2018 True Up Report

Corrections of 2002-2017 Savings and Generation

Energy Trust of Oregon

Introduction

True up is the annual process used to adjust and correct previous years' energy savings and renewable generation to reflect the best and most up-to-date information available. The true up process adjusts past savings and generation based on:

- Corrections to transaction errors
- Updated measure assumptions
- Evaluation results (finalized prior to August 1, 2018)

This 2019 True Up Report adjusts Reportable Energy Trust savings from **2012-2017**. This report does **not** cover 2018.

This report contains three sections that describe (1) definitions of terms used in this report, (2) savings adjustments and impacts by program, and (3) the difference between pre-True Up and post-True Up savings and generation by sector.

Summary

The 2018 true up resulted in adjustments to Energy Trust's Reportable annual electric and gas savings and renewable energy generation totals. Total electric savings and generation from 2002-2017 increased by 0.5 percent, from 773 average megawatts to 777 aMW; total gas savings from 2003-2017[1] decreased by 0.04% percent, from 57.89 million therms to 57.86 million therms.

2017 Reportable electric savings increased by 7.3 percent and 2017 Reportable gas savings increased by 2.3 percent compared to the savings shown in Energy Trust's 2017 Annual Report. These savings changes for 2017 are primarily due to two factors: substantial decreases in Production Efficiency free ridership compared to the three-year weighted average estimate used to report savings, and updates to Northwest Energy Efficiency Alliance's estimate for 2017 market transformation savings.

Overall, the largest impacts of the 2018 true up were associated with:

- Realization rate adjustments from the 2015-2016 Existing Buildings Impact Evaluation
- Adjustments related to 2017 free-ridership estimates for Production Efficiency, Existing Buildings and Existing Multifamily Buildings programs
- Updated NEEA savings results for 2017

[1] Energy Trust's electric programs began in 2002 and gas programs began in 2003

- Realization rate adjustment and line loss adjustments for utility scale solar projects from the 2011-2015 Solar Impact Evaluation

The annual changes to electric and gas savings are summarized by program in the Results section below. To help provide context and clarity for readers, the tables showing impacts by program have been updated to compare the evaluated realization rate and free ridership with the figures used to claim and report savings in the given year.

The last section of the report contains a series of tables showing overall changes by sector and for each funding utility within Energy Trust's service territory.

Definitions and Reasons for Adjustments

Definitions

Working Savings/generation: The estimate of anticipated results at individual sites. This measure of savings is practical for data entry by program personnel while reviewing and approving individual projects. These savings are based on estimates of typical savings or generation for prescriptive measures and site-specific engineering calculations for custom energy-efficiency measures. Transmission and distribution line loss savings are not included in Working savings, and no adjustments are made for free riders (FR), who are customers that would have installed the measures absent program influence, or for spillover, which represents customers who are influenced by the program but did not take the incentive for an efficiency measure. These adjustments are addressed when developing Reportable savings/generation values.[2]

The true up process does not adjust Working savings claimed in the past. Only Reportable savings and generation are adjusted through the true up process.

Reportable Savings/generation: The estimate of savings results that are used to report Energy Trust achievements. Several factors are applied to Working savings to calculate Reportable savings, collectively referred to as the savings realization adjustment factors (SRAF). The SRAF used to convert Working savings to Reportable energy savings is adjusted and updated annually through the true up process based on the most up-to-date information available. The factors in the SRAF include:

- *Realization Rates (RR)*: To adjust the initial estimate of savings, a realization rate of 100 percent indicates that resulting site savings aligned

[2] Sometimes Working savings estimates for prescriptive measures do account for free ridership directly in the savings estimate, by using a full market baseline to deem savings.

with expectations. The realization rate is typically calculated as part of an impact evaluation or through billing analysis.

- *Market Effects:* Another adjustment is for market effects and is known as a Net-to-Gross ratio. Market effects adjusts for free riders and spillover. The equation below demonstrates how market effects is calculated using free-ridership and spillover estimates.

Market Effects *= 1 – Free-rider Rate + Spillover Rate*

- *Line Losses:* This is an adjustment applied only to electric savings and represents avoided line and transformer losses from saving or generating energy at the customer site. Line losses are assumed to be 10 percent for residential and commercial measures and 6 percent for industrial measures.

