### **FINAL REPORT**





# Final Report for the SoCalGas Energy Savings Assistance Smart Thermostat Pilot

Submitted to Southern California Gas Company

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# **1 Executive Summary**

Southern California Gas Company's (SoCalGas) Energy Savings Assistance (ESA) Smart Thermostat Pilot is designed to understand the impact of featuring the smart thermostat measure in program marketing materials. The ESA program offers various energy-saving home improvements, at no cost, to qualified low income customers within the SoCalGas service territory to reduce energy consumption and spending, while also improving participants' comfort, safety, and health.<sup>1</sup>

The primary objective of the ESA Smart Thermostat Pilot is to test whether featuring a smart thermostat in program marketing materials increases the participation of high usage, low income customers who have not participated in the ESA program previously. To meet this objective, SoCalGas first created a list of 50,000 high usage customers that were likely to be eligible for ESA. These customers were randomly split into test and control groups. As shown in Figure 1-1, the test group received a marketing letter that featured the smart thermostat offer prominently and the control group received a solicitation that listed the full range of ESA offerings, including a smart thermostat. Overall, 47,017 of the 50,000 customers were included in the pilot<sup>2</sup>.

Figure 1-1: ESA Smart Thermostat Pilot Marketing Materials

# Test Group (Focuses on Smart Thermostat)



# Control Group (Includes other Home Services)



phone, tablet or laptop

<sup>&</sup>lt;sup>1</sup> ESA improvements include attic insulation, water heater insulation, weatherization improvements, and the repair or replacement of natural-gas-fired furnaces or water heaters. A full list of measures is available online: <a href="https://www.socalgas.com/save-money-and-energy/assistance-programs/energy-savings-assistance-program">https://www.socalgas.com/save-money-and-energy/assistance-programs/energy-savings-assistance-program</a>

<sup>&</sup>lt;sup>2</sup> Of the 50,000 targeted customers, approximately 3,000 customers needed to be removed from the pilot before the second wave of marketing materials were sent out in order to meet the ESA program treatment goals. These customers are excluded from the analysis in order to ensure that the results are limited to customers who remained in the pilot for the entirety of the study scope.

# 1.1 Summary of Results

In total, 1,343 customers have accepted the ESA Smart Thermostat Pilot offer, an acceptance rate of 2.9%. The majority of customers who accepted the offer also ended up installing an ESA measure, with 2.4% of targeted customers installing an ESA measure as a result of the pilot. Figure 1-2 summarizes the number of customers who signed an ESA agreement, had an ESA measure installed, and had a smart thermostat installed as a result of the pilot. By the beginning of 2020, the percent of customers with a signed ESA agreement in the test marketing group was 12% higher than the control group (3.02% vs. 2.69%, respectively), which is a statistically significant difference. Therefore, it is clear that emphasizing the smart thermostat and its associated benefits in the marketing materials increases interest in the ESA Program. However, the total number of customers that received a smart thermostat as a result of the pilot remains low, with only 0.36% of targeted customers having an installed smart thermostat as a result of the pilot.

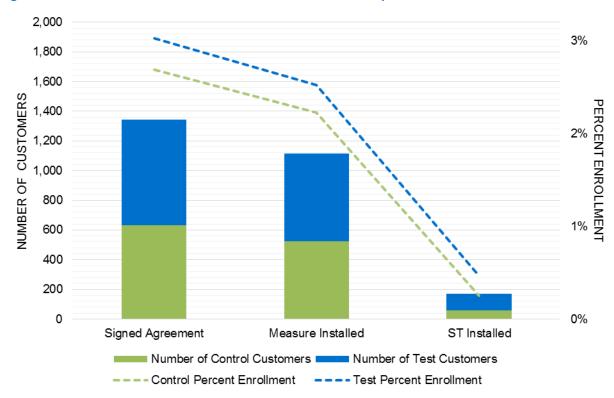


Figure 1-2: Cumulative Enrollment for Test and Control Groups

A random sample of 3,200 customers who declined the smart thermostat offer were included in a non-participant survey to gain insight into recall of the offer and potential barriers to enrollment. The mixed-mode survey achieved a high response rate of over 25%. The survey provided further evidence that emphasizing the smart thermostat in marketing materials increases interest in the program, given that recall of the offer was 67% higher in the test group as compared to the control group (40% versus 24%). The non-participant survey also found that respondents are generally satisfied with SoCalGas (98%), aware of the ESA Program (58%),

eligible for ESA (up to 82%) and engaged (over 25% survey response rate). Finally, the survey found that the main reason for declining the offer was the perception that the customer's existing thermostat worked fine, suggesting that further improvements to the marketing materials could be made to emphasize smart thermostat benefits as compared to the customer's existing thermostat.

Customers who received a smart thermostat as a part of the pilot were also surveyed in order to gain insight into their ESA enrollment experience and their satisfaction with their new smart thermostat. The online survey had a response rate of 23%. The survey provided evidence that customers who did receive a smart thermostat generally had a positive experience with ESA enrollment (97%), were highly satisfied with their new smart thermostat (81%), and used their smart thermostat on a regular basis (50% interacted with their smart thermostat at least once per week).

### 1.2 Recommendations

Based on the enrollment results and survey insights, Nexant recommends that SoCalGas:

- Continue testing alternative ESA Program marketing materials that focus on the smart thermostat and emphasize benefits relative to the customer's existing thermostat, especially cost savings, using more personalized messaging that leverages customerspecific Advanced Meter data.
- Integrate ESA program smart thermostat messaging into other recruitment channels, such as the website, behavioral program offerings, general advertising, and contractor materials.
- 3. Streamline the customer experience by expediting the ESA qualification process, including pre-qualification when possible, and by reducing the hassle associated with contractor visits, which will ensure that significantly more customers who indicate interest actually end up scheduling their smart thermostat installation.

# 2 Introduction

Southern California Gas Company's (SoCalGas) Energy Savings Assistance (ESA) program offers various energy-saving home improvements, at no cost, to qualified low income customers within the SoCalGas service territory.<sup>3</sup> Other California utilities offer their own versions of the ESA program and these programs are administered by the California Public Utilities Commission (CPUC) to help low income households reduce energy consumption and spending, while also improving participants' comfort, safety, and health.

On December 19, 2018, the CPUC approved the addition of smart thermostats (also called programmable communicating thermostats) to the SoCalGas ESA program and will use the results of the Pilot to "determine the value of the measure for the next application cycle."

As discussed in Advice Letter 5311,<sup>5</sup> enrolling first-time customers in energy efficiency (EE) programs has become increasingly difficult in recent years — despite the fact that SoCalGas identified approximately 800,000 eligible customers for the ESA program who remain untreated. This pilot project focused on providing high usage ESA-eligible customers with a smart thermostat.

Customers who signed up for the program and met eligibility criteria received a Nest Smart Thermostat E, which was installed in their residence by an authorized contractor at no cost. By enrolling these customers, SoCalGas aims to assist low income customers in saving energy and reducing their bills, while also ensuring SoCalGas effectively manages periods of high natural gas demand.

The primary objective of this evaluation was to test whether featuring a smart thermostat in program marketing materials increased the participation of high usage, low income customers who have not participated in the ESA program previously. A secondary objective was to follow up the test marketing materials with surveys of participants and non-participants to better understand customer awareness, preferences, and barriers to enrollment. The surveys and enrollment analysis informed conclusions and recommendations for leveraging smart thermostats to improve the ESA program going forward.

The remainder of this report proceeds as follows:

• **Section 3** summarizes the methodology for testing marketing materials using experimental design and conducting the surveys of participants and non-participants.

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<sup>&</sup>lt;sup>3</sup> ESA improvements include attic insulation, water heater insulation, weatherization improvements, and the repair or replacement of natural-gas-fired furnaces or water heaters. A full list of measures is available online: <a href="https://www.socalgas.com/save-money-and-energy/assistance-programs/energy-savings-assistance-program">https://www.socalgas.com/save-money-and-energy/assistance-programs/energy-savings-assistance-program</a>

<sup>&</sup>lt;sup>4</sup> Disposition of Advice Letter 5325, https://socalgas.com/regulatory/tariffs/tm2/pdf/5325.pdf

<sup>&</sup>lt;sup>5</sup> For more information: https://www.socalgas.com/regulatory/tariffs/tm2/pdf/5311.pdf

- Section 4 compares the pilot enrollment results for the treatment and control groups.
- **Section 5** details the participant and non-participant survey results.
- Section 6 provides the conclusions and recommendations.
- The two appendices include the survey instruments.

