

Pilot Plans for the Collection of Mercury-Added Thermostats in California

Audiences: Groups B & C

Presented to

California Department of Toxic Substances Control (DTSC)

Submitted by

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Prepared by

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*This document is submitted by TRC on behalf of the signatories to the Consent Order dated February 10, 2016

Background/Consent Order Requirements

Thermostat Recycling Corporation (“TRC”) submits this Pilot Plan for Group B and Group C Audiences in accordance with Paragraph B-1.4 of Exhibit B – Respondents’ Plan for Compliance to that certain Consent Order dated February 10, 2016 by and among Respondents and the California Department of Toxic Substances Control.

Paragraph B-1.4 of Exhibit B of the Consent Order requires that Respondents shall develop a Pilot Project Plan that includes a sufficient variety and number of pilot projects designed to assess the effectiveness of the use of monetary and other incentives to increase Program participation and the number of mercury-added thermostats collected. The Pilot Project Plan shall be informed by the results of Respondents’ implementation of its Outreach Plan to the extent practicable.

Pilot Plan shall include a reasonable assortment of pilot projects that assess the use of monetary and nonmonetary incentives of different values with different program participants, and may differentiate the timing of the receipt of the incentives (immediate versus delayed).

In addition, the pilots specified shall continue for a minimum of one year, to take into account any seasonal changes associated with mercury-added thermostat replacements.

The Pilot Plan is respectfully submitted by Thermostat Recycling Corporation on behalf of the following Consent Order Respondents; Bard Manufacturing Company, Inc., Burnham Holdings, Inc., Carrier Corporation, Chromalox, Crane, Climate Master, Inc., Empire Comfort Systems, General Electric Company, Honeywell International Inc, Hunter Fan Company, Invensys, Inc., ITT Corporation, Johnson Controls, Lear Siegler, Lennox International Inc., Lux Products Corporation, The Marley Wylain Company, Nortek Global HVAC LLC, Sears Holdings, Thomas & Betts Corporation, Trane Residential Systems, Uponor, Inc., Valliant Corporation, W.W. Grainger, and White-Rodgers.

Scope of Pilot Program Work

The Pilot Project Plan is a one year effort to test out two components of the overall program, which include: (1) testing a variety of monetary incentives to determine their effect on increasing the collection of thermostats in California and (2) testing a variety of nonmonetary incentives to determine types of messages that will most effectively influence individuals who come in contact with thermostats to bring them to a proper collection facility.

Objectives

1. Devise pilot projects that assess the effectiveness of monetary incentives in increasing the number of thermostats collected and improving nonmonetary incentive (i.e., motivators/messaging) that best influence behaviors of individuals that come in contact the mercury thermostats.
2. Provide data-based findings from pilot projects that will refine and enhance TRC's ongoing outreach efforts throughout the state.

The potential program participants listed under Exhibit A of the Consent Order include:

Group A:

1. Household hazardous waste collection facilities
2. HVAC contractors
3. Demolition contractors
4. General contractors
5. Consumers
6. Retailers

Group B:

1. Local building departments
2. Utility companies
3. School districts
4. Universities and colleges

Group C:

1. Property management companies of multi-family housing developments
2. Property management companies of commercial/industrial properties
3. Hotel/motel managers

Prioritizing Pilot Implementation Group B and C

Criterion: Where We are Most Likely to Find Mercury Thermostats

In order to target locations where our audiences are most likely to come into contact with mercury thermostats, we have established a set of criteria to identify locations in which we recommend our pilot program be initially targeted (note, this is not to limit audience members in the pilot but to prioritize minimum engagement areas to get a representative sample of the State where thermostats are most

likely to be found). Upon evaluation, age of structure and household income are predictive factors of substantial mercury thermostat presence. Given the social and economic ramifications of these variables, we determined that specific locational dynamics likely exist. Focusing on areas that may have a substantial mercury thermostat presence increases the likelihood of mercury thermostat collection because target personnel have a greater probability of interacting with them. As a result of our preliminary research and previous input from DTSC, the four criteria for determining a recommended city for significant outreach efforts and pilot projects are: 1) Age of Structure, 2) Income, 3) Temperature fluctuation, and 4) Population size. The recommended target locations are based on the following outreach demographic and related criteria:

Age of Structure. Mercury thermostats were used to control heating and cooling systems beginning in the 1950s. A legislative push for energy efficiency in California in the 1980s started a downward trend in the popularity of mercury thermostats in favor of thermostats that could be programmed and thus more energy efficient. By the early 1990s, electronic thermostats with digital sensors began to establish a stronger market position given their affordability and greater utility. By 2006, AB 2347 prohibited the sale of mercury thermostats. Given this timeline, it is not clear exactly how quickly these mercury thermostats were phased out from being included in new building construction or how rapidly their share of the aftermarket sales declined. It is equally difficult to know how long mercury thermostats remained in use before replacement. Given these unknowns, we will focus on implementing pilots in areas with a sizable proportion of building constructed prior to the 1980s. This would focus on buildings that were constructed when mercury thermostats were a significant share of the market. However, in discussions with DTSC, we will calibrate this assumption by also looking at TRC collection data in the target cities to determine if the collection trend is increasing or decreasing (i.e., with the assumption that an increasing collection trend equates to the existence of potentially more mercury thermostats in the area). According to the US Census Bureau, in 2014 more than 61% of California homes were built before 1980; SGA used this benchmark as a guide in evaluating and assessing selected cities of California.

Income. Housing and buildings in areas with lower middle income or lower income individuals are predominant. Lower income areas would have been less likely to have upgraded their HVAC systems, so if originally equipped with mercury thermostats, those are the types of buildings most likely to still have them. This extends to multifamily and commercial buildings where the rent prices are lower and landlords may not have the revenue necessary to make costly upgrades or simply aren't motivated to do so. Likewise, we assume that other targets such as hotels/motels will also follow the same trends of mercury thermostat presence due to the level of economic activity in such areas and the resulting revenue and profit margins. SGA will observe areas that have a sizable proportion of lower to lower middle income class residents. The Pew Research Center defines the lower middle income class as those with an annual income between \$40,127 and \$60,190 for the state of California. SGA examined the annual income distribution of California and established that the average proportion of lower middle income class was 31.2% at the county level. Geographic areas with a lower middle income class greater than or equal to the established mean will be focused on as initial targets for enrollment into the pilot.

Temperature fluctuation. Based on conversations with DTSC, California inland cities were preferred in order to account for areas that have greater temperature fluctuations and as a result more likely to need HVAC systems relative to coastal regions with less significant temperature fluctuations.

Population size. To increase likelihood of finding mercury thermostats, the research looked at cities/regional areas with a population size greater than 100,000 for the analysis; our basis is that

areas with less than 100,000 in population consequently are less likely to have a critical mass of the audiences that we need to reach.

Locations Targeted

The pilot locations for Group B and C will not focus exclusively on target geographic areas, however we propose to roll the pilots out based on a prioritization using these criteria. So, areas around the central valley, regionally around Sacramento or in Southern California around the Inland Empire would be first priorities, but others would additionally be targeted as the outreach area increases.

Group B and C Pilot Programs: Monetary Incentives

School Districts/Community Colleges

Participant Overview

According to the CA Department of Education, for the 2015-2016 school year, there are more than 1,000 school districts in the state. Enrollment in these districts ranges from five students (Alpine County Office of Education) to approximately 640,000 students (LA Unified). The 25 largest school districts in the state cover approximately 30% of all enrolled students. Each of the school districts we contacted (even the smaller ones) had an onsite facilities manager and safety and hazards/environmental compliance managers. Mercury thermostats are hypothetically collected in a “pile”, or “barrel” (i.e. in their “maintenance shop” or “plant operations”) when removed as needed before they are collected by a waste company. All school districts contacted reported to have a contract with a waste disposal company that picked up mercury thermostats on call. Some of the companies mentioned include Shoreline, Ambient Environmental, Veolia Hazardous Waste Compact, and Mercury Disposal Systems. Maintenance oversight varies from district to district and were reported to fall under the responsibility of mechanical division managers, safety department secretaries, and external companies. Each school district maintains a facilities or safety department that oversees renovations.

In addition, there are a total of 496 colleges and universities that operate in California (33 public universities, 150 private non-profit colleges/universities, 200 private for profit institutions and 113 community colleges)¹. These institutions typically contract third-party contractor compliance companies to remove hazardous waste from the institution and conduct routine building maintenance. These institutions are consistently tracking the removal of hazardous materials from campus buildings, as their funding can be dependent on their compliance with state and federal compliance laws. In general, universities and colleges seem more systematic and deliberate in their management of hazardous/universal waste. The Academic Facilities Council provides a forum for sharing information directed at academic facilities including, but not limited to, primary and secondary schools, technical and community colleges, and private and public colleges and universities. Academic institutions will usually conduct renovations during the holiday seasons when fewer students are using facilities.

¹ Public Policy Institute of California, “Higher Education in California,” April 2016

Scoping Methods

Contact was attempted with 22 school districts as part of these scoping efforts. The pilots proposed for this audience are based on information gathered from seven school districts ranging from small to large enrollment size. Phone interviews were conducted with school districts in Berkeley, CA, Huntington Beach, CA, Twentynine Palms, CA, Stockton, CA, Merced, CA, Santa Monica, CA and Los Angeles, CA. This includes conversations with 7 individuals in positions such as: Director of Maintenance, Manager of Maintenance, Environmental Compliance Manager, and Secretary of Facilities. A list of the organizations contacted and interviewed can be found in the appendix.

In addition, contact was attempted with 33 universities/colleges as part of these scoping efforts. The pilots proposed for this audience are based on information gathered from interviews with eight universities/colleges (ranging in size from 2,240 to 37,446 students). A total of eight people were interviewed in positions such as: environmental health and safety coordinator/manager/director, facilities manager, environmental compliance manager, maintenance engineer, facilities operator/manager. All interviews were conducted by phone with one follow-up interview taking place in person. A list of the educational institutions contacted and interviewed can be found in the Appendix. In addition, online research was conducted to locate written policies regarding mercury-added thermostat disposal (an example of a policy can be found in the Appendix).

Pilot Recommendation

In July 2013, the State began allocating Prop 39² (The California Clean Energy Jobs Act) grant funds to both K-12 schools and community colleges. We will target recipients of these funds for a monetary incentive pilot. Outreach will be performed to K-12 schools and community colleges who have received grant funds to perform modernization projects or HVAC specific upgrades (these are campuses most likely to have recently removed or in the near future are likely to remove mercury thermostats as the campus upgrades its energy efficiency in general). Schools/community colleges will be offered a collection bin and a \$5.00 incentive per mercury thermostat to have their maintenance staff or contractor dispose of the mercury thermostat in a TRC bin. The pilot will prioritize outreach to schools and community colleges that best fit the above criteria and then will expand out from there with the objective of reaching all grant recipients. Based on the State's database of grant recipients there are 115 approved projects for community colleges and 237 approved projects for K-12 schools, plus there are an additional 165 approved projects for community colleges and 4088 approved projects for K-12 schools (note, not all are HVAC related and some campuses received more than one grant award).

