

# Waste incinerators? Let's talk first.

*A commentary from Zero Waste Vancouver, October 11 2007*

Out of the blue last month, Metro Vancouver staff reported to politicians that they intend to issue a Request for Proposals in early 2008 to build several new waste combustion facilities in our region.

The scale of the proposed facilities is unprecedented. The existing incinerator in Burnaby processes 285,000 tonnes of waste each year. But according to the staff report: *"the capacity of the new [waste-to-energy] facility may be in the range of 500,000 to 750,000 tonnes per year."* The report also projects a *"Future WTEF"* that will further increase our region's new incineration capacity to 1.2 million tonnes/year by 2025.

The rationale for this plan is an apparent surge of growth in waste. The Metro Vancouver staff report said that our region's waste showed a "compounded total increase of 46%" in the past 7 years, growing at a rate of 5% annually while population growth has been only 1.1% per year.

Discussing the report at their meeting on October 5<sup>th</sup>, Metro Vancouver politicians mentioned a new waste-to-energy *gasification plant* being piloted by the city of Ottawa. Several politicians have visited this plant and they are hopeful that modern waste-to-energy plants are a solution that will address not just waste but energy and climate change problems as well. (Others on the Board were silent or more equivocal in their comments.)

## ***More information needed.***

We need more information and public discussion about this proposal before any deals are signed to build new incinerators. Are there downsides to incineration? Are there alternatives to incineration? What is driving the growth in waste? Can incineration be part of a Zero Waste system? These questions must be answered as part of a thorough, thoughtful, and long-overdue review of our region's Solid Waste Management Plan. *Zero Waste Vancouver* calls on elected officials to initiate that review and bring citizens into the discussion.

## ***What is the difference between incineration and gasification?***

Conventional incinerators like the Burnaby waste-to-energy plant *burn municipal waste* to produce steam and/or run turbines that generate electricity. Gasification plants like the one being tested in Ottawa *convert the waste to a gas* that is then burned to produce steam and/or run turbines to generate electricity. Since both kinds of facility use combustion, we will use the generic and widely understood term "incinerator."

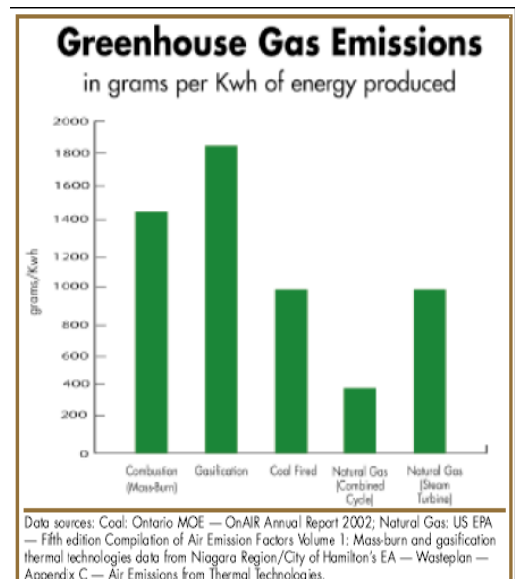
## ***Incinerators don't make waste go away. They put it in the sky.***

Incinerators are seen as a way to get rid of waste. They do reduce the volume and mass of waste by 70 to 90%. The Ottawa plant promises to reduce 1,000 kg of waste to 150 kg of inert slag, 5 kg of sulphur and 1.3 kg of heavy metals. That's 85% percent less waste.

But there's a catch. That other 85% of the waste does not disappear. One of the three fundamental laws of thermodynamics is that "everything goes somewhere". Both incineration and gasification convert the carbon in waste to carbon dioxide and release it into the atmosphere. Thus, far from making garbage go away, incineration merely sends it to a 'landfill in the sky.' This is the last place we want our waste to go in the era of climate change.

