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Date: October 5, 2018
August 23, 2018 (Initial Draft)
September 13, 2018 (Interim Revision)
September 19, 2018 (Second Revision)

Re: Net-to-Gross Research Results from GPY6 for the Peoples Gas and North Shore Gas Home Energy Jumpstart Program and Recommendations for CY2019

This memo presents our free ridership and spillover research results for the GPY6 Peoples Gas (PGL) and North Shore Gas (NSG) Home Energy Jumpstart (HEJ) Program using the Illinois TRM version 6.0 methodologies.¹ The net-to-gross (NTG) survey was fielded in Spring 2018. The focus of the GPY6 research was capturing a representative sample of participants that installed efficient showerhead,² programmable thermostat and re-programming thermostat measures that dominate the program's gross therm savings.³ The GPY6 participant free ridership and spillover results provide updated findings relative to prior NTG research for this program which was conducted on GPY2 participants.⁴ Navigant's recommended free ridership, participant spillover, and NTG values for the PGL and NSG Home Energy Jumpstart Program for CY2019 are summarized in Table 4.

Table 1 below provides a summary of the Home Energy Jumpstart Program GPY6 participant free ridership and spillover research findings. The findings represent a combined population of PGL and NSG participation from GPY6, excluding Smart Thermostats. In total, 110 interviews were completed with

¹ Illinois Statewide Technical Reference Manual for Energy Efficiency, Version 6.0, Volume 4: Cross-Cutting Measures and Attachments, effective January 1st, 2018.

² At the time the research was conducted, showerheads required a free ridership adjustment.

³ The TRM-derived gross savings for Smart thermostats installed through the program do not require NTG adjustment and were excluded from the GPY6 NTG research. Illinois TRM version 7.0 specifies that the free ridership for faucet aerators and showerheads be set at zero when estimating gross savings using the TRM specified baseline average water flow rate. Excluding Smart thermostats, showerheads and aerators, programmable thermostat and re-programming thermostat measures combined saved 96 percent of the PGL gross therms NTG research population, 93 percent of the NSG gross therms NTG research population, and 95 percent for the combined populations (the other measures are boiler pipe insulation and domestic hot water pipe insulation).

⁴ Statewide NTG protocols were not established when the research on GPY2 participants was conducted.

GPY6 PGL and NSG participants. Participant free ridership scores were averaged to yield a measure-level free ridership estimates. Illinois TRM version 7.0⁵ specifies that the free ridership for faucet aerators and showerheads be set at zero when estimating gross savings using the TRM specified baseline average water flow rate. The free ridership value for showerheads shown in Table 1 is for reporting survey findings only.

Table 1. Participant Free Ridership and Spillover Survey Results (GPY6 Participants)

Program	Measure	Participant Spillover (PSO)	Participant Average Free Ridership (FR)	Relative Precision for Net Savings @ 90% CI*
PGL and NSG HEJ	Showerhead†		0.14	11%
	Programmable Thermostat		0.14	9%
	Re-programming Thermostat		0.28	13%
	Population Spillover	0.02		12%

Source: Navigant analysis of data from a computer-assisted telephone survey conducted with PGL and NSG GPY6 Home Energy Jumpstart Program participants.

*The precision estimate is relative to net savings adjusted for the free ridership result (1 – free ridership).

† TRM version 7.0 specifies that the free ridership for faucet aerators and showerheads be set at zero when estimating gross savings using the TRM specified baseline average water flow rate. The free ridership value shown here is for reporting survey findings only.

For comparison, the GPY6 deemed net to gross value is presented below.

Table 2. GPY6 Deemed NTG Values

Measure Category	FR	PSO	NTG
Overall HEJ Program	0.08	0.04	0.96

Source: Peoples Gas (PGL) and North Shore Gas (NSG) Summary of Deemed NTG Values for GPY1 through GPY7 Updated to include Final NTG Values for GPY7. March 1, 2017.

These values are based on evaluation research conducted with GPY2 participants and have been the SAG-approved NTG ratio and component values for the Home Energy Jumpstart Program since then, including GPY7 (2018). Statewide NTG protocols were not established when the research was conducted with GPY2 participants.