Regarding the rebate payment, we will leave the decision as to who the incentive distribution will be made out to up to the organization requesting the bin. TRC is flexible in this regard, payment could be made to the school/college, to an individual implementing the program or to an affiliated non-profit (i.e., a Parent Teacher Organization or foundation, etc.).

Reasoning

Prop 39 provides us with a great opportunity to reach these two audiences at an opportune time, when they are actively performing energy efficiency renovations. Reaching out to Prop 39 recipient

² The California Clean Energy Jobs Act (Prop. 39) allocates projected revenue to California's General Fund and the Clean Energy Job Creation Fund for five fiscal years, beginning with fiscal year 2013-14. Under the initiative, roughly up to \$550 million annually is available for appropriation by the Legislature for eligible projects to improve energy efficiency and expand clean energy generation in schools.

schools/community colleges allows us to test the rate of participation in TRC’s recycling program in comparison to non-incentivized schools in the state (who we are also conducting outreach to through the Outreach Program Audience B).

Data to be Collected

- Number of schools/community colleges contacted
- Number of interested schools/community colleges
- Number of bins placed
- Number of bins returned
- Total number of mercury thermostats returned

Utility Companies

Participant Overview

A total of 59 Electric-Loan Serving Entities (LSEs), commonly referred to as utility companies, operate in California. They can be further divided into the following subgroups: 6 Investor-Owned Utilities (IOUs), (i.e. Bear Valley Electric Service, Liberty Utilities, Pacific Gas and Electric Company (PG&E), PacifiCorp, San Diego Gas & Electric, and Southern California Edison); 46 Publicly Owned Load-Serving Entities (LSEs); 4 Rural Electric Cooperatives; and 3 Community Choice Aggregators.³ The California Public Utilities Commission (CPUC) regulates utility service for approximately 10.8 million customers as well as all energy programs by mandating electric costs, electronic power procurement and generation, infrastructure, customer energy resources, energy efficiency, energy advice letter and tariff information, and electric rates.

Scoping Methods

Contact was attempted with 13 utility companies as part of the scoping effort. Of the 13 utility companies contacted, 8 successful interviews were conducted. 2 of the 8 interviews were with large investor owned utility companies while the remaining 6 were conducted with smaller publicly owned LSEs. Online research was also conducted as part of the scoping effort. The following organizations participated in our scoping interviews: SoCal Edison, Burbank Water and Power, PG and E, “Banning, City of Electric Department,” Biggs Municipal Utilities, Port of Stockton, City of Rancho Cucamonga, Modesto irrigation district. Interviewee positions include: customer service representative, program manager, administrative assistants, and public services technician.

Role in the Collection of Mercury Thermostats

This audience can best support the collection of mercury-added thermostats by entering partnerships with TRC to work towards shared goal of safe and efficient energy management throughout California. Utility companies have a legislative need to lower energy consumption in the region in which they provide their services--each year, they are expected to lower energy consumption by 1 to 2% from the previous year. Rebates on thermostats are implemented by utility companies for this reason. This provides TRC

³ Electric Service Area: www.energy.ca.gov/maps/serviceareas/Electric_Service_Areas_Detail.pdf
Contact info for CA Utilities: www.energy.ca.gov/almanac/electricity_data/utilities.html

with an opportunity to forge partnerships with utility companies to provide materials, resources, and processes for free mercury thermostat replacement to make room for energy and cost saving alternatives. Furthermore, TRC can capitalize on utility companies' existing networks of contractors and customers to promote the safe removal and disposal of mercury thermostats and replacement with low-energy, cost-saving alternatives. This shared approach aligns with the California Public Utilities Commission's (CPUC) statewide initiative called "Upgrade Energy California" aimed at motivating and educating California residents and small businesses about reducing energy consumption with smarter energy alternatives.

Pilot Recommendation

Our partnerships (which are outlined in detail in the Outreach plan for Audience B) with utility companies offer us two targets for pilot opportunities, namely the utility companies themselves or the utility company's contractors. To motivate utility companies to become a TRC partner, distribute educational materials and recycle mercury thermostats, TRC will provide them with a \$5.00 incentive for each thermostat returned similar to the monetary incentive for large contractors across the State.

Reasoning

Partner utility companies are participating in the collection of mercury thermostats through their contractors, who regularly install and remove thermostats for their customers. Through these partnerships, the contractors will then collect mercury thermostats in TRC bins and return for a \$5.00 per thermostat incentive. Utility companies in the pilot locations will also be offered a \$5.00 incentive for each thermostat collected. This incentive can either be kept by the utility company or passed on to the consumer as a part of their incentive program to upgrade the consumer's HVAC system.

Similar to the School/Community College pilot, this will be prioritized by the criteria listed above, but will not be exclusive to those areas. Our goals are to roll the program out in the areas most likely to have mercury thermostats to ensure geographic coverage in key regions of the State and then expand the program out from those areas.

Data to be Collected

Utility Companies

- Number of utility companies participating in pilot
- Number of bins placed
- Number of bins returned
- Number of incentives redeemed
- Number of thermostats collected

Residential and Commercial Property Management Companies

Participant Overview

Property managers are often the party responsible for ensuring that thermostats are up to date within the buildings they manage. Typically, tenants will request thermostat replacements when a thermostat breaks. Our interviews revealed that smaller management companies have more insight into their maintenance process and will often have an in-house contractor while larger management companies contract a contracting firm to handle maintenance issues. It is notable that there is no discussion, training, or agreement to a policy pertaining to waste disposal between the external contractor and property management. All property managers we spoke with stated that the contractors were hired to see the waste is properly disposed. This lack of awareness of the legal repercussions from the managers' standpoint could provide an opportunity for outreach and engagement.

Scoping Methods

Contact was attempted with 10 commercial property management companies as part of these scoping efforts. The tactics proposed for this audience are based on information gathered from seven companies ranging from small to large property size. Interviews were conducted with property management companies in Fresno, CA, Sacramento, CA, and Long Beach, CA. This includes conversations with seven individuals in positions such as: Senior Property Manager, Property Manager, President, Maintenance Engineer, and Employee. A list of the organizations contacted and interviewed can be found in the Appendix.

Contact was attempted with 17 residential property management companies as part of these scoping efforts. The tactics proposed for this audience are based on information gathered from six companies ranging from small to large property size. Interviews were conducted with property management companies in Fresno, CA, Stockton, CA, Riverside, CA, El Segundo, CA, and Long Beach, CA. This includes conversations with 6 individuals in positions such as: Property Manager, Maintenance Manager, Vice President, Director of Property Management, Resident Manager, and Employee. A list of the organizations contacted and interviewed can be found in the Appendix.

Role in the Collection of Mercury Thermostats

This audience can best support the collection of mercury-added thermostats by being able to properly identify and promote the safe removal and disposal of mercury thermostats within their properties. Property managers have the capacity to coordinate the removal and installation of thermostats in numerous units, but will typically hire a contractor or their onsite maintenance to handle the removal and disposal process. Our interviews revealed that most property managers do not have a policy or understanding of the issue and place the responsibility on the hired contracting company or handyman to take care of the thermostat after it is removed. Our interviews also revealed that smaller management companies (manage buildings with fewer than 100,000 square feet) have more insight into their maintenance process and will often have an onsite handyman, while larger management companies tend to hire out and have less grasp of the maintenance process. Our outreach will focus on partnering with smaller property management companies that are more likely to be involved in the disposal process and can institute a policy with their onsite maintenance, as opposed to larger companies that leave this to the contracting firms. Our tactics below outline how we will outreach to property managers to ensure they

can properly identify a mercury-added thermostat and provided with the tools to ensure their safe removal and disposal in TRC bins.

In addition, one issue we heard from a few property managers is that they would collect and treat all thermostats as “hazardous waste.” It was not always clear why they did so, was it because of e-waste, uncertainty of classification, or they were just trying to answer the question in a way they thought was the environmentally correct answer. However, given that finding, we would also like to set up a pilot with property managers where we collect all thermostats (regardless if they are mercury-added or not). We would have them sent to Veolia and sorted there. This would allow us to avoid any confusion of identification and see if that would assist in collecting additional mercury-added thermostats.

Pilot Recommendation

We recommend both a monetary incentive pilot and a nonmonetary pilot program for this audience. The monetary incentive pilot will incorporate outreach to educate and increase awareness surrounding the identification, legality and hazard of mercury thermostats. The outreach will also include information regarding next steps and promote the placement of bins and thermostat collection where HVAC upgrades are taking place. The incentive to property managers will be \$5.00 per thermostat returned to TRC (all thermostats would be accepted free of charge and all mercury-added thermostats would have a redemption of \$5.00 per thermostat sent back to the property manager after sorting by Veolia).

The nonmonetary incentive pilot will include providing a free collection bin for their use and then revolve around message testing. We will use email marketing, online advertising and phone calls to perform testing of various messages including: monetary incentives, legality, toxicity, and a social norm message, rotating messages and monitoring results to see which message best resonates with the audience. This message testing will compare response rates between messages helping determine which creates the most interest and action.

Reasoning

Our monetary pilot program will include outreach to property management companies starting in our target locations. In our outreach efforts, managers will be educated on the identification, legality and hazards associated with mercury thermostats. This is an important step, as many of the property management companies we spoke to said that they did not have any mercury thermostats in their units. Our information may uncover that some buildings do in fact have them where they were previously thought absent. A collection bin along with a \$5.00 per thermostat incentive will be provided to property managers to motivate them to collect and properly dispose of any mercury thermostat. Outreach to property management companies will also be done as part of our Outreach Plan Audience C, where an incentive is not offered. This allows us to compare results between non-incentivized and incentivized results, gauging whether the incentive produced higher participation.

The nonmonetary pilot program will provide a collection bin at no-cost similar to property managers and focus on messaging. Outreach to property managers will test a variety of messages, homing in on which genre or theme creates a higher response rate, either online through advertisements and emails, or via phone calls. Previous message testing has been done in our Pilot Plan for Audience A, where messages were tested on Facebook and Google. This pilot will provide results through different channels and targeting a different audience. These results

will aide in shaping future messaging and help us better understand the concerns of another target audience, to compare and contrast to previous results.