# 3 Methodology

The evaluation used test and control groups to compare ESA program call backs and enrollment rates of high usage low income customers who did and did not receive marketing materials with the smart thermostat as the primary appeal. SoCalGas identified the target customers from the remaining untreated customers and assigned the following test and control groups:

- Smart thermostat marketing materials (Test); and
- Business as Usual marketing materials (Control).

In addition, to better understand customer awareness, preferences, and barriers to enrollment, this study also utilized two opinion surveys. The first survey was sent to a sample of those who declined to accept the smart thermostat offer. The second survey was sent to those who accepted the offer and received a smart thermostat as a part of the program.

## 3.1 Selection of Treatment and Control Groups

SoCalGas determined the makeup of the test and control groups by drawing on residential customers in the three counties with relatively high heating load and the highest proportion of hard-to-reach, low income customers: Riverside, San Bernardino, and Imperial counties. Qualifying customers:

- Had a SoCalGas service account active for at least one year;
- Had a forced-air unit (FAU);
- Had WiFi and an email address:
- Were eligible for ESA, or were eligible for, or enrolled in, the California Alternate Rates for Energy (CARE) program;<sup>6</sup> and
- Were high energy users (top 40<sup>th</sup> percentile of CARE customers).

Once SoCalGas created a list of 50,000 customers who met the criteria above, they were randomly selected to receive either a marketing letter that features the smart thermostat offer prominently (Figure 3-1), or a marketing letter that lists the full range of ESA offerings, including a smart thermostat (Figure 3-2).

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<sup>&</sup>lt;sup>6</sup> More information about SoCalGas CARE program is online at: https://www.socalgas.com/save-money-and-energy/assistance-programs/california-alternate-rates-for-energy

Figure 3-1: Test Group Smart Thermostat Marketing Offer



You may be eligible to receive a new, \$169 **Nest Smart Thermostat E** at no cost. Through the Energy Savings Assistance Program, authorized contractors will professionally install the smart thermostat in your home. To qualify, you or someone in your household must be enrolled in a public assistance program or meet the income qualifications.

A smart thermostat helps you save energy and money in different ways, while making you feel more comfortable at home:



Remembers the temperature you like



Turns itself down when you're away



Control it from anywhere using your phone, tablet or laptop

Figure 3-2: Control Group Full Range Marketing Offer



You may be eligible to receive a **Nest Thermostat E** and other energy-saving home services at no cost through the Energy Savings Assistance Program. To qualify, you or someone in your household must be enrolled in a public assistance program or meet the income qualifications.



Marketing materials were sent out in two waves, with the first wave of marketing materials sent in April and the second wave of materials sent out in early June. Once the marketing materials were sent out, SoCalGas tracked the customer responses to the two marketing surveys so that the treatment and control response rates could be compared. Additionally, Nexant sent those who declined to participate a short opinion survey to assess their reasons for not enrolling. At the end of the winter season, customers who received a smart thermostat were sent a similar short opinion survey to assess their experience with the smart thermostat and their attitude towards the Pilot.

Of the 50,000 targeted customers, approximately 3,000 customers needed to be removed from the pilot before the second wave of marketing materials were sent out in order to meet the ESA program treatment goals. These customers were excluded from the analysis in order to ensure that the results are limited to customers who remained in the pilot for the entirety of the study. Therefore, the remainder of this report is based on the 47,017 customers who remained in the pilot for the full pilot duration.

Figure 3-3 provides a map of the 47,017 customers who participated in the ESA pilot. The vast majority of customers selected were located in Riverside and San Bernardino counties, with fewer customers located in Imperial County.

Figure 3-3: Map of ESA Pilot Participants

## **3.2 Customer Surveys**

As noted above, Nexant developed and implemented a total of two customer surveys to better understand customer awareness, preferences, and barriers to enrollment. The surveys were designed as follows:

- Survey 1: Short survey of non-respondents to the awareness campaign that ran from July 2019 through August 2019. This survey was designed to assess customer's awareness of ESA, reasons for not enrolling, and appeal of the smart thermostat offer. Section 4 summarizes the results for this survey.
- Survey 2: Survey of ESA Smart Thermostat Pilot participants that ran in May 2020 after participants had the opportunity to receive and use the thermostat. This survey was designed to assess customer experience with ESA, the appeal of the smart thermostat, and use and value of the smart thermostat.

Figure 3-4 outlines the workflow for targeting survey respondents. The Awareness Campaign was deployed in April 2019. Customers who did not respond to the Awareness Campaign by July 8, 2019 were considered non-participants. Customers who responded to the ESA offer were then assessed for the ESA program and, if they qualified, had a smart thermostat installed in their residence. These customers were recruited for the participant survey (Survey 2) in May 2020.

Deploy Awareness
Campaign

Did customer respond?

Yes—FSA and thermostat qualification

Find

No Qualifies for thermostat?

Survey 2

Figure 3-4: Flowchart of Survey Targets

### Non-Participant Survey Design

From the pool of non-participants, 3,200 customers were randomly selected to take the non-participant survey (Survey 1). The random sample was split evenly between customers who received the control and test ESA offer (1,600 per group). Recruitment for the non-participant survey began on July 8, 2019, when participants were sent letter in the mail with a \$2 bill preincentive and online survey link. The text of the survey instrument is provided in Appendix A. For customers that did not respond online, Nexant sent two follow-up emails (if available), a reminder postcard and letter with a paper copy of the survey. Table 3-1 depicts the full implementation schedule for the non-participant survey.

**Table 3-1: Non-Participant Survey Implementation Schedule** 

Piece	Schedule
Online survey (English and Spanish)	Available online July 8, 2019
Recruitment letter and \$2 incentive	Mailed July 8, 2019
First reminder email (for those with email)	Emailed July 11, 2019
Paper survey and cover letter	Mailed July 15, 2019
Second reminder email	Emailed the week of July 18, 2019
Reminder postcard	Mailed July 24, 2019

Table 3-2 shows the questions included in the ESA Smart Thermostat Pilot non-participant survey, and indicates which questions survey recipients responded to (customers who did not recall receiving the offer were not asked about their reasons for declining). In addition to being asked about their recollection and experience with receiving the smart thermostat offer, customers were also asked general demographic questions as well as questions about their overall experience with services offered by SoCalGas.

**Table 3-2: Non-Participant Survey Questions** 

Topic	Question	Group
SoCalGas	Level of satisfaction with SoCalGas	All survey recipients
Experience	Awareness of ESA program	All survey recipients
_	Thermostat ownership	All survey recipients
Program Eligibility	Income and household size	All survey recipients
9,	Household heating systems	All survey recipients
	Recollection of receiving marketing materials	All survey recipients
Marketing	Perception of enrollment	Customers who recall receiving marketing materials
Experience	Reasons for declining	Customers who recall receiving marketing materials
	Engagement with SoCalGas about the offer	Customers who recall receiving marketing materials
Demographics	Household, age, income, home ownership	All survey recipients

#### Participant Survey Design

The participant survey (Survey 2) was implemented online and was sent to all customers who received a smart thermostat and had a valid email address. A total of 169 customers received a smart thermostat as a part of the pilot, with a significantly larger portion of the customers who received a smart thermostat belonging to the test group (110 test vs. 59 control). All customers who completed the survey received a \$25 Amazon gift card. Recruitment for the participant survey began on May 11, 2020, when participants were sent an email with an online survey link. The text of the survey instrument is provided in Appendix B. For customers that did not respond, Nexant sent two follow-up emails. Table 3-3 depicts the full implementation schedule for the participant survey.

**Table 3-3: Participant Survey Implementation Schedule** 

Piece	Schedule
Online survey (English)	Available online May 11, 2020
Recruitment email	Emailed May 11, 2020
First reminder email	Emailed May 14, 2020
Second reminder email	Emailed May 18, 2020

Table 3-4 shows the questions included in the ESA Smart Thermostat Pilot participant survey (all respondents responded to all questions). In addition to being asked about their experience with ESA and their smart thermostat, customers were asked general demographic questions as well as questions about their overall experience with services offered by SoCalGas.