GPY6 Free Ridership and Spillover Research Data Collection

The GPY6 free ridership and spillover research was conducted using a customer self-report approach through a computer-assisted telephone interviewing (CATI) survey with 110 participants from a randomized sample of 9,424 PGL and NSG GPY6 HEJ participants. The counts for the completed participant interviews and sample design are outlined in Table 3. Participants that installed multiple measures were interviewed for up to three measures. Most participants interviewed for thermostat

⁵ Illinois Statewide Technical Reference Manual for Energy Efficiency, Version 7.0, effective January 1st, 2019.

measures also had showerheads as a second measure. Therefore, the 110 interviews covered 164 installed measures. After reviewing the response data, Navigant excluded 35 measure installations from the free ridership sample because of failed consistency checks or lack of required data to conduct the free ridership analysis. The free ridership was estimated from the remaining 129 measure installation responses (164 minus 35). A detailed discussion of Navigant’s approach to consistency checks and disposition for the free ridership sample is provided in the Appendix at the end of this memo. All 110 interviews were included in the spillover sample.

Table 3. Free Ridership and Spillover Research Sample and Disposition

NTG Component	Measure	Number of Usable Contacts	Target Completes	Measure Installations Covered by Completed Interviews*	Dropped from the Analysis	Analyzed Completes†
Free Ridership						
	Showerhead	3,716	40	92	12	80
	Programmable Thermostat	3,028	35	36	8	28
	Re-Programming Thermostat	2,680	35	36	15	21
	Total	9,424	110	164	35	129
Spillover		9,424	110			110

Source: PGL and NSG Home Energy Jumpstart Program GPY6 tracking data, survey response data, and evaluation analysis.

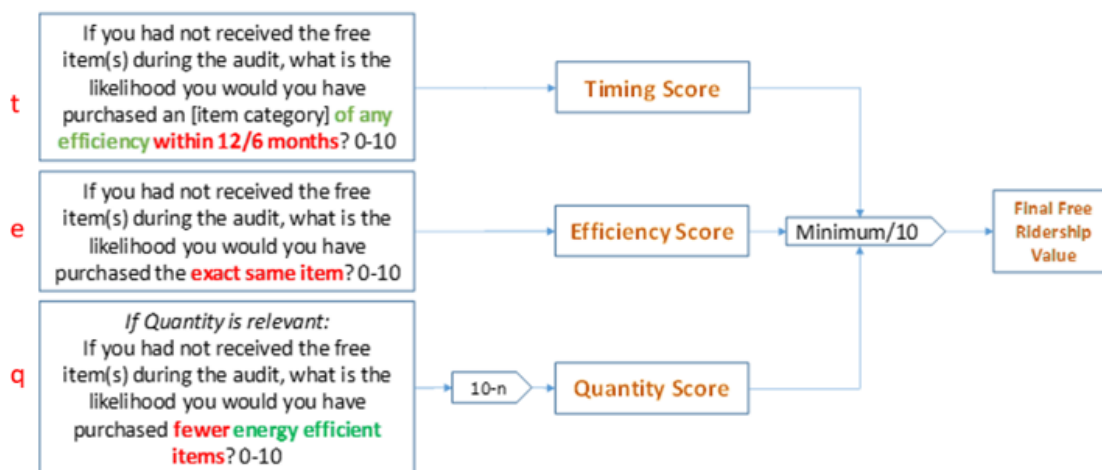
* The call center completed interviews with 110 participants. Participants that installed multiple measures were interviewed for up to three measures, and each measure installation is counted in the 164 total.

† Analyzed Completes provides the interview count used to develop the free ridership and spillover estimates. Analyzed Completes excludes responses that failed consistency checks or lacked required data (discussed in the Appendix below).

Free Ridership Estimates Using Algorithms in the TRM Version 6.0

The following diagram describes the IL TRM v6.0 free ridership algorithm for residential single family, no-cost, direct install programs (protocol 4.5).

Figure 1. Protocol for Residential No-Cost, Direct Install Free Ridership



Source: Illinois TRM Version 6, Volume 4. Cross-Cutting Measures and Attachments, final February 8, 2017, effective January 1st, 2018.

Navigant applied the algorithm prescribed by the TRM version 6.0 flow diagram to the data we collected from 110 GPY6 Home Energy Jumpstart Program participants.

Participant Spillover Estimation

The respondents were asked in the telephone survey if they had installed any additional natural gas saving measures to reduce energy consumption since participating in the Home Energy Jumpstart Program. Navigant included 19 questions to identify spillover candidates and estimate savings.⁶ These questions addressed three general aspects, paraphrased below:

1. Since participating in the program, did you make additional energy efficiency improvements that were not rebated by a utility program?
2. How much influence did your participation in the program have on your making additional energy efficiency improvements?
 - a. On a zero to ten scale, where zero is not at all important and ten is extremely important, how important was your participation in the Home Energy Jumpstart Program on your decision to make additional energy efficiency improvements outside of a utility program? [Attribution Score 1.]
 - b. If you had not participated in the Home Energy Jumpstart Program, how likely is it that you would have made additional energy efficiency improvements? Please use a zero to ten scale, where zero means that you definitely would not have made additional energy efficiency improvements and ten means that you definitely would have made them? [Attribution Score 2.]