Working savings for Energy Trust's commercial and industrial programs are adjusted for reporting by applying a SRAF at the program or track level, while Working savings for Energy Trust's residential programs are adjusted for market effects at the measure level. The SRAF applied to a measure or program's Working savings, for any given program year, is calculated as follows:

SRAF *= Realization Rate ∗ (1 – Free-rider Rate + Spillover Rate) * Line Losses*

Free-rider rates are determined through Fast Feedback, which is a short phone survey with a sample of recent program participants to assess satisfaction, understand customer decision making, and gather suggestions for program and process improvements. The survey is generally 10 or fewer questions and is customized for each program or measure of interest. The goal of Fast Feedback is to get accurate answers to important questions within two months of program participation and to minimize the time required of survey respondents.

There are two reasons the evaluation factor is applied differentially across the residential and commercial and industrial programs:

- The Fast Feedback free-rider estimates are sampled at the program or track[3] level for commercial and industrial programs, whereas the residential Fast Feedback results are sampled at the measure-group level (e.g., ceiling insulation, thermostats). This is because commercial and industrial respondents typically cannot recall all the details of a potentially

[3] In 2016 the Production Efficiency program requested FF results at the track level (Custom and Standard Track + Lighting). Currently, the number of eligible gas sites for FF in a given period is not large enough to create sub-samples by track that meet the required thresholds. Realization rates for Production Efficiency continue to be applied at the program level.

complex project, whereas residential participants purchase a relatively limited number of measures for which they can more readily recall the purchase and decision-making process.

- Realization rates that affect Reportable savings are calculated at the program level for commercial and industrial, even if the evaluation also calculates it at the measure level. This is because the sample sizes for individual commercial and industrial measures result in lower confidence and precision levels and are therefore less reliable for program planning.

Anticipated Evaluation Results: Experience shows that evaluated estimates of savings and generation can be either lower or higher than Reportable estimates. Reportable estimates are often based on typical savings for prescriptive measures or engineering analysis for custom measures based on assumptions of how the measure will perform once installed. Impact evaluation uses energy-use data and/or data from post-installation operation to improve Reportable estimates. However, impact evaluations cannot be completed until after enough time has passed to acquire post installation energy use data. Based upon direction from the Energy Trust Board of Directors, staff uses past evaluation results to adjust Reportable savings for programs where data to evaluate results for the current year is not yet available.

For program years where savings have not been evaluated for free ridership or energy savings impact (realization rate), an anticipated evaluation result is applied prospectively in budget planning and annual reporting until actual evaluation results are obtained and savings can be trued up. Anticipated evaluation results are calculated as the average of the last three years of evaluated results, weighted by the savings from each respective year. A program year is closed when evaluation results and free-rider rates for a given program year have been applied to savings in that program year, rather than the anticipated evaluation/free-rider results that are applied before evaluations of that program year are complete.

Beginning with the 2017 True Up Report, we made one procedural change to streamline the annual process and increase the clarity and transparency of the results. That change is to discontinue the past practice of using the most recent anticipated impact evaluation results (i.e. the three-year weighted realization rate used for budgeting) to retrospectively adjust interim years for which no impact evaluation has been completed. By eliminating this step, a program's annual savings remain with the anticipated three-year weighted realization rate until the impact evaluation results are finalized and applied during true up. At this point, the program is then closed for a given year and will not be subject to future true up efforts.

Reasons for Adjustments

True Up adjusts past Reportable savings and Generation estimates in different programs for different reasons, falling into the following categories:

1) Corrections: Occasionally, through Energy Trust's routine quality assurance processes, transaction errors are discovered in the database, which require corrections. Individual transaction errors (e.g., incorrect measure savings for a custom site) are usually adjusted immediately and generic transaction errors (e.g., out of date deemed savings value for a measure) are fixed once per year during true up.

2) *New Data:* Projections are updated based upon improved measure simulations and new data on measure performance. This is typically done only when reliable data becomes available that impacts a measure's basic assumptions, such a new Federal standard for a piece of equipment. Other reasons might be that new primary research is conducted that overturns long-standing assumptions of equipment performance or baseline. For example, the 2017 true up adjusts savings for past installations of multifamily showerheads based on new baseline flow rates.

