

TECH: 6 Month Single-Family Customer Post-Install Survey

October 31, 2022

Instrument Information

Table 1 includes key characteristics about the instrument.

Table 1. Overview of Data Collection Activity

Descriptor	This Instrument
Instrument Type	Web survey
Estimated Time to Complete	10 minutes
Population Description	Property owners who had a TECH-incented heat pump installed around 6 months ago
Sampling Strata Definitions	Single family
Contact List Source and Date	Energy Solutions
Type of Sampling	Census approach
Contact Sought	Person living in the home with the equipment
Outreach Methods	Email
Fielding Firm	Opinion Dynamics (on Qualtrics)

Research Objectives Information

Table 2 maps the research objectives and questions to specific questions in the instrument.

Table 2. Research Objectives and Associated Questions

Research Objective/Question	Associated Instrument Questions
Screener	S1 - S2
Background questions	Q1 - Q5
Financial questions	Q7 - Q10A
Equipment issues	Q11 - Q11C
Customer experiences with HPWH equipment	Q12 - Q28A
Customer experiences with HVAC Heat Pump (Ducted)	Q6A, Q29 - Q48A
Customer experiences with HVAC Heat Pump (Ducted)	Q6B, Q49 - Q68A
Closing	Q69 - Q72

Programmer Information

The variables listed in Table 3 are from the sample, database, or other external data source. The variables listed in Table 4 are to be generated/calculated within the instrument.

Table 3. Variables from Sample or Database

Variable Name	Variable Description and Values
FirstName	Customer's first name
Address	Customer address
Measure	HVAC heat pump or heat pump water heater
Minisplit	Minisplit/Multisplit 0 = no; 1 = yes
Date	Final date of installation

Table 4. Variables Generated in Survey

Variable Name	Variable Description and Values
MEASURE_ISSUE	If a respondent reported that they have had an issue with their unit that has not been resolved.

Programming note style conventions in this document:

[PROGRAMMING] Programming instructions are in bracketed CAPS.

[*Interviewer notes*] Onscreen interviewer instructions are in *italics*.

<Piped value> Database inputs are inside <greater and less than symbols>.

For each multiple response question, create separate binary variables for each response option.

Outreach Materials

Subject line: Share your feedback on your heat pump!

Hi <FirstName>,

Within the last year, a <MEASURE> was installed at <address>. We would like to ask you some questions about how that is working out for you. The questions should take about ten minutes for you to complete and you'll receive a \$15 e-gift card as a thank you for taking this survey.

Opinion Dynamics is conducting this survey on behalf of the California Public Utilities Commission (CPUC). You are receiving this survey because the contractor who installed the equipment did so as part of the TECH Clean California Initiative. It's important that we hear from you so we can understand the experiences of people receiving high-efficiency electric equipment. Your feedback will help the CPUC know what they can do to improve equipment performance and customer satisfaction. Your answers are completely confidential. Nothing we report will use your name or address.

Please click the link to get started: <LINK>

If you would like to verify the legitimacy of this request, please visit: <https://www.cpuc.ca.gov/validsurvey>

If you have any questions about this research, you can reply to this email, or contact me at Taylor.Williams@opiniondynamics.com.

Thank you,
Taylor Williams

Instrument

Screening [ASK ALL]

[IF MEASURE= HPWH AND HVAC HEAT PUMP, READ IN HPWH FOR REMAINDER OF SURVEY]

S1. First, we want to confirm we have the right person. Do you currently reside at <address> where the <MEASURE> was installed on <date>?

1. Yes [Proceed to Q1]
2. No

[IF S1=2]

S2. These questions are designed for the person who has the most experience with the new <MEASURE>. Please have that person fill out the survey. They can use the same link and the survey will come back to this question.

Are you someone who has been living at <address> where the <MEASURE> was installed on <date>?

1. Yes [Proceed to Q1]
2. No [TERMINATE]

[ASK IF MINISPLIT=1]

S3. According to our records, you received a ductless mini-split heat pump. Is this correct?

1. Yes
2. No, please specify what type of HVAC heat pump you received: [OPEN-END]
98. Don't know

[TERMINATE TEXT: Thank you for your interest. Unfortunately, you do not qualify to take this survey.]

Background Questions [ASK ALL]

To begin, we have a few questions about your home and your new <MEASURE>.