⁶ Respondents do not answer all 19 questions – follow-up questions are skipped depending on earlier responses.

3. What were details of the energy efficiency improvements (efficiency level, quantity, etc.)?

Spillover was considered to be attributable to the Home Energy Jumpstart Program if the following condition is met: the average of Attribution Score 1 and (10 minus Attribution Score 2) must exceed 5.0.⁷ Of the 110 survey respondents, 22 reported that they installed additional energy efficient equipment, but only 12 of them indicated that participating in the Home Energy Jumpstart Program influenced them to make these additional purchases. Navigant determined that only nine of those 12 had spillover averaged attribution scores greater than five. Finally, only four of those nine installed equipment with quantifiable natural gas savings,⁸ which included a low flow showerhead, a gas clothes dryer, energy efficient windows, and a programmable thermostat. Together, the therm savings from these improvements amounted to 2 percent of program savings for the 110 respondents in the spillover sample. Because the 110 were selected as a simple random sample, their spillover savings rate is representative of the population of GPY6 program participants.

⁷ The spillover methodology is guided by NTG protocols in the Illinois TRM Version 6, Volume 4. Cross-Cutting Measures and Attachments, final February 8, 2017, effective January 1st, 2018.

⁸ Electric-saving spillover actions are not credited to the natural gas spillover.

NTG Recommendations for CY2019

Navigant’s recommended free ridership, participant spillover, and NTG values for the PGL and NSG Home Energy Jumpstart Program for CY2019 are summarized in Table 4. Two measures – boiler pipe insulation and pipe insulation domestic hot water (DHW) outlet – had low participation in GPY6 (about 3 percent of overall program savings combined) and were not represented in the HEJ survey research. Navigant recommends a free ridership of 0.14 for those measures, matching the findings for showerheads and programmable thermostats, because they are equipment measures whereas re-programming thermostats is a service measure.

Table 4. Summary of Free Ridership, Spillover and NTG Values for the HEJ Program for CY2019

Measure	FR	PSO	NTG
Smart Thermostat - Manual Baseline (Condo)	NA*	NA*	NA*
Smart Thermostat - Manual Baseline (SF)	NA*	NA*	NA*
Smart Thermostat - Programmable Baseline (Condo)	NA*	NA*	NA*
Smart Thermostat - Programmable Baseline (SF)	NA*	NA*	NA*
Faucet Aerator – Bathroom†	0	0.02	1.02
Faucet Aerator – Kitchen†	0	0.02	1.02
Showerhead†	0	0.02	1.02
Boiler Pipe Insulation‡	0.14	0.02	0.88
Pipe Insulation - DHW Outlet‡	0.14	0.02	0.88
Thermostat - Programmable Boiler/Furnace§	0.14	0.02	0.88
Thermostat - Re-Programming Boiler/Furnace	0.22	0.02	0.80

Source: Navigant analysis of data from a CATI survey conducted with 110 GPY6 PGL and NSG Home Energy Jumpstart Program participants.

* The savings for natural gas heating provided in Illinois TRM Version 6.0, Section 5.3.16 were derived from a billing regression analysis with an experimental design that does not require further net savings adjustment.

† TRM version 7.0 specifies that the free ridership for faucet aerators and showerheads be set at zero when estimating gross savings using the TRM specified baseline average water flow rate.

‡ Measures were not included in GPY6 HEJ NTG survey research. Free ridership is based on evaluation judgment.

§ FR and PSO values from GPY6 HEJ NTG survey research.

FR = Participant Free Ridership; PSO = Participant Spillover

$NTGR = 1 - FR + PSO$

There were too few responses for the re-programming thermostat measure to use the results from the survey of the GPY6 HEJ participants alone. During the SAG NTG discussions on September 24, 2018, SAG consensus was that evaluators should combine the Nicor Gas GPY6/CY2018 Home Energy Savings (12 responses) and the PGL & NSG GPY6 HEJ (21 responses) survey results for the re-programming thermostat free ridership value (combined 33 responses average FR=0.34), and then take an average of those results and the Nicor Gas Home Energy Savings GPY6/CY2018 water heater temperature setback free ridership results (FR = 0.09). The final free ridership was 0.22.

