

EXHIBIT A

BEFORE THE
WASHINGTON UTILITIES & TRANSPORTATION COMMISSION

NW NATURAL
SUPPORTING MATERIALS

WA EE PROGRAM COSTS (AMORTIZATION)

NWN WUTC Advice No. 19-03 / UG-_____

September 12, 2019

NW NATURAL

EXHIBIT A

Supporting Material

WA EE PROGRAM COSTS (AMORTIZATION)

NWN WUTC ADVICE NO. 19-03 / UG-_____

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NW Natural
Rates & Regulatory Affairs
2019-2020 PGA Filing - Washington: September Filing
Calculation of Increments Allocated on the EQUAL PERCENTAGE OF MARGIN BASIS

											R&C Energy Efficiency Programs			
											Proposed Amount:		2,973,770 Temporary Increments	
											Revenue Sensitive Multiplier: 4.158% add revenue sensitive factor			
											Amount to Amortize: 3,102,784 to all residential & commercial sales			
											Multiplier	Allocation to RS		Increment
											J	K	L	
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											AH	AI	AJ	
											AK	AL	AM	
											AN	AO	AP	
											AQ	AR	AS	
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											BC	BD	BE	
											BF	BG	BH	
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NW Natural
Rates & Regulatory Affairs
2019-2020 PGA Filing - Washington: September Filing
Summary of Deferred Accounts

Account A	Balance 8/31/2019 B	Sep-Oct Estimated Activity C	Sep-Oct Interest D	Estimated Balance 10/31/2019 E	Estimated Interest During Amortization F	Total Estimated Amount for (Refund) or Collection G	Amounts Excluded from PGA Filing H	Amounts Included in PGA Filing I
				E = sum B thru D	5.42%	G = E + F Excl. Rev Sens		
DSM & LOW INCOME PROGRAMS								
186310 WA Energy Efficiency General (2018 calendar only)	85,530	0	780	86,310				
186312 WA Energy Efficiency Res & Comm (2018 calendar only)	2,790,608	0	25,452	2,816,060				
186316 WA DSM AMORTIZATION	201,852	(216,979)	1,033	(14,095)				
	3,077,989	(216,979)	27,265	2,888,275	85,495	2,973,770	1,858,894	2,973,770

8 Notes

9 Please refer to NWN workpapers or electronic file "NWN 2019-20 Washington PGA rate development file September filing.xls" for application of revenue sensitive effect and calculation of rate increments.

Company: Northwest Natural Gas Company
 State: Washington
 Description: Washington Energy Efficiency Programs - General Admin
 Account Number: 186310
 Other Info: Program under Schedule G
 Temp Increment under Schedule 215

1	Debit (Credit)													
2														
3														
4	Month/Year	Note	Deferral	Transfers	Interest Rate	Interest	2017 Calendar Interest	2018 Calendar Interest	2019 Calendar Interest	Total Activity	Balance	2017 Calendar Balance	2018 Calendar Balance	2019 Calendar Balance
5	(a)	(b)	(c)	(d)	(e1)	(e2)	(e5)	(e6)	(e7)	(f)	(g1)	(g4)	(g5)	(g6)
6														
119	Jan-18		11,022.12		4.25%	343.12	323.60	19.52		11,365.24	102,735.94	91,694.30	11,041.64	
120	Feb-18		7,072.02		4.25%	376.38	324.75	51.63		7,448.40	110,184.34	92,019.05	18,165.29	
121	Mar-18		2,120.03		4.25%	393.99	325.90	68.09		2,514.02	112,698.36	92,344.95	20,353.41	
122	Apr-18		3,486.65		4.47%	426.30	343.98	82.32		3,912.95	116,611.31	92,688.93	23,922.38	
123	May-18		4,127.70		4.47%	442.06	345.27	96.79		4,569.76	121,181.07	93,034.20	28,146.87	
124	Jun-18		6,080.13		4.47%	462.72	346.55	116.17		6,542.85	127,723.92	93,380.75	34,343.17	
125	Jul-18		3,647.95		4.69%	506.32	364.96	141.36		4,154.27	131,878.19	93,745.71	38,132.48	
126	Aug-18		4,936.38		4.69%	525.07	366.39	158.68		5,461.45	137,339.64	94,112.10	43,227.54	
127	Sep-18		6,519.88		4.69%	549.51	367.82	181.69		7,069.39	144,409.03	94,479.92	49,929.11	
128	Oct-18		5,235.26		4.96%	607.71	390.52	217.19		5,842.97	150,252.00	94,870.44	55,381.56	
129	Nov-18	1	5,389.00	(94,870.44)	4.96%	240.05		240.05		(89,241.39)	61,010.61		61,010.61	
130	Dec-18		21,226.47		4.96%	296.05		296.05		21,522.52	82,533.13		82,533.13	
131	Jan-19		6,116.12		5.18%	369.47		356.27	13.20	6,485.59	89,018.72		82,889.40	6,129.32
132	Feb-19		6,366.26		5.18%	398.00		357.81	40.19	6,764.26	95,782.98		83,247.21	12,535.77
133	Mar-19		7,757.76		5.18%	430.21		359.35	70.86	8,187.97	103,970.95		83,606.56	20,364.39
134	Apr-19		7,421.98		5.45%	489.06		379.71	109.35	7,911.04	111,881.99		83,986.27	27,895.72
135	May-19		2,709.82		5.45%	514.28		381.44	132.84	3,224.10	115,106.09		84,367.71	30,738.38
136	Jun-19		4,654.39		5.45%	533.34		383.17	150.17	5,187.73	120,293.82		84,750.88	35,542.94
137	Jul-19		4,734.27		5.50%	562.20		388.44	173.76	5,296.47	125,590.29		85,139.32	40,450.97
138	Aug-19		4,497.65		5.50%	585.93		390.22	195.71	5,083.58	130,673.87		85,529.54	45,144.33
139	Sep-19				5.50%	598.92		392.01	206.91	598.92	131,272.79		85,921.55	45,351.24
140	Oct-19				5.42%			388.08	(388.08)	0.00	131,272.79		86,309.63	44,963.16

