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### WASTE-TO-ENERGY AND THE SOLID WASTE MANAGEMENT HIERARCHY

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#### 1. INTRODUCTION

The SWANA Applied Research Foundation's (ARF) Waste-to-Energy (WTE) Group identified the issue of the waste-to-energy's ranking in the solid waste management hierarchy as one of high importance to the group.

Five organizations subscribed to the SWANA ARF's WTE group in FY2008 by making a funding commitment to the conduct of collective applied research in the WTE area. A listing of the current WTE Group subscribers is provided in Table 1.

**Table 1 SWANA ARF FY2008 Waste-To-Energy Group**

Jurisdiction/Company
HDR Engineering, Inc.
I-95 Landfill Owners Group
Lancaster County Solid Waste Authority
Southeastern Public Service Authority
Three Rivers Solid Waste Authority

This article presents highlights from a report that has been developed by the SWANA ARF staff to summarize the findings of recent research as well as currently available data and published information regarding the ranking of waste-to-energy in the solid waste management hierarchy.

#### 2. THE EPA'S SOLID WASTE MANAGEMENT HIERARCHY

A hierarchy is defined in Webster's Dictionary as "a graded or ranked series."

Solid waste hierarchies, which rank available solid waste management approaches according to their environmental merits, have been adopted by the governments of the United States, Canada, individual U.S. states, and the European Union, as well as waste service companies, trade associations, and manufacturers.

In 1989, the United States Environmental Protection Agency (EPA) proposed a hierarchy of integrated waste management practices that quickly became the basis for state recycling laws. This hierarchy graded technologies based on an existing hazardous waste model that placed waste prevention over reuse, and reuse over disposal or incineration. When applied to municipal solid waste, however, reuse took on the strict definition of recycling and composting. Other technologies capable of meeting the policy objectives associated with landfill diversion – such as waste-to-energy – were either arbitrarily placed lower in the hierarchy or left out altogether.<sup>1</sup>

The EPA's Municipal Solid Waste web site includes a page entitled "Frequently Asked Questions about Recycling and Waste Management", where it describes the U.S. solid waste hierarchy (see Figure 1). According to the web site,

"The four-tiered solid waste management hierarchy (shown in the pyramid below) ranks the most preferable ways to address solid waste. Source reduction or waste prevention, which includes reuse, is considered the best approach (tier 1) followed by recycling, which includes composting (tier 2). Waste that cannot be prevented or recycled can be

<sup>1</sup> Martin, K. "A Brighter Shade of Green," *MSW Management*, Feature Article, March/April 2001.