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May 17, 2011

Chairwoman Anne M. Gobi
Joint Committee on Environment, Natural Resources and Agriculture
State House, Room 473F
Boston, MA 02133

Chairman Marc R. Pacheco
Joint Committee on Environment, Natural Resources and Agriculture
State House, Room 312-B
Boston, MA 02133

Re: H226/S346: An Act to Prohibit Additional Incineration of Solid Waste

Dear Chairwoman Gobi and Chairman Pacheco,

Thank you for providing this opportunity to offer our comments on H226/S346 An Act to Prohibit Additional Incineration of Solid Waste. We wish to express our strong support in favor of this proposed legislation.

The Sierra Club is the oldest and largest environmental organization in the country. With over a forty year history in this chapter, the Massachusetts Sierra Club represents about 22,000 members throughout the state and nearly one million nationwide. We fight for clean air, clean water, the preservation of the Commonwealth's most precious natural spaces, and healthy, vibrant communities.

Overview

The proposed legislation would codify the current MassDEP policy that caps the Commonwealth's incineration capacity at present levels. This law would not prohibit continued incineration of waste; it would only prohibit increased incineration *capacity*, that is, new facilities, including high-heat conversion technologies, expansions, or expanded use of existing facilities. It further calls for a plan to reduce waste and increase recycling, thereby eliminating the need for more disposal facilities in the future. It should be noted that while the MassDEP Draft Solid Waste Master Plan, 2010--2011 was released on July 1, 2010 and the comment period closed in October 2010 after public hearings, the final plan still has not been released.

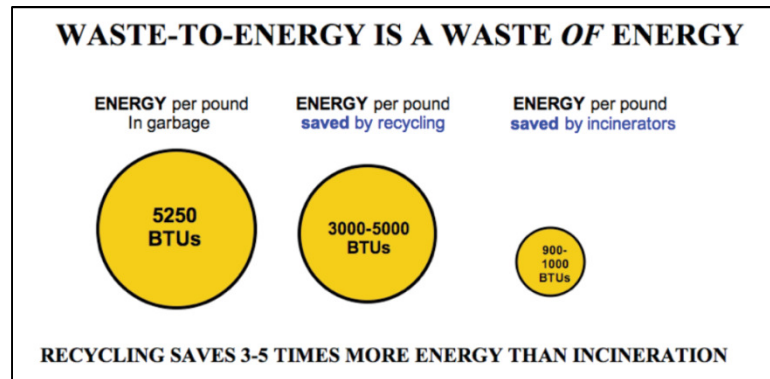
Waste data from DEP indicates that Massachusetts has no need for additional incineration capacity. Between 2008 and 2009 (the last period for which we have data), generation of municipal solid waste dropped 15.2%. Net export of waste from the Commonwealth dropped precipitously in this time period--by 29%-- but garbage importation is increasing. Massachusetts is in danger of becoming a net importer of garbage, as we were in the 1980's. Additional incinerators could draw waste from other states and possibly from overseas.

Massachusetts already burns approximately one third of our MSW (3,180,000 tons in 2009). Twenty five percent of all tonnage that is incinerated must then be landfilled as ash. Since many reports agree that 90% of the waste generated in this country could be recycled or composted, it is clear that we are already burning valuable resources that could be reused, recycled or composted, which would save energy as well as resources, and generate new businesses and jobs in collection and processing. We should burn less, not more.

Waste-OF-Energy

Incineration captures only one fifth of the caloric (energy) value in garbage. Recycling saves three to five times as much because of the energy saved by using recycled feedstock for manufacturing instead of harvesting virgin resources.¹ (See appended chart comparing energy savings from recycling to waste-to-energy.) Virgin raw-

materials industries are among the world's largest consumers of energy. For example, recycling office paper saves four times more energy than the amount generated by burning it. Recycling offers energy savings for other materials as well.