Data to be Collected

Monetary Pilot

- Number of trade associations and/or property management companies contacted
- Number of bins placed
- Number of bins returned/number of thermostats collected

Non-monetary Pilot

- Number of property management companies contacted
- Number of messages tested
- Response rate from message testing

Timeline – Monetary Incentives

Implementation Schedule

Outreach Plan Phase Timelines			2017-2018											
			Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
School Districts/Community Colleges	12 months	Set Up/ Build Partnership	Outreach/Bin Placements (winter break)						Outreach/Bin Placements (summer break)					
		Promote Rebate												
Utilities	12 months	Set Up/ Contact Utilities	Implement Outreach (three audiences: Consumers, Utility Staff, Contractors)											
		Promote Rebate												
Residential and Commercial Property Management	12 months	Set Up/ Build Partnership	Implement Online Marketing and A/B Message Testing Promotion											
		Promote Rebate												

Non-Monetary Incentives: Group B and C Pilots

Background

While various pilot programs have tested the use of financial incentives to spur increased collection rates, we have little data on how nonmonetary incentives and messaging strategies contribute to TRC's goals. Some data is available from the Pilot put into place for Group A – Consumers, but this is a very specific type of audience that is most likely to have different motivators than business or government agencies. Although the role of nonmonetary incentives may be perceived as less important or urgent as financial incentives because they can seem more subjective and difficult to track, we know that long term shifts in sustainable behavior require changing people's minds and perceived social norms through effective outreach and messaging.⁴

Through using A/B split testing via online media to assess the reception of different messages devised to promote proper recycling habits and reduce illegal disposal among California residents, we can come to a substantiated understanding of what messages stick in our audiences' minds and motivate them to action. Understanding what messages motivate California businesses or government personnel to take action and recycle their mercury thermostats will enable TRC to maximize its impact with a finite budget by strategically tailoring its outreach strategy and messaging to prompt new public perceptions and norms around improper mercury thermostat disposal.

In addition, TRC will provide a non-monetary incentive of a collection bin at no cost (\$25 fee waived) to all audiences. This would specifically test the value of convenience in promoting the correct behavior (i.e., having their own collection ability without having to go to a third party for disposal). All audiences in Group B and C would be offered a collection bin (small or large).

Pilot Project Design

Types of Messaging

The messages we will test will be drawn from established best practices within the marketing/social sciences field and characteristics of successful mercury collection programs from other states. One of the key psychological models often turned to in developing marketing communication pieces is Maslow's "Hierarchy of Needs."

⁴ James, Rachel. "Promoting Sustainable Behavior: A guide to successful communication."

Maslow's Hierarchy of Needs

Using this psychological construct helps highlight conceptual ways that advertisers/marketers approach an individual's interests and attempt to align them with the objectives of the program via aligned interests/messaging. The four basic interests that messages are focused on are the following concepts:

1. Safety/Health Protection
2. Social Norms/Societal Expectations (i.e., legal requirements or industry norms)
3. Self-Interests (i.e., monetary self-interests or convenience)
4. Self-Actualization/Aspiration (including broader community and environmental interests beyond the self)

Note, usually the base interest (physiological) is too immediate and not used in most advertising/marketing efforts.

By using email marketing or online A/B testing, we can evaluate multiple variations of messages to determine the best fit message for our audience. The messages we will evaluate will draw from the following four categories:

1. Health/Safety: Recycling mercury thermostats is essential to the health of one's community, family, children, etc.;
2. Legal/Social Norm: Improper disposal of mercury thermostats is against the law and/or proper disposal is what contractors, maintenance personnel do;
3. Incentive/Convenience: Recycling mercury thermostats is free and/or offers financial incentives at participating locations;
4. Environmental/Aspirational: Recycling mercury thermostats is good for the planet and part of making our world a better place.

Tactics

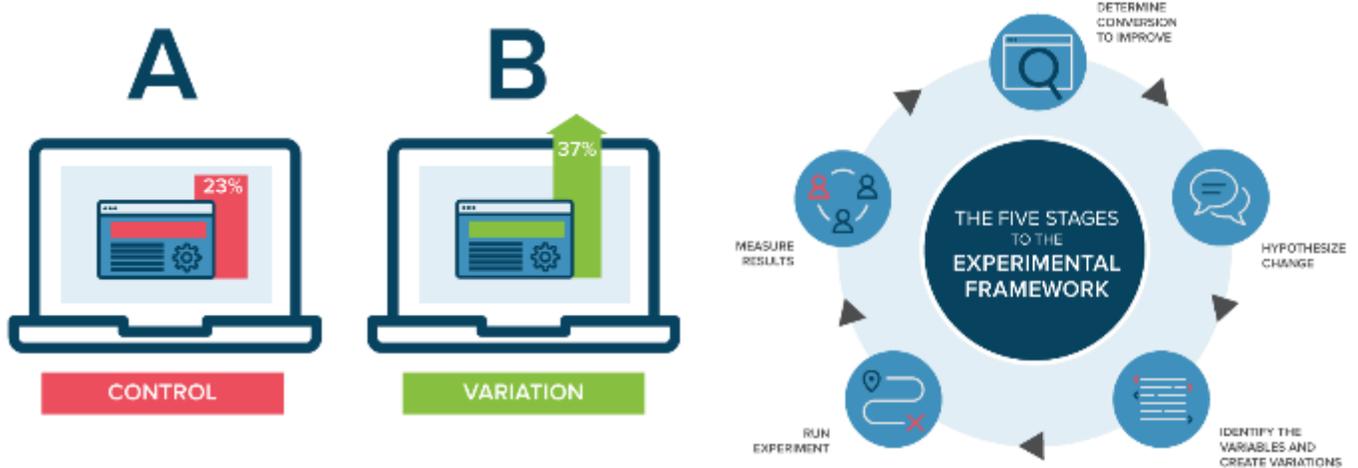
In testing the ads, we will develop simple posts which we can refine over time based on audience feedback. We will use two metrics to determine success:

1. The number of people that see the ads and then click through to the landing page for thermostat collection (this determines general interest).
2. The number of people that order a collection bin.

The steps we will then take in implementing the A/B testing are the following:

1. Assess current messaging approaches to various target audiences;
2. Identify priority audiences and develop specific messages to test for selected audiences;
3. Test messages through A/B split testing via email marketing or online ads;
4. Measure conversion results and identify winning messages based on the audience's reception;
5. Incorporate winning message into larger outreach strategy and/or through future program modification plans.

Figure 4: A/B Split Testing Framework⁵



Pilot Project Metrics

- A/B split test conversion rates from email marketing or online ads
- Conversions to goal of open rates and click-through rates
- Total microsite visits based on test messages

Timeline – Non-Monetary Incentives

Implementation Schedule

Non-Monetary: Outreach Messaging Pilot		2017				2018								
		Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	
Tactics														
Assess current messaging approaches to various target audiences;	1 month	█												
Identify priority audiences and develop specific messages to test for selected audiences;	1 month		█											
Test messages through A/B split testing via email marketing or online ads;	9 month			█	█	█	█	█	█	█	█	█		
Measure conversion results and identify winning messages based on the audiences’ reception;	9 month			█	█	█	█	█	█	█	█	█		
Incorporate winning message into larger outreach strategy.	2 month											█	█	

⁵ "Optimizely: Optimize Digital Experiences for Your Customers." What Is A/B Testing? N.p., n.d. Web. 20 July 2016.

Appendix

Table 1. Log of Contacts: University/College

Organization	Phone Number	City	Obtained Interview	Interviewee Name	Interviewee Title	Size
Humboldt State University	707-826-3646	Arcadia	Yes	Sabrina Zink	EH&S Coordinator	Medium
Sacramento City College	916-558-2453	Sacramento	Yes	Karen Chewing	Facilities manager	Medium
San Joaquin Delta College	209-954-5835	Stockton	Yes	Stacy Pinola	Environmental Compliance manager	Medium
Stanislaus State University	209-667-3211	Turlock	Yes	Louie	Maintenance Engineer	Medium
Palo Alto University	650-433-3853	Palo Alto	Yes	Fernando	Facilities Operator	Small
Cal Tech Pasadena	720-355-5355	Pasadena	Yes	Matthew Narez	Facilities manager	Small
Sonoma State University	707-664-2932	Rohnert Park	Yes	Craig Dawson	Environmental Hazards & Safety Director	Medium
CSU Long Beach	562-985-8893	Long Beach	Yes	Peer Gerber	Environmental Hazards manager	Large
UCLA	310-825-1527	Los Angeles	Made contact, no interview	---	---	Large
CSU East Bay	510-885-4024	Hayward	Made contact, no interview	---	---	Medium
San Jose State University	408-924-2152	San Jose	Made contact, no interview	---	---	Large
California Lutheran University	805-493-3215 ext. 3217	Thousand Oaks (Central CA)	Made contact, no interview	---	---	Small
Pacific Union College	707-965-7150	Angwin	Made contact,	---	---	Small

			no interview			
University of the Pacific	209-946-2285	Stockton	Made contact, no interview	---	---	Medium
San Diego Miramar College	619-388-7800	San Diego	Made contact, no interview	---	---	Medium
Cerritos College	562-860-2451 ext. 2315	Cerritos	Made contact, no interview	---	---	Large
San Bernardino Valley College	909-382-4006	San Bernardino	Made contact, no interview	---	---	Medium
Fresno City College	559-244-5987	Fresno	Made contact, no interview	---	---	Large
Diablo Valley College	925-969-4282	Pleasant Hill	Made contact, no interview	---	---	Medium
Santa Clara University	408-554-5078	Santa Clara	Made contact, no interview	---	---	Medium
Merced College	209-384-6135	Merced	Made contact, no interview	---	---	Medium
William Jessup University	916-577-2380	Rocklin (Central CA)	Made contact, no interview	---	---	Small
Fielding Graduate University	805-898-2937	Santa Barbara (Central CA)	Made contact, no interview	---	---	Small
Thomas Aquinas College	805-421-5938	Santa Paula (Central CA)	Made contact, no interview	---	---	Small

UC Santa Barbara	805-893-3293	Santa Barbara (Central CA)	Made contact, no interview	---	---	Large
Westmont College	805-565-6042	Santa Barbara (Central CA)	Made contact, no interview	---	---	Small
Point Loma Nazarene University	619-849-2440	San Diego	Made contact, no interview	---	---	Small
USC	707-826-3646	LA	Made contact, no interview	---	---	Large

