

18-MONTH OUTLOOK:

An Assessment of the Reliability of the Ontario Electricity System

From October 2007 to March 2009



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Executive Summary

Ontario's supply-demand picture remains relatively positive, continuing the trend that has emerged since late 2005. More than 2,900 MW of new supply is expected to come into service over the next 18 months. This 18-month Outlook indicates that with all of the planned resource additions, sufficient resources will be available within Ontario to meet expected requirements during most of the period under Normal Weather conditions.

On some occasions, Ontario may need to rely on power from neighbouring jurisdictions, particularly if extreme weather occurs or if equipment performance is below normal. Current plans for generator outages may need to be revised for periods when reserves are below required levels.

The new supply scheduled to come into service over the next year and a half includes more than 2,000 MW of gas-fired generation, and over 700 MW of wind generation and would represent the highest amount of additional capacity in an 18-Month Outlook period since the Ontario electricity market began. The majority of this new capacity is identified to come into service near the end of the study period.

The Ontario transmission system is expected to be adequate to supply the normal demands during the study period.

However, there were several events during the summer of 2007 that challenged the ability to maintain reliability in the Greater Toronto Area, including the derated capability of the high voltage shunt capacitor at Richview TS, having one Claireville autotransformer out of service for a considerable period and lower than anticipated reactive capability at Pickering generating units, particularly when multiple unit outages occurred at Pickering G.S. Prior to the summer of 2008, the only significant new resource identified to come into service in the Toronto area is phase one of the Portlands Energy Centre. Reliability of the GTA for summer 2008 will depend on adequate availability of autotransformers feeding the GTA, Pickering unit availability, high voltage shunt capacitor availability and other GTA generation including the planned addition of Portlands.

An outage associated with two Ontario to New York interconnection circuits at Niagara Falls scheduled in the fall of 2008 will result in reductions by up to 1150 MW in the import capability of the Ontario-New York interconnection at Niagara. By scheduling the outage after the time when summer peaking conditions normally occur, imports should not be required to maintain the load-demand balance under normal weather conditions.

The forecast for peak demand is similar to the previous Outlook. The forecast for energy demand which assumes normal weather conditions is one terawatt hour lower than the June forecast due to the continued decline in demand in the industrial sector and increased levels of conservation. Conservation and demand response programs of the Ontario Power Authority (OPA) and local distribution companies continue to gain momentum. This Outlook includes the anticipated effects of those conservation and demand response programs.

Weather corrected energy demand for 2006 was 152.3 terawatt hours (TWh), a drop of 1.6% from 2005. Energy demand is expected to grow by 0.3% for 2007 (152.7 TWh) and 1.1% in 2008.

The following table summarizes the peak demands for the upcoming seasons under the Seasonal Normal and Extreme weather scenarios. These peaks are for the Firm Resource scenario and represent demand prior to the impacts of targeted conservation. This is comparable to the same table in the previous Outlooks. Details on demand under the two scenarios are included in Tables A3 and A4 and in the Ontario Demand Forecast document.

Season	Seasonal Normal Weather Peak (MW)	Extreme Weather Peak (MW)
Winter 2007-08	24,739	25,558
Summer 2008	26,041	27,867
Winter 2008-09	24,937	25,756

The IESO regularly assesses the adequacy and reliability of Ontario's power system. This 18-Month Outlook provides the IESO assessment of the reliability of the power system from October, 2007 to March, 2009 utilizing the most up to date forecast information and taking into account experience gained from past operations.

The 18-Month Outlook is intended for operational planning purposes, and for the scheduling of generator outage plans. To avoid unacceptably low reserves, it is important to the overall operational planning process that participants adjust their maintenance activities to periods where available resources exceed requirements.

- End of Section -

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1.0 Introduction

This Outlook covers the 18-month period from October 2007 to March 2009. It supersedes the report titled “An Assessment of the Reliability of the Ontario Electricity System from July 2007 to December 2008”, dated June 22, 2007.

The purpose of the 18-Month Outlook is:

- To advise market participants of the resource and transmission reliability of the Ontario electricity system;
- To assess potentially adverse conditions that might be avoided through adjustment or coordination of maintenance plans for generation and transmission equipment; and
- To report on initiatives that are being put in place to improve reliability within the 18-month timeframe of this Outlook.

The contents of this Outlook focus on the assessment of resource and transmission adequacy. Other supporting information and forecasts are contained separately in the following documents that are updated as required:

- “Ontario Demand Forecast from October 2007 to March 2009” (IESO_REP_0370) (found on the IESO web site at http://www.ieso.ca/imoweb/pubs/marketReports/18Month_ODF_2007sep.pdf)
 - Contains a detailed description of the peak and energy demand forecasts used in this Outlook.
- “Methodology to Perform Long Term Assessments” (IESO_REP_0266) (found on the IESO web site at http://www.ieso.ca/imoweb/pubs/marketReports/Methodology_RTAA_2007jun.pdf)
 - Contains information regarding the methodology used to perform the demand forecasts, resource adequacy assessments and transmission reliability assessments in this Outlook.
- “Ontario Transmission System” (IESO_REP_0265) (found on the IESO web site at http://www.ieso.ca/imoweb/pubs/marketReports/OntTxSystem_2007sep.pdf)
 - Provides specific details on the transmission system, including the major internal transmission interfaces and interconnections with neighbouring jurisdictions.

Readers are invited to provide comments on this Outlook report or to give suggestions as to the content of future reports. To do so, please contact us at:

- Toll Free: 1-888-448-7777
- Tel: 905-403-6900
- Fax: 905-403-6921
- E-mail: customer.relations@ieso.ca.

This Outlook presents an assessment of resource and transmission adequacy based on the stated assumptions, using the described methodology. Readers may envision other possible scenarios, recognizing the uncertainties associated with various input assumptions, and are encouraged to use their own judgment in considering possible future scenarios. The tables contained in the document can be downloaded from the Independent Electricity System Operator (IESO) web site in MS Excel format.

In addition to the comprehensive Outlook, the IESO generally publishes Interim Updates to the 18-Month Outlook during each month for which a full Outlook is not issued. These updates include a spreadsheet which reflects changes to Total Resources, Total Reductions in Resources, and Reserve Above Requirement values for the Planned Resource Scenario. The updates also include a summary of actual demand and forecast demand data. Similar to the full Outlooks, the Interim Updates are posted on the IESO web site. These updates provide Outlook information on a more frequent basis to allow market participants to better adjust their operational plans and outage schedules.

The reader should be aware that [Security and Adequacy Assessments](#) are published on the IESO web site on a weekly and daily basis that progressively supersedes information presented in this report.

- End of Section -

2.0 Updates to This Outlook

2.1 Changes to Demand Forecast

The demand forecast has been updated to include the actual demand, weather and economic experience through to the end of June 2007. The economic outlook and weather scenarios have been updated based on the most recent data.

This Outlook presents the demand forecast under two scenarios. Since the treatment of conservation and demand management is similar to the treatment of generation we have used the same resource scenario names to describe the two demand forecasts. The Planned Resource scenario includes the impacts of future conservation programs and initiatives by the Ontario Power Authority (OPA) and electricity distributors. As well, the Planned Resource scenario includes projected demand measures as a resource. The Firm Resource scenario shows demand without the inclusion of targeted or incremental conservation efforts. The Firm Resource scenario only includes existing demand measures as a resource.

Overall, the updated demand forecast has slightly lower peak demands. Energy demand is lower due to the aforementioned conservation impacts and lower industrial loads.

2.2 Updates to Resources

There have been updates to the in-service dates of two generator projects (refer to Table 5.2). The in-service date for the Goreway gas-fired generating station project is under review.

There have been updates to the generator outages submitted by market participants. For this Outlook, generation outage plans submitted to the IESO's Integrated Outage Management System (IOMS) as of August 22, 2007 were used.

2.3 Updates to Transmission Outlook

The list of transmission projects and planned and forced transmission outages have been updated from the previous 18-Month Outlook. For this Outlook, transmission outage plans submitted to the IOMS as of July 17, 2007 were used.

This Outlook also presents discussions on the major transmission enhancements that are forecast to be in service or are under construction within the outlook period, and the effects of generation and transmission project delays on the system's ability to supply the forecast peak demand.

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3.0 Historical Review

This section provides a review of past power system operation, including the most recent months of operation, to identify noteworthy observations, emerging problems and variations from forecast.

3.1 Weather and Demand Historical Review

Although the summer of 2007 started off hot and muggy in June, July and August have been quite mild. The summer peak occurred on June 26th as demand hit 25,737 MW. The mild weather, lower level of economic activity and conservation impacts led to peaks of 24,651 MW in July and 25,584 MW in August.

For the first seven months of 2007 energy demand is flat compared to 2006. The weather corrected energy demand is 0.9% lower on a year over year basis.

3.2 Emergency Operating State Control Action Summary

Table 3.1 summarizes the number of times that IESO took control actions during the period February 1, 2007 to July 31, 2007.

Table 3.1: Summary of Emergency Operating State Control Actions

Control Action	Number of Events	Comment	MW Relief
Public Appeals	0		N/A
Emergency Power Purchases	5	Required for Global Adequacy	Min 73 MW Max 400 MW
3% voltage reductions	0		
5% voltage reductions	1	Required for Global Adequacy	440 MW
ELRP activations	0		
Environmental variances	0		
EDRP activations	0		
Curtailling non-dispatchable load	0		

On June 12, 2007, emergency control actions¹, including a 5% voltage reduction and Emergency Energy purchases, were required as a result of demand trending heavier than forecast, coincident with the 500 kV circuit D501P being automatically removed from service. The combination of

¹ A detailed report of this incident can be found at the following website link: [June 12, 2007 Events - 5% Voltage Reductions & Emergency Energy Purchases](#)

these events resulted in a Special Protection System (SPS) correctly rejecting pre-selected generation and load facilities.

During the period June 25 to 27, the IESO faced challenging conditions in the Greater Toronto Area particularly around the Claireville and Trafalgar auto transformers. The IESO experienced high primary demand on these days coincident with outages of a shunt capacitor at Richview TS and one Claireville autotransformer out of service, the decreased reactive capability at Pickering generating units, and a number of generator outages. Specifically, forced outages and forced extensions to planned outages at Pickering GS totaled over 1500 MW for the entire time period. On June 26 and 27, the IESO issued a public appeal to Greater Toronto Area (GTA) consumers to reduce their use of electricity during peak demand times (12:00 to 20:00 EDT) for pre- and post-contingency loading concerns on the Claireville autotransformers. Day ahead Notification was also given to Emergency Load Reduction Program (ELRP) participants in the GTA to submit bids for possible reduction between HE9 to HE20, again, due to pre- and post-contingency loading concerns on the Claireville autotransformers, but the activation of this program was not required. The GTA auto transformers were operated for a portion of these days to the 10 day limited time rating pre contingency. The IESO controlled grid was operated on these days without the need for the activation of the ELRP participants or further emergency operating procedures.

Throughout the period after August 9, 2007, there were further restrictions at Pickering GS due to high lake temperatures contributing to algae runs. These restrictions resulted in numerous deratings and one unit outage due to impairments to the circulating cooling water systems. The MW lost ranged from a 162 MW derating to the loss of a single unit rated at 542 MW.

Aside from the nuclear forced outages and restrictions noted above, the rest of the generation fleet continued to show increased availability in the peak periods of summer 2007 compared with 2006 performance. In addition, Local Distribution Companies responded to our request to provide additional demand response in the Greater Toronto Area to deal with local transmission limitations such as those experienced in late June. Toronto Hydro in particular, has identified up to 46 MW of response, depending on conditions, that can be activated by the IESO on short notice to assist in the reliable operation of the GTA.

3.3 Hourly Resource Contributions at Time of Weekday Peak

The figures from 3.1 to 3.5 show the contributions made by self scheduling and intermittent generators, wind generators, hydro generators, imports and net imports at the time of weekday peak, excluding holidays, for the period from July 1, 2006 to June 30, 2007. In contrast to previous outlooks statutory holiday data was removed from the display of actual hourly data which tends to eliminate the most severe downward spikes in hourly contributions.

Figure 3.1 shows self scheduling and intermittent generation, other than hydro and wind, contribution at the time of non holiday weekday peak.

Figure 3.1 Self Scheduling and Intermittent Generation, other than Hydro and Wind, Contributions at the Time of Weekday Peak

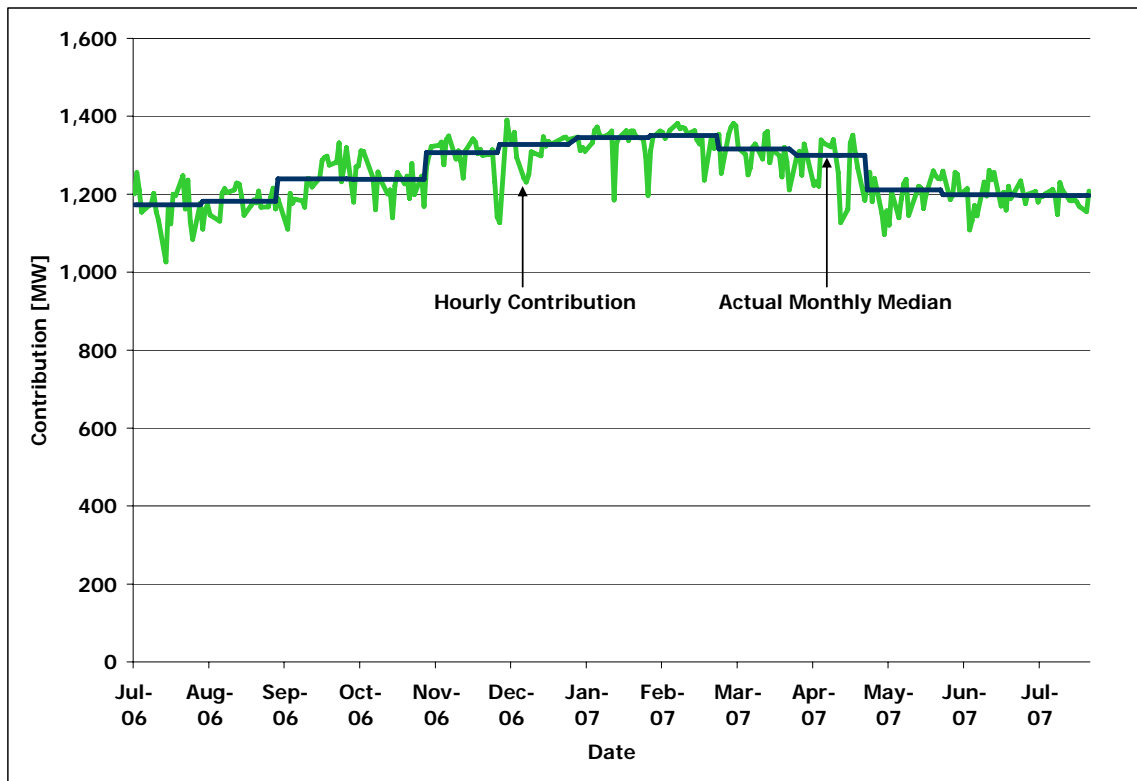
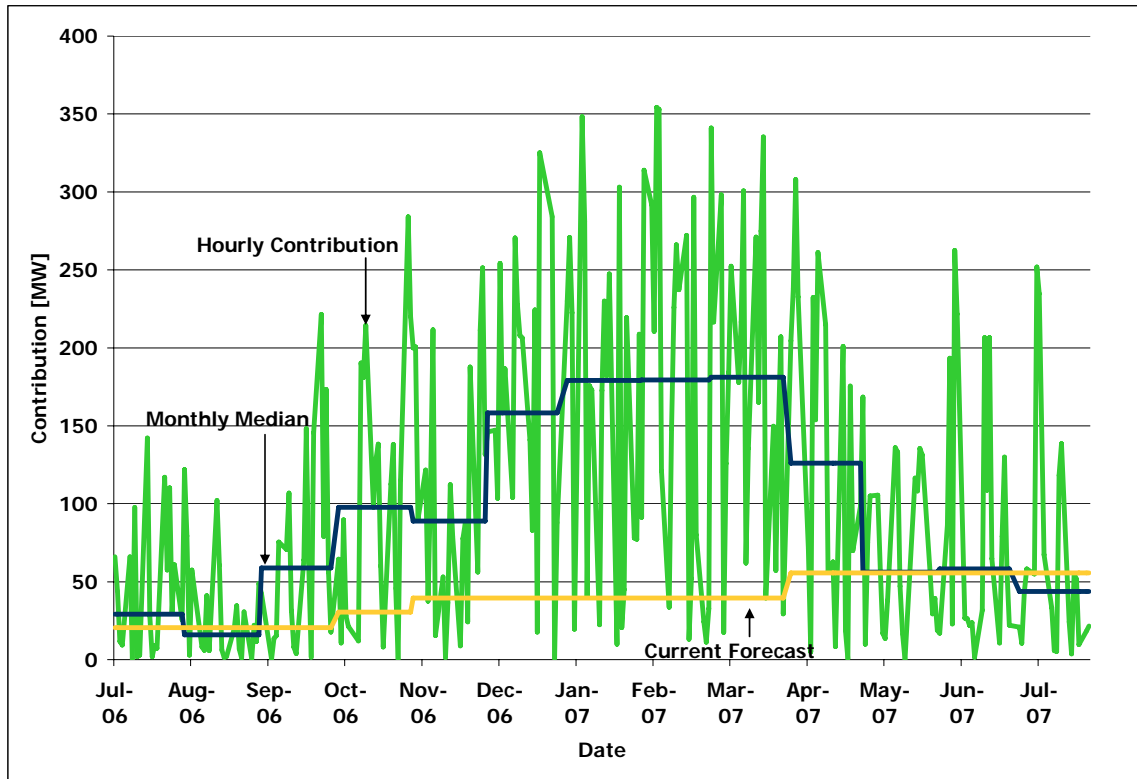


Figure 3.2 indicates the amount of wind generation contributions to the wholesale market at the time of peak demand, excluding holidays, compared to the forecast contributions. Currently, IESO forecasts available wind generation as 10 percent of installed capacity and assumes a constant contribution over a yearly basis. The forecast methodology does not account for seasonal variances in wind patterns and, thus, results in larger deviations of actual monthly median contribution from forecast during winter months as compared to summer months.