APPENDIX 1: Free Ridership Sample Disposition and Consistency Check Analysis

Of the 164 measures installed and captured in the raw interview data, ten measure installations were dropped from the free ridership sample because the respondent only answered one of three crucial program component score questions (quantity score, timing score and efficiency score). Additionally, 15 measure installations were dropped from the analysis for non-response on any of the free ridership scoring data.

Of the remaining responses, 26 corresponded to consistency check failures, whereby respondents answered questions indicating that the program was both highly influential and inconsequential to their decision to install a measure through the program. The consistency check remediation methodology relied on having two independent reviewers assign 'likely high/low program influence' or 'inconclusive program influence' based on the respondents' program component answers and their answer to an open-ended probing question triggered by a consistency check failure. Measure-level responses were dropped from the analysis if respondents lacked a response to the open-ended question or if both independent reviewers assigned 'inconclusive program influence.' This resulted in a total of seven measures dropped due to a lack of open ended question responses and three measures dropped due to inconclusive influence explanations (10 drops total out of 26 consistency check failures).

Among the remaining 16 inconsistent responses, there was a common pattern in the responses: the program influence sub-scores and open-ended responses reflected a high program influence, but the no-program scores indicated a high likelihood of purchasing and installing the measure if the program did not exist. In these cases we interpreted the program influence and open-ended scores as representative. On the basis of this analysis of multiple data points per respondent, the adjustment made to the remaining 16 free ridership scores employed the following formula: Free ridership = $1 - (\text{Program Influence Score}/10)$.

As summarized in the table below, Navigant's survey of 110 participants covered 164 measure installations, of which 35 were dropped for missing or inconsistent data. Navigant's recommended free ridership estimates are based on the remaining 129 responses (164 minus 35), noting that 16 of the 129 responses apply the consistency check adjustment.

Table 5. Free Ridership Survey Disposition

Measure Response Disposition	Showerhead	Programmable Thermostat	Re-Programming Thermostat	Total
Measure installations covered by interviews	92	36	36	164
Excluded: Non-response	2	2	11	15
Excluded: Had only one scoring factor	3	0	3	6
Excluded: Had only one scoring factor but also failed consistency check	1	3	0	4
Excluded: Failed consistency check and no open-ended response	5	1	1	7
Excluded: Failed consistency check but inconclusive open-ended response	1	2	0	3
Total of Excluded Responses	12	8	15	35
Analyzed Sample	80	28	21	129
Included in Analyzed Sample: Failed consistency check but open-ended response supported an adjusted score	7	6	3	16

Source: PGL and NSG Home Energy Jumpstart Program GPY6 survey response data and evaluation analysis.

Table 6 below shows free ridership results for each measure with and without adjustments made as a result of the consistency check analysis. The sample prior to consistency check analysis was 149 measures installed, after excluding the 15 non-responsive interviews from the original 164. The sample after further analysis to exclude 20 measure installations was 129 measures installed, and 16 of the 129 measure installations received consistency check adjustments. If we had removed the 16 inconsistent responses we adjusted from the analysis, the remaining 113 responses would result in the free ridership values shown in the furthest right column below.

Table 6. Free Ridership with and without Consistency Check Updates

Program	Measure	Population Weights FR	Participant Average FR Score (without Consistency Check Adjustments) (n=149)	Participant Average FR Score (with Consistency Check Adjustments) (n=129)	Participant Average FR Score (Removing all Inconsistent Responses) (n=113)
PGL and NSG HEJ	Showerhead	0.313	0.21	0.14	0.14
	Programmable Thermostat	0.364	0.36	0.14	0.17
	Re-programming Thermostat	0.323	0.40	0.28	0.33

Free Ridership Component Scores

To estimate free ridership for direct install measures according to the TRM, the evaluation team took the minimum of three component scores (timing, efficiency, and quantity) and divided it by 10, as shown in Figure 1. Table 7 below shows the average for each component score as well as the average FR score, for each direct install measure. The free ridership algorithm is applied to individual respondents, and then those respondent free ridership values are averaged for the measure-level free ridership.

Table 7. Free Ridership Component

Program	Measure	Participant Average Timing (t) Score	Participant Average Efficiency (e) Score	Participant Average Quantity (10-q) Score	Participant Average FR Score
PGL and NSG HEJ	Showerhead	4.1	4.1	5.2	0.14
	Programmable Thermostat	4.4	3.6	NA	0.14
	Re-program Thermostat	5.3	4.6	NA	0.28

Appendix 2: Survey Instrument

PGL AND NSG HOME ENERGY JUMPSTART PROGRAM PARTICIPANT SURVEY

January 9, 2018

Hello, this is _____ from the Blackstone Group calling on behalf of [Utility] about your participation in the Home Energy Jumpstart Program. May I please speak with [Account_Name]?

