

To: Vince Gutierrez (ComEd)
CC: Randy Gunn, Jeff Erickson (Navigant); Jennifer Morris (ICC Staff)
From: Carly Olig, Pace Goodman, Jane Hummer (Navigant)
Date: 6/26/2018
Re: Nest Seasonal Savings Survey Results

1. INTRODUCTION AND METHODOLOGY

This memo outlines results from a survey conducted for ComEd's Seasonal Savings (SS) Program implemented by Nest in the summer of 2017. The research objectives of the survey were to verify the delivery of the treatment, confirm ComEd as the electric provider, gather insights on participant experience, and assess satisfaction with customer comfort levels through the program. Navigant designed the survey to be short and streamlined to minimize respondent burden. The median length of time that respondents took completing the survey was 3.6 minutes.

The survey was fielded between November 1st and December 31st, 2017. Nest emailed survey links to the first batch of customers on November 1st and then to a second batch of customers on December 14th. Customers did not receive follow-up reminders for the survey.

The survey was sent to three groups of customers: the Treatment group, the Opt-Out group, and the Control group, comprised of the following populations:

- The **Treatment** group includes ComEd customers who chose to participate in the program.¹
- The **Opt-Out** group includes ComEd customers who were invited to participate in the program and opted not to, but it does *not* include customers who attempted to participate but were disqualified.¹
- The **Control** group includes ComEd customers who were not invited to participate in the program and theoretically should have no knowledge of the program.

Table 1 shows the number of responses and response rate for each group. Although the response counts met the targets set, the response rates were quite low. Because of this Navigant acknowledges that these results may be affected by response bias. In the future, Navigant recommends sending reminder emails to customers to raise response rates.

Table 1. Response Summary

| Group | Target Response Count | Emails Delivered* | Responses Count | Response Rate |
|-----------|-----------------------|-------------------|-----------------|---------------|
| Treatment | 150 | 8,743 | 300 | 3.4% |
| Opt-Out | 150 | 4,257 | 168 | 3.9% |
| Control | 150 | 3,645 | 197 | 5.4% |
| TOTAL | 450 | 16,645 | 665 | 4.0% |

* The count of emails delivered does not include emails that bounced back.
 Source: Navigant analysis

The following summarizes Navigant's key findings from this survey.

Finding 1. The Treatment group had a high level of awareness of the program (83%) and a majority (63%) correctly recalled signing up for it. Awareness among the Opt-out group was 62% and awareness among the Control group (who did not receive any marketing for the

¹ The treatment and opt-out groups together make up what is referred to as the intent-to-treat (ITT) group in the impact analysis.

program) was 52%. Approximately one-quarter of these two groups (23% of the Opt-out group and 29% of the Control group) mistakenly recalled signing up for the program.

Finding 2. The Treatment group recalled changes in their home's temperature and comfort at the same rates as the other two groups. Customers who recalled signing up for the program (whether they actually did so or not) reported decreases in comfort more frequently than those who did not recall signing up. This suggests that changes in comfort were due to expectations about the program rather than actual changes.

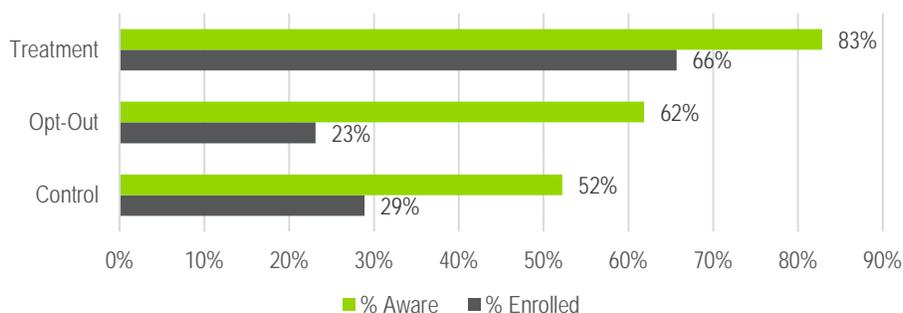
Finding 3. Seventy-three percent of the Treatment group rated their satisfaction with the program overall a 4 or 5 on a 5-point scale. The area of lowest satisfaction was energy bill savings since joining the program (although 54% still rated this component a 4 or 5) and the program enrollment process had the highest satisfaction (88% rated this component a 4 or 5).

