on overall savings in both 2016 and 2017. The increased savings in 2016 and 2017 was largely due to the increase in customer adoption of TLEDs. Both years are a substantial increase over 2014 and 2015, where Avista obtained 2,306,243 kWh of savings in 2015 and 2,130,153 kWh of savings in 2014.

Other Non-Residential Measures, which are identified in Figure 4-5, make up 18% of the overall savings. These amounts realized a 27% increase going from 5,953,873 kWh in 2016 to 7,561,240 kWh in 2017. The individual programs and measures included in "other NR measure" category for 2017 include Small Business Lighting, Energy Star Grocers Prescriptive Case Lighting, Site Specific Multifamily Fuel Conversions and Site Specific HVAC Combined.

¹⁷ For the purpose of comparing the 2014-2016 trend analysis data, please note that the savings numbers for 2014 are unverified gross, 2015 is verified gross, and 2016 is adjusted reported gross.

Figure 4-5: Washington Electric Non-Residential Trend Analysis¹⁸



¹⁸ Please note that the savings numbers for 2014 are unverified gross, 2015 is verified gross, 2016 is adjusted reported gross and 2017 is verified gross.



4.4 Customer Outreach

Energy efficiency outreach strategies incorporate both broad-reach and targeted communication as well as attendance at local community events. Energy Efficiency is also featured throughout the year in Avista’s “Connections” monthly newsletter, which is distributed with the bill and posted online.

4.4.1 Residential Customer Outreach

Avista’s residential outreach included the popular, “Efficiency Matters” promotion (April-June). During the seven-week contest, TV viewers could watch any KREM newscast for Avista’s energy-efficiency word of the day and enter it on krem.com for a chance to win a new RAV4 Hybrid. Television commercials featured energy-efficiency tips and Avista rebates. The final event was also covered by KREM and included eight minutes of live news coverage.

For the summer of 2017, Avista ran the “Way to Save” broad-reach advertising campaign to increase awareness of/drive participation in our energy-efficiency programs for residential customers. The campaign was updated from the year prior with new voice-over for the thirty-second TV commercials, and 12 fifteen-second TV spots were created to reinforce messaging (six spots promoted our rebates and six commercials highlighted energy-saving tips). Print and online advertising, as well as social media, were also utilized throughout the campaign to extend reach.

Avista also leveraged local sponsorships for “Energy Efficiency Night” at a Spokane Chiefs hockey game.

Although available to all customers, Avista conducts targeted outreach for low income and seniors. This outreach included several Energy Fairs, one of which was part of a broader event, the Avista LIRAP Appointment Day which promoted efficiency and assistance like other energy fairs but partnered with the local CAP agency, SNAP, to offer actual energy assistance appointments. Communications tactics used to increase awareness of the Energy Fairs included a direct mail, posters, emails, news releases, and print/ radio/ online advertising. In-person outreach efforts also included mobile outreach such as numerous partnerships with local food banks as well as other venues and workshops at senior centers. Additional details around these efforts can be found in the low-income section of the report. For 2017, the total expenditures related to residential outreach totaled approximately \$301,000 in Washington.

4.4.2 Nonresidential Customer Outreach

To complement our residential outreach, two advertorials were placed to increase awareness of Avista’s energy efficiency programs for Commercial and Industrial customers. The first advertorial featured Wear-Tek, a metal casting production foundry and machine facility, and was

placed in 11 publications in February and March. The customer highlighted in the second advertorial was Cenex/ Zip Trip, and ran in 12 publications in July and August. Both advertorials are also posted on myavista.com.

We also continued our effort of building awareness of energy efficiency and programs through our electronic newsletter to commercial customers.

As opportunities arise, energy efficiency tips are provided to local media outlets. Typical topics include winter weather and summer heat energy efficiency tips. Avista provides updates to area vendors about program information through mailings and webinars who in turn pass that information on to their customers. The general awareness efforts successfully position Avista to actively pursue and react to these earned media opportunities.

One earned media highlight was Avista being included in the cover story for the August/September issue of American Gas Magazine. The article focused on energy efficiency programs for small and midsize businesses and featured three national utilities—Avista, Con Edison, and PSE&G.

For 2017, the total expenditures related to non-residential outreach totaled approximately \$148,000 in Washington.

5 Evaluation, Measurement, and Verification (EM&V)

Nexant, Inc., in partnership with Research Into Action, (the evaluation team) was retained as the Company's external evaluator to independently measure and verify the portfolio energy savings for the 2016-2017 biennium period. The energy efficiency savings and associated cost-effectiveness results presented in this 2017 Annual Report are based on the evaluation findings and are presented as gross, verified savings.

