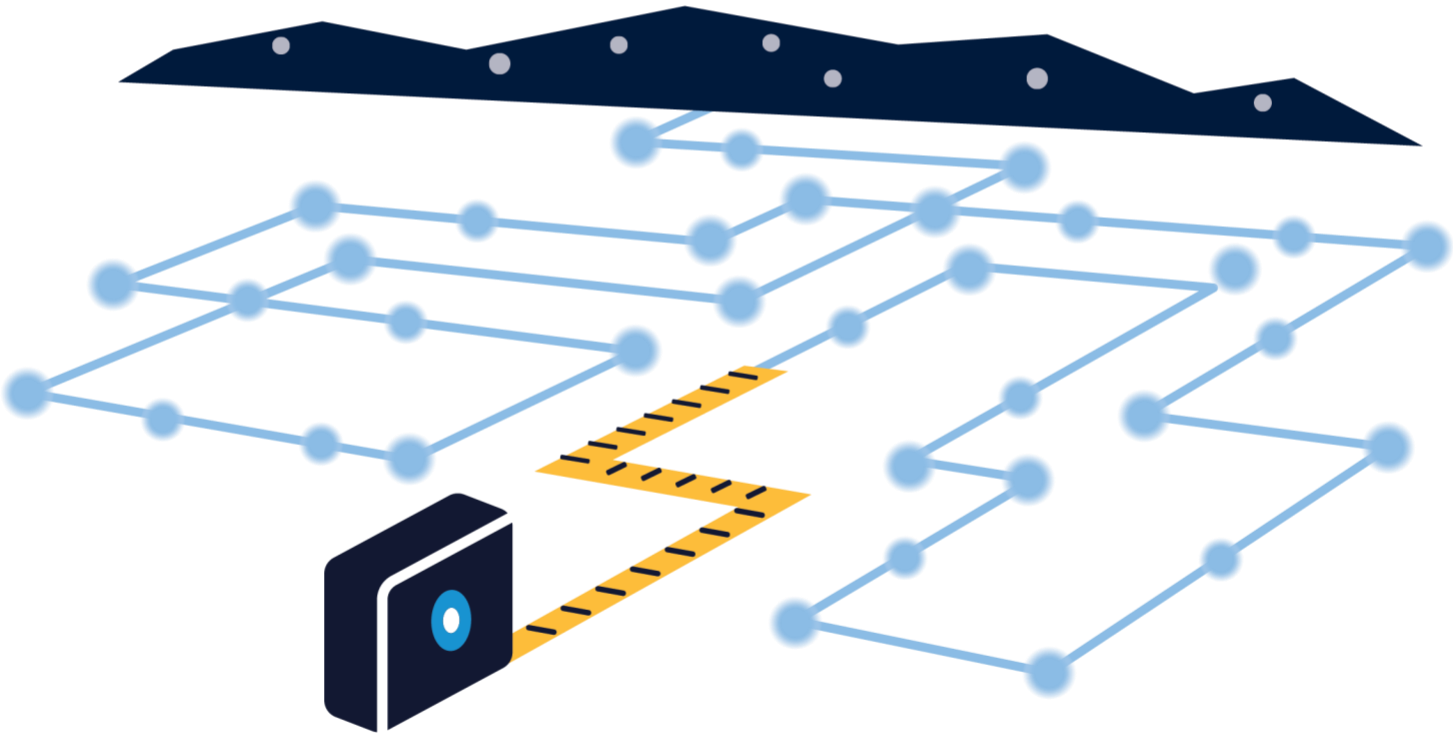
Opinion Dynamics

Fast Feedback 2019

End-of-Year Report

May 7, 2020



Opinion Dynamics

Table of Contents

Opinion Dynamics

Table of Tables

1. Executive Summary

Opinion Dynamics conducted the 2019 Energy Trust of Oregon (Energy Trust) program participant feedback survey (Fast Feedback) from April 2019 through February 2020. This report summarizes the analysis conducted by Opinion Dynamics and results of the survey. The purpose of the analyses was to summarize Fast Feedback survey findings by program and quota group.

1.1 Residential Survey Summary

Residential survey results indicated a high level of overall program satisfaction across all measure groups (Table 1). Satisfaction levels were generally consistent with previous years.

Table 1. Summary of Residential Satisfaction and Free-Ridership

Measure Group	Number of Survey Respondents	Overall Satisfaction [a]	Free Ridership
Residential - Oregon	1,344	95%	46%
Clothes Washer	134	92%	53%
Ceiling Insulation	134	93%	43%
Other Insulation	112	95%	41%
Ducted Heat Pump	120	96%	27%
Ductless Heat Pump	155	93%	31%
Gas Fireplace	135	99%	41%
Gas Furnace	247	96%	41%
Gas Boiler	6	100%	48%
Smart Thermostat	256	96%	39%
Spa Cover	112	92%	33%
Windows	171	95%	50%
Residential - Washington	151	97%	45%
Moderate Income Track	115	97%	34%
Residential Solar PV	156	91%	22%

[a] Percentage of participants reporting high satisfaction (a rating of 4 or 5 on a scale from 1 “not at all satisfied” to 5 “very satisfied”).
Note: results in table are based on weighted data.

Analysis of the survey results revealed several other key high-level findings, which are largely consistent with the previous year’s findings. About half of participants obtained information from Energy Trust before taking their efficiency action. Participants’ contractors generally had the greatest influence on their decisions, with the incentive and other factors being more influential for certain measures.

Participants easily found and selected contractors, most commonly by word of mouth or online, usually after getting one or two bids. For most measure groups, a minority of participants (about one-third or fewer) reported having considered the Energy Trust list of trade allies, in large part because about one-quarter to one-third of

participants were unaware of the list. Of those who did consider the list, a majority (usually just under half to about three-quarters) reported they considered the star rating system.

In terms of measure-specific questions, the survey found that nearly all incented smart thermostats have been and were still installed; more than half of heating systems replaced still-operating systems (which was especially the case for ducted heat pumps); and gas fireplaces most likely replaced a wood burning fireplace or stove.

1.2 Nonresidential Survey Summary

Nonresidential survey results demonstrate a high level of overall program satisfaction across all quota groups; satisfaction with interactions with the Energy Trust program representative was also consistently high (Table 2). Satisfaction levels were generally consistent with previous years.

Table 2. Summary of Nonresidential Satisfaction

Quota Group	Number of Survey Respondents	Satisfaction [a]	
		Overall	Interaction with Program Representative
Existing Buildings - Oregon	180	97%	98%
Existing Buildings - Custom	20	100%	100%
Existing Buildings - Lighting	60	98%	100%
Existing Buildings - Standard	60	95%	98%
Existing Buildings - Direct Install	40	95%	95%
Existing Buildings - Washington	16	100%	100%
Production Efficiency	160	98%	99%
Production Efficiency - Custom	40	95%	100%
Production Efficiency - Lighting	60	97%	96%
Production Efficiency - Standard	60	100%	100%
Existing Multifamily	165	97%	95%
Existing Multifamily - Incentives	109	96%	95%
Existing Multifamily - Direct Install	56	98%	96%
Commercial Solar	28	100%	100%

[a] Percentage of participants reporting high satisfaction (a rating of 4 or 5 on a scale from 1 “not at all satisfied” to 5 “very satisfied”).

Table 3 provides a summary of nonresidential free-ridership, with the mid-range being the official estimate of free-ridership. Note that free-ridership varied among programs and quota groups.

Table 3. Summary of 2019 Annual Nonresidential Free-Ridership

Program	Fuel	Quota Group	Years of Data[a]	n	Free-Ridership (Low)	Free-Ridership (Mid)	Free-Ridership (High)
Existing Buildings[b]	Electric	Custom	2017-2019	51	10%	14%	18%
		Lighting		309	15%	17%	19%
		Standard		98	15%	17%	19%
		Direct Install		104	10%	11%	12%
		Combined[c]		562	13%	16%	18%
	Gas	Custom	2016-2019	30	20%	24%	29%
		Standard		165	30%	32%	34%
		Combined[c]		194	24%	27%	31%
Existing Multifamily	Electric	Incentives	2018-2019	92	32%	32%	32%
		Direct Install		52	24%	26%	28%
		Combined[c]		144	31%	31%	32%
	Gas	Incentives	2018-2019	53	24%	36%	47%
		Direct Install		34	16%	18%	20%
		Combined[c]		87	23%	33%	44%
Production Efficiency	Electric	Custom	2017-2019	37	22%	24%	25%
		Lighting		59	19%	20%	22%
		Standard		50	35%	36%	37%
		Standard + Lighting[c]		109	24%	25%	27%
		Combined[c]		146	23%	25%	26%
	Gas	Combined[c]	2017-2019	37	12%	25%	38%

Notes: Non-residential free-ridership rates are savings-weighted, meaning that each project's influence on free-ridership is directly proportional to its share of savings in the quota group and fuel sample.

[a] Multiple years of survey data are aggregated together to compute free-ridership for a quota group and fuel combination if the sample size for an individual cell is below 30. Additional years of data are added until 30 or more survey responses are achieved for each quota group and fuel combination.

[b] Free-ridership is not computed for Northwest Natural Washington participants, so they are excluded here.

[c] These combined program level free-ridership rates are computed as the savings-weighted averages of the quota group level results, even if the quota group level results are not reported. Thus, the influence of quota group-specific results on program level free-ridership rates is directly proportional to their share of savings in the 2019 program.

Among nonresidential survey participants, the Energy Trust incentive was the most consistently highly rated influencer, followed by no-cost or lost-cost services received, technical services received, and information received from Energy Trust.

2. Introduction

Opinion Dynamics conducted the 2019 Energy Trust Energy Trust program participant satisfaction survey, called Fast Feedback, from April 2019 through February 2020. This report's main purpose is to report on Fast Feedback survey findings by program and quota group to provide useful feedback for program staff and stakeholders.[1]

The rest of this report is divided into four main sections:

- Methods and Survey Response
- Residential Survey Results
- Nonresidential Survey Results
- Summary and Conclusions

The first section provides a brief explanation of the survey modes, information on the availability of contact information and survey responses by sector and group, and a description of how the research team weighted the combined data to control for possible mode effects.

The second and third sections present the Fast Feedback summary findings for the residential and nonresidential sectors. They are subdivided by survey topic and include assessment of satisfaction ratings by time (program year) by measure/quota groups.

The final section presents the research team's key conclusions from the Fast Feedback data collection.

[1] The nonresidential quota groups were based on program and program track, while the residential quota groups were based on the measure types for which participants received Energy Trust incentives.

3. Methods and Survey Response

This section describes the survey modes and experimental conditions, the availability of contact information and the number of survey responses by sector and group, and the method for weighting the combined data to control for possible mode effects.

3.1 Survey Fielding

Energy Trust has been using a monthly Fast Feedback survey since 2010 to assess free-ridership, satisfaction, and selected other aspects of program experiences in a sample of customers who participated in Energy Trust programs in the prior month.

Each month, Energy Trust Evaluation staff provided the research team with a dataset of recent survey-eligible residential and non-residential participants. The research team cleaned the data set by removing any records flagged as "do not contact" and any records with duplicate names, emails, or project identification numbers. For residential projects associated with multiple measures and quota groups, the research team assigned a random number to each record, sorted the list, and kept only the first measure and quota group associated with each duplicate project identification number. The research team randomly sampled eligible participants from each quota group and created recruitment lists for both the residential and nonresidential surveys. The sampling rates (percentage of records sampled from the cleaned lists) for the residential and nonresidential surveys were 29% and 37%, respectively.

The research team administered the residential survey first on the web, with follow-up phone calls to non-respondents. At the beginning of the monthly survey, the research team sent a recruitment email to all sampled residential participants with a valid email address. The email included a short recruitment message with a survey web link. The recruitment email offered all residential participants a $5 gift card for completing the survey. The research team sent reminder emails to non-respondents approximately one week after the initial contact. Residential participants that did not respond to the survey within approximately one week of the reminder were then queued for phone follow-up. Customers who did not have a valid email address on file were immediately advanced to the phone survey.

The research team administered the nonresidential survey by phone only. Callers made up to five contact attempts to each sampled nonresidential participant until reaching the monthly quota or exhausting the monthly recruiting list.

3.2 Availability of Contact Information

Table 4 shows the percentages of all residential and nonresidential program participants with phone and email contact information. In the residential sector participants were equally likely to have email or phone information, and in the nonresidential sector, more participants have phone than email information. All but four residential (99.9%) participants have at least some type of contact information.

Table 4. Availability of Contact Information by Sector and Type

Type of Information	Residential (n = 22,366)	Nonresidential (n = 5,606)
Phone	86%	100%
Email	87%	93%
Both	73%	93%
Either	99.9%	100%

3.3 Number of Respondents

Table 5 shows the total number of survey responses by mode, sector, and quota group. The research team completed the survey with 2,287 respondents (1,738 residential and 549 nonresidential). Residential phone and web responses met or exceeded all quotas except for gas boiler, residential Washington, and Moderate Income Track. The research team made multiple contact attempts with all available participants in these quota groups. The overall residential survey response rate was 30% (21% for web and 23% for phone).

Nonresidential phone responses met or exceeded all quotas except for Existing Buildings – Washington, Existing Buildings – Custom, and Existing Multifamily – Direct Install. The research team made multiple contact attempts with all available participants in these quota groups. The overall nonresidential survey response rate was 38%.

Table 5. Number of Responses by Mode, Sector, and Quota Group

Measure Group (Residential) or Quota Group (Nonresidential)	Web	Phone	Total	12-Month Quota
Residential				
Residential – Oregon	974	457	1,431	1,230
Clothes Washer	98	36	134	134
Ceiling Insulation	101	33	134	116
Other Insulation	70	42	112	72
Ducted Heat Pump	66	54	120	116
Ductless Heat Pump	102	53	155	130
Gas Fireplace	98	37	135	120
Gas Furnace	105	142	247	130
Gas Boiler	3	3	6	20
Smart Thermostat	222	34	256	214
Spa Cover	79	33	112	112
Windows	131	40	171	134
Residential – Washington	101	50	151	152
Moderate Income Track	50	65	115	120
Residential Solar PV	116	40	156	156
Nonresidential				
Commercial Solar	0	28	28	28
Existing Buildings	0	196	196	228
Existing Buildings - Washington	0	16	16	28
Existing Buildings - Oregon	0	180	180	200
Existing Buildings - Custom	0	20	20	40
Existing Buildings - Direct Install	0	40	40	40
Existing Buildings - Lighting	0	60	60	60
Existing Buildings - Standard	0	60	60	60
Existing Multifamily	0	165	165	160
Existing Multifamily - Direct Install	0	56	56	60
Existing Multifamily - Incentives	0	109	109	100

Measure Group (Residential) or Quota Group (Nonresidential)	Web	Phone	Total	12-Month Quota
Production Efficiency	0	160	160	160
Production Efficiency - Custom	0	40	40	40
Production Efficiency - Lighting	0	60	60	60
Production Efficiency - Standard	0	60	60	60
Nonresidential Total	0	549	549	576
Residential + Nonresidential				
Total	**1,191**	**1,096**	**2,287**	**1,998**

[a] Residential Total includes both Oregon and Washington. The Moderate Income Track overlaps with Oregon and Washington. Note, to reduce the number of residential customers being surveyed, residential quotas were decreased in September 2019 in preparation for the 2020 Consumer Insights survey.

3.4 Language of Survey and Language Barriers

All surveys were offered in English and Spanish. All completed surveys were completed in English. The phone survey subcontractor noted four instances of language barriers in the residential sector and none in the nonresidential sector. Interviewers identified two of the respondents as South or East Asian and one as Polish. The interviewer was unable to identify remaining respondent's spoken language.

3.5 Use of Weighted Data

The research team used weighting for two purposes: 1) to ensure residential and nonresidential program-level results are representative of the participant population due to purposeful sampling approaches that, while ensuring statistical precision for a given quota group, lead to an unrepresentative measure assortment among respondents; and 2) to control for differences in the likelihood that a residential participant would be recruited to the web and phone survey. The research team used the same weighting approaches developed in previous years surveys which are described in the following subsections. Unless otherwise specified, all residential and nonresidential results reported below are based on analyses with weighted data.

3.5.1 Residential Survey Weighting

3.5.1.1 Controlling for Measure and Quota Group Differences

The research team used data weights ("Measure Mode weight") to control for measure and quota group differences among residential respondents, which ensures that the sample's assortment of measures is representative of the residential participant population. The Measure Mode weight was used in isolation when analyzing and reporting demographic results. The Measure Mode weight also contributed to the Overall weight (described below), which was used when analyzing and reporting all non-demographic results. In addition to the Measure Mode weight component, the Overall weight included two demographic-based weights that correct for certain under-sampled demographic groups. These weighting schemes are described in detail below.

First, for each residential respondent, the team assigned a Measure Mode weight. The Measure Mode weight corrects for disproportionate allocations of respondents for a given measure across a given mode. For web respondents this was calculated as:

$$\text{Measure Mode weight (web)} = \frac{\%\text{ all residential respondents with respondent's measure}}{\%\text{ residential web respondents with respondent's measure}}$$

The Measure Mode weight was calculated similarly for residential phone respondents.

