



Opinion **Dynamics**

COMED SMART THERMOSTAT CUSTOMER PREFERENCE STUDY

Detailed Results

FINAL



October 11, 2019





Agenda

- Introductions
- Study objectives
- Study methodology
- Detailed findings
 - State of the thermostat market
 - Customer behaviors
 - Customer thermostat preferences
 - Customer segmentation
- Conclusions and implications
- Additional survey results, segment profiles, and appendix



INTRODUCTIONS



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The Project Team

Tami Buhr



Kessie Avseikova



Evan Tincknell



Harry Gao



STUDY OBJECTIVES



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Study Objectives

- Assess current state of the thermostat market
- Understand thermostat replacement behaviors
- Understand customer temperature preferences and thermostat operation behaviors
- Understand customer thermostat preferences and the effect of various thermostat attributes on consumer purchase decisions
- Capture awareness and use of other technologies of interest
- ComEd program awareness and participation

STUDY METHODOLOGY



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Data Collection Approach

■ Quantitative general population survey

Target Population

- ComEd residential customers



Survey Mode

- Web with available inbound phone
- Discrete choice module on web survey only



Survey Outreach

- Mailed postcard invitations and reminders to 3,677 customers
- Offered incentives up to \$15 to encourage participation



Survey Administration

- Fielded in January 2019
- 418 customers completed



Demographic Weights




- Post-stratification weights help ensure representativeness of results
- Weighted results by home ownership and age



Discrete Choice Shopping Exercise Design

- Aims to replicate thermostat shopping experience
- Comprehensive set of product attributes and levels
 - 5 products per choice set
 - 12 choice sets per respondent

Sample Choice Set from Shopping Exercise:

						
Price	\$25	\$225	\$185	\$105	\$25	
Energy bill savings	Up to \$150/yr	Up to \$50/yr	Up to \$200/yr	Up to \$100/yr	Up to \$50/yr	
Installation cost	DIY/free self-install	+\$100 professional	+\$150 professional	+\$100 professional	DIY/free self-install	
Programmable	✓	✓	✓	✓	✗	
Home sensing	✗	✓	✗	✗	✗	
Learning feature	✗	✓	✗	✓	✗	
Remote access	✗	✓	✗	✓	✗	
Voice command	✓	✗	✗	✓	✗	
Occupancy sensing	✗	✓	✗	✓	✗	
						
	Select	Select	Select	Select	Select	NONE: I wouldn't choose any of these.

General Population Survey Analysis

- Thermostat Discrete Choice
 - Latent class modeling to quantify preferences and define segments
 - Relative importance of thermostat attributes to customers
 - Price elasticity for smart thermostats
 - Shares of preference simulations under various conditions
 - Characterization of latent class segments
- Descriptive statistics for non-discrete choice survey data analysis (frequency distributions, measures of central tendency, etc.)

DETAILED FINDINGS



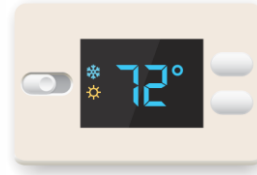
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Definitions



Manual

Allows the user to set the temperature and adjust it up or down as desired by manually turning a dial or moving a lever; the temperature setting only changes when the user adjusts the thermostat.



Programmable

Uses the built-in calendar and clock to adjust the temperature according to programmed settings by day and time but are not Wi-Fi-connected. These thermostats are also called “setback thermostats” or “clock thermostats”.



Smart

In addition to doing everything a programmable thermostat does, these thermostats connect to the Internet and allow the user to adjust the temperature through smartphones or tablets. Some also automatically tailor settings based on occupant preferences, heating system type, home energy profile, and outdoor temperature.

State of the Thermostat Market



Key Findings



- Smart thermostat market share has increased dramatically over the past three years, but smart thermostats still comprise just 17% of all thermostats in customers' homes
- Customers who currently have smart thermostats fit the profile of early adopters
 - They are more tech-savvy, younger, more affluent, and have higher levels of educational attainment.
- Customers who have replaced their thermostats over the past three years have taken varied journeys and, as a result, they have selected different thermostat types
 - Half of those who replaced their thermostats did so because of a precipitating event – an HVAC upgrade, a thermostat failure, or a new addition to their home. These customers were more likely to install a programmable thermostat, largely due to their reliance on contractors who recommended the device
 - The other half upgraded a functioning thermostat and were more likely to install a smart thermostat
- Reducing energy consumption is not a priority for smart thermostat owners. In fact, they are less likely than other customers to be concerned with reducing their energy use

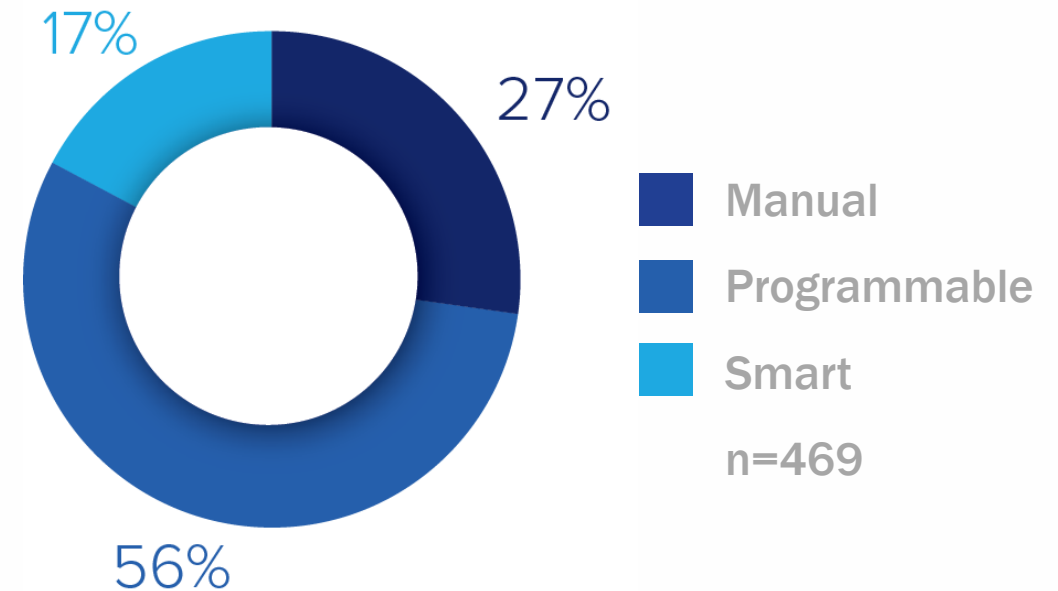
Smart Thermostat Market Saturation

- Programmable thermostats are the most commonly used thermostat type in customer homes
- Smart thermostats represent 17% of all thermostats
- On average, there are 1.23 thermostats per home
- 2.4 million thermostats are available for replacement*
 - 22% of households do not have Internet capabilities to support smart thermostat installation
 - 2 million Wi-Fi enabled smart thermostat potential

