



# Trail Road Landfill Gas to Energy Project

**Ottawa, ON**

The Trail Road Landfill Gas to Energy Facility converts landfill gas at the City of Ottawa's Trail Road Landfill site into 5 MW of renewable "green" power. This is enough power to serve 5,000 Ottawa homes.

The Trail Road Landfill Gas to Energy Facility was developed and is owned by **PowerTrail Inc.**, an Ontario-based partnership between **Energy Ottawa Inc. (EOI)** and **Integrated Gas Recovery Services, Inc. (IGRS)**. EOI, a subsidiary of Hydro Ottawa Holding Inc., is a diversified and innovative energy company that generates green power and offers an extensive range of energy management and procurement services to a wide variety of customers. 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, a subsidiary of Walker Industries Holdings Limited.



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The plant will reduce annual greenhouse gas emissions by up to 180,000 tonnes relative to 1990 levels by preventing landfill gas from being released into the atmosphere and an additional 40,000 tonnes of carbon dioxide as a result of displaced coal-fired generated electricity.

The facility began producing "green" power at the end of January 2007 and will have an operating life of at least twenty years. PowerTrail was awarded through a competitive bidding process a 20-year contract with the Ontario Power Authority (OPA) to produce renewable green power at the Trail Road landfill site.

The project also generates a return for the City of Ottawa, the owner of the landfill, which saved about \$2 million in capital costs that would have been required for needed gas collection system upgrades and repairs and will see an annual saving of approximately \$200,000 in operating and maintenance costs on the landfill gas collection system. The City will also receive a royalty payment estimated at \$150,000 per year for the use of the gas by the generating plant.



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PowerTrail's renewable electric generating facility is located on the City of Ottawa's Trail Road Landfill property. Until 2007 the Trail Road 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 flare is now used as a standby unit.

The Trail Road Landfill Gas to Energy Facility takes landfill gas that has been flared and directs it to five (5) Jenbacher JGC320 internal combustion reciprocating engines.

- Each engine is direct coupled to a 480-volt synchronous 1 MW generator.
- The electrical generation is stepped up to 27.6 kV for export to the local distribution system owned by Hydro Ottawa.
- Each engine consumes approximately 600 standard cubic metres per hour (350 standard cubic feet per minute) of landfill gas.
- Other than for routine maintenance, the gensets (engines) will operate 24 hours per day, 365 days per year and the flare will become a standby landfill gas control combustion device.
- Each engine/generator is packaged in a standard ISO steel container which houses the engine, generator, lubrication, cooling, controls, switchgear, and exhaust systems. The engines are each equipped with an exhaust gas silencer to minimize noise emissions.



Engine/generator sets at the Trail Road Facility

In order to supply the gensets with enough landfill gas, an expansion to the landfill gas collection system was undertaken in 2006. This work included adding wells and related collection piping. 24 new wells were drilled into the waste to depths up to 17 m for a total of 60 wells onsite. Approximately 4600 m of new buried high density polyethylene pipe was installed to connect the wells that allows the gathering of gas at the plant.

An expansion of fifteen (15) additional wells and 1350 m of additional pipe will be installed in 2007 in the most recently developed part of the site enabling full gas collection over the entire landfill.

One gas blower is used to provide suction to the gas collection system and allows the gas to be collected. A second blower is installed to act as a full standby unit.

**PowerTrail** is a partnership between:



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