141
 142 **History truncated for ease of viewing**

143
 144 **Notes:**

145 **1** - Transferred Dec 2017 deferral balance plus 2018 interest on the balance to account 186316 for amortization

Company: Northwest Natural Gas Company
 State: Washington
 Description: Washington Energy Efficiency - Res & Comm
 Account Number: 186312
 Other Info: Program under Schedules G
 Temp Increment under Schedule 215

1	Debit (Credit)																	
2											2017	2018	2019					
3											Calendar	Calendar	Calendar	Total	Balance	2017	2018	2019
4	Month/Year	Note	Accumulation	Transfers	Interest	Interest	Calendar	Calendar	Calendar	Activity	Balance	Calendar	Calendar	Calendar	Balance	Balance	Balance	
5	(a)	(b)	(c)	(d)	(e1)	(e2)	(e5)	(e6)	(e7)	(f)	(g1)	(g4)	(g5)	(g6)				
112	Jan-18		100,000.00		4.25%	7,828.10	7,651.02	177.08		107,828.10	2,268,114.96	2,167,937.88	100,177.08					
113	Feb-18		822,689.00		4.25%	9,489.75	7,678.11	1,811.64		832,178.75	3,100,293.71	2,175,615.99	924,677.72					
114	Mar-18		0.00		4.25%	10,980.21	7,705.31	3,274.90		10,980.21	3,111,273.92	2,183,321.30	927,952.62					
115	Apr-18		0.00		4.47%	11,589.50	8,132.87	3,456.63		11,589.50	3,122,863.42	2,191,454.17	931,409.25					
116	May-18		75,861.50		4.47%	11,773.96	8,163.17	3,610.79		87,635.46	3,210,498.88	2,199,617.34	1,010,881.54					
117	Jun-18		37,930.75		4.47%	12,029.75	8,193.57	3,836.18		49,960.50	3,260,459.38	2,207,810.91	1,052,648.47					
118	Jul-18		683,433.00		4.69%	14,078.50	8,628.86	5,449.64		697,511.50	3,957,970.88	2,216,439.77	1,741,531.11					
119	Aug-18		0.00		4.69%	15,469.07	8,662.59	6,806.48		15,469.07	3,973,439.95	2,225,102.36	1,748,337.59					
120	Sep-18		37,930.75		4.69%	15,603.65	8,696.44	6,907.21		53,534.40	4,026,974.35	2,233,798.80	1,793,175.55					
121	Oct-18		822,690.00		4.96%	18,345.05	9,233.04	9,112.01		841,035.05	4,868,009.40	2,243,031.84	2,624,977.56					
122	Nov-18		0.00	(2,243,031.84)	4.96%	10,849.91	10,849.91			(2,232,181.93)	2,635,827.47		2,635,827.47					
123	Dec-18		46,025.25		4.96%	10,989.87	10,989.87			57,015.12	2,692,842.59		2,692,842.59					
124	Jan-19		0.00		5.18%	11,624.10	11,624.10		0.00	11,624.10	2,704,466.69		2,704,466.69	0.00				
125	Feb-19		0.00		5.18%	11,674.28	11,674.28			11,674.28	2,716,140.97		2,716,140.97	0.00				
126	Mar-19		846,025.25		5.18%	13,550.68	11,724.68			859,575.93	3,575,716.90		2,727,865.65	847,851.25				
127	Apr-19		0.00		5.45%	16,239.71	12,389.06			16,239.71	3,591,956.61		2,740,254.71	851,701.90				
128	May-19		0.00		5.45%	16,313.47	12,445.32			16,313.47	3,608,270.08		2,752,700.03	855,570.05				
129	Jun-19		46,025.25		5.45%	16,492.08	12,501.85			62,517.33	3,670,787.41		2,765,201.88	905,585.53				
130	Jul-19		500,000.00		5.50%	17,970.28	12,673.84			517,970.28	4,188,757.69		2,777,875.72	1,410,881.97				
131	Aug-19		0.00		5.50%	19,198.47	12,731.93			19,198.47	4,207,956.16		2,790,607.65	1,417,348.51				
132	Sep-19				5.50%	19,286.47	12,790.29			19,286.47	4,227,242.63		2,803,397.94	1,423,844.69				
133	Oct-19				5.42%	19,093.05	12,662.01			19,093.05	4,246,335.68		2,816,059.95	1,430,275.73				

History truncated for ease of viewing

Notes:

1 - Transferred Dec 2017 deferral balance plus 2018 interest on the balance to account 186316 for amortization

Company: Northwest Natural Gas Company
 State: Washington
 Description: Washington DSM Amortization
 Account Number: 186316
 Program under Schedule G
 Temp Increment under Schedule 215

1 Debit (Credit)
 2
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4	Month/Year	Note	Amortization	Transfers	Interest Rate	Interest	Activity	Balance
5	(a)	(b)	(c)	(d)	(e1)	(e2)	(f)	(g)
6								
165	Nov-18	new (1)	(69,241.36)	2,337,902.28	4.96%	9,520.23	2,278,181.15	2,152,925.16
166	Dec-18		(317,716.05)		4.96%	8,242.14	(309,473.91)	1,843,451.25
167	Jan-19		(369,674.37)		5.18%	7,159.68	(362,514.69)	1,480,936.56
168	Feb-19		(365,291.09)		5.18%	5,604.29	(359,686.80)	1,121,249.76
169	Mar-19		(394,545.81)		5.18%	3,988.50	(390,557.31)	730,692.45
170	Apr-19		(190,206.11)		5.45%	2,886.64	(187,319.47)	543,372.98
171	May-19		(129,816.28)		5.45%	2,173.03	(127,643.25)	415,729.73
172	Jun-19		(85,508.57)		5.45%	1,693.93	(83,814.64)	331,915.09
173	Jul-19		(73,221.62)		5.50%	1,353.48	(71,868.14)	260,046.95
174	Aug-19		(59,251.10)		5.50%	1,056.10	(58,195.00)	201,851.95
175	Sep-19	Forecasted	(69,783.88)		5.50%	765.23	(69,018.65)	132,833.30
176	Oct-19	Forecasted	(147,195.56)		5.42%	267.55	(146,928.01)	(14,094.71)

177
 178 **History truncated for ease of viewing**

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 180 **Notes**

181 **1** - Transfer in amounts from accounts 186310 and 186312 approved for amortization.