2. SUMMARY OF RESULTS

2.1 Program Awareness and Enrollment

Customers in the Treatment group had the highest overall awareness of the SS Program, with 83% indicating that they had heard of the program, compared to 62% of the Opt-Out group and 52% of the Control group (Figure 1). Customers who had heard of the program were asked whether or not they had enrolled in the program. Two-thirds of all Treatment customers (83% of aware Treatment customers) correctly recalled enrolling in the program. Almost one-quarter (23%) of all Opt-Out customers and 29% of all Control customers *mistakenly* believed that they had enrolled in the program.

Figure 1. Program Awareness and Self-Reported Recall of Enrollment



Source: Navigant analysis

Differences across the three groups are statistically significant for both the awareness of the program's existence and the share of customers who believe they are enrolled in the program. These results indicate that the treatment group does recall enrolling at a higher rate than the opt-out and control groups.

2.2 Changes in Temperature and Home Comfort

All customers who believed that they were part of the program (regardless of whether or not they actually were) were asked whether they found themselves manually adjusting the temperature more or less frequently after participating in the program; this question was not asked of any other customer group. The majority (73%) of Treatment customers who were aware of their participation reported that they did not make any manual adjustments to their thermostat programming after their decision to participate in the SS Program. The differences across the three groups (all treatment, opt-out, and control) who

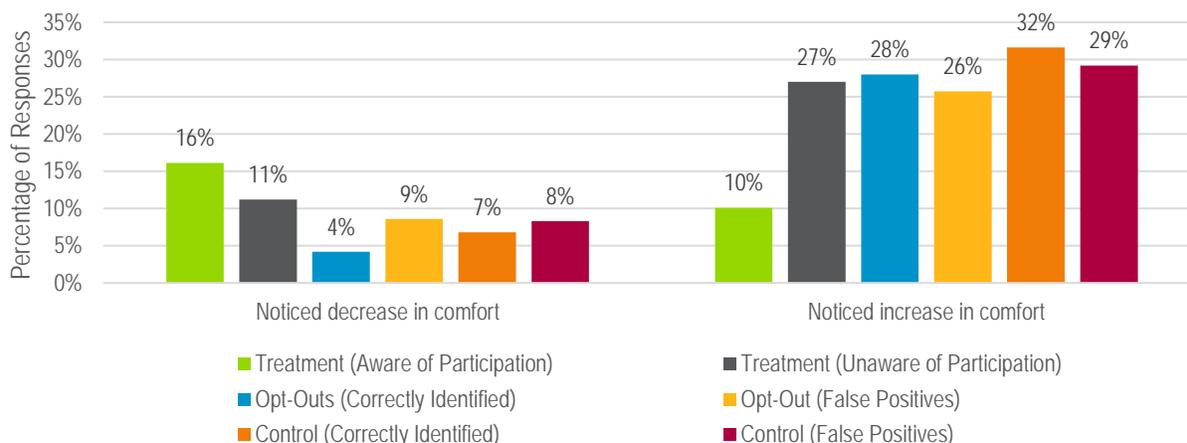
believed they were part of the program were not statistically significant, with 10% of all indicating they adjusted the temperature more frequently and 41% saying less frequently.

When asked whether they noticed any changes in their home's temperature relative to previous summers, there was no statistically significant difference between the three groups; overall, 29% of Treatment customers and 30% of all surveyed customers (in all three groups) said that they noticed a change in their home's temperature.

Noticing a change in temperature does not necessarily mean a change in comfort. Only one in seven (14%) of all Treatment customers² noticed a decrease in comfort in their homes relative to previous summers, and 15% of all Treatment customers² noticed an increase in comfort. Although these are both relatively low numbers to begin with, Navigant hypothesized that some customers may attribute changes in comfort to the program when in reality they may be due to outside variables such as differences in weather. One of the purposes of surveying Opt-Out and Control customers was to test that hypothesis, and the results provide strong evidence that some of the customers who perceived a change in comfort experienced that change for reasons other than the SS Program.

Interestingly, customers who believed that they were participating in the SS Program (whether they were participating or not) were statistically significantly more likely to report a decrease in comfort than those who do not believe they were participating. Customers who believe they were not participating in a program are more likely to report that their comfort increased relative to previous summers. These patterns hold true for the Treatment, Opt-Out, and Control groups, as shown in Figure 2.

Figure 2. Perceived Changes in Comfort by Group and Participation Status Awareness



Note: "Correctly Identified" indicates those customers in the Opt-Out and Control groups who are aware that they are not participating in the program. "False Positives" indicates those customers in the Opt-Out and Control groups who incorrectly believe they are participating in the SS Program.

