

Waste Conversion Technologies

Issue:

Materials destined for disposal in a landfill contain at least one additional major resource that can be recovered – renewable energy. Waste conversion technologies can help to maximize resource recovery (energy and possibly others) and reduce the tonnage of waste being disposed by 80 percent by weight. The energy output of 500 tons of MSW is equivalent to the energy demands of approximately 5,000 to 8,000 homes or 10 percent of the total number of occupied residential housing units in single- to four-unit dwellings in the Planning Area.

Major Question:

- 1) Pursue the Development of Waste Conversion Technology(ies) as a Part of a Long-Term Strategy for Energy Recovery and Resource Conservation.
 - a. Yes
 - b. No

Implementation issues/considerations:

- 1) Pursue the Development of a Waste Conversion Technology(ies) as a Part of a Long-Term Strategy for Energy Recovery and Resource Conservation.
 - a. Economic feasibility and cost of service
 - b. Guaranteed supply of waste
 - c. Siting/location
 - d. Funding mechanism
 - e. Energy markets

Other Considerations:

- 1) Social/political acceptance

Waste Conversion Technologies (Excerpts from Technical Paper)

- Materials destined for disposal in a landfill contain one additional major resource that can be recovered – energy.
- In addition to energy recovery and reducing the volume of waste landfilled, there are several arguments for waste conversion technologies, including the systems reduce biologically active waste to an inert material and the processes are able to further recover other resources, such as metals.
- Energy and materials recovery is a more preferred approach than landfilling (residuals disposal) in the hierarchy in that it places maximum emphasis on extracting valuable resources and reducing the toxicity of material disposed.
- Key factors in implementing an energy recovery facility include a guaranteed supply of waste and a secure long-term energy market, as well as an approved site, regulatory approvals, and public and political support. A further argument for waste conversion technologies is that once materials have reached a state when physical reuse and recovery are no longer viable (technically or economically) the remaining energy and metals resources should be recovered prior to disposal (thus this technology is also sometimes referred to as resource recovery). From an energy perspective raw MSW has approximately one-half the energy content of coal.
- Waste conversion technologies are typically implemented as part of an integrated waste management program and as such are complimentary to other diversion programs; they can also provide a means of pre- and post-disposal recovery of certain resources.
- While waste conversion technologies are often considered disposal technologies they serve to significantly reduce or divert the amount of waste sent to landfill disposal.
- the United States Conference of Mayors, Adopted Resolution on Comprehensive Solid Waste Disposal Management (2005) states “Generation of energy from municipal solid waste disposed in a waste-to-energy facility not only offers significant environmental and renewable benefits, but also provides greater energy diversity and increased energy security for our nation.” In a 2007 memo, the USEPA stated that all waste-to-energy facilities comply with USEPA’s Maximum Achievable [air emissions] Control Technology (MACT) standards. After analyzing the inventory of waste-to-energy emissions, EPA concluded that waste-to-energy facilities produce electricity “with less environmental impact than almost any other source of electricity.” A WTE facility typically does not have a lower cost than landfilling, so such a facility is not anticipated to compete favorably on a purely economic basis in a free market economy.
- Because of the large capital costs associated with waste conversion technologies, it would be necessary to select a proven/demonstrated technology to minimize risks to those financing the facility and to the customers and energy markets. Securing an agreement to purchase energy is a first step in establishing the viability of a waste conversion or energy recovery facility.