The impact and process evaluation reports can be found in the Appendix.

6 Generation and Distribution Efficiency

6.1 Generation and Distribution

Avista did not complete any efficiency projects at its generation facilities in 2017.

During 2017, Avista's Grid Modernization Programs completed an upgrade of two Washington feeders with annual savings of 375 MWh and one Idaho feeder with annual savings of 112 MWh.

The Grid Modernization Program was created to provide a thorough examination of Avista's electric distribution circuits for programmatically addressing the upgrading and modernization of the facilities. The Program focuses on selecting and improving the worst performing feeders that have been assessed to provide the most opportunity for improvement in the areas of reliability and energy efficiency. This includes the identification, prioritization, selection, and engineering analysis of the distribution circuits. Grid Modernization performs a comprehensive inventory of each of the electric feeders on the system in order to appropriately prioritize and select the candidate feeders for the Program. The feeder criteria information is then used to rank the potential benefits for each circuit compared with all of the other distribution feeders Avista's system.

Grid Modernization was initially optimized at a cycle interval of 60 years, meaning that over that period of time the program would rebuild every feeder in the distribution system. Selection of this interval related to the average life span of our distribution infrastructure as well as the 20 year interval cycle time for the Wood Pole Management (WPM) program. These two programs are integrated in several important ways. Grid Modernization relies on the inspection data from Wood Pole Management (WPM) for its asset condition assessment, and targets the timing of feeder rebuilds to optimize the value of wood pole inspections and follow-up already performed. Wood Pole Management (WPM) relies on the poles inspected for the Grid Modernization program as contributing to the total number of poles that WPM has to inspect annually to remain on the 20 year inspection cycle. Further, the Grid Modernization program also integrates activities of other operational programs beyond Wood Pole Management (WPM), including the PCB transformer change-out program, vegetation management, various budgeted maintenance programs, and the segment reconductor and feeder tie program.

The Grid Modernization Program aims to accomplish a comprehensive modernization approach from both an energy efficiency and reliability perspective. The following is a list of the programs' targeted criteria: Reliability Index Analysis, Peak Loading Study, Load Balancing, High Loss Conductors, Feeder Reconfiguration or Relocation, Primary Trunk and Lateral Conductor Analysis, Feeder Tie Location and Opportunities, Voltage Quality Study, Voltage Regulator

Settings, Fuse Coordination and Sizing Analysis, Distribution Line Loss Assessment, Transformer Core Losses, Power Factor Analysis, Power Factor Correction, Distribution Automation Deployment, Open Wire Secondary Analysis, Existing Pole Analysis, Underground Facilities, and Vegetation Management.

With approximately 350 feeders in Avista’s system and a targeted 60 year life cycle, Grid Modernization should be completing almost 6 feeders each year when staffed and funded appropriately. Grid Modernization has 17 feeders that have been worked on so far (in varying forms of design, construction, or completion) – Grid Modernization has fully completed 6 of approximate 350 feeders. Please see the below table that identifies the program results and plans which extends through 2020.

Table 6-1 shows the Grid Modernization Plan by Feeder.