The team also calculated weights to adjust for the percentage of White/Caucasian respondents (Ethnicity weight) and the percentage of respondents with incomes at least $100,000 (Income weight) to control for respondent demographic differences between modes. As most ethnicity categories, other than White/Caucasian, constituted a very small percentage of residential respondents, the team dichotomized all residential respondents as either White/Caucasian or people of color to calculate the Ethnicity weight.

For residential web respondents, the Ethnicity weight was calculated as:

$$\text{Ethnicity weight (web)} = \frac{\%\text{ all residential respondents with respondent's ethnicity}}{\%\text{ residential web respondents with respondent's ethnicity}}$$

The Ethnicity weight was calculated similarly for residential phone respondents.

Finally, for residential web respondents, the Income weight was calculated as:

$$\text{Income weight (web)} = \frac{\%\text{ all residential respondents with income} \geq \$100{,}000}{\%\text{ residential web respondents with income} \geq \$100{,}000}$$

The Income weight was calculated similarly for residential phone respondents.

The team calculated a final Overall weight for each residential respondent as the product of the Measure weight, the Ethnicity weight, and the Income weight.

Note that the research team applied only the Measure weight when comparing residential web and phone respondents on demographic variables. The team applied the Overall weight when comparing web and phone respondents on other survey responses and when reporting overall results across measure groups.

3.5.2 Controlling for Mode Differences

When examining the demographics of the combined web and phone responses for individual measure groups, there is no need to control for any possible interrelationship among mode (web or phone), measure group, and demographics, as each analysis is of a single measure type.[2] Therefore, the existing Measure and Overall weights, described above, are not appropriate for this set of analyses.

However, it is still necessary to account for possible demographic differences between web and phone respondents. Web and phone respondents were extremely similar on household size but differed somewhat on income, ethnicity, and age (web respondents were more likely to have household incomes of at least

[2] The one exception is the combination of wall and floor insulation into the "other insulation" group. These are sufficiently similar that the research team did not consider controlling for interrelationships among mode, measure group (wall or floor insulation), and demographics to be a concern.

$100,000, less likely to report being white only, and less likely to be 60 or older). Therefore, if web respondents are over- or under-represented in the survey, relative to phone respondents, then failing to account for that fact when combining responses may misrepresent the demographics of the participant population. The weighting of web and phone responses must then take two factors into consideration: the number of participants solicited by each mode and the response rate for each mode.

When examining demographics, the research team weighted the data to adjust for differences, within each measure and quota group, both in the number of participants solicited to the web and phone surveys and in response rate.

For each measure or quota group, the Number Solicited weight for web respondents was calculated as:

$$\text{Number Solicited weight (web)} = \frac{\text{Half the total number of respondents in group}}{\text{Number of web respondents in group}}$$

The numerator for this weight is half the total number of respondents because that is the expected number of respondents by mode if both modes have an equal response.

The Number Solicited weight was calculated similarly for phone respondents.

For each measure or quota group, the Response Rate weight for web respondents was calculated as:

$$\text{Response Rate weight (web)} = \frac{\text{Overall response rate for group}}{\text{Web response rate for group}}$$

The Response Rate weight was calculated similarly for phone respondents.

For each respondent, the Demographic Mode weight was calculated as the product of the Number Solicited weight and the Response Rate weight.

3.5.3 Nonresidential Survey Weighting

The research team used data weights ("Quota weight") to control for quota group differences among nonresidential respondents, which ensures that the sample's assortment of quota groups (which are based on program tracks) is representative of the participant population for each nonresidential program track.

The team assigned a Quota weight to each nonresidential respondent, calculated as:

$$\text{Quota weight} = \frac{\text{Proportion of program projects associated with the program track}}{\text{Proportion of program respondents associated with the program track}}$$

Note that since Commercial Solar and Existing Buildings Washington are standalone programs and have no program tracks associated with them, the research team applied a Quota weight of 1.0 for all nonresidential respondents in these quota groups.

4. Residential Combined Survey Results

Analysis of the survey results revealed details about participants' experiences. Some key high-level findings are:

- About half (45%) of participants received some information from Energy Trust before taking their efficiency action, with ceiling insulation participants being most likely to report receiving information (58%) and spa cover participants being least likely to report receiving information from Energy Trust (34%).
- Of those who installed heating systems, over half (58%) replaced systems that were still functioning, but this was more common among participants installing ducted heat pumps (72%) than gas furnaces (52%). Gas fireplaces were by far most likely to have replaced a wood burning fireplace or stove (63%).
- For most measures, contractors had the greatest influence on participant decisions, but the incentive was most influential for thermostats and spa covers, and the efficiency rating was most influential for gas fireplaces and furnaces.
- Participants easily found and selected contractors (86% reporting a 4 or 5 on a five-point scale), most commonly by word of mouth (24%) or online (18%); they usually chose a contractor after getting one or two bids (93%); about one-third (29%) considered the Energy Trust list of trade allies and about two-thirds (62%) of those considered the star rating system, but both varied by measure group.
- Participants most commonly paid for their equipment with cash (46%) or a credit card (41%).
- Participants were typically satisfied with their program experience, at levels generally consistent with previous years. Satisfaction somewhat varied by measure type.

The following subsections provide details of the above for each measure group. Where percentages are reported, they are based on weighted data, as described in Section 3.5.

4.1 Residential Respondent Demographics

Analysis of respondent demographics indicate that Black/African American, Hispanic/Latino, and other non-white groups are under-represented in the Energy Trust participant population compared to the general population of Oregon. Those with higher incomes and those who are older are over-represented in the participant population. Analysis also shows that Energy Trust participants in Oregon tend to be more concentrated in the Portland Metro and Hood River region, and less concentrated in the North Coast, Willamette Valley, and Eastern Oregon regions, compared to the general population.[3, 4]

[3] The Oregon income, household size, and ethnicity population data come from the U.S. Census Bureau (https://www.census.gov/quickfacts/or; https://statisticalatlas.com/state/Oregon/Household-Income).

[4] Note that all tables show the distribution of demographic characteristics for gas boiler participants as percentages despite the small sample size for that participant group. Normally, the research team does not show percentages for groups with small sample sizes, as doing so may suggest a level of precision that does not exist. In this case, the research team decided to show percentages for the sake of consistency. However, the research team advises caution in interpreting the percentages for the gas boiler group as those percentages have a 90% confidence interval of about plus-or-minus 25%.

People of color are *most* represented among participants surveyed about smart thermostats (Table 6). They are *least* represented among participants surveyed about residential solar PV and those in the Moderate Income Track.

Table 6. Respondent Race/Ethnicity by Measure or Quota Group (Multiple Responses Allowed)

Measure/Quota Group	Respondent Race/Ethnicity (%)							
	White or Caucasian Alone [a]	Black or African American	Hispanic or Latino	Asian, Indian, or Pacific Islander	Native American	Middle Eastern or North African	Other Races	People of Color Total
Gas Boiler (n=6)	83.3%	0.0%	16.7%	0.0%	0.0%	0.0%	0.0%	16.7%
Ceiling Insulation (n=134)	85.2%	0.0%	6.7%	5.1%	1.0%	2.0%	0.5%	15.3%
Clothes Washer (n=134)	86.4%	1.6%	2.1%	8.9%	0.5%	0.5%	0.0%	13.6%
Ducted Heat Pump (n=120)	88.3%	1.6%	5.2%	4.1%	0.8%	0.0%	0.0%	11.7%
Ductless Heat Pump (n=155)	89.2%	0.0%	5.8%	2.0%	1.0%	2.0%	0.0%	10.8%
Other Insulation (n=112)	86.8%	0.0%	4.0%	3.3%	1.5%	4.4%	0.0%	13.2%
Gas Fireplace (n=135)	90.4%	0.5%	2.1%	3.0%	0.5%	3.9%	0.5%	10.1%
Gas Furnace (n=247)	88.9%	0.7%	2.4%	6.1%	0.5%	2.2%	0.0%	11.4%
Res. Solar PV (n=156)	90.2%	1.3%	1.8%	5.8%	1.3%	1.3%	0.9%	9.8%
Smart Thermostat (n=256)	76.0%	2.8%	4.5%	14.4%	1.2%	2.1%	0.5%	25.2%
Spa Cover (n=112)	88.7%	0.0%	2.9%	2.0%	0.7%	4.8%	2.3%	12.7%
Windows (n=171)	89.4%	1.2%	1.6%	5.7%	0.0%	2.5%	0.0%	10.6%
Moderate Income Track (n=115)	92.2%	1.0%	5.2%	1.6%	0.0%	1.8%	0.0%	9.6%
Residential - Washington (n=151)	86.0%	2.1%	2.1%	7.3%	0.5%	2.6%	0.0%	14.6%
Residential - Oregon (n=1,587)	86.7%	0.9%	3.9%	6.1%	0.9%	2.1%	0.4%	13.8%
Oregon Overall (Census)	**87.1% [b]**	**2.5%**	**12.7%**	**5.2%**	**1.1%**	**Not Reported**	**3.0%**	**20.0%**

Note: Respondents were allowed to select multiple race and ethnicity categories, thus row totals may not sum to 100%.

[a] Category excludes any respondents who select both White/Caucasian and another race or ethnicity.

[b] Note the White/Caucasian Census Category is not exclusive and includes those who selected White/Caucasian and other race and ethnicity categories.

Energy Trust participants tend to have higher incomes than the general Oregon population, especially participants surveyed about smart thermostats, residential solar PV, and clothes washers (Table 7).

Table 7. Household Income by Measure or Quota Group

Measure/Quota Group	Household Income (%)			
	< $35,000	$35,000 to $50,000	$50,000 to $100,000	≥ $100,000
Gas Boiler (n=6)	33%	0%	0%	67%
Ceiling Insulation (n=134)	12%	13%	45%	30%
Clothes Washer (n=134)	6%	9%	50%	35%
Ducted Heat Pump (n=120)	16%	22%	46%	16%
Ductless Heat Pump (n=155)	21%	21%	48%	9%
Other Insulation (n=112)	16%	19%	48%	16%
Gas Fireplace (n=135)	9%	17%	53%	20%
Gas Furnace (n=247)	16%	28%	40%	17%
Res. Solar PV (n=156)	2%	11%	51%	36%
Smart Thermostat (n=256)	3%	9%	49%	39%
Spa Cover (n=112)	8%	8%	55%	29%
Windows (n=171)	9%	13%	54%	24%
Moderate Income Track (n=115)	39%	41%	17%	3%
Residential - Washington (n=151)	6%	15%	43%	36%
Residential - Oregon (n=1,587)	12%	17%	48%	24%
Oregon Overall (Census)	**33%**	**14%**	**31%**	**22%**

Energy Trust participants tend to be slightly older than the general Oregon adult population (Table 8).[5] Those surveyed about gas furnaces and fireplaces and those in the Moderate Income Track tended to be the oldest participants. Those surveyed about smart thermostats were the only group demonstrating a younger mean age than the Oregon population.

Table 8. Respondent Age by Measure or Quota Group

Measure/Quota Group	Respondent Age			
	% 18-39	% 40-59	% 60+	Mean Age
Gas Boiler (n=6)	17%	17%	67%	59
Ceiling Insulation (n=134)	28%	25%	47%	53
Clothes Washer (n=134)	30%	37%	33%	50
Ducted Heat Pump (n=120)	17%	31%	51%	58
Ductless Heat Pump (n=155)	20%	41%	39%	54
Other Insulation (n=112)	21%	36%	43%	54
Gas Fireplace (n=135)	6%	23%	71%	60
Gas Furnace (n=247)	11%	36%	53%	60
Res. Solar PV (n=156)	20%	42%	37%	53

[5] The U.S. Census reports the percentage of the entire population across all age brackets. The research team recalculated the percentages in each age group 18 years old and older, to compare to the Energy Trust participant population.

Measure/Quota Group	Respondent Age			
	% 18-39	% 40-59	% 60+	Mean Age
Smart Thermostat (n=256)	54%	32%	14%	41
Spa Cover (n=112)	11%	43%	46%	57
Windows (n=171)	20%	38%	42%	54
Moderate Income Track (n=115)	15%	24%	61%	60
Residential - Washington (n=151)	13%	42%	45%	56
Residential - Oregon (n=1,587)	23%	35%	42%	54
Oregon Overall (Census)	**38%**	**33%**	**29%**	**48**

Energy Trust participants tend to be similar to the general Oregon adult population in size of household, with those surveyed about smart thermostats and residential solar PV having slightly larger households (Table 9).

Table 9. Size of Household by Measure or Quota Group

Measure/Quota Group	Size of Household			
	% 1-2	% 3-4	% 5+	Mean # of Occupants
Gas Boiler (n=6)	67%	17%	17%	2.7
Ceiling Insulation (n=134)	53%	39%	7%	2.7
Clothes Washer (n=134)	61%	31%	8%	2.7
Ducted Heat Pump (n=120)	67%	24%	9%	2.5
Ductless Heat Pump (n=155)	69%	29%	2%	2.3
Other Insulation (n=112)	62%	30%	7%	2.4
Gas Fireplace (n=135)	73%	20%	7%	2.4
Gas Furnace (n=247)	60%	33%	7%	2.5
Res. Solar PV (n=156)	45%	41%	14%	3.0
Smart Thermostat (n=256)	44%	39%	17%	3.1
Spa Cover (n=112)	59%	33%	8%	2.6
Windows (n=171)	55%	35%	10%	2.7
Moderate Income Track (n=115)	73%	21%	6%	2.2
Residential - Washington (n=151)	61%	28%	10%	2.6
Residential - Oregon (n=1,587)	58%	33%	8%	2.6
Oregon Overall (Census)	**n/a**	**n/a**	**n/a**	**2.5**

In terms of geographic dispersion, Oregon Energy Trust participants tend to be more concentrated in the Portland Metro and Hood River area than the general Oregon population; the percentage of surveyed participants from Southwest Washington was similar to that in the entire Oregon-Southwest Washington region (Table 10). The distribution of participants across geographic areas differed considerably among measure and quota groups. Those most heavily concentrated in the Portland Metro and Hood River area were those surveyed about ceiling insulation, clothes washers, and smart thermostats. Those least heavily concentrated in that area were those surveyed about ducted and ductless heat pumps.

Table 10. Geographic Region by Measure or Quota Group

Measure/Quota Group	Geographic Region (%)						
	Portland Metro and Hood River	North Coast	Willamette Valley	Southern Oregon	Central Oregon	Eastern Oregon	SW Washington
Gas Boiler (n=6)	100%	0%	0%	0%	0%	0%	0%
Ceiling Insulation (n=134)	71%	0%	9%	15%	1%	2%	2%
Clothes Washer (n=134)	71%	2%	17%	6%	4%	1%	0%
Ducted Heat Pump (n=120)	38%	1%	26%	18%	14%	3%	0%
Ductless Heat Pump (n=155)	35%	2%	26%	27%	9%	1%	0%
Other Insulation (n=112)	61%	2%	25%	10%	1%	1%	0%
Gas Fireplace (n=135)	57%	4%	26%	2%	1%	1%	10%
Gas Furnace (n=247)	44%	4%	21%	7%	1%	0%	22%
Res. Solar PV (n=156)	52%	0%	30%	12%	6%	0%	0%
Smart Thermostat (n=256)	64%	3%	10%	6%	2%	0%	14%
Spa Cover (n=112)	60%	2%	7%	27%	4%	0%	0%
Windows (n=171)	43%	1%	18%	9%	3%	3%	24%
Moderate Income Track (n=115)	41%	2%	27%	21%	8%	0%	0%
Residential - Washington (n=151)	0%	0%	0%	0%	0%	0%	100%
Residential - Oregon (n=1,587)	58%	2%	22%	12%	4%	1%	n/a
Residential Total (n = 1,738)	54%	2%	20%	12%	4%	1%	7%
Oregon Overall (Census)	**44%**	**4%**	**27%**	**14%**	**6%**	**5%**	**n/a**
Oregon & SW WA Overall (Census)	**41%**	**4%**	**25%**	**13%**	**6%**	**5%**	**7%**

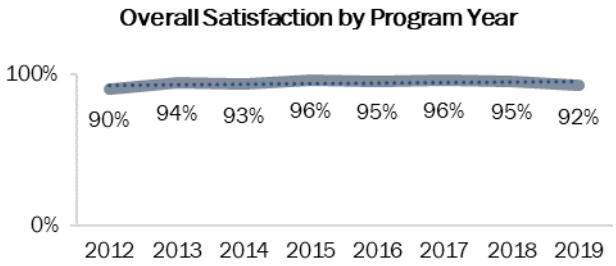
4.2 Program Experience by Measure and Quota Group

4.2.1 Clothes Washer

Consistent with previous years, clothes washer participants (*n* = 134) showed high levels of satisfaction with all facets of the experience (Table 11).[6]

Table 11. Satisfaction with Program Experience

Satisfaction Item	Percent
Overall experience (n = 134)	92%
Performance of new measure (n = 133)	96%
Ease of finding eligible products (n = 125)	87%
Incentive application form (n = 131)	91%
Time it took to receive incentive (n = 130)	86%



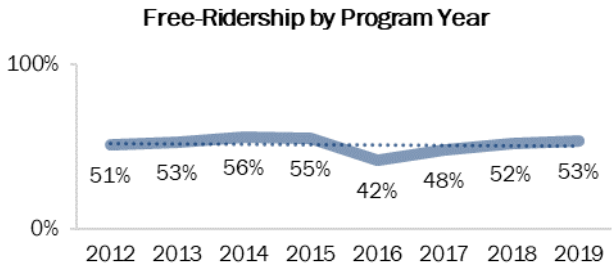
Note: Don't know and no response excluded from analysis. Note that dotted line in figure represents trend in overall satisfaction over time.