**Removes households that do not have a thermostat (5%) or central cooling (24%)*



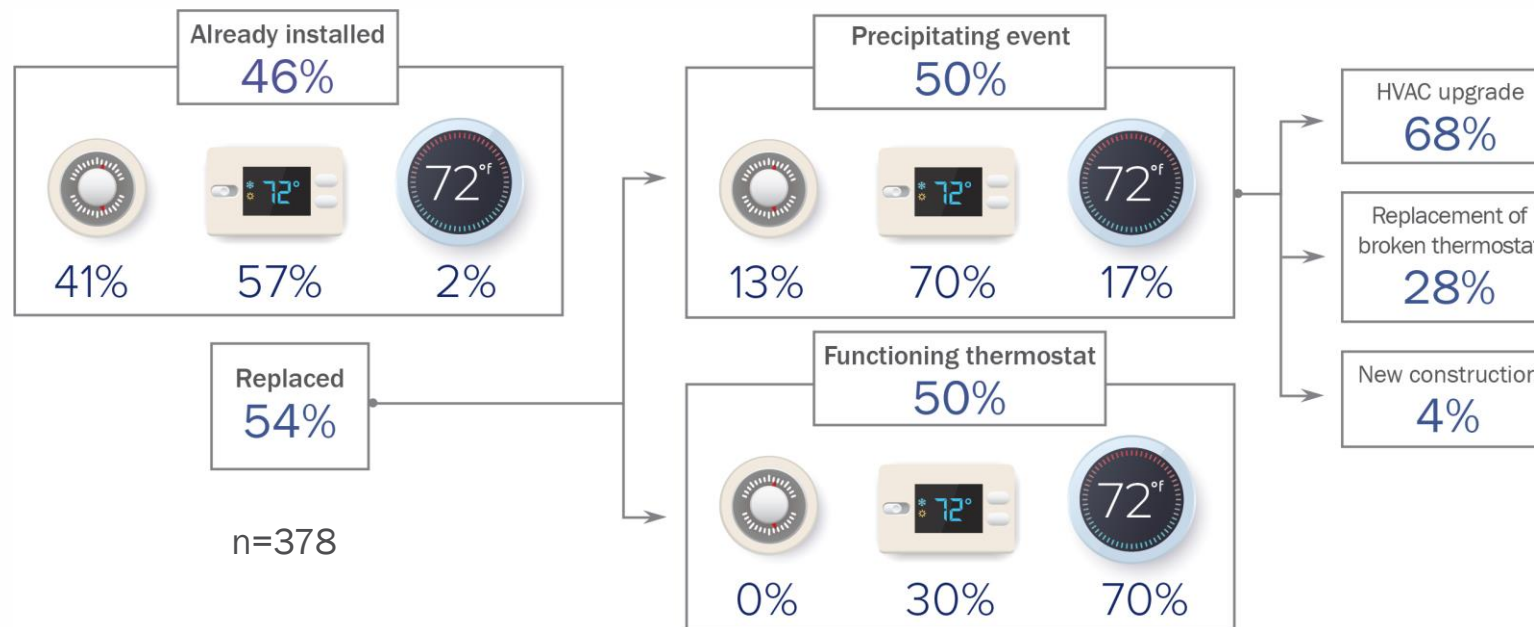
Distribution of Thermostats by Type



Number of Thermostats in an
Average Home
1.23

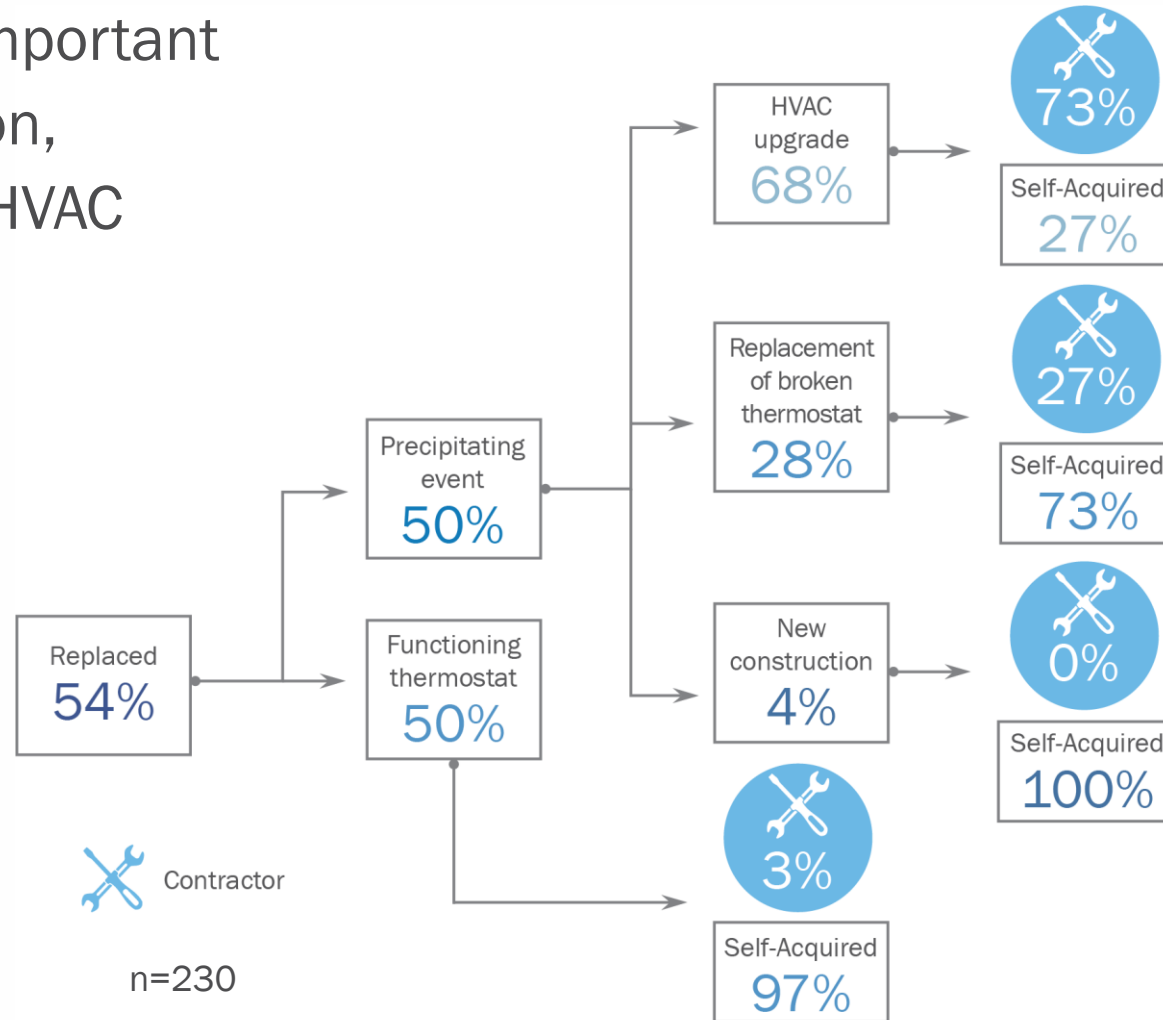
Thermostat Replacement Journey

- Just under half of customers have thermostats that were already installed in their homes when they moved in, while the remaining customers have replaced their thermostats at some point
- Only 2% of customers moved into a home that had a smart thermostat installed
- Half of customers who replaced their thermostats did so because of a precipitating event – an HVAC upgrade, a thermostat failure, or a new addition to their home, while the other half did so to upgrade a functioning thermostat
- Customers who install thermostats due to a precipitating event are more likely to install a programmable thermostat whereas those who choose to upgrade their existing thermostat are more likely to install a smart thermostat



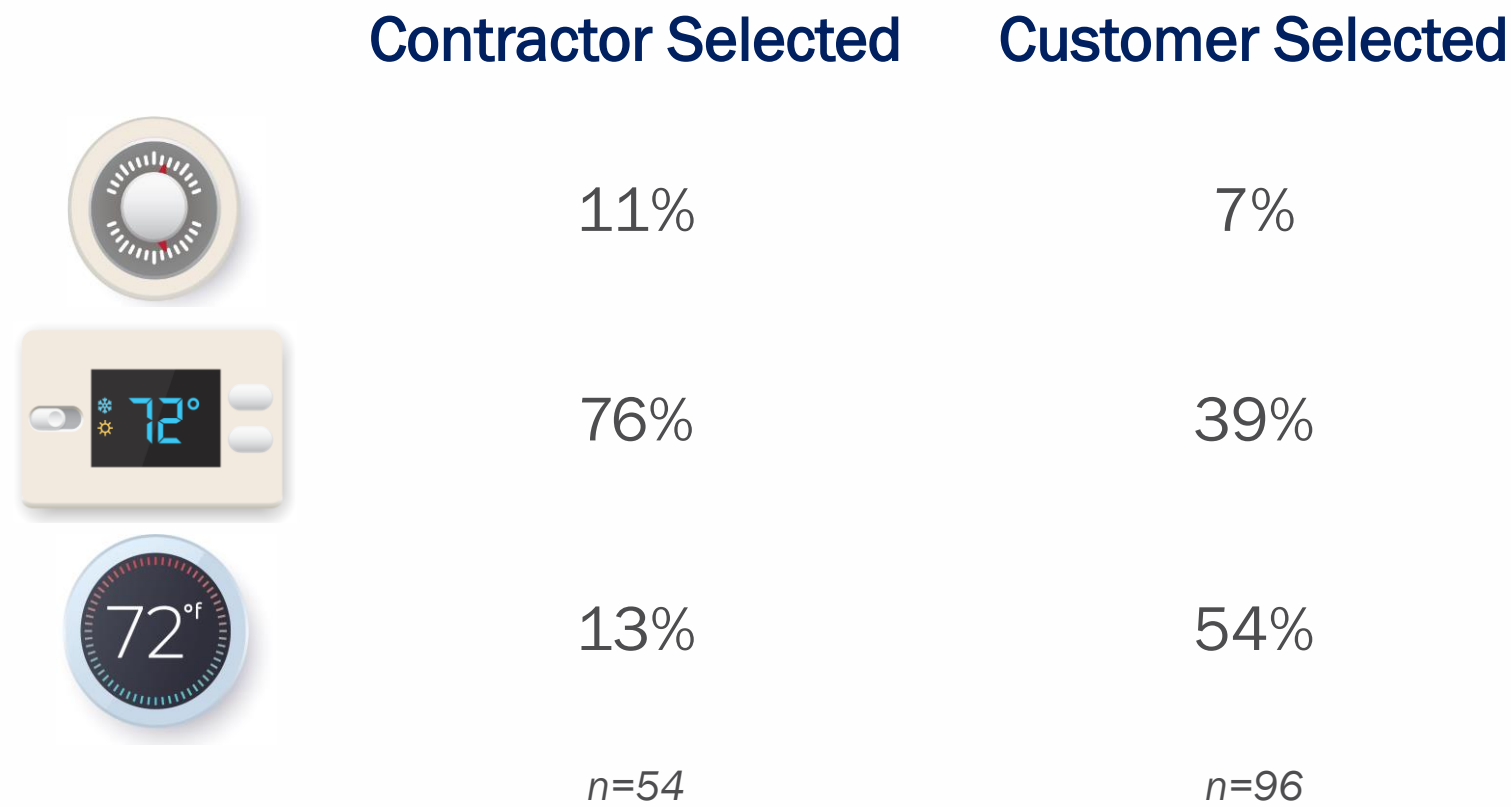
Thermostat Replacement Customer Journey (cont.)

- Contractors can play an important role in thermostat selection, particularly as part of an HVAC system upgrade



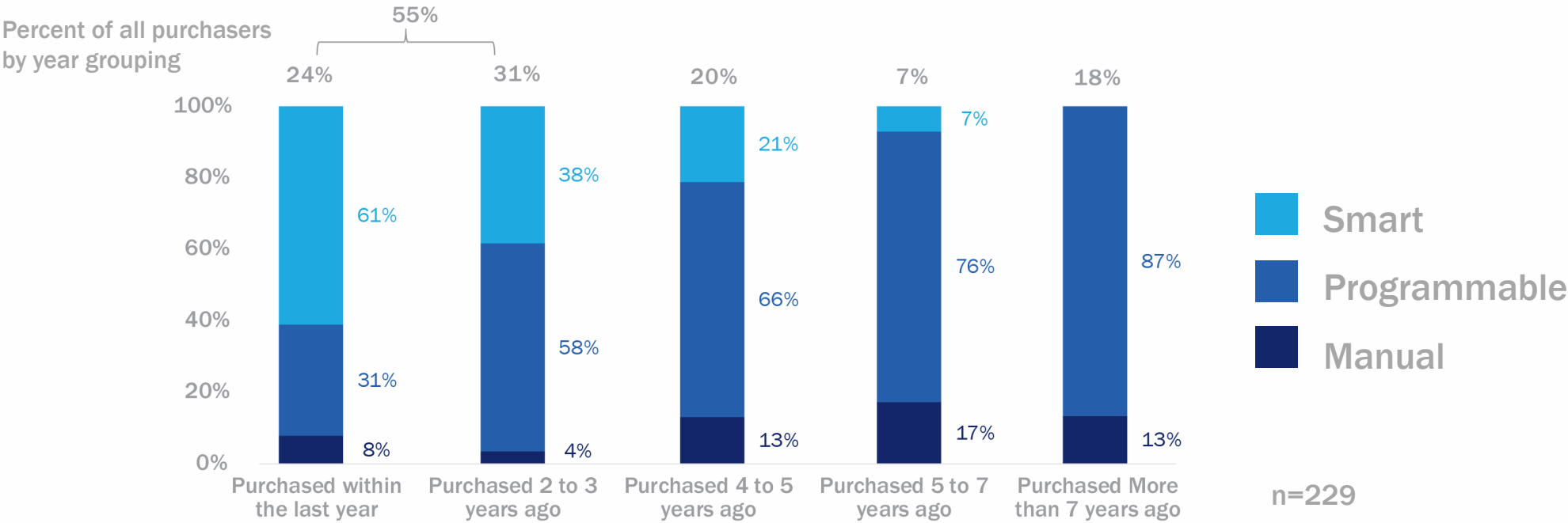
Thermostat Replacement Customer Journey (cont.)