We are calling to ask you some questions about your experience with the [Utility] Home Energy Jumpstart Program. You will receive a \$25 gift card for completing this survey in appreciation of your time spent with us.

According to our records, you participated in the Home Energy Jumpstart Program on [Date] when an energy advisor visited your home, assessed your home's energy performance, and installed some energy-saving products.

Your responses will help [Utility] improve their programs and better serve customers like you.

Are you the best person in your household to discuss the program experience with? [IF NOT, ASK TO SPEAK TO THE BEST PERSON; SCHEDULE CALLBACK IF NECESSARY]

This is an anonymous survey where your responses will be combined with other participants' responses and shared with [Utility].

Are you driving a car or doing anything else that requires your focused attention?

(INTERVIEWER: IF RESPONDENT SAYS YES, READ; *Due to safety reasons, we will need to call you back at a more convenient time. Thank you.*)

- 1 YES (SET AS SOFT CALLBACK)
- 2 NO

This survey will take about 20 minutes. Is now a good time? [IF NO, SCHEDULE CALLBACK]

Just to confirm, an energy advisor visited your home on [Date] and installed energy-saving products, is that correct? [IF NO, THANK AND TERMINATE THE CALL]

[Free Ridership – High Efficiency Showerheads]

[IF <MEASURE1>=HES, ASK HES0,
OR

IF <MEASURE 2>=HES, ASK HES0,
OR

IF <MEASURE 3>=HES, ASK HES0,
ELSE SKIP TO NEXT SECTION]

HES0. Our records indicate that an energy advisor installed a high efficiency showerhead through the Home Energy Jumpstart program. Is that correct?

1. YES [SKIP TO HES1]
2. NO [SKIP TO NEXT SECTION]
98. DK [SKIP TO NEXT SECTION]
99. REF [SKIP TO NEXT SECTION]

HES1. Considering all the factors that influenced your decision to have the high efficiency showerhead installed, how many points, out of 100, would you assign to the Home Energy Jumpstart program for influencing your decision? [IF NECESSARY, EXPLAIN THAT IF THE PROGRAM WAS TOTALLY INFLUENTIAL, YOU WOULD ASSIGN 100 POINTS TO IT] [0 to 100, DK, REF]

[RAW PROGRAM INFLUENCE SCORE = RPI = {HES1}/10; RPI IS USED FOR CONSISTENCY CHECK.]

HES2. If you had not received the free high efficiency showerhead(s) during the audit, what is the likelihood you would have purchased a showerhead **of any efficiency within six months** of the audit?

Please rate on a scale of 0 to 10 where 10 means it is **extremely likely** that you would have purchased any type of showerhead and 0 means it is **not at all likely**. [0 to 10, DK, REF]

HES3. On the same 0 to 10 scale, if you had not received the free high efficiency showerhead(s) during the audit, what is the likelihood you would have purchased **the exact same** high efficiency showerhead? [0 to 10, DK, REF]

[IF <MEASURE1>=HES and <MEASUREQTY1>> 1, ASK HES3,
OR
IF <MEASURE2>=HES and <MEASUREQTY2>>1, ASK HES3,
OR
IF <MEASURE3>=HES and <MEASUREQTY3>>1, ASK HES3,
ELSE SKIP TO NEXT SECTION]

HES4. Our records show that the energy advisor installed [MEASUREQTY] high efficiency showerheads in your home. On the same 0 to 10 scale, if you had not received the free high efficiency showerheads during the audit, what is the likelihood you would have purchased **fewer** high efficiency showerheads? [0 to 10, DK, REF] [IF NECESSARY, EXPLAIN THAT IF THEY WOULD NOT HAVE PURCHASED ANY AT ALL, THEN 10 EXTREMELY LIKELY THEY WOULD HAVE PURCHASED FEWER]

[NO-PROGRAM SCORE = NP = MIN {HES2, HES3, 10-HES4}; NP IS USED FOR CONSISTENCY CHECK.]

[CC1 WILL BE PRESENTED IF ONE OF THE FOLLOWING CASES IS TRUE

1. RPI >= 7 AND NP >= 7
2. RPI <= 3 AND NP <= 3]

CC1. In your own words, please describe the influence the Home Energy Jumpstart program had on your decision to install the high efficiency showerhead.

