Waste and Climate

Reducing Your Footprint

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> ***"Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea level has risen, and the concentration of greenhouse gases has increased."***
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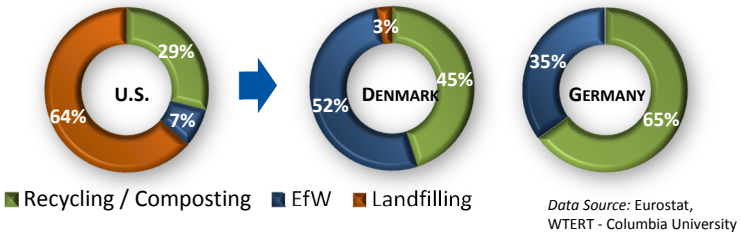
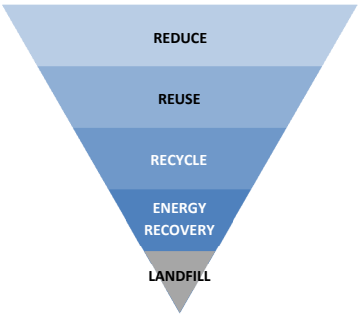
> IPCC, 2013: Summary for Policymakers. In: Climate Change 2013: The Physical Science Basis

When it comes to addressing climate change, we normally think of carbon pollution from power plants, cars, and heating our homes and businesses. However, how we manage materials and waste has a big impact on the climate. In fact, if everyone were able to manage their waste as sustainably as countries like Germany and Austria, the greenhouse gas (GHG) savings would be the equivalent to:

- Closing 1000 large coal-fired power plants,
- Building two million 1MW wind machines, or
- Doubling the nuclear power plant capacity in the U.S.



Data Source: Eurostat, WTERT - Columbia University



How Can We Manage Waste More Sustainably?

In general, by following the waste management hierarchy: waste reduction and reuse, recycling, energy recovery, and then finally, only landfilling what's left over. By recognizing waste as a resource, we can reduce the amount of products we have to make from raw materials, lessen our dependence on fossil fuel fired electricity, and keep materials out of landfills.

What is Energy-from-Waste's Role?

Energy from Waste (EfW) can help reduce GHG emissions by keeping the waste that remains after recycling efforts have been exhausted out of landfills, generating electricity, and recovering metals for recycling. Given its benefits, EfW has been recognized extensively, both here and abroad, including by the following organizations:

- U.S. Environmental Protection Agency
- Intergovernmental Panel on Climate Change IPCC
- World Economic Forum (WEF)
- European Union
- U.S. Conference of Mayors
- Clean Development Mechanism of the Kyoto Protocol
- Voluntary carbon markets
- Center for American Progress

U.S. EPA scientists, in a prominent peer reviewed paper, concluded EfW facilities reduce GHG emissions relative to even those landfills equipped with energy recovery systems.

> ***"Life cycle emission analysis show that waste-to-energy (WTE) facilities actually reduce the amount of greenhouse gases expressed as CO_2 equivalents (GHGs or CO_2e) in the atmosphere by approximately 1 ton for every ton of municipal solid waste (MSW) combusted."***
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> U.S. EPA, Energy Recovery Webpage , http://www.epa.gov/wastes/nonhaz/municipal/wte/airem.htm#7

What's Wrong with Landfills?

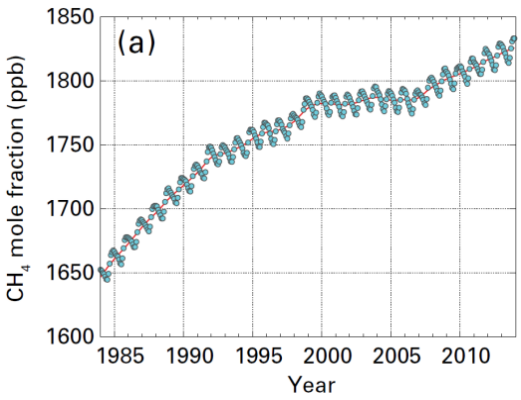
When biodegradable waste is placed in landfills, it breaks down anaerobically, generating methane. While most landfills in the U.S. have systems in place to capture and combust this methane, either in flares or engines for energy recovery, it's not a perfect system: U.S. landfills only capture 50 – 70 percent of the gas generated. As a result, landfills are the third largest source of anthropogenic methane in the United States. The social cost of these landfill methane emissions are between two and 15 billion dollars annually.

Why the Focus on Methane?

Overall, the climate impact of methane is much larger than previously reported and atmospheric concentrations continue to rise. According to the IPCC's 5th Assessment Report, methane is 34 times stronger than CO_2 over 100 years when all effects are included and 84 times more potent over 20 years.

For years, climate scientists have been calling for separate regulation of climate pollutants like methane owing to their potency and other differences relative to CO_2.

Global Methane Concentration



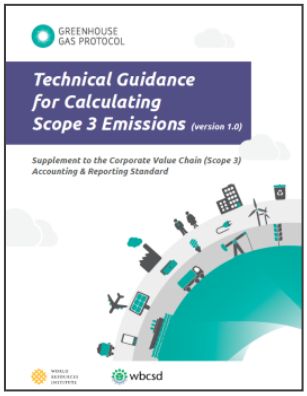
Source: WMO GHG Bulletin, No. 10 (9/2014)

Issued in 2014, The President's Climate Action Plan calls reducing emissions of methane "critical to our overall effort to address global climate change" and initiated an interagency methane strategy. This perspective is consistent with a growing recognition of methane and other short-lived climate pollutants. Last year, the U.S. State Department, the United Nations Environmental Program, and a group of international partners announced the Climate and Clean Air Coalition ("CCAC") to specifically focus on methane and other short-lived climate pollutants ("SLCPs").

How Does This Impact My Organization?

Your organization can reduce its carbon footprint through sustainable waste management. By combining your recycling efforts with energy recovery, you can avoid landfill methane emissions completely.

GHG reductions achieved by avoiding landfilling can help you reduce your Scope 3 GHG inventory. In accordance with current accounting standards, any emissions associated with recycling or energy recovery do not count toward your Scope 3 inventory. For government agencies, these reductions can help support your efforts under Executive Order 13514, which set sustainability and GHG goals for the federal government.



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