3) *Evaluation Results:* Once finalized, evaluations provide the most reliable representation of the annual savings realized and can replace the anticipated results described above. The most up-to-date evaluation results are applied when they become available for the appropriate program year.

Results: Impacts by Program

Existing Buildings

The primary updates to the Existing Buildings program during the 2018 true up are the incorporation of 2015-2016 Existing Buildings Impact Evaluation results, the 2017 free-rider rate, and an adjustment to savings from schools to account for a free-ridership exemption in 2017. The 2017 free-rider rate estimate from fast feedback has also been included in the development of the anticipated evaluation factors for 2019.

Table 1 lists the sources for the adjustments that were applied to Reportable savings for the Existing Buildings program.

Table 1: Existing Buildings Evaluation Inputs to the 2018 True Up

Program	Year	Adjustment Source	Type of Adjustment	Notes
Existing Buildings	2015-2016	2015-2016 Existing Buildings Impact Evaluation	Impact evaluation	Link to impact evaluation
Existing Buildings	2017	Schools free ridership exemption	Free-ridership	Planning, program and PUC staff agreed that schools should not be considered free riders due to limited financial resources. Last year's true up made the respective adjustment for 2014-2016, and a manual correction was made to the reporting database in 2017.
Existing Buildings	2017	2017 Fast Feedback survey	Free ridership	

Table 2 and Table ***3*** describe the evaluated components of the SRAF that have been applied to Reportable savings during this true up.

Table 2: Existing Buildings Anticipated and Evaluated Results—Electric

Year	Type of Adjustment	Anticipated Results		Evaluated Results	
		Electric Realization Rate	Electric Free Ridership	Electric Realization Rate	Electric Free ridership
2015	Impact evaluation	95%	27%	96%	33%
2016	Impact evaluation	98%	25%	92%	26%
2017	Free ridership	N/A	31%	N/A	9%

Table 3: Existing Buildings Anticipated and Evaluated Results —Gas

Year	Type of Adjustment	Anticipated Results		Evaluated Results	
		Gas Realization Rate	Gas Free Ridership	Gas Realization Rate	Gas Free Ridership
2015	Impact evaluation	89%	24%	79%	35%
2016	Impact evaluation	88%	24%	87%	23%
2017	Free ridership	N/A	30%	N/A	24%

Table 4 andTable ***5*** describe the change in total electric and gas savings claimed for the Existing Buildings program as a result of the adjustments described above.

Table 4: Existing Buildings Savings Change—Electric

Year	Savings Pre-True Up (kWh)	Trued Up Savings (kWh)	Net Change in Savings (kWh)	Change in Savings (%)
2015	81,842,677	81,424,084	-418,593	-0.51%
2016	108,873,351	107,421,539	-1,451,812	-1.33%
2017	106,555,448	136,120,896	29,565,448	27.75%

Table 5: Existing Buildings Savings Change—Gas

Year	Savings Pre-True Up (therms)	Trued Up Savings (therms)	Net Change in Savings (therms)	Change in Savings (%)
2015	1,006,215	877,631	-128,583	-12.78%
2016	1,541,052	1,514,987	-26,064	-1.69%
2017	1,392,036	1,476,691	84,655	6.08%

Commercial Strategic Energy Management

The Existing Buildings Impacts Evaluation for 2015-2016 also had a Commercial Strategic Energy Management Impact Evaluation component that was completed in 2018. It included realization rates for both the cumulative two-year study period, and for each of the individual program years covered in the study. The cumulative results were used for forward looking budget planning, whereas the 2018 true up applied adjustments commensurate with the findings for the appropriate program year.

Table 6 and Table ***7*** describe the evaluated components of the SRAF that have been applied to Reportable savings during this True Up.