**Table 3-4: Participant Survey Questions** 

Topic	Question
	Level of satisfaction with SoCalGas
SoCalGas Experience and Smart	Recollection of ST offer
Thermostat Offer	Consideration of ST purchase prior to offer
	Reasons for accepting offer
FCA Favolles out Fyravion of	Level of satisfaction with overall experience
ESA Enrollment Experience	Perception of ESA enrollment aspects
	Level of satisfaction with Nest ST
Nest Smart Thermostat	Perception of home comfort before/after ST installation
Experience	Perception of ST benefits
	Use of ST
Demographics	Household, age, income, home ownership

# 4 Pilot Enrollment

Figure 4-1 summarizes the percent enrollment in the pilot, broken out between test and control customers. It is important to note that there are several steps required to fully enroll in the ESA Program, including screening customers for program eligibility and conducting an in-home audit to identify appropriate EE measures. We looked at four different levels of enrollment: customers that have indicated interest in the program (either online or by phone), customers who have signed an ESA agreement, customers who have had an ESA measure installed, and customers who have had a smart thermostat installed.

As a result of the pilot, 10.5% of participants have indicated interest in ESA, 2.9% of pilot participants have signed an ESA agreement, 2.4% of pilot participants have had an ESA measure installed, and 0.4% of pilot participants have had a Nest smart thermostat installed. Overall, we see significantly higher levels of enrollment for the test group compared to the control group. Customers who received the test marketing materials were 12% more likely to sign an ESA agreement and 86% more likely to install a smart thermostat compared to the control group.

Generally, we see a large drop-off from interested customers to customers who sign an ESA agreement. This is in part due to the fact that there are several steps between indicating interest and signing an ESA agreement, including a preliminary eligibility check for the program. Additional reasons for not continuing after indicating interest are noted in Figure 4-5. We also see that only 15% of customers who installed an ESA measure ended up installing a smart thermostat. This was due either to the customer not selecting the smart thermostat as an ESA measure or the customer not qualifying for the smart thermostat measure.

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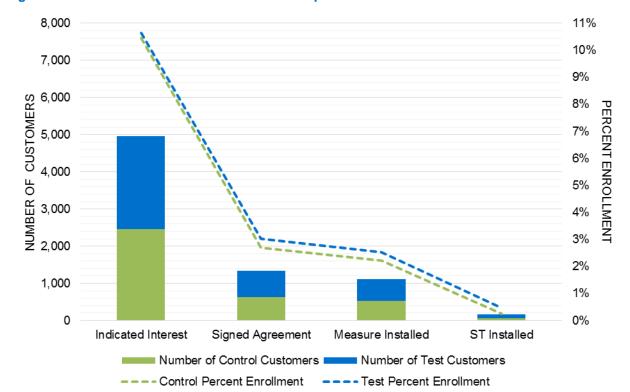


Figure 4-1: Enrollment for Test and Control Groups

## **4.1 Enrollment over Time**

Figure 4-2 illustrates the percent of pilot customers who accepted the smart thermostat offer over time for the test and control groups. From when marketing materials were initially sent out in April 2019, we see a steady increase in the percent of customers who have signed an ESA agreement throughout the remainder of 2019 for both groups, before leveling out at the beginning of 2020. When the level of enrollment flattened out, the test marketing group acceptance rate was 12% higher than the control group (3.02% vs. 2.69% respectively), which is a statistically significant difference.

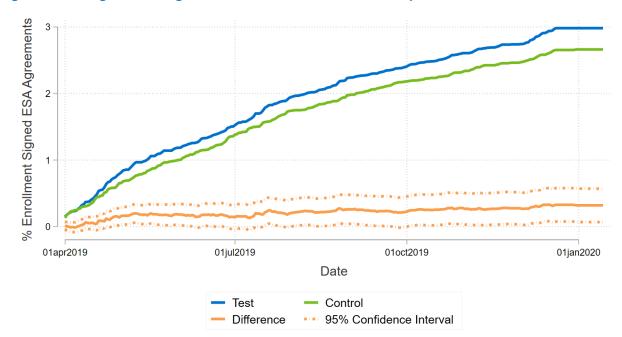


Figure 4-2: % Signed ESA Agreements for Test and Control Groups

Of the 1,343 customers who accepted the pilot offer, 1,117 customers have had an ESA measure installed (2.4% of targeted customers). Figure 4-3 depicts the percent of targeted customers with ESA installations over time for the test and control groups from April 2019 when the marketing materials were sent out through the beginning of 2020 when we saw no new ESA installations. Similar to the acceptance of the ESA offer, we see a statistically significant difference between the test and control groups in terms of ESA measure installation rates, and a steady increase in the percent of customers who have installed an ESA measure over time. By early January when enrollment leveled off, the test marketing group installation rate was 13.5% higher that of the control group (2.53% vs. 2.23%, respectively).

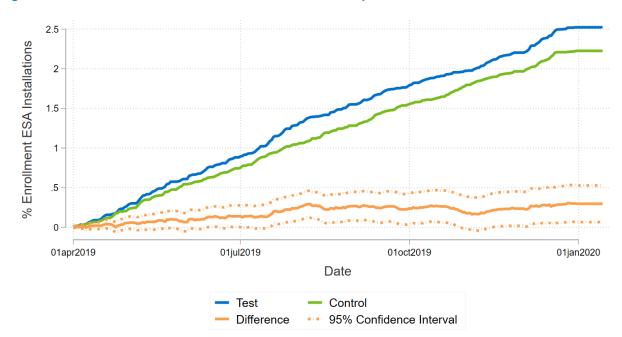


Figure 4-3: % ESA Installations for Test and Control Groups

Of the 47,017 customers who were targeted with the smart thermostat offer and 1,117 customers who have installed an ESA measure, only 169 customers had a smart thermostat installed in their home as a result of the pilot (0.4% of targeted customers). Figure 4-4 depicts the number of smart thermostat installations over time for the test and control groups from April 2019 when the marketing materials were first sent out through the beginning of 2020 when we saw no new smart thermostats installed. Despite the low installation rate, we still see a highly statistically significant difference between the test and control groups in terms of installation rates. By early January when enrollment leveled off, the test marketing group installation rate was almost twice that of the control group (0.47% vs. 0.25%, respectively).

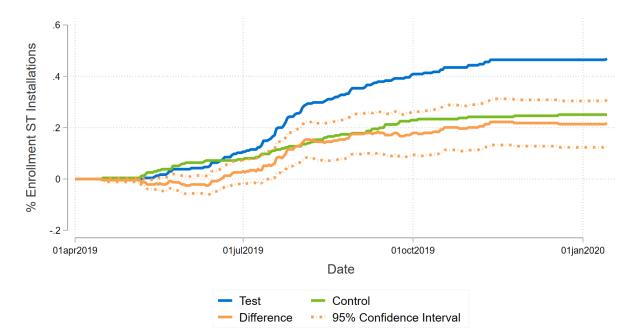


Figure 4-4: % Smart Thermostat Installations for Test and Control Groups

## 4.2 Enrollment Barriers

As a part of the enrollment process, SoCalGas collected data on why customers who indicated interest in the pilot did not end up enrolling. Figure 4-5 summarizes the most common reasons for failed enrollments. Most of the issues were related to contacting customers, with 63% of failed enrollments due to customers not responding and 15% of failed enrollments due to SoCalGas being unable to contact the customer.

