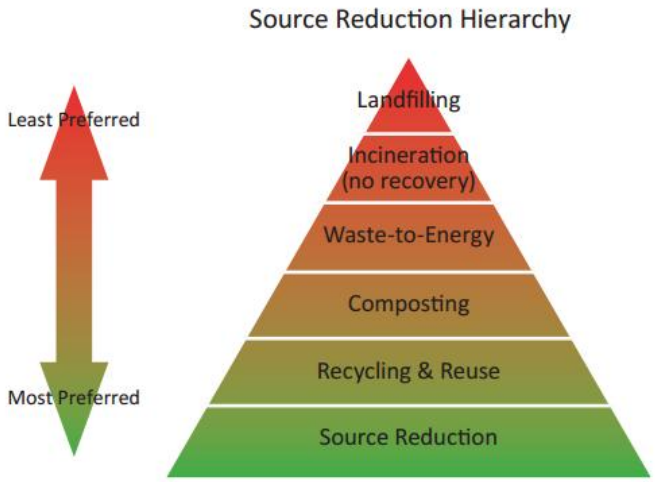
IDEAS for Climate Action & Resilience---Waste Management & Processing

For All



Follow the waste hierarchy and pursue a more circular economy

Commit to Zero Waste

- Avoid generating waste in the first place
- Facilitate Re-use of items and materials
- Compost to remove food waste from waste stream
- Energy Recovery--*Burn under controlled conditions waste materials that cannot be recycled, capturing combustion heat*
- Change perspective--view and manage the solid waste that we generate as a sustainable material

For Waste Incinerators

Proper design and operation of incinerators should achieve desired temperatures, residence times, and other conditions necessary to destroy pathogens, minimize emissions, avoid clinker formation and slagging of the ash (in the primary chamber), avoid refractory damage destruction, and minimize fuel consumption. Good combustion practice (GCP) elements also should be followed to control dioxin and furan emissions (Brna and Kilgroe 1989).

Combustion and emission monitoring is used routinely for several purposes, including determining whether incinerators are properly operated. Additionally, monitoring is used to assure compliance with regulatory limits and, to an extent, to help build public trust. Monitoring may be classified into the following categories: • Sensory observations, e.g., visual assessment of stack emissions or assessment of odors. This is similar to methods practiced 30 or (many) more years ago. Sensory monitoring is clearly unable to detect many emissions of concern, and is very subjective. • Stack tests, e.g., measurement of emissions for brief periods of time. Stack testing started in the 1970s, and is still widely used for special tests (dioxins, metals, etc.) These tests are expensive, and provide emission data for only a brief period of time that may not be representative. • Continuous emission monitoring (CEM), e.g., in-stack monitoring of opacity (particle surrogate), SO2, CO, O2, NOx, HCl and recently Hg is regularly conducted at modern incinerators. CEM is required for larger incinerators. Continuous monitoring of temperature and other parameters (e.g., pressure drop across filters) is also used (and often required). CEM data have been used as surrogates of emissions and to indicate the suitability of combustion conditions, although there are issues, e.g., correlation of CO to products of incomplete combustion (PICs) is poor at low CO levels. • Environmental monitoring. While used infrequently, monitoring of ambient air, soil, food, etc., around incinerators has been used to confirm predictions of multimedia exposure models

Maintenance/Inspection/Training

Health Risk Assessment

Energy-from-Waste (EfW) is widely recognized as a technology that can help mitigate climate change. According to the U.S. Environmental Protection Agency (EPA), for every ton of municipal solid waste processed at an EfW facility, the release of approximately one ton of carbon dioxide equivalent emissions into the atmosphere is prevented due to the avoidance of methane generation at landfills, the offset of greenhouse gases from fossil fuel electrical production, and the recovery of metals.

References/Resources

https://www.americanprogress.org/issues/green/reports/2013/04/17/60712/energy-from-waste-can-help-curb-greenhouse-gas-emissions/
http://www.resilience.org/stories/2017-01-26/energy-from-waste-or-waste-from-energy/