Q1. Do you own or rent this home?

1. Own
2. Rent
0. Other, please specify: [OPEN-ENDED RESPONSE]

Q2. Is this your primary residence or a secondary residence/vacation home?

1. Primary residence
2. Secondary residence/vacation home
0. Other, please specify: [OPEN-ENDED RESPONSE]

[ASK IF Q2 = 2]

Q2A. How much time, in weeks, do you spend in your secondary residence/vacation home per year? *Your best estimate is fine.*

0. [NUMERIC RESPONSE 0-52]

[ASK IF Q2 = 2]

Q2B. When do you spend the most time in your secondary residence/vacation home?

1. Summer
2. Fall
3. Winter
4. Spring
5. The time is evenly distributed throughout the year.
0. Other, please specify: [OPEN-ENDED RESPONSE]

Q3. Does this home have a solar photovoltaic system (Solar PV) or are you planning to add solar?

1. Yes, this home has solar
2. No, but I'm planning to get solar
3. No, and I have no plans to get solar
98. Don't know

Q4. What are the first three words that come to mind when thinking about your new <MEASURE>?

1. [TEXT RESPONSE]
2. [TEXT RESPONSE]
3. [TEXT RESPONSE]

Q5. How important is it to you that your new <MEASURE> uses electricity instead of gas or propane?

1. Extremely important
2. Somewhat important
3. Slightly important
4. Not at all important

[ASK IF Q5<4]

Q5A. Why is it important that your new <MEASURE> uses electricity instead of gas or propane?

0. [TEXT RESPONSE]

Q7. Since your <MEASURE> was installed, have your overall monthly energy bills been higher, lower, or about the same as they were before? *Please consider both gas and electric utility bills combined, if applicable.*

1. Higher
2. Lower
3. About the same
98. Not sure

[ASK IF Q7<>3 or 98]

Q8. Is there anything that might have impacted your energy bills since your <MEASURE> was installed, other than the new <MEASURE>? *Please again consider both gas and electric utility bills, if applicable. Please select all that apply.*

[MULTIPLE RESPONSE]

1. The number of people living in my home *decreased*
2. The number of people living in my home *increased*
3. I installed a new appliance I didn't have before
4. I acquired new electronics I didn't have before
5. I added insulation to my walls, attic, or floor
6. I have been leaving my home *more* often
7. I have been leaving my home *less* often
8. Changes in electric rates
9. Changes in gas rates
10. I purchased an electric vehicle
11. [DISPLAY IF Q3=1] I added solar to my home
12. No other changes have been made that might have impacted my energy bills [MAKE EXCLUSIVE]
0. Other, please specify: [OPEN-ENDED RESPONSE]

[ASK IF Q8 = 8]

Q9A. You mentioned a change in electric rates. Was this a voluntary change in your rate plan, or an involuntary increase in electricity costs?

1. I, or someone in my household, chose to change our electric rate plan
2. My utility increased the price of electricity, and I had no choice
0. Other, please specify: [OPEN-ENDED RESPONSE]

[ASK IF Q8 = 9]

Q9. You mentioned a change in gas rates. Was this a voluntary change in your rate plan, or an involuntary increase in gas costs?

1. I was referring to no longer having a gas bill
2. I, or someone in my household, chose to change our gas rate plan
3. My utility increased the price of gas, and I had no choice
0. Other, please specify: [OPEN-ENDED RESPONSE]

Q10. Taking into account the entire cost of the <MEASURE>, including installation and operating costs, how would you rate the overall value of your investment in the new <MEASURE>?

1. A great value
2. A good value
3. Not a good value
4. [Show if Q1 = 2] Can't say, I didn't purchase it

[ASK IF Q10=3]

Q10A. Why did you rate your investment in the <MEASURE> as “not a good value?”

0. [OPEN-ENDED RESPONSE]

Q11. Has your new <MEASURE> required troubleshooting, repair, or replacement since it was installed?
Please select all that apply.

[MULTIPLE RESPONSE]

1. Yes, troubleshooting
2. Yes, repair
3. Yes, replacement
4. No, none of the above [EXCLUSIVE ANSWER]

[ASK IF Q11 <> 4]

Q11A. Please briefly describe below the issues you had with your new <MEASURE>.

Q11B. [DISPLAY IF Q11 =3] Please also tell us what type of equipment replaced your <MEASURE>.