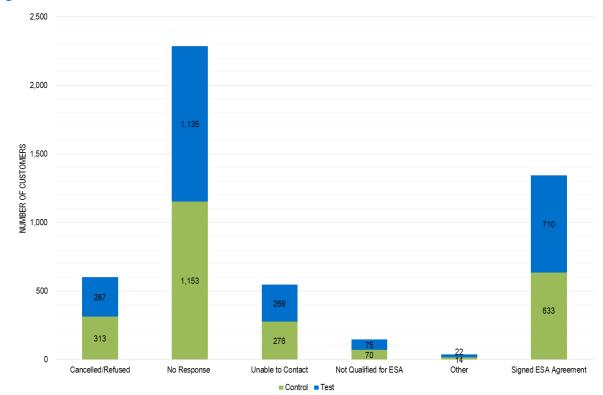
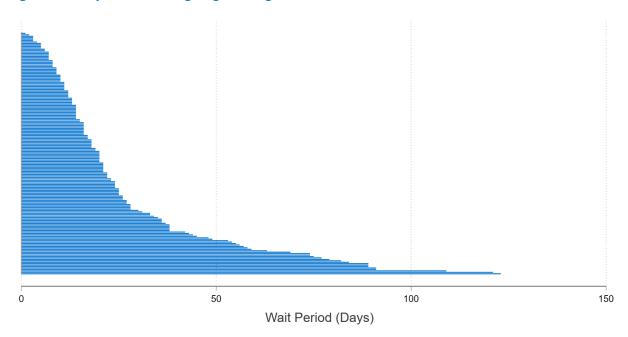


Figure 4-5: Reasons for Failed Enrollment

For customers who received smart thermostat installations, Nexant additionally examined the amount of time it took to install the smart thermostat measure in a customer's home after they signed the ESA agreement. Figure 4-6 depicts the length of time in days between the customer signing the ESA agreement and the customer receiving a smart thermostat. Overall, there was a very wide range in the amount of time it took for customers move forward with the smart thermostat installation after signing the ESA agreement, with some customers taking as little as one week and other customers taking up to four months. On average, it took customers approximately one month after signing the ESA agreement to receive the smart thermostat installation.

Figure 4-6: Days between Signing ESA Agreement and Smart Thermostat Installation



# **5 Survey Results**

This section details the results of the non-participant and participant surveys.

## **5.1 Non-participant Survey Results**

#### Non-Participant Survey Response Rate

The non-participant survey had a target of 800 completes, with 300 to 500 completes for the test and control marketing groups. Overall, the survey had a response rate of over 25%, with 812 completed surveys. The survey responses were split nearly evenly between the two groups, with 402 responses from the test group and 410 responses from the control group. Figure 5-1 summarizes the method used to complete the survey. Overall, 60% of respondents completed the survey online, split between customers who used the link from mailed letter and customers who used the link from the email. The remainder of survey respondents mailed in the paper version of the survey. The split in the method used to complete the survey depicts the benefits of using a mixed mode survey to obtain customer responses.

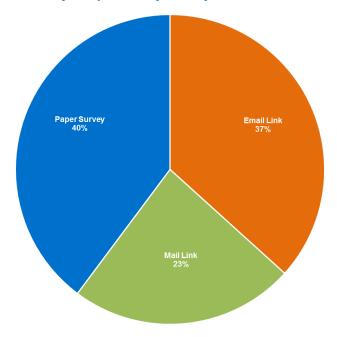


Figure 5-1: Distribution of Survey Responses by Survey Mode

#### SoCalGas and ESA Awareness

The results for questions discussed in this sub-section capture perceptions of SoCalGas and awareness of the ESA Program as reported by the subset of participants who took the survey. Figure 5-2 depicts respondent satisfaction with SoCalGas. Overall, there is a high level of satisfaction with SoCalGas, with 79% of respondents indicating that they were very satisfied and 19% of respondents indicating that they were somewhat satisfied.

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Figure 5-2: Thinking of all of the services you receive from SoCalGas, how satisfied are you?

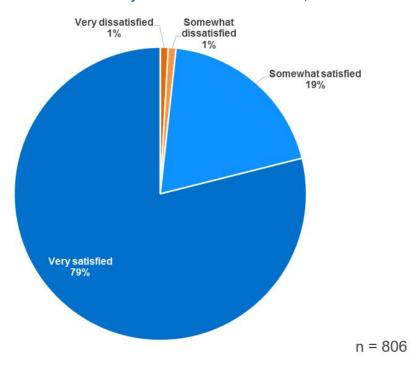
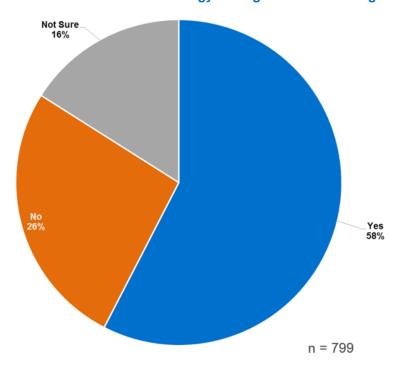


Figure 5-3 shows responses to the question about customer awareness of the ESA Program. Overall, there was a relatively high level of program awareness, with 58% of respondents having heard of the program, and 16% unsure of whether they have heard of the program.

Figure 5-3: Have you heard of the SoCalGas Energy Savings Assistance Program?



#### Recall of ESA Smart Thermostat Offer and Reasons for not Enrolling

The following questions were asked to determine how customers interacted with the ESA Smart Thermostat Pilot marketing materials they were sent, including their recall of the offer and possible reasons for declining the offer.

Survey respondents were asked whether they recalled receiving an offer for a new Nest Thermostat at no cost. Figure 5-4 depicts the percent of customers who recalled receiving the offer, broken out by marketing strategy. Overall, customers in the test group had a 67% higher recall than the control group, with 40% of test group respondents recalling the offer compared to 24% of control group respondents. This difference was found to be statistically significant, indicating that customers who received marketing materials that focused solely on the smart thermostat offer were more likely to recall receiving the offer.

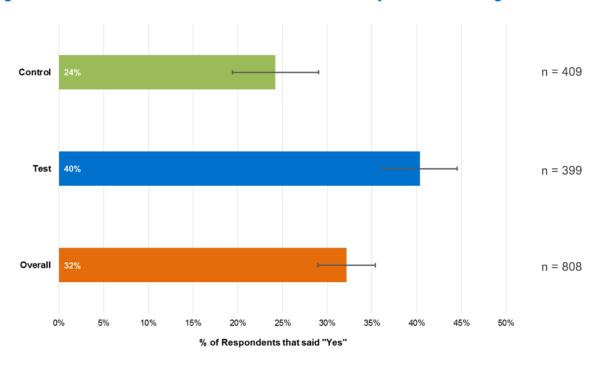


Figure 5-4: We offered a new Nest Thermostat at no cost. Do you recall receiving this offer?

Customers who recalled receiving the offer for a smart thermostat were then asked follow-up questions about their perception of whether they applied for the offer as well as reasons they may have declined the offer. Figure 5-5 depicts the percent of customers who recall applying for the smart thermostat offer, broken out by marketing strategy. Overall, almost 4% of all survey respondents recall applying for the smart thermostat offer, which is higher than the 3% of all customers who are recorded as having accepted the offer. This indicates that there is a possible misunderstanding by survey respondents about whether they applied for the program. Approximately 10% of customers who indicated that they applied for the offer did indicate an interest in enrolling in ESA online, but did not end up signing an ESA agreement. However, the remaining customers are not recorded as having enrolled in the program.

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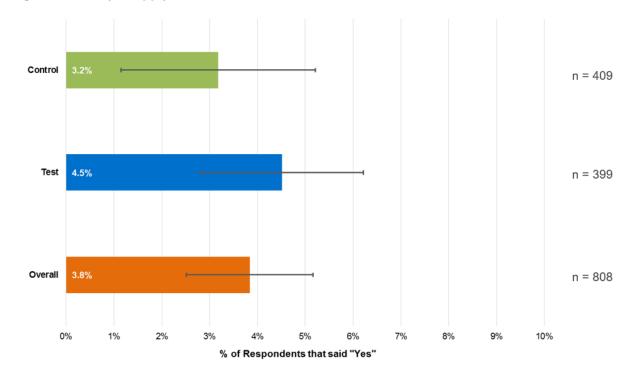


Figure 5-5: Did you apply for the offer?

Figure 5-6 ranks the reasons why customers declined the smart thermostat offer. It is important to note that only around 200 of the approximately 800 survey respondents recalled receiving the offer and thus were able to rank the importance of the reasons in Figure 5-6. The reason most commonly ranked as a "Somewhat Important" or "Very Important" for declining was "The thermostat I have works just fine," indicating that most customers did not feel a smart thermostat would be enough of an improvement from their current thermostat to justify enrolling in the program. Other important reasons listed included customers feeling that having a contractor coming out would be too much of a hassle and customers not being interested in the offer.