**NW Natural
 Rates & Regulatory Affairs
 2019-20 Washington: September Filing Updating Energy Efficiency Schedule 2
 Tariff Advice 19-03: Schedule 215 Effects on Revenue**

	<u>Amount</u>
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	<u>Temporary Increments</u>	
	<u>Removal of Current Temporary Increments</u>	
	Amortization of Energy Efficiency Programs	(2,402,328)
	<u>Addition of Proposed Temporary Increments</u>	
	Amortization of Energy Efficiency Programs	<u>3,102,784</u>
	TOTAL OF ALL COMPONENTS OF RATE CHANGES	<u><u>\$700,456</u></u>
	2018 Washington CBR Normalized Total Revenues	\$66,182,522
	Effect of this filing, as a percentage change	1.06%

Natasha Siores
Manager, Regulatory Compliance
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VIA ELECTRONIC FILING

April 25, 2019

Mark L. Johnson, Executive Director & Secretary
Washington Utilities and Transportation Commission
1300 S Evergreen Park Drive SW
Post Office Box 47250
Olympia, Washington 98504-7250

Re: UG-171163—2018 Annual Report on NW Natural’s Energy Efficiency Program

Dear Mr. Johnson:

Northwest Natural Gas Company, dba NW Natural (NW Natural or the Company) hereby files the 2018 Annual Report on the Company’s Energy Efficiency program. This report is submitted in compliance with the Company’s Energy Efficiency Plan, which is by reference part of the Company’s Tariff Schedule G, Energy Efficiency Services and Programs – Residential and Commercial that was filed and approved in docket UG-171163.

In 2018, the Company’s Energy Efficiency program for residential and commercial customers saved 372,005 therms at a cost of \$2,110,012. The Washington Low-Income Energy Efficiency program saved 7,578 therms at a cost of \$121,602. These two programs, in addition to \$151,723 for the Northwest Energy Efficiency Alliance natural gas market transformation pilot, saved 379,583 therms at a cost of \$2,383,337.

The Company’s Energy Efficiency program is monitored by the interested parties who have formed the Energy Efficiency Advisory Group in compliance with the stipulated agreement approved in Order 04 in the Company’s last completed rate case, docket UG-080546 and the Company’s Energy Efficiency Plan.

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Washington Utilities & Transportation Commission
UG-171163, NW Natural's 2018 Annual EE Program Report
April 25, 2019, Page 2

If you have any questions, please call me at (503) 721-2452

Respectfully submitted,

/s/ Natasha Siores

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cc: EEAG

Enclosure
UG-171163-NWN-2018-Energy-Efficiency-Program-ARpt-04-25-19.pdf

2018 Annual Report

NW Natural Washington

ENERGY TRUST OF OREGON
APRIL 25, 2019

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I. Introduction, background, oversight and goals

A. Introduction

This annual report covers 2018, the ninth full year that Energy Trust of Oregon provided services and incentives to residential and commercial customers of NW Natural in Washington. It addresses progress toward annual goals, information on expenditures, gas savings, projects completed, incentives paid during the year and highlights of program activity.

B. Background

At the request of NW Natural and following approval granted by the Washington Utilities and Transportation Commission (WUTC), Energy Trust began administering NW Natural's demand-side management programs in Southwest Washington on October 1, 2009. The first year was viewed as a pilot. Satisfied with results from the pilot year, in 2011 the WUTC approved Energy Trust's continued administration of conservation programs for NW Natural in Washington.

C. Oversight

The Energy Efficiency Advisory Group (EEAG) was created, at the direction of the WUTC, to provide advice and oversight for NW Natural and Energy Trust energy-efficiency offerings in Washington. The advisory group is comprised of representatives from NW Natural, Energy Trust, WUTC, Washington Public Counsel, Northwest Industrial Gas Users and the Northwest Energy Coalition.

D. Goals

NW Natural, in collaboration with the EEAG, established performance metrics for 2018. This report presents Energy Trust's performance against those goals. The total savings goal for the portfolio was 359,880 therms. This is comprised of 199,880 therms for Residential and 160,000 therms for Commercial.

II. Annual report highlights

A. General

- **In 2018, Energy Trust saved 372,005 therms and achieved 103 percent of the annual portfolio goal.**
- **Gas efficiency measures installed in 2018** by NW Natural's Washington customers saved 372,005 annual therms of natural gas—including 161,632 annual therms in the Commercial sector and 210,373 in the residential sector.
- **A strong local economy has continued to benefit both Residential and Commercial programmatic activity driving** many new construction and retrofit projects. New schools contributed heavily to the Commercial track. The New Homes construction market is still strong but slowed slightly and is showing leveling of project volumes which resulted in total savings achieved in 2018 5 percent lower than 2017 savings.

