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The Smell of Money: Landfill Gas-to-Energy Projects Pay Off for Everyone

by LeAnn Mynatt, Shareholder
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The recently passed Emergency Economic Stabilization Act of 2008 also included important provisions on energy, under the Energy Improvement and Extension Act.



LeAnn Mynatt

That these two laws were passed together is no coincidence. The weak economy has as much to do with energy as with the more recent financial trials and tribulations. However, some energy providers don't need Congressional intervention or tax incentives to spur good old American entrepreneurialism. The capture of natural methane gas emitted from landfills for conversion to energy exemplifies the saying "making lemonade from lemons." And this concept is not something that is still on the drawing board. There are already projects in place across Tennessee.

Landfills Generate Gas

Basic landfill chemistry begins with the fact that, as material in a solid waste landfill decomposes, it emits landfill gas. Thus, most landfills must obtain air permits related to this and other emissions. The permits may call for collection and control systems (e.g. flares) designed to minimize offsite migration of subsurface gas and to reduce odors. Landfill gas is comprised of roughly 50% methane and 50% carbon dioxide. Landfills

contribute approximately 22% of the human-made methane generated.

Historically, landfills have treated gas as an unfortunate, but undeniable, part of the landfill business. However, recently some landfill owners and operators have identified landfill gas as an asset and not a liability.

Johnson City Project

In Johnson City, a landfill-to-gas project has reeled in numerous environmental accolades. The Iris Glen landfill was constructed and is operated by Waste Management. It is owned by the city and serves the region. The landfill, located on an old shale strip mine, is about 68 acres and began operating in 1994. The landfill's original air permit called for the gas to be collected and destroyed, but the city reserved the right to utilize the gas at some point in the future.

In 2003, the city advertised a Request for Proposals for the construction and operation of the landfill-to-gas facility. Energy Systems Group ultimately was awarded the contract. The contract calls for ESG to compensate the city for the gas (score one for the city). In turn ESG was hired to construct and operate the processing facility to clean the gas and install a pipeline to transport the improved gas to the end users (score one for ESG).

This facility is virtually unique in that it uses a membrane filtration system to remove impurities and provide a gas that is useable for industrial applications.

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Anniversary Moment: Four Decades of Presidents

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Landfill Gas-to-Energy Projects *(continued from page 1)*

The gas is provided to the Mountain Home Energy Center, which in turn provides energy for the James H. Quillen Veterans Administration Medical Center (score one for the Center). Oh, and the air in and around Johnson City has had the equivalent of removing 34,000 cars from the road each year (score one for the citizens/taxpayers).

Landfill-to-gas projects are not just tolerated by the Environmental Protection Agency (EPA); they're encouraged. Its Landfill Methane Outreach Program promotes these types of projects and helps to create alliances among states; energy users, the landfill gas industry and communities. According to EPA, there are projects similar to Iris Glen in 43 states supplying 11 billion kilowatt hours of electricity and 77 billion cubic feet of landfill gas to direct-use applications annually. As our energy costs increase at the pump and at the thermostat, landfill-to-gas projects offer one solution to reducing costs by increasing supply, all the while creating jobs and improving the environment. Not bad.

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MEMBER NEWS

- Ken Zyga, PE, has joined Barge Waggoner Sumner & Cannon as vice president of facilities in the firm's Nashville office. Steve Edwards, PE, who has been associated with BWSC for six years, has been named manager of the Nashville office's structural engineering group.
- Christopher (Chris) J. Hammer, PE, has joined CDM as a senior project manager in the Nashville office. He has 15 years of experience in utility infrastructure design, utility asset management, and total project management for public and private sector clients.