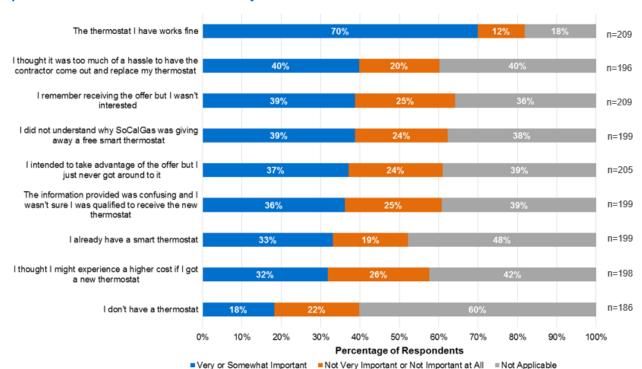


Figure 5-6: The following are reasons why you may have declined the offer. Please indicate how important each of these reasons was to you.

Customers were additionally asked an open-ended question where they were allowed to list a separate for declining. While the answers varied, there were three relatively common themes for declining. First, 44 customers stated that they already had a smart thermostat or their existing thermostat worked sufficiently well. Second, 37 customers stated that they felt they were unqualified for the program, either because they rent their home or because they did not meet the income requirement. Finally, 36 customers mentioned that they recalled receiving the offer but stated that they had not yet gotten around to applying for the offer. The stated reasons generally align with historical barriers SoCalGas has experienced when trying to get customers to enroll in the ESA Program. Home ownership in particular has been a major barrier for customers who are otherwise eligible for the ESA program. While renters can enroll in the ESA program they must first obtain permission from their landlords to install ESA measures, which historically been a difficult process for customers eligible for the ESA program.

#### **Program Eligibility**

The results for questions discussed here capture whether the customers that SoCalGas targeted for the ESA Program were likely eligible for the smart thermostat offer. Figure 5-7 and Figure 5-8 depict the distribution of heating systems in the homes of survey respondents and the portion of customers who currently control their heating systems using a thermostat. Overall, 72% of surveyed customers had central gas forced air heating systems and 89% of customers controlled their heating systems with a smart thermostat. This indicates that a high portion of surveyed customers have the heating system required to be eligible for the smart thermostat measure.

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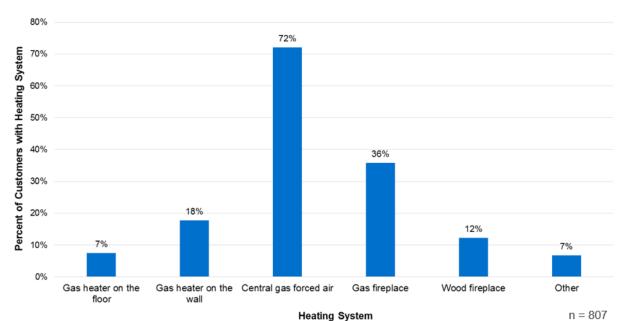
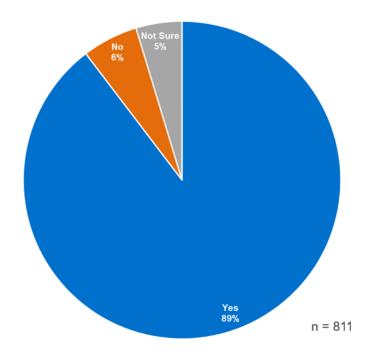


Figure 5-7: Select each type of heating system you have in your home.





Nexant additionally calculated how many customers would be eligible for the ESA Program based solely on their reported income and the number of members in their household. Figure 5-9 summarizes program eligibility broken out based on home ownership. Overall, 54% of customers were eligible for the ESA program based solely on these two characteristics. However, half of the eligible customers did not own their homes, which has historically been a relatively large barrier to enrollment in the ESA program.

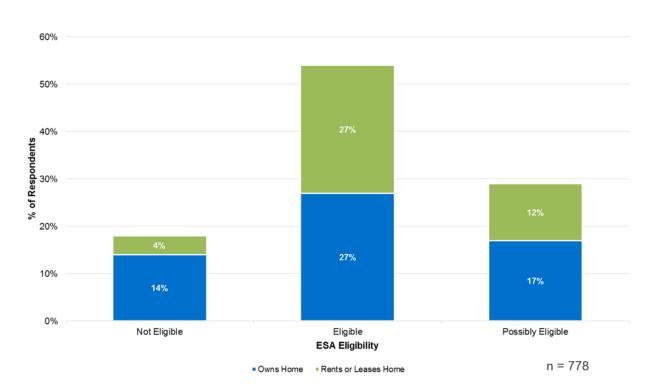


Figure 5-9: Percent of customers eligible for ESA based on household income and number of household members

### **Demographics**

All survey participants were asked demographic questions at the end of the survey. These questions provide insights about who took the survey. Participants were asked questions about their education level, household size, income, and residence ownership.

With respect to education, 43% of households had someone with a college degree, as shown in Figure 5-10. An additional 25% of households had someone who had some college education, but no degree. When looking at household income, 66% of the households surveyed have an annual income below \$50,000, as seen in Figure 5-11.

Figure 5-10: What is the highest grade of schooling anyone in your household has completed?

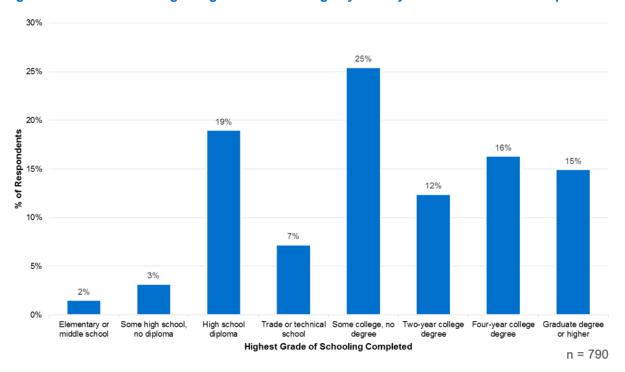


Figure 5-11: Which describes your total household income from all sources in 2018, before taxes?

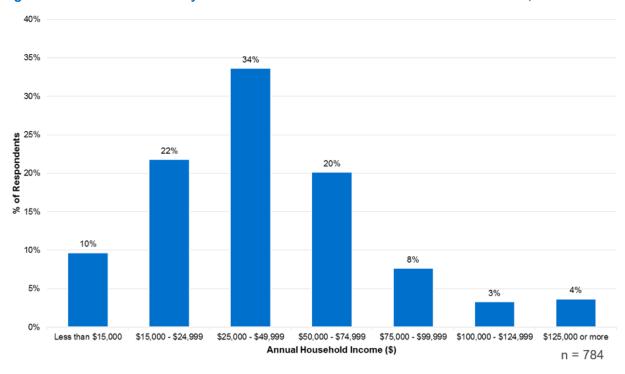


Figure 5-12 depicts the average number of occupants in the households surveyed based on their age group. Overall, there was a relatively even distribution of age groups represented in the households surveyed, with an average household size of four members. The survey additionally found that on average 1.4 members per household worked outside the home.

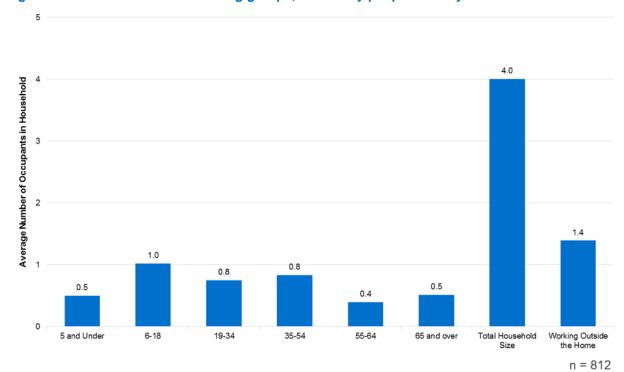


Figure 5-12: For each of the following groups, how many people live in your home?

