

# Brantford Power's **Feasibility Assessment for Landfill Gas Generation** Helps Fuel New Renewable Power Project

A growing number of communities in the province, in conjunction with their local distribution companies, are looking at the potential of landfill sites to generate green power. The newest generation project was announced last fall in the City of Brantford, where the decision to move forward with the project was based in large part on the results of a feasibility assessment conducted by Brantford Power.

The feasibility study was a component of the utility's Ontario Energy Board (OEB) approved 2004-2005 Conservation and Demand Management (CDM) Plan and addressed the potential for a generation project fuelled by recovered landfill gas at Brantford's Mohawk Municipal Landfill.

The final report was provided to Brantford Power's holding company Brantford Energy Corporation in 2005. A new subsidiary company, Brantford Generation Inc., is anticipating completion of the \$13 million project in 2009. The system is expected to generate green power for the next 60 to 80 years and has received the full support of the utility's shareholder, the City of Brantford.

Methane is a by-product of decomposing refuse. The project will collect the gas and use it as fuel for reciprocating gas engines that will drive electrical generators. The electricity will be fed into the local distribution grid and purchased by the Ontario Power Authority (OPA) under a Standard Offer Program (SOP) contract. Financing will be provided by the Ontario Infrastructure Projects Corporation, a Crown corporation that helps deliver major infrastructure projects for the Government of Ontario.

Brantford Power's feasibility assessment was an initial catalyst in getting the project off the ground. Completed in 2005, the assessment considers a number of key factors in undertaking a project of this scope, including:

- A review of the estimated quantity of available Landfill Gas (LFG) fuel to understand the LFG resource over the expected life of the project;
- A preliminary design of the LFG collection and conveyance system, including consideration of the site, future landfill use, and the need for the high quality gas needed for the engines;
- A preliminary design of the generation plant that includes details of equipment location on the site;
- Consideration of other fuel sources - in this instance, consideration was given to use of digester gas from a nearby wastewater treatment plant, as well as naturally occurring gas to augment the LFG;
- LFG treatment requirements;
- Consideration of the required approvals and Ministry of Environment permits;
- The estimated electrical output of plant, including consideration of technological innovation in engines, and project revenue;
- Consideration of the electrical connection, protection and metering costs, including connection impact assessments by Brantford Power and Hydro One;
- Estimate capital and ongoing O&M costs of project including the cost of periodic overhaul of the major components;

- Economic sensitivity analysis of income from the generation project.

Initially the plant is expected to have an output of 5.4 megawatts, or enough electricity to power 5,000 homes. The project is expected to help clean up the environment by destroying 160,000 to 250,000 tonnes of methane gas per year.

Brantford Power is very proud of the critical role the utility has played in launching this new renewable source of electricity for the City of Brantford. ■



*Brantford Power Inc. is the local distributor of electricity to homes and businesses in the City of Brantford, Ontario.*