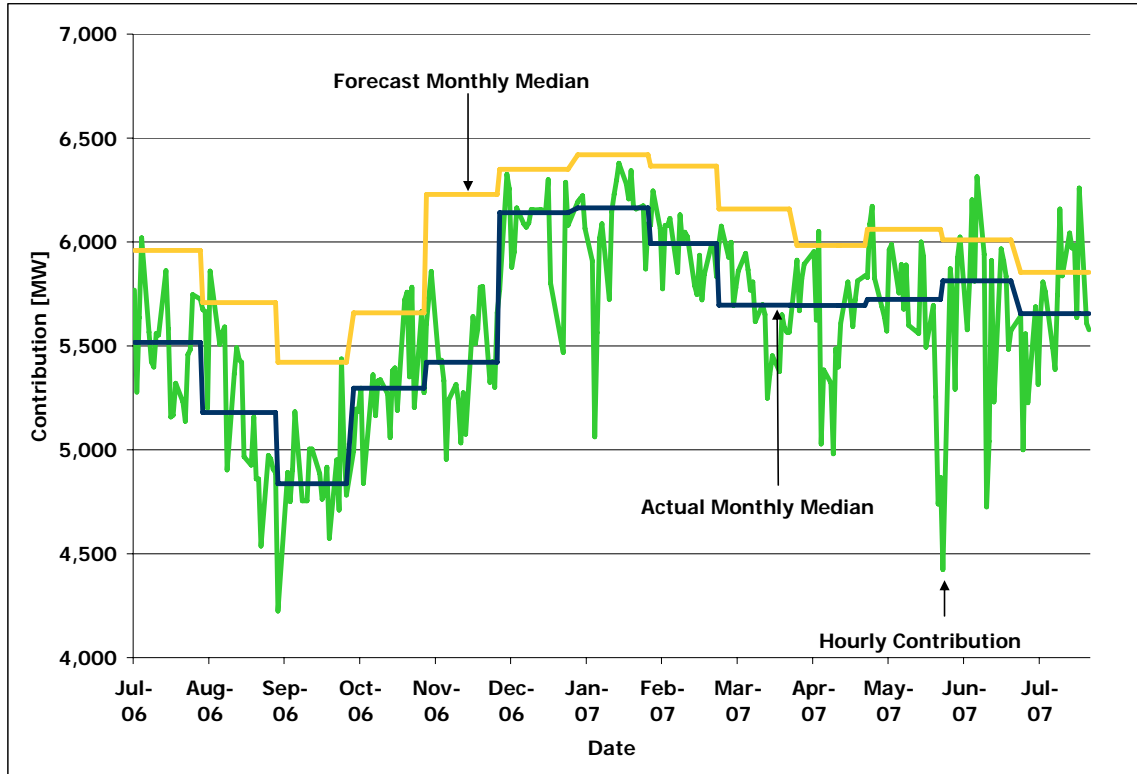
Figure 3.2 Wind Generation Contributions at the Time of Peak Demand



The IESO is developing monthly assumptions for wind capacity contribution and will incorporate these once stakeholder review has been completed near the end of 2007.

Figure 3.3 indicates the actual hydro contributions to energy and operating reserve markets at the time of non holiday weekday peak from July 1, 2006 to June 30, 2007, compared to forecast contributions. The forecast is based on the actual monthly median contributions from May 1, 2002 to April 30, 2007.

Figure 3.3 Hydro Contributions (Energy and Operating Reserve) at the Time of Weekday Peak



3.4 Generators Identifying Stretch Capability

Incorporated in the IESO 18-Month Outlook available resources forecast is the stretch capability identified on generator submissions to the IESO. The stretch capability or the maximum amount of electrical output of a generating unit, above its MCR, sustainable for a short period of time, during peak demand periods is of particular importance during emergency operating conditions. However, of the 7 generators who identify stretch capability, ranging from 3 to 40 MW per unit, only 2 generators ever offered above their MCR for the period from January 1, 2007 to July 15, 2007. Of particular interest is that the study period included June 12, 2007, a day when the IESO initiated Emergency Control Actions for global adequacy. The IESO will be considering the number of hours since market opening in which stretch capability was offered to identify the reliability of this generation capacity. In future the IESO may reconsider the amount of stretch capability that is assumed to be available in 18-Month Outlook forecasts.

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4.0 Demand Forecast

The forecast of demand has been updated to reflect the most recent economic, weather and demand information. The economic outlook has been updated and the same economic themes as the last Outlook continue to dominate the Ontario economy. However, the recent financial volatility bears watching as it has the potential to negatively affect the economy through interest rates, consumer confidence and U.S. growth. The main themes are:

- The high Canadian dollar hurts the competitiveness of Ontario firms exporting to the U.S.
- Current interest rates continue to foster business investment and domestic consumption, fuelling vehicle sales and construction activity.
- The growth in overall electricity demand will lag economic growth as large energy intensive industries are not growing as quickly as the economy as a whole.

The demand models were updated and re-estimated to capture the most recent actual data and economic forecast.

The weather-corrected energy continues to lag last year's demand levels as energy intensive industries continue to struggle. However, peak demands are expected to grow with the growth in housing stock and commercial buildings. Targeted CDM savings being pursued by a number of market participants, including the OPA will blunt some of this growth in peak demand.

Demand Forecast Assumptions

The adequacy assessments contained in this Outlook take into consideration a range of peak demands that can occur under various weather conditions with varying probability of occurrence. The IESO focuses on two demand forecast scenarios, which are based on:

- Monthly Normal weather; and
- Extreme weather.

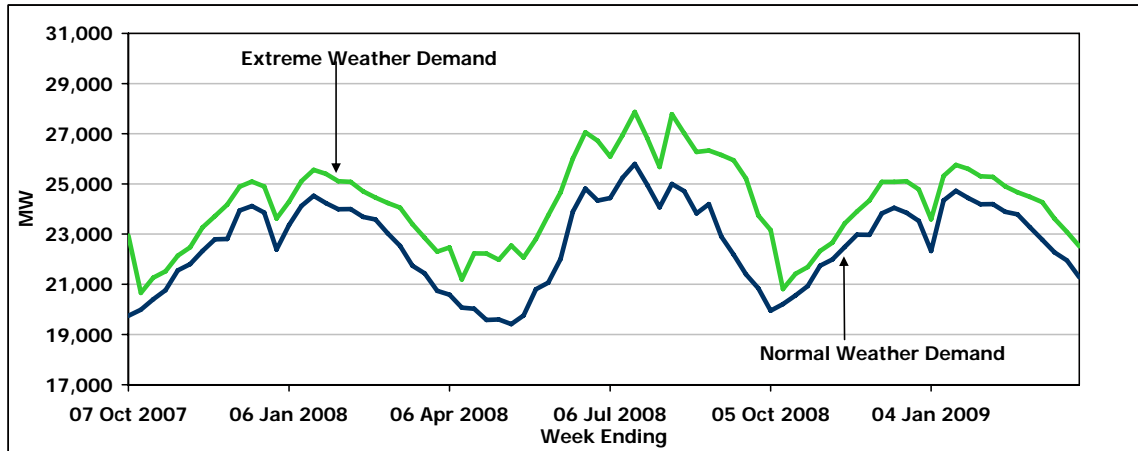
The impact of varying weather is modeled probabilistically in the calculation of the required resources for each week of the study period.

The demand forecast now has two additional scenarios that differ in their treatment of conservation. The Planned Resource scenario includes the targeted impacts of conservation programs and initiatives by the OPA and electricity distributors. These impacts are decremented from the forecast. The Firm Resource scenario shows demand without the inclusion of targeted conservation efforts. Demand measures, such as dispatchable loads and responsive demand, are treated as a resource and are covered in Section 5.1 and 5.2.

Economic and demographic growth will be the factors driving energy and peak demand up during the forecast, and conservation will act to slow that growth. Under the Firm Resource Scenario energy demand will increase 0.2% and 1.1% in 2007 (152.8 TWh) and 2008 (154.5 TWh). The 2007-08 winter peak is predicted to be 24,528 MW and the summer 2008 peak is expected to be 25,799 MW. Under the Planned Resource scenario energy demand is expected to shrink by 0.2% for 2008 (152.5 TWh) as the targeted levels of conservation reduce electricity demand. The peak demands in this scenario are expected to be 24,123 MW for the winter of 2007-08 and 25,586 MW for the summer of 2008.

Figure 4.1 shows the Monthly Normal and Extreme (Firm Resource Scenario) weather demands assumed for each week in the study period.

Figure 4.1 Demand Forecast Range



For further discussion of how we identify peak demands and treat demand measures please refer to the Ontario Demand Forecast document, Section 3.0 *Forecasting Process and Assumptions*.

- End of Section -

5.0 Resource Adequacy Assessment

This section provides an assessment of the adequacy of resources to meet the forecast demand. From this assessment generator owners receive guidance for planning outages. When planned outages would adversely affect the reliability of the grid, as indicated by reserves below required levels, the IESO has the authority to deny approval of outages based on their order of precedence.

In recognition of the uncertainty that exists regarding the future availability of resources, two resource scenarios are described in this section: the Firm Resource Scenario (FRS) and the Planned Resource Scenario (PRS).

The IESO assumes in the FRS that a limited set of planned resource additions will occur on their forecast in-service dates, whereas the PRS is developed on the assumption that all planned resource changes will occur as scheduled.

The demand forecast for the PRS includes conservation measures that are not part of the FRS.

For both scenarios, all generating resources (excluding the units that are scheduled to retire), once in-service or already in-service, are assumed to remain in-service for the duration of the study period, except for periods of time that the generator owner/operator has submitted planned outages for their generating units.

5.1 Planned Resource Scenario with Normal and Extreme Weather

Resource Assumptions

The Planned Resource Scenario assumes quantities of demand measures and generation capacity based on existing resources plus significant resource changes that are scheduled to occur within the 18-month study period. These include:

- A. Existing Installed Resources: total capacity of 31,214 MW (refer to Table 5.1)
- B. New generation facilities and capacity changes and retirements to the existing facilities (refer to Table 5.2)
 - o Includes generation projects in the IESO's Connection Assessment and Approval Process (CAA)² that are under construction and projects contracted by the OPA.
 - o The estimated effective date shown in Table 5.2 indicates the date on which additional capacity is assumed to be available to meet Ontario demand. For projects that are under contract, the estimated effective date is the best estimate of the date when the contract requires the additional capacity to be available. In the event that a project is delayed, such that the commercial in-service date is expected to be later than the contract date, the estimated effective date will be the best estimate of the commercial in-service date for the project.

² Details regarding the IESO's CAA process and the status of all projects in the CAA queue, including copies of available Preliminary Assessment and System Impact Assessment Reports, can be found on the IESO's web site at <http://www.ieso.ca/imoweb/connassess/ca.asp>.

C. Demand Forecast:

- The demand forecast is reduced for the impacts of targeted conservation.
- Demand measures include dispatchable loads and loads contracted with the OPA.
- Demand measures assumed at 531 MW for the entire period of the Outlook (refer to column “Demand Measures” in Table A2 or A6 in Appendix A).
- Demand measures are forecast based on market participant information and actual market experience.
- Based on historical data, it is assumed that 56% of dispatchable demand is available at the time of the weekly peak.

Table 5.1 Existing Installed Generation Resources

Fuel Type	Total Capacity (MW)	Number of Stations
Nuclear	11,419	5
Hydroelectric	7,788	68
Coal	6,434	4
Oil / Gas	5,103	22
Wind	395	4
Biomass / Landfill Gas	75	5
Total	31,214	108

Table 5.2 Committed and Contracted Generation Resources

Proponent/Project Name	Zone	Fuel Type	Capacity MW	Estimated Effective Date	Considered in Resource Scenario	
					FRS	PRS
Ripley Wind Power Project	Southwest	Wind	76	2007-Q4	Yes	Yes
Nuclear Upgrade	N/A	Uranium	27	2007-Q4	Yes	Yes
Great Northern Tri-Gen	West	Gas	12	2008-Q1		Yes
Retirement of Lower Sturgeon 25 Hz gen	Northeast	Water	-5	2008-Q1	Yes	Yes
Lac Seul Project - English River	Northwest	Water	13	2008-Q1 ⁽¹⁾		Yes
Retirement of Sandy Falls 25 Hz	Northeast	Water	-3	2008-Q2 ⁽¹⁾	Yes	Yes
Umbata Falls Hydroelectric	Northwest	Water	23	2008-Q2		Yes
Durham College District Energy	Toronto	Gas	2	2008-Q2		Yes
Countryside London Cogen	West	Gas	12	2008-Q2		Yes
Portland Energy Centre Phase I	Toronto	Gas	250	2008-Q2		Yes
Warden Energy Centre	Toronto	Gas	5	2008-Q2		Yes
Kruger Energy Port Alma Wind Power Project	West	Wind	101	2008-Q4		Yes
Nuclear Upgrade	N/A	Uranium	27	2008-Q4	Yes	Yes
Greenfield Energy Centre	West	Gas	1,005	2008-Q4		Yes
Melancthon II Wind Project	Southwest	Wind	132	2008-Q4		Yes
Wolfe Island Wind Project	East	Wind	198	2008-Q4		Yes
Greenfield South Power Plant	Toronto	Gas	280	2008-Q4		Yes
Enbridge Ontario Wind Power Project	Southwest	Wind	200	2008-Q4		Yes
St Clair Energy Centre	West	Gas	570	2009-Q1		Yes
Total			2,923			

Notes to Table 5.2:

The total may not add up due to rounding.

(1). The estimated effective year and the quarter for the project has changed from the last Outlook.

Over the course of the Outlook period, the contracted amount of IESO and OPA demand response programs grows by about 243 MW.

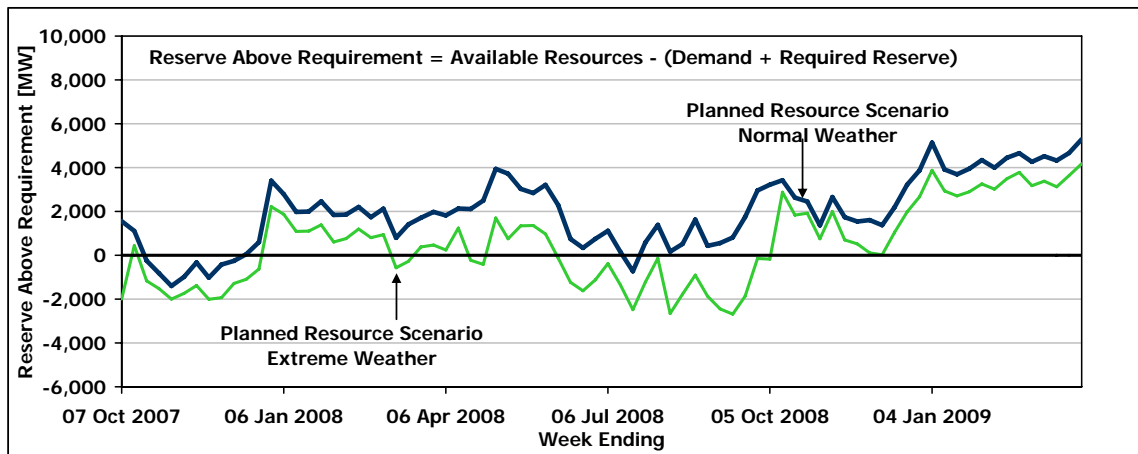
The generation capability assumptions are as follows:

- Hydroelectric capability based on median historical values of hydroelectric production and contribution to operating reserve during weekday peak demand hours from May 2002 to April 2007.
- Capacity and energy contributions from thermal generators based on market participant submissions, including planned outages, expected forced outage rates and seasonal deratings.
- Capacity at the time of weekday peak and total energy contributions from wind-powered generation assumed to be 10% and 30%, respectively.

Weekly Adequacy Assessments

Reserve Above Requirement levels, which represent the difference between Available Resources and Required Resources, are shown in Figure 5.1.

Figure 5.1 Reserve Above Requirement: Planned Resource Scenario with Normal vs. Extreme Weather



5.2 Firm Resource Scenario with Normal and Extreme Weather

Resource Assumptions

The Firm Resource Scenario assumes quantities of demand measures and generation capacity based on the existing resources and a limited set of planned capacity increases or additions (refer to Table 5.2, column labeled “FRS” under heading “Considered in Resource Scenario”). This scenario includes:

- Existing Installed Resources: total capacity of 31,214 MW (refer to Table 5.1).
- Capacity changes to some existing facilities.
- Additional generating resources that have started their commissioning activities with contributions beginning on the date that the facility is expected to be in-service.
- Additional generating resources that are expected to become available in the first three months of the Outlook study period (regardless of commissioning status), with contributions beginning on the date that the facility is expected to be in-service.