About one-third of clothes washer participants (35%) reported having obtained some sort of information from Energy Trust before taking the incented energy efficiency action.

Participants most commonly paid for their clothes washer with cash or a credit card (Table 12). Free-ridership was 53%, consistent with previous years.

Table 12. Payment Method (n = 134) (Multiple Responses Allowed)

Method	Percent
Cash	35%
Credit card	64%
Loan	0%
On-bill financing	2%
Vendor financing	2%
Non-Energy Trust incentives	1%
Other	0%
Don't know or no answer	0%



Note: The dotted line in figure represents trend in free-ridership over time.

[6] Satisfaction was defined as a rating of 4 or 5 on a scale from 1 (not at all satisfied) to 5 (very satisfied).

Of all items assessed, the retail salesperson had the most influence on their purchase decision (Table 13).

Table 13. Influence Ratings

Influence Level	Energy Trust Incentive (n = 133)	Information from Energy Trust (n = 124)	Retail Salesperson (n = 126)
High	40%	36%	45%
Medium	27%	27%	18%
Low	33%	36%	36%
Don't know or no answer	0%	1%	1%

Participants most commonly said that, without the program, they would have done exactly the same thing they did with the program (Table 14).

Table 14. Actions Would Have Taken without Program Support (n = 134)

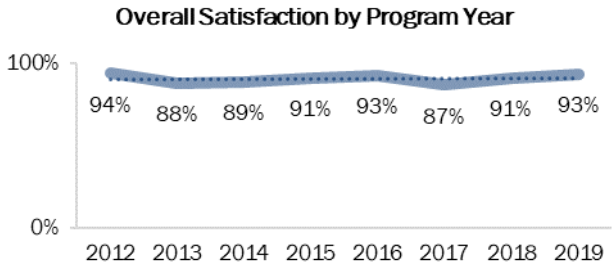
Action	Percent
Would not have purchased or installed the measure	2%
Would have postponed purchase and installation for a year or more	4%
Would have purchased or installed a less expensive alternative	21%
Would have purchased or installed a less energy efficient alternative	11%
Would have done exactly the same thing	60%

4.2.2 Ceiling Insulation

Consistent with previous years, ceiling insulation participants (n = 134) showed high levels of satisfaction with all facets of the experience, except for the information received about the Energy Trust incentive from their contractor (Table 15).[7]

Table 15. Satisfaction with Program and Contractor Experience

Satisfaction Item	Percent
Program-related Experience	
Overall experience (n = 134)	93%
Comfort of home after measure (n = 125)	93%
Incentive application form (n = 113)	85%
Time it took to receive incentive (n = 122)	89%
Contractor-related Experience	
Overall experience (n = 123)	90%
Quality of installation (n = 121)	96%
Information on Energy Trust incentive (n = 121)	77%
Communication (n = 120)	91%
Completion of incentive paperwork (n = 98)	95%



Note: Don't know and no response excluded from analysis. Note that dotted line in figure represents trend in overall satisfaction over time.

About half of ceiling insulation participants (58%) reported having obtained some sort of information from Energy Trust before taking the incented energy efficiency action.

Most (85%) participants reported it was easy to find and select a contractor (Table 16). Participants most commonly found their contractor through the Energy Trust website or some other online source. Most (71%) *did not* report considering Energy Trust's list of approved trade allies, in large measure because they were not aware of the list. Of those who *did* consider the list, about three-quarters (75%) considered the star rating system. Half (50%) of participants got two to three contractor bids to do the work, with most others getting a single bid (44%). A large majority (84%) reported that the contractor did at least some of the application paperwork.

Table 16. Contractor Selection and Use

Response	Percent
Ease of Finding and Selecting Contractor (n = 120)	
Easy (4 or 5)	85%
Not easy or difficult (3)	12%
Difficult (1 or 2)	2%
Don't know or no answer	1%

Response	Percent
Considered List of Approved Trade Allies (n = 124)	
Yes	29%
No	43%
Was not aware of list	26%
Don't know or no answer	2%

[7] Satisfaction was defined as a rating of 4 or 5 on a scale from 1 (not at all satisfied) to 5 (very satisfied).

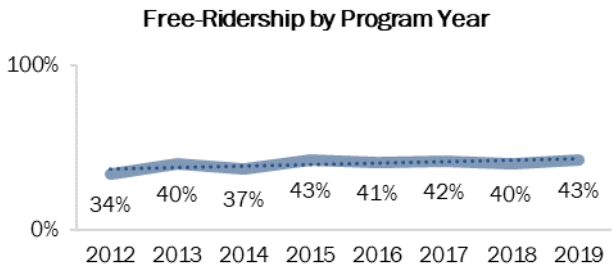
Response	Percent
How Participant Found Contractor (n = 121) (Multiple Responses Allowed)	
Word of mouth	20%
Energy Trust website or service	22%
Online (Yelp, Angie's List, etc.)	32%
Retailer or manufacturer	0%
Govt./non-profit event or referral	0%
Prior use or acquaintance	5%
Advertisement	4%
Utility	4%
Miscellaneous or don't know	14%

Response	Percent
If Considered List: Considered Star Rating System (n = 37)	
Yes	75%
No	8%
Was not aware of system	15%
Don't know or no answer	2%
Number of Contractor Bids (n = 121)	
One bid	44%
Two to three bids	50%
More than three bids	6%

Participants most commonly paid for their ceiling insulation with cash or a credit card (Table 17). Free-ridership was 43%, consistent with previous years.

Table 17. Payment Method (n = 134) (Multiple Responses Allowed)

Method	Percent
Cash	59%
Credit card	34%
Loan	5%
On-bill financing	2%
Vendor financing	0%
Non-Energy Trust incentives	0%
Other	4%
Don't know or no answer	1%



Note: The dotted line in figure represents trend in free-ridership over time.

Of all items assessed, information from Energy Trust had the least influence on their purchase decision (Table 18).

Table 18. Influence Ratings

Influence Level	Energy Trust Incentive (n = 132)	Information from Energy Trust (n = 127)	Contractor (n = 121)
High	51%	49%	66%
Medium	23%	19%	10%
Low	26%	31%	24%
Don't know or no answer	0%	1%	1%

Participants most commonly said that, without the program, they would have done exactly the same thing as they did with the program support (Table 19).

Table 19. Actions Would Have Taken without Program Support (n = 134)

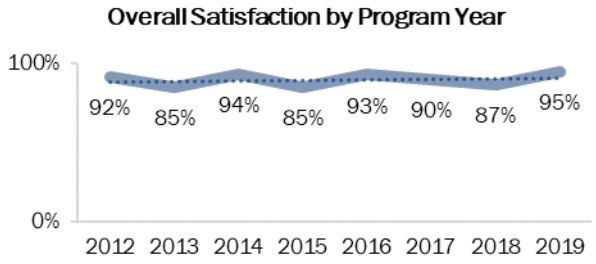
Action	Percent
Would not have had the services or work performed	6%
Would have postponed purchase and installation for a year or more	18%
Would have purchased or installed a smaller amount or quantity	9%
Would have made fewer energy efficient improvements	16%
Would have done exactly the same thing	57%

4.2.3 Other Insulation

Most floor and wall insulation participants (n = 112) showed high levels of satisfaction with all facets of the experience (Table 20), denoting an all-time high compared to previous years.[8]

Table 20. Satisfaction with Program and Contractor Experience

Satisfaction Item	Percent
Program-related Experience	
Overall experience (n = 112)	95%
Comfort of home after measure (n = 103)	96%
Incentive application form (n = 85)	89%
Time it took to receive incentive (n = 94)	87%
Contractor-related Experience	
Overall experience (n = 109)	90%
Quality of installation (n = 108)	95%
Information on Energy Trust incentive (n = 102)	83%
Communication (n = 107)	90%
Completion of incentive paperwork (n = 80)	93%



Note: Don't know and no response excluded from analysis. Note that dotted line in figure represents trend in overall satisfaction over time. The research team calculated overall satisfaction ratings for years prior to 2019 by averaging floor and wall insulation satisfaction values.

About half of participants (54%) reported having obtained some sort of information from Energy Trust before taking the incented energy efficiency action.

Most (81%) participants reported it was easy to find and select a contractor (Table 21). Participants most commonly found their contractor through word of mouth, the Energy Trust website, or another online source. About one-third (37%) reported considering Energy Trust's list of approved trade allies. Of those who considered the list, about half (51%) considered the star rating system. About half (52%) of the participants

[8] Note that previous reporting had the Other Insulation quota group broken out by individual floor and wall measures. For 2019, the research team combined the two measures to match the quota group. Satisfaction was defined as a rating of 4 or 5 on a scale from 1 (not at all satisfied) to 5 (very satisfied).

got two to three contractor bids to do the work, and the others got just a single bid (44%). A large majority (80%) reported that the contractor did at least some of the application paperwork.

Table 21. Contractor Selection and Use

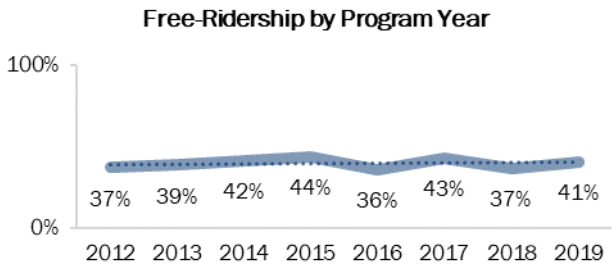
Response	Percent
Ease of Finding and Selecting Contractor (n = 108)	
Easy (4 or 5)	81%
Not easy or difficult (3)	12%
Difficult (1 or 2)	4%
Don't know or no answer	3%
How Participant Found Contractor (n = 109) (Multiple Responses Allowed)	
Word of mouth	29%
Energy Trust website or service	16%
Online (Yelp, Angie's List, etc.)	26%
Retailer or manufacturer	1%
Govt./non-profit event or referral	0%
Prior use or acquaintance	9%
Advertisement	5%
Utility	1%
Miscellaneous or don't know	14%

Response	Percent
Considered List of Approved Trade Allies (n = 109)	
Yes	37%
No	38%
Was not aware of list	22%
Don't know or no answer	3%
If Considered List: Considered Star Rating System (n = 40)	
Yes	51%
No	26%
Was not aware of system	13%
Don't know or no answer	10%
Number of Contractor Bids (n = 107)	
One bid	44%
Two to three bids	52%
More than three bids	3%

Participants most commonly paid for their insulation with cash or a credit card (Table 22). Free-ridership was 41%, consistent with previous years.

Table 22. Payment Method (n = 112) (Multiple Responses Allowed)

Method	Percent
Cash	65%
Credit card	25%
Loan	8%
On-bill financing	2%
Vendor financing	2%
Non-Energy Trust incentives	2%
Other	3%
Don't know or no answer	1%



Note: The dotted line in figure represents trend in free-ridership over time. The research team calculated free-ridership for years prior to 2019 by averaging floor and wall insulation free-ridership values.

Of all items assessed, the participant's contractor had the greatest influence on their purchase decision (Table 23).

Table 23. Influence Ratings

Influence Level	Energy Trust Incentive (n = 111)	Information from Energy Trust (n = 100)	Contractor (n = 108)
High	54%	43%	63%
Medium	21%	20%	13%
Low	25%	36%	22%
Don't know or no answer	1%	2%	2%

Participants most commonly said that, without the program, they would have done exactly the same thing they did through the program (Table 24).

Table 24. Actions Would Have Taken without Program Support (n = 105)

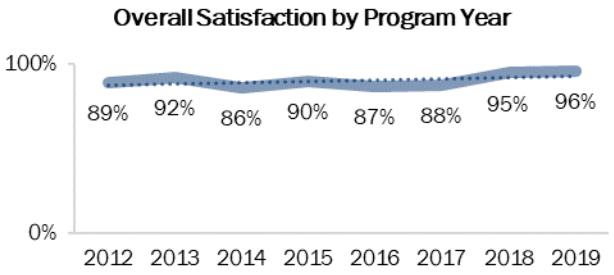
Action	Count
Would not have had the services or work performed	8%
Would have postponed purchase and installation for a year or more	16%
Would have purchased or installed a smaller amount or quantity	16%
Would have made fewer energy efficient improvements	25%
Would have done exactly the same thing	43%

4.2.4 Ducted Heat Pump

Ducted heat pump participants (n = 120) showed high levels of satisfaction with all facets of the experience (Table 25), denoting an all-time high compared to previous years.[9]

Table 25. Satisfaction with Program and Contractor Experience

Satisfaction Item	Percent
Program-related Experience	
Overall experience (n = 120)	96%
Comfort of home after measure (n = 115)	97%
Performance of new measure (n = 117)	98%
Incentive application form (n = 76)	88%
Time it took to receive incentive (n = 81)	88%
Information received (n = 52)	94%
Contractor-related Experience	
Overall experience (n = 120)	94%
Ease of selecting a contractor (n = 114)	90%
Quality of installation (n = 120)	92%
Information on Energy Trust incentive (n = 110)	89%
Communication (n = 117)	90%
Completion of incentive paperwork (n = 75)	93%



Note: Don't know and no response excluded from analysis. Note that dotted line in figure represents trend in overall satisfaction over time.

About two-fifths of participants (45%) reported having obtained some sort of information from Energy Trust before taking the incented energy efficiency action.

About three-fourths (72%) of participants reported that their new ducted heat pump replaced an operational heating system; 7% said the new ducted heat pump did not replace any existing system (Table 23).

Table 26. Equipment Replaced by Ducted Heat Pump (n = 120)

Response	Percent
Replaced operational heating system	72%
Replaced non-operational heating system	22%
Did not replace another heating system	7%
Don't know or no answer	0%

Most (84%) participants reported it was easy to find and select a contractor (Table 27). Participants most commonly found their contractor through the Energy Trust website or word of mouth. Most (64%) *did not* report considering Energy Trust's list of approved trade allies, in large measure because they were not aware of the list. Of those who *did* consider the list, about two-thirds (67%) considered the star rating system. About half

[9] Satisfaction was defined as a rating of 4 or 5 on a scale from 1 (not at all satisfied) to 5 (very satisfied).

(45%) of participants got two to three contractor bids to do the work and most of the others got a single bid (47%). Most (82%) reported that the contractor did at least some of the application paperwork.

Table 27. Contractor Selection and Use

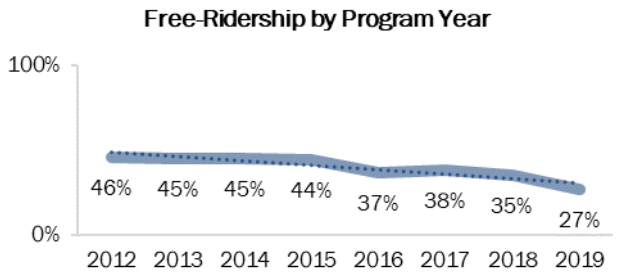
Response	Percent
Ease of Finding and Selecting Contractor (n = 118)	
Easy (4 or 5)	84%
Not easy or difficult (3)	12%
Difficult (1 or 2)	2%
Don't know or no answer	2%
How Participant Found Contractor (n = 119) (Multiple Responses Allowed)	
Word of mouth	21%
Energy Trust website or service	28%
Online (Yelp, Angie's List, etc.)	17%
Retailer or manufacturer	4%
Govt./non-profit event or referral	0%
Prior use or acquaintance	5%
Advertisement	7%
Utility	6%
Miscellaneous or don't know	13%

Response	Percent
Considered List of Approved Trade Allies (n = 118)	
Yes	36%
No	33%
Was not aware of list	30%
Don't know or no answer	1%
If Considered List: Considered Star Rating System (n = 40)	
Yes	67%
No	7%
Was not aware of system	21%
Don't know or no answer	4%
Number of Contractor Bids (n = 118)	
One bid	47%
Two to three bids	45%
More than three bids	8%

Participants most commonly paid for their ducted heart pump with cash or a credit card (Table 28). Free-ridership was 27%, denoting an all-time low compared to previous years.

Table 28. Payment Method (n = 120) (Multiple Responses Allowed)

Method	Percent
Cash	58%
Credit card	25%
Loan	8%
On-bill financing	9%
Vendor financing	5%
Non-Energy Trust incentives	1%
Other	3%
Don't know or no answer	0%



Note: The dotted line in figure represents trend in free-ridership over time.

Of all items assessed, the information from Energy Trust had the least influence on their purchase decision (Table 29).

Table 29. Influence Ratings

Influence Level	Energy Trust Incentive (n = 119)	Information from Energy Trust (n = 116)	Contractor (n = 119)
High	75%	67%	81%
Medium	10%	10%	6%
Low	14%	20%	112%
Don't know or no answer	1%	4%	1%

Participants were fairly split over what they would have done had the program not supported them (Table 30).

