

**INITIAL STATEMENT OF REASONS**  
**Mercury Thermostat Collection and Performance Requirement**

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**TABLE OF CONTENTS**

<b>DETAILED STATEMENT OF THE SPECIFIC PURPOSE AND RATIONALE.....</b>	<b>3</b>
<b>ECONOMIC IMPACT ANALYSIS.....</b>	<b>3</b>
Creation or Elimination of Jobs within California .....	3
Creation of New Businesses or Elimination of Existing Businesses within California .....	3
Expansion of Current California Businesses .....	3
Anticipated Benefits.....	3
<b>REPORTS RELIED ON .....</b>	<b>4</b>
<b>MANDATED USE OF SPECIFIC TECHNOLOGIES OR EQUIPMENTS .....</b>	<b>5</b>
<b>REASONABLE ALTERNATIVES CONSIDERED.....</b>	<b>5</b>
<b>EVIDENCE SUPPORTING A DETERMINATION THAT THE PROPOSAL WILL HAVE NO SIGNIFICANT ADVERSE ECONOMIC IMPACT ON BUSINESS.....</b>	<b>7</b>
<b>DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS.....</b>	<b>7</b>
<b>DETAILED STATEMENT OF REASONS: SUMMARY AND RATIONALE.....</b>	<b>7</b>
Chapter 24. Mercury Thermostat Collection and Performance Requirements.....	7
Section 66274.1. Scope .....	8
Section 66274.2. Applicability .....	8
Section 66274.3. Definitions.....	8
Section 66274.4. Methodology for Determining the Number of Out-of-Service .....	
Mercury Added Thermostats Becoming Waste Annually .....	8
Subsection 66274.4 (a).....	9
Subsection 66274.4 (b) .....	10
Subsection 66274.4(c).....	10
Subsection 66274.4(d) .....	10
Section 66274.5 .....	11

Subsection 66274.5(a) .....	12
Subsection 66274.5(b) .....	12
Subsection 66274.5(b), paragraph (1) .....	12
Subsection 66274.5(b), paragraph (2) .....	13
Subsection 66274.5(b), paragraph (3) .....	13
Subsection 66274.5(c).....	13
Section 66274.6 .....	14
Section 66274.7 .....	14
Section 66274.8 .....	14
Subsection 66274.8 (a).....	15
Subsection 66274.8 (b) .....	15
Subsection 66274.8 (c).....	16
Subsection 66274.8 (d) .....	16
Subsection 66274.8 (e) .....	16
Subsection 66274.8 (f) .....	16
Subsection 66274.8 (g).....	17
Subsection 66274.8 (h) .....	17
Subsection 67388.8 (i) .....	17

## **DETAILED STATEMENT OF THE SPECIFIC PURPOSE AND RATIONALE**

Health and Safety Code section 25214.8.17 directs the Department of Toxic Substances Control (DTSC) to adopt regulations that develop performance requirements to specify collection rates for out-of-service mercury-added thermostats and establishes a methodology for calculating the number of out-of-service mercury-added thermostats becoming waste annually.

DTSC proposes to adopt a new chapter 24, Mercury Thermostat Collection and Performance Requirements, to division 4.5 of Title 22, California Code of Regulations to satisfy the mandates of Health and Safety Code sections 25214.8.17.

## **ECONOMIC IMPACT ANALYSIS**

In accordance with Government Code section 11346.3(b), DTSC has made the following assessments regarding the proposed regulation:

### **Creation or Elimination of Jobs within California**

This rulemaking would establish performance requirements for a limited set of businesses in California as part of an existing requirement to collect out-of-service mercury-added thermostats. DTSC has determined that no jobs in California will be created or eliminated by its adoption of chapter 24 of title 22 of the California Code of Regulations.

### **Creation of New Businesses or Elimination of Existing Businesses within California**

DTSC has determined that no businesses will be created or eliminated in California as the result of the adoption of these regulations.

### **Expansion of Current California Businesses**

DTSC has determined that no current California businesses will expand as the result of the adoption of these regulations.

### **Anticipated Benefits**

The proposed regulations establish a reasonable methodology for determining the number of out-of-service mercury-added thermostats becoming waste annually and establish ambitious but achievable collection rate goals for the former manufacturers of mercury thermostats.

Thermostat Recycling Corporation (TRC) collected 19,927 mercury thermostats in 2011, containing a total of 254.84 pounds of mercury. The 2013 collection rate goal established by these regulations, 30 percent, represents 73,888 thermostats—3.7 times the number collected in 2011. Assuming the quantity of mercury per thermostat remains consistent, the thermostats required to be collected in 2013 will contain nearly 945 pounds of mercury—690 pounds more mercury than was collected in 2011.

While some out-of-service mercury-added thermostats are properly managed through other channels, it is likely that the large majority of unwanted mercury thermostats not collected by the manufacturers are mismanaged and disposed of as solid waste, releasing their mercury to California's environment where people and wildlife can be exposed.