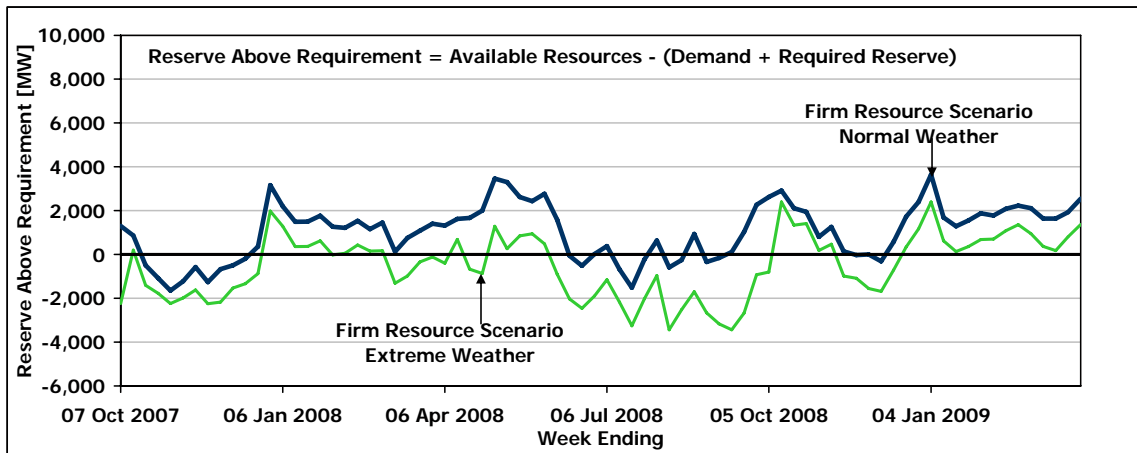
- E. Existing demand measures assumed at 288 MW for the entire period of the Outlook (refer to column "Demand Measures" in Table A1 or A5 in Appendix A). Demand values (Table A3 in Appendix A) exclude targeted conservation.

With respect to forecasts of generation capabilities, the Firm Resource Scenario is based on the same assumptions as the Planned Resource Scenario.

Weekly Adequacy Assessments

Reserve Above Requirement levels, which represent the difference between Available Resources and Required Resources, are shown in Figure 5.2.

Figure 5.2 Reserve Above Requirement: Firm Resource Scenario with Normal vs. Extreme Weather



5.3 Comparison of Resource Scenarios

Table 5.3 shows a snapshot of the forecast available resources, under the two scenarios, at the time of the seasonal peak demands over the study period.

The monthly forecast of energy production capability, as provided by market participants, is included in Appendix A, Table A7.

Table 5.3 Summary of Available Resources

Notes	Description \ Year	Winter Peak 2008		Summer Peak 2008		Winter Peak 2009	
		Firm Resource Scenario	Planned Resource Scenario	Firm Resource Scenario	Planned Resource Scenario	Firm Resource Scenario	Planned Resource Scenario
1	Installed Resources (MW)	31,317	31,317	31,308	31,625	31,335	33,567
2	Imports (MW)	0	0	0	0	0	0
3	Total Resources (MW)	31,317	31,317	31,308	31,625	31,335	33,567
4	Total Reductions in Resources (MW)	2,400	2,577	3,339	3,379	2,505	3,377
5	Demand Measures (MW)	288	531	288	531	288	531
6	Available Resources (MW)	29,205	29,271	28,258	28,777	29,119	30,722

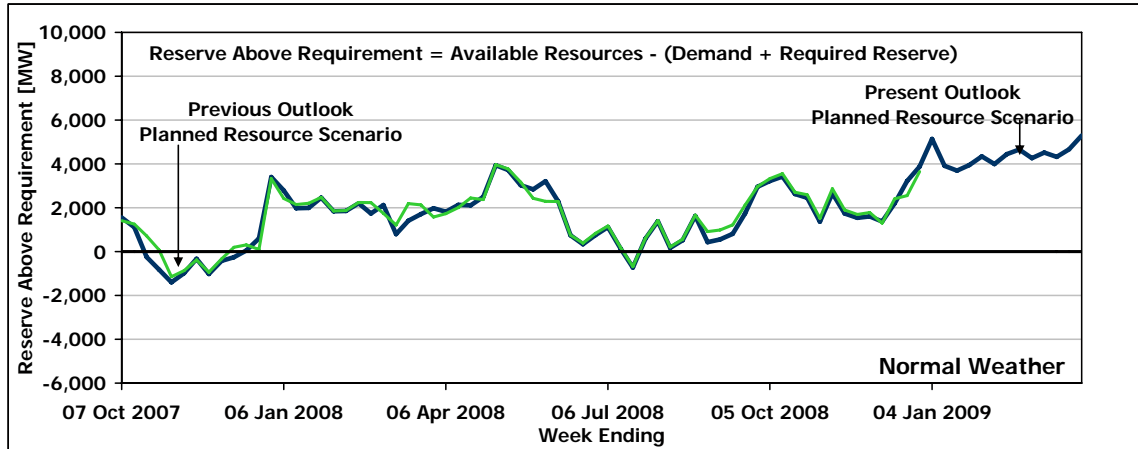
Notes to Table 5.3:

1. Installed Resources (MW): This is the total capacity of the generation resources in Ontario assumed to be installed at the time of the summer and winter peaks in the 18 month time span. Initially, this value includes all generators registered to participate in the IESO-administered markets at the beginning of the 18 month study period. Additional generation capacity that was assumed under the applicable resource scenario is progressively included, according to the estimated in-service dates.
2. Imports (MW): Represents the amount of external capacity considered to be delivered to Ontario.
3. Total Resources (MW): This is the sum of Installed Resources (line 1) and Imports (line 2).
4. Total Reductions in Resources (MW): These reductions represent the sum of generator deratings, generator planned outages, generation limitations due to transmission interface constraints, generation constraints due to transmission outages/limitations and allowance for generation capability levels below rated installed capacity.
5. Demand Measures: This is the amount of demand assumed available to be reduced, under each resource scenario.
6. Available Resources (MW): This equals Total Resources (line 3) minus Total Reductions in Resources (line 4) plus Demand Measures (line 5).

Weekly Adequacy Assessments

Figure 5.3 provides a comparison between the forecast Reserve Above Requirement values in the present Outlook and the forecast Reserve Above Requirement values in the previous Outlook published on June 22, 2007.

Figure 5.3 Reserve Above Requirement: Planned Resource Scenario with Present Outlook vs. Previous Outlook



5.4 Resource Adequacy Risks

The forecast reserve levels for both the Firm Resource Scenario and the Planned Resource Scenario should be assessed bearing in mind the risks discussed below.

5.4.1 Extreme Weather

The Firm Resource Scenario and the Planned Resource Scenario are based on the assumption of normal (average) weather. However, peak demands in both summer and winter typically occur during periods of extreme weather. Unfortunately, the occurrence and timing of extreme weather is impossible to accurately forecast far in advance. As a result, the impact of extreme weather is modeled probabilistically in the calculation of the required resources for each week of the study period. The impact of extreme weather was demonstrated in the first week of August 2006, when Ontario established an all-time record demand of 27,005 MW. Over 3,000 MW of this demand was due to the higher than average heat and humidity.

In order to illustrate the impact of extreme weather on forecast reserve levels during the Outlook period, both the Firm Resource Scenario and the Planned Resource Scenario were re-calculated assuming extreme weather in each week instead of normal weather. The probability of this occurring in every week is very small; however the probability of an occurrence in any given week is greater (about 2.5 percent). When one looks at the entire summer or winter periods, the expectation of at least one period of extreme weather becomes very likely.

The magnitude of resource deficiencies, under extreme weather (as seen earlier in Figures 5.1 and 5.2), clearly illustrates there are circumstances under which reliance on a combination of interconnected supply, rejection of planned generator maintenance or emergency actions may be likely. This emphasizes the continued need for reliable supply and demand response within Ontario.

5.4.2 New Resource Risks

For the 18 month period under study, the improving demand-supply situation, seen mainly in the Planned Resource Scenario, is dependent on the additional generation, conservation and demand measures coming into service as forecast. Some of the risks the projects face are regulatory approvals, construction delays and untimely equipment deliveries by suppliers.

Many timely regulatory approvals for a significant number of the new supply projects and transmission enhancements are required in a short period of time. Some delays have already been experienced and others are growing in potential. The development of expedited, but thorough, approvals processes is needed to ensure timely completion of the new facilities.

5.4.3 Extensions to Generator Planned Outages

A number of large generating units are scheduled to return to service from outage prior to winter 2007/2008 and 2008/2009 and summer 2008. Meeting these schedules is critical to maintaining adequate reserve levels. Delays in returning generators to service from maintenance outages could lead to reliance on imports and/or cancellation of planned generator outages.

In the event that generator outages must be delayed due to reliability concerns, it will be necessary for outages to be rescheduled to a more suitable time period. However outage rescheduling could stretch the ability of generator owners/operators to accommodate larger amounts of outages over shorter time periods and may increase forced outage occurrences. Operational experience so far indicates generator owners are usually able to adapt their outage plans. With the transition from winter peaking to summer peaking over the last ten years Ontario experienced several years where the dual peaking nature of the Ontario system (roughly equivalent peaks in winter and summer) meant that outages must be scheduled in shorter spring and fall periods. Inevitably this meant that some long duration outages had to be scheduled into the start of the peak seasons, creating the potential that any extensions of these outages occur when the generation is most needed. As the differential grows between the summer and winter peaks and as new supply is added to meet these summer peaks, more room can be expected to permit planned outages over the winter period.

5.4.4 Higher than Forecast Generator Unavailability

IESO resource adequacy assessments include a probabilistic allowance for random generator forced outages based on generator reliability information provided by market participants, or on industry-wide data for similar facilities. Along with weather-related demand impacts, the impact of generator forced outages is included in the determination of required resources.

5.4.5 Lower than Forecast Hydroelectric Resources

IESO resource adequacy assessments include hydroelectric generation outputs based on median historical values of hydroelectric production plus operating reserve during weekday peak demand hours and energy capability provided by market participants. The amount of available hydroelectric generation is greatly influenced both by water-flow conditions on the respective river systems and by the way in which water is utilized.

Water-flow conditions are primarily influenced by the amount of precipitation received. To accurately forecast precipitation amounts far in advance is little better than chance. Drought

conditions over some or all of the study period would lower the amount of generation available from hydroelectric resources. Low water conditions can result in significant challenges to maintaining reliability, as was experienced in the summer of 2005.

5.4.6 Wind Resource Risks

Wind generator output varies on a continuous basis due to the variability of wind. This Outlook assumes that 10% of the installed capacity of wind power generators is available at the time of the weekly peak. There is a risk that wind power output could be less than 10% at the time of the weekly peak if:

- the wind isn't blowing, or
- extreme cold weather or high wind speeds necessitate that wind generator output be curtailed to prevent equipment damage (these conditions are expected to be rare).

The geographic diversity of Ontario wind resources, as levels increase, should mitigate some of the risk associated with wind speed variability.

IESO is examining wind issues with stakeholders in the Wind Power Integration Working Group (SE-29). The assumed capacity factor at the time of the peak is an issue this stakeholdering process will address in the near future.

5.4.7 Capacity Limitations

There is a risk that any given generator may not be capable of producing the maximum capacity that the market participant has forecast to be available at the time of peak demand. There may be several reasons for these differences.

Forecast models include an equivalent forced outage rate that is intended to capture the random nature of generator capacity limitations, deratings, and forced outages. There is a risk that actual outages and deratings may be higher than forecast, and there is also a risk that certain types of deratings or outages may not be completely random. Some outages and deratings, such as environmental limitations, may be more likely to occur at roughly the same time as the extreme weather conditions that drive peaks in demand.

5.4.8 Transmission Constrained Resource Utilization

There is a risk that, due to multiple unplanned outages transmission constraints occur more often than expected, or have greater impact than expected on the ability to deliver generation to load centres. Transmission equipment failures could occur and significantly impact the utilization of resources for the period, until repairs are made. This is particularly true for large transformers whose repair or replacement time can be much longer than for transmission lines. A large number of transmission limitations are modeled in accordance with the recognized reliability standards. There is a risk that certain transmission limitations resulting from multiple forced transmission outages, which may not be modeled, may have an unforeseen impact.

There is also a risk that these limitations may occur due to weather conditions that result in high demand and also contribute to higher than normal equipment failure rates. For example periods of low wind combined with hot weather not only cause higher demands but also result in lower transmission capability. This can affect the utilization of internal generation and imports from neighbouring systems. Transmission constraints that result from loop flows can be particularly

hard to predict because they result not only from the conditions within Ontario but from the dynamic transactions that are taking place within and between other markets.

During high demand periods, the availability of high-voltage capacitors and the capability of generators to deliver their full reactive capability also becomes critically important to permit the higher power transfers that are required. Outages or de-ratings to these reactive resources can restrict power transfer from generators and imports, and make it difficult to satisfy the peak demands.

5.4.9 Failure of Import Transactions

There is a risk that import transactions scheduled with neighbouring markets fail to be delivered. These failures represent expected supply that is suddenly not available in real-time. The failures are especially problematic due to the timing and size of the failures. However, since the implementation of the Day Ahead Commitment Process and day ahead and real time inertia failure charges in June 2006, the import failure rate has decreased significantly.

5.4.10 Conservation and Demand Management

There is a risk associated with conservation and demand management in both the timing and the levels they represent. Failure to meet the targeted levels at the prescribed time would lead to higher levels of demand than identified in the PRS. The FRS allows us to study system reliability without those reductions.

- End of Section -

6.0 Transmission Reliability Assessment

This section provides an assessment of the reliability of the Ontario transmission system for the 18 month study period of this Outlook.

A main objective of the transmission reliability assessment is to introduce all major transmission and load supply projects that are planned for completion during the 18 month study period of this Outlook and present their reliability benefits.

A second objective of the transmission reliability assessment is to forecast any reduction in transmission capacity brought about by specific transmission outages. For a major transmission interface or interconnection, the reduction in transmission capacity due to an outage condition can be expressed as a change in the base flow limit associated with the interface or interconnection.

A third objective of the transmission reliability assessment is to identify the possibility of any security related events on the IESO controlled grid that could require contingency planning by market participants or by the IESO. As a result, planned transmission outages are reviewed in correlation with major resources planned outages and also the scheduled completion dates of new generation and transmission projects to identify transmission system reliability concerns and to highlight those outages that should be rescheduled or changed.

6.1 Transmission Projects

The IESO relies on the transmitters to provide information on the transmission projects that are planned for completion within the 18 month period under study. The complete list of major transmission projects is shown in Appendix B. The list also includes some projects with in-service dates just outside the period under study but which require major system outages during the study period. The list includes only the transmission projects that are considered to provide significant improvement to the system reliability. Minor transmission equipment replacements or refurbishments are excluded. For projects assessed or being assessed under the Connection Assessment and Approval process, the assigned identification number is included for cross referencing.

Additional information regarding the transmission projects that have been assessed by the IESO can be found at the IESO's Connection Assessments web page, at the following location:

<http://www.ieso.ca/imoweb/connAssess/ca.asp>

6.2 Load Supply Enhancements

The electricity demand growth experienced in Ontario in the last decade has resulted in a number of area loads reaching or exceeding the capability of the existing transformer stations. To address this problem and provide additional transformer capacity for future load growth, Hydro One and other distributors have initiated plans to build new transformer stations and replace existing transformers where appropriate. Fourteen new and upgraded load supply transformer stations will be placed in service during the timeframe of this Outlook and shortly after.

Connection assessments performed by the IESO concluded that the new and upgraded transformer stations will provide relief to the existing stations, some of which are presently

overloaded, and will improve the supply to various load areas. In some cases the IESO found that the local transmission system may be reaching its capability and identified the need for additional transmission reinforcements and installation of local voltage support equipment. In response to these findings Hydro One initiated the installation of reactive compensation at a number of locations in the system.

Transmission assessments performed by transmitters in collaboration with local distribution companies also identified transmission reinforcements required to ensure adequate supply of the Ontario electricity demand. The required reinforcements were also confirmed by the IESO during connection assessments performed for various new facilities. A number of such transmission reinforcements are currently under construction and planned for service during the study period of this Outlook. The new Essa to Stayner 230 kV transmission line, the new Cambridge-Preston autotransformer, the Hurontario switching station and the 230 kV transmission line to Jim Yarrow TS are examples of new transmission reinforcements that will be in service by the middle of 2009 and result in an increase in load supply security.

All these projects are listed in Appendix B of this report.

The implementation of these projects will provide considerable improvements to the load supply reliability beyond the timeframe of this Outlook.

6.3 Planned Transmission Outages

The assessment of transmission outages for this Outlook has been limited to those outages with a scheduled duration of greater than five days or to those outages associated with a project where there is a significant collection of outages which have a combined scheduled duration of greater than five days. The IESO recognizes that additional outage requirements and/or changes are expected as time approaches the Outlook study period and that transmission capacity will be impacted by outages with a scheduled duration of five days or less. Prior to approving and releasing an outage, the IESO will reassess the outage for potential system impacts, taking into account all current and forecasted conditions.

The IESO's assessment of the impact of the transmission outage plans is shown in Appendix C, Tables C1 to C10. In these tables, each element is assessed individually by indicating the possible impacts and the reduction in transmission interface and/or interconnection limits. Where multiple outages are scheduled during the same period, the combined effect of all outages on the reduction in transmission interface and/or interconnection limits is presented. Where multiple outages are scheduled during the same period and reliability is affected the IESO requests the transmitter to reschedule some of the outages. The methodology used to assess the transmission outage plans is described in the IESO document titled "Methodology to Perform Long Term Assessments" (IESO_REP_0266).

The planned transmission outages are also reviewed in correlation with major resources planned outages and also the scheduled completion dates of new generation and transmission projects to identify transmission system reliability concerns and to highlight those outages that should be rescheduled or changed. As an example, a change to an outage may include rescheduling the outage, reducing the scheduled duration or reducing recall time.

The assessment of transmission outages will also identify any resources that have potential or are forecast to be constrained due to transmission outage conditions. The identification of a constrained resource is generally not reflected in the assessment of weekly resource adequacy,

which is detailed in Section 5.1, since there is typically sufficient outage scheduling flexibility to avoid constraining off resources when such resources are needed for reliability. Transmitters and generators are expected to have a mutual interest in developing an ongoing arrangement to coordinate their outage planning activities. Transmission outages that may affect generation access to the IESO controlled grid should be coordinated with the generator operators involved, especially at times when the forecast of reserve is deficient. Under the Market Rules, where the scheduling of planned outages by different market participants conflicts such that both or all outages cannot be approved by the IESO, the IESO will inform the affected market participants and request that they resolve the conflict. If the conflict remains unresolved, the IESO will determine which of the planned outages can be approved according to the priority of each planned outage as determined by the Market Rules detailed in Chapter 5, Sections 6.4.13 to 6.4.18. For this Outlook, transmission outage plans submitted to the IESO's Integrated Outage Management System (IOMS) as of July 17, 2007 were used.