Table 30. Actions Would Have Taken without Program Support (n = 114)

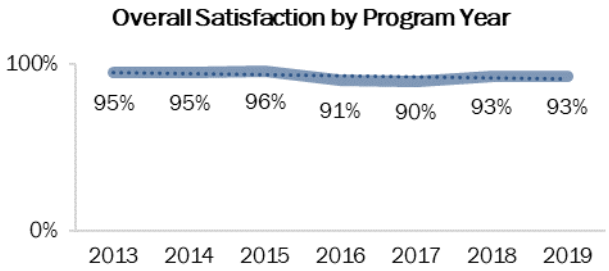
Action	Percent
Would not have purchased or installed the measure	21%
Would have postponed purchase and installation for a year or more	22%
Would have purchased or installed a less expensive alternative	24%
Would have purchased or installed a less energy efficient alternative	10%
Would have installed a different type of heating system	9%
Would have done exactly the same thing	33%

4.2.5 Ductless Heat Pump

Consistent with previous years, ductless heat pump participants (n = 155) showed high levels of satisfaction with all facets of the experience (Table 31).[10]

Table 31. Satisfaction with Program and Contractor Experience

Satisfaction Item	Percent
Program-related Experience	
Overall experience (n = 155)	93%
Comfort of home after measure (n = 151)	98%
Performance of new measure (n = 152)	95%
Incentive application form (n = 103)	94%
Time it took to receive incentive (n = 106)	92%
Contractor-related Experience	
Overall experience (n = 153)	91%
Quality of installation (n = 153)	94%
Information on Energy Trust incentive (n = 145)	90%
Communication (n = 150)	89%
Completion of incentive paperwork (n = 92)	95%



Note: Don't know and no response excluded from analysis. Note that dotted line in figure represents trend in overall satisfaction over time.

About half (49%) of participants reported having obtained some sort of information from Energy Trust before taking the incented energy efficiency action.

Most (91%) participants reported it was easy to find and select a contractor (Table 32). Participants most commonly found their contractor through word of mouth. Most (67%) *did not* report considering Energy Trust's list of approved trade allies, in large measure because they were not aware of the list. Of those who *did* consider the list, over two-thirds (69%) considered the star rating system. About half (48%) of participants got two to three contractor bids to do the work, and most of the others got a single bid (46%). Most (75%) reported that the contractor did at least some of the application paperwork.

Table 32. Contractor Selection and Use

Response	Percent
Ease of Finding and Selecting Contractor (n = 152)	
Easy (4 or 5)	91%
Not easy or difficult (3)	7%
Difficult (1 or 2)	1%
Don't know or no answer	1%

Response	Percent
Considered List of Approved Trade Allies (n = 153)	
Yes	33%
No	39%
Was not aware of list	26%
Don't know or no answer	2%

[10] Satisfaction was defined as a rating of 4 or 5 on a scale from 1 (not at all satisfied) to 5 (very satisfied).

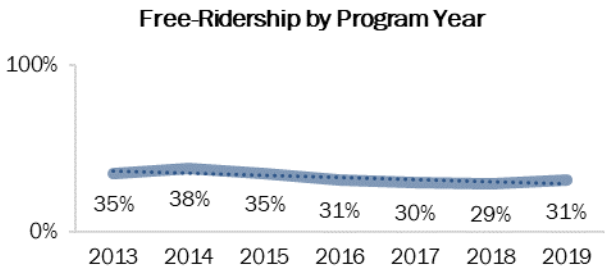
Response	Percent
How Participant Found Contractor (n = 153) (Multiple Responses Allowed)	
Word of mouth	29%
Energy Trust website or service	19%
Online (Yelp, Angie's List, etc.)	11%
Retailer or manufacturer	4%
Govt./non-profit event or referral	2%
Prior use or acquaintance	5%
Advertisement	9%
Utility	9%
Miscellaneous or don't know	12%

Response	Percent
If Considered List: Considered Star Rating System (n = 48)	
Yes	69%
No	10%
Was not aware of system	19%
Don't know or no answer	2%
Number of Contractor Bids (n = 151)	
One bid	46%
Two to three bids	48%
More than three bids	6%

Participants most commonly paid for their ductless heat pump with cash (Table 33). Free-ridership was 31%, consistent with previous years.

Table 33. Payment Method (n = 155) (Multiple Responses Allowed)

Method	Percent
Cash	54%
Credit card	26%
Loan	5%
On-bill financing	12%
Vendor financing	9%
Non-Energy Trust incentives	1%
Other	4%
Don't know or no answer	0%



Note: The dotted line in figure represents trend in free-ridership over time.

Of all items assessed, the contractor had the greatest influence on their purchase decision (Table 34).

Table 34. Influence Ratings

Influence Level	Energy Trust Incentive (n = 155)	Information from Energy Trust (n = 146)	Contractor (n = 153)
High	65%	53%	80%
Medium	17%	13%	7%
Low	17%	27%	12%
Don't know or no answer	1%	6%	1%

Participants most commonly said that, without the program, they would have done exactly the same thing as they did through the program (Table 35).

Table 35. Actions Would Have Taken without Program Support (n = 152)

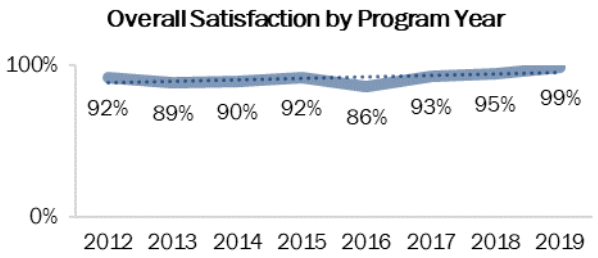
Action	Percent
Would not have purchased or installed the measure	11%
Would have postponed purchase and installation for a year or more	24%
Would have purchased or installed a less expensive alternative	15%
Would have purchased or installed a less energy efficient alternative	6%
Would have installed a different type of heating system	10%
Would have done exactly the same thing	39%

4.2.6 Gas Fireplace

Gas fireplace participants (n = 135) showed high levels of satisfaction with all facets of the experience (Table 36), denoting an all-time high compared to previous years.[11]

Table 36. Satisfaction with Program and Contractor Experience

Satisfaction Item	Percent
Program-related Experience	
Overall experience (n = 135)	99%
Comfort of home after measure (n = 128)	97%
Performance of new measure (n = 131)	99%
Ease of finding eligible products (n = 123)	97%
Incentive application form (n = 126)	87%
Time it took to receive incentive (n = 129)	91%
Information received (n = 56)	96%
Contractor-related Experience	
Overall experience (n = 134)	92%
Ease of selecting a contractor (n = 130)	92%
Quality of installation (n = 134)	94%
Information on Energy Trust incentive (n = 108)	82%
Communication (n = 133)	89%
Completion of incentive paperwork (n = 92)	92%



Note: Don't know and no response excluded from analysis. Note that dotted line in figure represents trend in overall satisfaction over time.

About two-fifths (41%) of participants reported having obtained some sort of information from Energy Trust before taking the incented energy efficiency action.

[11] Satisfaction was defined as a rating of 4 or 5 on a scale from 1 (not at all satisfied) to 5 (very satisfied).

About two-thirds (63%) of participants reported that their gas fireplace replaced a wood burning fireplace or stove; 7% said it did not replace anything (Table 37).

Table 37. Equipment Replaced by Gas Fireplace (n = 135)

Response	Percent
Replaced wood burning fireplace or stove	63%
Replaced old gas fireplace unit	26%
Replaced old electric fireplace unit	1%
Did not replace anything	7%
Other	2%

Most (93%) participants reported it was easy to find and select a contractor (Table 38). Participants most commonly found their contractor through word of mouth or their utility. Most (63%) *did not* report considering Energy Trust's list of approved trade allies, in large measure because they were not aware of the list. Of those who *did* consider the list, over half (56%) considered the star rating system. About one-third (34%) of participants got two to three contractor bids to do the work, and most of the others got a single bid (63%). A majority (74%) reported that the contractor did at least some of the application paperwork.

Table 38. Contractor Selection and Use

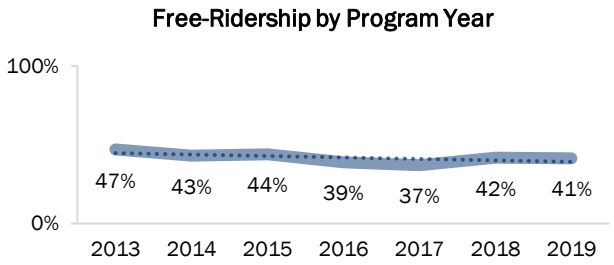
Response	Percent
Ease of Finding and Selecting Contractor (n = 126)	
Easy (4 or 5)	93%
Not easy or difficult (3)	4%
Difficult (1 or 2)	2%
Don't know or no answer	2%
How Participant Found Contractor (n = 134) (Multiple Responses Allowed)	
Word of mouth	19%
Energy Trust website or service	13%
Online (Yelp, Angie's List, etc.)	5%
Retailer or manufacturer	15%
Govt./non-profit event or referral	1%
Prior use or acquaintance	7%
Advertisement	9%
Utility	16%
Miscellaneous or don't know	17%

Response	Percent
Considered List of Approved Trade Allies (n = 131)	
Yes	37%
No	37%
Was not aware of list	22%
Don't know or no answer	4%
If Considered List: Considered Star Rating System (n = 50)	
Yes	56%
No	10%
Was not aware of system	28%
Don't know or no answer	6%
Number of Contractor Bids (n = 130)	
One bid	63%
Two to three bids	34%
More than three bids	3%

Participants most commonly paid for their gas fireplace with cash or a credit card (Table 39). Free-ridership was 41%, consistent with previous years.

Table 39. Payment Method (n = 135) (Multiple Responses Allowed)

Method	Percent
Cash	51%
Credit card	47%
Loan	1%
On-bill financing	5%
Vendor financing	3%
Non-Energy Trust incentives	0%
Other	2%
Don't know or no answer	1%



Note: The dotted line in figure represents trend in free-ridership over time.

Of all items assessed, the appearance and energy efficiency rating of the fireplace had the greatest influence on their purchase decision (Table 40).

Table 40. Influence Ratings

Influence Level	Energy Trust Incentive (n = 135)	Info. and Materials from Energy Trust (n = 122)	Retail Salesperson (n = 133)	Participant's Contractor (n = 126)	Appearance of Gas Fireplace (n = 134)	Energy Efficiency Rating of Fireplace (n = 135)
High	44%	38%	76%	48%	87%	87%
Medium	24%	21%	10%	16%	6%	5%
Low	32%	37%	14%	32%	7%	7%
Don't know or no answer	1%	4%	1%	3%	0%	1%

Participants most commonly said that, without the program, they would have done exactly the same thing they did through the program (Table 41).

Table 41. Actions Would Have Taken without Program Support (n = 135)

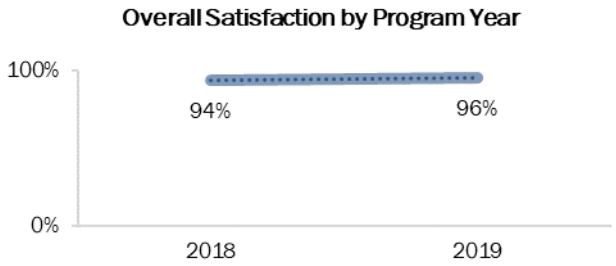
Action	Percent
Would not have purchased or installed the measure	4%
Would have postponed purchase and installation for a year or more	16%
Would have purchased or installed a less expensive alternative	12%
Would have purchased or installed a less energy efficient alternative	10%
Would have installed a different type of heating system	3%
Would have done exactly the same thing	61%

4.2.7 Gas Furnace

Similar to 2018, gas furnace participants (n = 247) showed high levels of satisfaction with all facets of the experience (Table 42).[12]

Table 42. Satisfaction with Program and Contractor Experience

Satisfaction Item	Percent
Program-related Experience	
Overall experience (n = 246)	96%
Comfort of home after measure (n = 237)	97%
Performance of new measure (n = 236)	97%
Incentive application form (n = 140)	95%
Time it took to receive incentive (n = 139)	84%
Information received (n = 77)	94%
Contractor-related Experience	
Overall experience (n = 245)	95%
Ease of selecting a contractor (n = 234)	95%
Quality of installation (n = 245)	97%
Information on Energy Trust incentive (n = 213)	91%
Communication (n = 243)	93%
Completion of incentive paperwork (n = 143)	95%



Note: Don't know and no response excluded from analysis. Note that assessment of gas furnaces began in 2018. The dotted line in figure represents trend in overall satisfaction over time.

About one-third of participants (35%) reported having obtained some sort of information from Energy Trust before taking the incented energy efficiency action.

About half (52%) of participants reported that their old heating system was still operating when they replaced it with the gas furnace; 1% said the new gas furnace did not replace any existing system (Table 43).

Table 43. Equipment Replaced by Gas Furnace (n = 247)

Response	Percent
Replaced operational heating system	52%
Replaced non-operational heating system	46%
Did not replace another heating system	1%
Don't know or no answer	1%

Most (84%) participants reported it was easy to find and select a contractor (Table 44). Participants most commonly found their contractor through word of mouth or online. Most (68%) *did not* report considering Energy Trust's list of approved trade allies, in large measure because they were not aware of the list. Of those who *did* consider the list, about two-thirds (61%) considered the star rating system. About half (47%) of

[12] Satisfaction was defined as a rating of 4 or 5 on a scale from 1 (not at all satisfied) to 5 (very satisfied).

participants got two to three contractor bids to do the work, and most of the others got a single bid (43%). A large majority (84%) reported that the contractor did at least some of the application paperwork.

Table 44. Contractor Selection and Use

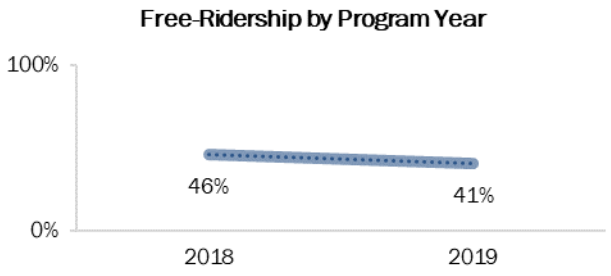
Response	Percent
Ease of Finding and Selecting Contractor (n = 246)	
Easy (4 or 5)	84%
Not easy or difficult (3)	11%
Difficult (1 or 2)	2%
Don't know or no answer	2%
How Participant Found Contractor (n = 246) (Multiple Responses Allowed)	
Word of mouth	24%
Energy Trust website or service	12%
Online (Yelp, Angie's List, etc.)	18%
Retailer or manufacturer	3%
Govt./non-profit event or referral	0%
Prior use or acquaintance	17%
Advertisement	8%
Utility	4%
Miscellaneous or don't know	13%

Response	Percent
Considered List of Approved Trade Allies (n = 247)	
Yes	32%
No	44%
Was not aware of list	21%
Don't know or no answer	3%
If Considered List: Considered Star Rating System (n = 66)	
Yes	61%
No	15%
Was not aware of system	19%
Don't know or no answer	5%
Number of Contractor Bids (n = 243)	
One bid	43%
Two to three bids	47%
More than three bids	10%

Participants most commonly paid for their gas furnace with cash or a credit card (Table 45). Free-ridership was 41%, down slightly from 2018.

Table 45. Payment Method (n = 247) (Multiple Responses Allowed)

Method	Percent
Cash	47%
Credit card	33%
Loan	12%
On-bill financing	6%
Vendor financing	7%
Non-Energy Trust incentives	0%
Other	3%
Don't know or no answer	2%



Note: The dotted line in figure represents trend in free-ridership over time.

Of all items assessed, the participant's contractor had the greatest influence on their purchase decision (Table 46).

Table 46. Influence Ratings

Influence Level	Energy Trust Incentive (n = 244)	Information from Energy Trust (n = 216)	Contractor (n = 247)
High	51%	46%	74%
Medium	20%	18%	9%
Low	27%	28%	15%
Don't know or no answer	2%	8%	2%

Participants most commonly said that, without the program, they would have done exactly the same thing as they did through the program (Table 47).

Table 47. Actions Would Have Taken without Program Support (n = 228)

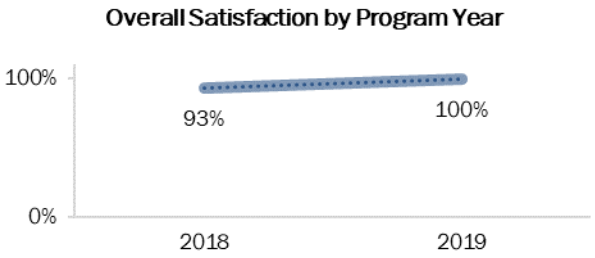
Action	Percent
Would not have purchased or installed the measure	2%
Would have postponed purchase and installation for a year or more	12%
Would have purchased or installed a less expensive alternative	24%
Would have purchased or installed a less energy efficient alternative	21%
Would have installed a different type of heating system	5%
Would have done exactly the same thing	47%

4.2.8 Gas Boiler

Consistent with 2018, gas boiler participants (n = 6) showed high levels of satisfaction with all facets of the experience (Table 48).[13]

Table 48. Satisfaction with Program and Contractor Experience

Program Element	Count
Program-related Experience	
Overall experience (n = 6)	6 of 6
Comfort of home after measure (n = 5)	5 of 5
Performance of new measure (n = 6)	6 of 6
Ease of finding eligible products (n = 5)	4 of 5
Incentive application form (n = 4)	3 of 4
Time it took to receive incentive (n = 4)	4 of 4
Contractor-related Experience	
Overall experience (n = 6)	6 of 6
Ease of selecting a contractor (n = 6)	6 of 6
Information on Energy Trust incentive (n = 6)	4 of 6
Communication (n = 6)	6 of 6
Completion of incentive paperwork (n = 5)	5 of 6



Note: Don't know and no response excluded from analysis. Assessment of gas boilers began in 2018 and the dotted line in figure represents trend in overall satisfaction over time. Note that satisfaction estimates are based on small sample sizes and although responses represent a large proportion of gas boiler participants, results should be interpreted cautiously.