According to TRC's annual report, the 19,927 thermostats collected in 2011 contained an average of 2.06 mercury switches containing 2.81 grams of mercury each.<sup>1</sup> Irresponsible

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<sup>1</sup> Table 1 of the 2011 annual report indicates that 18,697 intact thermostats were collected, containing 38,569 mercury switches (ampoules) or 2.06 switches per thermostat. The total weight of the mercury in these switches

management of these devices releases mercury into the atmosphere, where it can be transported long distances and deposited in aquatic ecosystems. Certain aquatic bacteria readily convert elemental mercury to methylmercury, a very toxic form. Methylmercury can accumulate in animals, including fish and humans who eat them. According to the Office of Environmental Health Hazard Assessment, fish consumption advisories have been issued due to methylmercury contamination in about 40 states. In California, OEHHA has issued over 50 such advisories, including advisories for the San Francisco and Tomales Bays, and a number of the State's major lakes, reservoirs, and rivers.<sup>2</sup>

Methylmercury is a known neurotoxin to which human fetuses are especially sensitive. The United States Environmental Protection Agency (USEPA) estimates that "... more than 300,000 newborns each year may have increased risk of learning disabilities associated with in utero exposure to methylmercury."<sup>3</sup> New evidence indicates that methylmercury exposure may increase the risk of cardiovascular disease in humans, especially adult men.<sup>4,5</sup> Because they are classified as hazardous waste, State law bans the disposal of mercury-added thermostats in solid waste landfills. Since 2006, California law has banned the sale of new mercury added thermostats for most uses but the long lifetime of thermostats means that many of them are still in use. The proposed regulation would require the historic producers of the mercury thermostats to increase the number of end-of-life thermostats they collect, which will reduce the release of mercury and the associated risks to California's residents and environment.

## REPORTS RELIED ON

DTSC has relied upon the Economic and Fiscal Impact Statement (STD. 399) in proposing the regulatory action.

Thermostat Recycling Corporation's 2011 Annual Report for California.

Mercury Thermostats: Estimating Inventory and Flow from Existing Residential & Commercial Buildings. A Study to Meet Requirements for State of California for State of California Thermostat Recycling Legislation, prepared for the Thermostat Recycling Corporation by: Lisa A. Skumatz, Skumatz Economic Research Associates, Inc. (SERA).

Final Report by the Local Hazardous Waste Management Program in King County, Washington: Mathematical Model Estimating Mercury Thermostats in Commercial Buildings.

Vermont Mercury Thermostat Retail Collection and Financial Incentive Final Report. The Vermont Agency of Natural Resources, January 2008.

Turning Up the Heat: Exposing the manufacturers' lackluster mercury thermostat collection program. Clean Water Action, February 2010.

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was 239 pounds; multiplying by 454 grams/pound yields 108,506 grams of mercury or 2.81 grams per switch (ampoule). The 2,534 loose ampoules received by TRC would represent  $2534/2.06 = 1,230$  additional thermostats.

<sup>2</sup> [http://www.oehha.ca.gov/fish/so\\_cal/index.html](http://www.oehha.ca.gov/fish/so_cal/index.html) accessed July 11, 2012.

<sup>3</sup> <http://www.epa.gov/hg/exposure.htm> accessed July 11, 2012.

<sup>4</sup> Choi AL, Weihe P, Budtz-Jørgensen E, Jørgensen PJ, Salonen JT, et al. 2008 Methylmercury Exposure and Adverse Cardiovascular Effects in Faroese Whaling Men. *Environ Health Perspect* 117(3): doi:10.1289/ehp.11608

<sup>5</sup> Roman HA, Walsh TL, Coull BA, Dewailly É, Guallar E, et al. 2011 Evaluation of the Cardiovascular Effects of Methylmercury Exposures: Current Evidence Supports Development of a Dose-Response Function for Regulatory Benefits Analysis. *Environ Health Perspect* 119(5): doi:10.1289/ehp.1003012

Comparison of State Mercury Thermostat Laws. The Product Stewardship Institute, 2009.

Comparison of Performance Goals in State Mercury Thermostat Laws. The Product Stewardship Institute, 2008:

<http://www.productstewardship.us/displaycommon.cfm?an=1&subarticlenbr=337>.

Initial Statement of Reasons, Mercury Waste Classification and Management, Department Reference Number: R-02-04, California Department of Toxic Substances Control, July 30, 2002:

[http://www.dtsc.ca.gov/LawsRegsPolicies/Regs/upload/Oeara\\_REGS\\_Mercury\\_ISOR.pdf](http://www.dtsc.ca.gov/LawsRegsPolicies/Regs/upload/Oeara_REGS_Mercury_ISOR.pdf).

Mercury Waste Classification and Management Regulations, Updated Informative Digest, Department Reference Number: R-02-04, California Department of Toxic Substances Control, January 2003:

[http://www.dtsc.ca.gov/LawsRegsPolicies/Regs/upload/Oeara\\_regs\\_mercfsor.pdf](http://www.dtsc.ca.gov/LawsRegsPolicies/Regs/upload/Oeara_regs_mercfsor.pdf).

Universal Waste Rule DTSC Reference Number: R-97-08, 02/08/02:

[http://www.dtsc.ca.gov/LawsRegsPolicies/Regs/UWR\\_regs.cfm](http://www.dtsc.ca.gov/LawsRegsPolicies/Regs/UWR_regs.cfm).

## **MANDATED USE OF SPECIFIC TECHNOLOGIES OR EQUIPMENTS**

The proposed regulations do not mandate the use of any specific technologies or equipment.

## **REASONABLE ALTERNATIVES CONSIDERED**

DTSC held two public workshops in Sacramento to present the regulatory concepts under consideration and solicit comments from stakeholders and the public. The workshops were held on August 24, 2010, and June 10, 2011. After the second workshop, the draft regulations were revised and distributed for further public review and comment. A broad range of interested parties, including the bill sponsors, environmental advocates, industry representatives, and contractors participated in these discussions.