0. [TEXT RESPONSE]

[ASK IF Q11 <> 4]

Q11C. Has this issue been resolved to your satisfaction?

1. Yes
2. No

Heat Pump Water Heater Use [ASK IF MEASURE=HPWH]

The next questions are about how you have used your heat pump water heater.

Q12. Where is your heat pump water heater located?

1. Basement
2. Garage
3. Attic
4. Outdoor closet
0. Other, please specify: [OPEN-ENDED RESPONSE]
98. Don't know

Q13. Is your heat pump water heater located in a conditioned space? *A conditioned space is a space that is heated or cooled, or both.*

1. Yes
2. No
0. Other, please specify: [OPEN-ENDED RESPONSE]
98. Don't know

Q14. Have you experienced any of the following in the area where the heat pump water heater was installed? *Please select all that apply.*

[MULTIPLE RESPONSE]

1. Water or moisture on the floor
2. Excessive noise
3. Excessive vibration
4. Excessive increase of cold air near unit
0. Other issues, please specify: [OPEN-ENDED RESPONSE] [ANCHOR]
97. None of the above [EXCLUSIVE, ANCHOR]
98. Don't know [EXCLUSIVE, ANCHOR]

[ASK IF Q14 = 1]

Q15. Which of the following statements best describes how you feel about the water or moisture on the floor from your heat pump water heater?

1. I notice the water/moisture, but it has no impact on me at all
2. I notice the water/moisture and it is slightly bothersome
3. I notice the water/moisture and it is bothersome
4. I notice the water/moisture and it is very bothersome

[ASK IF Q14 = 2]

Q16. Which of the following statements best describes how you feel about the excessive noise caused by your heat pump water heater?

1. I notice the noise, but it has no impact on me at all
2. I notice the noise and it slightly bothersome
3. I notice the noise and it is bothersome
4. I notice the noise and it is very bothersome

[ASK IF Q14 = 3]

Q17. Which of the following statements best describes how you feel about the vibration caused by your heat pump water heater?

1. I notice the vibration, but it has no impact on me at all
2. I notice the vibration and it slightly bothersome
3. I notice the vibration and it is bothersome
4. I notice the vibration and it is very bothersome

[ASK IF Q14 = 4]

Q18. Which of the following statements best describes how you feel about the increase of cold air near the heat pump water heater?

1. I notice the increase of cold air, but it has no impact on me at all
2. I notice the increase of cold air and it is slightly bothersome
3. I notice the increase of cold air and it is bothersome
4. I notice the increase of cold air and it is very bothersome

[ASK IF Q15, Q16, Q17, or Q18 = 2, 3, 4]

Q19. Have any steps been taken to address these issue(s)? *Please select all that apply.*

[MULTIPLE RESPONSE]

1. My contractor installed a replacement fan
2. My contractor installed a foam kit
3. My contractor installed a vibration isolation kit
4. I contacted my contractor, but the issue(s) have not yet been resolved [EXCLUSIVE]
5. I have not taken any steps to address the issue(s) [EXCLUSIVE]
0. Other, please specify: [TEXT BOX]

Q20. How often do you have enough hot water to meet your needs?

1. Always
2. Most of the time
3. Sometimes
4. Rarely
5. Never
98. Don't know

[ASK IF Q20 <>1]

Q21. What do you think causes you to run out of hot water? *Please select all that apply.*

[MULTIPLE RESPONSE]

1. The tank is not big enough
2. The heater doesn't heat the water fast enough
3. Have circumstances where I need more hot water than usual
0. Other, please specify: [TEXT BOX]
98. Don't know

Now we have some questions about your water heater settings.

Q22. How often have you *increased* the temperature settings on your heat pump water heater since it was installed?

1. Never
2. Only once
3. Several times
4. Don't know

Q23. How often have you *decreased* the temperature settings on your heat pump water heater since it was installed?

1. Never
2. Only once
3. Several times
4. Don't know

Q24. Do you know what operating mode your heat pump water heater is set to?

1. Yes, it is set to heat pump mode
2. Yes, it is set to hybrid mode
3. Yes, it is set to electric resistance mode
4. Yes, it is set to vacation mode
5. No, I do not know what operating mode it is set to [ANCHOR]

Q25. Since the equipment was installed, have you changed the operating mode the heat pump water heater is set to?