Table 6: Commercial Strategic Energy Management Anticipated and Evaluated Results—Electric

Year	Type of Adjustment	Anticipated Results		Evaluated Results	
		Electric Realization Rate	Electric Free ridership	Electric Realization Rate	Electric Free ridership
2015	Impact evaluation	100%	N/A	89%	N/A
2016	Impact evaluation	100%	N/A	92%	N/A

Table 7: Commercial Strategic Energy Management Anticipated and Evaluated Results—Gas

Year	Type of Adjustment	Anticipated Results		Evaluated Results	
		Gas Realization Rate	Gas Free ridership	Gas Realization Rate	Gas Free ridership
2015	Impact evaluation	100%	N/A	83%	N/A
2016	Impact evaluation	100%	N/A	113%	N/A

Market effects (free ridership and spillover) are not currently included in the SRAF for Commercial Strategic Energy Management, though the participant interviews did ask about potential spillover activity at other sites. Qualitative evidence suggests there may be some spillover, but the size or certainty of these potential savings from a customer's engagement with the program have not been quantified.

Table 8 andTable ***9*** describe the change in total electric and gas savings claimed for the Commercial Strategic Energy Management program as a result of the adjustments described above.

Table 8: Commercial Strategic Energy Management Savings Change—Electric

Year	Savings Pre-True Up (kWh)	Trued Up Savings (kWh)	Net Change in Savings (kWh)	Change in Savings (%)
2015	11,363,864	10,113,796	-1,250,068	-11.00%
2016	10,815,180	9,949,897	-865,283	-8.00%

Table 9: Commercial Strategic Energy Management Savings Change—Gas

Year	Savings Pre-True Up (therms)	Trued Up Savings (therms)	Net Change in Savings (therms)	Change in Savings (%)
2015	539,194	447,531	-91,663	-17.00%
2016	481,771	544,401	62,630	13.00%

Existing Multifamily

There were three updates made to the Existing Multifamily program during the 2018 true up. The first was incorporation of the 2017 free-rider rate estimate. The second was an adjustment to exempt affordable housing multifamily from market effects for 2017. The third was to make an adjustment for measures that were exempted from market effects for 2017.

Table 10: Existing Multifamily Inputs to the 2018 True Up

Program	Year	Adjustment Source	Type of Adjustment	Notes
Existing Multifamily	2017	2017 Fast Feedback survey	Free ridership	
Existing Multifamily	2017	Affordable housing free ridership exemption	Free-ridership	
Existing Multifamily	2017	Measure level free ridership exemptions	Free-ridership	Measures include ductless heat-pumps, heat pump water heaters, clothes washers, and gas water heaters, and specific application of gas furnaces and electric water heaters

Table 10 and Table ***11*** describe the evaluated components of the SRAF that have been applied to Reportable savings during this true up.

Table 11 : Existing Multifamily Anticipated and Evaluated Results—Electric

Year	Type of Adjustment	Anticipated Results		Evaluated Results	
		Electric Realization Rate	Electric Free Ridership	Electric Realization Rate	Electric Free Ridership
2017	Free ridership	N/A	18%	N/A	24%

Table 12: Existing Multifamily Anticipated and Evaluated Results—Gas

Year	Type of Adjustment	Anticipated Results		Evaluated Results	
		Gas Realization Rate	Gas Free ridership	Gas Realization Rate	Gas Free ridership
2017	Free ridership	N/A	43%	N/A	13%

Table 13 and Table ***14*** describe the change in total electric and gas savings claimed for the Existing Multifamily program as a result of the adjustments described above in Table 10.

Table 13: Existing Multifamily Savings Change—Electric

Year	Savings Pre-True Up (kWh)	Trued Up Savings (kWh)	Net Change in Savings (kWh)	Change in Savings (%)
2017	15,967,297	15,710,462	-256,835	-1.61%

Table 14: Existing Multifamily Savings Change—Gas

Year	Savings Pre-True Up (therms)	Trued Up Savings (therms)	Net Change in Savings (therms)	Change in Savings (%)
2017	179,421	253,159	73,737	41.10%

New Buildings

Two impact evaluations were completed for the New Buildings program which were included for the 2017 true up. As a result, there were no adjustments from the anticipated realization rate used in 2017 and the evaluated realization rate.

Additionally, New Buildings does not receive an adjustment for free-ridership and therefore there were no changes to savings based on fast feedback information. As a result, Pre-true up and true up savings are the same for New Buildings.

Table 15 and Table ***16*** show the components of the SRAF that have been applied to Reportable savings for 2017 for the New Buildings program.