None of the six gas boiler participants reported having obtained some sort of information from Energy Trust before taking the incented energy efficiency action.

Half (3 of 6) of the participants reported that their old heating system was still operating when they replaced it with the new gas boiler; all new gas boilers replaced an existing system (Table 49).

Table 49. Equipment Replaced by Gas Boiler (n = 6)

Response	Count
Replaced operational heating system	3 of 6
Replaced non-operational heating system	3 of 6
Did not replace another heating system	0 of 6
Don't know or no answer	0 of 6

All participants reported it was easy to find and select a contractor (Table 50). Participants found their contractor through word of mouth, online, or from a prior relationship. Most (5 of 6) *did not* report considering Energy Trust's list of approved trade allies, in large measure because they were not aware of the list. The one who *did* consider the list was not aware of the star rating system. All but one reported that the contractor did at least some of the application paperwork.

[13] Satisfaction was defined as a rating of 4 or 5 on a scale from 1 (not at all satisfied) to 5 (very satisfied).

Table 50. Contractor Selection and Use

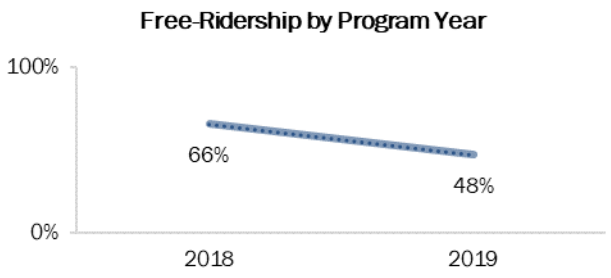
Response	Count
Ease of Finding and Selecting Contractor (n = 6)	
Easy (4 or 5)	6 of 6
Not easy or difficult (3)	0 of 6
Difficult (1 or 2)	0 of 6
Don't know or no answer	0 of 6
How Participant Found Contractor (n = 6) (Multiple Responses Allowed)	
Word of mouth	2 of 6
Energy Trust website or service	0 of 6
Online (Yelp, Angie's List, etc.)	2 of 6
Retailer or manufacturer	0 of 6
Govt./non-profit event or referral	0 of 6
Prior use or acquaintance	2 of 6
Advertisement	0 of 6
Utility	0 of 6
Miscellaneous or don't know	0 of 6

Response	Count
Considered List of Approved Trade Allies (n = 6)	
Yes	1 of 6
No	3 of 6
Was not aware of list	2 of 6
Don't know or no answer	0 of 6
If Considered List: Considered Star Rating System (n = 1)	
Yes	0 of 1
No	0 of 1
Was not aware of system	0 of 1
Don't know or no answer	1 of 1
Number of Contractor Bids	
Gas boiler participants were not asked the number of contractors they received bids from.	

Participants most commonly paid for their gas boiler with cash (Table 51). Free-ridership was 48%, down from 2018.

Table 51. Payment Method (n = 6) (Multiple Responses Allowed)

Method	Count
Cash	4 of 6
Credit card	2 of 6
Loan	0 of 6
On-bill financing	0 of 6
Vendor financing	0 of 6
Non-Energy Trust incentives	0 of 6
Other	0 of 6
Don't know or no answer	0 of 6



Note: The dotted line in figure represents trend in free-ridership over time. Note that free-ridership estimates are based on small sample sizes and although responses represent a large proportion of gas boiler participants, results should be interpreted cautiously.

Of all items assessed, the participant's contractor had the greatest influence on their purchase decision (Table 52).

Table 52. Influence Ratings

Influence Level	Energy Trust Incentive (n = 6)	Information from Energy Trust (n = 5)	Contractor (n = 6)
High	1 of 6	1 of 5	5 of 6
Medium	0 of 6	1 of 5	0 of 6
Low	5 of 6	3 of 5	1 of 6
Don't know or no answer	0 of 6	0 of 5	0 of 6

Participants most commonly said that, without the program, they would have done exactly the same thing they did through the program (Table 53).

Table 53. Actions Would Have Taken without Program Support (n = 6)

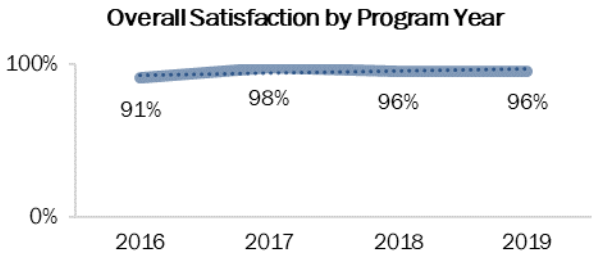
Action	Count
Would not have purchased or installed the measure	0 of 6
Would have postponed purchase and installation for a year or more	0 of 6
Would have purchased or installed a less expensive alternative	1 of 6
Would have purchased or installed a less energy efficient alternative	1 of 6
Would have installed a different type of heating system	0 of 6
Would have done exactly the same thing	4 of 6

4.2.9 Smart Thermostat

Consistent with previous years, smart thermostat participants (n = 256) exhibited high levels of satisfaction with most facets of the experience (Table 54).[14, 15]

Table 54. Satisfaction with Program and Contractor Experience

Satisfaction Item	Pct./Ct.
Program-related Experience	
Overall experience (n = 255)	96%
Comfort of home after measure (n = 253)	96%
Performance of new measure (n = 252)	96%
Ease of finding eligible products (n = 238)	92%
Incentive application form (n = 244)	92%
Time it took to receive incentive (n = 236)	84%
Information received (n = 141)	94%
Contractor-related Experience	
Overall experience (n = 12)	12 of 12
Ease of selecting a contractor (n = 10)	10 of 10
Quality of installation (n = 12)	12 of 12
Information on Energy Trust incentive (n = 8)	6 of 8
Communication (n = 11)	11 of 11
Completion of incentive paperwork (n = 4)	3 of 4



Note: Don't know and no response excluded from analysis. Note that dotted line in figure represents trend in overall satisfaction over time.

About (57%) half of participants reported having obtained some sort of information from Energy Trust before taking the incented energy efficiency action.

[14] Satisfaction was defined as a rating of 4 or 5 on a scale from 1 (not at all satisfied) to 5 (very satisfied).
[15] Prior to July 2019, many smart thermostat participants were not flagged as "self install" in the Energy Trust database and were asked about their interactions with their contractor. Most of these respondents selected "not applicable" to the contractor questions, suggesting that they did not hire a contractor to install the measure and were thus misclassified in the program database. For all contractor related questions, the research team only included respondents who provided a rating for the question: "How easy or difficult was the process of finding and selecting your contractor?" Any respondents who provided a "not applicable" or "don't know" response to that question were excluded from the analysis. All smart thermostat participants since July 2019 were flagged as "self install in the Energy Trust database.

About two-fifths of participants (42%) reported considering other types of thermostats, most commonly Ecobee and Nest thermostats (Table 55). Participants cited favorable product reviews, features, the Energy Trust incentive, and compatibility as the most common reasons why they selected their thermostat over similar products (Table 56).

Table 55. Other Thermostats Considered (n = 255) (Multiple Responses Allowed)

Type	Percent
None	38%
Ecobee	25%
Nest	25%
Honeywell	6%
Other	3%
Don't know	20%

Table 56. Reasons for Selecting Thermostat Over Similar Products (n = 255) (Multiple Responses Allowed)

Reason	Percent
Favorable product reviews	41%
Features	35%
Energy Trust incentive	35%
Compatibility with other smart home devices	34%
Appearance	26%
Recommended by a friend or family member	23%
Compatibility with heating/cooling system	19%
Lower price	13%
Saves more energy	10%
Advertisements or marketing materials	2%
Energy Trust information or materials	2%
Other	9%
Don't know	<1%

All but nine participants reported that their smart thermostat was currently installed, demonstrating an installation rate of 97% (Table 57). Of the nine participants lacking a currently installed smart thermostat, five reported they had not yet installed the thermostat and four reported having removed the thermostat.[16] Among the four participants who removed the thermostat, two reported incompatibility issues with their heating or cooling system and two said they moved out of their home.

Table 57. Smart Thermostat Installation Status (n = 265)

Response	Percent
Installed	97%
Not installed yet	1%
Uninstalled	2%
Total	**100%**

Ten of the 13 participants that used a contractor to install their smart thermostat reported it was easy to find and select a contractor (Table 58). Participants most commonly found their contractor through word of mouth. Most (12 of 13) *did not* report considering Energy Trust's list of approved trade allies. The one participant who *did* consider the list also considered the star rating system. Four participants who used a contractor reported that the contractor did at least some of the application paperwork.

[16] Note that participants who did not have the smart thermostat installed were terminated from the survey.

Table 58. Contractor Selection and Use

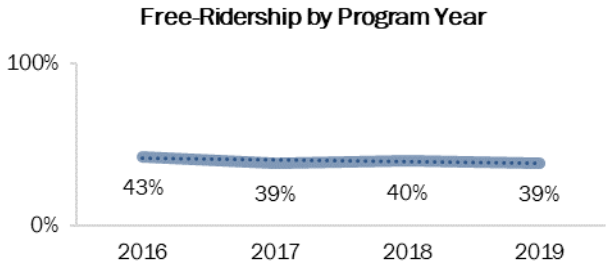
Response	Count
Ease of Finding and Selecting Contractor (n = 13)	
Easy (4 or 5)	10 of 13
Not easy or difficult (3)	3 of 13
Difficult (1 or 2)	0 of 13
Don't know or no answer	0 of 13
How Participant Found Contractor (n = 13) (Multiple Responses Allowed)	
Word of mouth	5 of 13
Energy Trust website or service	0 of 13
Online (Yelp, Angie's List, etc.)	2 of 13
Retailer or manufacturer	1 of 13
Govt./non-profit event or referral	0 of 13
Prior use or acquaintance	1 of 13
Advertisement	0 of 13
Utility	0 of 13
Miscellaneous or don't know	4 of 13

Response	Count
Considered List of Approved Trade Allies (n = 13)	
Yes	1 of 13
No	7 of 13
Was not aware of list	4 of 13
Don't know or no answer	1 of 13
If Considered List: Considered Star Rating System (n = 1)	
Yes	1 of 1
No	0 of 1
Was not aware of system	0 of 1
Don't know or no answer	0 of 1
Number of Contractor Bids	
None of the surveyed thermostat participants reported the number of contractors they received bids from.	

Participants most commonly paid for their thermostat with a credit card (Table 59). Free-ridership was 39%, consistent with previous years.

Table 59. Payment Method (n = 256) (Multiple Responses Allowed)

Method	Percent
Cash	19%
Credit card	76%
Loan	0%
On-bill financing	0%
Vendor financing	0%
Non-Energy Trust incentives	0%
Other	1%
Don't know or no answer	2%



Note: The dotted line in figure represents trend in free-ridership over time.

Of all items assessed, the Energy Trust incentive had the greatest influence on their purchase decision (Table 60).

Table 60. Influence Ratings

Influence Level	Energy Trust Incentive (n = 252)	Information from Energy Trust (n = 233)	Retail Salesperson (n = 179)	Contractor (n = 13)
High	59%	43%	14%	7 of 13
Medium	18%	24%	8%	1 of 13
Low	23%	31%	78%	3 of 13
Don't know or no answer	0%	2%	1%	2 of 13

Participants most commonly said that, without the program, they would have done exactly the same thing they did through the program (Table 61).

Table 61. Actions Would Have Taken without Program Support (n = 255)

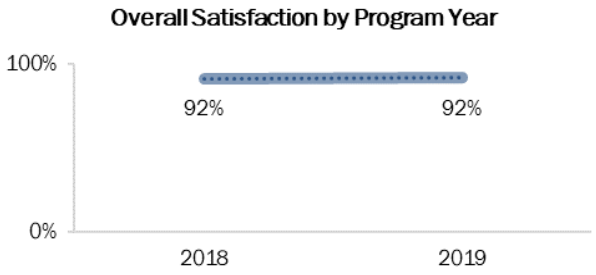
Action	Percent
Would not have purchased or installed the measure	18%
Would have postponed purchase and installation for a year or more	23%
Would have purchased or installed a less expensive alternative	13%
Would have purchased or installed a less energy efficient alternative	0%
Would have purchased and installed a different thermostat model	8%
Would have done exactly the same thing	39%

4.2.10 Spa Cover

Like in 2018, spa cover participants (n = 112) showed high levels of satisfaction with all facets of the experience (Table 62).[17, 18]

Table 62. Satisfaction with Program and Contractor Experience

Satisfaction Item	Pct./Ct.
Program-related Experience	
Overall experience (n = 111)	92%
Performance of new measure (n = 97)	97%
Ease of finding eligible products (n = 92)	92%
Incentive application form (n = 94)	94%
Time it took to receive incentive (n = 107)	88%
Information received (n = 38)	98%
Contractor-related Experience	
Overall experience (n = 30)	28 of 30
Ease of selecting a contractor (n = 23)	22 of 23
Quality of installation (n = 27)	26 of 27
Information on Energy Trust incentive (n = 28)	28 of 28
Communication (n = 29)	28 of 29
Completion of incentive paperwork (n = 14)	14 of 14



Note: Don't know and no response excluded from analysis. Note that assessment of spa covers began in 2018. The dotted line in figure represents trend in overall satisfaction over time.

About one-third of participants (34%) reported having obtained some sort of information from Energy Trust before taking the incented energy efficiency action.

Most (91%) of the 31 participants that used a contractor reported it was easy to find and select a contractor (Table 63). Participants most commonly found their contractor through word of mouth, a retailer, or manufacturer. Most (81%) *did not* report considering Energy Trust's list of approved trade allies, in large measure because they were not aware of the list. Of the six participants who *did* consider the list, over two-thirds (4 of 6) considered the star rating system. About two-fifths (47%) reported that the contractor did at least some of the application paperwork.

[17] Satisfaction was defined as a rating of 4 or 5 on a scale from 1 (not at all satisfied) to 5 (very satisfied).
[18] Prior to July 2019, many spa cover participants were not flagged as "self install" in the Energy Trust database and were asked about their interactions with their contractor. Most of these respondents selected "not applicable" to the contractor questions, suggesting that they did not hire a contractor to install the measure and were thus misclassified in the program database. For all contractor related questions, the research team only included respondents who provided a rating for the question: "How easy or difficult was the process of finding and selecting your contractor?" Any respondents who provided a "not applicable" or "don't know" response to that question were excluded from the analysis. All spy cover participants since July 2019 were flagged as "self install in the Energy Trust database.

Table 63. Contractor Selection and Use

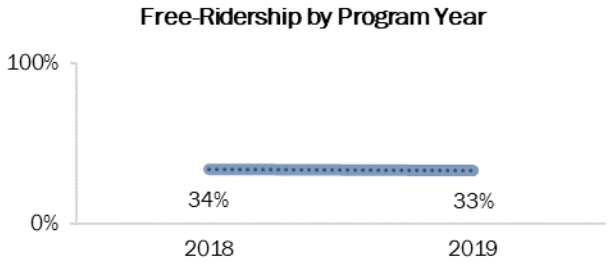
Response	Count
Ease of Finding and Selecting Contractor (n= 31)	
Easy (4 or 5)	91%
Not easy or difficult (3)	9%
Difficult (1 or 2)	0%
Don't know or no answer	0%
How Participant Found Contractor (n = 31) (Multiple Responses Allowed)	
Word of mouth	19%
Energy Trust website or service	16%
Online (Yelp, Angie's List, etc.)	16%
Retailer or manufacturer	19%
Govt./non-profit event or referral	0%
Prior use or acquaintance	8%
Advertisement	6%
Utility	3%
Miscellaneous or don't know	13%

Response	Count
Considered List of Approved Trade Allies (n = 31)	
Yes	19%
No	46%
Was not aware of list	35%
Don't know or no answer	0%
If Considered List: Considered Star Rating System (n = 6)	
Yes	4 of 6
No	1 of 6
Was not aware of system	1 of 6
Don't know or no answer	0 of 6
Number of Contractor Bids	
None of the surveyed spa cover participants reported the number of contractors they received bids from.	

Participants most commonly paid for their spa cover with a credit card (Table 64). Free-ridership was 33%, consistent with 2018.

Table 64. Payment Method (n = 112) (Multiple Responses Allowed)

Method	Percent
Cash	31%
Credit card	67%
Loan	0%
On-bill financing	0%
Vendor financing	0%
Non-Energy Trust incentives	0%
Other	2%
Don't know or no answer	1%



Note: The dotted line in figure represents trend in free-ridership over time.

Of all items assessed, the Energy Trust incentive had the greatest influence on their purchase decision (Table 65).