1. Yes
2. No
3. Don't know

[ASK IF Q25 = 1]

Q26. What prompted you to change the operating mode of your heat pump water heater? *Please select all that apply.*

1. Seasonal changes
2. Visitors
3. Vacation
4. Higher efficiency
5. To avoid running out of hot water
0. Other, please specify: [TEXT RESPONSE]

Q27. How likely are you to recommend this type of water heater to your friends or family, if they were to ask for your recommendation? *Please use the 0 to 10 scale below to indicate your likelihood to recommend as heat pump water heater.*

0	1	2	3	4	5	6	7	8	9	10	98
Not at all likely					Some what likely					Extremely likely	Don't know

Q27A. What was the most important reason for your rating?

0. [OPEN-ENDED RESPONSE]

Q28. Overall, how satisfied or dissatisfied are you with your new heat pump water heater?

1. Very satisfied
2. Somewhat satisfied
3. Neutral
4. Somewhat dissatisfied
5. Very dissatisfied

[ASK IF Q28>3]

Q28A. Why are you dissatisfied with your new heat pump water heater?

0. [OPEN-ENDED RESPONSE]

Ducted HVAC Heat Pump [ASK IF MEASURE=HVAC Heat pump AND MULTISPLIT=0]

The next questions are about how you have used your new HVAC heat pump.

Q6A. Since owning your <MEASURE>, which of the following actions have you taken? *Please select all that apply.*

[MULTIPLE RESPONSE]

1. Turned your heat on in your home
2. Turned your air conditioning on in your home
3. Neither turned on your heat or air conditioning [EXCLUSIVE]

Q29. Did you have air conditioning in your home before purchasing your new HVAC heat pump?

4. Yes
5. No

Q30. Is your new heat pump your primary air conditioner?

1. Yes
2. No

Q31. How would you rate the level of difficulty in operating your new thermostat compared to your old system?

1. More difficult
2. Less difficult
3. No difference
4. Not applicable – my thermostat did not change

Q32. Have you experienced any of the following related to your new HVAC heat pump? *Please select all that apply.*

1. Reduced indoor humidity
2. Excessive noise
3. Excessive vibration
4. Heat pump turns on and off frequently
5. Certain spaces insufficiently heated or cooled
6. Certain spaces overly heated or cooled
7. Excessive run times
8. Change in temperature of the air coming out of the vents, when heating your home
0. Other issues, please specify: [OPEN-ENDED RESPONSE] [ANCHOR]
97. None of the above [EXCLUSIVE, ANCHOR]
98. Don't know [EXCLUSIVE, ANCHOR]

[ASK IF Q32=1]

Q33. Which of the following statements best describes how you feel about the reduced indoor humidity?

1. I notice the reduced indoor humidity, but it has no impact on me at all
2. I notice the reduced indoor humidity and it slightly impacts the comfort of my home
3. I notice the reduced indoor humidity and it impacts the comfort of my home
4. I notice the reduced indoor humidity and it greatly impacts the comfort of my home

[Ask if Q32=2]

Q34. Which of the following statements best describes how you feel about the excessive noise caused by your heat pump?

1. I notice the noise, but it has no impact on me at all
2. I notice the noise and it is slightly bothersome
3. I notice the noise and it is bothersome
4. I notice the noise and it is very bothersome

[Ask if Q32=3]

Q35. Which of the following statements best describes how you feel about the vibration caused by your heat pump?

1. I notice the vibration, but it has no impact on me at all
2. I notice the vibration and it is slightly bothersome
3. I notice the vibrations and it is bothersome
4. I notice the vibration and it is very bothersome

[Ask if Q32=4]

Q36. Which of the following statements best describes how you feel about your heat pump frequently turning on and off?

1. I notice the heat pump turning on and off, but it has no impact on me at all
2. I notice the heat pump turning on and off and it is slightly bothersome
3. I notice the heat pump turning on and off and it is bothersome
4. I notice the heat pump turning on and off and it is very bothersome

[Ask if Q32=5]

Q37. Which of the following statements best describes how you feel about your heat pump insufficiently heating/cooling certain spaces?