B. Commercial sector highlights

- **The commercial sector achieved 101 percent of the annual commercial goal.**
- **The standard track comprised 67 percent of the total goal (42 percent Existing Buildings, 25 percent New Buildings)** due in large part to the high savings from boiler projects and consistent savings from foodservice equipment. The custom track achieved the remaining 33 percent of the total commercial goal.
- **Standard track accomplished 99 percent of the budgeted standard track goal** and the custom track accomplished 106 percent of the budgeted custom track goal.
- **Savings from commercial new building construction was driven by boilers, water heaters, foodservice equipment and radiant heaters.**
- **The program brought in 17 schools projects** that were supported by bonds comprising of 110,599 therms saved, three of which were new school projects and 14 were existing retrofit.
- **In 2018, four commercial multifamily projects were completed** and received incentives for water heaters, pool heaters and boilers as a result of new outreach efforts. Sites included a new 200-unit multifamily complex and three existing affordable housing locations.
- **The commercial program visited over 100 restaurants in fast-growing regions of Clark County** to encourage participation, resulting in 13 percent of the program's savings from foodservice equipment.

C. Residential sector highlights

- **The residential sector achieved 105 percent of the annual residential goal.**
- **Energy Trust launched new measures for Southwest Washington multifamily customers,** including smart thermostats, gas furnaces, gas fireplaces and tankless water heaters.
- **Approximately 35 percent of residential savings in 2018 were from EPS™ New Construction homes,** with home retrofit measures contributing an additional 50 percent of savings. Energy-efficient equipment midstream incentives paid to distributors and retailers made up an additional 14 percent of residential savings, with residential multifamily projects making up the remaining 1 percent.

Home Retrofit

- **In 2018, gas furnace savings accounted for 33 percent of the total home retrofit savings.**
- **The residential program recognized 30 percent more smart thermostats in 2018 compared to 2017**, as a result of strategic marketing efforts, instant coupons and cross-promotion with Clark Public Utility District.
- **The residential program developed and launched an instant coupon** that allows customers to receive smart thermostat incentives online or at the register in select retail stores. In Q4, Energy Trust worked with NW Natural to launch an email campaign to NW Natural Washington customers promoting the instant coupon and black Friday deals. Over 100 smart thermostat coupons were redeemed from this campaign.
- **Thermostat offerings accounted for 23 percent of the total residential savings and 47% of Home Retrofit savings.**
- **Savings from showerheads declined nearly 50 percent when compared to 2017**, due to a reduction in the number of participating retailers selling eligible showerheads.
- **2018 was the first year offering measures and incentives for residential multifamily customers.** Market adoption was slower than anticipated as customers and contractors became familiar with program offerings. Multifamily projects included the following measures: gas furnaces, gas hearth, smart thermostats, gas tankless water heater and windows.

EPS New Construction

- **In 2018, over 700 homes participated in EPS New Construction**, achieving 119 percent of the EPS New Construction annual savings goal.
- **EPS homes saved more energy on average in 2018 than in 2017.** This was a result of more EPS homes than expected built to 20 percent better than code (pathway 2), which require more efficiency and yield more savings than homes built 10 percent better than code (pathway 1).
- **More than 3,700 EPS and ENERGY STAR® homes have been recognized since 2010.**
- Approximately 45 percent of new homes built in the NW Natural Washington territory participated in the EPS offering.

Trade Ally Network Highlights

- **By year-end, 267 trade allies served Washington, up from 236 in 2017**, for a net difference of 31. This includes 88 trade allies based in Washington.

D. Program evaluations

- **In 2018, Energy Trust completed an Existing Buildings Impact Evaluation 2015-2016**, which is available at https://www.energytrust.org/wp-content/uploads/2018/07/Existing_Buildings_Impact_Evaluation_2015-2016.pdf.
 - Energy Trust will apply the findings from this impact evaluation to some commercial measures in 2019 to ensure reported savings are in alignment with actual savings.
- In 2019, Energy Trust anticipates completing an Existing Buildings Process Evaluation and a Residential Process Evaluation, both of which will include Washington. Links to evaluation reports will be provided in quarterly reporting once available.

E. Washington Utilities and Transportation Commission performance metrics

The table below compares quarterly results to 2018 goals, as established in NW Natural's Energy Efficiency Plan for Washington (filed December 2017).

2018 Results compared to goals

Metrics	Goal	2018 YTD	Q1 results	Q2 results	Q3 results	Q4 results
Therms Saved	359,880	372,005	44,057	81,330	54,009	192,609
Total Program Costs	\$2,254,265	\$2,110,012	\$363,417	\$525,787	\$451,237	\$769,571
Average Levelized Cost Per Measure	Less than \$0.65	\$0.43	\$0.59	\$0.48	\$0.61	\$0.31
Utility Cost at Portfolio Level	Greater than 1.0	2.46	Reported annually	Reported annually	Reported annually	Reported annually

- Levelized cost is reported per quarter for the projects realized in that quarter.
- This table does not include savings goal or budget associated with NW Natural's Washington Low-Income Energy Efficiency (WA-LIEE) program delivery.
- Northwest Energy Efficiency Alliance (NEEA) gas market transformation activities are not included in this table.

2017 Results compared to goals (for reference)

Metrics	Goal	2017 YTD	Q1 results	Q2 results	Q3 results	Q4 results
Therms Saved	282,539	391,606	74,794	82,776	69,878	164,157
Total Program Costs	\$1,975,211	\$2,152,973	\$442,268	\$416,377	\$557,266	\$737,063
Average Levelized Cost Per Measure	Less than \$0.65	\$0.41	\$0.40	\$0.41	\$0.56	\$0.34
Utility Costs at Portfolio Level	Greater than 1.0	1.69	Reported annually	Reported annually	Reported annually	Reported annually

- NEEA gas market transformation activities are not included in this table.

2018 Utility Cost Test and Total Resource Cost Test benefit/cost ratios by program

Program	Utility Cost Test benefit/cost ratio	Total Resource Cost Test benefit/cost ratio
Commercial programs	2.65	1.98
Residential programs	2.32	1.12
Total NW Natural Washington portfolio	2.46	1.39

- Table uses 2018 Avoided Cost (UCT and TRC would be 1.55 and 0.96 utilizing 2016 Avoided Costs)
- Table does not include NEEA or WA-LIEE expenses

2018 Total Utility Cost Test and Total Resource Cost Test benefit/cost ratios

Program	Utility Cost Test benefit/cost ratio	Total Resource Cost Test benefit/cost ratio
NW Natural Washington Portfolio	2.46	1.39
NW Natural Washington Low Income	1.46	1.24
Total NW Natural Washington	2.40	1.39
Total Washington Portfolio*	2.24	1.34

*Includes costs associated with NEEA's gas market transformation efforts.

