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The Case for WTE as a Renewable Source of Energy

NICKOLAS J. THEMELIS AND KARSTEN MILLRATH

Earth Engineering Center, Columbia University and Waste-to-Energy Research and Technology Council

500 W 120th Street, 918 Mudd

New York, NY 10027

Tel.: (212) 854-2138

e-mail: njt1@columbia.edu

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Abstract

The combustion of municipal solid wastes for generating electricity (Waste-To-Energy) has been recognized by several states as a renewable source of energy. Yet, there has been determined opposition by some environmental groups to including WTE in the portfolio of renewable energy sources that will benefit from a tax credit designed to decrease reliance on non-renewable fossil fuels. While WTE is considered worldwide as a solid waste management option, the recognition and acceptance of WTE as a clean source of energy still requires public involvement and education. This paper will examine the “pro” and “con” arguments for considering WTE as a renewable energy source.

Waste as a renewable source of energy

In the traditional sense, renewable sources of energy are those that nature can replenish, such as waterpower, windpower, solar radiation and biomass (wood and plant waste). However, the U.S. municipal solid wastes (MSW) contain a large fraction of paper, food wastes, cotton and leather, all of which are renewable materials under proper stewardship of the Earth. Municipal solid wastes also contain man-made plastics, rubber and fabrics that were produced using non-renewable fossil fuels. All these materials were produced because they were needed by humanity. Although it is desirable to minimize the amount of materials used per capita, and also the generation of wastes during production and distribution of goods, a certain quantity of wastes will always be generated. Therefore, if the produced waste is to be disposed in

some way, there is a continuous new stream to replenish it.

In 2001, the U.S. EPA reported a MSW generation of 229.2 million short tons [1]. Even if one uses a more stringent definition of the term “renewable”, one that includes only material from non-fossil sources, about 64% of the U.S. MSW after material recovery for recycling plus composting are derived from renewable sources (Table 1). This fraction of MSW could be used as clean, sustainable and arguably renewable fuel for the production of electricity and steam. The remaining non-renewable portion, however, has to be either separated or accepted as part of the fuel. BioCycle’s annual garbage survey reported the generation of about 370 million tons of MSW in the U.S. for 2002 (i.e., nearly 50% higher than the EPA report for 2001 [1]), of