

2011/12 PROGRAMME: TECHNICAL PRESENTATION

SPEAKER: Rick Everdell, PEng., Project Director, Niagara Tunnel Project
DATE: Tuesday, March 27, 2012, (Food will be served at 6:30 pm; Lecture starts at 7:30 pm.)
WHERE: Kinectrics Facility, 800 Kipling Avenue, Toronto ON M8Z 6C4
DIRECTIONS: See map overleaf
REGISTRATION: Contact Tony Hamilton at tony.hamilton@kinectrics.com or (647) 938-2431

OUR SPEAKER

Mr. Everdell is currently Project Director, Niagara Tunnel Project at Ontario Power Generation (OPG) Inc.

OPG is an Ontario-based electricity generator whose principal business is generation and sale of electricity in Ontario and to interconnected markets, while operating in a safe, open and environmentally responsible manner.



Mr. Everdell was appointed to his current position in 2005 and is responsible for planning and execution of the Niagara Tunnel Project. This project, with an estimated cost of \$1.6 billion, is expected to contribute average annual energy gains of 1.6 billion kilowatt-hours through more efficient utilization of Niagara River water at OPG's existing Sir Adam Beck generating facilities. Prior to his current position, Mr. Everdell was Project Manager, Electricity Production at OPG's Niagara Plant Group from 1994 to 2004, where he was responsible for management of a facilities reinvestment program averaging about \$25 million per year that included the \$175 million Sir Adam Beck GS No.2 Rehabilitation project to increase station capacity by 192 MW and increase average annual energy output by 438 GWh. Mr. Everdell graduated from the University of Waterloo (Ontario, Canada) in 1976 with a Bachelor of Applied Science degree in Civil Engineering

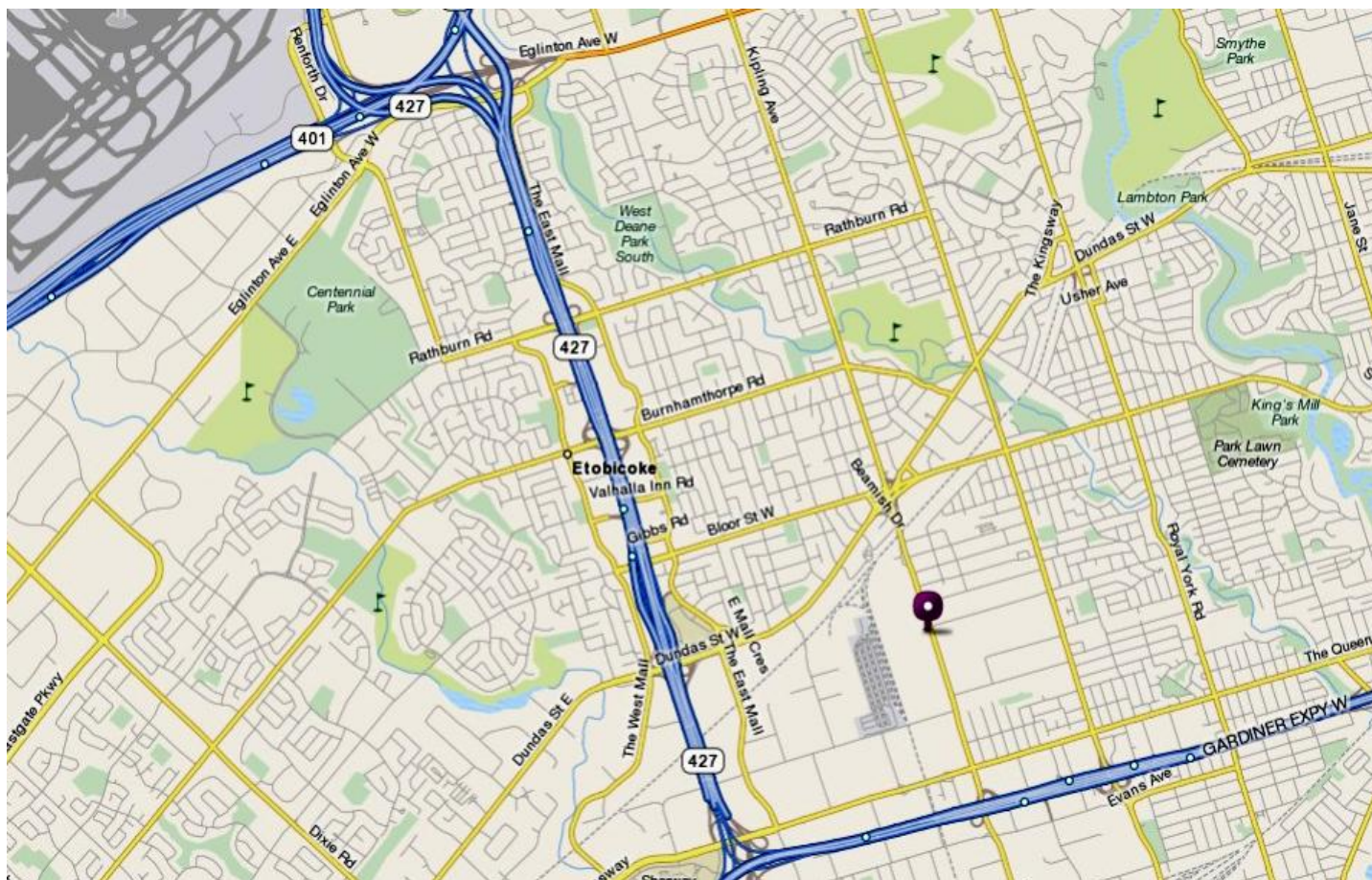
The Niagara Tunnel Project

Ontario Power Generation's **Niagara Tunnel Project** includes the planning, design and construction of a 10.2 km long, 12.7 m internal diameter tunnel and associated facilities to divert an additional 500 m³/s of water from the Niagara River upstream from the Horseshoe Falls to the existing Sir Adam Beck generating stations near Queenston. The design / build contractor, STRABAG Inc, used the world's largest hard-rock tunnel boring machine (14.44-m diameter) to excavate the tunnel. Construction of the tunnel includes initial support provided by steel ribs, wire mesh, rockbolts and 150 mm (nominal) of shotcrete, and final lining comprised of an impermeable polyolefin membrane and 600 mm of cast-in-place, unreinforced concrete.



The concrete liner is cast in 12.5 m blocks using separate invert (lower one-third) and arch (upper two-thirds) operations that are currently in progress. Subsequent contact and pre-stress grouting operations will lock the concrete liner into the host rock and ensure that the tunnel liner remains in compression under all operational conditions. Reinforced concrete intake and outlet structures will incorporate the isolation gates and efficient transitions required to minimize head losses. When operational, the Niagara Tunnel will deliver enough additional water to increase average annual energy output from OPG's Sir Adam Beck stations by about 1.6 billion kilowatt-hours – enough to supply 160,000 Ontario homes with clean, renewable hydroelectric power.

DIRECTIONS:



The entrance to the Kinectrics facility is on the west side of Kipling Avenue and is not too far south from the Kipling subway station (about 10 min walk). There is free parking directly in front of the main entrance but it is limited to about 12 spaces. There is plenty of additional parking directly east and south of the guard station, located south of the main building entrance.

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