

THE GCS UPDATE

Green Conversion Systems LLC — www.greenconversionsystems.com



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Inconvenient Trash: Climate Change & Municipal Solid Waste

One of the least talked about and most dangerous emitters of climate change causing emissions is not your car, it's your garbage.

According to the United States Environmental Protection Agency, the single largest anthropogenic source of methane emissions into the atmosphere are landfills, which account for around 34% of all methane emissions from the US. This methane is created as garbage gets piled on top of itself, and slowly breaks down in an oxygen starved environment. The methane then slowly accumulates, and eventually seeps out of the surface. Once in the atmosphere, methane is a highly potent, and dangerous Greenhouse gas; not only does it remain in the atmosphere for over a decade, it has been found to capture more than 20 time more heat than Carbon Dioxide.

So what do we do about this problem? The EPA's Office of Research and Development asked Susan Thorneloe of the National Risk Management Research Labo-

ratory, Air Pollution Prevention and Control Division, to investigate just this. In her research, Susan Thorneloe focused on Greenhouse Gas Emission trends from municipal solid waste (MSW) management practices in the US, both historically and moving forward. She found that although the quantity of waste in the US has almost doubled between 1974 and 1997, the GHG emissions associated with managing this waste decreased by a factor of four. These improvements, she found, were a product of better waste management practices and the development of technologies such as landfill methane capture and modernized waste-to-energy facilities.

The second phase of her research looked at creating waste management scenario's for a model medium sized community, and then looking at what the different environmental impacts would be from different the different strategies chosen. Here are the 10 scenario's she posited:

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German Green Party Advisor Speaks on Waste-to-Energy

This past January, the VerdeXchange, Green Marketmakers Conference hosted a discussion panel entitled "Assembly Bill 32 & Waste/Recycling – Technologies and Greenhouse Gas Emission Reduction Opportunities." The panel was led by Coby Skye of the Los Angeles County Dept. of Public Works, and discussions revolved around emerging waste management technologies and strategies which local governments can use to meet GHG emission reduction targets.

Dr. Michael Weltzin, senior advisor for climate policy to the German Green Party, spoke on Germany's experience in solving their country's waste problem, while simultaneously addressing the emerging issue of greenhouse gas emissions and climate change.

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Michael Weltzin, Senior Advisor for Climate Change Policy to the German Green Party speaks on the German experience with sustainable waste management.

GCS Motto: Transparency 1st

If you or a colleague are interested in learning more about Green Conversions Systems and its Waste-to-Energy Technology, *just ask.*

About the Company: [Link](#)

Email us anytime for any other additional info: [Link](#)

In the News

Quote of the Month

From West Palm Beach's RFQ pre-submittal conference:

"We are specifically looking for commercially proven technologies and we do not believe that there are any technologies out there except mass burn that meet this requirement. We are not a research and development agency. We handle 5,000 to 6,000 tons a day and we have to do it 24/7/365."

House Approves Waste to Energy Tax Credits

On Jan. 28th, the US House of Representatives passed the American Recovery and Reinvestment act of 2009, H.R.1. The bill provided for an extension of the Section 45 tax credits for a Waste to Energy (WTE) facility placed online by 2013. Further, included in this bill is a provision which allows WTE facilities to claim an investment tax credit, a credit previously only available to solar installations. Learn more about the bill here: [Link](#)

VerdeXchange Hosts Panel On Sustainable Waste Mgmt.

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To start, he explained how Germany passed a strictly enforced law in 2005 to eliminate the dumping of untreated waste into landfills due to the extreme risks landfills pose to ground water, the climate and the larger environment. Landfills as they stand now, he explained, are a "shift of problems," and are a major cause of "irreparable" environmental harm.

He further explained that one of the tools Germany has successfully used to make its waste management strategies more environmentally responsible, was incineration. He explained, that while most of the members that originally joined the Green Party joined in part to stop new incinerators from being built. Today however, the Green's have changed their position to supporting best available incineration technologies as a complimentary tool to other waste management and recycling strategies for achieving the nation's objec-

tive of permanently eliminating the land-filling of untreated waste by 2020.

