

Vancouver Landfill Gas Collection and Beneficial Use Project



Vancouver Landfill and Beneficial Use System



Vancouver Landfill Gas Extraction Well



Vancouver Landfill Flares and Beneficial Use System Compression and Dehydration Equipment



The cogeneration power station at CanAgro Produce



Tomatoes ripening in one of the CanAgro Produce greenhouses

The City of Vancouver owns and operates the Vancouver Landfill in Delta. The Landfill receives approximately 400,000 tonnes per year of municipal solid waste from approximately 950,000 people or roughly 40% of the Greater Vancouver Regional District (GVRD). This unique project allows landfill gas (LFG) collected from the Landfill to be used to generate heat and electricity.

LFG consists primarily of methane and carbon dioxide and is generated in a landfill through the anaerobic decomposition of garbage. LFG is collected from a landfill to control odours, reduce greenhouse gas emissions and recover energy.

The project involves the expansion of the Vancouver Landfill LFG collection system in 2000 and the beneficial use of the LFG commencing in September 2003.

The LFG system expansion was implemented through a design-build process. CH2M Hill Canada was the design-build contractor. Using a design-build approach allowed the project to be completed faster than through a normal design, tender and construct process. The total cost of the LFG collection system expansion was approximately \$3,500,000.

The second phase of the project involves beneficial use of the LFG. In January 2001, the City of Vancouver issued a request for proposals for the beneficial use of the LFG. Maxim Power Corp. was selected to undertake the project. Maxim's proposal was selected from five potential projects ranging from drying sea urchins for fertilizer to using the gas in a cement kiln. Maxim's project involves piping the LFG to CanAgro Produce (a greenhouse adjacent to the Landfill), and at CanAgro, burning the gas to generate electricity and heat. Maxim is investing approximately \$10,000,000 in the project. Finning Canada Ltd. is providing a turn-key power station for the project.

The environmental benefits of the project include a reduction in greenhouse gas emissions of approximately 230,000 tonnes per year carbon dioxide equivalents, or the emissions of approximately 46,000 automobiles. The project will also result in the capture of approximately 500,000 GJ per year of energy, or the energy requirements of approximately 3,000 to 4,000 households.

The project will help support approximately 300 jobs in Delta by providing a reliable low cost energy source for CanAgro. Initially the project will provide approximately 20 per cent of CanAgro's energy requirements, but it is expected that over time, as the beneficial use system expands, it will provide more energy to CanAgro.

The City of Vancouver will receive approximately \$300,000 per year in revenues from the project that will be used to help offset the cost of operating the LFG control system.

Some photos courtesy of Maxim Power Corp.

Project Participants

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