Table 6-1: Grid Modernization Plan by Feeder

Feeder	State	Construction Start Date	Construction End Date	Baseline Report Date	Baseline Report Version	Estimated Annual Pri. Reconductor MWh Savings	Estimated Annual Transformer Loss MWh Savings	Total Estimated Annual MWh Savings***,****
9CE 12F4	WA	-	2009	Annual MWh Energy Savings were not estimated or documented at this time*				
BEA 12F1	WA	2012	2012	Annual MWh Energy Savings were not estimated or documented at this time**				
F&C 12F2	WA	2012	2012	Annual MWh Energy Savings were not estimated or documented at this time**				
BEA 12F5	WA	2013	2013	Annual MWh Energy Savings were not estimated or documented at this time**				
CDA 121	ID	2012	2013	Annual MWh Energy Savings were not estimated or documented at this time**				
WIL 12F2	WA	2013	2015	Annual MWh Energy Savings were not estimated or documented at this time**				
OTH 502	WA	2015	2015	Annual MWh Energy Savings were not estimated or documented at this time				
M23 621	ID	2014	2015	3/20/2015	Version 4	412.6	163.2	575.8
RAT 231	ID	2014	2015	3/17/2015	Version 3	0.0	148.7	148.7
WAK 12F2	WA	2015	2016	3/3/2015	Version 7	40.3	135.3	175.6
MIL 12F2	WA	2016	2017	3/10/2015	Version 4	21.0	164.8	185.8
SPI 12F1	WA	2015	2019	4/1/2015	Version 2	31.6	83.2	114.8
RAT 233	ID	2016	2019	3/17/2015	Version 5	90.3	381.4	471.7
SPR 761	WA	2017	2019	9/17/2015	Version 3	49.9	55.7	105.6
ORO 1280	ID	2017	2017	10/19/2015	Version 1	3.5	108.2	111.7
TUR 112	WA	2017	2018	5/6/2016	Version 2	140.1	92.7	232.8
PDL 1201	WA	2017	2017	5/27/2016	Version 2	23.5	165.5	189.0
MIS 431	ID	2018	2023	8/22/2006	Version 1	128.8	128.3	257.1
F&C 12F1	WA	2018	2019	11/16/2016	Version 1	1.8	258.5	260.3
HOL 1205	ID	2018	2018	3/30/2017	Version 1	0	65.5	65.5
BEA 12F2	WA	2019	2020	10/13/2017	Version 1	8.8	260.5	269.3
M15 514	ID	2019	TBA	4/30/2018	Version 1	0	245.6	245.6
SIP 12F4	WA	TBA	TBA	TBA	Version 1	0	272.8	0.0

* Completed under the DREE Program. Annual MWh Energy Savings may have been estimated and provided by others, however they did not follow the same analysis process and documentation that was started by Grid Modernization in late 2013, and may not be able to be recreated
 ** Completed under the Feeder Upgrade Program. Annual MWh Energy Savings may have been estimated and provided by others, however they did not follow the same analysis process and documentation that was started by Grid Modernization in late 2013, and may not be able to be recreated
 *** Additional MWh savings estimated through Distribution Automation improvements are not included in these figures
 **** Additional MWh savings estimated through the removal of Open Wire Secondary districts are not included in these figures

Also in 2017, Avista’s LED Streetlight Change-Out Program successfully converted 9,439 High-Pressure Sodium (HPS) streetlights to Light Emitting Diode (LED) technology, resulting in an energy savings of 101 MWh in Washington and 38 MWh in Idaho.

Avista manages streetlights for many local and state government entities to provide street, sidewalk, and/or highway illumination for their streets by installing overhead streetlights. The



primary driver for converting overhead streetlights from HPS lights to LED lights is the significant improvement in energy savings, lighting quality to customers, and resource cost savings. In all, the five year program will change out over 28,000 streetlights by end of 2019.

Table 6-2 shows the Distribution Efficiency Savings by Program.

Table 6-2: Distribution Efficiency Savings by Program

Program	WA MWh Savings	ID MWh Savings	Total MWh Savings
Grid Modernization	375	112	487
LED Streetlight Change-Out	101	38	139
Total	476	150	626



7 Regional Market Transformation

Avista’s local energy efficiency portfolio consists of programs and supporting infrastructure designed to enhance and accelerate the saturation of energy efficiency measures through a combination of financial incentives, technical assistance, program outreach and education. It is not feasible for Avista to independently have a meaningful impact upon regional or national markets.

Consequently, utilities within the northwest have cooperatively worked together through the Northwest Energy Efficiency Alliance (NEEA) to address those opportunities that are beyond the ability or reach of individual utilities. Avista has been participating in and funding NEEA since the 1997 founding of the organization.

Table 7-1 shows the 2017 NEEA forecast savings vs. actual savings and the associated costs.

Table 7-1: 2017 NEEA Forecast vs Actual Savings and Associated Costs for Avista

Fuel Type	NEEA Energy Savings 2017 Forecast	NEEA Energy Savings 2017 (Final Reported as of March 2018)	2017 Costs (Avista Financials)	Avista Current Funding Share (WA & ID Combined)
Electric	3,679MWh	3,592 MWh	\$1,339,420	5.768% (WA/ID)
Natural Gas	n/a	n/a	\$265,566	15.63% (WA/ID)

Table 7-2 shows the NEEA forecast savings vs. actual savings for the 2016-2017 Biennium

Table 7-2: NEEA Forecast vs Actual Savings for the 2016-2017 Biennium

2016-2017 Biennium	NEEA Energy Savings Biennium Forecast	Biennium NEEA Energy Savings (Final Reported as of March 2018)
Total	6,220 MWh	7,271 MWh



7.1 Avista Electric Energy Savings Share

All figures provided represent the amounts that are allocated to Avista service territory, which is a combination of site-based energy savings data (where available) or an allocation of savings based on funding share. When the funding share allocation approach is applied, the funding share for Avista is split 70%/30% between Avista Washington and Avista Idaho. The total current funding share is noted in the table above. Funding share for Avista varies by funding cycle and within cycle if funding composition changes.