Source: Navigant analysis

Over one-quarter (27%) of Treatment customers who incorrectly believe they are not participating in the program reported an increase in comfort, compared to 10% of Treatment customers who are aware of their participation status. These findings indicate that some customers expect their comfort to be negatively impacted by such a program and perhaps those expectations color their experience with the program.

While it is likely that some participants are experiencing negative impacts to their comfort as a result of the program, these results indicate that at least some of the negative changes in comfort that they report

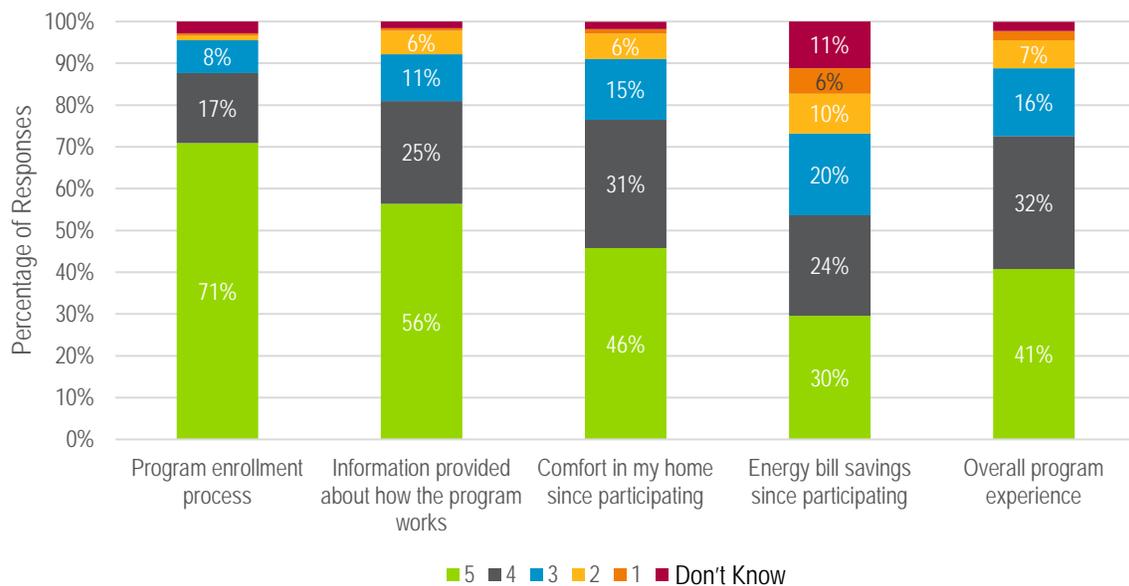
² All treatment customers includes those labelled as aware and unaware of participation in Figure 2.

are not attributable to the SS Program intervention. They also indicate that some participating customers are in fact experiencing increased comfort.

2.3 Satisfaction

To avoid confusion for the respondents, the satisfaction questions were asked only of Treatment customers who were aware of their participation in the program; for the remainder of this section, they will be referred to as “participants”. The majority of participants are highly satisfied with the program, with 73% rating their overall program satisfaction as a 4 or 5 on a 5-point scale (Figure 3). The area with the lowest satisfaction is energy bill savings since participating where 54% of customers rated their satisfaction as being either a 4 or a 5 on the 5-point scale; note that 11% of participants did not know how to answer that question, indicating that one possible source of dissatisfaction is uncertainty in the magnitude of savings achieved. Just 7% of participants were very dissatisfied (1 or 2 on the 5-point scale) with their comfort since participating. The program enrollment and information both received high satisfaction marks from the vast majority of participants.