- Contractors favor programmable thermostats over smart thermostats



Thermostat Replacement Trends

- Over half of customers who have replaced their thermostats did so between 2016 and 2019
- The market share for smart thermostats is increasing dramatically
 - 61% of customers who replaced their thermostats in 2018, installed a smart thermostat compared to 38% of those who replaced their thermostats between 2016 and 2017



Sociodemographic Characteristics of Thermostat Owners

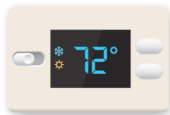
- Compared to manual and programmable thermostat owners, smart thermostat owners are more likely to be younger, more affluent, have higher levels of educational attainment, reside in single-family homes, have bigger homes, and own their homes
- These characteristics are consistent with early adopters



Reside in single-family homes	57%	77%	85%
Homeowners	46%	72%	95%
Central Cooling	60%	87%	99%
Reside in homes >2,000 sq. ft.	14%	35%	51%
College degree or higher	37%	55%	74%
Annual household income \$50K+	49%	66%	94%
Average age	58	51	46
	n=79	n=231	n=73

Attitudinal Characteristics of Thermostat Owners

- Smart thermostat owners are...
 - much more tech-savvy than manual or programmable thermostat owners
 - less concerned with managing energy use than owners of manual thermostats



Tech savviness index (1=low, 7=high)*

3.81

3.63

4.74

Engagement with Energy Use

Not concerned

15%

20%

24%

Idealists (engaged but not proactive)

37%

46%

32%

Achievers (engaged and proactive)

48%

34%

44%

n=79

n=232

n=73



*Index comprised of six questions

Customer Behaviors



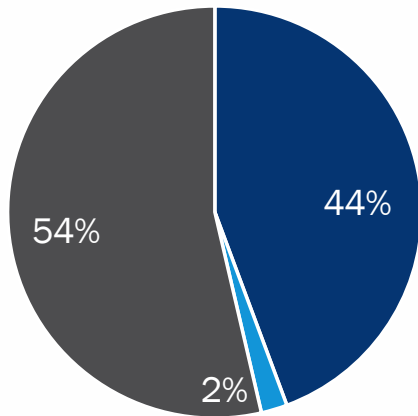
Key Findings



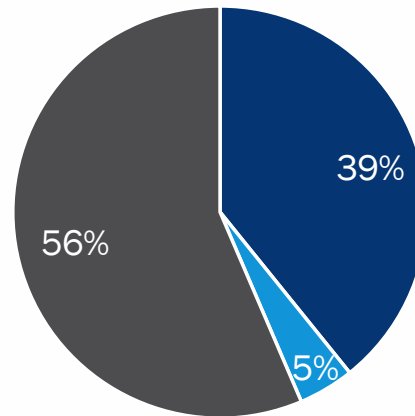
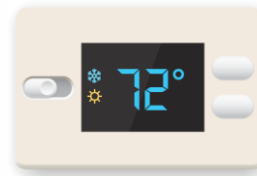
- Users of all thermostat types prioritize convenience and comfort over saving energy when selecting thermostat setpoints
- Many smart thermostat owners ignore the smart features of their thermostat and use it like manual thermostats
 - Even those who make use of those features make frequent manual temperature adjustments
 - New smart thermostat owners could benefit from some education on how to use their thermostat to save energy without sacrificing comfort

Key Drivers of Setpoint Behaviors

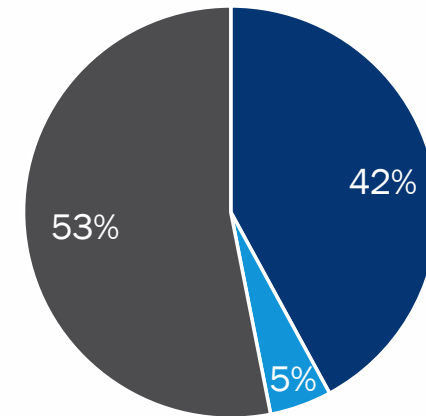
- Users of all thermostat types, prioritize convenience and comfort over saving energy when selecting thermostat setpoints



■ Comfort ■ Energy Use ■ Both n=50



■ Comfort ■ Energy Use ■ Both n=202



■ Comfort ■ Energy Use ■ Both n=70

Typical Temperature Control Behaviors

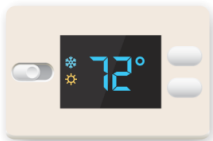
- Smart thermostat owners are more likely to program their thermostats on a schedule than to make manual adjustments or set their thermostat to a single temperature setting
- Still, over a third continue to use their smart thermostat as a manual one, making manual adjustments or setting a single temperature for the season

Programmed temperature schedule



0%

(n=49)



32%

(n=204)



65%

(n=67)

Manually adjusted temperature settings

74%

52%

26%

Set a single temperature for the season

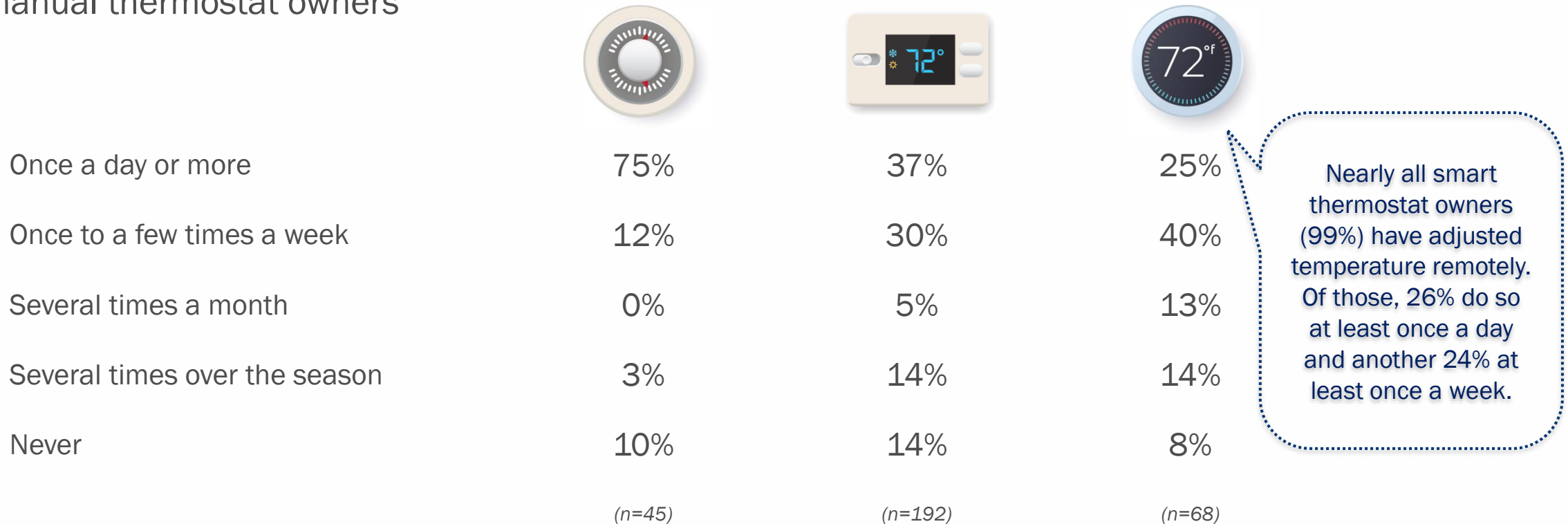
26%

16%

9%

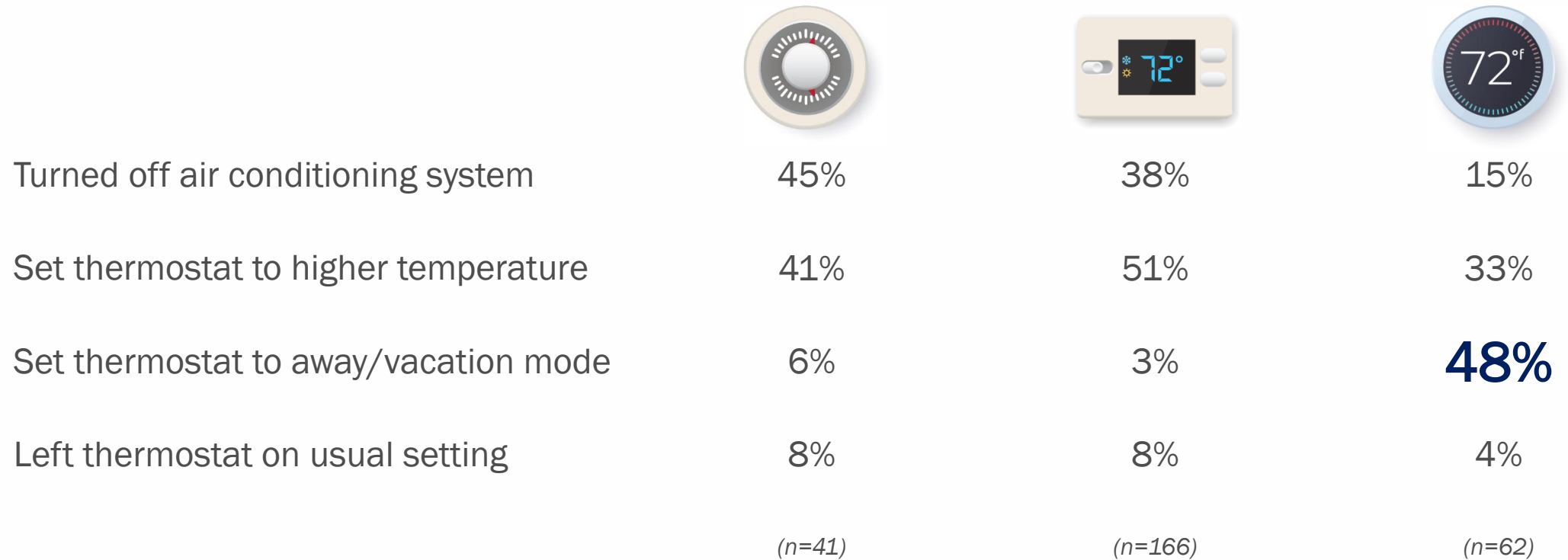
Frequency of Thermostat Adjustments When Home

- Nearly all customers make manual adjustments to thermostat settings, with about half doing so at least once a day and over two-thirds doing so at least once a week
- Programmable and smart thermostat owners adjust their thermostats less frequently than manual thermostat owners



Use of Thermostats When Away or on Vacation

- While away or on vacation, nearly half of smart thermostat owners use the away or vacation mode function, yet other customers also tend to make energy-saving adjustments