Table 2. Interview Notes: University/College

Organization	Question Set 1*	Question Set 2*
Humboldt State University	<p>(1) When they are no longer useful, the Environmental Health and Safety department supplies materials/containers for departments to put the waste in.</p> <p>(2) There are multiple, it could be through an email but to contact the contractor we send request for pick up through the mail.</p> <p>(3) Whenever they need to be replaced. (</p> <p>4) No, it's whenever needed</p> <p>(5) For the mercury thermostats, they stored it for pick up (contact RM&SS)</p>	<p>(6) Not much, they should all be electronic now</p> <p>(7) Well if they have the mercury in them, if they're usually older</p> <p>(8) It's time consuming but it is necessary</p> <p>(9) Can't say</p> <p>(10) Not for mercury thermostats but for all hazardous materials which thermostats lies in that category, they abide by the California Code of Regulations</p>
Sacramento City College	<p>(1) When they disposed of ALL of their mercury thermostats, technicians were in charge of this disposal.</p> <p>(2) Their typical process is for making announcements to these staff: It is through written data sheets because every two years they are required to review their hazardous materials</p> <p>(3) They have NO MORE mercury thermostats, they made sure they disposed of them all. (replaced them with mercury free ones</p> <p>(4) When they disposed of it, they had to have a Safety Data Sheet (provides info on medical, disposal, and storage of the waste), the Operations Technician reviews these sheets, and they forward this information to the appropriate groups (technicians who would dispose of it).</p> <p>(5) None</p>	<p>(6) She said she wouldn't say there were any</p> <p>(7) Not any specifically for mercury thermostats but the Operations technicians make sure to follow OSHA and ADA regulations when compiling report.</p> <p>(8) When school is not in session.</p>
San Joaquin Delta College	<p>(1) They have technicians organize the waste (including mercury thermostats) and hire a contractor to come pick it up. (Premier Chemical)</p> <p>(2) Face to face.</p> <p>(3) There were about two areas of mercury thermostats, and now there are close to none since they are now replacing them with 'electronic' mercury free ones. Now she would say less than 5.</p> <p>(4) Technicians have to profile the hazardous waste (including thermostats), obtain permits and ID number, label it, and</p>	<p>(6) She said there's nothing in particular that makes it any easier.</p> <p>(7) Delta college enforces EPA's regulations and requires hazardous management staff to be well trained in proper labeling and recordkeeping. They don't have one specifically on mercury thermostats</p> <p>(8) They try to do it during a time when students aren't around but if it's immediate they will clear out an area to work on it</p>

they hire a contractor to pick it up (shipments).
 (5) She said nothing, because it doesn't matter how much it costs, they have to get rid of it and abide by state counties and federal laws. She did mention that it is a long process.

Stanislaus State University	<p>(1) Mentioned mercury thermostats. The environmental safety team deals with it, they are sent to a facility on campus that stores it, and they hire a contractor (EHNF Division? didn't really hear correctly even after asking him to spell it out). For hazardous materials, their contractor usually comes in once a month, but for mercury thermostats it's only occasionally. (2) Face to face (3) It's an ongoing process and they only replace them when they are broken, and in that case, they replace them with newer versions, electronic ones (4) No, it's ongoing (5) Environmental safety team stores it in a facility on campus where they prepare it for pick up</p>	<p>(6) Not a lot, it's occasionally since now they are mostly new ones. (7) It's pretty clear when they are a mechanical device (8) He doesn't know. (9) Doesn't know. (10) Not specific to, in general for hazardous materials because there are just so many of them it would be a disaster to try making a policy for each.</p>
Palo Alto University	<p>(1) Have a third party that manages that/ contractor they hire: (2) in person (3) Once every two years, it's more by demand. If they fail or by request then they'll take care of it. (4) No not really (5) They hired the contractor to come and get them, they will rebuild them if they can (a metal component that can be reused)</p>	<p>(6) They were all removed in 2008. He wasn't around there in 2008 but he's pretty sure a contractor was in charge of removing all of that. (7) Generally, if they're older and have that mercury tube in them (8) I couldn't say, that is mostly in part of the contractor (9) Again, not too sure. (10) No not really</p>
Cal Tech Pasadena	<p>(1) For old thermostats, they use the recycling service 'Encore Environment', they have around 15 technicians, but he's unsure if they are directly involved with the removal of thermostats (he's assuming some internal employees are involved with the process and he said he will email me more information after talking to the Safety and Hazards department). (2) Face to face interaction. (3) He couldn't give me an estimate because they're constantly renovating and he mentioned that they are implementing</p>	<p>(6) They are privately funded and have a budget for renovating so the commitment on behalf of the university to comply with environmental regulations makes it easier. (7) He said he doesn't know and will get back to me about that. (Having the means to do so makes it easier) (8) They remove any toxic materials (his guess was that mercury thermostats are part of that) during a safe time, particularly when class isn't in session. NOTE: What I basically got out of him</p>

mercury free thermostats as well, he's unsure because there may some old buildings with mercury thermostats but for the most part, everything is pretty much new.

(4) They call a contractor, he is unsure whether they have an agreement in place for mercury thermostats so he will get back to me on that after talking with Safety and Hazards (he is the facilitator manager for all departments and mainly works with maintenance but he is going to get that information for me)

(5) He said there aren't really any barriers because Cal Tech has a budget for it.

was that they weren't really focused on mercury thermostats, and he did tell me that this interview made him think about it more.

Sonoma
State
University

(1) Asked me if I meant regular or mercury thermostats, I said mercury and he said the environmental health and safety faculty (collects them from anyone who has them on campus), a few people work on those.

(2) It could be through call or through email
(3) We did one whole big process (removing as many as possible) in the mid -2000s.

Once in a while stumbles across one and routes them to environmental health and safety dept.

(4) Doesn't remember exactly when the removal took place, but that it most likely took place when it was most convenient (summer time)

(5) They break it down as much as possible to adjust the cylinder component assuming it's got an open system and store it in a waste container for a waste contractor, have a contract with Millistate Environmental.

(6) Once in a while, stumbles across one that was missed.

(7) When they're old they most likely will have mercury in them.

(8) No not really

(9) I wouldn't say so

(10) No, we don't we are fortunate enough where we have a small campus and can handle all of the hazardous waste but we don't have a policy for mercury thermostats in particular.

CSU Long
Beach

(1) They contract it out to compliance company named 'Stericycle'

(2) They contact via email

(3) Doesn't have a general estimate because he stated that they are using less and less mercury thermometers (installing mercury free thermometers) said there may be some left but he's unsure.

(4) They have an agreement with Stericycle based on 'CA hazardous waste regulations', they fill out a 'Hazardous Waste Manifest Standard CA' form and put their EPA

(6) Good to have vendors who are willing to take that waste, they can't be there dictating what materials lab prof are using so having a safety officer makes it easier to keep track of all the toxic wastes

(7) Have to Reuse, recycle waste, and prevent it from getting into the landfill. Contractors certify and sign off on that. 90% no waste in landfill policy is going to come into action soon, all hazardous

number that they give to the compliance company, then they have to verify waste is being packaged properly (HW technician manages this, Peer stated that lab professors are helpful in separating their wastes through Lab packing so everyone's involved with ensuring these wastes are properly disposed of), when mercury waste arrives at the facility they track shipment of waste (HW technician visits facility) and they get signatures back

(5) It's expensive, it takes up a lot of time, hazardous waste technician on campus has to go there to ensure it's being properly sanitized and stored in the proper container and label has to be placed on it, waste has to be consolidated with other wastes. It's a long process.

waste is '100% has to be recycled properly'

(8) They do it when they pick up the waste of the labs when class is over. (during summer sessions) waste is ready to pick up by, they have a satellite accumulation point

Question Set 1: (1) Would you know who actually has direct contact with removing and disposing of air conditioning thermostats in your facilities? (2) Typical process for contacting staff concerning thermostat removal (3) how often would you say you actually replace a thermostat? (4) Are there any seasonal considerations that you take into account with replacing thermostats? (5) What do you do with the thermostat when you remove it from the wall?

Question Set 2: (6) How often does your university/college come across mercury thermostats? (7) What do you find is the easiest way to identify a mercury thermostats? (8) What are the factors that make it difficult to properly dispose of mercury thermostats? (9) Factors that make it easier? (10) Do you have any written protocols in place for the disposal of mercury thermostats?

Table 3. Log of Contacts: Hotels/Motels

Organization	Phone Number	City	Obtained Interview	Interviewee Name	Interviewee Title	# of rooms
Clarion Hotel	707-442-3261	Eureka	Yes	Enrique	Maintenance Engineer	74 rooms
Motel 6	559-485-5019	Fresno	Yes	Pat	Manager	55 rooms
Belmond El Encanto Hotel	805-845-5800	Santa Barbara	Yes	Joe Vogul	Director of Engineering	92 rooms and 7 meeting spaces
Super 8	714-527-2201	Buena Park	Yes	Babu	Manager	n/a
Lamplighter Motel	707-443-5001	Eureka	Yes	Gigi	Receptionist	20 rooms
Andaz Napa	707-687-1234	Napa	Yes	Dwayne Heskett	Director of Engineering	145 rooms
Red Lion Hotel	707-445-0844	Eureka	Yes	Mariana	receptionist/ Representative of Hotel	175 rooms
Hotel Paradox	831-425-7100	Santa Cruz	Made contact, no interview	---	---	---
Comfort Inn	415-928-5000	San Francisco	Made contact, no interview	---	---	---
Sunshine Motel	909-888-1514	San Bernardino	Made contact, no interview	---	---	---
Motel 6	760-596-4000	Victorville	Made contact, no interview	---	---	---
Kings Canyon Motel	559-255-7877	Fresno	Made contact, no interview	---	---	---
Ayres Hotel	909-335-9024	Redlands	Made contact, no interview	---	---	---
Desert Palm Hotel And Suites	714-535-1133	Anaheim	Made contact,	---	---	---

			no interview			
Hyatt	951-321-3500	Riverside	Made contact, no interview	---	---	---
Cardinal Hotel	650-323-5101	Palo Alto	Made contact, no interview	---	---	---
Double Tree by Hilton Hotel	213-629-1200	Los Angeles	Made contact, no interview	---	---	---
Best Western Plus Hacienda Hotel	619-298-4707	San Diego	Made contact, no interview	---	---	---
Hyatt Centric	562-432-1234	Long Beach	Made contact, no interview	---	---	---
Riviera Motel	714-776-9100	Anaheim	Made contact, no interview	---	---	---
Calarion Inn and Suites	714-966-5200	Santa Ana	Made contact, no interview	---	---	---
Del Marcos Hotel	800-676-1214	Palm Springs	Made contact, no interview	---	---	---
Best Western Plus Yosemite Inn	559-683-2378	Yosemite	Made contact, no interview	---	---	---
Chancellor Hotel	415-362-2004	San Francisco	Made contact, no interview	---	---	---
Hollywood Celebrity Hotel	323-850-6464	Los Angeles	Made contact,	---	---	---

			no interview			
West Coast Inn	714-554-0085	Santa Ana	Made contact, no interview	---	---	---
The Hotel	714-891-0123	Huntington Beach	Made contact, no interview	---	---	---
Travelodge	310-839-1111	Culver City	Made contact, no interview	---	---	---
Sheraton Grand Sacramento Hotel	916-447-1700	Sacramento	Made contact, no interview	---	---	---
Motel 6	909-884-6268	San Bernardino	Made contact, no interview	---	---	---
All Suites Islander Motel	510-796-8200	Fremont	Made contact, no interview	---	---	---
Super 8	714-545-9471	Costa Mesa	Made contact, no interview	---	---	---
Motel 6	510-793-4848	Fremont	Made contact, no interview	---	---	---
Townlodge Motel	909-381-4291	San Bernardino	Made contact, no interview	---	---	---
Motel 6	209-946-0923	Stockton	Made contact, no interview	---	---	---
Stockton Travelers Motel	209-466-8554	Stockton	Made contact, no interview	---	---	---