The large number of system changes identified to be completed during this Outlook study period will require a substantial number of planned outages. A number of the transmission outages planned within the timeframe of this Outlook are judged to have a material impact on the overall reliability of the IESO controlled grid but the transmission system will be adequate to supply the normal load forecast for the Outlook period.

6.4 Transmission System Adequacy

The Ontario transmission system is expected to be adequate to supply the demand under the conditions forecast for the 18-month period of this Outlook.

IESO Outlooks identify various areas of the IESO controlled grid where the projected extreme weather loading is expected to approach or exceed the capability of the transmission facilities for the conditions forecast in the planning period. This could result in congestion of low priced resources that must be replaced by higher priced resources, and would increase costs to market loads. Where the loading was projected to exceed the capability of the transmission facilities, there is also an increased risk of load interruptions. In fall 2008 it is expected that the IESO will have to reschedule some of the system planned outages and take additional control actions to maintain system reliability during major outages to the Ontario-New York interconnection under extreme weather conditions.

IESO continues to work with Hydro One and other Ontario transmitters, to identify the highest priority transmission needs, and to ensure that those projects whose in service dates are at risk are given as much priority as is practical, especially those addressing reliability needs for summer 2008. IESO has also been working closely with the OPA to specify the locations, timing and minimum generation requirements to satisfy reliability standards.

6.4.1 Toronto and Surrounding Area

The greater Toronto area electricity supply is mainly provided by the Trafalgar, Claireville, Parkway and Cherrywood autotransformers and Pickering GS units. The availability of these facilities is critical in ensuring adequate supply to Toronto and surrounding area.

Following a higher than normal forced outage rate recently experienced by Hydro One high voltage autotransformers, Hydro One implemented an extensive auto transformer remediation program. Two new spare autotransformers will be available toward the end of 2008.

For the 2008 extreme weather forecast conditions, the projected power flows over the Trafalgar, Claireville and Cherrywood autotransformers are approaching but not exceeding the maximum station capability. Although the maximum capability for these stations is not projected to be exceeded, their spare capability for extreme weather conditions is low. For example, the Claireville station is the highest loaded transformer station supplying about a third of the Toronto zone summer peak load. With all transformers in service the station loading is not expected to exceed the station capability even for extreme weather conditions for the period of this Outlook. However, the continuous station capability will be exceeded if one transformer is out of service, but the loading will be within the maximum station capability, which is only available for a limited time. If more than one transformer is forced out of service at any of these three stations excessive loading of the station may occur. The additional loss of a Pickering unit would place more stress on the Cherrywood transformers.

The Portlands Energy Centre Phase One is scheduled for completion before summer 2008. Timely completion of this project will alleviate possible future overloads of the Manby TS and Leaside TS transformers and also reduce the loading of the Cherrywood autotransformers increasing their spare capability. This spare capability may be beneficial in compensating for low Pickering performance.

For the 2008 extreme weather forecast conditions, a minimum of four Pickering units are required to ensure reliable load supply to the GTA. However, power advisories for the GTA may be necessary following outages to an additional Pickering unit or a single autotransformer in the GTA. For further contingencies, or for 500 kV line outages, the IESO may have to resort to voltage reductions or load interruptions to control equipment loadings or system voltages in the GTA.

The Middleport and Parkway autotransformers are adequate to supply the load forecast within the timeframe of this Outlook.

Completion by Hydro One of the John TS to Esplanade TS link by the spring of 2008 will also enhance supply reliability to central Toronto by increasing the capability to transfer some loads from their normal supply east of the city, to an alternate supply from the west, and vice versa.

A high-voltage shunt capacitor at Richview TS which suffered significant damage at the beginning of 2007 was returned to service and is available at half of its 410 Mvar capacity. Hydro One is examining options to restore the capability of the Richview capacitor bank back to its original rating, and will implement a solution once an appropriate plan is identified.

The IESO expects to be able to supply the extreme weather forecast demand with the Richview shunt capacitor at reduced capability and existing reactive capability at Pickering, assuming that Pickering GS availability will be better than this summer. Work is proceeding to remove the remaining reactive restrictions on Pickering GS before the end of 2007. However, under certain demand or outage conditions, the portion of the grid supplying the GTA may still be stressed.

In the York Region, the transformer station capacity in the Newmarket and Aurora area has been exceeded due to the rapidly growing loads. There is an immediate need for a new transformer station in the area. Hydro One plans to have a new transformer station in service before the end of 2009. Until then, the immediate needs will be addressed by load transfers, increasing the equipment operating ratings, and by incentives for demand response programs in the area.

6.4.2 Southwest Zone

The first phase of a major manufacturing development in the Woodstock area is now complete. The new load will increase the stresses on the transmission system and might result, during extreme weather conditions, in very low voltages in the area.

To alleviate these concerns Hydro One is planning to add a second supply point to the area by extending the 230 kV transmission lines from Ingersoll to Woodstock area and installing a new transformer station. This plan will provide an increased level of supply reliability, and support further load growth in the area.

Multiple long term outages associated with transmission equipment at Nanticoke and Middleport are scheduled for the last quarter of 2007 and will result in a reduction in Flow Away from Bruce Complex (FABC) of up to 600 MW and Flow Ease Towards Toronto (FETT) of up to 450 MW.

The major transmission work related to the upgrading of the Bruce to Orangeville transmission corridor is scheduled mostly in the fall of 2007, winter of 2007/08 and fall of 2008. These outages will result in a reduction in FABC transmission capability by up to 450 MW.

Limitations associated with the Burlington TS, previously identified by the IESO, are to be resolved partly before summer 2008 and completely by the end of 2008. This work will alleviate concerns related to the ability of the transmission system to supply the Burlington area loads.

6.4.3 Niagara Zone and the New York Interconnection

The situation with the Queenston Flow West project has not changed since the last Outlook. The completion date for transmission reinforcement between Niagara region into the Hamilton-Burlington area continues to be delayed. The limitations affect the use of both the available Ontario generation and imports into the province, particularly during hot weather, high demand periods.

Once in service the reinforcement project will increase the capability of the transmission system connecting the Niagara River generation at Queenston to the grid in the Hamilton area by about 800 MW. This enhancement will permit increased imports from New York of at least 350 MW, and up to 800 MW depending on the load and generation dispatch in Ontario.

The long duration outages associated with one or two Ontario to New York interconnection circuits at Niagara scheduled for the spring and fall of 2008 will result in significant reductions in the import and export capability of the Ontario-New York interconnection at Niagara. The outages are required by the New York Power Authority (NYPA) to allow dam re-surfacing to take place at NYPA's Lewiston facilities. The overall Ontario import and export capability will be drastically reduced during these outages. The most critical period is from September 1st to October 15th 2008, when two out of the four Niagara ties will be out of service and the Ontario-New York import capability will be reduced by up to 1150 MW and export capability will be reduced by up to 1280 MW. An examination of the planned Ontario resources for this period revealed several weeks when major Ontario generators are also scheduled for outage. The resource adequacy assessment results show that under the Planned Resource Scenario and normal weather conditions the Reserve above Requirement levels are positive. This indicates that Ontario may not need to rely on imports to supply the forecast demand for this period and the reduced import capability is not a concern. However, for the extreme weather scenario the Reserve above Requirement levels are negative and the system reliability could be affected due to

the combined effect of interconnection and generation outages. The IESO will be monitoring the situation closely and implement appropriate measures, which might involve the rescheduling of some of the generator outages, if required.

The IESO, Midwest ISO and the International Transmission Company are jointly working on the implementation of control actions that will alleviate any operational issues that may be arising from the inability to control the Lake Erie Circulation power flows.

6.4.4 East Zone and Ottawa Zone

The 1,250 MW interconnection between Hawthorne TS in Ontario and Outouais station in Québec is scheduled for completion by March 31, 2009. Extensive transmission outages are underway to facilitate the construction of the 230 kV double circuit line from Hawthorne to the border, planned for completion by November 2008. The new interconnection will be accompanied by a new Special Protection System (SPS) to be installed at St. Lawrence TS and Hawthorne TS. The new SPS will maximize simultaneous imports from Québec and New York while maintaining the functionality of the existing St. Lawrence SPS. Transmission outages in the Ottawa area, related to the completion of the 1,250 MW interconnection between Hawthorne TS in Ontario and Outouais station will result in a small reduction in Flow into Ottawa (FIO) limit, but the transmission system will be adequate to supply the projected Ottawa zone demand

The IESO entered into a Reliability Must Run (RMR) Contract with OPG for Lennox GS until the end of September 2007. A subsequent contract for another year's duration is before the Ontario Energy Board for its consideration. Studies performed by the IESO indicated that there could be significant adverse local area reliability impacts if Lennox is removed from the IESO-controlled grid and the IESO-administered markets without adequate replacement. When the new interconnection with Québec is completed (outside the timeframe of this Outlook), the resulting transmission improvements in the Ottawa area may reduce its reliance on Lennox for the local area need. However, the capability of the station is critical to provincial resource adequacy and must be retained or replaced. This resource adequacy requirement cannot be achieved through an RMR under the current Market Rules. The OPA has notified the IESO that it will undertake development of a solution to the Lennox requirements.

6.4.5 West Zone and the Michigan Interconnection

To prepare the power system to reliably incorporate additional generation facilities around the Lambton area, including the St. Clair Power and Greenfield Energy Centre projects, extensive work needs to be completed at the Lambton switchyard. The modifications are required to connect the new generation facilities and to manage the expected increase in short circuit levels when new generation facilities at St. Clair Power and Greenfield Energy Centre begin their commissioning activities while generating units at Lambton continue to operate. To complete the work on time, a large volume of equipment outages must proceed as scheduled.

The multiple outages related to Lambton and Sarnia-Scott station reconfigurations and refurbishments, Longwood station equipment refurbishments and other lines work scheduled from September 2007 to end of May 2008 will result in a significant reduction in FABC limit, Buchanan Longwood Input (BLIP) limit and Negative Buchanan Longwood Input (NBLIP) limit as well as a reduction of the import and export capability of the Ontario - Michigan interconnection. Outages that are coincident with the winter peak periods could reduce the

FABC limit by up to 600 MW, the export capability to Michigan by up to 575 MW and the import capability from Michigan by up to 450 MW. Most of these outages are not recallable.

An assessment of the scheduled generation outages in conjunction with the transmission outages and in conjunction with the projected capability of the transmission interfaces and the inter-ties shows that the transmission system will be adequate to supply the load forecast for the Outlook period.

Major concerns were not identified with respect to the adequacy of the transmission system to supply the load or the reduced capability of the Michigan to Ontario interconnection for the period of these outages.

Phase angle regulators (PARs) are installed on the Michigan - Ontario interconnection but are not available to regulate flows except in emergencies, pending agreement by the International Transmission Company in Michigan to permit full regulation.

The inability to regulate flows combined with limiting ratings on the PAR equipment can result in significant limitation of imports from Michigan. The IESO, the Midwest ISO, Hydro One and International Transmission Company, agreed to temporarily bypass the phase angle regulators for normal operation until an agreement is reached to make full use of their regulating capability. Bypassing the PARs increases Ontario's transfer capability to and from Michigan by 300 to 350 MW in the summer and by about 400 MW in the winter. Currently the phase angle regulators are always bypassed during normal operation.

6.4.7 Northern Ontario

The transmission corridor east of Mississagi has been experiencing increased congestion due to the connection of the 200 MW Prince Park Wind Farm and the unbottling of Brookfield generation following the completion of the Great Lakes Power (GLP) 230 kV transmission reinforcement between Wawa TS and Third Line TS. It is expected that congestion will increase even further when the recently contracted Algoma Energy co-generation project is complete in mid 2009.

For the near-term, the IESO has recommended that the existing Mississagi TS and Algoma TS generation rejection schemes be enhanced as soon as possible to unbottle the generation west of Mississagi and eliminate the congestion over this transmission interface. Hydro One is planning to implement the required modifications before the end of 2008.

6.4.8 Niagara 25 Hz System

In January 2007, National Grid, a transmission entity in the United States, informed the IESO that it had retired the US portion of the Niagara 25 Hz system, reducing 25 Hz load served from Ontario and paving the way for the retirement of some supporting transmission facilities at the Sir Adam Beck 1 Generating Station. This will leave two generating units and the frequency changer to supply the two remaining Ontario customers on this system. The IESO advised its 25 Hz customers in 2005 that the 25 Hz supply would be retired in April 2009 because of declining equipment reliability and market inefficiencies of the 25 Hz system. The IESO meets regularly with 25 Hz stakeholders to assess progress towards this objective.

- End of Section -

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7.0 Conclusions

The following conclusions are based on the results of the assessment carried out for this Outlook.

Resource Adequacy

- Under the Planned Resource-Normal Weather Scenario, forecast reserves within Ontario are sufficient to meet requirements for 69 of 78 weeks in the study period. Reserves are forecast to be below requirements for nine weeks of the Outlook timeframe. Where this situation occurs, Ontario may need to rely on external supplies. During periods where planned maintenance is a contributor to lower reserves, some planned generator outages are at risk of cancellation by the IESO, for reliability reasons, depending on their priority and the resource adequacy situation at the time their approval is being sought. Opportunities will exist for additional planned generator maintenance and exports in the other weeks of the Outlook period where reserves exceed requirements. It is expected that some generator owners will reschedule their outages in response to this Outlook.
- Under the Firm Resource-Normal Weather Scenario, the reserves are forecast to be below requirements for 20 weeks of the Outlook timeframe.
- Extreme weather during the peak periods will result in significantly increased reliance on imports to supplement Ontario generation and higher potential for the IESO to reject planned outages and use emergency operating procedures.
- Results of the resource adequacy assessment are summarized in the matrix below. The different shadings are intended to suggest the degree of concern regarding the supply/demand situation under each resource-weather scenario combination.

	Normal Weather Scenario	Extreme Weather Scenario
Planned Resource Scenario	- there are 9 weeks when reserves are lower than required (planned outages at risk or imports potentially required) - opportunities for additional outages/exports exist in most other weeks	- many planned outages at risk - imports required during some peak periods - higher risk of requiring emergency operating procedures
Firm Resource Scenario	- there are 20 weeks when reserves are lower than required (planned outages at risk or imports potentially required) - opportunities for additional outages/exports exist in many other weeks	- many planned outages at risk - imports required during some peak periods - higher risk of requiring emergency operating procedures

- The magnitude of resource deficiencies under both normal and extreme weather emphasizes the continued need for additions of reliable supply, conservation and demand measures within Ontario.

- For the 18 month period under study, the improved demand-supply situation for the Planned Resource Scenario is dependent on the additional generation, conservation and demand measures coming into the market as forecast.
- A number of large generating units are scheduled to return to service from outage prior to the winter 2007/08 and 2008/09 and summer 2008. Meeting these planned outage schedules is critical to maintaining adequate reserve levels over the peak seasons.
- The reserves are positive during the entire winter 2007/08 and 2008/09 period under the Normal Weather Scenario allowing opportunities for additional generator outages. Cooling load growth, combined with minimal growth in heating load has led to the transition from winter peaking to summer peaking over the last ten years.
- High generator unavailability, whether caused by higher forced outage rates or delays in returning generators to service, could lead to greater reliance on imports. Under these circumstances, opportunities for planned outages, especially during the peak summer period, would be limited.
- The IESO entered into a Reliability Must Run Contract with OPG for Lennox GS until the end of September 2007. A subsequent contract for another year's duration is before the Ontario Energy Board for its consideration. IESO studies indicate that there could be significant adverse local area reliability impacts if Lennox were removed from the grid without adequate replacement. When the new interconnection with Québec is completed (outside the timeframe of this Outlook), the resulting transmission improvements in the Ottawa area may reduce it's reliance on Lennox for the local area need. However, the capability of the station is critical to provincial resource adequacy and must be retained or replaced.
- Over the 18 month period under study, the Northeast Power Coordinating Council resource adequacy criterion is expected to be met. As permitted to meet the criterion, the IESO forecast considers periodic reliance on interconnection benefits and potential use of other operating actions including outage rescheduling and emergency operating procedures.
- The historical review is helpful in identifying situations where actual resource availability differs from the assumed forecast capability. Specifically, the IESO will be reviewing the ability of certain generators to provide stretch capability in future 18-Month Outlooks.

