Opinion Dynamics

# CPUC TECH: Market Actors Six Month Post-Training Survey

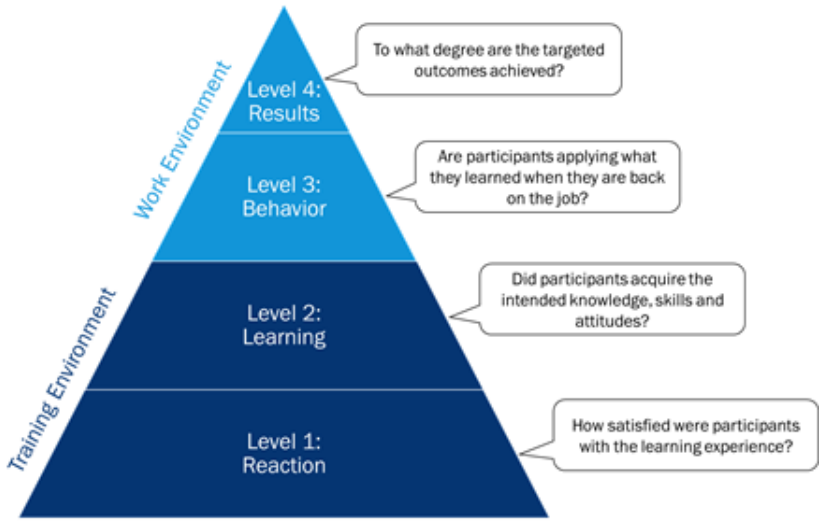
August 15, 2022

## Background

On behalf of the California Public Utilities Commission (CPUC), the Opinion Dynamics Team is working with the Energy Solutions Team to evaluate the trainings provided as part of the Technology and Equipment for Cleaning Heating (TECH) Initiative. In our evaluation, we will use Kirkpatrick's Model, the gold standard for evaluating adult learning interventions (see Figure 1), to assess participant reaction to TECH training interventions.

As shown below, Kirkpatrick's model consists of four levels. The current survey will focus on the third level, behavior, which measures the extent that participants are applying what they learned on the job. Generally, an effective transfer of knowledge subsequently reflects a change in one's behavior, utilizing the learned information. This follow-up Level 3 assessment is a critical aspect of any learning evaluation, measuring how one applies new knowledge to their behavior.

Figure 1. Kirkpatrick's Model



# 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 | 15 minutes |
| Population Description | CPUC TECH Initiative training participants |
| Population Size | TBD |
| Type of Sampling | Census |
| Contact Sought | Person who attended the TECH-sponsored training |
| Incentive Types and Amounts | $40 electronic gift card |
| Outreach Methods | Email |
| Fielding Firm | Opinion Dynamics |

# 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 |
|---|---|
| Understand to what extent the trainee is applying what they learned on the job and if any changes can be made to the curricula improve their ability to apply what they learned | All |

# Programmer Information

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

Table 3. Variables from Sample or Database

| Variable Name | Variable Description and Values |
|---|---|
| COURSE NAME | Name of course completed by respondent. |
| PROVIDER | Course provider name. |
| MONTH_YEAR | Month and year course was completed by respondent. |
| EMH | Participated in Electrify My Home Training |
| NCI | Participated in any National Comfort Institute Training |
| NCI_AFT | Participated in National Comfort Institute Air Flow Testing and Diagnostics Training |

| Variable Name | Variable Description and Values |
|---|---|
| NCI_RSP | Participated in National Comfort Institute Refrigerant-Side Performance Training |
| NCI_RES | Participated in National Comfort Institute Residential System Performance Training |

## Programming note style conventions in this document:

[PROGRAMMING] Programming instructions are in bracketed CAPS.

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

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

# Surveyor Information

This survey will support an evaluation of the California Public Utilities Commission (CPUC) Technology and Equipment for Clean Heating Initiative (TECH). The primary goal of the survey is to assess the effectiveness of training and educational materials produce increased market actor knowledge and skills designing, installing, and using heat pumps.

# Instrument

## Outreach Email

Subject line: TECH Clean California Training Follow-Up

Hello,

TECH Clean California wants to hear about how well the heat pump training you took is serving you on the job. Your answers to this quick survey will help us understand the quality of the trainings, including opportunities for improvement moving forward. Your responses will help TECH Clean California develop the best possible trainings to support career development for yourself and others in the HVAC and hot water industries.

The survey will take 5-10 minutes to complete. If you qualify and complete the survey, we will provide you with a $30 gift card as a thank you for your time. Your responses will be kept confidential and only reported in the aggregate with responses from other trainees.

You can access the survey by clicking on the link provided below.