Table 65. Influence Ratings

Influence Level	Energy Trust Incentive (n = 112)	Information and Materials from Energy Trust (n = 95)	Retail Salesperson (n = 111)	Contractor (n = 31)
High	78%	48%	71%	47%
Medium	12%	19%	10%	9%
Low	9%	30%	18%	25%
Don't know or no answer	0%	3%	1%	20%

Participants most commonly said that, without the program, they would have purchased or installed a less expensive alternative spa cover (Table 66).

Table 66. Actions Would Have Taken without Program Support (n = 112)

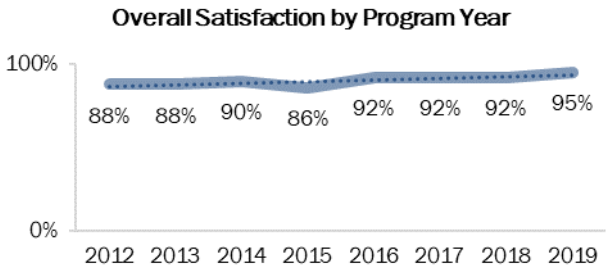
Action	Count
Would not have purchased or installed the measure	4%
Would have postponed purchase and installation for a year or more	8%
Would have purchased or installed a less expensive alternative	47%
Would have purchased or installed a less energy efficient alternative	25%
Would have done exactly the same thing	26%

4.2.11 Windows

Windows participants (n = 171) showed high levels of satisfaction with all facets of the experience (Table 67), denoting an all-time high compared to previous years.[19]

Table 67. Satisfaction with Program and Contractor Experience

Satisfaction Item	Percent
Program-related Experience	
Overall experience (n = 171)	95%
Comfort of home after measure (n = 164)	98%
Incentive application form (n = 151)	85%
Time it took to receive incentive (n = 157)	84%
Information received (n = 68)	93%
Contractor-related Experience	
Overall Experience (n = 170)	89%
Ease of selecting a contractor (n = 157)	89%
Quality of Installation (n = 170)	94%
Information on Energy Trust Incentive (n = 157)	85%
Communication (n = 169)	88%
Completion of Incentive Paperwork (n = 129)	92%



Note: Don't know and no response excluded from analysis. Note that dotted line in figure represents trend in overall satisfaction over time.

About two-fifths of participants (39%) reported having obtained some sort of information from Energy Trust before taking the incented energy efficiency action.

Most (85%) participants reported it was easy to find and select a contractor (Table 68). Participants most commonly found their contractor through word of mouth or an advertisement. Most (87%) *did not* report considering Energy Trust's list of approved trade allies, in large measure because they were not aware of the list. Of those who *did* consider the list, nearly all (87%) considered the star rating system. About two-fifths (44%) of participants got two to three contractor bids to do the work and most others got a single bid (47%). A large majority (79%) reported that the contractor did at least some of the application paperwork.

Table 68. Contractor Selection and Use

Response	Percent
Ease of Finding and Selecting Contractor (n = 164)	
Easy (4 or 5)	85%
Not easy or difficult (3)	12%
Difficult (1 or 2)	3%
Don't know or no answer	0%

Response	Percent
Considered List of Approved Trade Allies (n = 170)	
Yes	14%
No	52%
Was not aware of list	33%
Don't know or no answer	2%

[19] Satisfaction was defined as a rating of 4 or 5 on a scale from 1 (not at all satisfied) to 5 (very satisfied).

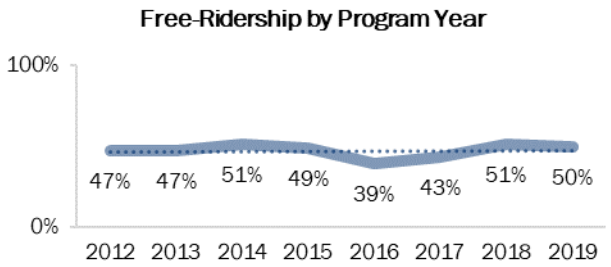
Response	Percent
How Participant Found Contractor (n = 169) (Multiple Responses Allowed)	
Word of mouth	25%
Energy Trust website or service	4%
Online (Yelp, Angie's List, etc.)	19%
Retailer or manufacturer	6%
Govt./non-profit event or referral	3%
Prior use or acquaintance	8%
Advertisement	17%
Utility	3%
Miscellaneous or don't know	16%

Response	Percent
If Considered List: Considered Star Rating System (n = 25)	
Yes	22 of 25
No	0 of 25
Was not aware of system	3 of 25
Don't know or no answer	0 of 25
Number of Contractor Bids (n=170)	
One bid	47%
Two to three bids	44%
More than three bids	10%

Participants most commonly paid for their windows with cash (Table 69). Free-ridership was 50%, similar to 2018s.

Table 69. Payment Method (n = 171) (Multiple Responses Allowed)

Method	Percent
Cash	55%
Credit card	28%
Loan	5%
On-bill financing	1%
Vendor financing	12%
Non-Energy Trust incentives	0%
Other	3%
Don't know or no answer	1%



Note: The dotted line in figure represents trend in free-ridership over time.

Of all items assessed, the participant's contractor had the greatest influence on their purchase decision (Table 70).

Table 70. Influence Ratings

Influence Level	Energy Trust Incentive (n = 170)	Information and Materials from Energy Trust (n = 143)	Contractor (n = 170)
High	40%	39%	60%
Medium	21%	20%	13%
Low	38%	39%	26%
Don't know or no answer	1%	2%	0%

Participants most commonly said that, without the program, they would have done exactly the same thing they did through the program (Table 71).

Table 71. Actions Would Have Taken without Program Support (n = 170)

Action	Count
Would not have had the services or work performed	2%
Would have postponed purchase and installation for a year or more	19%
Would have purchased or installed a less expensive alternative	12%
Would have purchased or installed a smaller amount or quantity	8%
Would have purchased or installed a less energy efficient alternative	11%
Would have made fewer energy efficient improvements	6%
Would have done exactly the same thing	56%

4.2.12 Residential Washington

Consistent with 2018, Residential Washington participants (n = 151) installed a variety of gas measures (Table 73) and showed high levels of satisfaction with all facets of the program experience (Table 72).[20]

Table 72. Satisfaction with Program and Contractor Experience

Satisfaction Item	Percent
Program-related Experience	
Overall experience (n = 150)	97%
Comfort of home after measure (n = 147)	98%
Performance of new measure (n = 108)	96%
Ease of finding eligible products (n = 52)	97%
Incentive application form (n = 120)	92%
Time it took to receive incentive (n = 127)	89%
Information received (n = 54)	90%
Contractor-related Experience	
Overall experience (n = 112)	93%
Ease of selecting a contractor (n = 103)	90%
Quality of installation (n = 112)	96%
Information on Energy Trust incentive (n = 96)	88%
Communication (n = 111)	91%
Completion of incentive paperwork (n = 78)	91%

Note: Don't know and no response excluded from analysis.

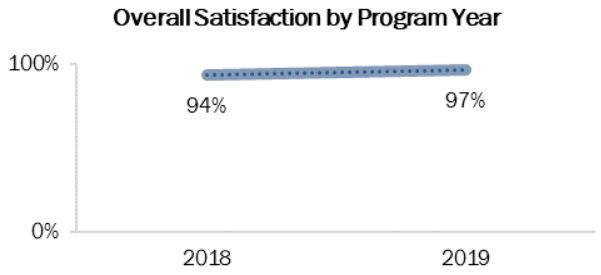


Table 73. Measures Installed by Residential Washington Participants (n = 151)

Measure	Count	Percent
Gas Furnace	55	36%
Thermostat	42	28%
Windows	37	25%
Gas Fireplace	15	10%
Ceiling Insulation	2	1%
Residential Washington Total	**151**	**100%**

About one-third of participants (35%) reported having obtained some sort of information from Energy Trust before taking the incented energy efficiency action.

[20] Satisfaction was defined as a rating of 4 or 5 on a scale from 1 (not at all satisfied) to 5 (very satisfied).

Of the 55 participants who installed a gas furnace, three-quarters (75%) said the furnace replaced an operational heating system (Table 74).

Table 74. Equipment Replaced by Gas Furnace (n = 55)

Response	Percent
Replaced operational heating system	75%
Replaced non-operational heating system	25%
Did not replace another heating system	0%
Don't know or no answer	0%

Of the 15 participants who installed a gas fireplace, 11 said they replace a wood burning fireplace or stove and the rest said they replaced an old gas fireplace unit (3 mentions) or an old electric fireplace unit (1 mention; Table 75).

Table 75. Equipment Replaced by Gas Fireplace (n = 15)

Response	Count
Replaced wood burning fireplace or stove	11 of 15
Replaced old gas fireplace unit	3 of 15
Replaced old electric fireplace unit	1 of 15
Did not replace anything	0 of 15
Other	0 of 15

Most (86%) participants reported it was easy to find and select a contractor (Table 76). Participants most commonly found their contractor online or through word of mouth. Most (76%) *did not* report considering Energy Trust's list of approved trade allies, in large measure because they were not aware of the list. Of those who *did* consider the list, about two-fifths (39%) considered the star rating system. About half (47%) of participants got two to three contractor bids to do the work and most others got a single bid (43%). About three-quarters (74%) reported that the contractor did at least some of the application paperwork.

Table 76. Contractor Selection and Use

Response	Percent
Ease of Finding and Selecting Contractor (n = 109)	
Easy (4 or 5)	86%
Not easy or difficult (3)	8%
Difficult (1 or 2)	5%
Don't know or no answer	1%

Response	Percent
Considered List of Approved Trade Allies (n = 110)	
Yes	24%
No	48%
Was not aware of list	26%
Don't know or no answer	2%

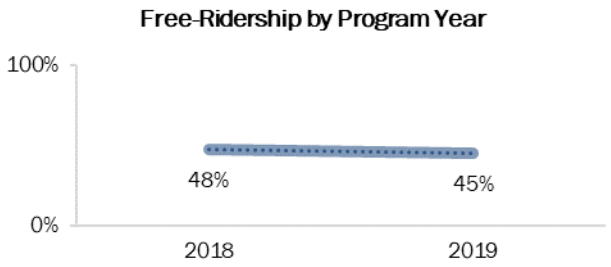
Response	Percent
How Participant Found Contractor (n = 112) (Multiple Responses Allowed)	
Word of mouth	25%
Energy Trust website or service	7%
Online (Yelp, Angie's List, etc.)	20%
Retailer or manufacturer	7%
Govt./non-profit event or referral	3%
Prior use or acquaintance	13%
Advertisement	5%
Utility	7%
Miscellaneous or don't know	13%

Response	Percent
If Considered List: Considered Star Rating System (n = 25)	
Yes	10 of 25
No	5 of 25
Was not aware of system	8 of 25
Don't know or no answer	2 of 25
Number of Contractor Bids (n = 107)	
One bid	43%
Two to three bids	47%
More than three bids	10%

Participants most commonly paid for their equipment with cash or a credit card (Table 77). Free-ridership was 45%, down slightly from 2018.

Table 77. Payment Method (n = 151) (Multiple Responses Allowed)

Method	Percent
Cash	48%
Credit card	40%
Loan	4%
On-bill financing	3%
Vendor financing	8%
Non-Energy Trust incentives	1%
Other	1%
Don't know or no answer	1%



Note: The dotted line in figure represents trend in free-ridership over time.

Of all items assessed and across all measures, contractors had the greatest influence on Residential Washington participant purchasing decisions (Table 78). For those that received gas fireplace incentives, the appearance and energy efficiency rating of their fireplace were particularly influential.

Table 78. Influence Ratings

Influence Level	Energy Trust Incentive (n = 150)	Information and Materials from Energy Trust (n = 129)	Retail Salesperson (n = 48)	Contractor (n = 113)	Appearance of Gas Fireplace (n = 15)	Energy Efficiency Rating of Fireplace (n = 15)
High	40%	31%	42%	63%	10 of 15	11 of 15
Medium	23%	22%	3%	16%	2 of 15	2 of 15
Low	36%	42%	53%	21%	3 of 15	2 of 15
Don't know or no answer	0%	0%	0%	0%	0 of 15	0 of 15

Participants most commonly said that, without the program, they would have done exactly the same thing they did through the program (Table 79).

Table 79. Actions Would Have Taken without Program Support (n = 143)

Action	Count
Would not have purchased or installed the measure	5%
Would not have had the services or work performed	1%
Would have postponed purchase and installation for a year or more	16%
Would have purchased or installed a less expensive alternative	10%
Would have purchased or installed a smaller amount or quantity	4%
Would have purchased or installed a less energy efficient alternative	7%
Would have made fewer energy efficient improvements	1%
Would have installed a different type of heating system	2%
Would have done exactly the same thing	58%

4.2.13 Moderate Income Track

Moderate income track participants (n = 115) installed a variety of measures (Table 81) and showed high levels of satisfaction with all facets of the experience except for the time it took to receive the incentive (Table 80).[21]

Table 80. Satisfaction with Program and Contractor Experience

Satisfaction Item	Percent
Program-related Experience	
Overall experience (n = 114)	97%
Comfort of home after measure (n = 113)	95%
Performance of new measure (n = 93)	99%
Incentive application form (n = 75)	96%
Time it took to receive incentive (n = 63)	87%
Information received (n = 47)	96%
Contractor-related Experience	
Overall experience (n = 111)	95%
Ease of selecting a contractor (n = 106)	97%
Quality of installation (n = 113)	96%
Information on Energy Trust incentive (n = 99)	92%
Communication (n = 111)	94%
Completion of incentive paperwork (n = 82)	96%

Note: Don't know and no response excluded from analysis.

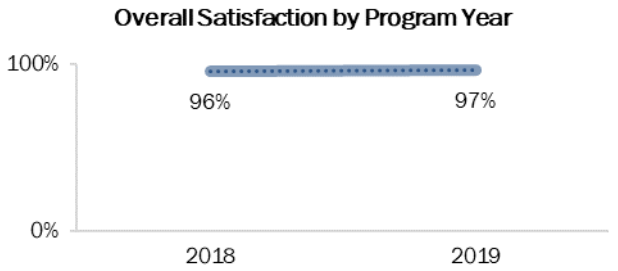


Table 81. Measures Installed by Moderate Income Track Participants (n = 75)

Measure	Count	Percent
Gas Furnace	65	57%
Ductless Heat Pump	25	22%
Ceiling Insulation	16	14%
Ducted Heat Pump	5	4%
Floor Insulation	3	3%
Wall Insulation	1	1%
All Measures	**115**	**100%**

[21] Satisfaction was defined as a rating of 4 or 5 on a scale from 1 (not at all satisfied) to 5 (very satisfied).

Half of the participants who installed a gas furnace and four-fifths of those who installed a ducted heat pump said the new heating system replaced an operational one (Table 82).

Table 82. Equipment Replaced by Gas Fireplace and Ducted Heat Pump

Response	Percent, Gas Furnace (n = 65)	Count, Ducted Heat Pump (n = 5)
Replaced operational heating system	50%	4 of 5
Replaced non-operational heating system	44%	1 of 5
Did not replace another heating system	3%	0 of 5
Don't know or no answer	3%	0 of 5

About half of participants (46%) reported having obtained some sort of information from Energy Trust before taking the incented energy efficiency action.

Most (86%) participants reported it was easy to find and select a contractor (Table 83). Participants most commonly found their contractor online or via word of mouth. Most (67%) *did not* report considering Energy Trust's list of approved trade allies, in large measure because they were not aware of the list. Of those who *did* consider the list, three-quarters considered the star rating system. About two-fifths (41%) of participants got two to three contractor bids to do the work, and most others got a single bid (50%). Over three-quarters (81%) reported that the contractor did at least some of the application paperwork.

Table 83. Contractor Selection and Use

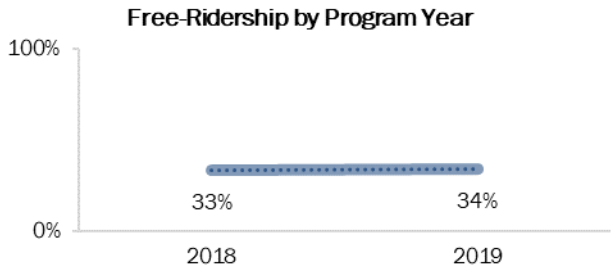
Response	Percent
Ease of Finding and Selecting Contractor (n = 113)	
Easy (4 or 5)	86%
Not easy or difficult (3)	8%
Difficult (1 or 2)	2%
Don't know or no answer	4%
How Participant Found Contractor (n = 113) (Multiple Responses Allowed)	
Word of mouth	24%
Energy Trust website or service	12%
Online (Yelp, Angie's List, etc.)	20%
Retailer or manufacturer	3%
Govt./non-profit event or referral	1%
Prior use or acquaintance	11%
Advertisement	11%
Utility	5%
Miscellaneous or don't know	13%

Response	Percent
Considered List of Approved Trade Allies (n = 114)	
Yes	33%
No	38%
Was not aware of list	24%
Don't know or no answer	5%
If Considered List: Considered Star Rating System (n = 26)	
Yes	19 of 26
No	5 of 26
Was not aware of system	1 of 26
Don't know or no answer	1 of 26
Number of Contractor Bids (n = 111)	
One bid	50%
Two to three bids	41%
More than three bids	9%

Participants most commonly paid for their equipment with cash or a credit card, although financing was more common than in other residential groups (Table 84). Free-ridership was 34%, similar to 2018.