[OPEN ENDED RESPONSE BOX]

[FREE RIDERSHIP (FR) = MIN {HES2, HES3, 10-HES4} / 10

[Free Ridership – New Programmable Thermostats]

[IF <MEASURE1>=PT, ASK PT0,
OR
IF <MEASURE 2>=PT, ASK PT0,
OR
IF <MEASURE 3>=PT, ASK PT0,
ELSE SKIP TO NEXT SECTION]

PT0. Our records indicate that an energy advisor installed a programmable thermostat(s) through the Home Energy Jumpstart program. Is that correct?

1. YES [SKIP TO PT1]
2. NO [SKIP TO NEXT SECTION]
98. DK [SKIP TO NEXT SECTION]
99. REF [SKIP TO NEXT SECTION]

PT1. Considering all the factors that influenced your decision to have the programmable thermostat installed, how many points, out of 100, would you assign to the Home Energy Jumpstart program for influencing your decision? [IF NECESSARY, EXPLAIN THAT IF THE PROGRAM WAS TOTALLY INFLUENTIAL, YOU WOULD ASSIGN 100 POINTS TO IT] [0 to 100, DK, REF]

[RAW PROGRAM INFLUENCE SCORE = RPI = {PT1} /10; RPI IS USED FOR CONSISTENCY CHECK.]

PT2. If you had not received the free programmable thermostat(s) during the audit, what is the likelihood you would have purchased any type of thermostat **within six months** of the audit?

Please rate on a scale of 0 to 10 where 10 means it is **extremely likely** that you would have purchased any type of thermostat and 0 means it is **not at all likely**. [0 to 10, DK, REF]

PT3. On the same 0 to 10 scale, if you had not received the free programmable thermostat(s) during the audit, what is the likelihood you would have purchased **the exact same** programmable thermostat(s)? [0 to 10, DK, REF]

[NO-PROGRAM SCORE = NP = MIN {PT2, PT3}; NP IS USED FOR CONSISTENCY CHECK.]

[CC1 WILL BE PRESENTED IF ONE OF THE FOLLOWING CASES IS TRUE

1. RPI >= 7 AND NP >= 7
2. RPI <= 3 AND NP <= 3]

CC1. In your own words, please describe the influence the Home Energy Jumpstart program had on your decision to install the programmable thermostat.

[OPEN ENDED RESPONSE BOX]

[FREE RIDERSHIP (FR) = MIN {PT2, PT3} / 10

[Free Ridership – Reprogram Existing Programmable Thermostats]

[IF <MEASURE1>=REPT, ASK REPT0,
OR
IF <MEASURE 2>=REPT, ASK REPT0,
OR
IF <MEASURE 3>=REPT, ASK REPT0,
ELSE SKIP TO NEXT SECTION]

REPT0. Our records indicate that an energy advisor reprogrammed your existing programmable thermostat(s) through the Home Energy Jumpstart program. Is that correct?

1. YES [SKIP TO REPT1]
2. NO [SKIP TO NEXT SECTION]
98. DK [SKIP TO NEXT SECTION]
99. REF [SKIP TO NEXT SECTION]

REPT1. Considering all the factors that influenced your decision to have your existing thermostat reprogrammed, how many points, out of 100, would you assign to the Home Energy Jumpstart program for influencing your decision? [IF NECESSARY, EXPLAIN THAT IF THE PROGRAM WAS TOTALLY INFLUENTIAL, YOU WOULD ASSIGN 100 POINTS TO IT] [0 to 100, DK, REF]

[RAW PROGRAM INFLUENCE SCORE = RPI = {REPT1}/10; RPI IS USED FOR CONSISTENCY CHECK.]

REPT2. If the energy advisor had not reprogrammed your thermostat(s) during the audit, what is the likelihood you would have reprogrammed your thermostat **within six months** of the audit?

Please rate on a scale of 0 to 10 where 10 means it is **extremely likely** that you would have reprogrammed your thermostat and 0 means it is **not at all likely**. [0 to 10, DK, REF]

REPT3. On the same 0 to 10 scale, if the energy advisor had not reprogrammed your thermostat(s) during the audit, what is the likelihood you would have reprogrammed your thermostat(s) to **the exact same** time and temperature settings? [0 to 10, DK, REF]

[NO-PROGRAM SCORE = NP = MIN {REPT2, REPT3}; NP IS USED FOR CONSISTENCY CHECK.]