**Chosen Alternative:** DTSC has chosen to establish a methodology for determining the number of out-of-service mercury-added thermostats becoming waste annually that is based on a report submitted to DTSC by the Thermostat Recycling Corporation (TRC). The report, which summarized the results of a statistically valid survey of households and businesses across California, was prepared by Skumatz Economic Research Associates (SERA) on behalf of the former manufacturers of mercury-added thermostats as required by section 25214.8.18 of the Health and Safety Code.<sup>6</sup>

Based on the historical performance of manufacturer-run collection programs in other states (see discussion of proposed section 66274.5 below), the collection rate goals for the manufacturer-run thermostat collection program(s) would be:

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<sup>6</sup> Health and Safety Code section 25214.8.18 directed the former manufacturers of mercury-added thermostats operating a statutorily-required thermostat collection program to submit a survey plan and methodology for a survey to provide statistically valid data on the number of mercury-added thermostats that become waste annually in California. The manufacturers were required also to implement the plan—completing the survey by December 1 of 2009 and submitting all survey data to DTSC by December 31, 2009.

- For 2013: 30 percent of the total available based on the methodology in section 66274.4 (or 65,100 thermostats in 2013, representing 173 per 100,000 population);
- For 2014: 45 percent of the total available based on the methodology in section 66274.4 (or 95,400,000 thermostats, representing 253 per 100,000 population);
- For 2015: 55 percent of the total available based on the methodology in section 66274.4 (or 113,850, thermostats, representing 302 per 100,000 population); and
- For 2016: 65 percent of the total available based on the methodology in section 66274.4 (or 131,300, thermostats, representing 348 per 100,000 population)
- For 2017: 75 percent of the total available based on the methodology in section 66274.4 (or 147,750 thermostats, representing 392 per 100,000 population)
- For 2018: 75 percent of the total available based on the methodology in section 66274.4 (or 144,750, thermostats, representing 384 per 100,000 population)
- For 2019: 75 percent of the total available based on the methodology in section 66274.4 (or 140,250 thermostats, representing 370 per 100,000 population).
- For 2020: 75 percent of the total available based on the methodology in section 66274.4 (or 135,750 thermostats, representing 360 per 100,000 population)
- For 2021: 75 percent of the total available based on the methodology in section 66274.4 (or 130,500 thermostats, representing 346 per 100,000 population)
- For 2022: 75 percent of the total available based on the methodology in section 66274.4 (or 126,000 thermostats, representing 334 per 100,000 population)

## **Rejected Alternatives:**

### **1. Base the Methodology for Determining the Number of Out-of-Service Mercury-Added Thermostats becoming Waste Annually on Contractor Reporting Requirements**

This alternative was rejected because a new contractor reporting requirement would likely have been an unreliable basis for extrapolating the total number of thermostats becoming waste. This alternative was also rejected because it placed the primary burden of the regulation on thousands of individual contractors, imposing a new contractor reporting requirement that would have represented a potentially sizeable financial burden on small businesses in California. Compliance rates would likely have been low, error rates would likely have been high, and the resources required of DTSC to effectively enforce a new administrative requirement on such a large number of individual businesses would have been considerable. Furthermore, this alternative contradicts the intent of the legislature in adopting an extended producer responsibility (EPR) law: that the responsibility and costs for collecting and properly managing out-of-service mercury-added thermostats should fall primarily to the manufacturers.

### **2. Do Nothing**

DTSC rejected this option because HSC sections 25214.8.17 require that DTSC adopt regulations to "... develop performance requirements that specify collection rates expressed as a percentage of out-of-service mercury-added thermostats becoming waste annually" and to "... establish a methodology for the calculation of the number of out-of-service mercury-added thermostats becoming waste annually."

## **EVIDENCE SUPPORTING A DETERMINATION THAT THE PROPOSAL WILL HAVE NO SIGNIFICANT ADVERSE ECONOMIC IMPACT ON BUSINESS**

The Mercury Thermostat Collection Act of 2008 required the former manufacturers of mercury-added thermostats to establish a thermostat collection program, pay the costs of transporting and recycling of mercury thermostats, and conduct education and outreach on the law's requirements. The law also imposed new requirements on contractors and wholesalers. It required (heating, ventilation and air conditioning) HVAC and demolition contractors to transport thermostats to a collection site and required HVAC wholesalers to act as a collection site and to pay up to \$25 each for thermostat collection bins. None of these costs are a result of the current rulemaking.

The proposed regulations will have an economic impact on a limited number of businesses—the manufacturers. While the manufacturers already fund TRC's efforts to collect out-of-service mercury-added thermostats in California and a number of other states, DTSC believes that TRC will be required to invest additional resources in order to meet the collection rate goals established in these regulations. DTSC has calculated the economic impact that these regulations would have on the manufacturers which includes an additional per-thermostat cost for recycling the additional thermostats, as well as, fixed costs for increasing their presence in California. In developing the assumptions and estimated costs to manufacturers, DTSC relied upon the Economic and Fiscal Impact Statement (STD 399).

The proposed regulations will have a modest economic impact on approximately 30 manufacturers whose mercury thermostats were formerly sold in California. Nevertheless, DTSC has determined that the proposed regulation will not have a significant statewide adverse economic impact directly affecting businesses, including the ability to compete with businesses in other states, many of which have mercury thermostat collection requirements similar to California's.