<<SURVEY LINK>>

If you need to exit the survey before completing it, you can use the link above to return to where you left off.

The California Public Utilities Commission (CPUC) tasked Opinion Dynamics, an independent research company, to conduct this study. If you would like to verify the legitimacy of this study, please visit: https://www.cpuc.ca.gov/validsurvey.

If you have any questions or technical difficulties with the survey, you may contact Taylor Williams at taylor.williams@opiniondynamics.com or reply directly to this email.

Thank you in advance for taking the time to complete this important survey!

Sincerely,

Taylor Williams

Taylor Williams

*Consultant*

**Opinion Dynamics**

1000 Winter Street
Waltham, MA 02451

## Landing page

Click the arrow below to start the survey.

[INCLUDE AS FOOTER ON EACH PAGE: "If you need any assistance with or have questions about this survey, please contact Taylor Williams at taylor.williams@opiniondynamics.com."]

## Respondent Characteristics

Q1. Do you still work for the same employer as you did when you took the training?

1. Yes
2. No

[ASK IF Q1=2]
Q1A. Are you currently employed?

1. Yes
2. No

[TERMINATE IF Q2=2; TERMINATE TEXT: Thank you for answering these preliminary questions. Unfortunately, you do not qualify for the full the survey, which asks about current work.]

[ASK IF Q1=1]
Q2. Did the training you received contribute to a change in responsibilities at work?

1. Yes
2. No

[ASK IF Q2=1; IF Q2=2 SKIP TO TRAINING IMPACT ON RESPONDENT SKILLS AND CAREER SECTION]

Q2A. Using a scale from 1 to 10 where 1 is "not at all important" and 10 is "extremely important," how important was the heat pump training in helping you take on new responsibilities at work? [1-10 SCALE, 98="Don't know"]

[ASK IF Q2=1]
Q3. Do you consider the new responsibilities you've acquired at work a promotion?

1. Yes
2. No

[ASK IF Q3=1]
Q4. Using a scale from 1 to 10 where 1 is "not at all important" and 10 is "extremely important," how important was the heat pump training in helping you obtain a promotion at work? [1-10 SCALE, 98="Don't know"]

[ASK IF Q2=1 or Q3=1]
Q5. You mentioned the training contributed to a change in your responsibilities at work and/or a promotion. Did this change come with a pay increase?

1. Yes
2. No

[ASK IF Q1A=1]
Q6. Congratulations on your new position! Do you consider this new position a promotion?

1. Yes
2. No

[ASK IF Q1A=1]
Q7. Does this new position pay more than your old position?

1. Yes
2. No

[ASK IF Q1A=1]

Q8. Using a scale from 1 to 10 where 1 is "not at all important" and 10 is "extremely important," how important was the heat pump training in helping you attain this new position? [1-10 SCALE, 98="Don't know"]

## Training Impact on Respondent Skills and Career

In this section, we'll ask about how effective the TECH Clean California training(s) you completed were in developing further knowledge and skills related to heat pumps.

Q9. How frequently do you apply what you learned in the training in your current position?

[SINGLE RESPONSE]

1. I use what I learned on the job every day
2. I use what I learned on the job every week
3. I use what I learned on the job every month
4. I rarely use what I learned on the job
5. I do not use what I learned on the job

Q10. What is the biggest change you've noticed in your work so far with the new knowledge acquired from the TECH Clean California-sponsored training?

1. [OPEN-END TEXT BOX]
2. No changes

Q11. What challenges, if any, do you face in applying what you learned in your current position?

1. [OPEN-END TEXT BOX]
2. No challenges

Q12. How confident are you in your ability to teach what you learned in the training to your colleague(s)?

[SINGLE RESPONSE]

1. Not at all confident
2. Somewhat confident
3. Moderately confident
4. Very confident

Q13. Have you shared what you learned in the training(s) with others?

[SINGLE RESPONSE]

1. Yes
2. No

[ASK IF NCI=1]

Q14. Thinking about the National Comfort Institute training(s) you received, please select how often you do each of the following when the opportunity arises in your position.

| [RANDOMIZE ITEMS] | 1. Never | 2. Rarely | 3. Sometimes | 4. Most of the time | 5. Always | 98. Unsure |
|---|---|---|---|---|---|---|
| 1. [ASK IF NCI_AFT=1] Assess existing duct systems prior to installing a heat pump | | | | | | |
| 2. [ASK IF NCI_AFT=1] Verify airflow requirements | | | | | | |
| 3. [ASK IF NCI_AFT=1] Use static pressure measurements to help assess the viability of an existing duct system for a heat pump retrofit | | | | | | |
| 4. [ASK IF NCI_RSP=1] Verify proper airflow needs prior to evacuating refrigerant | | | | | | |
| 5. [ASK IF NCI_RSP=1] Use non-invasive airside diagnostics prior to attaching refrigerant gauges to a heat pump | | | | | | |
| 6. [ASK IF NCI_RES = 1] Measure installed system performance on heat pumps in the field | | | | | | |
| 7. [ASK IF NCI_RES = 1] Verify installed system performance for heat pumps my company installs | | | | | | |
| 8. [ASK IF NCI = 1] Investigate why a heat pump project might need to go beyond a basic equipment changeout to be successful | | | | | | |