Customer Thermostat Preferences



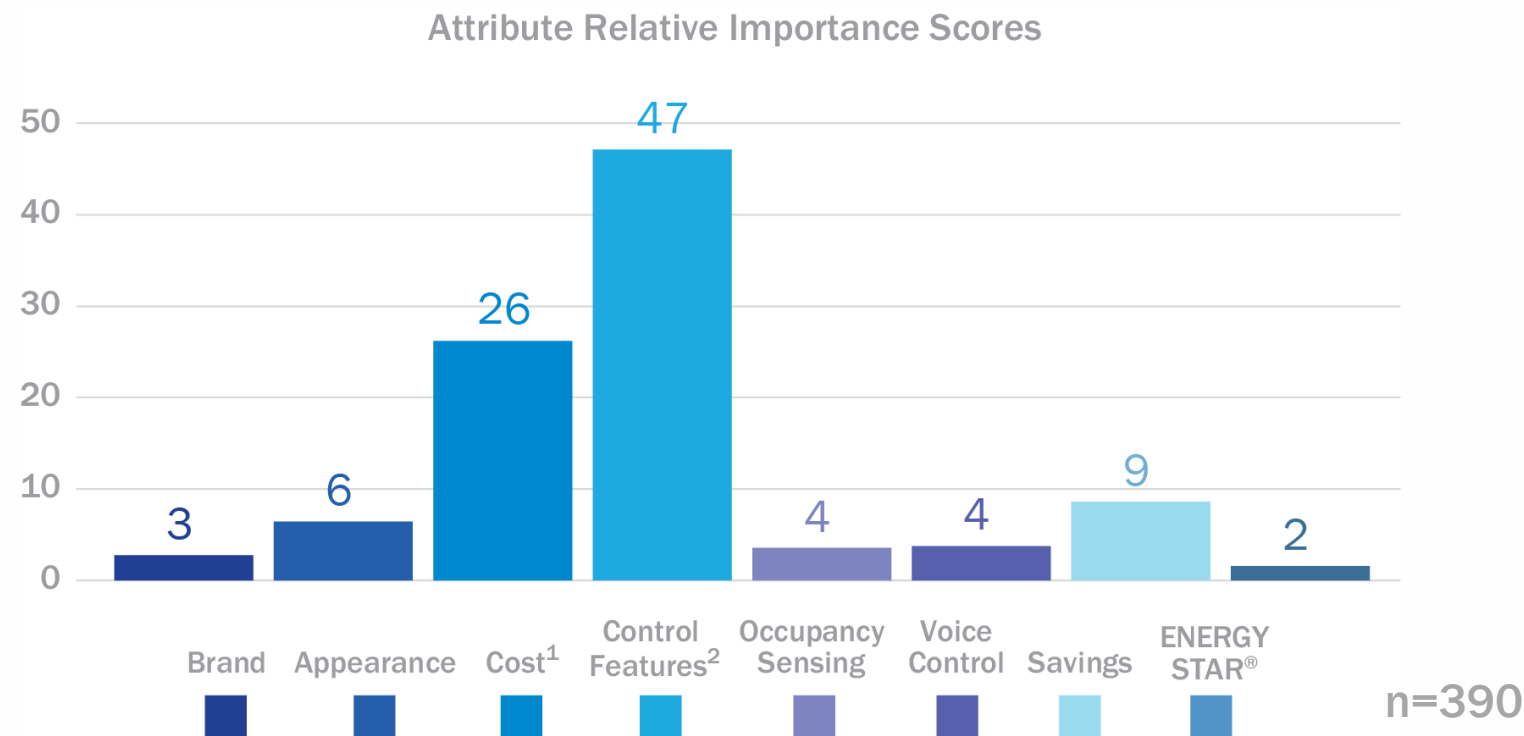
Key Findings



- Most customers like the features of smart thermostats and would be willing to purchase one if they had to replace their thermostat
- Thermostats have long lifespans and do not require frequent replacement. Customers will need to be encouraged to replace their older functioning thermostats
- Customer preferences are relatively price *inelastic*. Thermostat control features, rather than price, drive thermostat preferences, suggesting that discounts and incentives may have less value in encouraging adoption
- The main barrier to customers purchasing smart thermostats appears to be motivating them to replace a working thermostat

Thermostat Attribute Relative Importance

- When shopping for a thermostat, customers prioritize control features followed by cost
- Energy savings is a lower priority



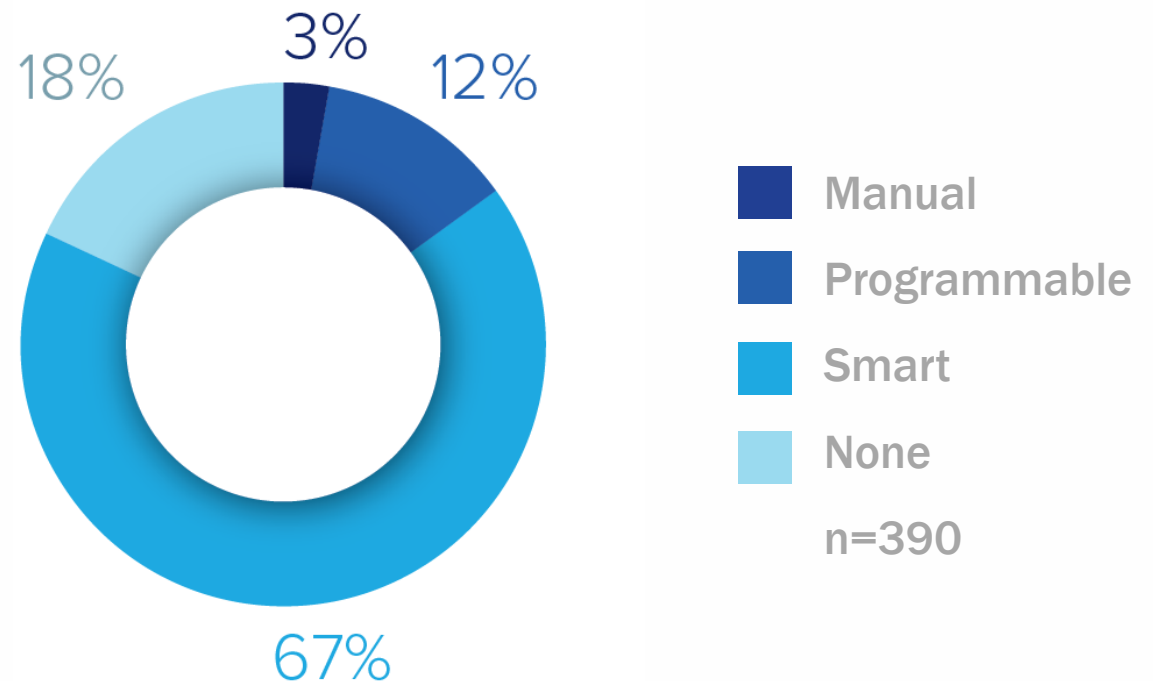
¹ Includes both price and installation cost

² Captures whether thermostat is manual, programmable, or has advanced control capabilities

Share of Preference Under Current Market Conditions

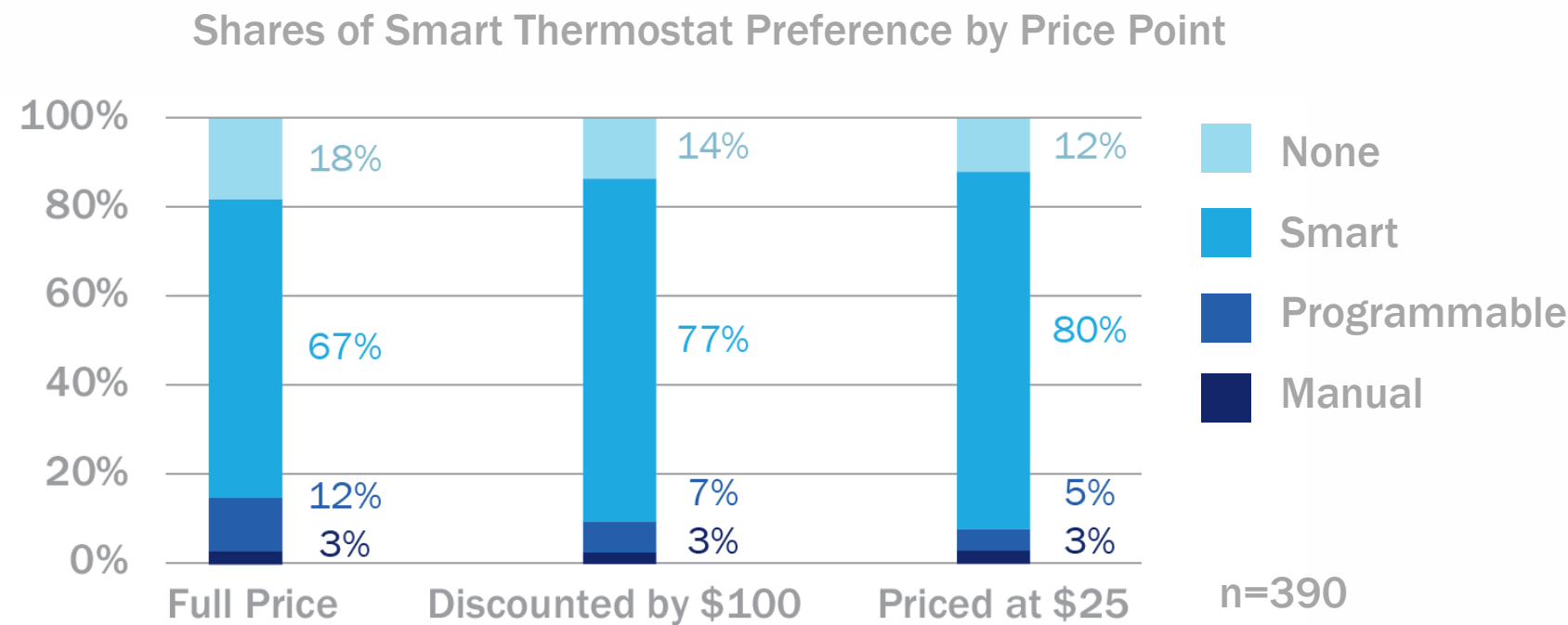
- If shopping for a new thermostat...
 - Two-thirds of customers would select a smart thermostat
 - Few would select a manual or programmable thermostat
 - Nearly one-fifth would not choose one of the options available and keep their current thermostat

Shares of Preference Under Current Market Conditions



Share of Preference Under Different Price Scenarios

- Customer demand is relatively price inelastic
 - Discounting smart thermostats by \$100 increases their share of preference by 10 percentage points
 - A small and consistent share of customers will not purchase a new thermostat or will select a manual thermostat regardless of smart thermostat price



Customer Segmentation



Key Findings



- LCDC modeling identified five customer segments based on the thermostat purchase preferences
- Each segment places emphasis differently on the various thermostat attributes, calling for customized marketing, messaging, and intervention approaches
- Segments differ based on demographic characteristics, attitudes, and behaviors

Customer Segmentation – Summary

7% Frugal Traditionalists

- Most price sensitive and the only customers to prefer manual
- Least likely to adopt smart thermostats
- None own a smart thermostat
- Disproportionately older, lower income, and less educated

25% Tech Devotees

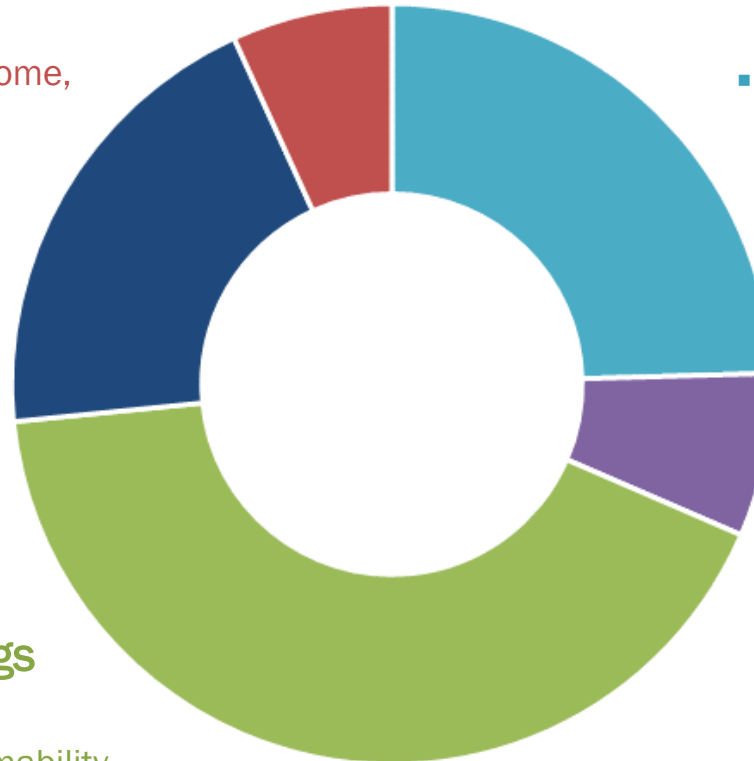
- Tech-savvy early adopters with strong preference for advanced control features
- Most likely to already own a smart thermostat and to buy at full price