## **DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS**

As the federal government does not impose thermostat collection requirements or goals on the manufacturers of mercury thermostats, these proposed regulations are not based on, identical to, or to conflict with any federal regulations.

## **DETAILED STATEMENT OF REASONS: SUMMARY AND RATIONALE**

### **Chapter 24. Mercury Thermostat Collection and Performance Requirements**

The proposed new chapter is necessary because the methodology and performance requirements being adopted in this rulemaking are entirely new and not related to the existing requirements in any of the existing chapters in title 22, which define hazardous waste and establish requirements for persons who manage it (e.g., generators, transporters, and facilities that treat, store, and dispose of hazardous waste). The current rulemaking deals only indirectly with the management of out-of-service mercury-added thermostats, which were designated as universal wastes in a prior rulemaking. The current regulations will not require anyone to handle an out-of-service mercury-added thermostat that is not already required to do so by statute. Nor do they change the requirements for universal waste handlers, transporters, and destination facilities. Rather, the regulations establish performance requirements for activities in which these persons are already engaged.

The current proposed regulations are part of California’s first full “extended producer responsibility” (EPR) law. The premise of EPR is that a person who manufactures and/or puts a product into commerce that poses waste management challenges at end-of-life (often because it contains components or ingredients that render it a hazardous waste) should take responsibility for its safe recycling or disposal.

### **Section 66274.1. Scope**

Subsection (a) of this proposed section is necessary to establish the scope and purpose of these regulations: to establish performance requirements for collection and recycling program(s) for out-of-service mercury-added thermostats<sup>7</sup> and a methodology for determining how many mercury-added thermostats become waste annually.

Subsection (b) of this proposed section is necessary to clarify that persons managing out-of-service mercury-added thermostats pursuant to these regulations must do so pursuant to California’s existing universal waste regulations in chapter 23 of division 4.5.

### **Section 66274.2. Applicability**

This proposed section is necessary to establish the effective date of the regulations and to specify the persons to whom the regulations apply: manufacturers, demolition contractors, and heating ventilation and air conditioning (HVAC) contractors.

### **Section 66274.3. Definitions**

This proposed section provides definitions for various terms used in this chapter to assure regulatory consistency and clarity. Terms that have a specific meaning in the context of the regulations that differ from the generally understood meaning (e.g., one that is more specific) are included. This section also clarifies to readers that the definitions of terms used in these regulations that are found in chapter 10 of title 22 or in chapter 6.5 of the Health and Safety Code also apply here.

The need for most of the definitions in this section is self-explanatory. However, one term—“incentive”—is defined here but not used elsewhere in the text of these regulations. This is necessary to clarify the meaning of the term, which is used in the statute that these regulations implement. Subsection (a) of section 25214.8.17 authorizes DTSC to “... order a manufacturer, or a group of manufacturers operating a program, to revise its program and to undertake actions to comply with this article.” In the event a program operated by a manufacturer or group of manufacturers fails to achieve its collection rate performance requirement, DTSC could order the manufacturer or group of manufacturers to provide an incentive “to contractors, service technicians, and homeowners to encourage the return of out-of-service mercury-added thermostats to established collection locations” as a means of meeting the collection rate performance requirements established by these regulations.

### **Section 66274.4. Methodology for Determining the Number of Out-of-Service Mercury Added Thermostats Becoming Waste Annually**

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<sup>7</sup> Section 25214.8.12 of the Health and Safety Code requires the former manufacturers of mercury-added thermostats to establish and maintain such programs, either individually or collectively.

This proposed section describes the methodology used to determine the number of out-of-service mercury added thermostats becoming waste in a calendar year. The methodology relies on a study commissioned by the manufacturers' representative organization—the Thermostat Recycling Corporation (TRC)—to comply with section 25214.8.18 of the Health and Safety Code. The results of the study, which was conducted by Skumatz Economic Research Associates (SERA) of Boulder, Colorado, were provided to DTSC by TRC in a report titled *Study to Meet Requirements for State of California Thermostat Recycling Legislation. Mercury-Containing Thermostats: Estimating Inventory and Flow from Existing Residential & Commercial Buildings* (hereinafter, “SERA Report”). At the time the SERA Report was submitted to DTSC, TRC represented 28 manufacturers that historically sold mercury-containing thermostats in California. Since then, two additional manufacturers have become members of TRC. DTSC is basing its methodology on the SERA report because it is the best and only statistically-valid study of the generation of mercury thermostats that DTSC is aware of and the study meets the statutory requirement to provide to DTSC statistically valid data on the number of mercury-added thermostats that become waste annually in California.

#### **Subsection 66274.4 (a)**

This subsection describes the methodology for determining the number of out-of-service mercury-added thermostats becoming waste in each calendar year. The methodology is based on a 2009 study conducted by Skumatz Economic Research Associates (SERA) for the Thermostat Recycling Corporation (listed above in “Reports Relied On.” SERA surveyed businesses and households across California, using purchased third-party lists of randomly selected lists of names and addresses. The survey questions were designed to obtain a variety of information, including (but not limited to):

- The number of thermostats in the responding business or household;
- The number of the thermostats that contain mercury;
- The age of the building, date of installation of the thermostat(s), etc.
- Dates thermostats were removed in the past;
- Demographic/“firm-o-graphic” data on the household or business,
- Etc.