Super 8	559-268-0621	Fresno	Made contact, no interview	---	---	---
Hilton Anaheim	714-750-4321	Anaheim	Made contact, no interview	---	---	---
Omni Los Angeles Hotel	213-617-3300	Los Angeles	Made contact, no interview	---	---	---

Table 4. Interview Notes: Hotel/Motel

Organization	Question Set 1*	Question Set 2*
Clarion Hotel	<p>(1) doesn't replace very often, their ac's are relatively new (not mercury), replaces things when old not just if it breaks</p> <p>(2) don't use too many thermostats just keep it in a bag in storage, don't throw anything away, has been working there for 2 years and doesn't know what the last engineer did with them. He just checks them at least once a month to make sure everything is working properly</p>	<p>(3) only he replaces them (have them in units no longer on the wall), has more people on his team but they don't do any of that, use a face to face method of communication</p> <p>(4) Don't have any mercury thermostats because ac's are relatively new so no factors affect maintenance. there are no seasonal considerations</p>
Motel 6	<p>(1) They don't have any thermostats. they have air conditioning systems plugged into 220 voltage air containing wall units</p> <p>(2) No process implemented because they don't have any thermostats. Has never come across them so there is no protocol</p>	<p>(3) Only have one maintenance person. He is an official worker (job is not contracted out). Typical process for making announcements is face to face.</p>
Belmond El Encanto Hotel	<p>(1) Haven't had to replace anything. The hotel is only 4 years old. Will be replacing them in the near future because they dislike them and would like to upgrade. Said they have dico thermostats, water tower cooling system, and individual units</p> <p>(2) Don't have any mercury thermostats, only digital thermostats. Don't have any protocols in place. Hotel is planning on upgrading every 5-6 years.</p>	<p>(3) No one has had to replace any thermostats because everything is relatively new. Will be contracting that job out but haven't given much thought to who. Typical process for making announcements is through a daily review in which they go over the day's events. Also create a newsletter each month for workers.</p> <p>(4) No factors because they don't have any mercury thermostats.</p>
Super 8	<p>(1) If it works fine, leave everything as is. Only replace them if they break or not working good.</p> <p>(2) If broken or not working, they just call the air conditioning professional people. Only have digital thermostats. Don't ever run into mercury thermostats.</p>	<p>(3) Every week the thermostats are checked by motel but if don't work they c all the air conditioning professional people. Typical process for making announcements to staff is by holding meetings.</p> <p>(4) None because don't have any mercury thermostats.</p>
Lampighter Motel	<p>(1) Replace the thermostats when they stop working. Do this at least once a year</p> <p>(2) She's only ever seen digital thermostats in the motel</p>	<p>(3) Have one internal employee who handles that, they don't contract it out. When I asked if he has an official job title, simply said they just call him the maintenance dude. Typical process for making announcements is via phone</p> <p>(4) none that she is aware of, has never seen mercury thermostats there</p>

Andaz Napa

(1) They replace them when broken however they will be in the process of replacing all in 2 months. Although they still work, they will be replacing them because they want to go to a higher-grade thermostat which can be used through cell phones and integrated into their computer system.

(2) Normally take their thermostats out if they don't work and put them in recycling bins. Don't have any mercury thermostats on property. The hotel is pretty new, has been opened since 2009 so they have always had digital thermostats. Don't have any protocols for mercury thermostats.

(3) He had direct contact with replacing the thermostats. He has 3 other employees in the engineering department who help him out with replacing them. Their typical process for making announcements is through daily pass downs. They have chats pre-shift and after shifts to talk about any changes and about the job.

(4) None because don't have any mercury thermostats on property.

Question Set 1: (1) How often do you replace thermostats? What prompts you to replace them? (2) What is your thermostat removal process? How often do you come across mercury thermostats? Any protocols for mercury thermostats?

Question Set 2: (3) Who has direct contact with replacing thermostats? How many people are in this position? What is the typical process of making announcements to them? (4) Factors that make it difficult or easier to properly dispose of mercury thermostats? Seasonal considerations?

Table 5. Log of Contacts: Utility

Organization	Phone Number	City	Obtained Interview	Interviewee Name	Interviewee Title	Size
SoCal Edison	800-655-4555	Southern California	Yes	Elizabeth Rolito	Customer representative	Large
Burbank Water and Power	818-238-3730	Burbank, CA	Yes	Jack Corbett	Program Manager	Small
PG and E	800-468-4743	California	Yes	n/a	Customer representative	Large
Banning, City of Electric Department	951-922-3260	Banning	Yes	Amber Rockwell	utility services assistant	small
Biggs Municipal Utilities	530-868-5493	Biggs	Yes	Marlee Mattos	admin assistant	Small
Port of Stockton	209-946-0246	Stockton	Yes	Debbie Calley	utilities manager	Small
rancho Cucamonga	909-477-2740	rancho Cucamonga	Yes	Sandra Madina	public services technician	Small
Modesto Irrigation District	209-526-7373	Modesto	Yes	Blanca	Clerk	Small
Lodi Electric Utility	209-333-6762	Lodi	Made contact, no interview	---	---	Small
Riverside, City of	951-826-5532	riverside	Made contact, no interview	---	---	Small
Moreno Valley Utility (MVU)	877-811-8700	Moreno valley	Made contact, no interview	---	---	Small
Alameda Municipal Power	510-748-3905	alameda	Made contact, no interview	---	---	Small
Anaheim, City of Public Utilities Department	714-765-5156	Anaheim	Made contact, no interview	---	---	Small

Table 6. Interview Notes: Utilities

Organization	Question Set 1*	Question Set 2*
SoCal Edison	<p>(1) Yes, we are running a rebate program with smart thermostats</p> <p>(2) I only know of the rebates that are running right now</p> <p>(3) sometimes we take on contractors but not sure if we do for thermostat installations</p>	<p>(4) don't know</p> <p>(5) I don't think so</p>
Burbank Water and Power	<p>(1) We are running smart thermostat rebate program</p> <p>(2) this is the third or fourth year of the thermostat rebate</p> <p>(3) No, we don't contract for thermostat. Only for more work extensive programs like hvac tune up</p>	<p>(4) We trust the contractors to know what to do with hazardous waste.</p> <p>(5) Do not advertise the rebates. We rely on mostly word of mouth. Sometimes we include it in our quarterly letters (misc.) we are incentivized to run programs like thermostat installation because there is a state legislation that requires reduction of energy usage by 1 to 2% annually. We don't think smart thermostats help out much in terms of actual amount of energy saved but believe it to be a good initial step towards adoption of other smart appliances, which would be impactful</p>
PG and E	<p>(1) We used to have a thermostat rebate program with Honeywell. I don't think we have that anymore</p> <p>(2) I don't know</p> <p>(3) we never contract anyone for thermostat installation</p>	<p>(4) don't know</p> <p>(5) I don't think so</p>
Banning, City of Electric Department	<p>(1) No rebate on thermostats. We do have rebates on house insulation and other energy smart appliances</p> <p>(2) none on thermostat to my understanding</p> <p>(3) we do not contract for thermostats</p>	<p>(4) I do not think so</p> <p>(5) we have information on rebates at our front desk and we have a webpage</p>
Biggs Municipal Utilities	<p>(1) We are running a rebate on programmable thermostats I believe</p> <p>(2) unsure</p> <p>(3) we do not contract for thermostats</p>	<p>(5) no advertising is done</p>
Port of Stockton	<p>(1) We only do rebates for commercial properties because that is our only customers. The rebates from my knowledge has never been about thermostats. We are running window sealing at the moment.</p>	<p>(5) no advertising is done</p>

(2) window insulation, energy efficiency checks and improvement
 (3) never contract for thermostat installation

Rancho Cucamonga	<p>(1) We have not done thermostats. Unsure if it makes sense for them because they service mostly commercial and some apartments (2) unsure but most likely not (3) we hire contractors to make assessments when it comes to energy efficiency or insulation type of tasks but they do not need to hire the contractor to do the installation itself, only the assessment</p>	<p>(4) I do not think we have requirements for contractors (5) we advertise on our quarterly newsletter and website</p>
Modesto Irrigation District	<p>(1) We are running a rebate program on AC units and window insulation. I don't think for thermostat rebates (2) never done thermostat rebates (3) everything we do is self service</p>	<p>(4) everything is self-serviced (5) we sometimes do radio advertising but it's mostly the webpage</p>

Question Set 1: (1) Does your utility encourage customers to upgrade their HVAC systems or replace their thermostats? If yes, how? (2) What type of incentives are offered (historically)? (3) Do you contract with a company to replace the thermostats (if so who), or is this done with in-house staff?

Question Set 2: (4) Do you know what the contractor (or their technicians) do with the thermostats once they are removed? Do you instruct contractors with protocol on dealing with hazardous waste? (5) Do you do any promotion besides your online listing that encourage your customers to upgrade or replace their thermostats? If yes, what are they?