III Annual Results

A. Activity highlights—Projects Completed

Sites may be represented multiple times if multiple measures were installed.

	Q1	Q2	Q3	Q4	Total
Commercial					
Boiler	2	-	2	10	14
Commercial laundry washer	-	-	-	-	-
Commercial tankless water heater	-	-	-	1	1
Condensing tank water heater	2	4	4	3	13
Custom	-	5	-	5	10
Custom building controls	-	4	-	2	6
Dishwasher	-	-	-	1	1
Gas convection oven	-	-	1	1	2
Gas combination oven	-	-	-	-	-
Gas fryer	7	5	10	7	29
Gas griddle	-	-	-	-	-
High-efficiency condensing furnace	-	-	-	-	-
High-efficiency condensing unit heater	-	-	-	-	-
Infrared radiant heater	8	-	-	-	8
Pipe insulation	-	-	-	-	-
Roof insulation	-	-	1	-	1
Studies	-	-	2	1	3
Wall insulation	-	-	1	-	1

	Q1	Q2	Q3	Q4	Total
Residential					
Weatherization (insulation, air and duct sealing and windows)	48	53	75	96	272
Gas hearths	14	20	10	18	62
Energy Saver Kits	20	21	11	47	99
Smart thermostats	79	79	69	207	434
Gas boilers	-	-	-	1	1
Gas furnaces	88	98	103	144	433
Water heaters	5	6	7	16	34
Online Home Energy Reviews	41	29	9	41	120
EPS new construction	131	148	120	310	709

B. Revenue

Source	Actual revenue	Budgeted revenue
NW Natural \$	2,428,812 \$	2,466,148

C. Expenditures

			Actual expenditures YTD	Budgeted expenditures YTD	Variance
Commercial program	Commercial	\$	814,938	\$ 868,656	\$ 53,718
	Commercial administration	\$	37,488	\$ 40,956	\$ 3,468
	Commercial total	\$	852,426	\$ 909,612	\$ 57,186
Residential program	Residential	\$	1,202,280	\$ 1,258,127	\$ 55,847
	Residential administration	\$	55,306	\$ 59,319	\$ 4,013
	Residential total	\$	1,257,586	\$ 1,317,445	\$ 59,859
NEEA	NEEA Commercial	\$	-	\$ 36,359	\$ 36,359
	NEEA Residential	\$	-	\$ 98,303	\$ 98,303
	NEEA administration	\$	-	\$ 6,349	\$ 6,349
	NEEA total	\$	-	\$ 141,011	\$ 141,011
Total expenditures		\$	2,110,012	\$ 2,368,069	\$ 258,057

- The budgeted expenditures in Energy Trust's system differs from the budgeted expenditures filed in NW Natural's 2018 Energy Efficiency Plan by roughly \$27,000 due to changes made to internal costs that resulted after the efficiency plan was filed. The actual expenditures year-to-date are \$144,253 less than the filed 2018 budget of \$2,254,265.
- Effective Q1 2018, NW Natural decided to fund NEEA gas market transformation efforts directly rather than through Energy Trust. This decision was made after completion of Energy Trust's 2018 budget, which included NEEA expenditures. Going forward, Energy Trust will make no further payments to NEEA; however, NEEA funding remains in Energy Trust's budget through the end of 2018.

D. Incentives paid¹

	Actual incentives YTD	Actual expenditures YTD	Percent incentives/ expenditures
Commercial program	\$ 438,278	\$ 852,426	51%
Residential program	\$ 682,269	\$ 1,257,586	54%
Total incentives	\$ 1,120,547	\$ 2,110,012	53%

E. Savings

	Therms saved YTD	Annual goal	Percent achieved YTD	Levelized cost/therm
Commercial program	161,632	160,000	101%	\$ 0.41
Residential program	210,373	199,880	105%	\$ 0.46
Total savings	372,005	359,880	103%	\$ 0.43

¹ NEEA expenditures excluded per NW Natural Washington's Energy Efficiency Plan.

NW Natural Appendix 1:

2018 Energy efficiency measure counts and savings

Table 1: Residential sector measures

Category	Measure	Measures installed	Total therms saved
Energy Saver Kits	Energy Saver Kits total	99	2,967
Online Home Energy Reviews	Online Home Energy Reviews total	120	0
Weatherization	Ceiling insulation	17	1,385
	Duct Insulation	1	12
	Floor Insulation	4	205
	Wall insulation	5	274
	Windows	210	10,049
	Weatherization total	237	11,924
Space heating	Smart thermostats	434	13,835
	Seasonal Savings pilot	2,230	35,680
	Furnaces	438	35,307
	Gas Boilers	2	89
	Gas fireplaces	65	3,668
	Gas fireplace retailer & distributor SPIFs	1,481	8,294
	Space heating total	4,650	96,872
Water heating	Retail showerheads	2,644	21,174
	Tank water heaters	0	0
	Tank water heater retailer & distributor SPIFs	17	437
	Tankless water heaters	33	2,449
	Water heating total	2,694	24,060
EPS New Construction	EPS New Construction	709	73,222
Other	Other	1	1,329
	Grand total	8,510	210,373

- “Other” represents savings from projects that did not complete incentive applications materials needed to pay incentives, such as by omitting information on incentive application materials (i.e. customer/contractor signature, date of installation on invoice, etc.). Energy Trust claimed savings for these projects because they were influenced by the program even though they did not receive incentives. Energy Trust follows up with participants at least three times to collect any outstanding information. There was no meaningful impact on results (TRC/UCT/Levelized cost < +/- 0.5%)