SERA analyzed and validated the data. They found that building age, remodel age, and gross square footage were most closely correlated with the number of thermostats in place. The survey provided SERA with data on the ages at which thermostats were removed in the past, whether because they failed or for some other reason. SERA used “... the lifetimes of [mercury-added thermostats] that have already been removed and the age of those still in place to predict how long the remaining equipment will last...” SERA then “... multiplied the inventory or ‘count’ of thermostat equipment still in place [by] the annual flow rates from this model to compute the actual number expected to be removed each year from the residential vs. the commercial sectors.”

To develop the estimated numbers of thermostats becoming waste in each calendar year, SERA used a statistical “cumulative distribution and expected lifetime model, along with survey data on the distribution of ages of installed thermostats.” Digital thermostats and thermostats installed since California’s ban on the sale of mercury-added thermostats were removed from the count of thermostat. SERA divided the remaining inventory of thermostats into age quartiles. “Using the [thermostat] lifetime/cumulative distribution curve, [SERA] started at the years of life already expended, and adjusted the annual disposal streams for each cohort to conform with...” the expectation that 100 percent of thermostats will have been replaced after about 70 years. SERA “... summed up the cohorts to develop the estimate of the total market

that would flow out in a given year.” These results are tabulated in Table 1.5 of the SERA provides three sets of estimates of the number of thermostats becoming waste each year:

- A low estimate, which is based on data from a small-scale validation study by SERA which found that 17 percent of square thermostats and 70 percent of round thermostats contain mercury;
- A middle estimate, which assumes that all square and round thermostats contain mercury (i.e., that does not take the results of the validation study into account ; and
- A high estimate, which applies a 13.5 percent factor (“validation premium”) to the middle estimate values, to account for the undercounting of thermostats by survey respondents seen in the validation study mentioned previously.

DTSC has determined that SERA’s study was well-conducted and provided statistically valid data on the number of thermostats becoming waste annually. Therefore, DTSC is adopting the results of the study, as summarized in Table 1.5 of the SERA, as the methodology for these regulations. Due to the relatively small sample size in SERA’s validation study and its geographical limitations (all site visits were in the San Francisco Bay area), DTSC has chosen to use SERA’s low estimate, described above, in its methodology. While this conservative approach may underestimate the true number of out-of-service mercury-added thermostats becoming waste annually, DTSC has concluded that this approach is rigorous and defensible.

#### **Subsection 66274.4 (b)**

This subsection specifies the number of out-of-service mercury-added thermostats becoming waste annually, determined according to the methodology specified in subsection (a), in tabular form. Column A specifies the calendar year, starting with 2013. Column B lists the “low estimate” for each year (taken from table 1.5 of the SERA report). Column B represents the estimate of total number out-of-service mercury-added thermostats becoming waste in each calendar year (TT), as calculated pursuant to subsection (a). This subsection was included for the convenience of the reader. It allows the reader access to the data from the SERA study and to determine the estimated number of out-of-service mercury-added thermostats becoming waste each year in one place.

#### **Subsection 66274.4(c)**

This subsection is included to make clear that DTSC will welcome submittals from thermostat manufacturers of updated data on the number of mercury thermostats in use in California and the number estimated to become waste each year. The subsection specifies that such data should include all raw data, formulas, assumptions, models, and calculations used in the manufacturers’ calculations. This specificity is necessary to ensure that DTSC has enough information to verify the manufacturers’ calculations and to support external scientific peer review, if required. Without the raw data, calculations, formulas, assumptions, etc., DTSC would be unable to support a rulemaking to update the methodology in this section.

#### **Subsection 66274.4(d)**

This subsection clarifies that the department will consider additional data and information provided by manufacturers to support possible future amendments to the methodology established in subsections (a) and (b). The SERA study was the first of its kind to estimate the population of mercury-added thermostats in use in California (or anywhere, to DTSC’s

knowledge) and the rate at which these thermostats will be removed from service. Subsequent research may refine the estimates in the SERA report. Subsection (d) is necessary to make clear that DTSC intends to review and consider any new information submitted by manufacturers and, if the data support it, to use the information as the basis for updating the methodology. This subsection and subsection (c), which immediately precedes it, make clear that DTSC would need all raw data, formulas, calculations, models, and assumptions used in order to support amendments to the methodology for determining the total number of out-of-service mercury added thermostats (TT) becoming waste annually.

### Section 66274.5

This proposed section specifies the annual collection rate performance requirements that a manufacturer-operated thermostat collection program must meet. Performance requirements are specified, incrementally, for the first five years: 2013 through 2017. The performance requirements for subsequent years through 2022 are set at a rate of 75 percent. Performance requirements beyond 2022 will be established in a future rulemaking and will be determined based on the manufacturers' success in meeting the first ten years' requirements.

The first five years' requirements are based on historical collections by the Thermostat Recycling Corporation (TRC) in a number of other states. In 2010, TRC programs in several small states were able to collect >500 mercury thermostats per 100,000 population.<sup>8</sup> California had 37,000,000 people in 2010. If the manufacturers were able to achieve a comparable per capita collection rate in California (500 per 100,000 people) in a given year, it would correspond to  $500 \times 370 = 185,000$  thermostats. The performance requirements specified in this section are more modest. The table below shows the absolute number of thermostats that the manufacturers would be required to collect in 2013 through 2022 and the number of thermostats per 100,000 population.