20% Biggest Bang for the Buck

- Looking for as many smart features as possible without overspending
- Exceptionally low motivation to purchase a new thermostat
- Most likely to own their home

42% Tech-Appreciating Savings Seekers

- Interest in at least some programmability with appreciation for added tech
- Open and willing to purchase smart thermostats, especially as the prices drop
- Most energy-conscious

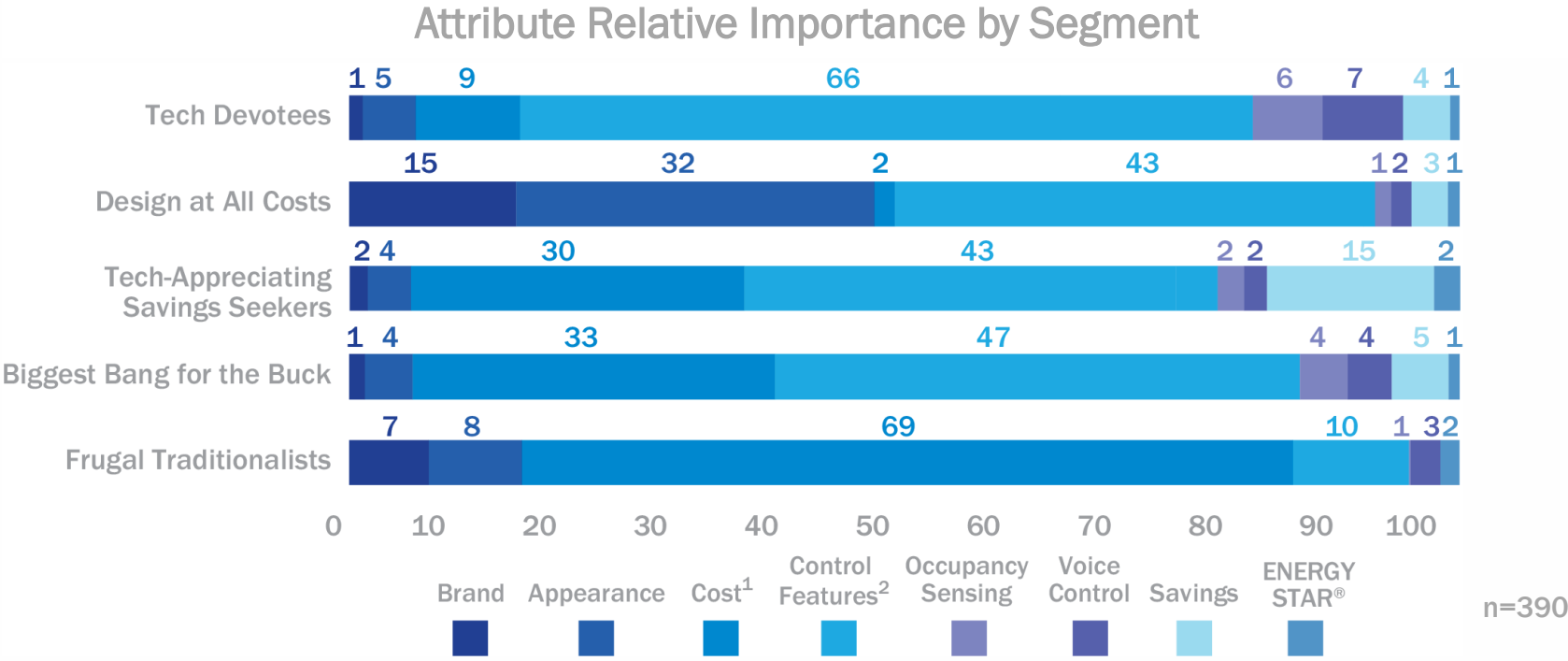


7% Design at All Costs

- Willing to spend any amount for name brand and modern design
- Most would buy smart thermostats regardless of price
- Tech-savvy

Customer Segmentation – Attribute Preferences

- LCDC model identified five customer segments with distinct patterns of preference
 - Four of the five segments care primarily about control features and prefer advanced controls






¹ Includes both price and installation cost

² Captures whether thermostat is manual, programmable, or has advanced control capabilities

Customer Segmentation – Current Thermostat Ownership

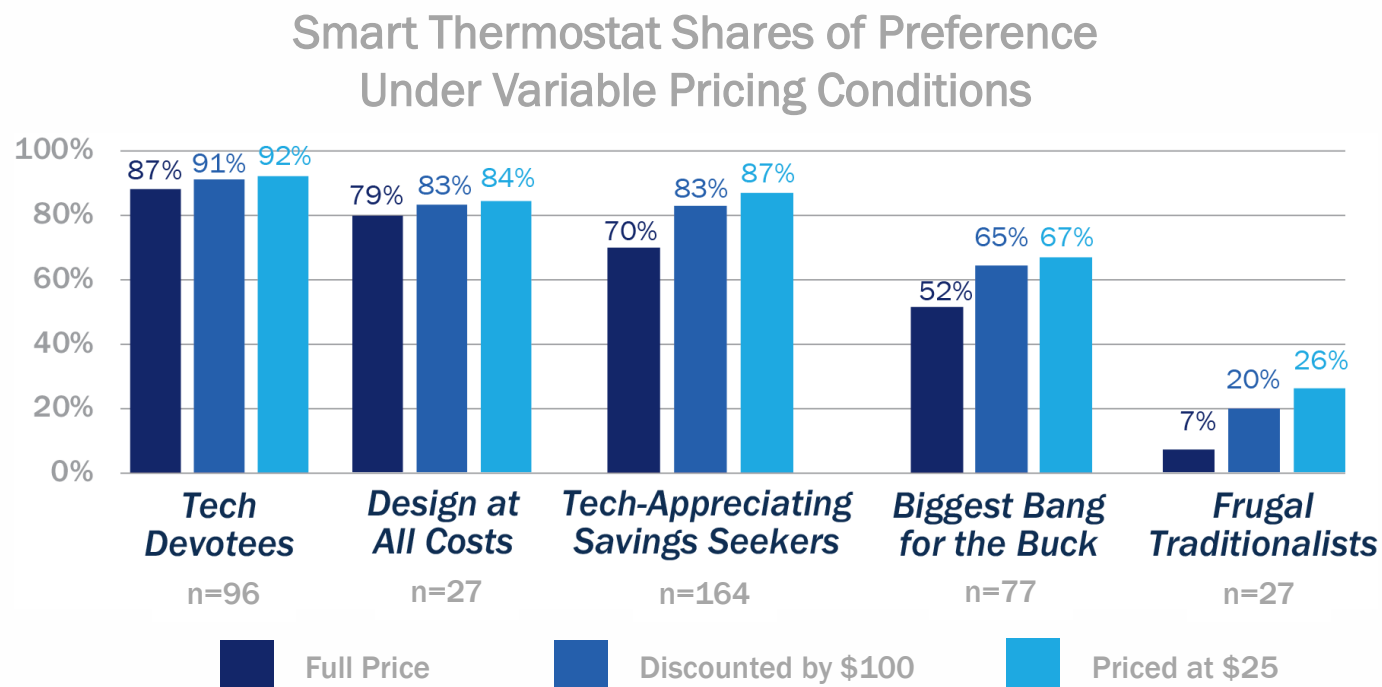
- Customers in each segment can be characterized using other survey responses
- Demographic patterns could support targeted marketing to segments with certain preferences

Thermostats Currently Installed by Segment

	<i>Tech Devotees</i> n=96	<i>Design at All Costs</i> n=27	<i>Tech-Appreciating Savings Seekers</i> n=164	<i>Biggest Bang for the Buck</i> n=77	<i>Frugal Traditionalists</i> n=27
	17%	34%	24%	23%	55%
	51%	44%	67%	50%	45%
	32%	22%	9%	27%	0%







Customer Segmentation – Price Sensitivity

- Price sensitivity varies across segments, but most segments are not highly price-motivated
- The most price sensitive is the one that prefers manual thermostats



Customer Segmentation – Demographics


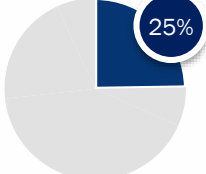


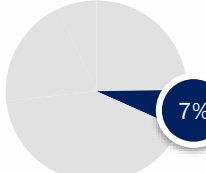


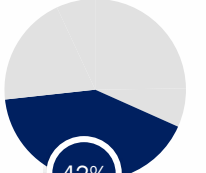


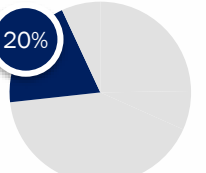


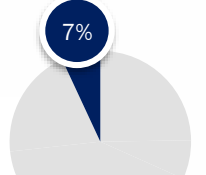

- Customer segments differ across a range of sociodemographic characteristics, including age, education, income, and homeownership status

		<i>Tech Devotees</i>	<i>Design at All Costs</i>	<i>Tech-Appreciating Savings Seekers</i>	<i>Biggest Bang for the Buck</i>	<i>Frugal Traditionalists</i>	<i>General Population</i>
	Segment Size (Householders)	834,700	235,960	1,425,960	671,500	231,880	3,400,000
	% of Population	25%	7%	42%	20%	7%	100%
	Age						
	Age <35	18%	31%	20%	20%	7%	19%
	Age <35-54	54%	27%	42%	34%	19%	41%
	Age 55+	29%	42%	38%	46%	74%	40%
	Education						
	HS or less	15%	32%	14%	19%	33%	18%
	Some college	31%	27%	27%	25%	25%	27%
	BA or higher	54%	41%	59%	56%	42%	55%
	Employment						
	Employed	76%	71%	72%	67%	72%	72%
	Retired/Unemployed	24%	29%	28%	33%	28%	28%
	Income						
	Less than \$50k	33%	43%	37%	31%	45%	46%
	\$50k-less than \$75k	14%	36%	15%	17%	25%	17%
	\$75k or more	53%	22%	47%	52%	30%	47%
	Home ownership	63%	61%	65%	76%	64%	66%
		n=96	n=27	n=164	n=77	n=27	n=390



Segment Targeting Considerations

 Primary target
  Secondary target
  Not a target

Name	Size	Segment Summary	Targeting Considerations
 Tech Devotees	 25%	<ul style="list-style-type: none"> Tech-savvy early adopters with strong preference for advanced control features Most likely to already own a smart thermostat and to buy at full price 	 <ul style="list-style-type: none"> Highly likely to adopt smart thermostats on their own Aware of smart thermostat technology and do not require education or incentives
 Design at All Costs	 7%	<ul style="list-style-type: none"> Willing to spend any amount for name brand and modern design Most would buy smart thermostats regardless of price Tech-savvy 	 <ul style="list-style-type: none"> Likely to adopt smart thermostats on their own Lowest concern with energy savings signals reduced likelihood of achieving savings without further education Incentives are likely to be low-impact Messaging should be visual and highlight thermostat design
 Tech Appreciating Savings Seekers	 42%	<ul style="list-style-type: none"> Interest in at least some programmability with appreciation for added tech Open and willing to purchase smart thermostats, especially as prices drop Most energy conscious segment 	 <ul style="list-style-type: none"> Marketing to get customers to shop for thermostats is key Messaging about energy savings is likely to fuel interest Incentives will likely help boost smart thermostat adoption
 Biggest Bang for the Buck	 20%	<ul style="list-style-type: none"> Looking for as many smart features as possible without overspending Exceptionally low motivation to purchase a new thermostat Most likely to own their home 	 <ul style="list-style-type: none"> Especially unlikely to replace a working thermostat, but likely to choose a smart thermostat over other products Incentives are likely to help in overcoming complacency Less concern with energy use indicates additional education may be needed to promote engagement and maximize savings
 Frugal Traditionalists	 7%	<ul style="list-style-type: none"> Most price-sensitive and the only customers to prefer manual Least likely to adopt smart thermostats None own a smart thermostat Disproportionately older, lower income, and less educated 	 <ul style="list-style-type: none"> Hard-to-reach segment Steep economic and knowledge barriers to adoption Incentives will play the biggest role in driving smart thermostat adoption, but overall adoption within the segment will be limited even with generous incentives Best fit for direct install programs

