



East Landfill Gas to Energy Project

Niagara Falls, ON

The East Landfill Gas to Energy Facility converts landfill gas at the Niagara Waste Systems Limited East Landfill site into 1 MW of renewable “green” power. This is enough power to serve approximately 1,000 area homes.

The East Landfill Gas to Energy Facility was developed and is owned by **Glenridge Gas Utilization Inc. (GGUI)**, an Ontario-based partnership between **Integrated Gas Recovery Services Inc. (IGRS)** and **St. Catharines Hydro Generation Inc. (SCHGI)**. IGRS owns, develops and operates landfill gas utilization projects in Ontario. IGRS is a partnership between **Comcor Environmental Limited**, a landfill gas engineering and consulting firm, and **Integrated Municipal Services Inc.**, a subsidiary of Walker Industries Holdings Limited.



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GGUI and IGRS are working with the Ontario Power Authority to increase the amount of clean and renewable forms of energy used to generate electricity in the Province of Ontario. The agreement to sell electricity generated from landfill gas produced at the East Landfill in Thorold, Ontario was signed early in 2007, and the plant achieved commercial operations on December 18th, 2007 and will have an operating life of at least twenty years.

The project provides a number of direct benefits, including:

- providing renewable energy,
- reducing the potential for odours at the landfill site,
- providing additional distributed electrical generation capacity in the Province, and
- reducing up to 30,000 tonnes of greenhouse gas emissions relative to 1990 levels by preventing landfill gas from being released into the atmosphere and an additional 8,000 tonnes of carbon dioxide as a result of displaced coal-fired generated electricity.



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GGUI's renewable electric generating facility is located on the Niagara Waste Systems East Landfill property. Until plant startup, the landfill collected landfill gas, which is made up primarily of methane (50%) and carbon dioxide (50%), from the existing landfill gas collection system and combusted it in a Ministry of the Environment approved enclosed flare.

The East Landfill Gas to Energy Facility takes landfill gas and directs it to one Jenbacher JGC320 internal combustion reciprocating engine.

- The engine is direct coupled to a 480-volt synchronous 1 MW generator.
- The electrical generation is stepped up to 13.8 kV for export to the local distribution system owned by Niagara Falls Hydro, now known as Niagara Peninsula Energy Inc.
- The engine consumes approximately 600 standard cubic metres per hour (350 standard cubic feet per minute) of landfill gas.
- Other than for routine maintenance, the genset (engines) will operate 24 hours per day, 365 days per year and the flare will be used as a standby landfill gas control combustion device.
- The engine/generator is packaged in a standard ISO steel container which houses the engine, generator, lubrication, cooling, controls, switchgear, and exhaust systems. The engine is equipped with an exhaust gas silencer to minimize noise emissions.



Gas Dryer Skid at the East Landfill Facility

Not only does the project generate renewable energy, it also ensures that landfill gas is not able to escape to the atmosphere where it has the potential to create unwanted odours and greenhouse gas effects.

The project also provides an added layer of odour control redundancy at the landfill where an existing landfill gas utilization project delivers gas to the local Abitibi-Bowater paper mill. Landfill gas provides approximately 30% of the paper mill's gas requirements. IGRS is expanding the plant in 2008 to add 50% more capacity for delivering landfill gas to Abitibi-Bowater, providing additional direct 'green' energy to the paper mill. It is noted that the mill is a 100% recycled content mill and sources paper fiber from blue box recycling programs across the continent.

Glenridge Gas Utilization Inc. is a partnership between:



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