Year	Percent goal	Number of thermostats	Thermostats per 100,000 population
2013	30%	65,100	173
2014	45%	95,400	253
2015	55%	113,850	302
2016	65%	131,300	348
2017	75%	147,750	392
2018	75%	144,750	384
2019	75%	140,250	370
2020	75%	135,750	360
2021	75%	130,500	346
2022	75%	126,000	334

<sup>8</sup> In 2010, the Thermostat Recycling Corporation (TRC) collected 3,232 mercury thermostats, or 516.5 per 100,000 population in Vermont; 30,074 mercury thermostats (calculated) or 520.9 per 100,000 population in Maryland; and 7,178 mercury thermostats or 540.4 per 100,000 population in Maine. In 2011, TRC collected 6,616 thermostats, or 498.1 per 100,000 population in Maine and 3,572 thermostats or 570.2 per 100,000 in Vermont. [http://www.dtsc.ca.gov/HazardousWaste/Mercury\\_Therm\\_Act.cfm](http://www.dtsc.ca.gov/HazardousWaste/Mercury_Therm_Act.cfm)

### **Subsection 66274.5(a)**

This subsection specifies the collection rate performance requirement (TP) that apply to a manufacturer or group of manufacturers operating a program for each calendar year, in tabular form. Column A specifies the calendar year, starting with 2013. Column B specifies the total number of mercury thermostats becoming waste in a given year (TT), (these numbers are taken directly from column B of the table in subsection (b) of that section). As required by paragraph (b)(1) of section 25214.8.17 of the Health and Safety Code, column C specifies the collection rate performance requirement for a given year (TP) as a percentage of the total number of out-of-service mercury-added thermostats becoming waste in that year. Column D specifies the calculated number of mercury added thermostats represented by the percentage specified in column C, determined by multiplying TT (column B) by TP (column C).

### **Subsection 66274.5(b)**

This subsection explains how the collection rate performance requirements specified in subsection (a) would be allocated among programs in the event more than one manufacturer or group of manufacturers operates a collection program in a given year. Specifically, this subsection explains procedure for determining each program's pro rata proportion of the total number of thermostats becoming waste annually (TT).

### **Subsection 66274.5(b), paragraph (1)**

This paragraph describes how the pro rata proportion of TT will be assigned to each manufacturer. Subsection (i) of section 25214.8.13 of the Health and Safety Code requires a manufacturer or group of manufacturers operating a collection program to submit an annual report to DTSC. Section 66274.8 of these proposed regulations specifies additional information that a manufacturer or group of manufacturers will be required to include in its annual report. One of these required data elements, which is specified in subsection (a), is a "listing of all brand names of mercury-added thermostats historically produced by the manufacturer or group of manufacturers and sold in California." In the event there is more than one collection program operating in a given year, DTSC will use information submitted pursuant to subsection (a) of section 66274.8 on the brands represented by each program and the information submitted pursuant to subsection (c) ("... the number of each brand name and manufacturer") to allocate each program's pro rata share of TT.

DTSC will determine the proportion of the total number of out-of-service mercury-added thermostats collected in a given year represented by each brand. The proportions of TT for all brands represented by a collection program will then be added, yielding the program's pro rata proportion of TT. For the purpose of assigning pro rata proportions of TT if multiple programs were ever implemented, DTSC would not include in its calculations thermostats whose manufacturers:

- Cannot be identified,
- Are no longer operating, or
- Are not participating in the program.<sup>9</sup>

### Example

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<sup>9</sup>Pursuant to subsection (b)(1) of section 25214.8.12 of the Health and Safety Code, thermostats produced by a former manufacturer of mercury-added thermostats that does not participate in a program to collect out-of-service mercury-added thermostats may not be sold in California.

- Assume there are two collection programs (Program 1 and Program 2) and five manufacturers (A, B, C, D, and E).
- Assume Program 1 represents manufacturers A, B, and E and Program 2 represents manufacturers C and D.
- Assume manufacturer A's thermostats represent 10 percent of the total number collected in that year, manufacturer B's represent 15 percent, manufacturer C's represent 25 percent, manufacturer D's represent 30 percent, and manufacturer E's represent 20 percent.

Program 1's pro rata share of TT would be determined as follows:

- 10% (manufacturer A's share) + 15% (manufacturer B's share) + 20% (manufacturer E's share) = 45% of TT.

Similarly, Program 2's pro rata share would be determined as follows:

- 25% (manufacturer C's share) + 30% (manufacturer D's share) = 55% of TT.

#### **Subsection 66274.5(b), paragraph (2)**

This paragraph is necessary to make clear that, in the event more than one manufacturer or group of manufacturers operates a thermostat collection and recycling program, each program's collection rate requirement is the same percentage specified in column C of section 66274.5, but each program is required to collect that percentage of its respective pro rata share of TT.

#### **Subsection 66274.5(b), paragraph (3)**

This paragraph is necessary to make clear that DTSC will accept and consider additional data submitted by a manufacturer or group of manufacturers to support a change to the pro rata share of TT assigned to the program pursuant to paragraph (1), as described above. This paragraph is also necessary to specify the timeframe in which DTSC would be required to update one or more programs' pro rata share(s) of TT on its public website, posted pursuant to subsection (c) (discussed below).

