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Tempers Are Rising about Mercury

Much more could be done by governments and industry to protect people and the environment.



Delegates at a UN meeting in Geneva, Switzerland, agreed to control the use of mercury. Photo: IISD

After negotiating for four years, in January 2013 governments at the UN agreed to a global, **binding treaty** to restrict the use of mercury in a large number of products and mining processes. The agreement will be opened for signature at a special meeting in Japan in October 2013.

More than 140 governments agree to ban the production and shipment of mercury-containing batteries, switches and relays, certain types of compact fluorescent lights, and soaps and cosmetics by 2020. Some medical devices such as thermometers and blood pressure instruments are also included in the phase-out.

The delegates agreed to lower the use of dental fillings using mercury amalgam, but not to ban them. Vaccines and products used in religious activities are exempt from the accord.

Still, emissions from small gold mining operations in developing nations, and from coal-fired power stations and cement plants are the largest sources of mercury pollution. The governments managed only to require countries to draw up strategies to reduce the amount of mercury used by artisanal miners within three years of the treaty entering into force. Nations also promise to install best available technologies on new power plants within five years.

Plans are supposed to be drawn up to bring emissions down from existing facilities. Negotiators had hoped to set thresholds on emissions, but this goal is deferred. The subject will be taken up at the first meeting of parties to the treaty.

Developing nations have already taken giant steps to restrict mercury (see **Sweden Bans All Uses of Mercury**, 22 January 2009). Japan, Norway, and Switzerland have pledged funds to help put the plan into action during the three to five years that policy-makers expect will be needed before the treaty comes into force. The UN Environmental Program has **a toolkit** for countries to identify sources and create an emissions inventory.

The International Physical Activity and the Environment Network (IPEN), a coalition of non-governmental organizations in 116 countries, is skeptical about the outcomes of the agreement.

“Some will say that some treaty is better than no treaty, but we say that if the treaty does not result in less mercury pollution, then the job is not done,” says Manny Calonzo, co-chair of the network. IPEN is especially critical of the absence of any date to stop the use of mercury in artisanal gold mining. Nor does the treaty ask governments to find and clean contaminated sites, or to control the generation of mercury-containing waste.

Turning up the heat

The failure of efforts in the US to recycle any significant number of wall-mounted room thermostats is a microcosm of all the hurdles impeding the control of mercury emissions.

Long ago, the US Environmental Protection Agency estimated that from two to three million room thermostats carrying about four grams of mercury each come out of service in the country each year. The three largest manufacturers — Honeywell, White-Rodgers, and General Electric — came up with a voluntary program to deal with this situation. They formed a non-profit outfit called the Thermostat Recycling Corporation (TRC) to address the problem.

Over time and through independent surveys, it became clear that the vast majority of thermostats are not being collected (see **Study Strips Veneer Off Thermostat Collection**, 20 February 2010). In the most recent assessment, environmental campaign organizations estimate that during the 10-year period from 2002 when the TRC program went national, industry has recycled about 8% of the available devices.

TRC cries foul.

“TRC’s collections are up by nearly 70% over the last five years, and up by triple digits in 21 states. This is despite the fact that the vast majority of states do not prohibit the disposal of mercury thermostats in solid waste, making it legal to simply throw them in the trash. We encourage the development of good public policy that supports our mission of recovering as many mercury thermostats as possible, and are deeply engaged with the HVAC community, NGO’s and government officials to achieve our mission,” the trade group says.

But the second evaluation of its kind, **Turning Up the Heat II**, is unforgiving: “In some states, the TRC program barely functions, capturing only a tiny fraction of discarded mercury thermostats, and in other states the program ranges from grossly under-performing to mediocre. It’s clear that the TRC program is capturing only the tip of the iceberg.”

The report is prepared by the Natural Resources Defense Council, the Product Stewardship Institute, the Clean Water Fund, and the Mercury Policy Project. Financial support for the work came from the Garfield Foundation established in 2001 with family money from lanolin patents.

TRC is required to report collection data from 10 states implementing mandatory programs. For the other states, the study’s authors use TRC’s data comparing the pounds of mercury collected in a given years to the pounds collected in the baseline year 2007 to derive a recycling rate.

Mark Tibbetts, executive director of TRC, says the evaluation is not accurate.

“The report used a 20-year-old EPA report as a basis for assessing TRC’s program performance (published in 1994). In 1994 US EPA guessed that 90% of thermostats being removed from service contained mercury. This is no longer a valid. A lot has changed in 20 years. There are no definitive studies on the issue, but if you look at US Department of Energy data on penetration of set-back thermostats (electronic thermostats that do not have mercury), TRC’s own study in California, and other utility studies, the number today likely ranges from about 70% to as low as 20% containing mercury (it varies by state).

“Adjusting the calculation to a more realistic assumption on the percentage that contain mercury indicates the estimate in the report was off by at least 100% if not considerably more. I also note the balance of the calculation were also based on assumptions not empirical data at the time.”

The mercury campaigns have a retort: “After we published the first evaluation in February 2010, TRC stopped releasing its program collection results, and removed the historic data from its website. Instead of making fundamental improvements, TRC chose to sacrifice program transparency and hide the lack of progress.”

Tibbetts maintains that the counts of thermostats collected in ‘Turning Up the Heat II’ are wrong.

“TRC recovers both whole thermostats and mercury switches removed from thermostats. Assessing using just counts of thermostats miss a significant amount of mercury TRC recovers annually. Each thermostat contains between one and six switches (each switch has 2.87 grams of mercury). We count each switch in every thermostat we recover then add up the count of loose switches from thermostats to calculate the weight of mercury recovered. We moved towards using pounds of mercury to measure performance for this reason.”

The environmental groups have a second way to demonstrate the ineffectiveness of industry’s program. They present information on the number of thermostats collected in each of three years per capita in each state. Wrong, Tibbetts says.

“It skews the results to states with small populations and fails to take into account the fact that not all states have the same installed base. The installed base in northern New England (oil heat, no air conditioning, older housing stock, etc.) is likely very different than in California where Title 24 (the state’s energy code) radically altered the market for residential thermostats long before the ban on the sale of mercury thermostats in 2006. It comparing apples to oranges.”

Yet the facts seem to support the environmentalists’ contention. State legislation works best when it contains meaningful performance goals, mandates participation by HVAC contractors, and offers financial incentives — like bounties — on switches collected. Other bills, such as the one recently adopted in Connecticut and another passed by the state Senate in Massachusetts, are being discredited as Trojan horses.

The report from the mercury campaign partners concludes by alleging: “These bills are crafted to look like they are creating aggressive thermostat recycling programs, when in reality they set up programs that largely mirror the status quo and include only the elements least burdensome to the manufacturers.”

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