## **5.2 Participant Survey Results**

#### Participant Survey Response Rate

The participant survey originally had a target of 800 completes, with 300 to 500 completes for the test and control marketing groups. However, because so few smart thermostats were installed (169 total) this original target was revised to account for lower than expected enrollment. Survey recruitment was also limited to customers for whom SoCalGas had a valid email address (138 of 169 participants), as the participant survey was online-only. To encourage participation in the survey, the original incentive of \$10 was increased to \$25. Overall, the participant survey had a response rate of 23%, with 32 of the 138 participants ultimately completing the survey. Because all respondents recalled receiving a smart thermostat from SoCalGas, all respondents completed the entire participant survey. Therefore, the figures in the remainder of this section summarize the responses from the 32 customers who completed the survey.

#### SoCalGas and Smart Thermostat Offer

The results for questions discussed in this sub-section capture perceptions of SoCalGas and reasons for accepting the smart thermostat offer as reported by the subset of participants who took the survey. Figure 5-13 summarizes respondent satisfaction with SoCalGas. Overall, there is a high level of satisfaction with SoCalGas, with 63% of respondents indicating that they were very satisfied and 9% of respondents indicating that they were somewhat satisfied.

Neither satisfied nor dissatisfied 3%

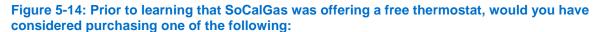
Somewhat dissatisfied 9%

Very dissatisfied 9%

Very dissatisfied 16%

Figure 5-13: Thinking of all of the services you receive from SoCalGas, how satisfied are you?

Figure 5-14 summarizes the portion of customers who would have considered purchasing a smart thermostat without the offer. Overall, 47% of respondents would not have considered purchasing a smart thermostat without the offer from the ESA program.



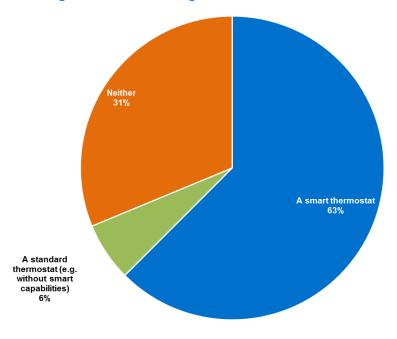


Figure 5-15 summarizes the reasons listed by respondents for accepting the smart thermostat offer. All reasons were considered very or somewhat important by the majority of respondents. Bill savings was the reason listed as very important most frequently, with 88% of respondents listing "Bill savings" as a "Very Important" reason for accepting the smart thermostat offer. Behind that reason, having a "Better understanding of your energy usage" and "Benefits to your home comfort" were listed as "Very Important" by 78% of respondents.

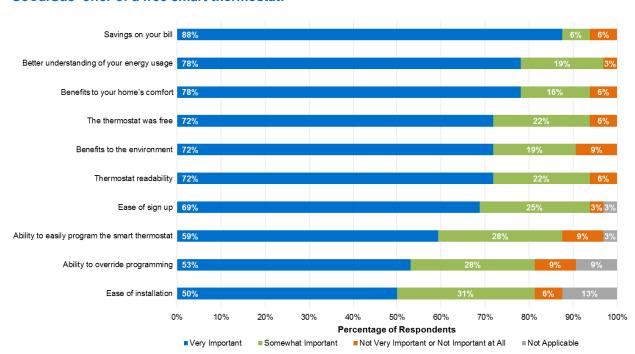
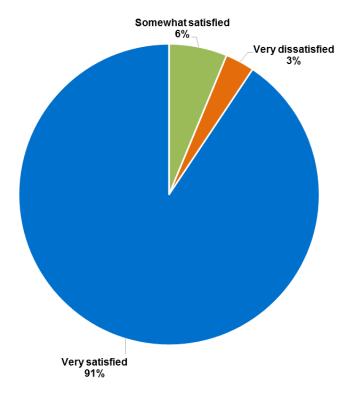


Figure 5-15: Please indicate how important each of the following was in your decision to accept SoCalGas' offer of a free smart thermostat:

#### ESA Enrollment Experience

The following questions were asked to evaluate participants' experience with enrolling in the ESA program. Figure 5-16 summarizes respondent satisfaction with the ESA enrollment process. There was a high level of satisfaction with the overall enrollment experience, with 91% of respondents expressing that they were "Very satisfied".

Figure 5-16: Overall, how satisfied are you with your Energy Savings Assistance Program enrollment experience?



Customers were additionally asked to rate specific aspects of the ESA enrollment process. Figure 5-17 summarizes respondent ratings of the different aspects of the ESA program. Almost half of respondents rated contractors and communication with contractors as excellent, the vast majority of respondents gave a positive rating ("Good", "Very Good", or "Excellent") to all aspects of the ESA enrollment experience. The aspect of the application process that received the most negative ratings was application processing time, with 13% of respondents rating that aspect of the process "Fair" or "Poor".

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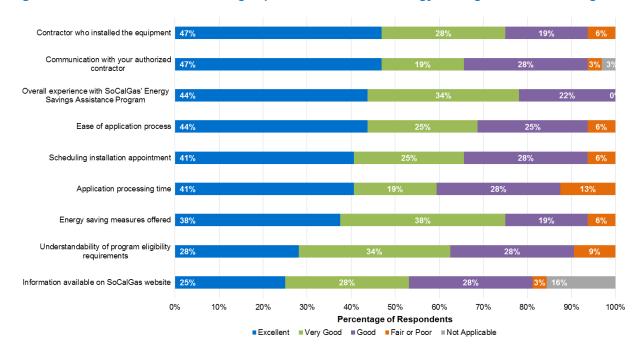


Figure 5-17: Please rate the following aspects of SoCalGas' Energy Savings Assistance Program

#### **Nest Smart Thermostat Experience**

The results for questions discussed here capture how customers feel about their new Nest Smart thermostat. Figure 5-18 summarizes respondent satisfaction with their smart thermostat. Respondents were generally satisfied with their new smart thermostat, with 75% of respondents indicating that they were "Very Satisfied."

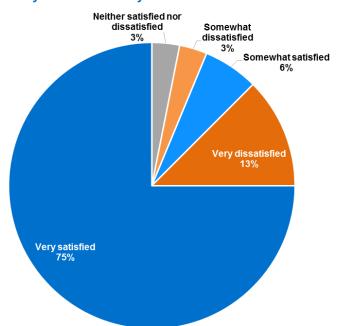


Figure 5-18: How satisfied are you overall with your Nest Smart Thermostat E?

Figure 5-19 summarizes how respondents felt about the comfort of their home before and after they received their smart thermostat. We say that there was a large increase in home comfort after installing a smart thermostat, with only 31% of respondents indicating that their home was "Very comfortable" before installing a smart thermostat, and 85% of respondents indicating that their home was "Very comfortable" after installing their smart thermostat.

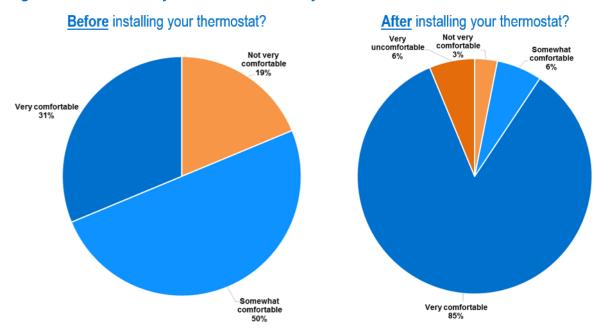


Figure 5-19: How would you rate the comfort of your home:

Figure 5-20 summarizes respondent opinions of different aspects of their smart thermostat, based on their level of agreement with various opinions about their smart thermostat. Based on respondent ratings, we found that respondents generally:

- Felt their smart thermostat was easy to use;
- Would recommend their smart thermostat to a friend, family member, or colleague; and
- Felt their smart thermostat helped them understand their energy usage better.

