The Combustion and Catalysis Lab is the experimental arm of WTERT and is fully equipped with TGA, DTA, MS/GC, corrosion testing, and other equipment necessary for the high temperature testing of materials and processes. The principal objective of CCL is the development of environmentally benign energy sources.

The WTERT Council brings together scientists, engineers, and managers concerned with advancing sustainable waste management in the U.S. and worldwide. In particular, the WTERT mission is to identify and advance the best technologies for recovering energy and metals from municipal solid “wastes” (MSW) and industrial, agricultural, and forestry residues.

An EEC-NASA study has shown that the urban generation of MSW will double to two billion tons by 2030. At present, there are only 200 million tons of waste-to-energy capacity (WTE). There is a lot of room for increased recycling but there will always be post-recycling wastes that can either be landfilled or combusted. This has been demonstrated by the most environmentally conscious nations, such as Japan and Switzerland, where every possible effort is made to recycle but still rely on waste-to-energy (WTE) to avoid landfills. The Sustainable Waste Management Ladder on the right shows how a combination of recycling and WTE have reduced landfilling to less than 5% of the MSW in several nations.

The Sustainable Waste Management Ladder
Earth Engineering Center, Columbia University (based on Eurostat 2006 data)

Waste-to-energy
Modern landfill recovering and using CH4
Modern landfill recovering and flaring CH4
Landfills that do not capture CH4

Recycling
Aerobic composting
Anaerobic composting
only for source separated organics

% Recycled % Composted % Landfilled % Waste-to-Energy

National MSW Survey

The State of Garbage in America (SOG) is a bi-annual national survey based on data provided by the waste management departments of the fifty states. The SOG data are used by EPA in estimating the greenhouse gas (GHG) effects of MSW management.

The principal resource of EEC are its Research Associates from academia and industry and the graduate students working on WTERT or SUR projects. There have been over a hundred EEC theses and technical papers on recycling, composting, combustion or gasification (WTE), and landfill gas utilization.

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