Appendix C—Landfill Gas

MSW landfills are the largest source of human-related methane emissions in the United States, accounting for about 25 percent of these emissions in 2004. At the same time, methane emissions from landfills represent a lost opportunity to capture and use a significant energy resource. LFG is created as solid waste decomposes in a landfill. This gas consists of about 50 percent methane (the primary component of natural gas), about 50 percent CO_2, and a small amount of non-methane organic compounds.[76]

Instead of allowing LFG to escape into the air, it can be captured, converted, and used as an energy source. LFG is extracted from landfills using a series of wells and a blower/flare or vacuum system. This system directs the collected gas to a central point where it can be processed and treated depending upon the ultimate use for the gas. From this point, the gas can be simply flared or used to generate electricity, replace fossil fuels in industrial and manufacturing operations, fuel greenhouse operations, or be upgraded to pipeline-quality gas. Using LFG helps to reduce odors and other hazards associated with LFG emissions, and it helps prevent methane from migrating into the atmosphere and contributing to local smog and global climate change.

LMOP is an EPA voluntary assistance program that helps to reduce methane emissions from landfills by encouraging the recovery and use of LFG as an energy resource. LMOP forms partnerships with communities, landfill owners, utilities, power marketers, states, project developers, tribes, and non-profit organizations to overcome barriers to project development by helping them assess project feasibility, find financing, and market the benefits of project development to the community. For information about the specific technical assistance, outreach and education, and networking opportunities that LMOP offers, visit the program's Web site at <www.epa.gov/lmop>.

A Landfill Gas to Energy Project Development Handbook describes the major aspects of LFG project development, including economic analysis, financing, choosing project partners, environmental permitting, and contracting for services. Download the handbook at <www.epa.gov/lmop/res/pdf/handbook.pdf>.

Funding Landfill Gas Energy Projects: State, Federal, and Foundation Resources is an online funding guide that offers detailed information on innovative state, federal, and foundation funding resources available for LFG energy projects. View the funding guide at: <www.epa.gov/lmop/res/guide/index.htm>. Project developers can find additional technical guidance documents and case studies at <www.epa.gov/lmop/res/index.htm>. These include various documents that discuss considerations and approaches for handling siloxanes in LFG. See sections labeled "Fact Sheets" and "Case Studies" for resources and information.

[76] EPA has developed a computer software program called the MSW Decision Support Tool that allows decision makers to compare MSW management strategies with respect to cost, energy consumption, and environmental releases to the air, land, and water, www.epa.gov/ord/NRMRL/scienceforum/thorneloe_s.htm.