7.2 Avista Natural Gas Energy Savings Share

The Natural Gas 2015-2019 business plan does not forecast energy savings in the short-term of this cycle (2015-2019). The business plan is focused on developing the portfolio of initiatives that will deliver savings in future years (anticipating 2019+).

7.3 2017 Costs

NEEA annual costs do not map directly to the annual energy savings for a given year. Due to the Market Transformation nature of NEEA's work, the energy savings investments are heavy up front, and the return (in the form of energy savings) lags by a few years or more. Approximately 68% of the regional energy savings value delivered in 2017 are from initiatives for which the investment period was 2010-2014. The current investment period has a forecasted energy stream that extends beyond 2019.

NEEA costs include all costs of NEEA operations and value delivery, including:

- Energy savings initiatives
- Investments in market training and infrastructure
- Stock assessments, evaluations, data collection, and other regional and program research
- Emerging technology research and development, and
- All administrative costs

Avista's criteria for funding NEEA's electric market transformation portfolio calls for the portfolio to deliver incrementally cost-effective resources beyond what could be acquired through the Company's local portfolio alone. Avista has historically communicated with NEEA the importance of NEEA delivering cost-effective resources to our service territory. The Company believes that NEEA will continue to offer cost-effective electric market transformation in the foreseeable future. Avista will continue to play an active role in the organizational oversight of NEEA. This will be critical to insure that geographic equity, cost-effectiveness and resource acquisition continue to be primary areas of focus.

8 Energy Efficiency Expenditures

During 2017, Avista incurred over \$26.0 million in costs for the operation of electric and natural gas energy efficiency programs in Washington, with \$21.8 million for electric energy efficiency and \$4.2 million for natural gas energy efficiency. Of this amount, \$1.6 million was contributed to the Northwest Energy Efficiency Alliance to fund regional market transformation ventures.

Seventy-three percent of expenditures were returned to ratepayers in the form of incentives or products. During the 2017 calendar year, approximately \$593 thousand, or 2.3 percent, was spent on evaluation in an effort to continually improve program design, delivery and cost-effectiveness.

Evaluation, as well as other implementation expenditures, can be directly charged to the appropriate state and/or segment(s). In cases where the work benefits multiple states or segments, these expenditures are charged to a “general” category and are allocated based on avoided costs for cost-effectiveness purposes.

The expenditures illustrated in the following tables represent actual payments incurred in the 2017 calendar year and often differ from the cost-effectiveness section where all benefits and costs associated with projects completing in 2017 are evaluated in order to provide matching of benefits and expenditures resulting in a more accurate look at cost-effectiveness.

Table 8-1 and Table 8-2 provide a summary of energy efficiency expenditures by fuel type.

Table 8-1: Avista Electricity Energy Efficiency Expenditures (WA)¹⁹

Segment	Incentives	Implementation	EM&V	NEEA	Total
Residential	\$5,335,067	\$1,652,675	\$0	\$0	\$6,987,742
Low Income	\$881,089	\$35,560	\$0	\$0	\$916,648
Nonresidential	\$9,419,484	\$727,579	\$0	\$0	\$10,147,062
Regional	\$0	\$1,121	\$68,108	\$1,339,420	\$1,408,649
General	\$0	\$1,933,593	\$403,691	\$0	\$2,337,285
Total	\$15,635,640	\$4,350,528	\$471,799	\$1,339,420	\$21,797,387

¹⁹ Idaho Case AVU-E-06 Order 33769 required a reallocation of expenses from Idaho to Washington from previous years which is reflected in the above table. Calculations for cost effectiveness tests for the current year should exclude the reallocation from previous years and include an increase to Idaho electric residential incentives and a decrease to Washington electric residential incentives in the amount of \$102,235. Also for any calculations there should be an increase to Idaho electrical residential implementation in the amount of \$45,377 and a decrease to Washington electrical residential implementation in the amount of \$44,856 (the difference of \$521 was charged to another account). In addition for any calculations there should be an increase to Idaho electrical general EMV and a decrease to Washington electrical general EMV in the amount of \$130,185. The total EMV cost was \$593,737 for both Electric and Natural Gas.