Competing with recycling goals

Incinerators compete with recycling for the same waste streams—the high Btu paper, cardboard, and plastics. Covanta has offered Cape Cod towns a financial incentive to sign long-term contracts pledging at least 50% of their waste to the incinerator, which would then cap recycling at 50%. This is in conflict with the Cape Cod and Islands Planning Commission's goal of 60% recycling for the Cape.²

Public health impacts

On December 7, 2010, the US Environmental Protection Agency acknowledged that new rules governing incineration are needed to “cut emissions of harmful pollutants, including mercury and soot, which cause a range of health effects – from developmental disabilities in children to cancer, heart disease and premature death.” But these regulations are not even on the horizon.³

On May 2, 2011, MassDEP announced that Wheelabrator, the operator of three Massachusetts municipal waste incinerators has agreed to pay \$7.5 million to resolve DEP allegations of multiple violations of environmental degradation.⁴ In 2008, Covanta, which operates the other four incinerators in the Commonwealth, was fined for a release of dioxin that exceeded the allowable limit by 350%.⁵

Identified emissions from incinerators include heavy metals such as lead, cadmium, arsenic, nickel, chromium, and mercury, halogenated hydrocarbons, acid gases, particulate matter, and volatile organic compounds such as dioxins and furans.⁶ Dioxins are bio-accumulative. Health impacts of dioxin include cancer, IQ deficits, disrupted sexual development, birth defects, immune system damage, behavioral disorders, diabetes, and altered sex ratios. Studies show higher cancer rates and the presence of elevated levels of dioxin in the blood of people living near municipal solid waste incinerators, when compared to the general population.⁷

Dioxins "scrubbed" from the stack emissions persist in scrubber wastewater and in the cake from the filter. All along the line, from the people who work in the plants to the people living near landfills where bottom ash has been deposited, people are exposed to dioxin and other contaminants from incinerators. High levels of dioxins are also found in food and dairy

products produced near incinerators, so that the toxic impacts of incineration are as far-reaching as the shipment of that food to other communities.

Frequent incinerator shutdowns due to insufficient garbage—or for any reason—are a public health problem because the most dangerous emissions, such as dioxins and furans, are generated in higher concentrations during the shutdown and start-up periods.⁸

Climate change

Incinerators directly emit more CO₂ per unit of electricity generated than coal-fired power plants.⁹ The Intergovernmental Panel on Climate Change (IPCC) states that when comparing power sources, biogenic emissions from incinerators must be accounted for in evaluating global warming impacts.¹⁰ According to EPA, “In total, the goods we create, transport, and dispose of and the food we produce, process, transport, and dispose of are estimated to account for approximately 42% of U.S. GHG emissions.”¹¹ Once products and packaging and discarded food are burnt instead of reused, recycled, or composted, additional volumes of GHG gases are emitted from the industrial practices that generate replacement goods and food.

High-heat conversion technologies--gasification and its variations

The new high-heat conversion technologies—gasification, pyrolysis, and plasma arc-- are classified by the EPA as incineration,¹² but instead of burning garbage directly in a single chamber, they heat waste until it forms a gas that is then combusted as fuel. While waste conversion companies promote their respective technological variations, the differences among the technologies can distract from problems common to them all.

No commercial-scale gasification facilities for municipal solid waste are operating in the U.S. All attempts to establish such facilities have failed. Bill Davis, CEO of Ze-Gen, the gasification company operating a test facility in New Bedford, said recently that the notion of a commercial-scale gasification facility for municipal solid waste is “folly.”¹³

When compared to emissions from conventional mass burn incinerators, recorded emissions from gasification, pyrolysis and plasma incinerators are reported to show the same emissions of concern.¹⁴

By 2006 the track record of gasification in Europe was characterized in a European Commission report: “The performance record is poor as demonstrated by the continuing problems in operation of Thermoselect and others....”¹⁵

Two key reports, compiled by firms independent of the waste industry for the New York Solid Waste Association and MassDEP respectively, indicate that waste conversion technologies (gasification, pyrolysis, and plasma arc, excluding anaerobic digestion) present numerous problems and challenges, the sum of which should eliminate them from consideration for handling solid waste on a large scale at the present time.^{16 17}

Conclusion

Regardless of the technology employed, garbage is not a renewable source of energy, and incineration, including the new conversion technologies, is not an appropriate treatment for recycling residuals.

Despite efforts to make incineration safer, it remains a 19th century technology that is increasingly problematic given our dense population, the number of new toxins in the waste stream, dwindling material and energy resources, and the threat of climate change.