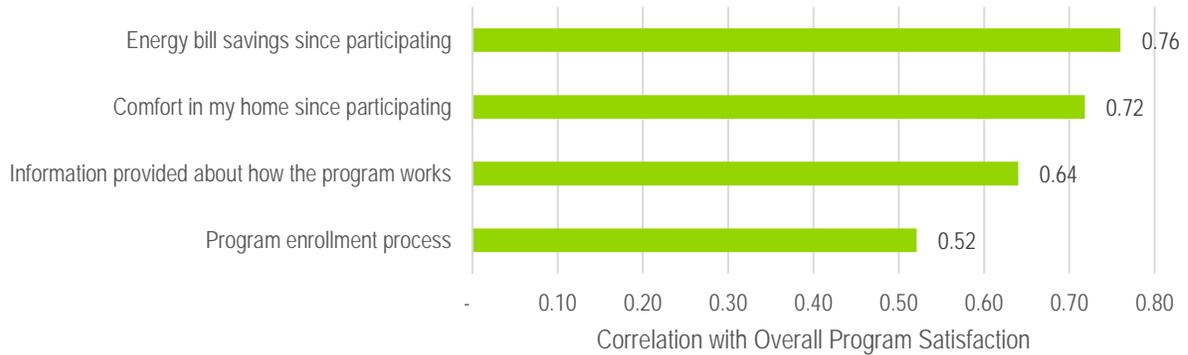
Figure 3. Program Satisfaction



Source: Navigant analysis

To better understand the drivers of program satisfaction, Navigant explored correlations between overall satisfaction and satisfaction with individual components. This analysis revealed that satisfaction with energy bill savings and comfort are most strongly correlated with participants' overall satisfaction. Satisfaction with the program enrollment and information about how the program works has less impact on overall program satisfaction, although they are still positively correlated with overall satisfaction.

Figure 4. Satisfaction Correlations



Source: Navigant analysis

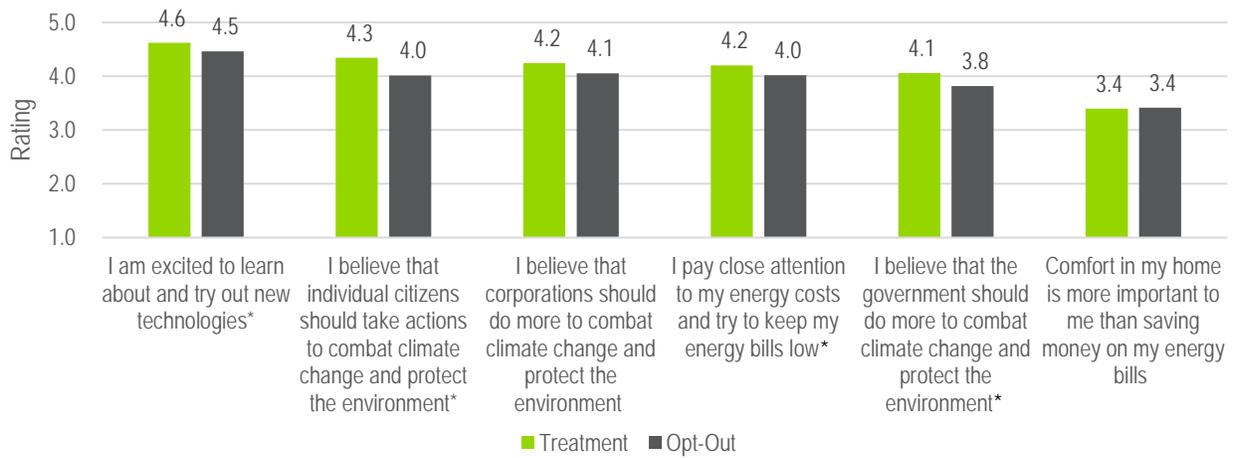
2.4 Customer Characteristics

Navigant designed some survey questions to explore whether customer characteristics (i.e., demographics and attitudes) impacted customers' enrollment in the program. There were no statistically significant differences between the Treatment and Control groups on either demographics or attitudes, which indicates a well-designed Control group (as expected since it was randomly chosen).

In terms of demographics, the Treatment and Opt-Out groups were very well-matched in terms of home ownership, household occupancy on weekday afternoons, and number of residents. Customers in the Treatment group tended to be younger than those in the Opt-Out group; 50% of Treatment customers were under the age of 45, compared to 37% of those in the Opt-Out group. This may indicate that the SS Program is slightly more appealing to younger customers than older customers, which may be due to correlations between age and attitudes regarding environmental issues and technology.

In terms of attitudes, Navigant found statistically significant differences between Treatment and Opt-Out customers regarding technology, attention to energy bills, and both individual and government responsibility toward taking action against climate change. This indicates that the SS Program may appeal to customers' enjoyment of new technologies as well as their beliefs regarding personal responsibility toward climate change; customers who don't care as much about those things may be less inclined to engage in such a program.

Figure 5. Attitudes by Participation Status



* An asterisk indicates a statistically significant difference at the 90% confidence level.
 Source: Navigant analysis