Table 84. Payment Method (n = 115) (Multiple Responses Allowed)

Method	Percent
Cash	47%
Credit card	23%
Loan	15%
On-bill financing	12%
Vendor financing	4%
Non-Energy Trust incentives	0%
Other	5%
Don't know or no answer	3%



Note: The dotted line in figure represents trend in free-ridership over time.

Of all items assessed, contractors had the greatest influence on Moderate Income participant purchasing decisions (Table 85).

Table 85. Influence Ratings

Influence Level	Energy Trust Incentive (n = 114)	Information and Materials from Energy Trust (n = 94)	Contractor (n = 114)
High	68%	58%	77%
Medium	9%	16%	4%
Low	20%	22%	17%
Don't know or no answer	0%	0%	0%

Participants most commonly said that, without the program, they would have done exactly the same thing they did through the program (Table 86).

Table 86. Actions Would Have Taken without Program Support (n = 115)

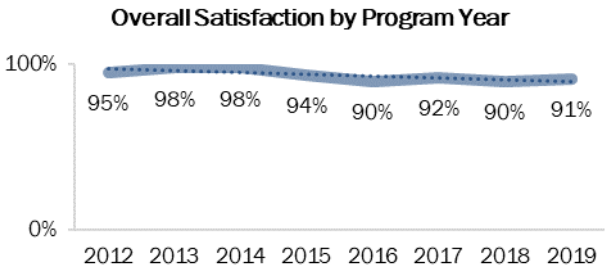
Action	Count
Would not have purchased or installed the measure	8%
Would not have had the services or work performed	2%
Would have postponed purchase and installation for a year or more	20%
Would have purchased or installed a less expensive alternative	20%
Would have purchased or installed a smaller amount or quantity	4%
Would have purchased or installed a less energy efficient alternative	13%
Would have made fewer energy efficient improvements	6%
Would have installed a different type of heating system	1%
Would have done exactly the same thing	34%

4.2.14 Residential Solar PV

Consistent with previous years, residential solar participants (n = 156) showed high levels of satisfaction with all facets of the experience (Table 87).[22]

Table 87. Satisfaction with Program and Contractor Experience

Satisfaction Item	Percent
Program-related Experience	
Overall experience (n = 155)	91%
Performance of new measure (n = 154)	94%
Energy Trust's inspection (n = 129)	94%
Contractor-related Experience	
Overall experience (n = 156)	87%
Quality of installation (n = 155)	95%
Information on Energy Trust incentive (n = 151)	90%
Communication (n = 156)	87%



Note: Don't know and no response excluded from analysis. Note that dotted line in figure represents trend in overall satisfaction over time.

About half of participants (45%) reported having obtained some sort of information from Energy Trust before taking the incented energy efficiency action.

Most (86%) participants reported it was easy to find and select a contractor (Table 88). Participants often found their contractor through word of mouth. Most (74%) *did not* report considering Energy Trust's list of approved trade allies, in large measure because they were not aware of the list. Of those who *did* consider the list, about two-fifths (43%) considered the star rating system. About half (44%) of participants got two to three contractor bids to do the work and about half (51%) got a single bid.

Table 88. Contractor Selection and Use

Response	Percent
Ease of Finding and Selecting Contractor (n = 151)	
Easy (4 or 5)	86%
Not easy or difficult (3)	10%
Difficult (1 or 2)	3%
Don't know or no answer	1%
How Participant Found Contractor (n = 155) (Multiple Responses Allowed)	
Word of mouth	22%
Energy Trust website or service	15%
Online (Yelp, Angie's List, etc.)	16%
Retailer or manufacturer	1%

Response	Percent
Considered List of Approved Trade Allies (n = 150)	
Yes	26%
No	39%
Was not aware of list	32%
Don't know or no answer	3%
If Considered List: Considered Star Rating System (n = 41)	
Yes	43%
No	16%
Was not aware of system	31%
Don't know or no answer	9%

[22] Satisfaction was defined as a rating of 4 or 5 on a scale from 1 (not at all satisfied) to 5 (very satisfied).

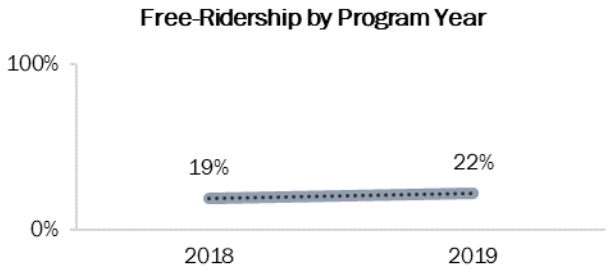
Response	Percent
Govt./non-profit event or referral	7%
Prior use or acquaintance	4%
Advertisement	6%
Utility	1%
Miscellaneous or don't know	27%

Response	Percent
Number of Contractor Bids (n = 154)	
Got one contractor bid	51%
Got two to three bids	44%
Got more than three bids	6%

Participants most commonly paid for their solar PV system with cash or a loan (Table 89). Free-ridership was 22%, up slightly from 2018.

Table 89. Payment Method (n = 156) (Multiple Responses Allowed)

Method	Percent
Cash	52%
Credit card	7%
Loan	29%
On-bill financing	6%
Vendor financing	16%
Non-Energy Trust incentives	7%
Other	3%
Don't know or no answer	0%



Note: The dotted line in figure represents trend in free-ridership over time.

Of all items assessed, the contractor and the Energy Trust incentive had the greatest influence on their purchase decision (Table 90).

Table 90. Influence Ratings

Influence Level	Energy Trust Incentive (n = 156)	Information and Materials from Energy Trust (n = 136)	Contractor (n = 155)	Information from a Solar Workshop (n = 52)
High	74%	44%	76%	43%
Medium	16%	30%	12%	8%
Low	6%	21%	12%	45%
Don't know or no answer	3%	6%	0%	4%

Participants were fairly split as to what they would have done if they had not received assistance from the program (Table 91).

Table 91. Actions Would Have Taken without Program Support (n = 156)

Action	Percent
Would not have purchased or installed the system	34%
Would have postponed purchase and installation for a year or more	23%
Would have purchased or installed a smaller amount or quantity	13%
Would have done exactly the same thing	26%

5. Nonresidential Combined Survey Results

Analysis of the survey results revealed details about participants' experiences. Some key high-level findings are:

- The Energy Trust incentive was the most consistently highly rated influencer, followed by no-cost or lost-cost services received, technical services received, and information received from Energy Trust.
- Nonresidential participants generally showed high levels of satisfaction with their program experience, including their experience with the program representative, with levels generally consistent with those observed in prior years. Satisfaction levels varied somewhat among quota groups.

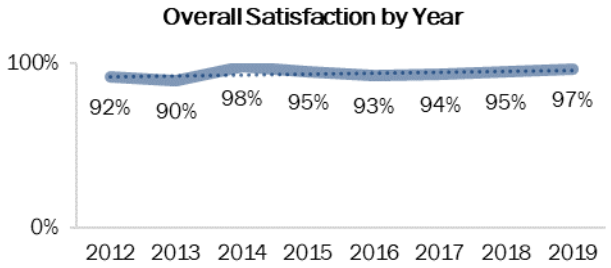
The following subsections show responses by quota group. Any reported difference between quota groups implies the difference was statistically significant by chi-square, at $p \leq .05$.[23]

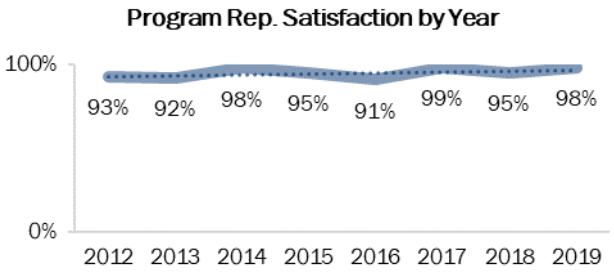
5.1 Existing Buildings - Oregon

Consistent with previous years, Existing Buildings participants (n = 180) showed high levels of satisfaction with all facets of the experience (Table 92).[24]

Table 92. Satisfaction by Program Element

Program Element	Pct./Ct.
Program Level Satisfaction, By Program Element	
Overall experience (n = 178)	97%
Performance of new measure (n = 167)	98%
Interaction with program rep. (n = 163)	98%
Ease of applying for the incentive (n = 126)	95%
Incentive amount (n = 133)	91%
Time to receive incentive (n = 131)	87%
The scheduling process for services (n = 40)	95%
Technical services (n = 33)	94%
Overall Experience, by Program Track	
Custom (n = 20)	20 of 20
Lighting (n = 58)	98%
Standard (n = 60)	95%
Direct Install (n = 40)	95%
Interaction with Program Rep., by Program Track	
Custom (n = 19)	19 of 19
Lighting (n = 50)	100%
Standard (n = 57)	98%
Direct Install (n = 37)	95%





Note: "Don't know" and "no response" excluded from analysis. Dotted line in figure represents trend in overall satisfaction over time.

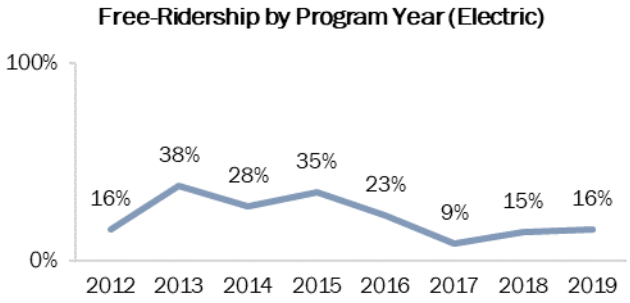
[23] The research team does not report on differences involving measure group samples of less than 15 because of low precision in those cases.

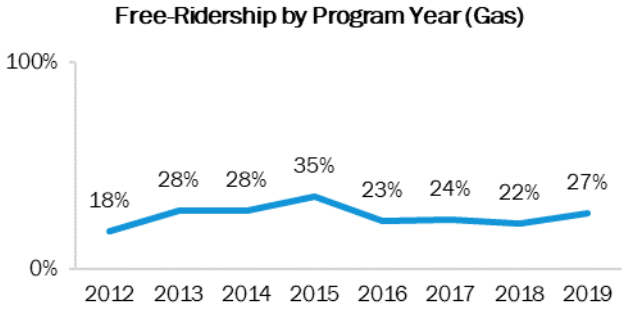
[24] Satisfaction was defined as a rating of 4 or 5 on a scale from 1 (not at all satisfied) to 5 (very satisfied).

The savings-weighted free-ridership rate was 16% for electric measures and 27% for gas measures, with the mid-range being the official estimate of free-ridership (Table 93).

Table 93. Free-Ridership

Free-Ridership			
Program Track	Low	Mid	High
Free-Ridership - Electric			
Custom	10%	14%	18%
Lighting	15%	17%	19%
Standard	15%	17%	19%
Direct Install	10%	11%	12%
Combined	13%	16%	18%
Free-Ridership – Gas			
Custom	20%	24%	29%
Standard	30%	32%	34%
Combined	24%	27%	31%





All but six participants indicated they received some type of information or materials from Energy Trust. Fewer (20%) received technical services, such as a technical study. Of all items assessed, no or low-cost services and technical services had the greatest influence on their equipment upgrade decision (Table 94).

Table 94. Influence Ratings

Influence Level	Energy Trust Incentive (n = 140)	No-cost / Low-cost Services (n = 39)	Installation Contractor (n = 132)	Energy Trust Rep. (n = 168)	Technical Services (n = 36)	Info. and materials from Energy Trust (n = 174)
High	82%	97%	57%	72%	90%	75%
Medium	13%	3%	18%	16%	6%	16%
Low	4%	0%	24%	7%	0%	5%
Don't know or no answer	1%	0%	2%	5%	4%	4%

About two-fifths (41%) of participants said that, without the program, they would have postponed the project for a year or more or would not have made any energy efficiency improvements. Fewer said they would have taken some action that saved less energy, most commonly making fewer energy efficient improvements (Table 95).

Table 95. Actions Would Have Taken without Program Support (n = 180)

Action	Percent
Would not have taken energy saving action	41%
Would have postponed project for a year or more	36%
Would not have made any energy efficiency improvements	6%
Would have taken action that saved less energy	39%
Would have made fewer energy efficient improvements	36%
Would have made improvements that were less energy efficient	5%
Would have done exactly the same project and firm would have paid the full cost[a]	15%

[a] Percentage is based on those who affirmed that their firm would have made the funds available.

Table 96 summarizes open-ended participant feedback on how to improve the Existing Buildings Oregon program.

Table 96. Program Feedback Provided by Existing Buildings Oregon Participants (n=180) (Multiple Responses Allowed)

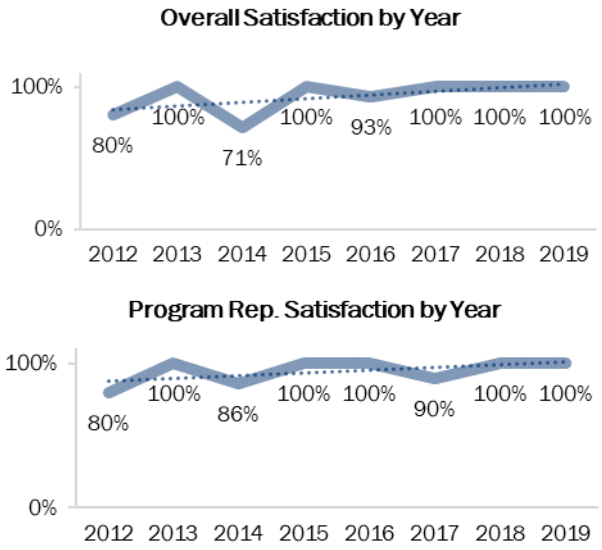
Feedback	Percent
General positive feedback about the program	12%
Process or incentive took too long	3%
Process or paperwork was too complicated	3%
Advertise more / make people aware of Energy Trust	2%
Offer incentives for more measures	2%
General issues with program representative communication	1%
Other feedback	5%
No feedback provided	75%

5.2 Existing Buildings - Washington

Consistent with previous years, Existing Buildings Washington participants (n = 16) showed high levels of satisfaction with all facets of the experience (Table 97).[25]

Table 97. Satisfaction by Program Element

Program Element	Count
Overall experience (n = 16)	16 of 16
Performance of new measure (n =16)	16 of 16
Interaction with program rep. (n = 14)	14 of 14
Ease of applying for the incentive (n = 16)	16 of 16
Incentive amount (n = 16)	16 of 16
Time to receive incentive (n = 14)	12 of 14
Technical services (n = 2)	2 of 2



All 16 participants indicated they received some type of information or materials from Energy Trust. Two received technical services, such as a technical study. Of all items assessed, the Energy Trust incentive and interactions with Energy Trust representatives had the greatest influence on their equipment upgrade decision (Table 98).

Table 98. Influence Ratings

Influence Level	Energy Trust Incentive (n = 16)	Installation Contractor (n = 15)	Energy Trust Representative (n = 15)	Technical Services (n = 2)	Information and materials from Energy Trust (n = 16)
High	10 of 16	6 of 15	9 of 15	2 of 2	9 of 16
Medium	4 of 16	3 of 15	2 of 15	0 of 2	3 of 16
Low	2 of 16	5 of 15	4 of 15	0 of 2	3 of 16
Don't know or no answer	0 of 16	1 of 15	0 of 15	0 of 2	1 of 16

Participants were fairly split as to what they would have done if they had not received program assistance (Table 99).

[25] Satisfaction was defined as a rating of 4 or 5 on a scale from 1 (not at all satisfied) to 5 (very satisfied).

Table 99. Actions Would Have Taken without Program Support (n = 16)

Action	Count
Would not have taken energy saving action	6 of 16
Would have postponed project for a year or more	6 of 61
Would not have made any energy efficiency improvements	0 of 16
Would have taken action that saved less energy	4 of 16
Would have made fewer energy efficient improvements	4 of 16
Would have made improvements that were less energy efficient	1 of 16
Would have done exactly the same project and firm would have paid the full cost	6 of 16

Table 100 summarizes open-ended participant feedback on how to improve the Existing Buildings Washington program.