[GENERATE Q14 READ-IN: IF “never” SELECTED READ-IN “never”; IF “rarely” SELECTED READ-IN “rarely”; IF “sometimes” SELECTED READ-IN “only sometimes”]

[ASK IF Q14_1 <4]
Q15. Why do you [DISPLAY Q14 READ-IN] assess existing duct systems prior to installing a heat pump?

[MULTIPLE RESPONSE]

1. Employer does not allow me enough time to do this properly
2. This method does not align with my organization’s practices
3. It is my personal preference
0. Another reason, please explain: [OPEN-ENDED RESPONSE]

[ASK IF Q14_2 <4]
Q16. Why do you [DISPLAY Q14 READ-IN] verify air flow requirements?

[MULTIPLE RESPONSE]

1. Employer does not allow me enough time to do this properly
2. This method does not align with my organization's practices
3. It is my personal preference
0. Another reason, please explain: [OPEN-ENDED RESPONSE]

[ASK IF Q14_3 <4]
Q17. Why do you [DISPLAY Q14 READ-IN] use static pressure measurements to help assess the viability of an existing duct system for a heat pump retrofit?

[MULTIPLE RESPONSE]

1. Employer does not allow me enough time to do this properly
2. This method does not align with my organization's practices
3. It is my personal preference
0. Another reason, please explain: [OPEN-ENDED RESPONSE]

[ASK IF Q14_4 <4]
Q18. Why do you [DISPLAY Q14 READ-IN] verify proper airflow needs prior to evacuating refrigerant?

[MULTIPLE RESPONSE]

1. Employer does not allow me enough time to do this properly
2. This method does not align with my organization's practices
3. It is my personal preference
0. Another reason, please explain: [OPEN-ENDED RESPONSE]

[ASK IF Q14_5 <4]
Q19. Why do you [DISPLAY Q14 READ-IN] use non-invasive airside diagnostics prior to attaching refrigerant gauges to a heat pump?

[MULTIPLE RESPONSE]

1. Employer does not allow me enough time to do this properly
2. This method does not align with my organization's practices
3. It is my personal preference
0. Another reason, please explain: [OPEN-ENDED RESPONSE]

[ASK IF Q14_6 <4]
Q20. Why do you [DISPLAY Q14 READ-IN] measure installed system performance on heat pumps in the field?

[MULTIPLE RESPONSE]

1. Employer does not allow me enough time to do this properly
2. This method does not align with my organization's practices
3. It is my personal preference
0. Another reason, please explain: [OPEN-ENDED RESPONSE]

[ASK IF Q14_7 <4]
Q21. Why do you [DISPLAY Q14 READ-IN] verify installed system performance for heat pumps your company installs?

[MULTIPLE RESPONSE]

1. Employer does not allow me enough time to do this properly
2. This method does not align with my organization's practices
3. It is my personal preference
0. Another reason, please explain: [OPEN-ENDED RESPONSE]

[ASK IF Q14_8 <4]
Q22. Why do you [DISPLAY Q14 READ-IN] investigate why a heat pump project might need to go beyond a basic equipment changeout to be successful?

[MULTIPLE RESPONSE]

1. Employer does not allow me enough time to do this properly
2. This method does not align with my organization's practices
3. It is my personal preference
0. Another reason, please explain: [OPEN-ENDED RESPONSE]

[ASK IF EMH=1]
Q23. Thinking about the Electrify My Home training you received, please select how often you do each of the following in your position.

| [RANDOMIZE ITEMS] | 1. Never | 2. Rarely | 3. Sometimes | 4. Most of the time | 5. Always | 98. Unsure |
|---|---|---|---|---|---|---|
| 1. Present my customers with an option for an electric solution | | | | | | |
| 2. Promote electrification strategies to customers who currently use gas appliances | | | | | | |
| 3. Explain the value of heat pump technologies to customers when that is an equipment option | | | | | | |

[GENERATE Q23 READ-IN: IF "never" SELECTED READ-IN "never"; IF "rarely" SELECTED READ-IN "rarely"; IF "sometimes" SELECTED READ-IN "only sometimes"]

[ASK IF Q23_1 <4]
Q24. Why do you [DISPLAY Q23 READ-IN] present your customers with an option for an electric solution?