Table 15: New Buildings Anticipated and Evaluated Results—Electric

Year	Type of Adjustment	Anticipated Results		Evaluated Results	
		Electric Realization Rate	Electric Free Ridership	Electric Realization Rate	Electric Free Ridership
2017	Impact evaluation	94%	N/A	94%	N/A

Table 16: New Buildings Anticipated and Evaluated Results—Gas

Year	Type of Adjustment	Anticipated Results		Evaluated Results	
		Gas Realization Rate	Gas Free ridership	Gas Realization Rate	Gas Free ridership
2017	Impact evaluation	94%	N/A	94%	N/A

Table 17 and Table ***18*** describe the change in total Reportable savings claimed for the New Buildings program for the program years 2017, for electric and gas savings, respectively.

Table 17: New Buildings Savings Change—Electric

Year	Savings Pre-True Up (kWh)	Trued Up Savings (kWh)	Net Change in Savings (kWh)	Change in Savings (%)
2017	55,111,875	55,111,875	0	0%

Table 18: New Buildings Savings Change—Gas

Year	Savings Pre-True Up (therms)	Trued Up Savings (therms)	Net Change in Savings (therms)	Change in Savings (%)
2017	937,631	937,631	0	0%

Production Efficiency

The 2018 true up made adjustments to Production Efficiency program savings based on results from the findings from the 2017 Fast Feedback survey of program participants. Industrial Strategic Energy Management savings are not subject to free-ridership adjustments, and thus were not Trued Up this year.

For the free ridership adjustment, results were applied at the track level for electric and gas savings.

Table 19 and Table ***20*** show the components of the SRAF that have been applied to Reportable savings for 2017 for the Production Efficiency program.

Table 19: Production Efficiency Anticipated and Evaluated Results—Electric

Year	Type of Adjustment	Anticipated Results		Evaluated Results	
		Electric Realization Rate	Electric Free Ridership	Electric Realization Rate	Electric Free Ridership
2017	Free ridership - Standard + Lighting Ele	N/A	23%	N/A	12%
2017	Free ridership - Custom Ele	N/A	23%	N/A	11%

Table 20: Production Efficiency Anticipated and Evaluated Results—Gas

Year	Type of Adjustment	Anticipated Results		Evaluated Results	
		Gas Realization Rate	Gas Free Ridership	Gas Realization Rate	Gas Free Ridership
2017	Free ridership – Gas	N/A	22%	N/A	18%

Table 21 and Table **22** describe the change in total annual savings claimed for the Production Efficiency program as a result of 2018 true up adjustments, for electric and gas savings, respectively.

Table 21: Production Efficiency Savings Change—Electric

Year	Savings Pre-True Up (kWh)	Trued Up Savings (kWh)	Net Change in Savings (kWh)	Change in Savings (%)
2017	147,927,390	161,033,703	13,106,313	8.86%

Table 22: Production Efficiency Savings Change—Gas

Year	Savings Pre-True Up (therms)	Trued Up Savings (therms)	Net Change in Savings (therms)	Change in Savings (%)
2017	1,273,307	1,332,023	58,716	4.61%

Existing Homes and Products

The 2018 true up adjusted Existing Homes and Products program savings based on free-rider rate findings from the 2017 Fast Feedback surveys of program participants. No additional adjustments were made to Existing Homes and program savings beyond free-ridership adjustments.

Table 23 and Table ***24*** describe the change in total savings claimed for the Existing Homes and Products program for 2017, for electric and gas savings, respectively.

Table 23: New and Existing Homes and Products Savings Change—Electric

Year	Savings Pre-True Up (kWh)	Trued Up Savings (kWh)	Net Change in Savings (kWh)	Change in Savings (%)
2017	156,343,592	156,201,246	-142,346	-0.09%

Table 24: New and Existing Homes and Products Savings Change—Gas

Year	Savings Pre-True Up (therms)	Trued Up Savings (therms)	Net Change in Savings (therms)	Change in Savings (%)
2017	3,114,980	3,057,166	-57,813	-1.86%

Solar

The 2011-2015 Impact Evaluation of solar installations was completed in January of 2017. The evaluation provided distinct realization rates for three different ownership structures: commercial, residential direct-owned and residential third-party owned.

During the 2017 true up, the realization rates were applied by sector/ownership type for the periods covered in the evaluation (2011-2015). These realization rates were not meant to be applied to utility scale solar projects, however during the 2017 true-up there were two utility scale projects identified from 2012 that received an errant commercial realization rate. The 2018 true-up corrected these projects to reflect the appropriate realization rate.