Table 2: Commercial sector measures

Category	Measures	Measures installed	Total therms saved
Commercial clothes washers	Clothes washer	-	-
Commercial clothes washers total		-	-
Foodservice equipment	Dishwasher	1	217
	Gas convection oven	2	604
	Gas fryer	29	21,053
	Gas griddle	-	-
	Gas combination oven	-	-
Foodservice equipment total		32	21,874
Shell insulation	Roof insulation	1	340
	Wall insulation	1	154
Shell insulation total		2	494
Space heating	Gas-fired condensing boiler	14	69,882
	High-efficiency condensing furnace	-	-
	High-efficiency condensing unit heater	-	-
	Infrared radiant heater	8	5,376
	Pipe insulation	-	-
Space heating total		22	75,258
Water heating	Faucet aerators	-	-
	Commercial tankless water heater	1	82
	Condensing tank water heater	13	10,928
Water heating total		14	11,010
Custom	Custom other	16	52,996
	Study	3	0
Custom total		19	52,996
Grand Total		89	161,632

NW Natural Appendix 2: Customer satisfaction

In 2018, Energy Trust conducted short phone surveys of NW Natural customers in Washington to determine satisfaction with their participation in Energy Trust programs. Results from 233 residential customers and 11 commercial customers indicate a generally high level of customer satisfaction. Most residential customers in Washington were satisfied with their overall program experience and some customers were dissatisfied with the turnaround time to receive their incentive.

Table 1: NW Natural Washington residential customer satisfaction 2018

Residential (n=233)	Dissatisfied	Neutral	Satisfied
Overall experience	1%	5%	94%
Incentive application form	2%	5%	93%
Turnaround time to receive incentive	11%	12%	77%

Energy Trust surveyed 11 commercial customers in Washington in 2018. Nearly all respondents were satisfied with their overall program experience, incentive amount, ease of applying for the incentive and interaction with program representatives.

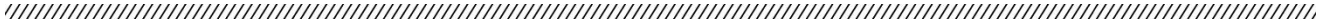
Table 2: NW Natural Washington commercial customer satisfaction 2018

Commercial (n=11)	Dissatisfied	Neutral	Satisfied
Overall experience	0	0	11
Incentive amount	0	0	10
Ease of applying for incentive	0	1	9
Interaction with program representative	0	0	8
Performance of project or system	0	0	10
Turnaround time to receive incentive	0	1	8

2018 Annual Report

NW Natural Washington

WASHINGTON LOW INCOME ENERGY EFFICIENCY (WALIEE)



NW NATURAL
APRIL 25, 2019

**Washington Low Income Energy Efficiency Program
 2018 Program Results**

NW Natural partners with Clark County's Community Development Office and Washington Gorge Action Programs (WAGAP) serving Skamania and Klickitat counties to administer its Washington Low Income Energy Efficiency (WALIEE) program. While offerings are available in Skamania and Klickitat counties, the agency that serves these counties did not provide services to any customers through WALIEE during 2018. Results below are specific to Clark County's Department of Community Services.

In WAGAP's territory, staffing and limited customers have been the historical challenge for the program's gas efforts. In 2018 NW Natural continued engagement with the Energy Project and Washington Department of Commerce, to help address these issues and support gas customers and projects.

The weatherization reimbursement cap increased to \$6,080 per home for the 2018 program year. There continues to be more efficiency efforts than WALIEE program funds cover. The agencies are allotted 15% of reimbursable job costs for administrative costs and allowed an average of \$1,000 per home for Health, Safety, and Repairs (HSR), which are not subject to cost effectiveness tests. A 2018 WALIEE job could cost the program no more than \$7,992 but averaged \$7,600 in 2018.

Measure Analysis:

The figure below provides a breakdown of weatherization occurrences by measure, as well as the associated annual therms savings.

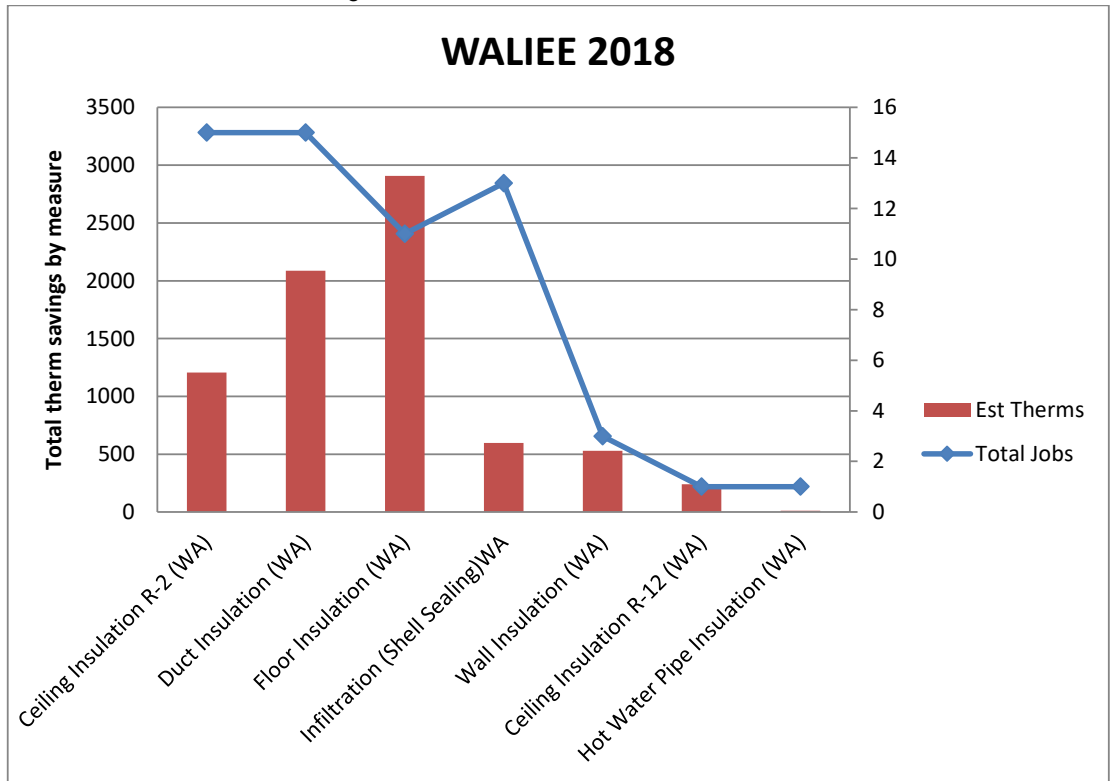


Figure 1: Measure Occurrence and Savings

2013-2018 Efficiency Results:

Efficiency Metric	2018	2017	2016	2015	2014	2013
Homes served	16	13	16	9	10	20
Average Reimbursement per home ¹	\$5,739	\$5,305	\$4,807	\$4,313	\$4,334	\$3,984
Total Reimbursed	\$91,828	\$68,965	\$76,918	\$38,817	\$43,339	\$79,677
Average estimated therms saved per home ²	474	472	378	357	305	351
Total estimated therms saved	7,578	6,132	6,048	3,213	3,050	7,026
Estimated Cost per therm	\$12.12	\$11.25	\$12.72	\$12.08	\$14.21	\$11.34

Figure 2 Efficiency Metrics

2018 Performance Metric	Goal	Actual
Homes served	13	16
Max reimbursement per home (Actual figure = avg per home)	\$7,992	\$7,600
Average estimated therms saved per home ³	405	474
Total estimated therms saved	5,265	7,578
Total Expenditure	\$109,091	\$121,602

Figure 3 Performance and Goal Metrics

Conclusion:

NW Natural is optimistic the work with stakeholders and better utilization of data will result in future growth of the WALIEE program. The progress has led to additional pilots and programs which are anticipated to help development of the program which continues to be positive. We look forward to continuing to grow in 2019.

¹ Note, reimbursed costs only reflect NWN's contribution for home weatherization. HSR and Admin are excluded.

² An impact evaluation has not been conducted on these homes so the actual per therm savings has not been verified. The therm estimates are based on modeling software estimates.

³ See footnote 2

2018 Annual Report
NW Natural Washington



NW NATURAL MARKET TRANSFORMATION

NORTHWEST ENERGY EFFICIENCY ALLIANCE
APRIL 25, 2019



**Washington Market Transformation
2018 Program Results**

In 2018 NW Natural participated in the Northwest Energy Efficiency Alliance's Gas Collaborative to support regional Market Transformation. Funding is on a regional bases and invoiced based on actual spend for work on the 5 year plan. There were no activities specific to NW Natural in 2018. The NEEA report can be found on the following pages.

Market Transformation		Budget	Actual
NEEA	Total	\$ 141,049	\$151,723



2018 Annual Report for NW Natural

INTRODUCTION

The Northwest Energy Efficiency Alliance (NEEA or "the alliance") is a nonprofit organization working in collaboration with NW Natural, other natural gas utilities and energy efficiency organizations to accelerate the innovation and adoption of efficient natural gas products throughout the region. With funding and engagement from NW Natural and these other entities, the alliance intervenes in the market to create lasting change by removing barriers and leveraging opportunities to accelerate the adoption of cost-effective energy efficiency.

NEEA's vision is energy efficiency as a cornerstone of a vibrant and sustainable Northwest. Two interdependent strategic goals guide alliance efforts to achieve this vision:

- **Strategic Goal 1:** Fill the energy efficiency pipeline with new products, services and practices
- **Strategic Goal 2:** Create market conditions that will accelerate and sustain the market adoption of emerging energy efficiency products, services, and practices.

This report summarizes the alliance's 2018 market transformation activities and outcomes on behalf of NW Natural. In December 2018, after a two-year collaborative outreach process, NEEA's Board voted unanimously to approve the 2020-2024 Strategic and Business Plans. These plans allow the alliance to sustain a portfolio of initiatives and support functions to transform the market for energy efficiency in the Northwest. For additional information about NEEA's programs or to read NEEA's 2020-2024 Strategic and Business Plans, visit: neea.org/plans.

NATURAL GAS MARKET TRANSFORMATION

By pooling resources through NEEA and working in collaboration with the region, NW Natural is accelerating the development and market adoption of efficient natural gas products, services and practices in the Northwest. The goal of this effort is to deliver more energy efficiency options to NW Natural customers and increase the efficiency of natural gas use in the region. In 2018, NEEA's Natural Gas program focused on increasing manufacturer diversification to support a portfolio of products, expanding partnerships to influence market development, and finding and leveraging synergies between gas and electric programs.

FILLING THE ENERGY EFFICIENCY PIPELINE

Scanning – NEEA staff scan the market to identify promising new energy-efficient natural gas products, services and practices. In 2018, NEEA staff reviewed eight natural gas projects or products, including: combination systems for space and water heating, a gas absorption heat pump for heating and domestic hot water, gas heat pumps and a commercial tankless water heating system. Additional

information about each of these products is available through the Regional Emerging Technology Advisory Committee database, which is housed on Conduit:

<https://conduitsw.org/Pages/Community.aspx?rid=29>

NATURAL GAS MARKET TRANSFORMATION PROGRAMS

Efficient Gas Water Heaters – In 2018, alliance efforts focused on understanding market barriers to efficient gas water heating and supporting product development, leveraging lessons learned from NEEA’s electric heat pump water heater program. In partnership with the Gas Technology Institute, the program conducted an evaluation of opportunities to reduce cost through removing installation barriers for gas heat pump water heaters, including condensate drainage requirements and ducting complexities. Outcomes from this assessment will be shared with manufacturers to inform future product development efforts. NEEA program staff collaborated with NEEA’s electric heat pump water heater team to conduct a [market characterization study](#) of the Northwest water heater market. The study, which describes both supply and demand-side market dynamics as well as current market trends, will inform future program strategy, business case development and marketing efforts. Throughout 2018, the program continued collaboration with manufacturers, technology developers, utilities and other energy efficiency partners to accelerate product development. It is expected that commercialization by a major manufacturer will culminate with a market launch within NEEA’s 2020-2024 Business Cycle.