1. I notice the heat pump insufficiently heating/cooling certain spaces, but it has no impact on me at all
2. I notice the heat pump insufficiently heating/cooling certain spaces and it is slightly bothersome
3. I notice the heat pump insufficiently heating/cooling certain spaces and it is bothersome
4. I notice the heat pump insufficiently heating/cooling certain spaces and it is very bothersome

[Ask if Q32=6]

Q38. Which of the following statements best describes how you feel about your heat pump overly heating/cooling certain spaces?

1. I notice the heat pump overly heating/cooling certain spaces, but it has no impact on me at all
2. I notice the heat pump overly heating/cooling certain spaces and it is slightly bothersome
3. I notice the heat pump overly heating/cooling certain spaces and it is bothersome
4. I notice the heat pump overly heating/cooling certain spaces and it is very bothersome

[Ask if Q32=7]

Q39. Which of the following statements best describes how you feel about your new heat pump excessively running?

1. I notice the heat pump excessively running, but it has no impact on me at all
2. I notice the heat pump excessively running and it is slightly bothersome
3. I notice the heat pump excessively running and it is bothersome
4. I notice the heat pump excessively running and it is very bothersome

[Ask if Q32=8]

Q40. Which of the following statements best describes how you feel about the change in the temperature of the air coming out of your vents when heating your home?

1. I notice the change in temperature, but it has no impact on me at all
2. I notice the change in temperature, and it is slightly bothersome
3. I notice the change in temperature, and it is bothersome
4. I notice the change in temperature, and it is very bothersome

[ASK IF ANY OF Q33-Q40 = 2, 3, OR 4]

Q41. Have these issue(s) been resolved?

1. I have not taken any steps to address the issue(s)
2. I contacted my contractor, but they have not yet attempted to resolve the issue(s)
3. My contractor was able to resolve the issue
4. My contractor attempted to resolve the issue(s) but was unsuccessful

Q42. Since your HVAC heat pump was installed, how effective has the *cooling* provided by the heat pump been in meeting the needs of your home? *Please use the 0 to 10 scale below to indicate the effectiveness of the heat pump.*

0	1	2	3	4	5	6	7	8	9	10	98
Not at all effective					Somewhat effective					Extremely effective	Not sure

Q43. What *other* cooling equipment do you regularly use in your home, if any? *Please select all that apply.*

[MULTIIPLE RESPONSE]

1. Ceiling fans
2. Portable fans
3. Central air conditioner
4. Window air conditioner
5. Room air conditioner/portable air conditioner
6. Swamp cooler
0. Other, please specify: [TEXT RESPONSE]
97. I don't use any additional cooling equipment regularly [EXCLUSIVE]

Q44. Since your HVAC heat pump was installed, how effective has the *heating* provided by the heat pump been in meeting the needs of your home? *Please use the 0 to 10 scale below to indicate the effectiveness of the heat pump.*

0	1	2	3	4	5	6	7	8	9	10	98
Not at all effective					Somewhat effective					Extremely effective	Not sure

Q45. What *other* heating sources do you regularly use in your home, if any? *Please select all that apply.*

[MULTIIPLE RESPONSE]

1. Furnace
2. Baseboard heater/electric resistance heat
3. Wall heater
4. Space heater
5. Fireplace
0. Other, please specify: [TEXT RESPONSE]
97. I don't use any additional heating sources regularly [EXCLUSIVE]

Q46. Do you find yourself adjusting your thermostat more or less often than you did with your prior equipment?

1. I adjust my thermostat more often than I did with my prior equipment
2. I adjust my thermostat less often than I did with my prior equipment
3. I never adjust my thermostat
0. Other, please specify: [TEXT RESPONSE]

Q47. How likely are you to recommend an HVAC heat pump to your friends and family if they were to ask for your recommendation? *Please use the 0 to 10 scale below to indicate your likelihood to recommend an HVAC heat pump.*

0	1	2	3	4	5	6	7	8	9	10	98
Not at all likely					Some what likely					Extremely likely	Don't know

Q47A. What was the most important reason for your rating?

0. [OPEN-ENDED RESPONSE]

Q48. Overall, how satisfied or dissatisfied are you with your new HVAC heat pump?

1. Very satisfied
2. Somewhat satisfied
3. Neutral
4. Somewhat dissatisfied
5. Very dissatisfied

[ASK IF Q48 >3]

Q48A. Why are you dissatisfied with your new HVAC heat pump?