Table 100. Program Feedback Provided by Existing Buildings Washington Participants (n=16)

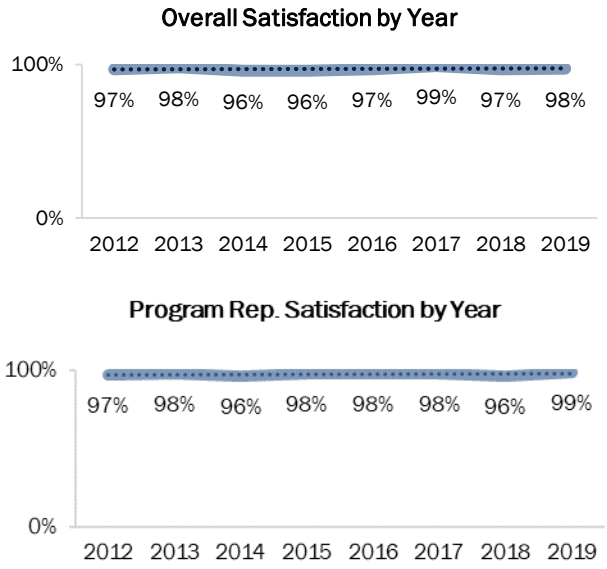
Feedback	Count
General positive feedback about the program	1 of 16
Improve the website / make information or forms easier to find on the website	1 of 16
Offer incentives for more measures	1 of 16
No feedback provided	13 of 16

5.3 Production Efficiency

Consistent with previous years, Production Efficiency participants (n = 160) showed high levels of satisfaction with all facets of the experience (Table 101).[26]

Table 101. Satisfaction by Program Element

Program Element	Percent
Program Level Satisfaction, By Program Element	
Overall experience (n = 160)	98%
Performance of new measure (n = 145)	100%
Interaction with program rep. (n = 146)	99%
Ease of applying for the incentive (n = 153)	93%
Incentive amount (n = 158)	91%
Time to receive incentive (n = 151)	86%
Technical services (n = 61)	100%
Overall Experience, by Program Track	
Custom (n = 40)	95%
Lighting (n = 60)	97%
Standard (n = 60)	100%
Interaction with Program Rep., by Program Track	
Custom (n = 37)	100%
Lighting (n = 54)	96%
Standard (n = 55)	100%



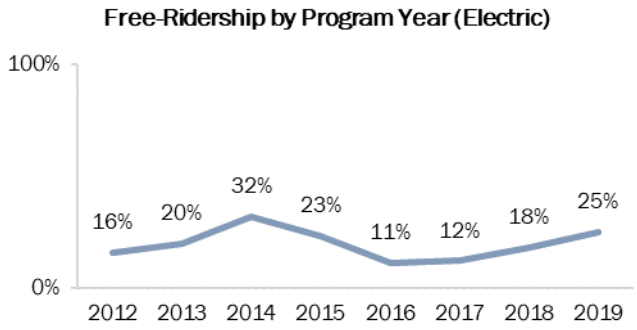
Note: Don't know" and "no response" excluded from analysis. Dotted line in figure represents trend in overall satisfaction over time.

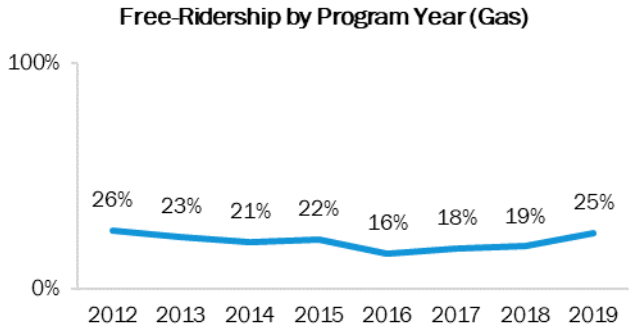
The savings-weighted free-ridership rate was 25% for both electric and gas measures, with the mid-range being the official estimate of free-ridership (Table 102). Note that free-ridership has increased from previous years, likely due to low project volume and higher incidence of large projects which can have a strong influence on free-ridership values.

[26] Satisfaction was defined as a rating of 4 or 5 on a scale from 1 (not at all satisfied) to 5 (very satisfied).

Table 102. Free-Ridership

Free-Ridership			
Program Track	Low	Mid	High
Free-Ridership - Electric			
Custom	22%	24%	25%
Lighting	19%	20%	22%
Standard	35%	36%	37%
Standard + Lighting	24%	25%	27%
Combined	23%	25%	26%
Free-Ridership – Gas			
Combined	12%	25%	38%





Most (91%) of participants indicated they received some type of information or materials from Energy Trust. Fewer (38%) received technical services, such as a technical study. Of all items assessed, the Energy Trust incentive had the greatest influence on their equipment upgrade decision, followed by technical services (Table 103).

Table 103. Influence Ratings

Influence Level	Energy Trust Incentive (n = 156)	Installation Contractor (n = 122)	Energy Trust Representative (n = 144)	Technical Services (n = 61)	Information and materials from Energy Trust (n = 145)
High	78%	41%	66%	68%	65%
Medium	17%	33%	20%	18%	21%
Low	4%	22%	12%	11%	11%
Don't know or no answer	1%	4%	2%	3%	3%

Participants were fairly split as to what they would have done if they had not received program assistance (Table 104).

Table 104. Actions Would Have Taken without Program Support (n = 160)

Action	Percent
Would not have taken energy saving action	35%
Would have postponed project for a year or more	33%
Would not have made any energy efficiency improvements	1%

Action	Percent
Would have taken action that saved less energy	26%
Would have made fewer energy efficient improvements	21%
Would have made improvements that were less energy efficient	6%
Would have done exactly the same project and firm would have paid the full cost [a]	32%

[a] Percentage is based on those who affirmed that their firm would have made the funds available.

Table 105 summarizes open-ended participant feedback on how to improve the Production Efficiency program.

Table 105. Program Feedback Provided by Product Efficiency Participants (n=160) (Multiple Responses Allowed)

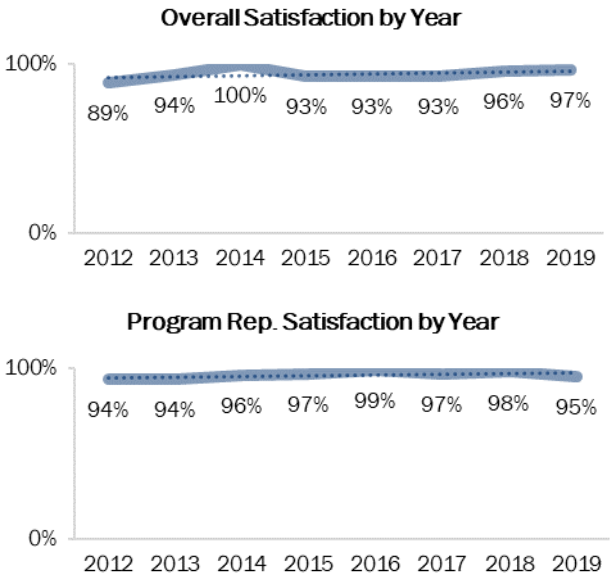
Feedback	Percent
General positive feedback about the program	16%
Advertise more / make people aware of Energy Trust	5%
Process or incentive took too long	4%
Offer incentives for more measures	3%
Process or paperwork was too complicated	3%
Issues with scheduling installation / streamline installation process	1%
Measure was too expensive / incentive was too small	1%
Other feedback	3%
No feedback provided	66%

5.4 Existing Multifamily

Consistent with previous years, Existing Multifamily participants (n = 165) showed high levels of satisfaction with all facets of the experience (Table 106).[27]

Table 106. Satisfaction by Program Element

Program Element	Pct./Ct.
Program Level Satisfaction, By Program Element	
Overall experience (n = 162)	97%
Performance of new measure (n = 130)	95%
Interaction with program rep. (n = 147)	95%
Ease of applying for the incentive (n = 98)	87%
Incentive amount (n = 104)	88%
Time to receive incentive (n = 96)	92%
The scheduling process for services (n = 56)	95%
Tenant responses (n = 101)	94%
Walk-through survey (n = 47)	100%
Technical services (n = 15)	15 of 15
Overall Experience, by Program Track	
Incentives (n = 106)	96%
Direct Install (n = 56)	98%
Interaction with Program Rep., by Program Track	
Incentives (n = 94)	95%
Direct Install (n = 53)	96%



Note: "Don't know" and "no response" excluded from analysis. Dotted line in figure represents trend in overall satisfaction over time.

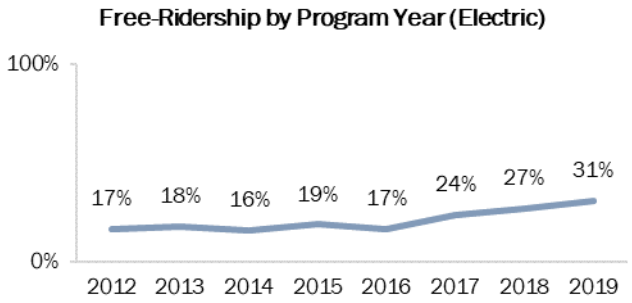
Twenty-one of the 165 participants reported residing in the building where the project was completed. Among the 21 who reported residing in the building, 12 reported high levels of satisfaction with the comfort of the home resulting from the project. The remaining participants provided a "not applicable" (3 of 21) or "don't know" response (6 of 21).

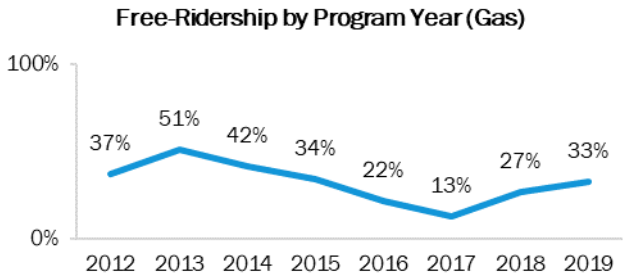
The savings-weighted free-ridership rate was 31% for electric measures and 33% gas measures, with the mid-range being the official estimate of free-ridership (Table 107). Although this increase from previous years denotes an all-time high for electric measures, it is within the historical range for gas measures.

[27] Satisfaction was defined as a rating of 4 or 5 on a scale from 1 (not at all satisfied) to 5 (very satisfied).

Table 107. Free-Ridership

Free-Ridership			
Program Track	Low	Mid	High
Free-Ridership - Electric			
Incentives	32%	32%	32%
Direct install	24%	26%	28%
Combined	31%	31%	32%
Free-Ridership – Gas			
Incentives	24%	36%	47%
Direct install	16%	18%	20%
Combined	23%	33%	44%





Nearly all (93%) participants indicated they received some type of information or materials from Energy Trust. A small minority (1%) received technical services, such as a technical study. Of all items assessed, receiving no or low-cost services had the greatest influence on their equipment upgrade decision (Table 108).

Table 108. Influence Ratings

Influence Level	Energy Trust Incentive (n = 101)	No-cost / Low-cost Services (n = 55)	Energy Trust Rep. (n = 148)	Walk-through Survey (n = 50)	Technical Services (n = 15)	Info. and materials from Energy Trust (n = 153)
High	62%	87%	62%	67%	10 of 15	64%
Medium	14%	5%	14%	13%	3 of 15	12%
Low	23%	2%	20%	12%	1 of 15	19%
Don't know or no answer	1%	5%	4%	8%	1 of 15	5%

Participants most commonly said that, without the program, they would have done exactly the same thing they did through the program (Table 109).

Table 109. Actions Would Have Taken without Program Support (n = 165)

Action	Percent
Would not have taken energy saving action	20%
Would have postponed project for a year or more	15%
Would not have made any energy efficiency improvements	4%
Would have taken action that saved less energy	28%
Would have made fewer energy efficient improvements	25%
Would have made improvements that were less energy efficient	4%

Action	Percent
Would have done exactly the same project [a]	49%

[a] Note that due to a survey programming error, Existing Multifamily respondents who indicated they "would have done exactly the same project" were not asked the follow-up question if their firm would have made the funds available. The research team corrected the programming error after completing surveys with June 2019 participants. The research team was able to interpolate that an estimated 36% of all surveyed Existing Multifamily participants would have indicated that they would have made funds available to cover the entire cost of the energy efficiency improvements of the project. The research team calculated this estimate by multiplying the percentage of 2018 Existing Multifamily participants who indicated their firm would have made funds available (80% of those who said they "would have done exactly the same project") by the percentage of 2019 Existing Multifamily participants (45%) who said they "would have done exactly the same project."

Table 110 summarizes open-ended participant feedback on how to improve the Existing Multifamily program.

Table 110. Program Feedback Provided by Existing Multifamily Participants (n=160) (Multiple Responses Allowed)

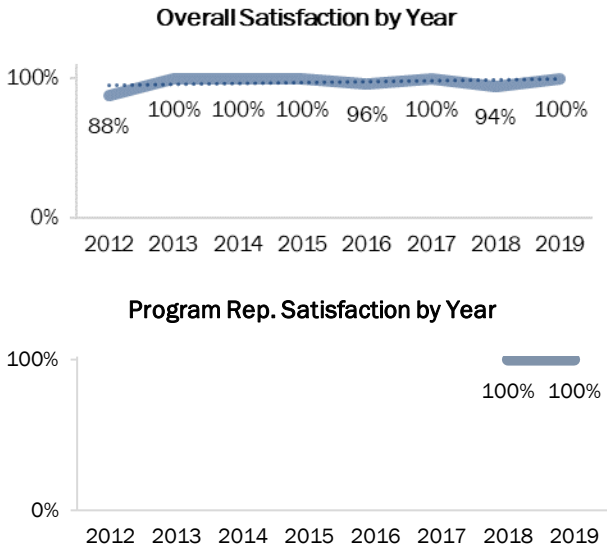
Feedback	Percent
General positive feedback about the program	19%
Issues with scheduling installation / Streamline installation process	3%
Process or paperwork was too complicated	2%
General issues with program representative communication	1%
Other feedback	4%
No feedback provided	70%

5.5 Commercial Solar

Consistent with previous years, Commercial Solar participants (n = 28) showed high levels of satisfaction with all facets of the experience (Table 111).[28]

Table 111. Satisfaction by Program Element

Program Element	Count
Overall experience (n = 28)	28 of 28
Performance of new measure (n = 25)	25 of 25
Interaction with program rep. (n = 21)	21 of 21
Ease of applying for the incentive (n = 17)	17 of 17
Incentive amount (n = 25)	20 of 25
Time to receive incentive (n = 24)	20 of 24
Energy Trust's inspection (n = 22)	22 of 22



Note: "Don't know" and "no response" excluded from analysis. Dotted line in figure represents trend in overall satisfaction over time. The research team did not have access to data on program representative satisfaction prior to 2018.

Of all items assessed, the Energy Trust incentive had the greatest influence on their equipment upgrade (Table 112).

Table 112. Influence Ratings

Influence Level	Energy Trust Incentive (n = 27)	Installation Contractor (n = 24)	Energy Trust Representative (n = 21)	Information and materials from Energy Trust (n = 23)
High	24 of 27	17 of 24	9 of 21	11 of 23
Medium	2 of 27	1 of 24	5 of 21	8 of 23
Low	1 of 27	4 of 24	5 of 21	3 of 23
Don't know or no answer	0 of 27	2 of 24	2 of 21	1 of 23

Participants typically said that, without the program, they would either not have taken any energy saving action (most frequently reporting they would have postponed installing a solar PV system for a year or more) or that they would have installed the exact same system (Table 113).

[28] Satisfaction was defined as a rating of 4 or 5 on a scale from 1 (not at all satisfied) to 5 (very satisfied).

Table 113. Actions Would Have Taken without Program Support (n = 28)

Action	Count
Would not have taken energy saving action	17 of 28
Would not have installed the system	4 of 28
Would have postponed project for a year or more	13 of 28
Would have installed a smaller system	1 of 28
Would have installed exactly the same system and firm would have paid the full cost [a]	7 of 28

[a] And who affirmed that their firm would have made the funds available.

Of the 28 surveyed Commercial Solar participants, 20 reported they had applied for the Federal Tax Credit and seven reported they had used financing to purchase their system. Of the 23 Commercial Solar participants who reported receiving any contractor bids, five had received bids from a single contractor, 17 had received bids from two to four contractors, and one received bids from six contractors.

Table 114 summarizes open-ended participant feedback on how to improve the Commercial Solar program.

Table 114. Program Feedback Provided by Commercial Solar Participants (n=28) (Multiple Responses Allowed)

Feedback	Count
General positive feedback about the program	5 of 28
Advertise more / make people aware of Energy Trust	1 of 28
Offer more technical assistance or services	1 of 28
Issues with getting project approved by utility	1 of 28
Additional contractors needed	1 of 28
No feedback provided	19 of 28

6. Conclusions

The research team's findings led to the following conclusions regarding the Fast Feedback survey results.

Conclusion 1: Both residential and nonresidential participants are highly satisfied with Energy Trust overall, and nonresidential participants are similarly highly satisfied with their program representative.

Conclusion 2: Although still reasonably high, satisfaction with the information their contractor provided them regarding Energy Trust incentives was consistently the least satisfied item among residential participants.

Conclusion 3: Although still reasonably high, satisfaction with incentive turnaround time was consistently the least satisfied item among nonresidential participants.

Conclusion 4: There has been a trend of increased free-ridership among nonresidential programs, with similarly shaped increases in free-ridership over the past two to four program years for the nonresidential Existing Buildings, Existing Multifamily, and Production Efficiency programs.

Conclusion 5: Although many residential participants are unaware of Energy Trust's approved trade ally list, this lack of awareness does not seem to impede ease of finding a contractor.

Conclusion 6: In line with Energy Trust's DEI (diversity, equity, and inclusion) initiatives, Energy Trust may have room for improving participation among non-white Oregonians (particularly among Hispanic populations), as non-white Oregonians are disproportionately underrepresented in most surveyed residential quota groups.

Conclusion 7: The current method for collecting Fast Feedback surveys is successfully garnering sufficient participant responses while also balancing survey administration costs.

For more information, please contact:

Zac Hathaway
Managing Consultant

503-943-2371 tel
zhathaway@opiniondynamics.com

3934 NE Martin Luther King, Jr. Blvd. Suite 300
Portland, OR 97212