

FOR A CLEANER GREENER WORLD

GLANBROOK LANDFILL GAS TO ENERGY FACILITY

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Landfill gas generation is a natural process that occurs in any landfill as solid waste decomposes. The gas, composed primarily of methane (50%) and carbon dioxide (50%), is produced when organic material breaks down in an oxygen free (anaerobic) environment.

The Glanbrook Landfill Gas to Energy

(LFGTE) Facility is a partnership between the City of Hamilton and Hamilton Renewable Power Inc (HRPI) to collect landfill gas, generate electricity and sell to the Ontario grid. Toromont Power Systems has been retained by the City of Hamilton to design, build and operate the LFGTE Facility.

The landfill gas collection system is

comprised of a network of wells, trenches and pipes within the landfill to collect landfill gas and transport it to a 3.2 megawatt power plant. Vertical extraction wells were placed in areas where landfilling is complete. In areas where future landfilling will occur, horizontal collection trenches were used. Connections were also made to the existing leachate collection system. A network of piping was used to convey the landfill gas to the LFGTE Facility. The excess landfill gas that is not utilized for electricity generation is flared.

The LFGTE Facility has been operating since November 2008 and generates 26 million kilowatts-hours of electricity per year, which is the equivalent of powering up to 2,100 homes. The LFGTE Facility not only generates renewable electricity, but also reduces greenhouse gas emissions and odours. The LFGTE Facility reduces approximately 100,000 tonnes of carbon dioxide equivalent of emissions every year, which would otherwise be released to the atmosphere (in the absence of the project). This greenhouse reduction is equal to removing 18,000 vehicles from the road, or planting 9,200 hectares of trees.

The project cost was approximately \$10.3 million and will be repaid in approximately 4 years with projected annual revenue of \$2.8 million through the sale of electricity to the Ontario grid.