Table 7. Log of Contacts: Property Management (Commercial)

Organization	Phone Number	City	Obtained Interview	Interviewee Name	Interviewee Title	Size
Boese Commercial (Fresno)	559-369-2750	Fresno	Yes	Sarkis Basmajian	Property Manager	52
Ocean West Management (Long Beach)	213-223-7018	Long Beach	Yes	Tony	Maintenance Engineer	15 properties in Socal, just 1 in Long Beach
William Morris Commercial	562-552-8874	Long Beach	Yes	Toliver Morris	Owner/President	Over 50
Maximum Air	559-307-0363	Fresno	Yes	Michelle	Employee/Secretary	n/a
Adler Realty	562-349-0333	Long Beach	Yes	Kathie Bostian	Senior Property Manager	26 nationwide, 8 in California
TRI Commercial	916-669-4500	Sacramento	Yes	Raquel Carillo	Property Manager	8 property managers, at least 50 buildings
Ensemble Real Estate Solutions	562-436-1359	Long Beach	Yes	Francis Amati	Senior Property Manager	5 commercial buildings in California
Argent Retail Advisors	949-380-7600	Mission Viejo	Made contact, no interview	---	---	---
WIG Properties	949-726-9792	Tustin	Made contact, no interview	---	---	---

Table 8. Interview Notes: Property Management (Commercial)

Organization	Question Set 1*	Question Set 2*
Boese Commercial (Fresno)	<p>(1) Replace them as necessary</p> <p>(2) Our vendor does it: Maximum Air. We don't have mercury thermostats, they are all digital. Not sure what the process is.</p>	<p>(3) Maximum Air vendor. Contact name is Michelle.</p> <p>(4) Asked if there were factors that make this process easier or more difficult and he said no. Usually summertime is when people call to check on their thermostats since that's when they start to use them more.</p>
Ocean West Management (Long Beach)	<p>(1) Around every two years. Replace them as necessary</p> <p>(2) No protocol for disposing of mercury thermostats. Has not come across them. In the beginning, their contractor Coastline Development came to install the new thermostats, but after that it's just Tony who does the maintenance and removal. For disposal of thermostats, he takes them to the HVAC store where they got them from.</p>	<p>(3) Just me, no one else.</p> <p>(4) Asked if there were factors that make this process easier or more difficult and he said no. Did not notice any seasonal differences for thermostat service or removal.</p>
William Morris Commercial	<p>(1) As needed basis</p> <p>(2) For buildings that are less than 50k sq. ft., they usually pay and contract out for their maintenance with probably no policy or procedure manual. For buildings that are larger, like Ocean West, over 100k sq. ft., they will have in-house maintenance staff and more possibility of having a policy book for them to follow - although not sure the policy will be as detailed to cover as specific as mercury thermostats.</p>	n/a
Maximum Air	<p>(1) Replaces them on a need-by basis; no set time period for check up</p> <p>(2) They remove them and return them to the manufacturer where they got them from. She's worked there for four years and never came across a mercury thermostat; maybe ten years ago, is what she said. No protocols for those.</p>	<p>(3) They have five staff, all of them are in direct contact with replacing thermostat. Mainly communicate via text.</p> <p>(4) Not applicable; no mercury thermostats.</p>
Adler Realty	<p>(1) Replaces them on a need by basis.</p> <p>(2) Doesn't know if they have any mercury thermostats. Said she spoke with her building engineer and he said that their process after removing it is just throwing them in the trash. Did not know if there</p>	<p>(3) She has the building engineer and also their third-party contractor who handles the AC stuff. That company is called Mission Air. She said for making announcements it's a combo between face-to-face and email communication depending on the urgency.</p>

	were any protocols for disposing or handling of mercury thermostats.	(4) Did not know of any factors or seasonal considerations.
TRI Commercial	<p>(1) Wasn't sure; said she'll get back to me on this after she asks the proper staff UPDATE: They're replaced as needed when they malfunction</p> <p>(2) Wasn't sure; said she'll get back to me on this after she asks the proper staff; did not know if they had any mercury thermostats on facility UPDATE: We do have mercury thermostats. We have come across a few recently. They tend to be the really old manual ones. We are currently holding on to them until we find a method of disposal since they have mercury in them.</p>	<p>(3) One to two people are in direct contact (maintenance supervisor and porter). She usually contacts with them face to face.</p> <p>(4) Wasn't sure; said she'll get back to me on this after she asks the proper staff UPDATE: N/A Haven't disposed of any yet. Still have them.</p>
Ensemble Real Estate Solutions	<p>(1) Hardly ever replace the stats</p> <p>(2) In ten years, we have seen minimal number of mercury thermostats. 90% of the building is pneumatic thermostats. We treat them as hazardous material and reach out to qualified company for disposal and pay for that service. We haven't replaced any here and can't even recall where we have them.</p>	<p>(3) Direct contact is with the contracting company. Don't know how many people are in that position - depends on the company. Usually contact through phone.</p> <p>(4) n/a</p>

Question set 1: (1) how often do you replace thermostats? What prompts you to replace them? (2) What is your thermostat removal process? How often do you come across mercury thermostats? Any protocols for mercury thermostats?

Question set 2: (3) who has direct contact with replacing thermostats? How many people are in this position? What is the typical process of making announcements to them? (4) Factors that make it difficult or easier to properly dispose of mercury thermostats? Seasonal considerations?

Table 9. Log of Contacts: Property Management (Multi-family)

Organization	Phone Number	City	Obtained Interview	Interviewee Name	Interviewee Title	Size
So Cal Management Inc. (Riverside)	951-249-7766	Riverside	Yes	Cliff	Property Manager	90-100
Majestic Management (Stockton)	209-473-9300	Stockton	Yes	Molly	Maintenance Manager	140
Alcore Properties Inc.	818-508-0705	El Segundo	Yes	Chris	Owner and Director of Property Management	14
Garibaldi Company	209-955-0535	Stockton	Yes	Matt Errecart	Vice President	10
Lozano Indoor Environmental	209-368-5458	Stockton	Yes	Ronaldo	Employee	n/a
Pacific Court Apartments	562-368-4464	Long Beach	Yes	Yamel Delgado	Resident Manager	49 units
Regency Property Management	559-221-3170	Fresno	Made contact, no interview	---	---	---
Jackson Property Management	909-332-5759	San Bernardino	Made contact, no interview	---	---	---
Spellacy Property Management	909-886-4146	San Bernardino	Made contact, no interview	---	---	---
Calvo Group	626-814-8000 ext. 153	San Bernardino	Made contact, no interview	---	---	---
Bos Commercial	909-917-6886	San Bernardino	Made contact, no interview	---	---	---
Omnia Real Estate Services	702-371-7974	Las Vegas	Made contact, no interview	---	---	---
Southern California Property Management	909-548-0044	Chino Hills	Made contact, no interview	---	---	---
Basdakis Apartments	714-813-2158	Long Beach	Made contact, no interview	---	---	---
Brimco Management	323-460-6788	Los Angeles	Made contact, no interview	---	---	---

Table 10. Interview Notes: Property Management (Multi-family)

Organization	Question Set 1*	Question Set 2*
So Cal Management Inc. (Riverside)	<p>(1) The last time was a year ago. Only as necessary.</p> <p>(2) Haven't seen mercury thermostat in 5-8 years. All digital now. No protocols.</p>	<p>(3) James and Omar, my AC guys. Will get you in contact with them. Not sure what they do with the thermostats when they dispose of them. Mentioned that he thought they could be e-waste and so not trashed normally.</p> <p>(4) Usually summertime people will call for thermostat maintenance more.</p>
Majestic Management (Stockton)	<p>(1) Said she did not know, never had to replace them.</p> <p>(2) She sounded vague and like she did not know what she was talking about. Said she did not know what to do in the case of needing to dispose of a thermostat, asked me if we do it. I said that maintenance is usually responsible for handling that or they hire a general contractor. Asked her what kind of thermostats they use on their property and she said she did not know but they are not mercury.</p>	<p>(3) Said she is the only one who was responsible.</p> <p>(4) Not applicable</p>
ALCOLE PROPERTIES, INC.	<p>(1) Said he couldn't remember the last time they had to replace a thermostat</p> <p>(2) Did not know if they had mercury thermostats on their properties. Their process is, if someone is having trouble with a thermostat, their maintenance staff would take care of it and make the executive decisions for what to do with it. Did not know of the process or if there were any protocols.</p>	<p>(3) Said their maintenance manager would make the decisions for whatever happens to the thermostats. Did not know of the process, but assumed that they would just throw them in the trashcan. Usually contacts them via email.</p> <p>(4) Said it would have to be a very easy, not out-of-the-way process for mercury thermostat disposal for them to consider doing it - unless it was illegal and required by law.</p>
Garibaldi Company	<p>(1) Not very often; maybe every few years; no set procedure</p> <p>(2) Matt himself did not know what the procedures or protocols were for disposal. As for mercury thermostats, he said he did not know which facilities had them but assumed that there were some on their properties that were built in the '70s.</p>	<p>(3) When someone is experiencing trouble with a thermostat, the facilities' maintenance manager will come to assess the problem. If the thermostat needs to be replaced/disposed of, they will call their third party HVAC company (the Stockton facilities use Environmental Engineering with Ronaldo) to make the decision for what needs to be done with it. The only involvement Matt has is to give approval for the</p>

		<p>HVAC company to do work on that facility. (4) Said he did not know of any.</p>
<p>Lozano Indoor Environmental</p>	<p>(1) Not one mercury thermostat and he started working with them in 2002; once in a while he'll come across a mercury thermostat in other companies (not Garibaldi). (2) For mercury thermostats, he'll collect them in box that is kept at his supply house. Doesn't know what the handler does with them for disposal, but he knows they're not supposed to be trashed. Said there weren't any written protocols.</p>	<p>(3) Just him, one man show. He makes around 5 service calls a day, 20 a week. Rarely comes across mercury thermostats. He mentioned that they were more common around 8 years ago, but since then PG&E had a program that if you returned a mercury thermostat they would give you another thermostat for free. Recommended getting in touch with them to see what programs they ran for mercury thermostat retrieval. (4) Said no factors that make it easier or more difficult in terms of what he is doing. He just takes them off the wall, keeps it in the toolbox in his car, and then puts it in the collection box at his supply house.</p>
<p>Pacific Court Apartments</p>	<p>(1) As needed. The building has been around since the 90's and it has all been upgraded to digital thermostats (wasn't sure when though). (2) Not often; they do not have any mercury thermostats or protocol for them. For their thermostats (all digital), when they dispose of them they take them back to Johnson the HVAC company.</p>	<p>(3) The maintenance crew has direct contact with replacing thermostats (they have 15-16 people). This maintenance is done in-house (they do not contract out). The maintenance crew are told what to do [with thermostats, including disposal] by the property. They email or call to contact with them. (4) n/a</p>

Question set 1: (1) how often do you replace thermostats? What prompts you to replace them? (2) What is your thermostat removal process? How often do you come across mercury thermostats? Any protocols for mercury thermostats?

Question set 2: (3) who has direct contact with replacing thermostats? How many people are in this position? What is the typical process of making announcements to them? (4) Factors that make it difficult or easier to properly dispose of mercury thermostats? Seasonal considerations?