CONCLUSIONS AND IMPLICATIONS



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Conclusions: The Smart Thermostat Market

- Smart thermostat market share has increased dramatically over the past three years, but smart thermostats still comprise just 17% of all thermostats installed
- Customers who currently have smart thermostats fit the profile of early adopters
 - They are more tech-savvy, younger, more affluent, and have higher levels of educational attainment. They are also less concerned with managing their energy use
- The remaining market for smart thermostats is large – an estimated 2 million customers have manual or programmable thermostats

Conclusions: Increasing Smart Thermostat Adoption

- Most customers like the features of smart thermostats and would be willing to purchase one if they had to replace their thermostat
- Thermostats have long lifespans and do not require frequent replacement. Customers will need to be encouraged to replace their older functioning thermostats
 - Thermostat control features, rather than price, drive thermostat preferences, suggesting that discounts and incentives may have less value in encouraging adoption
 - Different customer segments place differing emphasis on various thermostat attributes, calling for customized marketing, messaging, and intervention approaches
 - Thermostats are the latest tech gadget for the early adopters, but customers who aren't tech driven and have a working thermostat could be a more difficult sell
- HVAC upgrades are opportunities to increase customer demand but contractors are a barrier to smart thermostat adoption. Contractors are more likely to recommend and install programmable than smart thermostats whereas customers who select their own thermostats are more likely to purchase a smart thermostat
 - Contractor education is needed to increase adoption as part of HVAC upgrades

Conclusions: Thermostat Usage

- Users of all thermostat types prioritize convenience and comfort over saving energy when selecting thermostat setpoints
- Many smart thermostat owners ignore the automated smart features of their thermostat and use it like their old thermostat
 - Even those that make use of those features make frequent manual temperature adjustments
 - New smart thermostat owners could benefit from some education on how to use their thermostat to save energy without sacrificing comfort

DISCUSSION



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ADDITIONAL RESULTS



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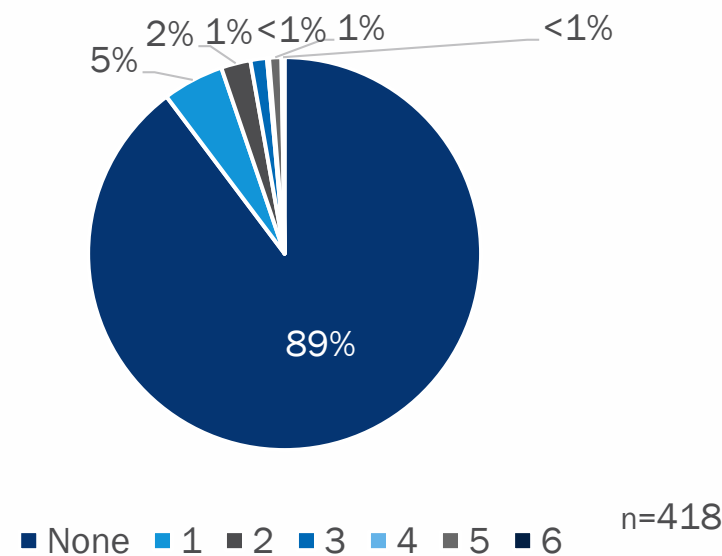
Other Equipment Penetration



Other Equipment Penetration

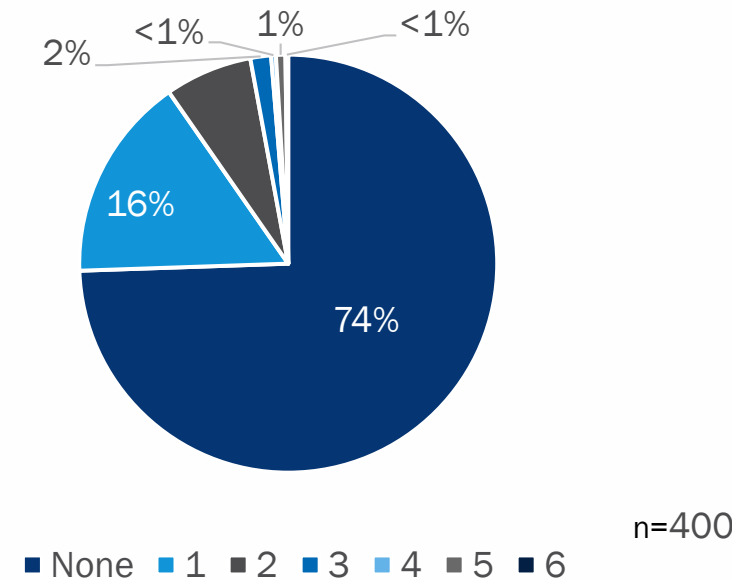
Smart Strips

- 93% of homes have at least one power strip
- 11% of homes have at least one smart strip



Air Purifiers

- A quarter of households have at least one air purifier

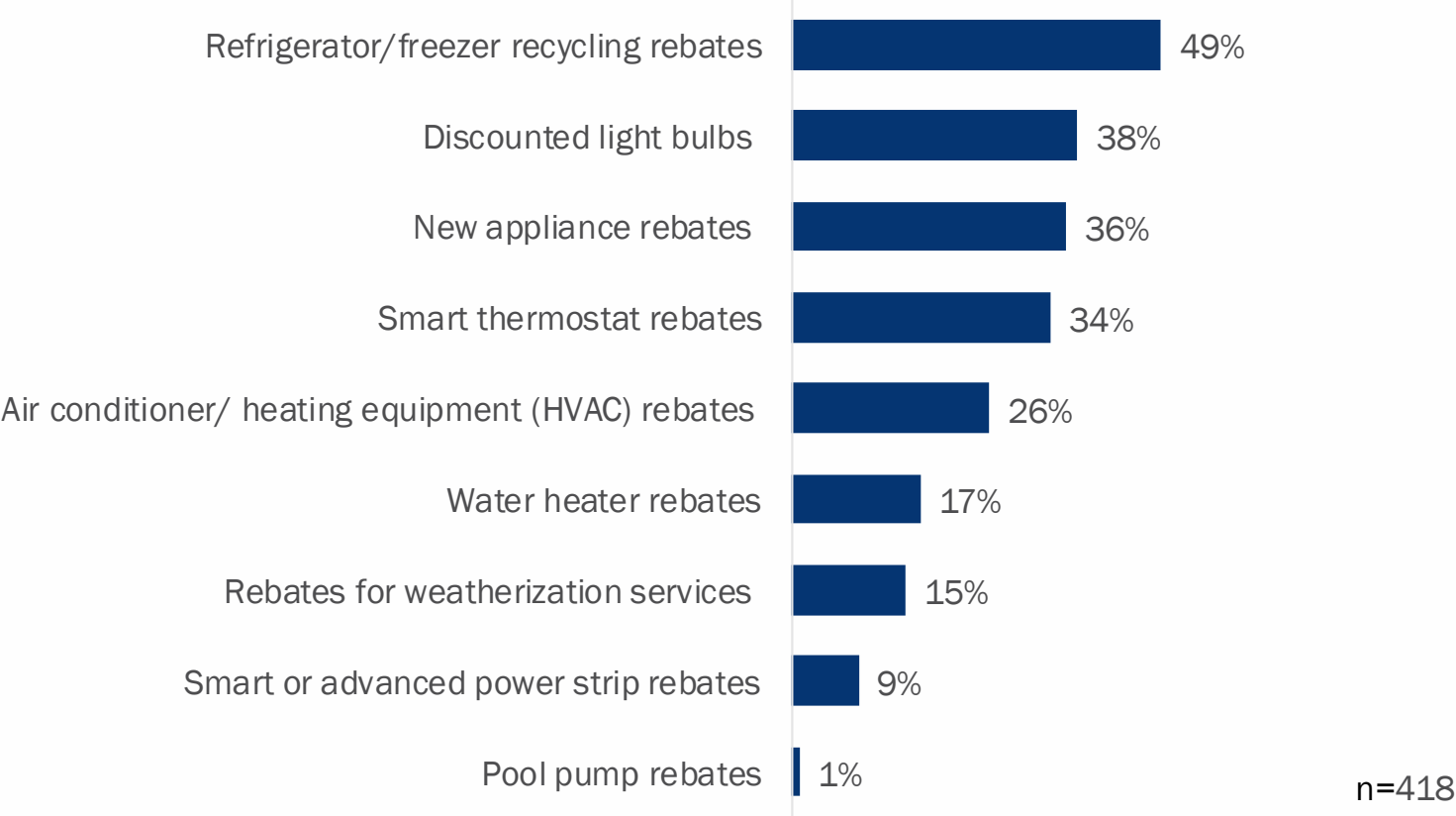


ComEd Program Awareness and Participation



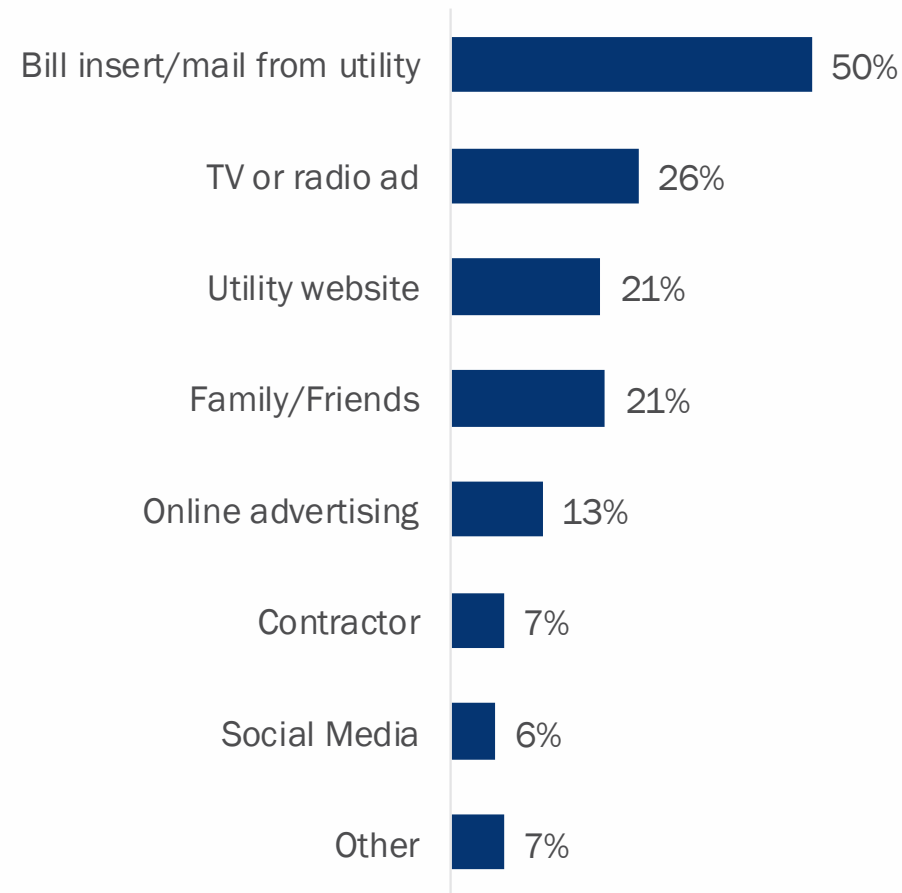
Awareness of ComEd Programs

- 80% of customers are aware of one or more ComEd energy efficiency programs
- The Refrigerator/Freezer Recycling program has the greatest awareness with close to half of customers aware (49%)
- Approximately one-third of customers (34%) are aware of smart thermostat rebates



