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Infrastructure profile

Green power

Ohio begins to address the issue of renewable power with an imaginative approach to cogeneration

The City of Toledo is developing a 10 MW “green power” landfill methane gas cogeneration facility at its Bay View Waste Water Treatment Plant that is expected to give economic, environmental, and reliability benefits to the city. According to Martin F. Ellman, PE, DGCP, senior technical manager, Energy Technology, Middough Inc., biogas from the Hoffman Rd. Sanitary Landfill, currently being flared, will fuel the cogeneration facility to provide primary power for the Bay View WWTP and other city facilities. The cogeneration facility will also be fueled using digester biogas generated at Bay View WWTP.



The building will include a waiting room to serve those waiting for tours of the plant.

Toledo has contracted with Middough Inc. to provide engineering and design services for the cogeneration system and related facilities and with Solar Turbines Inc. to provide the combined cycle cogeneration systems, other plant equipment and gas treatment and cleaning systems equipment. Infrasource and Barton Malow will construct the landfill gas pipeline and the building, scheduled to be in full operation next spring.

More power

This biogas composition and quantity will provide sufficient power to operate the Bay View WWTP 4.5 MW base load and to power the Hoffman Rd. landfill, the new Veteran’s Skyline Memorial Bridge lighting, and potentially other city facilities. Federal funding has been

obtained to provide the approximately two-mile landfill gas pipeline from the landfill to the WWTP cogen building.



The cogeneration plant in Bay View involved three gas sources coming together to produce energy.

The facility will operate in parallel with the electrical utility and the Bay View WWTP emergency power reciprocating engine generator system, providing for both economic saving and

increased reliability against regional power blackouts, should such an event ever occur in Ohio. The Bay View WWTP 9.5 MW peak demand power requirements will be met utilizing the most cost-

effective alternative off purchasing power from the utility grid to supplement the cogeneration facility's capabilities.

The combined cycle facility will include black start, island mode, peak shaving/load sharing, and net metering modes of operation. The cogeneration building is designed to allow the facility to be showcased as a "green energy" facility. As such, the building was modified to include a meeting/conference room to provide a place for tours and other visitors to meet. **BXM**

Project specs:

Bay View WWTP

Owner: City of Toledo

Site/facility buildings and BOP process equipment:
Fall 2007 – Spring 2009

Timeline: EPA assessment, loan approval
Fall 2006

Pipeline construction: Spring-Fall 2008
Fully operational May 2009

Vendors:

- Engineering and design services, Middough Inc.
- Gas treatment, cleaning, combined cogen systems, plant equipment supply, Solar Turbines
- Landfill gas pipeline, feeder, fiber optic tie, InfraSource
- Combined cycle cogen systems, plant equipment installation, digester gas pipeline, building additions and site work, Barton Malow

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