

**CALCULATING THE NUMBER OF MERCURY THERMOSTATS
AVAILABLE FOR RECYCLING
USING FROST & SULLIVAN**

1. Frost and Sullivan provides detailed information on the thermostat sales market in a report prepared every three years. Using the 2003 report, and the 2002 data provided in the report, the number of mercury thermostats can be calculated as follows.
2. Figure 3-7 provides the number of mechanical thermostats sold in North America for residential and commercial markets. Figure 5-7 provides the comparable data for electronic thermostats.ⁱ The data are as follows:

| Type of Thermostat | Residential | Commercial |
|--------------------|-------------|------------|
| Mechanical | 5,180,000 | 420,000 |
| Electronic | 9,100,000 | 2,700,000 |

3. Figures 3-10 and 5-10 provide a breakdown (by sales revenue) of mechanical and electronic thermostat sales by application type (new v. replacement). The data are as follows:

| Type of Thermostat | New Construction | Replacement |
|--------------------|------------------|-------------|
| Mechanical | 50% | 50% |
| Electronic | 27.6% | 72.4% |

4. Applying the replacement percentages to the unit sales data will produce an estimate of replacement sales for mechanical and electronic thermostats.

| Type of Thermostat | Residential Replacement | Commercial Replacement |
|--------------------|-------------------------|------------------------|
| Mechanical | 2,590,000 | 210,000 |
| Electronic | 6,588,400 | 1,954,800 |
| Total | 9,178,400 | 2,164,800 |

5. As noted above, these data are for both Canada and North America. The USA market comprises 90% of the North American market (p. 2-15), therefore USA 2002 residential replacement sales can be estimated as 8,260,560 units, and commercial replacement sales as 1,948,320 units.ⁱⁱ

6. A state-specific replacement sales estimate can be obtained using proportionate population percentages.
7. For each replacement sale, assume a thermostat is coming off the wall (this is the nature of a replacement sale). Now it must be determined what percentage of these thermostats are mercury. Frost & Sullivan cannot be used for this purpose, but one option is to enlist the assistance of HVAC contractors and conduct a survey of thermostats removed for a limited period of time to determine an appropriate percentage.
8. Multiply the percentage by the state-specific replacement sales estimate to obtain the number of mercury thermostats potentially available for recycle.

ⁱ Pneumatic thermostat sales are not included in these calculations because the volume of sales is very small (200,000 nationally), purchasers are often industrial facilities, and sales typically replace older pneumatics (and not other types of thermostats).

ⁱⁱ A simpler but likely less accurate approach discussed in the PSI Background Summary used the 70% retrofit sales percentage provided by Frost & Sullivan for all thermostat categories combined (see Figure 2-6). This method produced a 2002 USA residential replacement sales estimate of about nine million units. See PSI Background Report at 14, fn. 44.