0. [OPEN-ENDED RESPONSE]

Ductless HVAC Heat Pump [ASK IF MEASURE=HVAC Heat pump AND MULTISPLIT=1]

The next questions are about how you have used your new ductless mini-split heat pump.

Q6B. Since owning your <MEASURE>, which of the following actions have you taken? *Please select all that apply.*

[MULTIPLE RESPONSE]

1. Turned your heat on in your home
2. Turned your air conditioning on in your home
3. Neither turned on your heat or air conditioning [EXCLUSIVE]

Q49. Did you have air conditioning in your home before purchasing your new HVAC heat pump?

1. Yes
2. No

Q50. Is your new heat pump your primary air conditioner?

1. Yes
2. No

Q51. What comfort-related reason(s) motivated you to select a ductless mini-split heat pump? *Please select all that apply.*

[MULTIPLE RESPONSE]

1. Existing space did not have cooling
2. Existing space did not have heating
3. Existing space did not have adequate cooling (e.g., hot room at end of hall)
4. Existing space did not have adequate heating (e.g., cold room at end of hall)
5. Wanted “zoned” heating and cooling
0. Other, please specify: [TEXT RESPONSE]
97. None of the above [ANCHOR EXCLUSIVE]

Q52. What space(s) does your ductless mini-split heat pump serve? *Please select all that apply.*

[MULTIPLE RESPONSE]

1. Master bedroom
2. Other bedrooms
3. Living room, family room, dining room, or den
4. Kitchen
5. Office
6. Sunroom
7. Basement
8. Loft
9. Attic
0. Other, please specify: [TEXT BOX]

Q53. Other than the ductless mini-split heat pump, does any other system provide heating or cooling in the spaces your ductless mini-split serves?

1. Yes
2. No

[ASK IF Q53=1]

Q54. Does your other system provide heating, cooling or both to these spaces?

1. Only heating
2. Only cooling
3. Both heating and cooling

Q55. How would you rate the level of difficulty in operating your new thermostat (or remote control) compared to your old system?

1. More difficult
2. Less difficult

3. No difference
4. Not applicable – my thermostat did not change

Q56. Have you experienced any of the following related to your new ductless mini-split heat pump? *Please select all that apply.*

[MULTIPLE RESPONSE]

1. Reduced indoor humidity
2. Excessive noise
3. Excessive vibration
4. Heat pump turns on and off frequently
5. Excessive run times
6. Certain spaces insufficiently heated or cooled
7. Certain spaces overly heated or cooled
0. Other, please specify: [OPEN-ENDED RESPONSE] [ANCHOR]
97. None of the above [EXCLUSIVE, ANCHOR]
98. Don't know [EXCLUSIVE, ANCHOR]

[ASK IF Q56=1]

Q57. Which of the following statements best describes how you feel about the reduced indoor humidity?

1. I notice the reduced indoor humidity, but it has no impact on me at all
2. I notice the reduced indoor humidity and it slightly impacts the comfort of my home
3. I notice the reduced indoor humidity and it impacts the comfort of my home
4. I notice the reduced indoor humidity and it greatly impacts the comfort of my home

[ASK IF Q56=2]

Q58. Which of the following statements best describes how you feel about the excessive noise caused by your heat pump?

1. I notice the noise, but it has no impact on me at all
2. I notice the noise and it is slightly bothersome
3. I notice the noise and it is bothersome
4. I notice the noise and it is very bothersome

[ASK IF Q56=3]

Q59. Which of the following statements best describes how you feel about the vibration caused by your heat pump?

1. I notice the vibration, but it has no impact on me at all
2. I notice the vibration and it is slightly bothersome
3. I notice the vibration and it is bothersome
4. I notice the vibration and it is very bothersome

[ASK IF Q56=4]

Q60. Which of the following statements best describes how you feel about your heat pump frequently turning on and off?

1. I notice the heat pump turning on and off, but it has no impact on me at all
2. I notice the heat pump turning on and off and it is slightly bothersome
3. I notice the heat pump turning on and off and it is bothersome
4. I notice the heat pump turning on and off and it is very bothersome

[ASK IF Q56=5]

Q61. Which of the following statements best describes how you feel about your new heat pump excessively running?