Figure 5-20: Please indicate how much you agree or disagree with the following statements about your smart thermostat

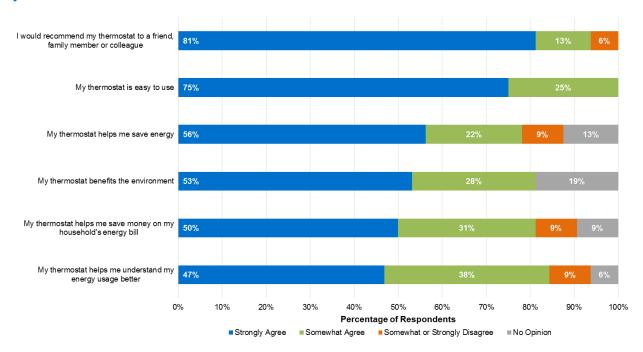
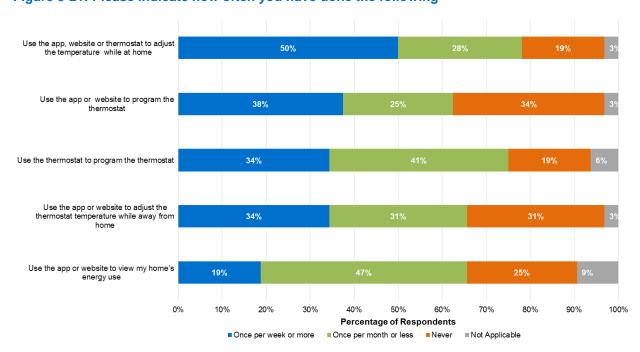


Figure 5-21 summarizes how survey respondents interact with their smart thermostat. Half of respondents interact with their smart thermostat at least once per week by using the app, website, or thermostat to adjust their home temperature while at home. In total, 75% of respondents have programmed the smart thermostat, and over 65% of respondents have used the app or website to view their home's energy use.

Figure 5-21: Please indicate how often you have done the following

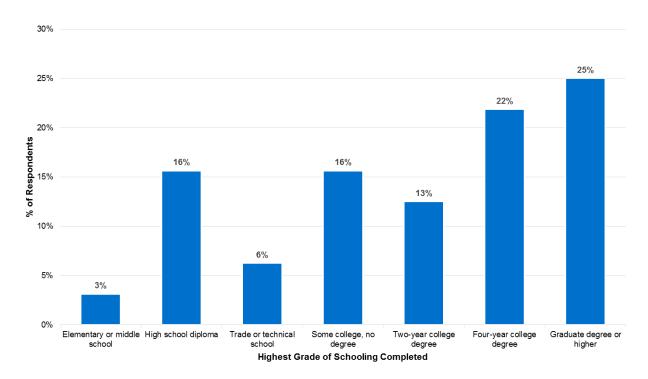


#### **Demographics**

All survey participants were asked demographic questions at the end of the survey. These questions provide insights about who took the survey. Participants were asked questions about their education level, household size, income, and residence ownership.

With respect to education, 59% of households had someone with a college degree, as shown in Figure 5-22. An additional 16% of households had someone who had some college education, but no degree. When looking at household income, 53% of the households surveyed have an annual income below \$50,000, as seen in Figure 5-23.

Figure 5-22: What is the highest grade of schooling anyone in your household has completed?



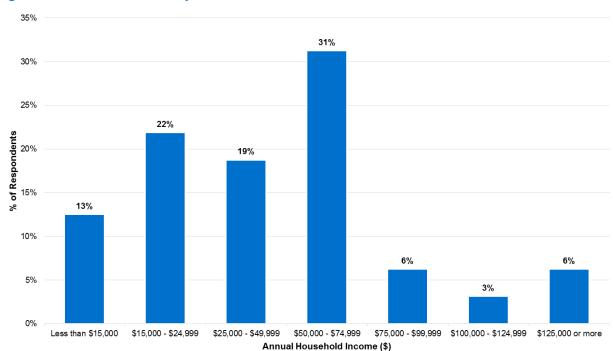


Figure 5-23: Which describes your total household income from all sources in 2018, before taxes?

Figure 5-24 depicts the average number of occupants in the households surveyed based on their age group. Overall, there was a relatively even distribution of age groups represented in the households surveyed, with an average household size of almost six members. The survey additionally found that on average 1.8 members per household worked outside the home.

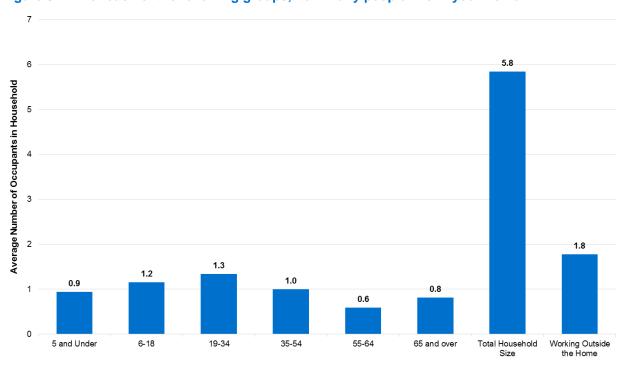


Figure 5-24: For each of the following groups, how many people live in your home?

# **6 Conclusions and Recommendations**

In total, 1,343 customers accepted the ESA Smart Thermostat Pilot offer, an acceptance rate of 2.9%. The test marketing group acceptance rate was 12% higher than the control group (3.02% vs. 2.69%, respectively), which is a statistically significant difference. Therefore, it is clear that emphasizing the smart thermostat and its associated benefits in the marketing materials increases interest in the ESA Program. The majority of customers who signed and ESA agreement also ended up installing an ESA measure, with 2.4% of targeted customers installing an ESA measure. However, the total number of customers that received a smart thermostat as a result of the pilot remains low, with only 0.36% of targeted customers having an installed smart thermostat. The non-participant survey provided further evidence that emphasizing the smart thermostat in marketing materials increases interest in the program, given that recall of the offer was 67% higher in the test group as compared to the control group (40% versus 24%).

The non-participant survey also found that respondents are generally satisfied with SoCalGas (98%), aware of the ESA Program (58%), eligible for ESA (up to 82%) and engaged (over 25% survey response rate). Finally, the survey found that the main reason for declining the offer was the perception that the customer's existing thermostat worked fine, suggesting that further improvements to the marketing materials could be made to emphasize smart thermostat benefits as compared to the customer's existing thermostat.

The participant survey provided evidence that customers who did receive a smart thermostat generally had a positive experience with ESA enrollment (97%), were highly satisfied with their new smart thermostat (81%), and used their smart thermostat on a regular basis (50% interacted with their smart thermostat at least once per week).

Given these results. Nexant recommends that SoCalGas:

- Continue testing alternative ESA Program marketing materials that focus on the smart thermostat and emphasize benefits relative to the customer's existing thermostat, especially cost savings, using more personalized messaging that leverages customerspecific Advanced Meter data.
- Integrate ESA program smart thermostat messaging into other recruitment channels, such as the website, behavioral program offerings, general advertising and contractor materials.
- Streamline the customer experience by expediting the ESA qualification process, including pre-qualification when possible, and by reducing the hassle associated with contractor visits, which will ensure that significantly more customers who indicate interest actually end up scheduling their smart thermostat installation.

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# **Appendix A Non-respondent Survey Instrument**

1.	Thinking of all of the services you receive from SoCalGas, how satisfied are you? Select only one answer  Very satisfied  Somewhat satisfied  Very dissatisfied  Very dissatisfied
2.	The following is a list of home heating systems that you might have in your home. Please place a checkmark next to each type of system you have in your home  Gas heater in the floor Gas heater on the wall Central gas forced air Gas fireplace Wood fireplace Other (please specify):
3.	Are any of these home heating systems controlled by a thermostat mounted on the wall?  Yes  No  Not sure
4.	A few weeks ago, we mailed you an offer to receive a new Nest Smart Thermostat at no cost. Do you recall receiving this offer?  Yes No (skip to Q12) Not sure (skip to Q12)
5.	Did you apply for the offer?  ☐ Yes (skip to Q12) ☐ No ☐ Not sure

6. Below are some reasons why you may have declined the offer to receive a new Nest Smart Thermostat at no cost. Please indicate how important each of these reasons was to you.