#### **Subsection 66274.5(c)**

This subsection is necessary to provide details about the dates and specific information that DTSC would be required to post on its public website on or before May 1 of each year, beginning in 2013:

- The total number of out-of-service mercury-added thermostats becoming waste (TT) in the year covered by the report, beginning with 2013. If more than one manufacturer or group of manufacturers operated a program during the year, DTSC would post each program's pro rata share of TT.
- The total number of thermostats collected by each program during the year, determined pursuant to subsection (e) of proposed section 66274.4.

- A restatement of the program's collection rate performance requirement (TP) from subsection (a).
- The collection rate achieved by the program, expressed as a percentage of TT or the program's pro rata share of TT, as appropriate.
- A determination of whether the program met TP for the reporting year.

Website posting ensures all manufacturers, interested stakeholders, and the public have easy access to information about the performance of the manufacturers' program or programs.

#### **Section 66274.6**

[Reserved]

#### **Section 66274.7**

This section lays out requirements for various persons who deliver out-of-service mercury-added thermostats to manufacturer-sponsored collection locations established pursuant to this law. Contractors and others who deliver thermostats would be required to provide basic, identifying information to the collection location at the time they drop off out-of-service mercury-added thermostats: their name, address, and telephone number. DTSC expects that the manufacturers will use this information to comply with the reporting requirements in proposed section 66274.8. As discussed below, obtaining this information in the manufacturers' annual report(s) will allow DTSC to monitor compliance with and, if necessary, enforce the requirements that HVAC contractors and demolition contractors deliver out-of-service mercury-added thermostats to a manufacturer-sponsored collection location.

Contractors deliver most of the thermostats received at manufacturer collection locations. Because the Contractors State Licensing Board (CSLB) database contains detailed information including contact information about contractors, the regulations will allow contractors to provide their CSLB numbers to the collection location in lieu of more elaborate recordkeeping requirements. To further simplify this requirement, subsection (b)(2) would allow a contractor to simply write its CSLB number on the container in which the thermostats are delivered.

#### **Section 66274.8**

Subsection (i) of section 25214.8.13 of the Health and Safety Code requires manufacturers operating a thermostat collection program, individually or collectively, to submit an annual report to DTSC summarizing the previous year's activities. The statute identifies twelve required elements of the annual report. This proposed section would augment the statutory annual reporting requirements with additional, more specific information that would enable DTSC to do several things:

- To allocate pro rata proportions of TT in the event more than one collection program is operated by manufacturers or groups of manufacturers in a given year;
- To give manufacturers appropriate credit for loose ampoules that are brought to a collection location toward meeting their collection rate performance requirement;

- To better assess the performance of the program or programs and to inform discussions with the manufacturers in the event that DTSC determines it is necessary to order program revisions pursuant to section 25214.8.17 of the Health and Safety Code;
- To identify HVAC or demolition contractors not participating in the program for follow up; and
- To evaluate the effectiveness of the manufacturers' program or programs in California with respect to programs operated in other states. This information could be used to modify collection rate performance requirements in a future rulemaking.

#### **Subsection 66274.8 (a)**

This paragraph requires a manufacturer or group of manufacturers to provide a listing of all brands of thermostats that the manufacturer or group operating the program historically produced. This information would allow DTSC to allocate pro rata proportions of TT in the event more than one program is operated in a given year (see discussion of subsection (b) of section 66274.5(b), above).

#### **Subsection 66274.8 (b)**

Paragraphs (b)(1), (b)(2), and (b)(3), respectively, would require manufacturers to provide the name, physical address, and contact phone number of:

- The locations to which they have shipped thermostat collection bins;
- The locations at which the bins were used to collect out-of-service mercury-added thermostats (which may be different<sup>10</sup>); and
- The locations from which bins were returned and the date or dates on which each bin was received.

Subparagraphs (b)(1)(B), (b)(2)(B), and (b)(3)(B) would also require the manufacturers to report the unique identification number of each collection bin.

This information is necessary to verify the compliance of HVAC wholesalers with subsection (a) of section 25214.8.14 of the Health and Safety Code, which requires a "wholesaler that has a physical location in the state [to] act as a collection location for out-of-service mercury-added thermostats."

DTSC believes that compliance by wholesalers with this requirement is essential for a successful thermostat collection program. However, determining wholesaler compliance poses challenges. Locations that accept universal waste thermostats from off-site, including wholesalers that collect thermostats pursuant to this requirement, are not required to notify or submit reports to DTSC of their activities with respect to thermostats. Having each bin's unique identification correlated with the location at which it was used to collect thermostats will enable DTSC to assess compliance of HVAC wholesalers that do not necessarily receive their collection bins directly from the manufacturers. This information will also allow the manufacturers and DTSC to compare thermostat collections at different collection sites and identify potential targets for outreach, education and, if necessary, DTSC enforcement if overall collection rate performance requirements are not met.

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<sup>10</sup> In some cases, a large HVAC wholesaler with multiple business locations may request that the manufacturers ship collection bins to one location from which the bins are subsequently distributed to its other sites.

### **Subsection 66274.8 (c)**

This proposed section will require reporting of the total number of out-of-service mercury-added thermostats collected by a program in the previous calendar year, specifying the number of each brand and manufacturer. Statute already requires reporting of the total number of thermostats that a program collects in a calendar year. This additional information by brand/manufacturer is necessary to determine the pro rata proportion of TT allocated to each manufacturer or group operating a program in the event more than one collection program operates during a given year. For specific information on how this data would be used, please refer to the statement of reasons for paragraph (1) of subsection 66274.5(b), above.