Table 25 shows the change electric savings for the Solar program as a result of true up adjustments.

Table 25: Solar Generation Change—Electric

Year	Savings Pre-True Up (kWh)	Trued Up Savings (kWh)	Net Change in Savings (kWh)	Change in Savings (%)
2012	29,591,576	28,643,006	-948,570	-3.21%

Northwest Energy Efficiency Alliance

2017 savings for NEEA were revised in the 2018 true up as a result of updated savings estimates reported by NEEA. Savings for the commercial sector increased for 2017, while the industrial sector and the residential sector savings decreased.

According to NEEA internal savings reports, increases in 2017 savings were driven by better-than-expected results in the commercial sector. The commercial commissioning and commercial codes initiatives resulted in more than the forecasted savings, primarily driven by increased commercial construction activity and an increase in savings from accelerating the federal electric motor standard. The residential sector's decrease in savings was primarily due to reductions in expected savings from NEEA's retail television initiative.

NEEA's savings revisions for 2017 also included, as always, updated savings estimates for other NEEA initiatives based on final market data and updated service-territory allocations.

Table 26 shows the change to total Reportable electric savings claimed for NEEA market transformation initiatives by sector for 2017.

Table 26: 2017 NEEA Electric Savings Change

Year	Sector	Savings Pre-True Up (kWh)	Trued Up Savings (kWh)	Net Change in Savings (kWh)	Change in Savings (%)
2017	Commercial	16,814,771	22,092,848	5,278,077	31.39%
2017	Industrial	975,519	932,796	-42,723	-4.38%
2017	Residential	47,039,453	40,547,284	-6,492,169	-13.80%

Results: Impacts by Sector and Utility

The following tables summarize the changes in total annual electric and gas savings for 2002-2017 as a result of 2017 true up adjustments. In the tables below, an average megawatt (aMW) means that loads are reduced by an average of one megawatt - or 8,760 MWh - during each year of a measure's estimated useful life. Where units are listed as million therms (MMTh), this

reflects the annual gas savings achieved in each year of a measure's useful life, stated in millions of therms.

Tables 28 and 29 describe the change to total Reportable savings[4] claimed by Energy Trust for the years 2002-2017.

Table 27: Electric Savings Impact 2002-2017

Sector	Savings Pre-True Up (aMW)	Trued Up Savings (aMW)	Net Change in Savings (aMW)	Change in Savings (%)
Commercial	230.5	234.0	3.5	1.52%
Industrial	191.5	192.5	1.5	0.78%
Residential	224.9	224.1	-0.8	-0.34%
Renewables	126.8	18.4	-0.1	-0.09%
Total	**777.5**	**669.5**	**4.1**	**0.53%**

Table 28: Gas Savings Impact 2002-2017

Sector	Savings Pre-True Up (MMTh)	Trued Up Savings (MMTh)	Net Change in Savings (MMTh)	Change in Savings (%)
Commercial	24.37	24.40	-0.03	-0.10%
Industrial	9.41	9.35	0.06	0.63%
Residential	26.04	26.10	-0.06	-0.22%
Total	**59.85**	**59.83**	**-0.02**	**-0.04%**

The following tables show final Reportable annual savings and generation totals for each of the utilities in Energy Trust's service territory after the 2018 true up adjustments were implemented.

Table 29: PGE savings and generation (aMW), 2002-2017[5]

[4] The savings here are total first-year annual savings only, and do not reflect the lifetime of savings.

[5] Historical utility savings differ from 2018 true-up report as savings are now derived from Energy Trust SSRS reports.

