TriplePundit

A Tour of Amsterdam's Waste-to-Energy Plant

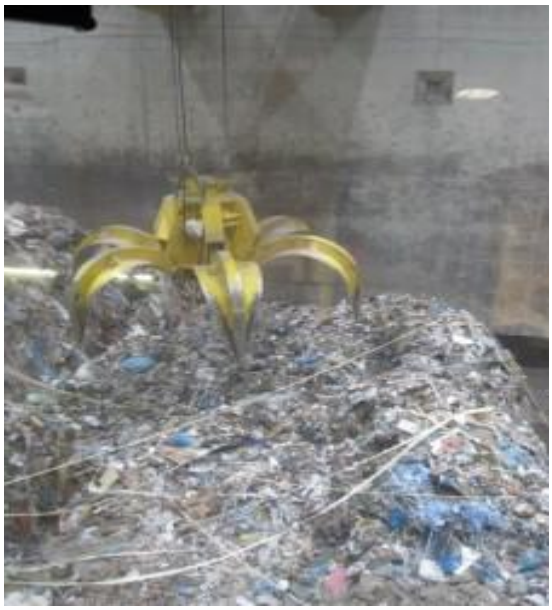
By Leon Kaye | June 15th, 2010

Towards the end of my trip in Amsterdam to attend the Global Reporting Initiative Conference, I toured the city's **waste fired power plant (WFPP)**, which is a cornerstone of Amsterdam's long-term sustainability plan.

On a sunny Friday morning, I biked to the incineration plant, which is in the western dockyards of Amsterdam. Just like anywhere else in this city of 750,000, Amsterdam's WFPP is easily accessible via bicycle paths. Cycling to the facility was almost surreal: as I approached the huge smokestacks, I could hear birds chirping, and wind rustling through tree branches as huge wind turbines churned high above me.

Harmen Veldman, the Innovation Center's Manager of Amsterdam's Waste to Energy Company (or AEB, *Afval Energie Bedrijf*), who granted me the tour, greeted me in the company's sleek headquarters. My two hours at AEB gave me insight as to how a small, densely populated country, with little landfill space, and much of its land lying under sea level, has made its choice in dealing with trash and waste.

Amsterdam overall is a solid model of sustainable living. The city's residents mostly commute by riding the 600,000 bicycles within the city, trees line its streets and charming canals, and cars are discouraged–residents in the center wait up to seven years to snare an automobile parking permit. Recycling, however, is not a large component of the city's waste management plan. Bins for glass and paper are found on most street corners, but in Amsterdam, everything else goes in the trash.



That trash from Amsterdam and 18 other municipalities is hauled by train and truck to the WFPP. Incinerating trash into energy is nothing new in Amsterdam; the city's first waste incinerator entered service in 1919, replaced 50 years later with a plant that burned up to 500,000 tons of garbage per year. But the concern over the environmental effects of dioxins, coupled with improved technology, led to Amsterdam constructing a new plant in 1993 that converted that waste into energy. That plant has 22% energy efficiency—and in 2007, AEB built the new WFPP that has **an energy efficiency rate of 32%, among the highest in the world**. That is lower than the average efficiency of coal-fired power plants, which is about 45%. Nevertheless, incinerating trash allows the Netherlands to maintain almost no landfill space, and helps the country meet its carbon reduction goals. Furthermore, the technology used in the WFPP prevents particulates and most greenhouse gasses from entering the atmosphere, while giving the city a revenue stream from garbage collection and the sales of raw materials post-incineration. That said, it's not a benign system. For every ton of garbage incinerated, **one ton of CO2 is released into the atmosphere.**

The Netherlands has some of the world's strictest landfill codes. Amsterdam's WFPP helps the country meet those codes because **64% of the garbage that ends up at the plant is recycled**. I asked Harmen why metal is not recycled in Amsterdam—he replied that they are, but **AFTER** incineration. Harmen replied that the AEB has a vendor that sorts through the resulting ash, filtering out metals like iron, aluminum, and copper. The AEB also claims that the resulting metal is purer and more valuable than what can be separated from comingled recycling—Harmen explained that cans are often contaminated by food and other waste. And plastic? Amsterdam has a pilot plastic recycling programs in the works, but after the AEB analyzed the economics of recycling, its officials concluded that turning such waste into energy made better fiscal and environmental sense: the different grades of plastic make effective plastic recycling expensive.

From the eighth floor office, I noticed two huge mounds of fly ash, which AEB sells to a building materials company that processes the byproduct into asphalt and other construction uses. After the resulting incineration, **only 2% of the initial waste remains**: in a flue gas residue that AEB ships to Germany, where it is stored in empty salt mines.

I watched Friday morning as truck after truck drove up a ramp, depositing its load into a huge ramp: just on load of the **1.4 million tons a year that are incinerated into energy**. Then the tour began. I was struck by how clean the facility was. There was a faint campfire-like smell, but no overpowering stench that I was expecting. Harmen took me to the control room facing the enormous waste bunker, where an enormous crane sorts and piles tons of trash that churn through a massive furnace. Wearing my hardhat and lab coat, I peeked into the furnaces, which provide the heat that provides electricity for Amsterdam's city offices and public transport network at the total of one million megawatt hours annually. An additional 300,000 gigajoules circulate through Amsterdam's center, providing heat to most of its homes during the cold winter months.

Amsterdam's waste-to-energy plant has become a model for municipalities around the world who struggle with the growing trash problems resulting from increasing urbanization. It meets only one small part of the Netherlands' energy requirements, but it is an effective approach to waste diversion while creating a revenue stream for a city—instead of the financial and environmental burdens that result from municipal solid waste. Waste prevention is the ultimate goal, but incineration brings Amsterdam halfway towards that goal, and makes more economic and environmental sense that creating more landfill space.

More information on Amsterdam's WFPP can be found at the AEB's website.

Read more: http://www.triplepundit.com/2010/06/a-tour-of-amsterdam%E2%80%99s-waste-to-energy-plant/#ixzz0qwdFjhmo