## ***Cost of GHG emissions will rise.***

A story published in *Solid Waste & Recycling* magazine<sup>2</sup> showed that waste-to-energy facilities have higher GHG emissions than conventional power plants when you count the "biogenic" carbon (paper, wood, etc.) that is burned. If emissions trading or carbon taxes are applied to carbon-emitting facilities in the future, as seems likely, this will raise the already high cost of incineration even higher. (Graph source: *Solid Waste & Recycling*)



## Incinerators waste more energy than they produce.

The appeal of waste incineration is that it utilizes the *fuel value* of waste to generate energy. But the materials we throw away also contain *embodied energy* – the energy it took to manufacture them and get them to market. Incineration is a complete write-off on the embodied energy in waste. And the embodied energy is greater than the fuel value. Burning highly engineered products and highly refined materials is like ‘burning the furniture to heat the house.’ (Chart source: *Solid Waste & Recycling*)

Material	Energy savings from Recycling (GJ) tonne	Energy output from Thermal treatment (GJ) tonne	Energy savings from recycling versus thermal treatment
Newsprint	(6.33)	(2.62)	2.4
Fine Paper	(15.87)	(2.23)	7.1
Cardboard	(8.56)	(2.31)	3.7
Other Paper	(9.49)	(2.25)	4.2
HDPE	(64.27)	(6.30)	10.2
PET	(85.16)	(3.22)	26.4
Other Plastic	(52.09)	(4.76)	10.9

Source: Determination of the Impact of Waste Management Activities on Greenhouse Gas Emissions: 2005 Update Final Report, ICF Consulting October 31, 2005, submitted to Environment Canada and Natural Resources Canada

## You can't burn the "residuals" from a good recycling program.

Incineration seems like a common-sense solution for the “residual” wastes that can't be recycled. But will these residuals be good fuel in an incinerator? Experts warn that when recycling exceeds 60% (we're at 52% now) there will be “a decrease of the energy produced by waste incineration mainly caused by the recovery of paper/cardboard and plastics.”<sup>3</sup> An incinerator demands high flows of high-energy waste to operate economically. A report prepared in the UK stated: “In treating a rapidly declining quantity of residual waste, it is clear that a fixed throughput facility with high unit capital costs is completely inappropriate.”<sup>4</sup>

## Where will the toxics go?

The combustion process produces toxic substances and these are still the focus of public concern. Pollution control technology has improved over time but toxic substances don't go ‘away.’ Plasco, the company whose gasification plant is being tested in Ottawa, says that for every tonne of waste processed the plant will produce **1.3 kg of heavy metals** that will be disposed of in the local landfill.<sup>5</sup> By 2025, according to the current plan for our region, we will be looking for space for 1.6 million kilograms of concentrated toxic material each year -- in Burns Bog, Mayor Jackson?

## So, what's the alternative?

What is the prudent thing to do with our region's waste? Here is an agenda for action from **Zero Waste Vancouver**.

### 1. Launch a public review of the Solid Waste Management Plan.

Metro Vancouver will conduct a waste composition study at the end of this year. Let's learn where the recent waste surge is coming from and develop a new regional Solid Waste Management Plan to address it.

### 2. Issue an RFP for composting, not incineration.

We already know that organics (food waste, yard waste and soiled paper products) are a huge resource in our waste that is largely untapped. They are also big emitters of GHGs. Organics comprised nearly 30% of the waste that went for disposal in 2004, over 300,000 tonnes.<sup>6</sup> It's time to follow the example of Nanaimo, Halifax, Toronto, Seattle, Portland, San Francisco and other forward-looking cities and put an organics program in place.

### **Zero Waste Vancouver**

Citizens taking action ~ Vancouver, Lower Mainland, and Beyond.

[www.zerowastevancouver.blogspot.org](http://www.zerowastevancouver.blogspot.org)

<sup>1</sup> “Solid Waste Volumes – Long Term Outlook,” Metro Vancouver, Aug 9, 2007, page 3

<sup>2</sup> “Garbage In, Garbage Out,” *Solid Waste & Recycling*, Apr/May 07, pages 3 – 13

<sup>3</sup> Cited in *Ibid.*, page 9

<sup>4</sup> “Maximizing Recycling Rates: tackling residuals,” CRN Residuals Report, D. Hogg and D. Mansell, Sep 2002, page 29

<sup>5</sup> “Plasma Torch: Plasco Energy Group's new plant in Ottawa,” *Solid Waste & Recycling*, Aug/Sep 07, pages 32 – 33

<sup>6</sup> “Solid Waste Composition Study” *Greater Vancouver Regional District (now Metro Vancouver)*, Jan 14, 2005, Ex Sum 3-7