Sources of Program Awareness

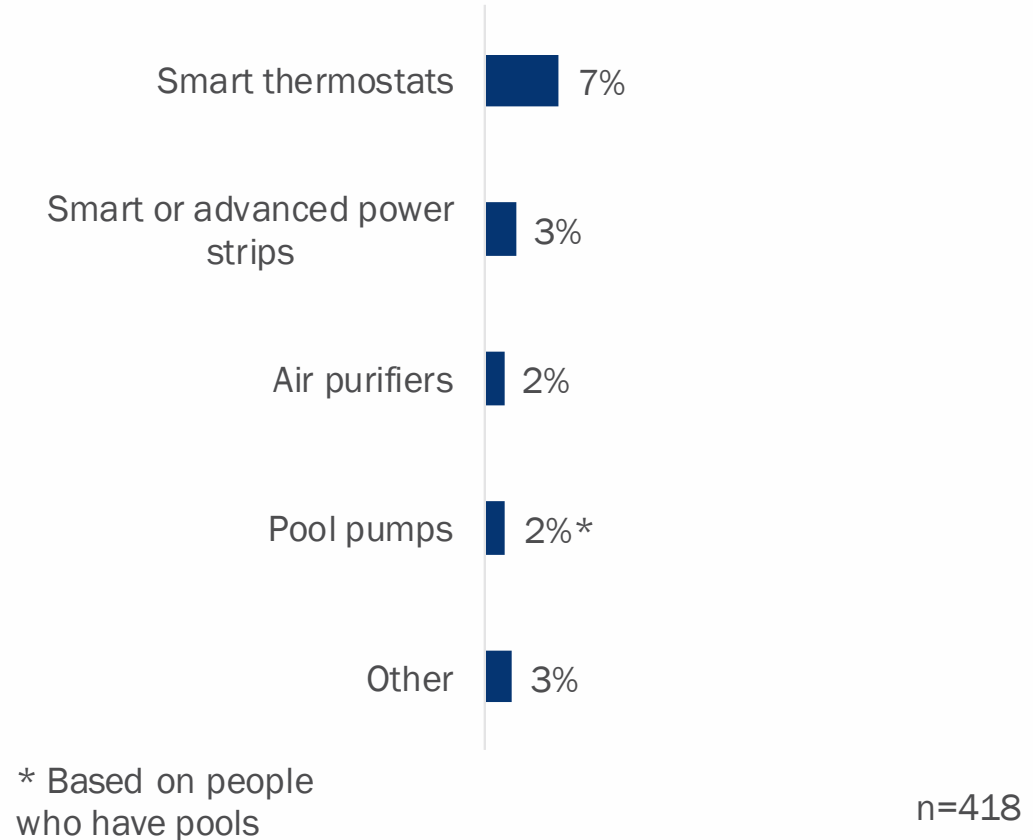
- Bill inserts and mailers from utility are the most common sources of program awareness



n=333

Participation in Programs

- Overall, 14% received one more rebates or purchased discounted products from ComEd in the last year
- Smart thermostats were the most common product with 7% reporting a rebate or discounted purchase. Smaller percentages purchased rebated or discounted power strips (3%), air purifiers (2%), and pool pumps (2%). Even fewer reported receiving an incentive for another product, including refrigerators, light bulbs, and room air conditioners



SEGMENT PROFILES



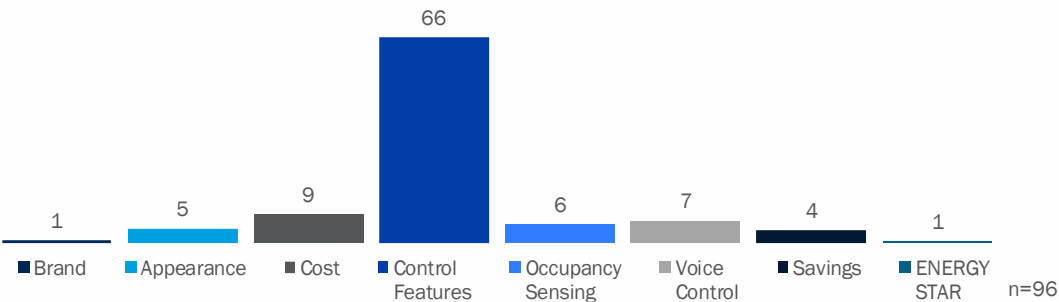
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Tech Devotees

- Tech-savvy early adopters
- More likely than any other segment to own smart thermostats
- Strong preference for advanced thermostat control features
- Willing to purchase smart thermostats at full price

		Tech Devotees	General Population
Segment Size (Householders) % of Population		834,700 25%	3,400,000 N/A
Age	Age <35	18%	19%
	Age <35-54	54%	41%
	Age 55+	29%	40%
Education	HS or less	15%	18%
	Some college	31%	27%
	BA or higher	54%	55%
Employment	Employed	76%	72%
	Retired/Unemployed	24%	28%
Income	Less than \$50k	33%	36%
	\$50k-less than \$75k	14%	17%
	\$75k or more	53%	47%
Home ownership		63%	66%
		n=96	n=390

Thermostat Attribute Relative Importance Scores

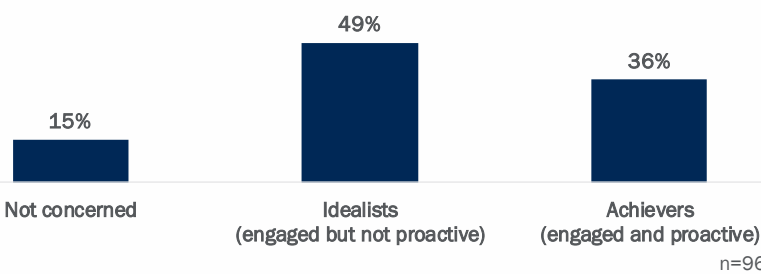


Tech-Savviness Index:
4.4/5
n=96

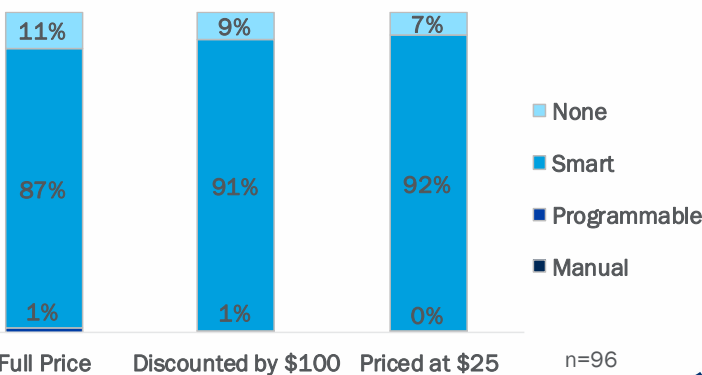
Current Distribution of Thermostat by Type



Engagement with Energy Use



Share of Preference by Smart Thermostat Price Point

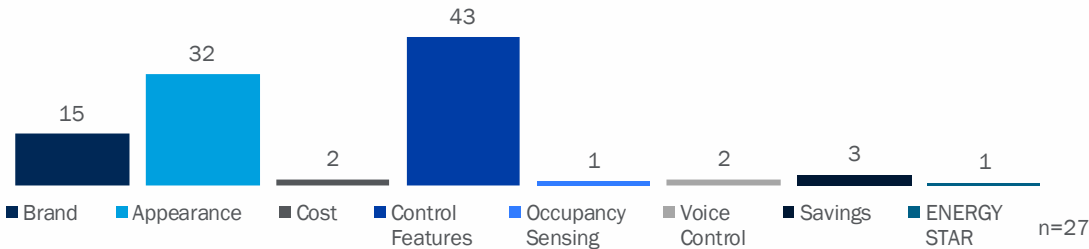


Design at All Costs

- Willing to spend any amount for name brand and modern design
- Place great importance on advanced control features
- Most would buy smart thermostats regardless of price
- Tech-savvy
- Lower levels of educational attainment and lower income levels

		Design at All Costs	General Population
Segment Size (Householders) % of Population		235,960 7%	3,400,000 N/A
Age	Age <35	31%	19%
	Age <35-54	27%	41%
	Age 55+	42%	40%
Education	HS or less	32%	18%
	Some college	27%	27%
	BA or higher	41%	55%
Employment	Employed	71%	72%
	Retired/Unemployed	29%	28%
Income	Less than \$50k	43%	36%
	\$50k-less than \$75k	36%	17%
	\$75k or more	22%	47%
Home ownership		61%	66%
		n=27	n=390

Thermostat Attribute Relative Importance Scores

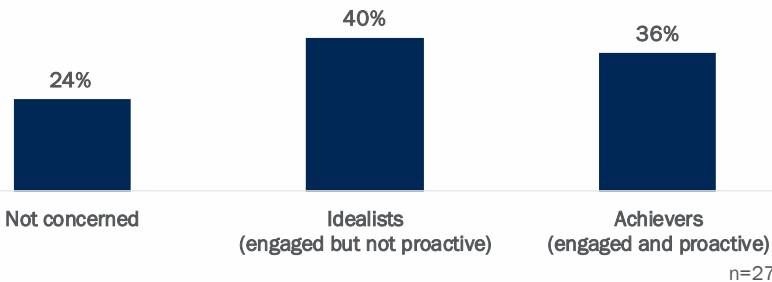


Tech-Savviness Index:
4.3/5
n=27

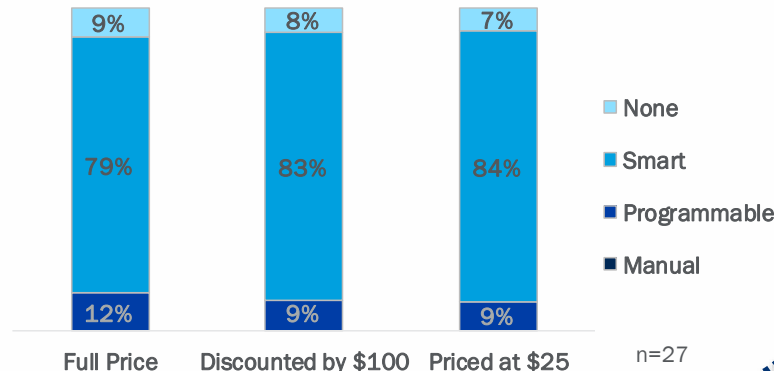
Current Distribution of Thermostat by Type



