ONTARIO ELECTRICITY RELIABILITY PRIORITIES

NORTHWESTERN ONTARIO

Atikokan Generating Station

Thunder Bay Generating Station

NORTH-SOUTH TRANSMISSION NEEDS

Transmission enhancements are required along the North-South corridor to remove congestion along the existing lines and to accommodate supply from existing hydroelectric facilities and new supply in the North.

North-South Transmission line

POWER FLOW – SOUTHWESTERN ONTARIO AND THE GTA

The closure of the Nanticoke Generating Facility and the refurbishments of Units 1 & 2 at the Bruce Nuclear Complex represent the greatest challenge in the off-coal strategy. Nanticoke provides 4,000 MW of capacity - serving much of the GTA's electricity needs.

In addition, Nanticoke, due to its location, provides critical reactive power that supports voltages for the entire southwest Ontario grid. Without this facility, the existing system is much less capable of accommodating additional supply from Bruce. Even with transmission enhancements, it is recognized that the incorporation of additional Bruce units together with the need to cease burning coal at Nanticoke will require significant changes in the supply and delivery infrastructure.

SUPPLY TO WESTERN GTA

The IESO's previous 10-Year Outlook indicated that additional generation capacity or demand-side initiatives were required in the western GTA to replace generation previously supplied by the Lakeview coal-fired station, and to alleviate the risk of auto-transformer overloading.

The completion of the Parkway Transformer Station, together with the new generation projects announced under the Government's RFP will, in part, address the immediate gap left by the shutdown of Lakeview Generating Station. The IESO has indicated that new transformation facilities at Milton together with new generation facilities in the area are urgently required to provide further relief. The government's plan to procure an additional 1,000 MW of generating capacity in the western GTA will help meet this need.

KITCHENER-WATERLOO AND ENVIRONS

There is an urgent need to deal with overloading and low voltages in the Kitchener-Waterloo, Cambridge, Guelph and Orangeville areas. Hydro One has proposed a plan that would establish new transmission lines to bring supply into a transformer station near Cambridge. New generation in the area may provide an alternative to transmission, depending on cost.

Bruce Nuclear Complex

Oshawa-Belleville

Kitchener-Waterloo

Lambton Generating Station

Nanticoke Generating Station

Windsor

TRANSMISSION CONSTRAINTS IN OSHAWA-BELLEVILLE AREA

Transmission reinforcements in the Oshawa-Whitby-Belleville area should be considered as existing circuits are becoming overloaded. Additional transformers and new high-voltage transmission lines into Bowmanville or Oshawa would address immediate reliability concerns.

URGENT POWER NEEDS FOR THE TORONTO DOWNTOWN CORE

Under fault conditions, the present transmission facilities in Toronto would be barely adequate to supply the load on hot days. Completion of the John-to-Esplanade Link in Fall 2007 will provide some relief. However, it is vitally important that additional generation capacity be located within the downtown area within the next two to three years. In the absence of new generation, as well as demand-side initiatives, it is expected that rotational power outages will be required during peak load periods whenever equipment is unavailable.

The government has instructed the OPA to procure 500 MW of new supply for the area. While the new generation capacity is expected to meet the supply requirements for a number of years, continued growth in demand in downtown Toronto will eventually require the transmission system to be reinforced through the provision of a 'Third Supply'.

Downtown Toronto
500 MW
of additional supply needed

Western GTA
1,000 MW
of additional supply needed

Lakeview Generating Station (Closed)

WINDSOR AND SARNIA UPGRADES

Power flows from new generators in Sarnia will require upgrades at Lambton. Already heavily-loaded lines in the Windsor area are limiting imports and making it increasingly difficult to supply the load in the area and schedule critical outages that are needed to maintain the system.

LEGEND

- Generation Deficiencies
- Transmission Deficiencies
- Nuclear Generating Station
- Coal-fired Generating Station
- Committed New Generation
- Power Flows