Year	Commercial	Industrial	Renewables	Residential	Total
2002	3.95	1.81	0.00	3.61	9.37
2003	4.03	0.89	0.02	3.84	8.78
2004	4.24	1.17	0.01	5.32	10.75
2005	5.18	14.22	0.42	5.01	24.83
2006	3.89	2.85	0.03	6.94	13.71
2007	3.60	3.75	46.84	8.37	62.56
2008	5.57	2.86	1.84	8.22	18.50
2009	7.11	4.49	0.55	5.71	17.86
2010	10.47	8.77	0.96	7.31	27.51
2011	10.99	8.92	1.17	8.51	29.59
2012	13.81	10.14	2.61	10.48	37.05
2013	12.37	12.76	1.94	9.24	36.31
2014	12.59	10.93	0.83	12.29	36.64
2015	11.95	7.04	3.22	12.02	34.22
2016	15.10	8.24	1.57	14.12	39.03
2017	16.78	12.81	1.19	13.43	44.21
Total	**141.62**	**111.66**	**63.20**	**134.43**	**450.91**

Table 30: Pacific Power savings and generation (aMW), 2002-2017

Year	Commercial	Industrial	Renewables	Residential	Total
2002	1.94	1.62	0.00	2.11	5.67
2003	1.73	2.68	14.27	2.64	21.32
2004	3.14	8.66	0.08	3.61	15.49
2005	2.41	5.96	0.04	3.36	11.77
2006	1.69	4.98	1.96	4.61	13.23
2007	2.05	4.00	0.08	6.31	12.45
2008	2.74	3.83	31.47	5.51	43.55
2009	3.10	3.51	2.12	3.57	12.30
2010	7.86	7.06	2.42	5.29	22.62
2011	8.26	6.55	0.45	5.33	20.60
2012	10.77	5.67	2.41	6.45	25.30
2013	11.34	4.73	1.04	5.82	22.93
2014	6.81	5.92	1.73	8.47	22.94
2015	8.75	4.86	0.96	8.20	22.76
2016	9.63	5.26	1.21	9.40	25.50
2017	10.12	5.57	3.30	9.03	28.02
Total	**92.33**	**80.87**	**63.56**	**89.70**	**326.45**

Table 31: NW Natural savings (MMTh), 2002-2017

Year	Commercial	Industrial	Residential	Total
2002	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.61	0.61
2004	0.08	0.00	0.92	1.00
2005	0.44	0.00	0.95	1.39
2006	1.21	0.00	0.95	2.17
2007	1.09	0.00	1.13	2.22
2008	1.10	0.01	1.34	2.45
2009	1.10	0.19	1.20	2.49
2010	2.01	0.54	1.39	3.94
2011	1.91	1.01	1.58	4.49
2012	2.05	0.57	2.52	5.14
2013	1.41	0.94	2.13	4.48
2014	2.22	0.94	1.96	5.12
2015	1.74	2.02	1.87	5.62
2016	2.62	1.43	2.23	6.28
2017	2.33	1.31	2.37	6.01
Total	**21.33**	**8.95**	**23.14**	**53.41**

Table 32: Cascade Natural Gas savings (MMTh) 2002-2017

Year	Commercial	Industrial	Residential	Total
2002	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00
2006	0.05	0.00	0.02	0.08
2007	0.02	0.00	0.13	0.15
2008	0.05	0.00	0.12	0.17
2009	0.07	0.05	0.13	0.25
2010	0.20	0.05	0.07	0.32
2011	0.22	0.09	0.11	0.42
2012	0.15	0.09	0.15	0.39
2013	0.13	0.06	0.12	0.31
2014	0.23	0.04	0.14	0.41
2015	0.30	0.05	0.16	0.51
2016	0.29	0.02	0.20	0.51
2017	0.29	0.02	0.21	0.52
Total	**2.01**	**0.45**	**1.58**	**4.04**

Table 33: Avista savings (MMTh) 2002-2017

Year	Commercial	Industrial	Residential	Total
2002	0.00	0.00	0.00	0.00
2003	0.00	0.00	0.00	0.00
2004	0.00	0.00	0.00	0.00
2005	0.00	0.00	0.00	0.00
2006	0.00	0.00	0.00	0.00
2007	0.00	0.00	0.01	0.01
2008	0.00	0.00	0.01	0.01
2009	0.00	0.00	0.00	0.00
2010	0.00	0.00	0.00	0.00
2011	0.00	0.00	0.00	0.00
2012	0.00	0.00	0.00	0.00
2013	0.00	0.00	0.00	0.00
2014	0.00	0.00	0.00	0.00
2015	0.00	0.00	0.00	0.00
2016	0.00	0.00	0.03	0.03

2017	0.10	0.01	0.24	0.34
Total	**0.10**	**0.01**	**0.30**	**0.41**