Transmission Adequacy

- The Ontario transmission system is expected to be adequate to supply the 2007, 2008 and 2009 demand under forecast conditions.
- As experienced in the summer of 2007, reliability of supply to the GTA is dependent on both generation and transmission facilities. To minimize the risks to the GTA as the summer of 2008 approaches, the IESO will closely monitor four key aspects:
 - availability of the high voltage shunt capacitors which are critical for voltage support, including the Richview capacitor which is operating at reduced capability
 - availability and general condition of the 12 autotransformers feeding the GTA from Claireville, Trafalgar Parkway and Cherrywood TS
 - availability of no less than four Pickering units during the summer months
 - progress of Portlands Phase 1, expected in service just prior to summer 2008

- The IESO expects to be able to supply the extreme weather forecast demand with the Richview shunt capacitor at reduced capability and existing reactive capability at Pickering, assuming that Pickering GS availability will be better than this summer. Work is proceeding to remove the remaining reactive restrictions on Pickering GS before the end of 2007. However, under certain demand or outage conditions, the portion of the grid supplying the GTA may still be stressed.
- Fourteen new and upgraded load supply transformer stations will be placed in service during the timeframe of this Outlook and shortly after to help relieve loadings of existing transformer stations and provide additional transformer capacity for future load growth.
- A number of transmission reinforcements required to ensure adequate supply of the Ontario electricity demand in the near future are currently under construction and planned to be in service during the study period of this Outlook.
- Completion by Hydro One of the John Transformer Station (TS) to Esplanade TS link by the spring of 2008 will also enhance supply reliability to central Toronto by increasing the capability to transfer some loads from their normal supply east of the city, to an alternate supply from the west, and vice versa.
- Planned outage of two Ontario to New York interconnections at Niagara Falls for fall of 2008 reduces NY imports by up to 1150 MW. Generation outage adjustments may be required under extreme weather conditions
- The Queenston Flow West project continues to be delayed. Once in service it will increase the capability of the transmission system connecting the Niagara River generation at Queenston to the grid in the Hamilton area by about 800 MW. It will permit increased imports from New York of at least 350 MW, and up to 800 MW depending on the load and generation dispatch in Ontario.
- The 1,250 MW interconnection between Hawthorne TS in Ontario and Outaouais station in Québec is scheduled for completion by March 31, 2009. Extensive transmission outages are underway to facilitate the construction of the 230 kV double circuit line from Hawthorne to the border, planned for completion by November 2008.
- The multiple outages related to Lambton and Sarnia-Scott station reconfigurations and refurbishments, Longwood station equipment refurbishments and other lines work scheduled from September 2007 to end of May 2008 will result in a significant reduction in FABC limit, BLIP limit and NBLIP limit as well as a reduction of the import and export capability of the Ontario - Michigan interconnection, Major concerns were not identified with respect to the adequacy of the transmission system to supply the load or the reduced capability of the Michigan to Ontario interconnection for the period of these outages.
- Phase angle regulators (PARs) are installed on the Michigan Ontario interconnection but are temporarily bypassed until an agreement is reached to make full use of their regulating capability.
- Hydro One will enhance the existing Mississagi TS and Algoma TS generation rejection schemes by the end of 2008 to unblock the generation west of Mississagi and eliminate the congestion over the transmission corridor East of Mississagi.

- End of Section -

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Appendix A Resource Adequacy Assessment Details

Table A1 Assessment of Resource Adequacy: Normal Weather,
Firm Resource Scenario

Week Ending Day	Total Resources MW	Total Reductions in Resources MW	Demand Measures MW	Available Resources MW	Required Resources MW	Available Reserve %	Available Reserve MW	Required Reserve %	Required Reserve MW	Reserve Above Requirement Current
07-Oct-07	31,214	7,701	288	23,801	22,495	20.5	4,052	13.9	2,746	1,306
14-Oct-07	31,214	8,058	288	23,444	22,580	17.3	3,457	13.0	2,593	864
21-Oct-07	31,214	8,849	288	22,653	23,144	11.0	2,250	13.4	2,741	-491
28-Oct-07	31,214	8,874	288	22,628	23,700	9.0	1,867	14.2	2,939	-1,072
04-Nov-07	31,214	8,621	288	22,881	24,526	6.2	1,327	13.8	2,972	-1,645
11-Nov-07	31,214	8,024	288	23,478	24,704	7.7	1,674	13.3	2,900	-1,226
18-Nov-07	31,214	6,832	288	24,670	25,241	10.5	2,344	13.1	2,915	-571
25-Nov-07	31,290	7,013	288	24,565	25,826	7.8	1,770	13.3	3,031	-1,261
02-Dec-07	31,290	6,497	288	25,081	25,751	10.0	2,274	12.9	2,944	-670
09-Dec-07	31,317	5,180	288	26,425	26,922	10.4	2,479	12.4	2,976	-497
16-Dec-07	31,317	4,719	288	26,886	27,077	11.5	2,763	12.3	2,954	-191
23-Dec-07	31,317	4,472	288	27,133	26,774	13.7	3,278	12.2	2,919	359
30-Dec-07	31,317	3,010	288	28,595	25,435	27.7	6,205	13.6	3,045	3,160
06-Jan-08	31,317	2,960	288	28,645	26,441	22.7	5,291	13.2	3,087	2,204
13-Jan-08	31,317	2,917	288	28,688	27,202	18.9	4,568	12.8	3,082	1,486
20-Jan-08	31,317	2,400	288	29,205	27,704	19.1	4,677	13.0	3,176	1,501
27-Jan-08	31,317	2,375	288	29,230	27,459	20.6	4,998	13.3	3,227	1,771
03-Feb-08	31,317	3,242	288	28,363	27,092	18.3	4,378	13.0	3,107	1,271
10-Feb-08	31,312	3,260	288	28,340	27,124	18.1	4,345	13.0	3,129	1,216
17-Feb-08	31,312	3,253	288	28,347	26,817	19.7	4,656	13.2	3,126	1,530
24-Feb-08	31,312	3,835	288	27,765	26,611	17.8	4,187	12.9	3,033	1,154
02-Mar-08	31,312	3,835	288	27,765	26,313	20.6	4,736	14.3	3,284	1,452
09-Mar-08	31,312	5,598	288	26,002	25,881	15.4	3,468	14.9	3,347	121
16-Mar-08	31,312	6,093	288	25,507	24,747	17.3	3,769	13.8	3,009	760
23-Mar-08	31,312	6,093	288	25,507	24,425	19.0	4,075	14.0	2,993	1,082
30-Mar-08	31,312	6,420	288	25,180	23,779	21.4	4,442	14.7	3,041	1,401
06-Apr-08	31,312	6,506	288	25,094	23,785	21.9	4,508	15.5	3,199	1,309
13-Apr-08	31,308	7,048	288	24,549	22,928	22.3	4,475	14.2	2,854	1,621
20-Apr-08	31,308	7,080	288	24,517	22,853	22.4	4,493	14.1	2,829	1,664
27-Apr-08	31,308	7,509	288	24,088	22,086	23.0	4,507	12.8	2,505	2,002
04-May-08	31,308	5,433	288	26,164	22,702	33.5	6,565	15.8	3,103	3,462
11-May-08	31,308	5,866	288	25,731	22,430	32.5	6,311	15.5	3,010	3,301
18-May-08	31,308	5,967	288	25,630	23,003	29.7	5,871	16.4	3,244	2,627
25-May-08	31,308	4,868	288	26,729	24,296	28.5	5,927	16.8	3,494	2,433
01-Jun-08	31,308	4,443	288	27,154	24,386	28.9	6,088	15.8	3,320	2,768
08-Jun-08	31,308	4,682	288	26,915	25,326	22.3	4,901	15.0	3,312	1,589
15-Jun-08	31,308	4,172	288	27,425	27,476	14.8	3,531	15.0	3,582	-51
22-Jun-08	31,308	3,446	288	28,151	28,670	13.5	3,337	15.5	3,856	-519
29-Jun-08	31,308	3,326	288	28,271	28,256	16.2	3,937	16.1	3,922	15

Note: The reader should be aware that [Security and Adequacy Assessments](#) are published on the IESO web site on a weekly and daily basis that progressively supersedes information presented in this report.

(Table A1 continued)

Week Ending Day	Total Resources MW	Total Reductions in Resources MW	Demand Measures MW	Available Resources MW	Required Resources MW	Available Reserve %	Available Reserve MW	Required Reserve %	Required Reserve MW	Reserve Above Requirement Current
06-Jul-08	31,308	3,391	288	28,206	27,830	15.4	3,770	13.9	3,394	376
13-Jul-08	31,308	3,352	288	28,245	28,911	11.9	3,003	14.5	3,669	-666
20-Jul-08	31,308	3,339	288	28,258	29,774	9.5	2,459	15.4	3,975	-1,516
27-Jul-08	31,308	3,343	288	28,254	28,486	13.2	3,298	14.1	3,530	-232
03-Aug-08	31,308	3,545	288	28,052	27,415	16.6	3,990	13.9	3,353	637
10-Aug-08	31,308	3,552	288	28,045	28,635	12.2	3,052	14.6	3,642	-590
17-Aug-08	31,308	3,562	288	28,035	28,289	13.4	3,321	14.5	3,575	-254
24-Aug-08	31,308	3,560	288	28,037	27,105	17.7	4,214	13.8	3,282	932
31-Aug-08	31,308	4,498	288	27,099	27,439	12.0	2,900	13.4	3,240	-340
07-Sep-08	31,308	5,207	288	26,390	26,549	15.2	3,489	15.9	3,648	-159
14-Sep-08	31,308	5,729	288	25,868	25,756	16.6	3,691	16.1	3,579	112
21-Sep-08	31,308	5,771	288	25,826	24,806	20.7	4,433	16.0	3,413	1,020
28-Sep-08	31,308	5,771	288	25,826	23,562	23.9	4,983	13.1	2,719	2,264
05-Oct-08	31,335	6,283	288	25,341	22,716	27.1	5,395	13.9	2,770	2,625
12-Oct-08	31,335	5,805	288	25,819	22,907	27.8	5,613	13.4	2,701	2,912
19-Oct-08	31,335	6,311	288	25,313	23,200	23.1	4,756	12.9	2,643	2,113
26-Oct-08	31,335	5,836	288	25,788	23,842	23.2	4,855	13.9	2,909	1,946
02-Nov-08	31,335	6,321	288	25,303	24,502	16.4	3,562	12.7	2,761	801
09-Nov-08	31,335	5,696	288	25,928	24,664	17.9	3,937	12.2	2,673	1,264
16-Nov-08	31,335	6,172	288	25,452	25,313	13.2	2,961	12.6	2,822	139
23-Nov-08	31,335	5,712	288	25,912	25,938	12.8	2,931	12.9	2,957	-26
30-Nov-08	31,335	5,683	288	25,941	25,941	12.9	2,966	12.9	2,966	0
07-Dec-08	31,335	5,059	288	26,565	26,877	11.5	2,735	12.8	3,047	-312
14-Dec-08	31,335	3,990	288	27,634	27,054	14.9	3,583	12.5	3,003	580
21-Dec-08	31,335	2,969	288	28,655	26,932	20.2	4,808	12.9	3,085	1,723
28-Dec-08	31,335	2,573	288	29,051	26,658	23.5	5,523	13.3	3,130	2,393
04-Jan-09	31,335	2,583	288	29,041	25,396	30.1	6,718	13.8	3,073	3,645
11-Jan-09	31,335	2,486	288	29,138	27,443	19.7	4,795	12.7	3,100	1,695
18-Jan-09	31,335	2,505	288	29,119	27,835	17.8	4,393	12.6	3,109	1,284
25-Jan-09	31,335	2,479	288	29,145	27,592	19.3	4,712	12.9	3,159	1,553
01-Feb-09	31,335	2,488	288	29,136	27,262	20.5	4,950	12.7	3,076	1,874
08-Feb-09	31,335	2,543	288	29,081	27,299	20.2	4,885	12.8	3,103	1,782
15-Feb-09	31,335	2,569	288	29,055	26,978	21.6	5,168	12.9	3,091	2,077
22-Feb-09	31,335	2,569	288	29,055	26,823	22.2	5,269	12.8	3,037	2,232
01-Mar-09	31,335	3,054	288	28,570	26,457	22.8	5,299	13.7	3,186	2,113
08-Mar-09	31,335	3,835	288	27,789	26,151	22.0	5,018	14.8	3,380	1,638
15-Mar-09	31,335	4,836	288	26,788	25,150	20.3	4,513	12.9	2,875	1,638
22-Mar-09	31,335	4,851	288	26,773	24,842	22.0	4,823	13.2	2,892	1,931
29-Mar-09	31,335	4,895	288	26,729	24,186	25.6	5,453	13.7	2,910	2,543

**Table A2 Assessment of Resource Adequacy: Normal Weather,
Planned Resource Scenario**

Week Ending Day	Total Resources MW	Total Reductions in Resources MW	Demand Measures MW	Available Resources MW	Required Resources MW	Available Reserve %	Available Reserve MW	Required Reserve %	Required Reserve MW	Reserve Above Requirement Current
07-Oct-07	31,214	7,701	531	24,044	22,495	21.8	4,295	13.9	2,746	1,549
14-Oct-07	31,214	8,058	531	23,687	22,580	18.5	3,700	13.0	2,593	1,107
21-Oct-07	31,214	8,849	531	22,896	23,144	12.2	2,493	13.4	2,741	-248
28-Oct-07	31,214	8,874	531	22,871	23,700	10.2	2,110	14.2	2,939	-829
04-Nov-07	31,214	8,621	531	23,124	24,526	7.3	1,570	13.8	2,972	-1,402
11-Nov-07	31,214	8,024	531	23,721	24,704	8.8	1,917	13.3	2,900	-983
18-Nov-07	31,214	6,832	531	24,913	25,241	11.6	2,587	13.1	2,915	-328
25-Nov-07	31,290	7,013	531	24,808	25,826	8.8	2,013	13.3	3,031	-1,018
02-Dec-07	31,290	6,497	531	25,324	25,751	11.0	2,517	12.9	2,944	-427
09-Dec-07	31,317	5,180	531	26,668	26,922	11.4	2,722	12.4	2,976	-254
16-Dec-07	31,317	4,719	531	27,129	27,077	12.5	3,006	12.3	2,954	52
23-Dec-07	31,317	4,472	531	27,376	26,774	14.8	3,521	12.2	2,919	602
30-Dec-07	31,317	3,010	531	28,838	25,435	28.8	6,448	13.6	3,045	3,403
06-Jan-08	31,317	2,967	531	28,881	26,093	25.5	5,871	13.4	3,083	2,788
13-Jan-08	31,317	3,087	531	28,761	26,789	21.3	5,049	13.0	3,077	1,972
20-Jan-08	31,317	2,577	531	29,271	27,283	21.4	5,159	13.2	3,171	1,988
27-Jan-08	31,317	2,384	531	29,464	27,003	23.9	5,680	13.5	3,219	2,461
03-Feb-08	31,317	3,249	531	28,599	26,759	20.9	4,944	13.1	3,104	1,840
10-Feb-08	31,323	3,267	531	28,588	26,735	21.1	4,979	13.2	3,126	1,853
17-Feb-08	31,323	3,262	531	28,593	26,392	22.9	5,323	13.4	3,122	2,201
24-Feb-08	31,323	3,835	531	28,020	26,283	20.5	4,757	13.0	3,020	1,737
02-Mar-08	31,323	3,835	531	28,020	25,898	23.9	5,405	14.5	3,283	2,122
09-Mar-08	31,336	5,600	531	26,267	25,471	18.4	4,074	14.8	3,278	796
16-Mar-08	31,336	6,095	531	25,772	24,362	20.6	4,395	14.0	2,985	1,410
23-Mar-08	31,336	6,103	531	25,764	24,055	22.3	4,697	14.2	2,988	1,709
30-Mar-08	31,336	6,439	531	25,428	23,453	24.5	5,011	14.9	3,036	1,975
06-Apr-08	31,336	6,524	531	25,343	23,527	24.6	5,008	15.7	3,192	1,816
13-Apr-08	31,332	7,066	531	24,798	22,670	25.1	4,979	14.4	2,851	2,128
20-Apr-08	31,332	7,097	531	24,767	22,660	24.9	4,934	14.3	2,827	2,107
27-Apr-08	31,332	7,527	531	24,337	21,841	25.9	5,000	13.0	2,504	2,496
04-May-08	31,355	5,459	531	26,428	22,489	36.3	7,039	16.0	3,100	3,939
11-May-08	31,355	5,906	531	25,981	22,266	34.9	6,723	15.6	3,008	3,715
18-May-08	31,355	6,007	531	25,880	22,848	32.0	6,272	16.5	3,240	3,032
25-May-08	31,355	4,907	531	26,980	24,146	30.6	6,324	16.9	3,490	2,834
01-Jun-08	31,355	4,482	531	27,405	24,198	31.2	6,521	15.9	3,314	3,207
08-Jun-08	31,625	4,689	531	27,467	25,175	25.8	5,639	15.3	3,347	2,292
15-Jun-08	31,625	4,179	531	27,977	27,235	18.1	4,277	14.9	3,535	742
22-Jun-08	31,625	3,453	531	28,703	28,366	16.8	4,136	15.5	3,799	337
29-Jun-08	31,625	3,366	531	28,790	28,043	19.2	4,644	16.1	3,897	747

Note: The reader should be aware that [Security and Adequacy Assessments](#) are published on the IESO web site on a weekly and daily basis that progressively supersedes information presented in this report.