	Very Important	Somewhat Important	Somewhat Unimportant	Very Unimportant	Don't Know / Not Applicable
I remember receiving the offer but I wasn't interested					
I don't have a thermostat					
The thermostat I have works fine					
I already have a smart thermostat					
I intended to take advantage of the offer but just never got around to it					
The information provided was confusing and I wasn't sure I was qualified to receive the new thermostat					
I thought I might experience higher costs if I got a new thermostat					
I thought it was too much of a hassle to have the contractor come out and replace my thermostat					
I did not understand why SoCalGas was giving away a free smart thermostat					

7.	Please describe any additional reasons why you declined the offer to receive a new Nest Smart Thermostat at no cost?
8.	Did you call SoCalGas to learn more about the Smart Thermostat offer?  ☐ Yes

☐ No (Skip to Q10)☐ Not sure (Skip to Q10)

9.	Which of the following best describes your experience on this call? (Select one)
	☐ After learning about the Smart Thermostat offer, I was not interested
	I was on hold for too long and hung up
	My questions were not answered to my satisfaction
	Other (Please specify):
10.	Did you visit the SoCalGas website to learn more about the Smart Thermostat offer?
	☐ Yes
	□ No (Skip to Q12)
	☐ Not sure (Skip to Q12)
11.	Which of the following best describes your experience visiting the SoCalGas website? (Select one)
	☐ After learning about the Smart Thermostat offer, I was not interested
	☐ I tried to sign up, but the online form was too long and complicated
	I could not find any further information on the Smart Thermostat offer
	My questions were not answered to my satisfaction
	Other (Please specify):
12.	Have you heard of the SoCalGas Energy Savings Assistance Program?
	☐ Yes
	□ No
	☐ Not sure
<b>D</b> -	manuschia Overtiana
Dе	mographic Questions
13.	Do you own or rent your home?
	Own
	☐ Rent or lease
1	4. For each of the following age groups, how many people, including you, live in this home
	for more than half of the year?
	Age Group Number of People
	5 and under
	6 - 18
	19 - 34
	35 - 54
	55 - 64
	65 and over
1	5. How many adults in your household work outside the home on most days?
•	
	Number of people

16. What is the highest grade of school	oling anyone in your household has completed? (Check
one)	
☐ Elementary or middle school	☐ Some college, no degree
☐ Some high school, no diploma	☐ Two-year college degree
☐ High school diploma	☐ Four-year college degree
☐ Trade or technical school	☐ Graduate degree or higher
17. Which of the following best describ	bes your total household income from all sources in
2018, before taxes? (Check one)	
☐ Less than \$15,000	<b>\$75,000 - \$99,999</b>
S15,000 - \$24,999	\$100,000 - \$124,999
S25,000 - \$49,999	☐ \$125,000 or more
□ \$50.000 - \$74.999	

# **Appendix B Participant Survey Instrument**

# Introduction and Reason for Enrolling:

1.	Thinking of all of the services you receive from SoCalGas, how satisfied are you?
	<ul> <li>□ 1 – Very dissatisfied</li> <li>□ 2 – Somewhat dissatisfied</li> <li>□ 3 – Neither satisfied nor dissatisfied</li> <li>□ 4 – Somewhat satisfied</li> <li>□ 5 – Very satisfied</li> </ul>
2.	Our records indicate that you received a Nest Smart Thermostat E at no charge from SoCalGas sometime in the past year. Do you recall receiving this thermostat?
	☐ Yes ☐ No—Skip to Q14 ☐ Not sure
3.	Prior to learning that SoCalGas was offering a free thermostat, would you have considered purchasing:
	<ul><li>☐ A smart thermostat</li><li>☐ A standard thermostat (e.g. without smart capabilities)</li><li>☐ Neither</li></ul>
4.	Please indicate how important each of the following was in your decision to accept SoCalGas' offer of a free smart thermostat:

	1 Not at all Important	2 Not very Important	3 Somewhat Important	4 Very Important	Don't Know/Not Applicable
The thermostat was free					
Ease of sign up					
Ease of installation					
Ability to easily program the smart thermostat					
Ability to override programming					
Thermostat readability					
Savings on your bill					
Benefits to your home's comfort					
Better understanding of your energy usage					
Benefits to the environment					

## **Energy Savings Assistance Program Experience:**

experience?

☐ 1 – Very dissatisfied

	9 4570010	T	1	vings Assistan		
	1 Poor	2 Fair	3 Good	4 Very Good	5 Excellent	Not Applicable
Communication with your authorized contractor						
Information available on SoCalGas website						
Energy saving measures offered						
Understandability of program eligibility requirements						
Ease of application process						
Application processing time						
Scheduling installation appointment						
Contractor who installed the equipment						
Overall experience with SoCalGas' Energy Savings Assistance Program						

5. Overall, how satisfied are you with your Energy Savings Assistance Program enrollment

## **Nest Smart Thermostat Experience:**

. How satisfied are you	overall with y	our ivest Sma	iit iiiciiiiosta	· L :	
<ul> <li>□ 1 – Very dissatisfied</li> <li>□ 2 – Somewhat dissatisfied</li> <li>□ 3 – Neither satisfied nor dissatisfied</li> <li>□ 4 – Somewhat satisfied</li> <li>□ 5 – Very satisfied</li> </ul>					
. How would you rate th	ne comfort of y	our home <u>be</u>	fore installing	your thermo	ostat?
☐ 1 – Very uncomfo ☐ 2 – Not very com ☐ 3 – Somewhat co ☐ 4 – Very comforta	ifortable omfortable				
☐ 2 – Not very com ☐ 3 – Somewhat co ☐ 4 – Very comfort	omfortable				
	nuch you agre	e or disagree	with the follo	wing stateme	ents about ye
Please indicate how mand thermostat:	1 Strongly	2 Somewhat	3 Somewhat	4 Strongly	No Opinion
smart thermostat:	1	2	3	4	No
smart thermostat:  My thermostat is easy to use	1 Strongly Disagree	2 Somewhat Disagree	3 Somewhat Agree	4 Strongly Agree	No Opinion
Smart thermostat:  My thermostat is easy to use  My thermostat helps me save energy	1 Strongly Disagree	2 Somewhat Disagree	3 Somewhat Agree	4 Strongly Agree	No Opinion
My thermostat is easy to use  My thermostat is easy to use  My thermostat helps me save energy  My thermostat helps me save money on my household's energy bill	1 Strongly Disagree	2 Somewhat Disagree	3 Somewhat Agree	4 Strongly Agree	No Opinion
My thermostat is easy to use  My thermostat helps me save energy  My thermostat helps me save money on my household's energy bill  My thermostat helps me understand my energy	1 Strongly Disagree	2 Somewhat Disagree	3 Somewhat Agree	4 Strongly Agree	No Opinion

12. [IF ANSWERED 1 OR 2 FOR Q11 ROW 1] Please list any problems you have had while operating your thermostat.

13. Please indicate how often you have done the following:

	1 More than once a week	2 Once a week	3 1-2 times per month	4 Less than once a month	5 Never	Don't Know
Use the thermostat to program the thermostat						
Use the app or website to <b>program</b> the thermostat						
Use the app or website to view my home's energy use						
Use the app or website to <u>adjust</u> the thermostat temperature while <u>away from home</u>						
Use the app, website or thermostat to adjust the temperature while at home						

### D

Demographic Questions	
4. Do you own or rent your ho	me?
<ul><li>☐ Own</li><li>☐ Rent or lease</li></ul>	
15. For each of the following agmore than half of the year?	ge groups, how many people, including you, live in this home for
Age Group	Number of People
5 and under 6 - 18 19 - 34 35 - 54 55 - 64 65 and over	
6. How many adults in your ho	ousehold usually work outside the home on most days?

**Nexant** 

Number of people\_\_\_\_\_

17. What is the highest grade of school	ling anyone in your household has completed? (Check
one)	
☐ Elementary or middle school	☐ Some college, no degree
☐ Some high school, no diploma	☐ Two-year college degree
☐ High school diploma	☐ Four-year college degree
☐ Trade or technical school	☐ Graduate degree or higher
18. Which of the following best describe before taxes? (Check one)	es your total household income from all sources in 2018,
☐ Less than \$15,000	<b>\$75,000 - \$99,999</b>
S15,000 - \$24,999	\$100,000 - \$124,999
S25,000 - \$49,999	\$125,000 or more
S50,000 - \$74,999	





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