[MULTIPLE RESPONSE]

1. This method does not align with my organization's practices
2. It is my personal preference
3. Another reason, please explain: [OPEN END]

[ASK IF Q23_2 <4]

Q25. Why do you [DISPLAY Q23 READ-IN] promote electrification strategies to customers who currently use gas appliances?

[MULTIPLE RESPONSE]

1. This method does not align with my organization's practices
2. It is my personal preference
3. Another reason, please explain: [OPEN END]

Q26. Please provide the number of both HVAC heat pumps and water-heating heat pumps you have installed and serviced **in the past six months**. *Your best estimate is fine.*

**HVAC Heat Pumps:**

1. Installed: [NUMERIC OPEN END]
2. Serviced: [NUMERIC OPEN END]

**Water-heating Heat Pumps:**

1. Installed: [NUMERIC OPEN END]
2. Serviced: [NUMERIC OPEN END]

[ASK IF Q26_1 (HVAC) RESPONSE >0]

Q27. Please rate your current level of confidence with **HVAC heat pumps** for each of the following:

| | 1. Not at all confident | 2. A little confident | 3. Moderately confident | 4. Very confident | 97. Not Applicable |
|---|---|---|---|---|---|
| 1. Selling heat pumps | | | | | |
| 2. Sizing heat pumps | | | | | |
| 3. Installing heat pumps | | | | | |
| 4. Servicing heat pumps | | | | | |
| 5. Maintaining heat pumps | | | | | |

[ASK IF Q26_2 (HPWH) RESPONSE >0]

Q27A. Please rate your current level of confidence with **water-heating heat pumps** for each of the following:

| | 1. Not at all confident | 2. A little confident | 3. Moderately confident | 4. Very confident | 97. Not Applicable |
|---|---|---|---|---|---|
| 1. Selling heat pumps | | | | | |
| 2. Sizing heat pumps | | | | | |
| 3. Installing heat pumps | | | | | |

| | 1. Not at all confident | 2. A little confident | 3. Moderately confident | 4. Very confident | 97. Not Applicable |
|---|---|---|---|---|---|
| 4. Servicing heat pumps | | | | | |
| 5. Maintaining heat pumps | | | | | |

Q28. How likely are you to continue to use what you learned in the training(s) in your HVAC and/or water heating work?

[SINGLE RESPONSE]

1. Very unlikely
2. Somewhat unlikely
3. Neither likely nor unlikely
4. Somewhat likely
5. Very unlikely
98. Not sure

Q29. Do you intend to continue applying what you've learned in the training(s) as a standard practice in your HVAC and/or water heating work going forward?

[SINGLE RESPONSE]

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

[IF Q29=2]

Q30. What might prevent you from applying what you learned in the training(s) as a standard practice in your HVAC and/or water heating work?

[MULTIPLE RESPONSE]

1. Learning culture at your organization
2. Lack of support from managers and/or supervisors
3. Time limitations on job sites
4. Something else, please explain: [OPEN-ENDED RESPONSE]
98. Don't know [EXCLUSIVE]

Q31. What, if anything, could change in your work environment that would allow you to use what you learned in the training(s) more?

1. [OPEN-ENDED RESPONSE]
2. Nothing

## Additional Training Needs

You are almost done! Only a few questions left.

Q32. Thinking about the work you do, what additional information, if any, would you have liked to receive during the training(s) that was not provided?

1. [OPEN-ENDED RESPONSE]
2. Nothing

Q33. And finally, what additional training, support, or resources would be helpful to you in your work with heat pump equipment?

1. [OPEN-ENDED RESPONSE]
2. Nothing

## Closing

Q34. If you have additional comments you would like to provide about the training, or its impact on your heat pump work, please provide them here.

1. [OPEN-END TEXT BOX]
98. Nothing to add

Q35. Thank you for your answers. As a token of our appreciation, we will be sending you a $40 Tango gift card that can be redeemed at one of many businesses, such as Amazon, Best Buy, Nike, Home Depot, and many more. Below, please enter your name and the email address you would like your Tango gift card sent to. *We will not associate this information with your answers.*

*If you do not want to receive a Tango gift card, please select "I do not want my Tango gift card."*

1. Name: [OPEN-END TEXT BOX]
2. Email Address: [OPEN-END TEXT BOX]
98. I do not want my Tango gift card [EXCLUSIVE]

Thank you very much for taking the time to share your experience participating in TECH Clean California HVAC trainings. The California Public Utilities Commission appreciates your valuable feedback.

[IF Q15<98 DISPLAY "Please allow up to 2-4 weeks for your Tango gift card to be delivered."