Engagement with Energy Use



Share of Preference by Smart Thermostat Price Point

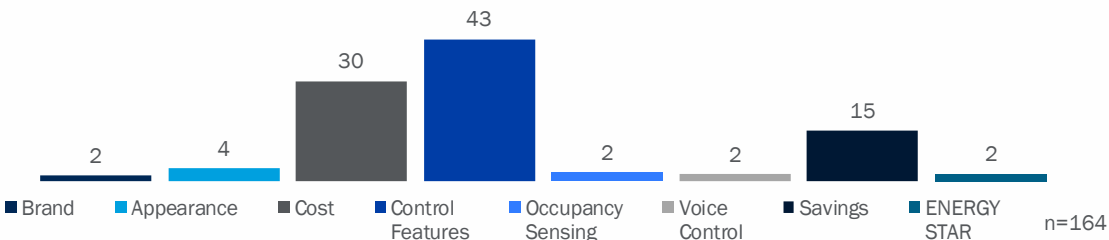


Tech-Appreciating Savings Seekers

- Interest in at least some programmability with appreciation for advanced controls and features
- Open and willing to purchase smart thermostats, especially as prices drop
- Most energy conscious segment

		Tech-Appreciating Savings Seekers	General Population
Segment Size (Householders) % of Population		1,425,960 42%	3,400,000 N/A
Age	Age <35	20%	19%
	Age <35-54	42%	41%
	Age 55+	38%	40%
Education	HS or less	14%	18%
	Some college	27%	27%
	BA or higher	59%	55%
Employment	Employed	72%	72%
	Retired/Unemployed	28%	28%
Income	Less than \$50k	37%	36%
	\$50k-less than \$75k	15%	17%
	\$75k or more	47%	47%
Home ownership		65%	66%
		n=164	n=390

Thermostat Attribute Relative Importance Scores

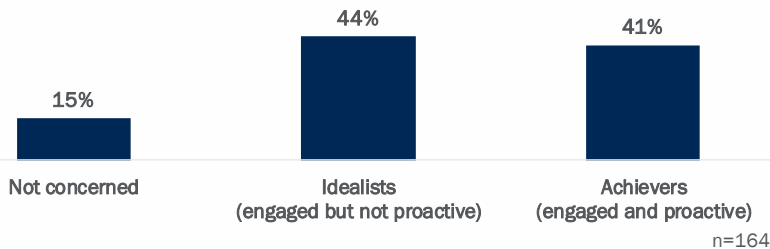


Tech-Savviness Index:
3.6/5
n=164

Current Distribution of Thermostat by Type



Engagement with Energy Use









Share of Preference by Smart Thermostat Price Point



Biggest Bang for the Buck

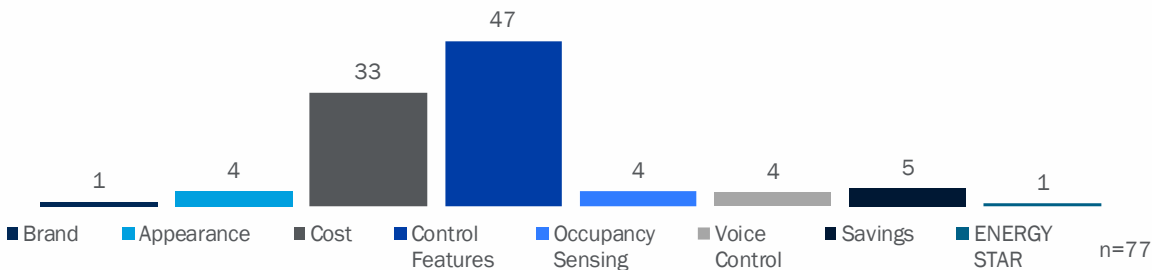
- Looking for as many smart features as possible without overspending
- Least motivation of any segment to purchase a new thermostat
- Most likely of all segments to own their home

		Biggest Bang for the Buck	General Population
	Segment Size (Householders)	671,500	3,400,000
	% of Population	20%	N/A
	Age		
	Age <35	20%	19%
	Age <35-54	34%	41%
	Education		
	HS or less	19%	18%
	Some college	25%	27%
	Employment		
	Employed	67%	72%
	Retired/Unemployed	33%	28%
	Income		
	Less than \$50k	31%	36%
	\$50k-less than \$75k	17%	17%
	\$75k or more	52%	47%
	Home ownership	76%	66%

n=77

n=390

Thermostat Attribute Relative Importance Scores

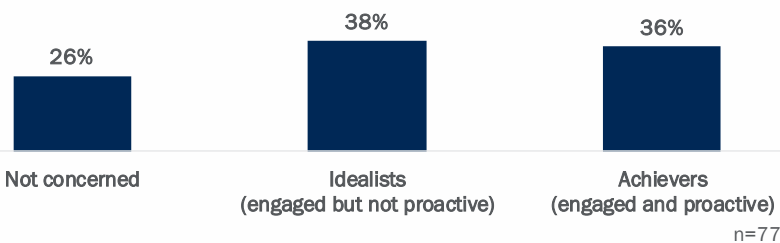


Tech-Savviness
Index:
3.8/5
n=77

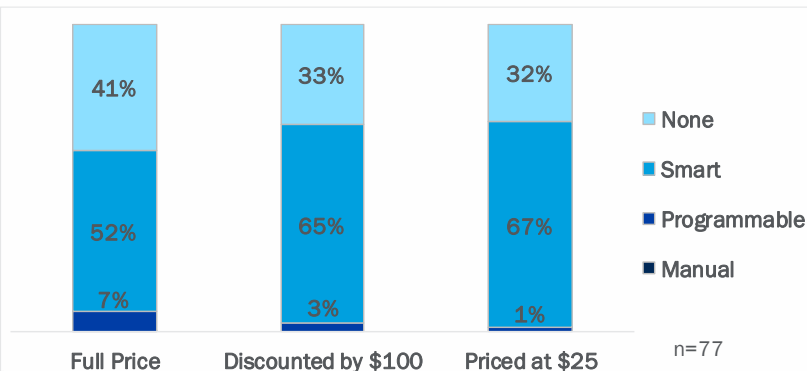
Current Distribution of
Thermostat by Type



Engagement with Energy Use



Share of Preference by Smart Thermostat Price Point

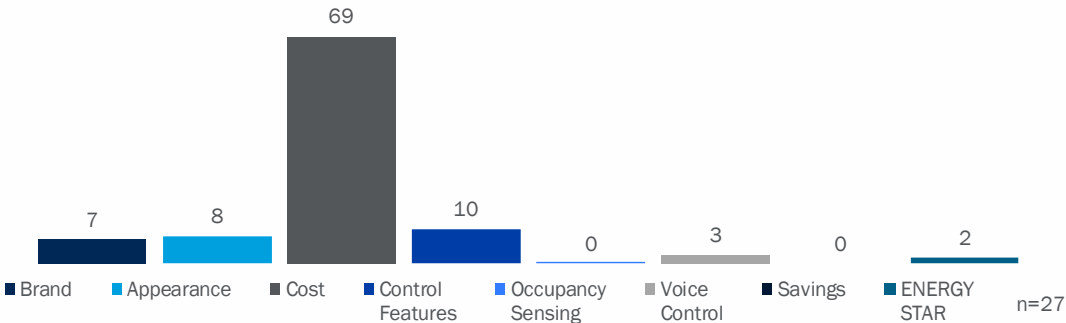


Frugal Traditionalists

- Most price-sensitive
- Prefer manual thermostats
- Least likely to adopt smart thermostats
- None currently own a smart thermostat
- Disproportionately older, lower income, and less educated

		Frugal Traditionalists	General Population
Segment Size (Householders) % of Population		231,880 7%	3,400,000 N/A
Age	Age <35	7%	19%
	Age <35-54	19%	41%
	Age 55+	74%	40%
Education	HS or less	33%	18%
	Some college	25%	27%
	BA or higher	42%	55%
Employment	Employed	72%	72%
	Retired/Unemployed	28%	28%
Income	Less than \$50k	45%	36%
	\$50k-less than \$75k	25%	17%
	\$75k or more	30%	47%
Home ownership		64%	66%
		n=27	n=390

Thermostat Attribute Relative Importance Scores

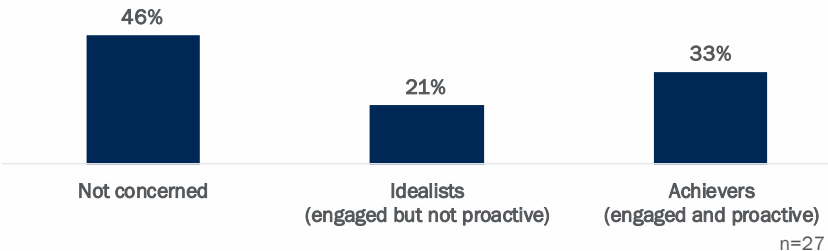


Tech-Saviness Index:
3.5/5
n=27

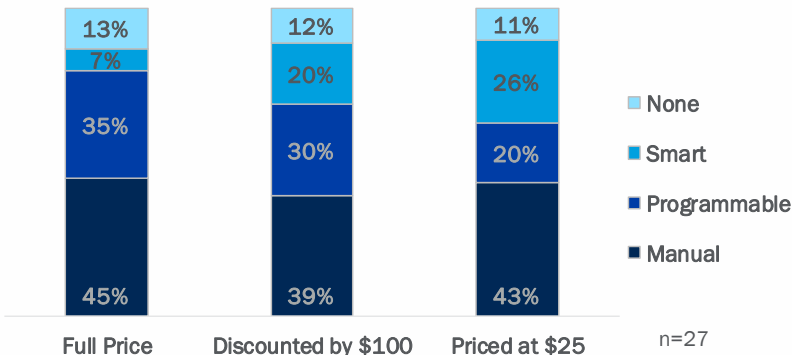
Current Distribution of Thermostat by Type



Engagement with Energy Use



Share of Preference by Smart Thermostat Price Point



APPENDIX



Opinion **Dynamics**

Share of Preference Simulations – Current Market Inputs

Attributes		Manual	Programmable	Ecobee Lite	Nest E	Ecobee 4	Nest Learning
Brand		Honeywell	Honeywell	Ecobee	Nest	Ecobee	Nest
Style							
Cost*		\$25	\$50	\$170	\$170	\$250	\$250
Control Type	Programmable	No	Yes	Yes	Yes	Yes	Yes
	Home sensing	No	No	Yes	No	Yes	No
	Learning	No	No	No	Yes	No	Yes
	Remote access	No	No	Yes	Yes	Yes	Yes
Occupancy sensing		No	No	No	Yes	Yes	Yes
Voice command-enabled		No	No	No	No	Yes	No
Energy savings potential		Up to \$50 per year	Up to \$100 per year	Up to \$140 per year	Up to \$140 per year	Up to \$140 per year	Up to \$140 per year
ENERGY STAR certified		No	No	Yes	Yes	Yes	Yes

* Includes both price and installation cost



Opinion **Dynamics**

Contact Information

Kessie Avseikova

Director

kavseikova@opiniondynamics.com

617-301-4632