This position shift came due to the fact that the German Green Party technical experts found that modern incineration technologies had very low emissions, produced usable energy, and could recover an array of commercial grade end products. In particular, a Green Party favorite is the mass burn facility MVR in Hamburg, Germany due to its proven 10 year track record of diverting waste from landfills while being economically feasible with an outstanding environmental record.

The full presentation will be online to view shortly. Green Conversion Systems is a proud sponsor of the VerdeXchange Green Marketmakers Conference. To learn more about the conference and the Verdexchange Institute, Click here: www.verdexchange.org

In the News

GCS Participates in US Conference of Mayors MWMA's 2008 Fall Summit

GCS had the exciting opportunity to participate in the US Conference of Mayors Municipal Waste Management Association's invitation-only summit to discuss the importance of waste-to-energy as a sustainable waste management tool. In addition to other activities, Dr. Helmut Schnurer, the former Deputy Director General of the German Federal Ministry for the Environment, and Marcus Gleis, a senior official at the German Federal Environmental Agency spoke on "International Perspectives and Best Practices on Solid Waste and Recycling."

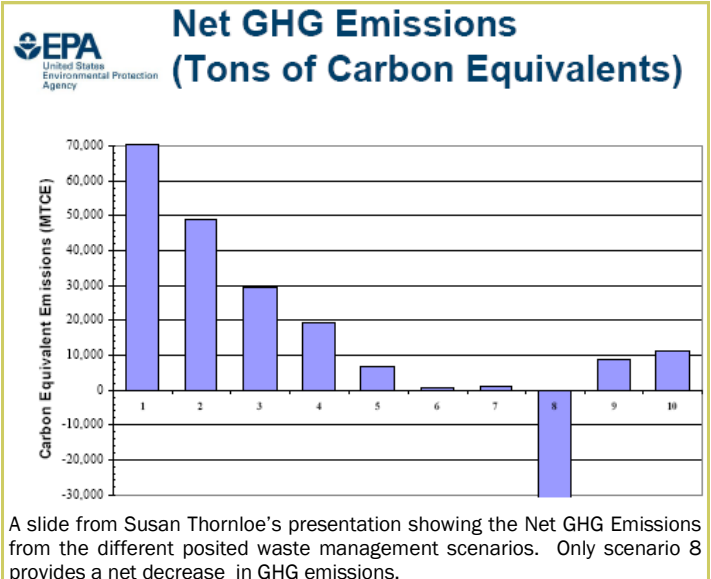
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- Scenario 1:** 10% recycling; 90% landfilling with no gas control
- Scenario 2:** 20% recycling; 80% landfilling with no gas control
- Scenario 3:** 30% recycling; 70% landfilling with no gas control
- Scenario 4:** 40% recycling; 60% landfilling with no gas control
- Scenario 5:** 30% recycling; 70% landfilling with gas collected and flared
- Scenario 6:** 30% recycling; 70% landfilling with gas combusted using Internal Combustion engines.
- Scenario 7:** 30% recycling; 70% landfilling with gas piped to nearby facility and combusted in boiler
- Scenario 8:** 30% recycling; 70% combusted with waste-to-energy facility (generating energy and metal recovery)
- Scenario 9:** Same as Scenario 5 except waste is collected and transported to transfer station and transported 800 kilometers to landfill using semi-tractor trailer.
- Scenario 10:** Same as Scenario 5 except waste is collected and transported to transfer station and transported 800 kilometers to landfill using rail

Looking at how these 10 different scenario's would play out for this model medium sized city, Susan Thornloe's research showed Scenario 8 to be unquestionably the most environmentally responsible scenario in two key ways. First, scenario 8 (the waste to energy scenario), was the only scenario that resulted in a net-decrease in carbon emissions when taking into account the energy production and metal recovery. Second, scenario 8 also had significantly lower impacts on acidification and smog than any of the other scenarios.

The only downside she connected to scenario 8 was slightly higher direct costs. However, it should be noted that these are direct costs, that do not account for environmental benefits/services.



Susan Thornloe's full presentation can be accessed online at <http://dels.nas.edu/besr/docs/Thornloe.pdf>.

While these findings alone are significant, Susan Thornloe and the EPA have gone a step further in creating a software program which can help waste management professionals to compare the environmental impact of a variety of potential waste management strategies. This tool and more information on the connection between climate change and waste is available online at <http://www.epa.gov/climatechange/wycd/waste/>.