Table 11. Log of Contacts: Schools (K-12)

Organization	Phone Number	City	Obtained Interview	Interviewee Name	Interviewee Title	Size
Stockton Unified School District	209-933-7045 ext. 2341	Stockton	Yes	Butch Schmidt,	Environmental Compliance Manager	Large
Merced City School District	209-381-2840	Merced	Yes	Tania Masseroni	Department Secretary	Medium
Berkeley Unified School District	510-644-8764; 510.644.6250	Berkeley	Yes	Steve Collins, Timothy White	Maintenance Manager, Facilities Director	Medium
Morongo Unified School District	760-367-9191	Twentynine Palms	Yes	Delbert Kent	Safety Compliance Officer	Small
Huntington Beach Union High School District	714-903-7000	Huntington Beach	Yes	Jeff Hutchings	Maintenance Manager	Medium
Torrance Unified School District	310-972-6500	Torrance	Yes	n/a	n/a	Medium
Santa Ana Unified School District	714-558-5501	Santa Ana	Yes	Tommy Portugal	Maintenance Manager	Large
Santa Barbara Unified School District	805-963-4338	Santa Barbara	Made contact, no interview	---	---	Medium
Alameda Unified School District	510-337-7090	Alameda	Made contact, no interview	---	---	Small
Clovis Unified School District	559-327-9500	Clovis	Made contact, no interview	---	---	Large
Sacramento City Unified School District	916-643-9000	Sacramento	Made contact, no interview	---	---	Large
Chino Valley Unified School District	909-628-1201	Chino	Made contact, no interview	---	---	Large

Garden Grove Unified School District	714-663-6133	Garden Grove	Made contact, no interview	---	---	Large
San Bernardino City Unified School District	909-381-1100	San Bernardino	Made contact, no interview	---	---	Large
Fresno Unified School District	559-457-3000	Fresno	Made contact, no interview	---	---	Large
Orange Unified School District	714-628-4000	Orange	Made contact, no interview	---	---	Medium
Pajaro Valley Unified School District	831-786-2100	Watsonville	Made contact, no interview	---	---	Large
Yuba City Unified School District	530-822-5200	Yuba City	Made contact, no interview	---	---	Medium
Redlands Unified School District	909-307-5300	Redlands	Made contact, no interview	---	---	Large
Laton Joint Unified School District	559-922-4015	Laton	Made contact, no interview	---	---	Small
Warner Unified School District	760-782-3517	Warner Springs	Made contact, no interview	---	---	Small
<i>Lincoln Unified School District</i>	209-953-8585	Stockton	Made contact, no interview	---	---	Large
Santa Monica/Malibu Unified	310-396-2640	Santa Monica	Made contact, no interview	---	---	Large

Table 12. Interview Notes: Schools (K-12)

Organization	Question Set 1*	Question Set 2*
Stockton Unified School District	<p>(1) Veolia hazardous waste company theoretically picks them up once environmental compliance head calls; environmental compliance makes sure they get them</p> <p>(2) 10 years ago, replaced all of them</p>	<p>(3) He has not seen 1 in the past 10 years since replaced. they have training for hazardous waste but doesn't include mercury thermostat removal, don't allow mercury thermometers-- outlawed through school district</p> <p>(4) easy to call company</p>
Merced City School District	<p>(1) the HVAC crew replaces them so if have to replace put in pile in maintenance shop and when they are accumulated we give them to the vendor</p> <p>(2) only as needed, 50 were replaced in the beginning of fiscal year</p>	
Berkeley Unified School District	<p>(1) It's a variety of people. if they do a project to replace all in school it's a public works it's an outside heating controls contactor i.e. Johnson or Sizico (Allerton) replace the whole system and they dispose, they actually do everything. If just one-- several HVAC technicians that respond to work orders to try and troubleshoot if not they replace it</p> <p>(2) not so sure we have many with mercury</p>	<p>(3) Would be surprised if there were any left with mercury; replace all thermostats-- al heating controls replacements 8 schools in past 10 years (every single one replaced) a couple times a year for a regular work order thermostat (5 total all schools). Oldest portables are 15-20 years old, been through a lot of modernization because "we have more money than average district".</p> <p>(4) we do HAZMAT training every year by OSHA" take the thermostats to plant operations and then shoreline picks them up</p> <p>(5) expensive-- have to pay a special licensing district has to pay for them</p> <p>(7) hire a hazmat consulting firm, not sure if they ever mention mercury in thermostats but mostly in fluorescent lightbulbs, unclear if they mention thermostats and training</p>
Morongo Unified School District	<p>(1) district staff did the replacing</p> <p>(2) For regular thermostats replace them as needed.</p>	<p>(3) got rid of all of them 3-4 years ago through energy company that gave them money for it for each thermostat they "had a mercury spill that came from a student" where a student brought mercury from home and</p>

spilled it in class so district decided to remove all of them from the schools

Huntington Beach Union High School District	(1) Abatement company environmental company came in to physically took them off the walls "logged and did a manifest for everything" They do this for any chemicals as well. (3) went through 400 million dollar mod that ended 4 years ago and re-did every school and went to central control system via computer so do not control through the computer, they were all removed and taken off site during modernization. we abated all lead, asbestos, and mercury" starting 12 years ago, physically started 10ya, last school 5 years	(7) He did not know the process before except ambient environment took them.
Torrance Unified School District	(1) We actually use an outdoor vendor that takes care of all of that, so other than that I do not have that much information. They are called Encorp and I believe they are located in Orange County. Don't know much beyond that	
Santa Ana Unified School District	(1) I am actually the person that has direct contact along with another one of our secretaries, but we mainly just receive the work orders if we need to dispose of something. (2) is a very rare case if something with mercury is needed of disposing	(4) We have a company called MDS Mercury Disposal that takes care of most of it but it mainly disposes of mercury lightbulbs

Question Set 1: (1) Who has direct contact with replacing thermostats in your facilities? (2)How often does your district replace thermostats?

Question Set 2: (3) How often does your (district) come across mercury thermostats? Either installed or in need of disposal? (4)Once a mercury thermostat is removed, what is the district's typical process for disposing of it? (5)What are the factors that make it difficult to properly dispose of mercury thermostats? (6) Do you have any written protocols in place for the disposal of mercury thermostats?

Table 13. Log of Contacts: Building Departments

Organization	Phone Number	City	Obtained Interview	Interviewee Name	Interviewee Title	Population Size of City
City of Stockton	209-937-8444	Stockton	Yes	Ziggy	Plan check engineer	298,000
City of Redding	530-225-4013	Redding	Yes	Jim Wright	Building official	89,000
City of Pasadena	626-744-7311	Pasadena	Yes		Environmental programs manager	140,881
Amador County	209-223-6422	Amador County	Yes	Mark Williams	Plan Reviewer	36,742
El Dorado County	530-621-5355	El Dorado County	Yes	Mark Williams	Plan Reviewer	183,087
California Building Officials (CALBO)	916-457-1103	Sacramento	Yes	Lauren Herman	Director of training and communications	N/A
CalRecycle	916-322-4027	Chino	Yes	multiple	Senior integrated waste management specialist	N/A
CA Building Standards Commission	916-263-0916	Sacramento	Yes	multiple	Architectural associate and Education coordinator	N/A
City of Folsom	209-559-1686	Folsom	Made contact, no interview	---	---	75,361
County of Riverside	951-955-1000	County of Riverside	Made contact, no interview	---	---	364,413 (unincorporated areas)
Los Angeles County	213-974-1311	Los Angeles County	Made contact, no interview	---	---	1,095,592 (unincorporated areas)
City of LA	213-482-6556	Los Angeles	Made contact, no interview	---	---	3.8 million

City of San Bernardino	909-384-5057	San Bernardi no	Made contact, no interview	---	---	209K
City of Fresno	559-621-8082	Fresno		---	---	509K
City of San Jose	408-975-2533	San Jose		---	---	1 million
City of Irvine	949-724-6000	Irvine		---	---	250K

Table 14. Interview Notes: Building Department

Organization	Question Set 1*	Question Set 2*
City of Stockton	<p>(1) GENERAL CONTRACTORS MAINLY. THE GC ARE ALSO GETTING THE DEMO PERMITS, NOT SO MUCH THE DEMO CONTRACTORS.</p> <p>(2) HEY NEED TO PULL A DEMO PERMIT. THE OWNER CAN PULL IT OR THE CONTRACTOR CAN PULL THE PERMIT REPRESENTING THE OWNER. ARE REQUIRED TO COME IN PERSON. BEFORE YOU PULL A DEMO PERMIT YOU NEED TO MAKE SURE THAT THE PLANNING IS OK. SO FIRST THEY GET THEIR PLANS APPROVED AND THEN THEY PULL THE PERMIT.</p> <p>(3) HE'S NOT SURE. FOR TOXIC MATERIALS HE KNOWS THE CONTRACTORS ARE REQUIRED TO FILL OUT SPECIAL FORMS. ONE IS A DEBRIS FORM FROM THE CITY THAT INDICATES HOW THEY HANDLE HAZARDOUS MATERIALS. THE OTHER IS FROM SAN JOAQUIN COUNTY AND IT'S A FORM FOR HAZARDOUS MATERIALS. ZIGGY WILL SEND THEM BOTH TO ME. THEY DON'T PROVIDE A STANDARD SET OF INFORMATIONAL MATERIALS TO CONTRACTORS.</p>	<p>(4) EVERYTHING IS ONE ON ONE.</p>
City of Redding	<p>(1) VERY SMALL PERCENTAGE OF THEIR PERMITS ARE FOR DEMOS OR FOR DEALING WITH DEMO CONTRACTORS.</p>	<p>(5) PLACING A COLLECTION BIN WOULD REQUIRE CITY COUNCIL APPROVAL.</p>
City of Pasadena	<p>(3) UPDATE THE APPLICATION AND THE REPORTING FORM. CAL GREEN AS OF JANUARY 1, 2017 REQUIRES THAT CONSTRUCTION PROJECTS ACCOUNT FOR U-WASTE. THEY HAVE INFO MATERIALS THEY PROVIDE TO THE BUILDING DEPT TO PASS ALONG TO THE CONTRACTORS; GABRIEL SAYS THE BUILDING DEPT HAS AN INFO PACKET THAT THEY HAND OUT AND THE MATERIAL GOES IN THERE BUT HE WASN'T TOO CLEAR ON WHO IS RESPONSIBLE FOR GIVING THE CONTRACTORS THE PACKET OR EXACTLY HOW IT'S PROVIDED TO THEM (HARD</p>	<p>(4) PASADENA RESIDENTS CAN BRING MERCURY T-STATS INTO ANY HARDWARE STORE THANKS TO A PARTNERSHIP WITH MECURY DISPOSAL SERVICES (BASED IN TUSTIN). THEY REACHED OUT TO STORES THAT HAVE ALREADY BEEN COLLECTING BATTERIES AND FLUORESCENTS AND ASKED IF THEY WOULD BE WILLING TO ADD ANOTHER BIN. NO COST FOR THE CITY-- MDS GETS MONEY FROM THE GOVT.</p>

COPY, ELECTRONICALLY) HE DOESNT THINK THEY'VE GOTTEN AROUND TO ACTUALLY UPDATING THE APPLICATION OR THE FORM THE CONTRACTORS NEED TO TURN IN TO AFTER THE PROJECT TO INCLUDE INFO ABOUT U-WASTE.