[CC1 WILL BE PRESENTED IF ONE OF THE FOLLOWING CASES IS TRUE

1. RPI >= 7 AND NP >= 7
2. RPI <= 3 AND NP <= 3]

CC1. In your own words, please describe the influence the Home Energy Jumpstart program had on your decision to have your existing thermostat reprogrammed.

[OPEN ENDED RESPONSE BOX]

[FREE RIDERSHIP (FR) = MIN {REPT2, REPT3} / 10

[Spillover Questions]

SO intro. Did the program influence you in any way to make additional energy efficiency improvements? [OPEN ENDED RESPONSE; PROBE WITH "WHAT IMPROVEMENTS?" "WHAT ELSE?"]

SO1. Since you participated in the Home Energy Jumpstart Program have you purchased and installed any other energy efficient products through a utility program?

1. YES [GO TO SO2]
2. NO [GO TO SO3]
98. DK [GO TO SO3]
99. REF [GO TO SO3]

SO2. What type of product did you install and what utility program did you go through? [OPEN ENDED RESPONSE]

SO3. Since you participated in the Home Energy Jumpstart Program have you purchased and installed any other energy efficient equipment outside a utility program?

1. YES [GO TO SO4]
2. NO [GO TO PROGRAM SATISFACTION SECTION]
98. DK [GO TO PROGRAM SATISFACTION SECTION]
99. REF [GO TO PROGRAM SATISFACTION SECTION]

SO4. How important was your participation in the Home Energy Jumpstart program on your decision to make additional energy efficiency improvements outside of a utility program? Please rate on a scale of 0 to 10, where 10 is **extremely important** and 0 is **not at all important**. [0-10, DK, REF]

SO5. If you had not participated in the Home Energy Jumpstart program, how likely is it that you would have made additional energy efficiency improvements? Please rate on a scale of 0 to 10, where 0 means you definitely **would not** have made additional energy efficiency improvements and 10 means you **definitely would** have made them, even if you had not participated in the Home Energy Jumpstart program. [0-10, DK, REF]

[SPILLOVER SCORE (SS) = {SO4 + {10 – SO5}}/2

IF SS > 5, ASK SO6,

ELSE SKIP TO NEXT SECTION]

SO6. What was the energy-efficient product you installed outside a utility program? [DO NOT READ LIST, CHECK ALL THAT APPLY]

1. AIR SEALING AKA WEATHER STRIPPING
2. BOILER
3. FAUCET AERATORS FOR KITCHEN AND BATH
4. FURNACE
5. HEAT PUMP
6. HOT WATER PIPE INSULATION
7. INSULATION
8. SHOWERHEADS
9. THERMOSTAT
10. WATER HEATER
11. NATURAL GAS WATER HEATER TEMPERATURE SETBACK
12. OTHER, SPECIFY _____
98. DK
99. REF

SO7. [IF SO6<13] Why didn't you receive utility incentives for the additional energy-efficient product you installed? [OPEN ENDED, DK, REF]

SO8a. [IF SO6 = 1] What type of air sealing did you install? [PROBE FOR WINDOW SEALING, DOOR SEALING, DUCT SEALING] [OPEN ENDED, DK, REF]

SO8b. [IF SO6 = 1] In what locations did you do air sealing? [OPEN ENDED, DK, REF]

SO9. [IF SO6=2] What is the efficiency rating of your new boiler? OR How do you know your model is more efficient than other models? [PROBE FOR WHETHER REPORTING AFUE OR OTHER EFFICIENCY LEVEL OR ENERGY STAR LABEL] [OPEN ENDED, DK, REF]

SO10. [IF SO6 = 3] How many faucet aerators did you install? [OPEN ENDED, DK, REF]

SO11. [IF SO6 = 4] What is the efficiency rating of your new furnace? OR How do you know your model is more efficient than other models? [PROBE FOR WHETHER REPORTING AFUE OR OTHER EFFICIENCY LEVEL OR ENERGY STAR LABEL] [OPEN ENDED, DK, REF]

SO12a. [IF SO6 = 5] What is the efficiency of the heat pump? OR How do you know your model is more efficient than other models? [PROBE FOR WHETHER REPORTING EER, SEER, OR OTHER EFFICIENCY LEVEL] [OPEN ENDED, DK, REF]

SO12b. [IF SO6 = 5] What type of heat pump did you install: air source or ground source/geothermal?