(Table A2 continued)

Week Ending Day	Total Resources MW	Total Reductions in Resources MW	Demand Measures MW	Available Resources MW	Required Resources MW	Available Reserve %	Available Reserve MW	Required Reserve %	Required Reserve MW	Reserve Above Requirement Current
06-Jul-08	31,625	3,431	531	28,725	27,604	18.6	4,498	13.9	3,377	1,121
13-Jul-08	31,625	3,393	531	28,763	28,613	15.1	3,771	14.5	3,621	150
20-Jul-08	31,625	3,379	531	28,777	29,509	12.5	3,191	15.3	3,923	-732
27-Jul-08	31,625	3,383	531	28,773	28,194	16.4	4,050	14.0	3,471	579
03-Aug-08	31,625	3,585	531	28,571	27,189	19.9	4,739	14.1	3,357	1,382
10-Aug-08	31,625	3,593	531	28,563	28,393	15.2	3,774	14.5	3,604	170
17-Aug-08	31,625	3,602	531	28,554	28,034	16.5	4,042	14.4	3,522	520
24-Aug-08	31,625	3,599	531	28,557	26,928	21.0	4,946	14.1	3,317	1,629
31-Aug-08	31,625	4,537	531	27,619	27,191	15.1	3,628	13.3	3,200	428
07-Sep-08	31,625	5,246	531	26,910	26,351	18.4	4,177	15.9	3,618	559
14-Sep-08	31,625	5,768	531	26,388	25,577	20.0	4,397	16.3	3,586	811
21-Sep-08	31,625	5,784	531	26,372	24,637	24.4	5,179	16.3	3,444	1,735
28-Sep-08	31,625	5,778	531	26,378	23,428	27.6	5,712	13.4	2,762	2,950
05-Oct-08	31,753	6,533	531	25,751	22,532	30.4	5,996	14.1	2,777	3,219
12-Oct-08	31,753	6,174	531	26,110	22,694	30.6	6,121	13.5	2,705	3,416
19-Oct-08	31,753	6,659	531	25,625	22,998	25.9	5,273	13.0	2,646	2,627
26-Oct-08	31,753	6,203	531	26,081	23,636	25.8	5,355	14.0	2,910	2,445
02-Nov-08	31,753	6,669	531	25,615	24,245	19.0	4,092	12.7	2,722	1,370
09-Nov-08	33,088	6,372	531	27,247	24,597	25.3	5,493	13.1	2,843	2,650
16-Nov-08	33,088	6,851	531	26,768	25,036	20.6	4,563	12.8	2,831	1,732
23-Nov-08	33,088	6,366	531	27,253	25,713	19.8	4,496	13.0	2,956	1,540
30-Nov-08	33,088	6,362	531	27,257	25,654	20.1	4,568	13.1	2,965	1,603
07-Dec-08	33,088	5,739	531	27,880	26,503	18.6	4,370	12.7	2,993	1,377
14-Dec-08	33,088	4,670	531	28,949	26,759	22.2	5,263	13.0	3,073	2,190
21-Dec-08	33,088	3,650	531	29,969	26,755	27.5	6,469	13.9	3,255	3,214
28-Dec-08	33,088	3,253	531	30,366	26,489	31.0	7,178	14.2	3,301	3,877
04-Jan-09	33,088	3,264	531	30,355	25,217	38.2	8,382	14.8	3,244	5,138
11-Jan-09	33,567	3,356	531	30,743	26,835	30.7	7,216	14.1	3,308	3,908
18-Jan-09	33,567	3,377	531	30,722	27,028	29.6	7,007	14.0	3,313	3,694
25-Jan-09	33,567	3,352	531	30,747	26,802	31.2	7,305	14.3	3,360	3,945
01-Feb-09	33,567	3,362	531	30,737	26,390	33.0	7,631	14.2	3,284	4,347
08-Feb-09	33,567	3,412	531	30,687	26,693	31.2	7,303	14.2	3,309	3,994
15-Feb-09	33,567	3,409	531	30,690	26,253	33.7	7,732	14.4	3,295	4,437
22-Feb-09	33,567	3,393	531	30,706	26,051	34.7	7,901	14.2	3,246	4,655
01-Mar-09	33,567	3,915	531	30,184	25,916	34.0	7,665	15.1	3,397	4,268
08-Mar-09	34,137	4,692	531	29,977	25,460	37.5	8,170	16.8	3,653	4,517
15-Mar-09	34,137	5,706	531	28,963	24,646	34.9	7,496	14.8	3,179	4,317
22-Mar-09	34,137	5,722	531	28,947	24,288	37.2	7,853	15.1	3,194	4,659
29-Mar-09	34,137	5,766	531	28,903	23,620	41.6	8,496	15.7	3,213	5,283

Table A3 Demand Forecast Range for Firm Resource Scenario

Week Ending Day	Ontario Demand Normal Weather MW	Ontario Demand Extreme Weather MW	Week Ending Day	Ontario Demand Normal Weather MW	Ontario Demand Extreme Weather MW
07-Oct-07	19,749	22,938	06-Jul-08	24,436	26,092
14-Oct-07	19,987	20,656	13-Jul-08	25,242	26,937
21-Oct-07	20,403	21,263	20-Jul-08	25,799	27,867
28-Oct-07	20,761	21,517	27-Jul-08	24,956	26,823
04-Nov-07	21,554	22,145	03-Aug-08	24,062	25,675
11-Nov-07	21,804	22,474	10-Aug-08	24,993	27,778
18-Nov-07	22,326	23,263	17-Aug-08	24,714	27,010
25-Nov-07	22,795	23,719	24-Aug-08	23,823	26,273
02-Dec-07	22,807	24,175	31-Aug-08	24,199	26,331
09-Dec-07	23,946	24,889	07-Sep-08	22,901	26,150
16-Dec-07	24,123	25,097	14-Sep-08	22,177	25,945
23-Dec-07	23,855	24,894	21-Sep-08	21,393	25,214
30-Dec-07	22,390	23,618	28-Sep-08	20,843	23,745
06-Jan-08	23,354	24,290	05-Oct-08	19,946	23,165
13-Jan-08	24,120	25,101	12-Oct-08	20,206	20,811
20-Jan-08	24,528	25,558	19-Oct-08	20,557	21,417
27-Jan-08	24,232	25,396	26-Oct-08	20,933	21,689
03-Feb-08	23,985	25,102	02-Nov-08	21,741	22,326
10-Feb-08	23,995	25,079	09-Nov-08	21,991	22,659
17-Feb-08	23,691	24,705	16-Nov-08	22,491	23,428
24-Feb-08	23,578	24,461	23-Nov-08	22,981	23,904
02-Mar-08	23,029	24,242	30-Nov-08	22,975	24,344
09-Mar-08	22,534	24,058	07-Dec-08	23,830	25,082
16-Mar-08	21,738	23,397	14-Dec-08	24,051	25,079
23-Mar-08	21,432	22,851	21-Dec-08	23,847	25,108
30-Mar-08	20,738	22,302	28-Dec-08	23,528	24,782
06-Apr-08	20,586	22,465	04-Jan-09	22,323	23,586
13-Apr-08	20,074	21,193	11-Jan-09	24,343	25,323
20-Apr-08	20,024	22,232	18-Jan-09	24,726	25,756
27-Apr-08	19,581	22,228	25-Jan-09	24,433	25,597
04-May-08	19,599	21,979	01-Feb-09	24,186	25,303
11-May-08	19,420	22,543	08-Feb-09	24,196	25,280
18-May-08	19,759	22,063	15-Feb-09	23,887	24,901
25-May-08	20,802	22,801	22-Feb-09	23,786	24,669
01-Jun-08	21,066	23,749	01-Mar-09	23,271	24,484
08-Jun-08	22,014	24,660	08-Mar-09	22,771	24,277
15-Jun-08	23,894	26,012	15-Mar-09	22,275	23,615
22-Jun-08	24,814	27,063	22-Mar-09	21,950	23,088
29-Jun-08	24,334	26,722	29-Mar-09	21,276	22,521

Table A4 Demand Forecast Range for Planned Resource Scenario

Week Ending Day	Ontario Demand Normal Weather MW	Ontario Demand Extreme Weather MW	Week Ending Day	Ontario Demand Normal Weather MW	Ontario Demand Extreme Weather MW
07-Oct-07	19,749	22,938	06-Jul-08	24,227	25,883
14-Oct-07	19,987	20,656	13-Jul-08	24,992	26,687
21-Oct-07	20,403	21,263	20-Jul-08	25,586	27,654
28-Oct-07	20,761	21,517	27-Jul-08	24,723	26,590
04-Nov-07	21,554	22,145	03-Aug-08	23,832	25,445
11-Nov-07	21,804	22,474	10-Aug-08	24,789	27,573
18-Nov-07	22,326	23,263	17-Aug-08	24,512	26,808
25-Nov-07	22,795	23,719	24-Aug-08	23,611	26,061
02-Dec-07	22,807	24,175	31-Aug-08	23,991	26,123
09-Dec-07	23,946	24,889	07-Sep-08	22,733	25,983
16-Dec-07	24,123	25,097	14-Sep-08	21,991	25,749
23-Dec-07	23,855	24,894	21-Sep-08	21,193	25,026
30-Dec-07	22,390	23,618	28-Sep-08	20,666	23,575
06-Jan-08	23,010	23,945	05-Oct-08	19,755	23,013
13-Jan-08	23,712	24,692	12-Oct-08	19,989	20,617
20-Jan-08	24,112	25,142	19-Oct-08	20,352	21,212
27-Jan-08	23,784	24,948	26-Oct-08	20,726	21,482
03-Feb-08	23,655	24,772	02-Nov-08	21,523	22,094
10-Feb-08	23,609	24,693	09-Nov-08	21,754	22,416
17-Feb-08	23,270	24,268	16-Nov-08	22,205	23,161
24-Feb-08	23,263	24,130	23-Nov-08	22,757	23,672
02-Mar-08	22,615	23,828	30-Nov-08	22,689	24,052
09-Mar-08	22,193	23,662	07-Dec-08	23,510	24,762
16-Mar-08	21,377	23,023	14-Dec-08	23,686	24,714
23-Mar-08	21,067	22,454	21-Dec-08	23,500	24,761
30-Mar-08	20,417	22,046	28-Dec-08	23,188	24,442
06-Apr-08	20,335	22,141	04-Jan-09	21,973	23,256
13-Apr-08	19,819	20,934	11-Jan-09	23,527	24,508
20-Apr-08	19,833	22,076	18-Jan-09	23,715	24,746
27-Apr-08	19,337	22,063	25-Jan-09	23,442	24,606
04-May-08	19,389	21,825	01-Feb-09	23,106	24,223
11-May-08	19,258	22,389	08-Feb-09	23,384	24,468
18-May-08	19,608	21,892	15-Feb-09	22,958	23,941
25-May-08	20,656	22,654	22-Feb-09	22,805	23,649
01-Jun-08	20,884	23,590	01-Mar-09	22,519	23,731
08-Jun-08	21,828	24,474	08-Mar-09	21,807	23,322
15-Jun-08	23,700	25,818	15-Mar-09	21,467	22,735
22-Jun-08	24,567	26,816	22-Mar-09	21,094	22,204
29-Jun-08	24,146	26,533	29-Mar-09	20,407	21,580

**Table A5 Assessment of Resource Adequacy: Extreme Weather,
Firm Resource Scenario**

Week Ending Day	Total Resources MW	Total Reductions in Resources MW	Demand Measures MW	Available Resources MW	Required Resources MW	Available Reserve %	Available Reserve MW	Required Reserve %	Required Reserve MW	Reserve Above Requirement Current
07-Oct-07	31,214	7,701	288	23,801	26,036	3.8	863	13.5	3,098	-2,235
14-Oct-07	31,214	8,041	288	23,461	23,261	13.6	2,805	12.6	2,605	200
21-Oct-07	31,214	8,804	288	22,698	24,112	6.8	1,435	13.4	2,849	-1,414
28-Oct-07	31,214	8,867	288	22,635	24,405	5.2	1,118	13.4	2,888	-1,770
04-Nov-07	31,214	8,621	288	22,881	25,121	3.3	736	13.4	2,976	-2,240
11-Nov-07	31,214	8,024	288	23,478	25,458	4.5	1,004	13.3	2,984	-1,980
18-Nov-07	31,214	6,874	288	24,628	26,253	5.9	1,365	12.9	2,990	-1,625
25-Nov-07	31,290	7,057	288	24,521	26,771	3.4	802	12.9	3,052	-2,250
02-Dec-07	31,290	6,543	288	25,035	27,214	3.6	860	12.6	3,039	-2,179
09-Dec-07	31,317	5,260	288	26,345	27,876	5.9	1,456	12.0	2,987	-1,531
16-Dec-07	31,317	4,820	288	26,785	28,117	6.7	1,688	12.0	3,020	-1,332
23-Dec-07	31,317	4,576	288	27,029	27,901	8.6	2,135	12.1	3,007	-872
30-Dec-07	31,317	3,097	288	28,508	26,527	20.7	4,890	12.3	2,909	1,981
06-Jan-08	31,317	3,095	288	28,510	27,222	17.4	4,220	12.1	2,932	1,288
13-Jan-08	31,317	3,073	288	28,532	28,172	13.7	3,431	12.2	3,071	360
20-Jan-08	31,317	2,523	288	29,082	28,713	13.8	3,524	12.3	3,155	369
27-Jan-08	31,317	2,465	288	29,140	28,517	14.7	3,744	12.3	3,121	623
03-Feb-08	31,317	3,357	288	28,248	28,262	12.5	3,146	12.6	3,160	-14
10-Feb-08	31,312	3,315	288	28,285	28,231	12.8	3,206	12.6	3,152	54
17-Feb-08	31,312	3,374	288	28,226	27,792	14.3	3,521	12.5	3,087	434
24-Feb-08	31,312	3,883	288	27,717	27,560	13.3	3,256	12.7	3,099	157
02-Mar-08	31,312	3,835	288	27,765	27,597	14.5	3,523	13.8	3,355	168
09-Mar-08	31,312	5,598	288	26,002	27,313	8.1	1,944	13.5	3,255	-1,311
16-Mar-08	31,312	6,093	288	25,507	26,494	9.0	2,110	13.2	3,097	-987
23-Mar-08	31,312	6,093	288	25,507	25,852	11.6	2,656	13.1	3,001	-345
30-Mar-08	31,312	6,404	288	25,196	25,311	13.0	2,894	13.5	3,009	-115
06-Apr-08	31,312	6,493	288	25,107	25,502	11.8	2,642	13.5	3,037	-395
13-Apr-08	31,308	7,030	288	24,567	23,880	15.9	3,374	12.7	2,687	687
20-Apr-08	31,308	7,088	288	24,509	25,176	10.2	2,277	13.2	2,944	-667
27-Apr-08	31,308	7,488	288	24,109	24,975	8.5	1,881	12.4	2,747	-866
04-May-08	31,308	5,433	288	26,164	24,882	19.0	4,185	13.2	2,903	1,282
11-May-08	31,308	5,859	288	25,738	25,476	14.2	3,195	13.0	2,933	262
18-May-08	31,308	5,859	288	25,738	24,892	16.7	3,675	12.8	2,829	846
25-May-08	31,308	4,864	288	26,733	25,793	17.2	3,932	13.1	2,992	940
01-Jun-08	31,308	4,388	288	27,209	26,723	14.6	3,460	12.5	2,974	486
08-Jun-08	31,308	4,682	288	26,915	27,811	9.1	2,255	12.8	3,151	-896
15-Jun-08	31,308	4,172	288	27,425	29,448	5.4	1,413	13.2	3,436	-2,023
22-Jun-08	31,308	3,446	288	28,151	30,610	4.0	1,088	13.1	3,547	-2,459
29-Jun-08	31,308	3,294	288	28,303	30,199	5.9	1,581	13.0	3,477	-1,896

(Table A5 continued)

Week Ending Day	Total Resources MW	Total Reductions in Resources MW	Demand Measures MW	Available Resources MW	Required Resources MW	Available Reserve %	Available Reserve MW	Required Reserve %	Required Reserve MW	Reserve Above Requirement Current
06-Jul-08	31,308	3,311	288	28,286	29,442	8.4	2,194	12.8	3,350	-1,156
13-Jul-08	31,308	3,317	288	28,280	30,443	5.0	1,343	13.0	3,506	-2,163
20-Jul-08	31,308	3,317	288	28,280	31,528	1.5	413	13.1	3,661	-3,248
27-Jul-08	31,308	3,312	288	28,285	30,310	5.5	1,462	13.0	3,487	-2,025
03-Aug-08	31,308	3,568	288	28,029	28,986	9.2	2,354	12.9	3,311	-957
10-Aug-08	31,308	3,554	288	28,043	31,479	1.0	265	13.3	3,701	-3,436
17-Aug-08	31,308	3,557	288	28,040	30,560	3.8	1,030	13.1	3,550	-2,520
24-Aug-08	31,308	3,581	288	28,016	29,718	6.6	1,743	13.1	3,445	-1,702
31-Aug-08	31,308	4,514	288	27,083	29,746	2.9	752	13.0	3,415	-2,663
07-Sep-08	31,308	5,190	288	26,407	29,572	1.0	257	13.1	3,422	-3,165
14-Sep-08	31,308	5,686	288	25,911	29,351	-0.1	-34	13.1	3,406	-3,440
21-Sep-08	31,308	5,771	288	25,826	28,506	2.4	612	13.1	3,292	-2,680
28-Sep-08	31,308	5,771	288	25,826	26,750	8.8	2,081	12.7	3,005	-924
05-Oct-08	31,335	6,283	288	25,341	26,141	9.4	2,176	12.9	2,976	-800
12-Oct-08	31,335	5,805	288	25,819	23,424	24.1	5,008	12.6	2,613	2,395
19-Oct-08	31,335	6,311	288	25,313	23,974	18.2	3,896	11.9	2,557	1,339
26-Oct-08	31,335	5,836	288	25,788	24,377	18.9	4,099	12.4	2,688	1,411
02-Nov-08	31,335	6,344	288	25,280	25,091	13.2	2,954	12.4	2,765	189
09-Nov-08	31,335	5,765	288	25,859	25,389	14.1	3,200	12.1	2,730	470
16-Nov-08	31,335	6,286	288	25,338	26,324	8.2	1,910	12.4	2,896	-986
23-Nov-08	31,335	5,823	288	25,801	26,888	7.9	1,897	12.5	2,984	-1,087
30-Nov-08	31,335	5,771	288	25,853	27,401	6.2	1,509	12.6	3,057	-1,548
07-Dec-08	31,335	5,100	288	26,524	28,211	5.8	1,442	12.5	3,129	-1,687
14-Dec-08	31,335	4,164	288	27,460	28,168	9.5	2,381	12.3	3,089	-708
21-Dec-08	31,335	3,097	288	28,527	28,190	13.6	3,419	12.3	3,082	337
28-Dec-08	31,335	2,661	288	28,963	27,793	16.9	4,181	12.2	3,011	1,170
04-Jan-09	31,335	2,690	288	28,934	26,536	22.7	5,348	12.5	2,950	2,398
11-Jan-09	31,335	2,627	288	28,997	28,374	14.5	3,674	12.1	3,051	623
18-Jan-09	31,335	2,610	288	29,014	28,883	12.7	3,258	12.1	3,127	131
25-Jan-09	31,335	2,561	288	29,063	28,703	13.5	3,466	12.1	3,106	360
01-Feb-09	31,335	2,592	288	29,032	28,351	14.7	3,729	12.1	3,048	681
08-Feb-09	31,335	2,587	288	29,037	28,328	14.9	3,757	12.1	3,048	709
15-Feb-09	31,335	2,648	288	28,976	27,892	16.4	4,075	12.0	2,991	1,084
22-Feb-09	31,335	2,640	288	28,984	27,626	17.5	4,315	12.0	2,957	1,358
01-Mar-09	31,335	3,054	288	28,570	27,616	16.7	4,086	12.8	3,132	954
08-Mar-09	31,335	3,835	288	27,789	27,418	14.5	3,512	12.9	3,141	371
15-Mar-09	31,335	4,826	288	26,798	26,623	13.5	3,183	12.7	3,008	175
22-Mar-09	31,335	4,840	288	26,784	25,982	16.0	3,696	12.5	2,894	802
29-Mar-09	31,335	4,871	288	26,753	25,388	18.8	4,232	12.7	2,867	1,365