Amador County	(2) IN EL DORADO AND AMADOR COUNTY THEY HAVE TO PHYSICALLY COME IN TO PULL PERMITS (HE'S NEW TO AMADOR BUT HE USED TO WORK AT EL DORADO) (3) THERE IS ON-DEMAND INFORMATIONAL MATERIALS AVAILABLE FOR CONTRACTORS AT THE PERMIT. THERE ARE RACKS OF FORMS AND GENERAL INFORMATION. NOT PROVIDED WITH ANY TYPE OF INFORMATIONAL.	(4) WITHIN THE LAST YEAR THERE WAS SOME GROUP ACTIVITIES RELATED TO TESTING OF FIRE SPRINKLERS. GROUP DISCUSSIONS ARE PRETTY RARE. (5) HE SEEMED INTRIGUED BY THIS BUT HASN'T SEEN ANY BINS HOSTED IN EITHER EL DORADO OR AMADOR. WOULD NEED TO BE APPROVED BY BOARD OF SUPERVISORS HE THINKS, BUT BUILDING OFFICIAL WOULD KNOW.
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California Building Officials (CALBO)	(misc.) AS FAR AS SHE KNOWS, SHE HASN'T HEARD OF ANY OF THE COMMITTEES WORKING ON MERCURY T-STAT RECYCLING OR UNIVERSAL WASTES FOR THAT MATTER. SHE SAID THEY RUN A LISTSERV THROUGH THE LEAGUE OF CA CITIES AND THAT WOULD BE A GOOD PLACE TO INCLUDE A QUESTION. SHE WILL EMAIL ME THE INFO. ALSO RECOMMENDS GETTING IN TOUCH WITH THE CONTRACTORS STATE LICENSE BOARD. Contractors state license board--they might be a good source of information for us.
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CalRecycle	(misc.) 4.17: SPOKE WITH HOROWITZ AND SAID RUSS CARTER WOULD BE BETTER TO SPEAK TO. 4.18: RUSS CALLED ME. (CAL RECYCLE) I EXPLAINED TO HIM THE LINK BETWEEN THE NEW C&D REQUIREMENTS AND MERCURY T-STATS. HE SAID HE WOULD CHAT WITH SOME PEOPLE AND GET BACK TO ME. I SENT HIM AN EMAIL WITH MY QUESTIONS. 4.18: GREG DICK (CAL RECYCLE) CALLED ME--THEY DON'T HAVE ANY TARGETED OUTREACH PLANNED. THE MAJORITY OF THEIR CONTACT COMES FROM THE RECYCLING COORDINATORS. LOCAL ASSISTANCE DIVISION DOES ANNUAL
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REVIEWS OF THEIR DIVERSION GOALS BUT THERE ARE NO PENALTIES SO IT'S MORE LIKE AN OUTREACH CHECK IN. THEY DO NOT CORRESPOND DIRECTLY WITH BUILDING DEPTS. RECOMMENDS SPEAKING WITH THE CA BUILDING STANDARDS COMMISSION WHO MAY BE DOING WORK TO EDUCATE BUILDING DEPTS ABOUT THE NEW UNIVERSAL WASTE REQUIREMENTS. REALLY NICE GUY, SAID TO GET IN TOUCH ANYTIME WITH ADDITIONAL QUESTIONS.

CA Building Standards Commission

4.18: YARA FARR (CA BUILDING STANDARDS COMMISSION) : THEY DO EDUCATION AND OUTREACH. OUTREACH IS BUILDING DEPTS AS WELL AS THE REST OF THE REGULATED COMMUNITY. NEXT WEEK THEY ARE ATTENDING THE CA GREEN SUMMIT IN SACRAMENTO IT'S A THREE DAY EDUCATIONAL EVENT WHERE THEY WILL BE HOSTING SEVERAL EDUCATION SESSIONS. THERE WILL BE A MENTION OF THE UNIVERSAL WASTE AND THE PURPOSE IS TO GO OVER WHAT'S CHANGED IN THE C&D FROM CAL GREEN. THEY WILL MENTION THAT THIS IS BEEN ADDED BUT WON'T GO INTO A LOT OF DETAIL THAN THIS. THEY PRIMARILY ATTEND EVENTS BASED ON REQUESTS. THEY ALSO PUBLISH CERTAIN GUIDES. THEY ARE PLANNING ON STARTING UP A NEW VIDEO SERIES ON DIFFERENT TOPICS.

4.18: CYNTHIA BIEDERMANN (EDUCATION COORDINATOR FOR CA BUILDING STANDARDS COMMISSION): CAL GREEN IS THE NAME OF THE BUILDING CODE. THEY ARE NOT DRILLING DOWN TO SPECIFIC MATERIALS LIKE. INTERNATIONAL CODE CHAPTER COUNCILS ARE THROUGHOUT THE STATE AND THEY WOULD BE GOOD TO REACH OUT TO. THEY ALSO HAVE A QUARTERLY NEWSLETTER THAT GOES OUT. (<http://www.bsc.ca.gov/pubs/newsltr.aspx>). THEY ARE TRYING TO MOVE MORE TOWARDS DOING WEB-BASED RATHER THAN IN PERSON BECAUSE THEY HAVE A SMALL STAFF. SHE SAID SOMETHING AS SPECIFIC AS MERCURY T-STATS IS NOT SOMETHING THEY WOULD PROBABLY DO A LOT FOR BUT THEY ARE OPEN TO INCLUDING SOMETHING IN THEIR MATERIAL. THEY ALSO DO WEBINARS. SHE SAID TO CALL BACK WITH ANY QUESTIONS

City of Folsom

(misc.) Have you incorporated the CalGreen requirements? YES, HE'S ALREADY UPDATED HIS FORM DECEMBER 2016. WILL SEND ME A COPY. NONE OF THE PROJECTS HAVE BEEN COMPLETED SINCE THE FORM WAS UPDATED SO HE WASN'T ABLE TO GIVE ME A SENSE OF HOW IT WAS GOING. CITY HAS A PROPRIETARY SYSTEM (HTE) WHERE MARK IS ABLE TO CHECK THE STATUS OF A PROJECT AND WHETHER ITS COMPLETED OR NOT. What's your process for working with local building

(misc.) What do you think about hosting a mercury t-stat collection bin at the permit counter? MOST JURISDICTIONS ARE NOT GOING TO WANT TO DO THIS FOR A FEW REASONS (1) WOULD NEED TO TRAIN PERMIT STAFF TO HANDLE UNIVERSAL WASTE. (2) NOTIFY DTSC THAT THEY ARE A UNIVERSAL WASTE HANDLER. (3) PERMIT COUNTERS ARE ALREADY REALLY BUSY, THEY DON'T WANT ONE MORE THING TO DO. (4) CITY DOES HOST A BATTERY AND BOTTLES & CAN RECYCLING BINS BUT THESE ARE REALLY LOW MAINTENANCE AND YOU

dept.? SOME HISTORY---BACK IN 90'S WHEN CALRECYCLE REQUIRED SPACE FOR RECYCLING BINS IN NEW DEVELOPMENTS IS WHEN ENV'T PROGRAMS & BUILDING DEPTS STARTED WORKING TOGETHER AND THIS REALLY TOOK OFF WITH C&D RECYCLING REQUIREMENTS. IT'S FAIR TO SAY THAT IT'S REALLY THE ENV'T PROGRAMS FOLKS THAT ARE PRIVVY TO CALGREEN/CAL RECYCLE REQUIREMENTS AND THAT THE BUILDING DEPTS RELY ON ENV'T PROGRAM PEOPLE TO GET INFO TO THEM. ALL JURISIDCTIONS ARE DIFFERENT BUT IN MOST PLACES ENVT PROGRAMS AND BUILDING DEPTS WORK CLOSELY TOGETHER. MARK RELIES ON BUILDING DEPTS TO GIVE THE APPLICATION FORMS TO THE APPLICANTS AND THEN MARK IS THE ONE WHO REVIEWS THE SUBMITTED APPLICATIONS. WHEN IT COMES TO TRC HE'S AWARE OF THEM BECAUSE HE HOSTS A BIN AT THE HHW CENTER (WHICH HE ALSO OVERSEES) BUT HE SAYS MANY OF HIS HHW COLLEGEUES AREN'T AWARE SO LET ALONE THE BUILDING DEPT FOLKS.

DON'T HAVE THE LIABILITY OF A T-STAT MERCURY CAPSULE BREAKING. HAVING AND KNOWING HOW TO USE A MERCURY T-STAT KIT IS EXPENSIVE. Are contractors the ones coming to the permit counter? NOT REALLY. THAT'S SELDOM. IT'S MAINLY PROPERTY MGRS, SUBDIVISION MGRS, AND FOLKS WHO SPECIALIZE IN OBTAINING THE PERMITS. YOU DON'T HAVE THE SAME PEOPLE WHO REMOVE THE THERMOSTATS FROM THE WALL ALSO APPLYING FOR A PERMIT. What are your thoughts about how to ensure the info about t-stat/u-waste disposal gets seen? YOU CAN PUT UP A POSTER AT PERMIT COUNTERS BUT NOT ALL COUNTERS ALLOW THIS. YOU CAN PROVIDE A BROCHURE BUT THEY USUALLY HAVE SO MANY THAT IT'S EASY FOR THEM TO GET LOST. ONLY SUREFIRE WAY IS TO INCLUDE INFORMATION IN THE APPLICATION ITSELF What do you think about an outreach strategy that puts together some language/guidelines that jurisdictions can use to incorporate new u-waste requirements into their application forms? YES, THIS WOULD BE HELPFUL AS LONG AS YOU UNDERSTAND THAT EACH CITY DOES IT DIFFERENTLY. NO STANDARD C&D FORM OR PROCESS SO NEED TO CREATE SOMETHING THAT WOULD BE FLEXIBLE AND THAT JURISDICTIONS CAN PULL FROM AS THEY SEE FIT.

Question Set 1: (1) What type of contractors are most likely to interact with the building department? (2) How do contractors typically interact with the department? (Phone, website, in person, snail mail, email)? (3) Is the process for properly disposing of mercury thermostats mentioned in any of the materials you have available to contractors?

Question Set 2: (4) Do you ever send out announcements to all of the contractors you've worked with, or are all of your interactions on a one-to-one basis? If no, why not? (5) Do you think it would be useful to host a mercury thermostat collection bin at the City? Why or why not?