



**Mercury Thermostat Recycling: Reaching Consensus on Methods for Calculating Recycling Rates  
Summary of October 30, 2008 Call**

**Background and Purpose:**

Six states have adopted comprehensive thermostat laws. Of these, three have written performance goals into their laws (ME, PA, and VT), and three require that the state environmental agency set the performance goals (CA, IA, and NH). To ensure that recycling programs are achieving performance goals, states need sound methods for calculating mercury thermostat recycling rates. *The Product Stewardship Institute (PSI) has initiated a project to convene stakeholders to reach agreement about the most appropriate methods for determining those rates.*

**Summary of October 30 Discussion:**

On the October 30 call, Ann Pistell explained Maine’s approach for calculating mercury thermostat recycling rates. This approach, which according to Theresa Stiner is also the basis of an Iowa DNR proposal, is based on four assumptions. The table below lists those assumptions and summarizes the discussion about each of them:

Assumption	Discussion
1. The average lifespan of a mercury thermostat is 30 years	Several people noted that this estimate is conservative; the lifespan may in fact be considerably shorter. The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) estimates the average lifespan of a gas or oil-fired furnace to be 18 years. In residential settings, when contractors replace a furnace they usually replace the thermostat at the same time.
2. There are on average 1.5 thermostats per home and 1.25 thermostat per business	A building’s age, use, and size are important factors in estimating the number of thermostats that it will likely contain. As a rule of thumb, larger homes and newer homes use more thermostats.
3. 83% of the thermostats in current housing and commercial building stock contain mercury	This assumption may be the most difficult to verify. It is based on an EPA study. The percentage of thermostats containing mercury varies depending on the age of an area’s housing and commercial building stock. A King County, WA, study found that commercial buildings built or remodeled in the period 1953 – 1980 are most likely to use mercury thermostats.
4. Most mercury thermostats contain 3 grams of mercury	4 grams may be a more accurate estimate since some thermostats contain more than one switch.

PSI is gathering materials that may be helpful to states seeking to develop mercury thermostat recycling rates:

- [Methodology for Maine’s Thermostat Calculations](#)
- [Mercury Thermostats in Commercial Buildings in King County, November 2005](#)

*Product Stewardship Institute, Inc. • 137 Newbury Street • 7th Floor • Boston, MA 02116  
Telephone: (617) 236-4855 • Fax: (617) 859-9889 • [www.productstewardship.us](http://www.productstewardship.us)*

- [TRC's report on state-by-state thermostat collections, 1998-2006](#)

In addition, we are exploring the availability of these sources:

- Frost & Sullivan's data on replacement thermostat sales for residential market
- TRC collection data for 2007
- EPA's report that is the basis of the assumption that 83% of thermostats contain mercury

PSI has prepared the following background documents:

- [State Mercury Thermostat Legislation Comparison](#)
- [State Mercury Thermostat Performance Goals](#)
- [Methodology for Calculating Thermostat Recycling Rates](#)

General discussion items:

- The number of mercury thermostats in use is diminishing because most companies have phased out their manufacture. This fact should be reflected in recycling rate methodologies.
- County Assessor data may be useful in identifying the types of HVAC systems in buildings, some of which are known not to use mercury-containing thermostats. These data may be used to refine estimates of thermostats that are available for recycling.
- Age of a building and the date of any remodels may be predictive in determining the presence of mercury-containing thermostats.
- The number of thermostat replacements installed by contractors or sold by the manufacturers may also be useful predictors of the number of thermostats available for recycling.
- The number of thermostats that are removed by building demolition contractors may comprise 10% of the total number of thermostats that are removed each year, and performance goals should include this source of thermostats.

October 30, 2008 call participants:

Michael Bergman	WA Department of Ecology
Rick Brausch	CA Department of Toxic Substances Control
Kristin Brier	IN Department of Environmental Management
Randy (Charles) Case	WI Department of Natural Resources
Michael Chenard	Lowe's Companies, Inc.
Regan Clover	MA Department of Environmental Protection
Lisa Conley	MA Joint Committee on the Environment, Natural Resources and Agriculture
Frank Coolick	PSI Board of Directors
Stephanie D'Agostino	NH Department of Environmental Services
John Gilkeson	MN Pollution Control Agency
Becky Jayne	IL Environmental Protection Agency
Ginger Jordan-Hillier	ME Department of Environmental Protection
Karen Knaebel	VT Department of Environmental Conservation
Mark Kohorst	NEMA
Steve Kratzer	MI Department of Environmental Quality
David Lennett	Consultant
Paul L. Lockwood	NH Dept. of Environmental Services
John Madras	MO Department of Natural Resources
Tom Metzner	CT Department of Environmental Protection
Dan O'Donnell	Honeywell

Samantha Omev	Honeywell
Ann Pistell	ME Department of Environmental Protection
Bob Reinke	MT Department of Environmental Quality
Neena Sahasrabudhe	CA Department of Toxic Substances Control
Jack Shaner	Ohio Environmental Council
Jamie Silberberger	Women's Voices for the Earth (WVE)
David Snapp	CDPHE - HMWMD
Theresa Stiner	IA Department of Natural Resources, Land Quality Bureau
Mark Tibbetts	Thermostat Recycling Corporation
Sharon Trostle	PA Department of Environmental Protection
Jennifer Volkman	MN Pollution Control Agency
Taylor Watson	King County (WA) Local Hazardous Waste Management Program
Jeri Weiss	U.S. Environmental Protection Agency Region 1, New England
Adam Wienert	NEWMOA
Pamela Boyd Williams	California Retailers Association
Aaron York, Sr	Aaron York's Quality AC & Htg
Wendell Tomes	US EPA

**PSI:**

Scott Cassel, Executive Director; Jennifer Nash, Director of Policy & Programs; Jim Schrack, Director of Product Sustainability