



**Backgrounder**  
**July 2007**

## **Halton Region and Oakville Hydro**

### **Gas Collection and Utilization Project**

---

- The Landfill Gas Collection and Utilization Project is a partnership between Halton Region and Oakville Hydro Energy Services Inc. to collect landfill gas and use it to produce electricity. The project will provide enough “green” energy to power approximately 1,500 homes.
- Inside the landfill, buried organic waste decomposes anaerobically (without oxygen) and produces landfill gas. A large portion of the landfill gas is pure methane, a greenhouse gas, which can be used as fuel in generators to produce “green” energy.
- Removing landfill gas from the landfill both reduces odours in and surrounding the landfill site and cuts down the emission of ozone-depleting methane into the atmosphere, improving the environment. Through its capture, this renewable resource can be used to produce electricity.
- The Halton Landfill Gas Collection and Utilization project has two components (collection and utilization) and has been implemented in two phases:
  - 1) Installation of a landfill gas collection and flaring system at the Halton Waste Management Site by Halton Region, and
  - 2) Integration of a landfill gas utilization system installed and operated by Oakville Hydro Energy Services Inc. that generates electricity from the methane-rich landfill gas collected and supplied by Halton Region.
- Phase 1, the gas collection field, plant and flare systems are now substantially complete. Halton Region received the necessary Ministry of Environment Certificate of Approval (Air) on December 6, 2006, formally permitting Halton Region to operate the enclosed flare. The trial period was completed December 18, 2006, and the landfill gas collection and flaring system has been fully operational ever since.
- Phase 2, the utilization plant, was designed to use the captured landfill gas to generate electricity, and is now complete. Oakville Hydro Energy Services Inc.’s utilization plant and generators are situated immediately adjacent to and

...more/

integrated with Halton Region's collection and flaring plant and receives the collected landfill gas. The generation plant is capable of using all methane captured by Halton Region's landfill gas collection system. The electricity generated is sent directly to the public grid by way of a permanent hydro pole line.

- The flare system installed at the Halton Waste Management Site conforms to the strict emission guidelines set by the Ministry of the Environment for the combustion of landfill gas in an enclosed flare. The internal combustion engines of the utilization facility are also designed to meet air emission guidelines and are extremely efficient at producing electricity from medium-BTU gases such as landfill gas.
- Combustion of landfill gas at the current gas extraction rate of 750 scfm (standard cubic feet per minute) results in the annual elimination of nearly 80,000 tonnes of carbon dioxide equivalents, or over 4,000 tonnes of methane, that would otherwise be released into the environment.
- The annual environmental benefits of this rate of elimination of methane emissions from the landfill are equivalent in impact to any one of the following initiatives:
  - Removing emissions equivalent to over 15,000 vehicles
  - Planting 9,000 hectares of forest
  - Displacing the use of over 33-million litres of gasoline by vehicles
- Flaring involves the controlled combustion of captured landfill gas at temperatures greater than 874 degrees Celsius and a minimum retention time of 0.75 seconds within an enclosed stack.
- Utilization involves processing of the landfill gas and feeding it as fuel to internal combustion engines to generate electricity.
- Through combustion, methane in the captured landfill gas is converted to carbon dioxide, a greenhouse gas 21-times less damaging to the ozone layer than methane, and therefore, a much less potent greenhouse gas.
- Halton Regional Council approved the design and construction of a gas collection and flaring system at the Halton Waste Management Site located at 5400 Regional Road 25 in Milton on October 26, 2005 through Report CA-45-05/PPW 126-05, Landfill Gas Project – Update on Design/Build RFP.
- Oakville Hydro Energy Services Inc. began construction of the gas utilization plant in September 2006 and, as of July 2007, the plant became fully operational with a capacity to produce up to 2.1 megawatts of “green” energy directly from landfill gas supplied by Halton Region's collection system completed in December 2006.