### **Subsection 66274.8 (d)**

The Thermostat Recycling Corporation (TRC), which operates California's collection program on behalf of 30 former manufacturers of mercury thermostats, actively discourages contractors from removing the mercury switches (ampoules) from thermostats. TRC's official policy is not to accept loose ampoules, due to the increased risk of breakage once they are removed from the protective housing of a thermostat. However, given that containers of loose ampoules continue to be deposited in TRC's collection bins, DTSC believes that the manufacturers should receive credit for them toward attainment of their collection rate performance requirement(s). This subsection is necessary to clarify how loose mercury ampoules returned in thermostat collection bins should be counted toward the manufacturers' collection of thermostats. Paragraph (d)(1) requires reporting of the total number of loose ampoules returned during the reporting year. Paragraph (d)(2) specifies how the manufacturers should calculate the number of out-of-service mercury-added thermostats represented by these loose ampoules. Initially, manufacturers would receive credit for one thermostat for every two loose ampoules received. DTSC has based this factor on TRC's 2011 annual report, which reports that 18,697 intact thermostats were collected, containing 38,569 ampoules. This corresponds with 2.06 ampoules per thermostat.

Paragraphs (d)(2)(B) and (d)(3) are needed to clarify that a manufacturer or group may use an alternate conversion factor to calculate the number of mercury thermostats represented by loose ampoules, provided the manufacturer or group provides data and calculations to support it.

### **Subsection 66274.8 (e)**

This subsection is necessary to specify how a manufacturer or manufacturers operating a collection program should calculate the number of thermostats it has collected during the year covered by the annual report. The calculation is simple: the total number of thermostats collected would be the sum of the numbers of intact out-of-service mercury-added thermostats of all brands collected during the reporting year, determined pursuant to subsection (c) and the number of thermostats represented by loose ampoules collected during the reporting year, determined pursuant to subsection (d).

### **Subsection 66274.8 (f)**

Subsection (f) would require the manufacturers to provide information on locations to which collection bins were shipped, but not returned, within 18 months. The required elements include the location's name, address, contact person, telephone number, and the unique identification

number(s) of the bin(s). This information is necessary for two purposes: 1) it will help DTSC identify locations that have requested a collection bin but are not accepting thermostats as required by the law and 2) it will help identify locations that are accepting thermostats and accumulating them beyond the one year limit allowed under the universal waste regulations.

#### **Subsection 66274.8 (g)**

This subsection would require manufacturers to report the CSLB identification numbers of HVAC and demolition contractors that delivered thermostats to collection locations. Subsection (a) of section 66274.7 requires a contractor to provide this number to the collection location at the time they deliver out-of-service mercury-added thermostats (see above). By comparing the list of collection locations provided by the manufacturers with the CSLB's list of HVAC and demolition contractors, DTSC will be able to identify contractors that have not delivered out-of-service mercury-added thermostats to a collection location for follow up. The fact that a contractor did not deliver out-of-service mercury-added thermostats to a collection location may have a reasonable explanation and may not mean that the contractor is in violation of the law. For example, some HVAC contractors may specialize in certain types of HVAC equipment and may never encounter out-of-service mercury-added thermostats, while others may work exclusively on new construction. However, to ensure fairness and consistent enforcement among contractors, it is important that DTSC investigate anomalies and take action when appropriate.

#### **Subsection 66274.8 (h)**

This subsection requires manufacturers to provide additional information about recent and planned changes to their program(s). This information will provide context for DTSC to evaluate the collection results of the program or programs. Paragraph (h)(1) requires a description of changes during the previous year and an evaluation of their effectiveness in increasing collection rates. Paragraph (h)(2) requires an explanation of any planned future changes. Both elements will help the manufacturers and DTSC to evaluate the effectiveness of specific program changes over multiple years. In the event a program fails to meet its collection rate performance requirement, having this information will also help identify the most appropriate program modifications (e.g., targeted outreach to certain businesses or areas, incentive payments, rebates, or contests, etc.).

#### **Subsection 67388.8 (i)**

Subsection (i) requires manufacturers to provide information about thermostat collection programs they operate in other states. There are five required elements of this provision:

- Paragraph (i)(1) – The name of the state;
- Paragraph (i)(2) – The number of mercury thermostats collected during the calendar;
- Paragraph (i)(3) – A brief description of the state's law, including any requirement for payment of an incentive
- Paragraph (i)(4) – The number of collection locations in the state, if known; and
- Paragraph (i)(5) – A description of any education and outreach and performance requirements in the state's law.

This information will allow DTSC to evaluate the performance of the manufacturers' collection program in California in comparison with other states that have thermostat collection laws. DTSC can use it to determine whether and how to order a manufacturer or group of manufacturers to modify its program in the event its collection rate performance requirement is

not met. Information about the results of thermostat collection programs in other states would also provide DTSC with baselines that may be helpful in evaluating the State's collection rate performance requirements and whether they should be modified in the future.

While some of the information in this subsection may be publicly available from the states with thermostat collection laws, the reporting requirement is nevertheless necessary to ensure that DTSC has the information in a timely fashion to evaluate the manufacturers' success in California and to meet the May 1 Web posting requirement specified in subsection (c) of section 66274.5. Other states with thermostat collection laws may have different reporting dates from California's and/or may not post the results on their public websites expeditiously. By including this information in the annual report, DTSC will have the information it needs to evaluate the manufacturers' performance.