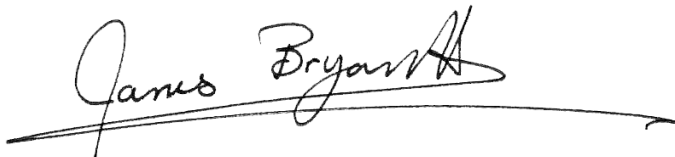
By keeping a problematic disposal technology in check, H226/S346 brings multiple benefits:

- Allows the development of innovative waste reduction programs in reuse, recycling, and composting that will generate new businesses and job in the Commonwealth.

- Protects residents from increased health impacts of incineration pollution.
- Conserves energy and material resources wasted by incineration.
- Saves landfill space that would be used for increased loads of incinerator ash.
- Combats climate change.

Because this proposed legislation would have a significant positive impacts for the citizens of the Commonwealth, the Sierra Club fully endorses H226/S346 and respectfully requests a favorable report.

Respectfully,



James McCaffrey
Director
Massachusetts Sierra Club

¹ Morris, Jeffrey, Comparative LCAs for Curbside Recycling, Versus Either Landfilling or Incineration With Energy Recovery. *International Journal of Life Cycle Assessment*. (2005); 13(3) 226-234.

² "SouthCoast towns face trash fee increase," The New Bedford Standard-Times, by Charles Anderson, March 1, 2009.

³ "EPA Seeks New Timetable for Reducing Pollution from Boilers and Incinerators," US EPA Release, December 7, 2010.

⁴ "Operator of Municipal Waste Incinerators To Pay \$7.5 Million To Resolve Multiple Environmental Violations," MassDEP Release, May 2, 2011

⁵ http://www.cjcw.org/notice/Covanta_Massachusetts_environmental_violations.pdf

⁶ Jay, K., & Steiglitz, L. (1995). Identification and Quantification of Volatile Organic Components in Emissions of Waste Incineration Plants. *Chemosphere*. 30(7). pp. 1249-1260.

⁷ Pascal Brula and others, "Etude d'incidence des cancers a proximita des usines d'incineration d'ordures managers," Departement sante environment, Institut de veilee, sanitaire. 2006.

P. Elliott and others, "Cancer incidence near municipal solid waste incinerators in Great Britain," British Journal Of Cancer Vol. 73

⁸ Grosso, M., S. Cernuschi, et al. (2007). "Environmental release and mass flux partitioning of PCDD/Fs during normal and transient operation of full scale waste to energy plants." *Chemosphere* 67(9): S118-S124.

⁹ USEPA. How Does Electricity Affect the Environment? available at: <http://www.epa.gov/cleanrgy/energy-and-you/affect/municipal-sw.html>. accessed 9/11/2008.

¹⁰ 2006 IPCC Guidelines for National Greenhouse Gas Inventories; Chapter 5: Incineration and Open Burning of Waste," Intergovernmental Panel on Climate Change National Greenhouse Gas Inventories Programme, p.5.5, 2006.

¹¹ "Opportunities to Reduce Greenhouse Gas Emissions Through Materials and Land Management Practices," US EPA Fact Sheet, June 2010.

¹² U.S. Environmental Protection Agency. *Title 40: Protection of Environment, Hazardous Waste Management System*. General, Subpart B—definitions, 260.10. Current as of April 25, 2008.

¹³ Phone conference, January 29,2009 with Bill Davis (ze-Gen), Shanna Cleveland (Conservation Law Foundation), Sylvia Broude (Toxics Action Center), Lynne Pledger (Sierra Club Massachusetts).

¹⁴ *Waste Conversion Technologies: Emergence of a New Option or the Same Old Story*, Theodore S. Pytlar, Jr., Vice President, Dvirka and Bartilucci Consulting Engineers, presented to the Federation of New York Solid Waste Associations, Solid Waste & Recycling Conference, May 9, 2007.

¹⁵ European commission (2006). *Integrated Pollution Prevention and Control Reference Document on the Best Available Techniques for Waste Incineration*.

¹⁶ *Waste Conversion Technologies: Emergence of a New Option or the Same Old Story*, Theodore S. Pytlar, Jr., Vice President, Dvirka and Bartilucci Consulting Engineers, presented to the Federation of New York Solid Waste Associations, Solid Waste & Recycling Conference, May 9, 2007 (see next page)

¹⁷ Assessment of Materials Management Options for the Massachusetts Solid Waste Master Plan Review, Tellus Institute, December, 2008.