1. AIR SOURCE
2. GROUND SOURCE/GEOTHERMAL
98. DK
99. REF

SO13. [IF SO6 = 6] How many linear feet of hot water pipe insulation did you install? [OPEN ENDED, DK, REF]

SO14a. [IF SO6 = 7] How is your house heated? [PROBE FOR WHETHER ELECTRIC OR NATURAL GAS] [OPEN ENDED, DK, REF]

SO14b. [IF SO6 = 7] In what location was the insulation installed? [OPEN ENDED, DK, REF]

SO14c. [IF SO6 = 7] In what quantities was the insulation installed [PROBE FOR R VALUE, INCHES, OR FEET] [OPEN ENDED, DK, REF]

SO15. [IF SO6 = 8] How many high efficiency showerheads did you install? [OPEN ENDED, DK, REF]

SO16a. [IF SO6 = 9] How is your home heated? [PROBE FOR WHETHER ELECTRIC OR NATURAL GAS] [OPEN ENDED, DK, REF]

SO16b. [IF SO6 = 9] How many thermostats did you install? [OPEN ENDED, DK, REF]

SO16c. [IF SO6 = 9] What type of thermostat did you install: manual, programmable, or smart/learning?

1. MANUAL
2. PROGRAMMABLE
3. SMART/LEARNING
98. DK
99. REF

SO17a. [IF SO6 = 10] Is your water heated using natural gas or electricity? [OPEN ENDED, DK, REF]

SO17b. [IF SO4 = 10] Does it have an ENERGY STAR label? [OPEN ENDED, DK, REF]

SO17c. [IF SO4 = 10] Does your water heater have a tank or is it tankless? [OPEN ENDED, DK, REF]

SO18a. [IF SO6 = 11] Is your water heated using natural gas or electricity? [OPEN ENDED, DK, REF]

SO18b. [IF SO6 = 11] Did you lower the settings on your water heater?

1. Yes, lowered it
2. No, did not adjust it
98. DK
99. REF

SO18c. [IF SO6 = 11] What was the water heater temperature originally set at? [OPEN ENDED, DK, REF]

SO18d. [IF SO6 = 11] What is the water heater temperature currently set at? [OPEN ENDED, DK, REF]

SO19. [IF SO6 = 12] Can you describe your energy efficiency project? [IF EQUIPMENT, PROBE FOR QUANTITY, MAKE AND MODEL, AND IF IT'S ENERGY EFFICIENT OR ENERGY STAR LABELED] [OPEN ENDED, DK, REF]

[Program Satisfaction – Ask All]

PS1. On a scale of 0 to 10, where 10 is extremely satisfied and 0 is not at all satisfied, how would you rate your satisfaction with...? [SCALE 0-10; 96=not applicable, 98= Don't know, 99=Refused]

- A. The professionalism of the energy advisor who performed the energy assessment
- B. The measures installed through the program
- C. The helpfulness of the energy assessment
- D. The Home Energy Jumpstart program overall

[ASK IF PS1A, B, C, OR D <4]

PS2. You gave a rating lower than four out of ten to [attribute or attributes], could you please explain the reason or reasons behind the dissatisfied rating(s)?

[OPEN ENDED RESPONSE BOX; 98=DK; 99=REF]

PS3. How could the Home Energy Jumpstart program be improved?

[OPEN ENDED RESPONSE BOX; 98=DK; 99=REF]

PS4. Thinking about your program experience, has your opinion of [Utility] become more favorable, less favorable, or stayed the same?

- 1 - MORE FAVORABLE
- 2- LESS FAVORABLE
- 3- STAYED THE SAME
- 98. DK
- 99. REF

PS5. Are there other efficiency improvement projects that you wish were included in this program? If so, what kind of projects?

[OPEN ENDED RESPONSE BOX; 98=DK; 99=REF]

PS6a. How did you first learn about this program? [OPEN ENDED RESPONSE BOX; 98=DK; 99=REF]

PS6a. What do you think would help more people participate in this program? [OPEN ENDED RESPONSE BOX; 98=DK; 99=REF]

PS7a. What other [Utility] programs have you participated in? [OPEN ENDED RESPONSE BOX; 98=DK; 99=REF]

PS7b. What do you think would help customers like you participate in more [Utility] programs? [OPEN ENDED RESPONSE BOX; 98=DK; 99=REF]

FINAL1. Thank you for your time and feedback! We will send you your \$25 gift card within six weeks, or, if you prefer, we can email you a \$25 electronic gift card within 3 weeks. Can you confirm the address/email we have on file is correct: [Site_Address/Email_Address]? [OPEN ENDED RESPONSE BOX - UPDATE ADDRESS OR EMAIL AS NEEDED; 98=DK; 99=REF]