1. I notice the heat pump excessively running, but it has no impact on me at all
2. I notice the heat pump excessively running and it is slightly bothersome
3. I notice the heat pump excessively running and it is bothersome
4. I notice the heat pump excessively running and it is very bothersome

[ASK IF Q56=6]

Q62. Which of the following statements best describes how you feel about your new heat pump insufficiently heating or cooling certain spaces?

1. I notice the heat pump insufficiently heating or cooling certain spaces, but it has no impact on me at all
2. I notice the heat pump insufficiently heating or cooling certain spaces and it is slightly bothersome
3. I notice the heat pump insufficiently heating or cooling certain spaces and it is bothersome
4. I notice the heat pump insufficiently heating or cooling certain spaces and it is very bothersome

[ASK IF Q56=7]

Q63. Which of the following statements best describes how you feel about your new heat pump overly heating or cooling certain spaces?

1. I notice the heat pump overly heating or cooling certain spaces, but it has no impact on me at all
2. I notice the heat pump overly heating or cooling certain spaces and it is slightly bothersome
3. I notice the heat pump overly heating or cooling certain spaces and it is bothersome
4. I notice the heat pump overly heating or cooling certain spaces and it is very bothersome

[ASK IF ANY OF Q57-Q63 = 2, 3, OR 4]

Q64. Have these issue(s) been resolved?

1. I have not taken any steps to address the issue(s)
2. I contacted my contractor, but they have not yet attempted to resolve the issue(s)
3. My contractor was able to resolve the issue
4. My contractor attempted to resolve the issue(s) but was unsuccessful

Q65. Since your heat pump was installed, how effective has the *cooling* provided by the heat pump been in meeting the needs of your home? *Please use the 0 to 10 scale below to indicate the effectiveness of the heat pump.*

0	1	2	3	4	5	6	7	8	9	10	98
Not at all effective					Somewhat effective					Extremely effective	Not sure

Q66. Since your heat pump was installed, how effective has the *heating* provided by the heat pump been in meeting the needs of your home? Please use the 0 to 10 scale below to indicate the effectiveness of the heat pump.

0	1	2	3	4	5	6	7	8	9	10	98
Not at all effective					Somewhat effective					Extremely effective	Not sure

Q67. How likely are you to recommend a ductless HVAC heat pump to your friends or family, if they were to ask for your recommendation? Please use the 0 to 10 scale below to indicate your likelihood to recommend a ductless HVAC heat pump.

0	1	2	3	4	5	6	7	8	9	10	98
Not at all likely					Some what likely					Extremely likely	Don't know

Q67A. What was the most important reason for the rating you provided about your likelihood to recommend a ductless HVAC heat pump to friends and family?

0. [OPEN-ENDED RESPONSE]

Q68. Overall, how satisfied or dissatisfied are you with your new ductless mini-split heat pump?

1. Very satisfied
2. Somewhat satisfied
3. Neutral
4. Somewhat dissatisfied
5. Very dissatisfied

[ASK IF Q66>3]

Q68A. Why are you dissatisfied with your new ductless mini-split heat pump?

0. [OPEN-ENDED RESPONSE]

Closing [ASK ALL]

Q69. Do you have any additional comments you would like to share about your <MEASURE>?

1. Yes, please specify: [OPEN END RESPONSE]
2. No

Q70. Thank you for taking the time to answer our questions. Please use the text box provided below to enter the email address you would like your \$15 e-gift card to be sent to. If you don't want your gift

card, please leave the box blank. *The e-gift card is a Tango gift card that can be redeemed at one of many businesses, such as Amazon, Best Buy, Nike, Home Depot, and many more.*

[TEXT BOX]

- Q71. There is another, longer-term research opportunity that you may have the option to participate in. This would involve a contractor coming to your home and installing a device on your electrical panel to read the energy use of your heat pump. We cover the cost of the contractor and the device. It will be left on your electrical panel for one year. Installation does not involve wire cutting, and we will use a stand-alone network so as not to disrupt your WiFi. You would receive a \$200 gift card when the device is installed and a \$100 gift card when we remove it. Your personal information will be protected and your device's energy use will be aggregated with other homes.

Is this something you would be interested in? If yes, we will send you an email letting you know if you are in the select group eligible for this device.

1. Yes
2. No

[ASK IF Q69= 1]

- Q72. Thank you for your interest in providing future feedback. We will contact you at the email address we sent this survey's invitation to.

Please click the "Finish" button below to submit your responses.