Table 8-2: Avista Natural Gas Energy Efficiency Expenditures (WA)

Segment	Incentives	Implementation	EM&V	NEEA	Total
Residential	\$1,780,697	\$61,985	\$0	\$0	\$1,842,681
Low Income	\$1,038,510	\$7,193	\$0	\$0	\$1,045,703
Nonresidential	\$548,237	\$249,624	\$0	\$0	\$797,860
Regional	\$0	\$2,086	\$0	\$265,566	\$267,651
General	\$0	\$205,937	\$121,938	\$0	\$327,875
Total	\$3,367,443	\$526,824	\$121,938	\$265,566	\$4,281,770



9 Tariff Rider Balances

As of the start of 2017, the Washington electric and natural gas (aggregate) tariff rider balances were underfunded by \$9,694,012. During 2017, \$20.7 million in tariff rider revenue was collected to fund energy efficiency while \$26.0 million was expended to operate energy efficiency programs. The \$5.3 million under-collection of tariff rider funding resulted in a year-end balance of \$15.0 million underfunded balance.

Table 9-1 illustrates the 2017 tariff rider activity by fuel type.

Table 9-1 Tariff Rider Activity (2017)

	Electric	Natural Gas
Beginning Balance (Underfunded)	(\$8,283,048)	(\$1,410,964)
Energy Efficiency Funding	\$15,661,497	\$5,066,081
Net Funding of Operations	\$7,378,449	\$3,655,117
Energy Efficiency Expenditures	\$21,797,387	\$4,281,770
Ending Balances (Underfunded)	(\$14,418,938)	(\$626,653)

10 Actual to Annual Conservation Plan Comparison

For 2017 operations, Avista exceeded budgeted electric energy efficiency expenditures by \$8.3 million, or 162%, and natural gas expenditures were more than budgeted by \$822 thousand, or 124%. The biggest driver of expenditures is incentives. This demand for incentives was higher than anticipated and its impact resulted in the underfunding in the Washington electric and natural gas programs. It is difficult to predict customer acceptance of programs, which affects the incentive expenditures. While the Annual Conservation Plan provides an expectation for operational planning, Avista is required to incent all energy efficiency that qualifies under Schedules 90 and 190. Since customer incentives are the largest component of expenditures, customer demand can easily impact the funding level of the Tariff Riders.

Table 10-1 provides detail on the budget to actual comparison of energy efficiency expenditures by fuel type.

Table 10-1 Annual Conservation Plan to Actual Comparison²⁰

	Electric	Natural Gas
2017 Annual Conservation Plan		
Incentives Budget	\$7,283,459	\$2,135,569
Non-incentives and Labor	\$6,184,299	\$1,324,012
Total Budgeted Expenditures	\$13,467,758	\$3,459,581
Actual 2017 Expenditures		
Incentives	\$15,635,640	\$3,367,443
Non-incentives and Labor	\$6,161,747	\$914,327
Total Actual Expenditures	\$21,797,387	\$4,281,770
Variance	(\$8,329,629)	(\$822,189)

Note: "Non-incentive and Labor" includes all other implementation costs of the DSM program.

The expenditure variance is mainly attributed to the Non-residential Lighting Program which, during 2017, had an initial estimated incentive expenditure level of \$847,592 and an actual expenditure level of \$5,514,376. The Company's Residential Fuel Efficiency also contributed to the variance with its actual expenditures of \$3,363,515 exceeding the planned expenditures of \$719,400 by \$2,644,115. Table 10-2 illustrates the top five measures with the highest impact

²⁰ Budget values are from 2017 Annual Conservation Plan



on the expenditure variance.

Table 10-2 Programs with Highest Impact on Expenditure Variance²¹

Program	Planned	Actual	Variance	Var %
Non-Res Interior Lighting	\$847,592	\$5,514,376	\$4,666,785	551%
Residential Fuel Efficiency	\$719,400	\$3,363,515	\$2,644,115	368%
Non-Res Exterior Lighting	\$265,840	\$731,316	\$465,476	175%
Residential Lighting	\$1,240,425	\$1,699,874	\$459,449	37%
Multifamily Market Transformation	\$1,400,000	\$1,607,732	\$207,732	15%

²¹ Planned values are estimated incentive costs from 2017 Annual Conservation Plan.