**Table A6 Assessment of Resource Adequacy: Extreme Weather,
Planned Resource Scenario**

Week Ending Day	Total Resources MW	Total Reductions in Resources MW	Demand Measures MW	Available Resources MW	Required Resources MW	Available Reserve %	Available Reserve MW	Required Reserve %	Required Reserve MW	Reserve Above Requirement Current
07-Oct-07	31,214	7,701	531	24,044	26,036	4.8	1,106	13.5	3,098	-1,992
14-Oct-07	31,214	8,041	531	23,704	23,261	14.8	3,048	12.6	2,605	443
21-Oct-07	31,214	8,804	531	22,941	24,112	7.9	1,678	13.4	2,849	-1,171
28-Oct-07	31,214	8,867	531	22,878	24,405	6.3	1,361	13.4	2,888	-1,527
04-Nov-07	31,214	8,621	531	23,124	25,121	4.4	979	13.4	2,976	-1,997
11-Nov-07	31,214	8,024	531	23,721	25,458	5.6	1,247	13.3	2,984	-1,737
18-Nov-07	31,214	6,874	531	24,871	26,253	6.9	1,608	12.9	2,990	-1,382
25-Nov-07	31,290	7,057	531	24,764	26,771	4.4	1,045	12.9	3,052	-2,007
02-Dec-07	31,290	6,543	531	25,278	27,214	4.6	1,103	12.6	3,039	-1,936
09-Dec-07	31,317	5,260	531	26,588	27,876	6.8	1,699	12.0	2,987	-1,288
16-Dec-07	31,317	4,820	531	27,028	28,117	7.7	1,931	12.0	3,020	-1,089
23-Dec-07	31,317	4,576	531	27,272	27,901	9.6	2,378	12.1	3,007	-629
30-Dec-07	31,317	3,097	531	28,751	26,527	21.7	5,133	12.3	2,909	2,224
06-Jan-08	31,317	3,102	531	28,746	26,877	20.1	4,801	12.2	2,932	1,869
13-Jan-08	31,317	3,082	531	28,766	27,680	16.5	4,074	12.1	2,988	1,086
20-Jan-08	31,317	2,532	531	29,316	28,213	16.6	4,174	12.2	3,071	1,103
27-Jan-08	31,317	2,474	531	29,374	27,991	17.7	4,426	12.2	3,043	1,383
03-Feb-08	31,317	3,364	531	28,484	27,875	15.0	3,712	12.5	3,103	609
10-Feb-08	31,323	3,323	531	28,532	27,778	15.6	3,839	12.5	3,085	754
17-Feb-08	31,323	3,382	531	28,473	27,276	17.3	4,205	12.4	3,008	1,197
24-Feb-08	31,323	3,889	531	27,966	27,167	15.9	3,836	12.6	3,037	799
02-Mar-08	31,323	3,835	531	28,020	27,074	17.6	4,192	13.6	3,246	946
09-Mar-08	31,336	5,600	531	26,267	26,839	11.0	2,605	13.4	3,177	-572
16-Mar-08	31,336	6,095	531	25,772	26,053	11.9	2,749	13.2	3,030	-281
23-Mar-08	31,336	6,095	531	25,772	25,391	14.8	3,318	13.1	2,937	381
30-Mar-08	31,336	6,415	531	25,452	24,986	15.5	3,406	13.3	2,940	466
06-Apr-08	31,336	6,495	531	25,372	25,138	14.6	3,231	13.5	2,997	234
13-Apr-08	31,332	7,048	531	24,816	23,577	18.5	3,882	12.6	2,643	1,239
20-Apr-08	31,332	7,105	531	24,759	24,992	12.2	2,683	13.2	2,916	-233
27-Apr-08	31,332	7,505	531	24,359	24,774	10.4	2,296	12.3	2,711	-415
04-May-08	31,355	5,459	531	26,428	24,730	21.1	4,603	13.3	2,905	1,698
11-May-08	31,355	5,866	531	26,021	25,272	16.2	3,632	12.9	2,883	749
18-May-08	31,355	5,866	531	26,021	24,684	18.9	4,129	12.8	2,792	1,337
25-May-08	31,355	4,904	531	26,983	25,626	19.1	4,329	13.1	2,972	1,357
01-Jun-08	31,355	4,395	531	27,492	26,523	16.5	3,902	12.4	2,933	969
08-Jun-08	31,625	4,689	531	27,467	27,588	12.2	2,993	12.7	3,114	-121
15-Jun-08	31,625	4,179	531	27,977	29,211	8.4	2,159	13.1	3,393	-1,234
22-Jun-08	31,625	3,453	531	28,703	30,326	7.0	1,887	13.1	3,510	-1,623
29-Jun-08	31,625	3,301	531	28,855	29,972	8.8	2,322	13.0	3,439	-1,117

(Table A6 continued)

Week Ending Day	Total Resources MW	Total Reductions in Resources MW	Demand Measures MW	Available Resources MW	Required Resources MW	Available Reserve %	Available Reserve MW	Required Reserve %	Required Reserve MW	Reserve Above Requirement Current
06-Jul-08	31,625	3,351	531	28,805	29,188	11.3	2,922	12.8	3,305	-383
13-Jul-08	31,625	3,357	531	28,799	30,150	7.9	2,112	13.0	3,463	-1,351
20-Jul-08	31,625	3,357	531	28,799	31,287	4.1	1,145	13.1	3,633	-2,488
27-Jul-08	31,625	3,352	531	28,804	30,029	8.3	2,214	12.9	3,439	-1,225
03-Aug-08	31,625	3,609	531	28,547	28,690	12.2	3,102	12.8	3,245	-143
10-Aug-08	31,625	3,594	531	28,562	31,227	3.6	989	13.3	3,654	-2,665
17-Aug-08	31,625	3,597	531	28,559	30,326	6.5	1,751	13.1	3,518	-1,767
24-Aug-08	31,625	3,621	531	28,535	29,441	9.5	2,474	13.0	3,380	-906
31-Aug-08	31,625	4,553	531	27,603	29,471	5.7	1,480	12.8	3,348	-1,868
07-Sep-08	31,625	5,230	531	26,926	29,375	3.6	943	13.1	3,392	-2,449
14-Sep-08	31,625	5,726	531	26,430	29,114	2.6	681	13.1	3,365	-2,684
21-Sep-08	31,625	5,778	531	26,378	28,251	5.4	1,352	12.9	3,225	-1,873
28-Sep-08	31,625	5,778	531	26,378	26,532	11.9	2,803	12.5	2,957	-154
05-Oct-08	31,753	6,533	531	25,751	25,923	11.9	2,738	12.7	2,910	-172
12-Oct-08	31,753	6,180	531	26,104	23,234	26.6	5,487	12.7	2,617	2,870
19-Oct-08	31,753	6,673	531	25,611	23,774	20.7	4,399	12.1	2,562	1,837
26-Oct-08	31,753	6,184	531	26,100	24,175	21.5	4,618	12.5	2,693	1,925
02-Nov-08	31,753	6,739	531	25,545	24,792	15.6	3,451	12.2	2,698	753
09-Nov-08	33,088	6,444	531	27,175	25,184	21.2	4,759	12.4	2,768	1,991
16-Nov-08	33,088	6,950	531	26,669	25,973	15.2	3,508	12.1	2,812	696
23-Nov-08	33,088	6,501	531	27,118	26,594	14.6	3,446	12.3	2,922	524
30-Nov-08	33,088	6,460	531	27,159	27,050	12.9	3,107	12.5	2,998	109
07-Dec-08	33,088	5,779	531	27,840	27,823	12.4	3,078	12.4	3,061	17
14-Dec-08	33,088	4,844	531	28,775	27,724	16.4	4,061	12.2	3,010	1,051
21-Dec-08	33,088	3,777	531	29,842	27,866	20.5	5,081	12.5	3,105	1,976
28-Dec-08	33,088	3,341	531	30,278	27,612	23.9	5,836	13.0	3,170	2,666
04-Jan-09	33,088	3,370	531	30,249	26,371	30.1	6,993	13.4	3,115	3,878
11-Jan-09	33,567	3,497	531	30,602	27,670	24.9	6,094	12.9	3,162	2,932
18-Jan-09	33,567	3,483	531	30,616	27,908	23.7	5,870	12.8	3,162	2,708
25-Jan-09	33,567	3,434	531	30,665	27,768	24.6	6,059	12.9	3,162	2,897
01-Feb-09	33,567	3,467	531	30,632	27,385	26.5	6,409	13.1	3,162	3,247
08-Feb-09	33,567	3,457	531	30,642	27,629	25.2	6,174	12.9	3,161	3,013
15-Feb-09	33,567	3,520	531	30,579	27,093	27.7	6,638	13.2	3,152	3,486
22-Feb-09	33,567	3,514	531	30,585	26,801	29.3	6,936	13.3	3,152	3,784
01-Mar-09	33,567	3,880	531	30,219	27,046	27.3	6,488	14.0	3,315	3,173
08-Mar-09	34,137	4,660	531	30,009	26,637	28.7	6,687	14.2	3,315	3,372
15-Mar-09	34,137	5,689	531	28,980	25,861	27.5	6,245	13.8	3,126	3,119
22-Mar-09	34,137	5,712	531	28,957	25,330	30.4	6,753	14.1	3,126	3,627
29-Mar-09	34,137	5,748	531	28,921	24,743	34.0	7,341	14.7	3,163	4,178

Table A7 Energy Production Capability Forecast

Month	Firm Resource Scenario Forecast Energy Production Capability (GWh)	Planned Resource Scenario Forecast Energy Production Capability (GWh)
Oct 2007	14,891	14,891
Nov 2007	15,047	15,047
Dec 2007	16,331	16,331
Jan 2008	17,226	17,226
Feb 2008	16,251	16,251
Mar 2008	16,496	16,516
Apr 2008	15,995	16,014
May 2008	15,568	15,593
Jun 2008	17,239	17,265
Jul 2008	17,189	17,212
Aug 2008	16,525	16,549
Sep 2008	16,002	16,191
Oct 2008	16,671	16,867
Nov 2008	16,769	16,964
Dec 2008	17,301	17,490
Jan 2009	17,716	17,930
Feb 2009	16,995	17,864
Mar 2009	17,808	18,710

- End of Section -

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Appendix B Transmission Projects

Table B Transmission Projects

Zone	CAA-ID#	Transmitter	Description	Proposed I/S Date
East	2005-198	Hydro One Networks Inc.	Whitby TS new transformer station	2007-Q4
	2007-Ex333	Hydro One Networks Inc.	Whitby DESN 1: New shunt capacitor	2008-Q3
	N/A	Hydro One Networks Inc.	Kingston-Gardiner TS#2 new transformer station	2008-Q4
	2000-001	Hydro One Networks Inc.	Hawthorne TS: Switchyard expansion to facilitate connection of the HQ 230 kV ties lines.	2008-Q4
	2006-245	Hydro Otyawa	Cyrville TS new transformer station	2008-Q3
Essa	2006-233	Hydro One Networks Inc.	Orangeville TS Shunt Capacitor	2008-Q2
	2006-227	Hydro One Networks Inc.	Everett TS new transformer station	2007-Q3
	2006-211	Hydro One Networks Inc.	Holland Marsh TS new transformer station	2009-Q3
	2005-190	Hydro One Networks Inc.	Stayner TS modifications and new 230 kV line	2009-Q1
Niagara	2002-085	Hydro One Networks Inc.	Queenston Flow West	To be determined
	N/A	Hydro One Networks Inc.	Improve thermal rating of 115 kV circuits Q12S, Q3L, Q4N, Q1N, Q5G	2009-Q2
	2007-257	Hydro One Networks Inc.	Improve thermal rating of 115 kV circuits D9HS, D10S and Q11S	2007-Q3
	2007-258	Hydro One Networks Inc.	Vansickle TS transformer station replacement	2009-Q3
Northeast	N/A	Great Lakes Power Ltd.	Replacement of 250 MVA Autotransformer @ Third Line TS	2007-Q4
	N/A	Great Lakes Power Ltd.	Magpie TS 115 kV structure replacement	2007-Q4
	N/A	Great Lakes Power Ltd.	Mackay TS 115 kV yard refurbishment - on going	2008-Q4
	N/A	Great Lakes Power Ltd.	Third Line TS 115 kV yard refurbishment - on going	2009-Q4
	2005-207	Five Nations Energy Inc.	New transformer at Kashechewan	2009-Q3
	2005-207	Five Nations Energy Inc.	New back up transformer at Fort Albany	2007-Q4
	2000-015	Five Nations Energy Inc.	New 115 kV transmission line from Moosonee to Victor Mine	2007-Q3
	2002-086	Hydro One Networks Inc.	Modify Moosonee SS	2007-Q4
	2002-086	Hydro One Networks Inc.	Modify Otter Rapids SS	2007-Q3
	2002-086	Hydro One Networks Inc.	Reinforce existing transmission facilities to supply Victor Mine	2008-Q2
	N/A	Hydro One Networks Inc.	Porcupine TS - Complete replacement of 500 kV and 115 kV breakers and reconfiguration of 500 kV terminations	2007-Q3

(Table B continued)

Northwest	2006-228	Hydro One Networks Inc.	Red Lake TS new transformer station	2007-Q3
	2006-247	Hydro One Networks Inc.	Lakehead TS static var compensator (SVC)	2009-Q1
Southwest	2006-233	Hydro One Networks Inc.	Detweiler TS Shunt Capacitor	2008-Q2
	2006-225	Hydro One Networks Inc.	Toyota Woodstock TS new transformer station	2007-Q3
	2006-225	Hydro One Networks Inc.	Woodstock TS low voltage shunt capacitors	2008-Q1
	2006-215	Hydro One Networks Inc.	Install Preston 230-115 kV auto-transformer	2007-Q4
	2006-221	Hydro One Networks Inc.	Halton TS and Meadowvale TS low voltage shunt capacitors	2008-Q2
	2006-EX299	Hydro One Networks Inc.	Burlington TS: Replace the lower rated 230/115 kV transformer and buswork that limits the station capability.	2008-Q2 2009-Q2
	2006-249	Hydro One Networks Inc.	Bruce to Orangeville 230 kV circuits upgrade	2009-Q1
	Toronto	2002-057	Hydro One Networks Inc.	John x Esplanade 115 kV cable
2006-209		Hydro One Networks Inc.	Enfield TS (Oshawa TS) new transformer station	2009-Q4
2006-213		Hydro One Networks Inc.	Pleasant TS new transformer station	2008-Q2
2006-224		Hydro One Networks Inc.	Hurontario SS new 230 kV switching station	2009-Q2
2006-248		Hydro One Networks Inc.	Hurontario SS to Jim Yarrow TS 230 kV double circuit line	2009-Q2
2006-230		Hydro One Networks Inc.	Mississauga TS new transformer station	2009-Q2
West	2006-212	Hydro One Networks Inc.	London Talbot TS new transformer station	2007-Q4
	2005-EX228	Hydro One Networks Inc.	Essex TS: Reconfigure the 115 kV termination	2007-Q3
	2005-194	Hydro One Networks Inc.	Tilbury TS: Reconfigure 115 kV circuit terminations	2007-Q2
	2007-EX318	Hydro One Networks Inc.	Belle River TS low voltage shunt capacitors	2007-Q4
	2007-EX328	Hydro One Networks Inc.	Lambton TS: Replace Air Blast breakers with SF6 breakers, replace buswork (strain bus with rigid bus) and reconfigure lines	2008-Q2
	2007-260	Hydro One Networks Inc.	Rodney TS new transformer station	2008-Q2

- End of Section -

Appendix C Planned Transmission Outages

The following tables list the planned transmission outages by transmission zone, for transmission outages with an expected duration greater than five days, and/or for those transmission outages associated with a major project.

