

NAWTEC13-3153

CONVERSION TECHNOLOGIES: A NEW OPTION FOR MSW MANAGEMENT

Stephen D. Jenkins
&
Robert Legrand
URS Corporation

1. Introduction

Conversion technologies (CTs) utilize thermal or biological processes to convert municipal solid waste (MSW) or Material Recovery Facility (MRF) residuals into useful products, such as electricity, fertilizers, and chemicals. These technologies, such as pyrolysis, gasification, and anaerobic digestion are very different from conventional waste-to-energy (WTE) technologies for MSW. CTs can provide greater efficiency and environmental benefits compared to WTE, and environmental and societal benefits compared to landfilling.

CTs for MSW arrived on the scene in the 1960s and 70s, with many being installed in Europe and Japan in the 1980s and 90s. Currently, there are about 110 operating CT facilities overseas (including thermal and biological systems). Facilities in Europe, mostly using biological processes) have been built in response to the Landfill Directive that calls for the reduction in the landfilling of biodegradable municipal waste to a level compared to the 1995 baseline:

Similar laws and regulations in Japan have resulted in the installation of many thermal technologies, primarily gasification.

In North America, the following cities and counties have evaluated (or are presently evaluating) CTs to help them address MSW management issues.

- Alameda, CA
- Catoosa County, GA
- Collier County, FL
- Edmonton, Alberta

- Honolulu, HI
 - Hawaii County, HI
 - Los Angeles, CA
 - Los Angeles County, CA
 - New York, NY
 - Caguas, Puerto Rico
 - Riverside, CA
 - Santa Barbara County, CA
 - Toronto, Ontario
 - U.S. Virgin Islands
 - York, Ontario
-
- 75% of that amount by 2006
 - 50% of that amount by 2009
 - 35% of that amount by 2016

Why the sudden interest in CTs in North America? Reasons provided by cities and counties that URS is working with to evaluate CTs include:

- Increased cost of landfilling
- Reduced landfill capacity
- Difficulties in developing new landfills
- Desire to manage MSW locally
- Cost of regional landfill solutions
- Cost of rail-haul solutions
- Laws or regulations requiring increased diversion from landfills
- Incentives for “renewable” electricity
- Desire for environmental sustainability