Combination Water and Space Heating Systems – In 2018, program efforts were focused on accelerating the commercialization of gas combi units. The alliance conducted a study to identify ways to reduce the weight, cost and complexity of a gas combination unit under evaluation by a major HVAC manufacturer. Findings of the study, which include overall weight reductions of 13 percent and cost reductions of up to 15 percent, were incorporated into a DOE-funded commercialization project. As of December 2018, the DOE-funded project has produced four next-generation prototype units and field installations are underway. Also in 2018, NEEA finalized and delivered a [Gas Heat Pump Product Characterization](#) report to key market partners. The report provides quantitative and qualitative research that new market entrants can use for identifying product capacities and features, yielding the highest probability of market success. Finally, in late 2018 the program began a project with manufacturer Rheem and technology developer SaltX, to accelerate development of a natural gas combination space and water heating unit using salt to store and amplify heat. A proof-of-concept prototype demonstrating energy performance is expected to be complete in early 2019.

Super-Efficient Gas Clothes Dryers – Gas dryers have a very low market share in the Northwest – between 5 and 10 percent of the market – making extra-regional partnerships essential for program success. In 2018, the program focused on building partnerships to influence market development of a high-performance ENERGY STAR or Most Efficient gas dryer. Program staff developed a “Strategic Partnership Opportunity” tool to highlight Northwest and national gas dryer market share opportunity to manufacturers to demonstrate the business case for developing efficient gas dryers. The program also held informational webinars with seven utilities across the nation to gain utility support for an improved federal test procedure and for products that save energy and deliver a satisfactory customer experience. Thus far, two utilities have signed on to the NEEA specification.

Condensing Rooftop Units – In 2018, the program installed and commissioned condensing rooftop units (C-RTUs) on four commercial buildings in the Northwest, including one in NW Natural service

territory. Pilot results will provide energy savings and product performance data for utility programs and inform future market channel development work. The program team also completed market research on C-RTU installation practices. Results of the research will be included in the final field trial report and used to inform manufacturer product development and installation guidance information for market actors. The program team was a driving member of a technical subcommittee committed to revising the Canadian Standards Association Group test procedure for commercial gas-fired package furnaces that will allow consumers and manufacturers to differentiate products based on efficiency. This international subcommittee is comprised of industry partners (including manufacturers), North American utilities and governmental organizations.

Hearth Products – In 2018, the program conducted industry outreach to gauge interest in the development of a low capacity hearth. This outreach was met with much hesitation and lackluster response by both industry organizations and manufacturers, resulting in ramped down efforts by NEEA staff.

DATA, RESEARCH AND ANALYSIS

The alliance pools regional resources to conduct research and evaluation and provide data and analytical services for the benefit of NW Natural customers.

EVALUATION AND MARKET RESEARCH

Market Research and Evaluation – The alliance conducts robust market research to inform market transformation program design and provide critical data and analysis. In 2018, NEEA staff published market characterization studies for the Northwest water heating market and the gas heat pump market, both of which are publicly available at neea.org/resources-reports.

Regional Building Stock Assessments – In 2018, the alliance published final reports and data collected as part of the Residential Building Stock Assessment (RBSA) and worked with regional stakeholders to develop a new population frame and began fielding the Commercial Building Stock Assessment (CBSA). The RBSA and CBSA are comprehensive inventories of the factors that influence energy use (both electric and natural gas) in existing Northwest buildings. Results inform utility energy efficiency programs as well as regional power planning efforts. The primary focus of 2019 is recruitment and fieldwork. CBSA data will be available by Dec. 31, 2019 with associated reports published in the first quarter of 2020.

REGIONAL COLLABORATION AND COORDINATION

REGIONAL COLLABORATION

EFFICIENCY EXCHANGE – In May 2018, the alliance co-hosted the annual Efficiency Exchange conference in collaboration with Bonneville Power Administration and the Northwest Power and Conservation Council. The regional conference, which provides a forum for energy efficiency professionals to share knowledge, explore emerging innovations and discuss the direction of utility efficiency programs, drew more than 450 attendees.

CONDUITNW.ORG – Developed in partnership with the Bonneville Power Administration, the Conduit online community facilitates information-sharing, coordination and collaboration among energy

efficiency stakeholders in the Northwest. More than 3,300 energy efficiency professionals across the Northwest, including approximately a dozen from NW Natural, currently use Conduit.

REGIONAL COORDINATION

Alliance Natural Gas market transformation programs are coordinated through the Natural Gas Advisory Committee, whose membership includes representatives from NW Natural staff. NW Natural is also represented on NEEA's Board of Directors. NEEA staff are grateful for the time and energy NW Natural staff dedicate to participating in these forums and on NEEA's Board of Directors, including:

Board of Directors: Holly Braun, Manager – Energy Policy and Sustainability

Natural Gas Advisory Committee: Holly Braun, Manager – Energy Policy and Sustainability; Gary Heikkinen, Sales Engineer; Rick Hodges, Conservation Manager

ADDITIONAL INFORMATION

For additional information, NEEA's [2018 Quarterly Performance Reports](#), [newsletters](#) and the [2017 Annual Report](#) are available online at neea.org.

NEEA staff encourage stakeholder participation and appreciate input at all NEEA board meetings, Advisory Committee meetings and energy efficiency events around the region. The next NEEA Board of Directors meeting is June 4, 2019 in Portland, OR. Meeting details will be posted on neea.org in advance.

Please direct questions or comments about this report to: Stephanie Lane, NEEA Marketing and Communications Coordinator, at slane@neea.org