Table C1 Bruce Zone

Planned Start Date	Planned End Date	Equipment O/S	Outage Request Id	Recall Time	Type	Purpose	Major Transmission Interface Impacted	Reduction in Limit
Sep 24 2007 6:00 AM	Oct 05 2007 4:00 PM	Bruce A TS: T28, T28-K, R28S, R28-T, R28, T28-HT28, R28S, R28	5158558	8 Hour	CWW	Major maintenance on R28 & T28 and double testing T28. Minor tapchanger mtce on T28 <i>Minor maintenance on R28S</i>	FABC	0 to 50 MW
Nov 12 2007 6:00 AM	Nov 17 2007 5:30 PM	Bruce A TS: HT1_BUS, T1L20, T1L22	5188334	8 Hour	CWW	E&CS to replace HT1PC and secondary switch box with new fused disconnect switch mech box and HT1CVT and double test CVT on Saturday November 17th	none	none

Table C2 East Zone

Planned Start Date	Planned End Date	Equipment O/S	Outage Request Id	Recall Time	Type	Purpose	Major Transmission Interface Impacted	Reduction in Limit
Jan 01 2007 2:01 PM	Oct 31 2007 2:01 PM	Dobbin TS: T2-K, T2, T2-A	4796534	Immediate	CWW	Off pot for summer operation	None	N/A
May 30 2008 2:01 PM	Oct 31 2008 2:01 PM	Dobbin TS: T2-K, T2-A, T2	4796540	Immediate	CWW	Off pot for summer operation	None	N/A
Nov 05 2007 5:00 AM	Nov 15 2007 6:00 PM	Cherrywood TS: DL15, L1L15, P15C::DOBBIN_TS::CHERRYWOOD_TS, L15L20, AL15, P15C::DOBBIN_TS::CHERRYWOOD_TS	5001962	4 Day	CWW	This is a place holder for the line outage of P15C - A and B protection both ends for the protection replacement program NERC compliance for 2007	FIO	30 MW
Sep 04 2007 4:00 AM	Oct 25 2007 5:00 PM	Chats Falls SS: 2-Q4C, H-TL, T20-Q4C	5021394	8 Hour	DWW	T20-Q4C SWITCH REPLACEMENT	Quebec South (Ottawa)	52 MW for Export
Oct 15 2007 7:15 AM	Oct 26 2007 4:00 PM	Lennox TS: AL4	5045611	4 Hour	CWW	To perform major breaker maintenance	None	N/A
Oct 01 2007 7:30 AM	Nov 02 2007 3:00 PM	Chenaux TS: TR4-P, R4-S, TR4-T, T4, TR4, TR4-T, T4-A	5170989	48 Hour	CWW	Minor component upgrade and leak repair to Chenaux T4 & TR4	None	N/A
Nov 16 2007 5:00 AM	Nov 27 2007 6:00 PM	Bowmanville SS: L21L41, H3L521, X521B::LENNOX_TS::BOWMANVILLE_SS, X4L521, X521B::LENNOX_TS::BOWMANVILLE_SS, PL521	5241824	3 Day	CWW	Line outage of X521B - A and B protection Wiring of new A and B protection	None	N/A
Oct 06 2008 7:00 AM	Oct 31 2008 6:00 PM	Galetta JCT: C27P::DOBBIN_TS::GALETTA_JCT, HL27, C27P::GALETTA_JCT::CHATS_FALLS_SS, C27P::GALETTA_JCT::CHATS_FALLS_SS, DL33, C27P::DOBBIN_TS::GALETTA_JCT, DL3, D_BUS, AL27	5277035	8 Hour	CWW	Draft - See associated Telecom Slip 113069 Line C27P. Modify and replace A & B protection relaying, teleprotection and PLC equipment at Chats Falls TS, Dobbin TS and Arnprior GS (OPG). Line out of service for line entrance equipment replacement at Dobbin	FIO	30 MW

Table C3 Essa Zone

Planned Start Date	Planned End Date	Equipment O/S	Outage Request Id	Recall Time	Type	Purpose	Major Transmission Interface Impacted	Reduction in Limit
No transmission outages to report								

Table C4 Niagara Zone

Planned Start Date	Planned End Date	Equipment O/S	Outage Request Id	Recall Time	Type	Purpose	Major Transmission Interface Impacted	Reduction in Limit
Oct 02 2007 4:00 AM	Oct 10 2007 6:00 PM	Thorold TS: T2E, T2, T2Y, 44-D1A, D1A-MSO, T2-K, T2-K	3632475	8 Hour	CWW	Construction to remove switch T2-K and replace with rigid bus, Install surge arresters on T2 P&C to modify the protection schemes so that the 44-D1A disconnect switches be used to isolate the transformers which under our HQ0206 document require P&C to	none	none
Jan 01 2008 5:00 AM	Jan 07 2008 6:00 PM	BURLINGTNJCT: Q23BM::BURLINGTON_TS::BURLNGTNJCT, Q23BM::BURLINGTON_TS::BURLNGTNJCT, T6L23, Q23BM::CARLUKE_JCT::MIDDLEPORT_TS, L23L37, Q23BM::NIAGARA_WEST_JCT::BECK_#2_TS, TL21L23, T16, T16B, Q23BM::CARLUKE_JCT::MIDDLEPORT_TS, Q23BM::NIAGARA_WEST_JCT::BECK_#2_TS, H2L23, Q23BM::T44D_#23	3671438	4 Hour	CWW	Relay & Interface Replacement - Outage to wire in new tripping relays at Burlington, Beck#2 & Middleport	FABC	50 to 100 MW
Apr 01 2008 5:00 AM	Apr 17 2008 6:00 PM	Niagara 345 CTS: PA301::BECK_#2_TS::NIAGARA_345_CTS, 28-PA301, PA301::BECK_#2_TS::NIAGARA_345_CTS	5128143	48 Hour	CWW	NYPA Dam Re-Facing Project	NY import S NY export S	550 MW 600 MW
Sep 01 2008 5:00 AM	Oct 15 2008 11:58 PM	Niagara 345 CTS: PA302::BECK_#2_TS::NIAGARA_345_CTS, 28-PA301, 28-PA302, PA302::BECK_#2_TS::NIAGARA_345_CTS, PA301::BECK_#2_TS::NIAGARA_345_CTS, PA301::BECK_#2_TS::NIAGARA_345_CTS	5129904	48 Hour	CWW	NYPA Dam Re-Facing Project	NY import S NY export S	1150 MW 1280 MW
Oct 16 2008 12:01 AM	Nov 02 2008 6:00 PM	Beck #2 TS: PA301::BECK_#2_TS::NIAGARA_345_CTS, PA301::BECK_#2_TS::NIAGARA_345_CTS, 28-PA301	5129924	48 Hour	CWW	NYPA Dam Re-Facing Project	NY import S NY export S NY import W NY export W	Oct. 16 to 31 550 MW 600 MW Oct. 31 to Nov. 02 550 MW 540 MW
Oct 01 2007 6:30 AM	Oct 06 2007 2:30 PM	Niagara TS: 101N	5182524	4 Hour	CWW	Q1N major breaker overhaul	none	none
Apr 07 2008 7:00 AM	Apr 18 2008 5:00 PM	Beck #2 TS: TL21L23	5205809	6 Day	CWW	Beck TL21L23 Breaker Failure Replacement	none	none
Apr 21 2008 7:00 AM	May 02 2008 5:00 PM	Beck #2 TS: DL24	5205847	6 Day	CWW	Beck DL24 Breaker Failure Replacement	none	none
May 05 2008 7:00 AM	May 16 2008 5:00 PM	Beck #2 TS: KL23	5205899	6 Day	CWW	Beck KL23 Breaker Failure Replacement	none	none
May 20 2008 7:00 AM	May 30 2008 5:00 PM	Beck #2 TS: L25T302	5205913	6 Day	CWW	Beck L25T302 Breaker Failure Replacement	none	none
Sep 10 2007 4:00 AM	Nov 16 2007 7:00 PM	Beamsville TS: O5G::BEAMSVILLE_TS::BEACH_TS, O5G::HOLLAND_ROAD_JCT::BEAMSVILLE_TS, O5G::BECK_#1_SS::HOLLAND_ROAD_JCT, O5G::BEACH_TS::GAGE_TS, O5G::BEACH_TS::GAGE_TS, 24O5G, 20O5G, O5G::BEAMSVILLE_TS::BEACH_TS, O5G::BECK_#1_SS::HOLLAND_ROAD_JCT, O5G::HOLLAND_ROAD_JCT::BEAMSVILLE_TS	5240288	8 Hour	CWW	To restring and refurbish tower arms on O5G. (Same work/Same tower as Q2AH)	none	none
May 12 2008 4:00 AM	May 23 2008 6:00 PM	Louth JCT: 69D10S-23, D10S::LOUTH_JCT::CARLTON_TS, D10S::LOUTH_JCT::CARLTON_TS, 40-D10S, 69D10S-4	5287194	4 Hour	CWW	Wood Structure Replacement	none	none
May 27 2008 4:00 AM	Jun 06 2008 6:00 PM	Louth JCT: 69D9HS-4, D9HS::HOOPER'S_JCT::VANSICKLE_TS, D9HS::DECEW_FALLS_SS::HOOPER'S_JCT, 23-D9HS, D9HS::HOOPER'S_JCT::VANSICKLE_TS, D9HS::LOUTH_JCT::CARLTON_TS, D9HS::VANSICKLE_TS::LOUTH_JCT, D9HS::VANSICKLE_TS::LOUTH_JCT, D9HS::LOUTH_JCT::CARLTON_TS, D9HS::DECEW_FALLS_SS::HOOPER'S_JCT, TS-D9HS,	5287421	4 Hour	CWW	Wood Structure Replacement Louth Jct x Carlton TS	none	none

Table C5 Northeast Zone

Planned Start Date	Planned End Date	Equipment O/S	Outage Request Id	Recall Time	Type	Purpose	Major Transmission Interface Impacted	Reduction in Limit
Nov 22 2005 12:00 AM	Jun 14 2030 11:59 PM	Mackay TS: ANJIGAMI LINE #1, ANJIGAMI LINE #1	3663682	Non-Recallable	CWW	Anjigami 115 kv line coming out of service because new 230 line going in service Anjigami Line being decommissioned	None	
Oct 05 2007 8:00 AM	Oct 29 2007 4:00 PM	Hamner TS: R2, 33R2-L504	4282851	1 Day	CWW	R2-L504 Switch Replacement at Hamner TS Preventative Mtce on X504E-G, PL504-L & W6L504-L switches at Hamner T.S. Line removing loops on L504 bus for R2-L504 switch replacement	None	
Oct 22 2007 9:01 AM	Nov 11 2007 2:01 PM	Wells CGS: 27-T27P, T27	4575887	Non-Recallable	CWW	Wells G2 - Annual maintenance and T27 transformer replacement and breaker overhauls.	None	
Nov 26 2007 8:01 AM	Dec 16 2007 4:01 PM	Wells CGS: 27-T28P, T28	4576307	Non-Recallable	CWW	Wells G1 - Annual maintenance AND T28 transformer replacement (if available)	None	
Oct 09 2007 7:00 AM	Oct 18 2007 5:00 PM	Des Joachims TS: 5-DSH, D5H::DES_JOACHIMS_TS::OTTO_HOLDEN_TS, D5H::DES_JOACHIMS_TS::OTTO_HOLDEN_TS, 6-DSH	4669526	4 Hour	CWW	Replace insulators at Str # 258, #261, #262, #284, #288 & #289. Line section D5H between Des Joachims TS X Otto Holden TS	Flow North, Flow South	FN reduced by 350MW, FS reduced by 400MW
Oct 22 2007 7:00 AM	Nov 01 2007 5:00 PM	Nine Mile JCT: D3K::NINE_MILE_JCT::DANE_JCT, D3K::DYMOND_TS::NINE_MILE_JCT, 32-D3K, D3K::DYMOND_TS::NINE_MILE_JCT, 68D3K-32, D3K::NINE_MILE_JCT::DANE_JCT	4669531	4 Hour	CWW	Lines to replace 8 wood pole structures. Line section D3K between Dymond and Dane Jct.	No Major Interface Impacted. Note: Increase DAS requirement for DAL.	
Nov 23 2006 8:01 AM	Dec 31 2007 11:59 PM	Gartshore GS: 766, 765	4670038	Non-Recallable	CWW	Gartshore reconfig - AB 765 and CB 766 will remain open at Gartshore GS for ongoing reconfiguration work of New Gartshore TS.	None	
Oct 09 2007 7:00 AM	Oct 26 2007 5:00 PM	Clarabelle TS: T2-S22A, 9-S22A, 26-S22A	4716853	4 Hour	CWW	Lines to replace 22 wood pole structures. Line Circuit S22A between Clarabelle TS X Alogma TS	EWTE	50 MW
Oct 29 2007 5:30 AM	Nov 09 2007 3:00 PM	Martindale TS: T26-P, P_BUS, PL24, T21-P, PL22, PL23	5232832	8 Hour	CWW	Preventative MTCE on all -P switches, replacing T21-P switch and post insulators on PL22-P switch	No Major Interface Impacted. Note: Operating requirement to split the Clarabelle LT-Bus for flow west on S22A at Martindale >225MW	
Oct 09 2007 4:00 AM	Oct 23 2007 5:00 PM	Pinard TS: 31T2-K, 31R2-T2, T2-D501P, T2	5256703	4 Hour	CNW	Station Construction to pressure wash the entire spill containment pit, caulk all joints, water test and place new stone	No Major Interface Impacted. Note: Require more post-rejection reactive absorbing capability from Moose River Plants with 1 Pinard Reactor O/S.	

Table C6 Northwest Zone

Planned Start Date	Planned End Date	Equipment O/S	Outage Request Id	Recall Time	Type	Purpose	Major Transmission Interface Impacted	Reduction in Limit
Oct 10 2006 9:01 AM	Dec 31 2007 11:59 PM	Sterling Chem. CTS: T1, S-T2, T2, 13.8KV, S-T1, S-B1B, B1	4501423	Non-Recallable	CWW	Permanent Shutdown of Plant.	None	None
Nov 05 2007 11:00 AM	Nov 16 2007 6:00 PM	Fort Frances TS: T1-K, T1, T1-J	5004276	1 Day	CWW	Repair oil leaks on T1 Internal ULTC work Replace broken or defective insulators.	None	None
Sep 24 2007 7:00 AM	Nov 22 2007 7:00 PM	Dryden TS: D26A::DRYDEN_TS::MACKENZIE_TS, D26A::DRYDEN_TS::MACKENZIE_TS, 20-D26A, 25-D26A	5014621	4 Hour	CWW	Provincial Lines and line construction to replace structures on ckt D26A section Dryden x Mackenzie	OMTE, OMTW, EWTE, EWTW, MPFN	OMTE - 70 MW OMTW - 250 MW EWTE - 75 MW EWTW - 50 MW MPFN - 50 MW
Oct 14 2007 12:00 PM	Oct 21 2007 8:00 AM	Port Arthur TS #1: 2P5M, L3P::LAKEHEAD_TS::PORT_ARTHUR_TS_#1, P5M::PORT_ARTHUR_TS_#1::CONNEE_JCT, L3P::LAKEHEAD_TS::PORT_ARTHUR_TS_#1, P5M::PORT_ARTHUR_TS_#1::CONNEE_JCT, 12-L3P, P5M-L3PMSO, 2L3P, P5M-L3P	5015558	2 Day	CWW	Construction mtce to replace CVT'S on the P5M cct @ Port Arthur TS and Silver Falls GS.	None	None
Nov 23 2007 6:00 AM	Dec 11 2007 5:00 PM	Ignace JCT: M2D-M, M2D::MOOSE_LAKE_TS::IGNACE_JCT, 3-M2D, M2D::MOOSE_LAKE_TS::IGNACE_JCT	5238001	4 Hour	CWW	Lines construction to replace 11 structures	None	None
Jul 13 2007 7:00 AM	Dec 31 2007 11:59 PM	Reserve JCT: M1-J6	5296437	Immediate	CWW	57M1 to A7L supply	None	None

Table C7 Ottawa Zone

Planned Start Date	Planned End Date	Equipment O/S	Outage Request Id	Recall Time	Type	Purpose	Major Transmission Interface Impacted	Reduction in Limit
Dec 25 2007 6:30 AM	Dec 30 2007 4:00 PM	King Edward TS: T4, Y_BUS, T4Q, T4Y, T4V, JY, T4-A	4969315	8 Hour	CWW	To replace potheads (6) on T4Y secondary cable where it enters T4Y cubicle	None	N/A
Aug 11 2007 5:00 AM	Oct 07 2007 7:00 PM	Hawthorne TS: HT5_BUS, HT5L31, T5-HT5, HT5L5	4982212	Non-Recallable	CWW	Station Construction to replace HT5L5 and HT5L31 breakers. Construction to replace HT5L5-HT5 and HT5L31-HT5 switches	None	N/A
Oct 01 2007 5:00 AM	Oct 07 2007 7:00 PM	Gamble H9A JCT: 79H9A-66, H9A-LC1	4982248	Non-Recallable	CWW	Lines Construction to prepare bypass to 79M1. Hydro One and Brookfield to transfer H9A to idle circuit(old H2AR). Brookfield to perform mtce on the H9A-L and H9A-G	None	N/A
Oct 06 2007 5:00 AM	Dec 15 2007 7:00 PM	Gamble JCT: H9A-LLO2	4982258	Non-Recallable	CWW	Lines Construction to dismantle H9A section Wilhaven x Gamble Jct and replace with new double circuit tower.	None	N/A
Oct 09 2007 5:00 AM	Oct 19 2007 7:00 PM	Hawthorne TS: 48-D5A, D5A-2403, D5A::CUMBERLAND_JCT::ST.ISIDORE_TS, 48-D5A, HT5L5, D5A::CUMBERLAND_JCT::ST.ISIDORE_TS, KL5, D5A::CUMBERLAND_JCT::HAWTHORNE_TS, D5A::CUMBERLAND_JCT::HAWTHORNE_TS, D5A::CUMBERLAND_JCT::HAWTHORNE_TS, D5A::CUMBERLAND_JCT::HAWTHORNE_TS	4982268	8 Hour	CWW	Lines Construction to connect D5A to H9A to use H9A as a D5A bypass. Station Construction to replace HT5L5-L and commence replacing KL5 and KL5-K.	'Quebec South (Ottawa)'	115 MW for Export 130 MW for Import
Nov 19 2007 5:00 AM	Dec 07 2007 7:00 PM	Hawthorne TS: HT5L31, DL31, 48-M31A	4982326	Non-Recallable	CWW	Construction to replace Hawthorne DL31 breaker, DL31-L and HT5L31-L.	None	N/A
Oct 01 2007 7:30 AM	Oct 06 2007 3:00 PM	Hawthorne TS: T2, R2-T2, T2-LT2, T2-HT2	5112287	12 Hour	CWW	T2 ULTC mtce.	None	N/A
Oct 21 2007 5:00 AM	Oct 26 2007 6:00 PM	Hawthorne TS: T1L522, X522A::LENNOX_TS::HAWTHORNE_TS, X522A::LENNOX_TS::HAWTHORNE_TS, KL522, L22L27, T3L522	5241524	4 Day	CWW	This is a place holder for the line outage of X522A A protection both ends for the protection replacement program NERC compliance for 2007	FIO	400 MW

Table C8 Southwest Zone

Planned Start Date	Planned End Date	Equipment O/S	Outage Request Id	Recall Time	Type	Purpose	Major Transmission Interface Impacted	Reduction in Limit
Nov 26 2007 7:00 AM	Dec 14 2007 6:00 PM	Nanticoke TS: AL581, T6L23, N581M::NANTICOKE_TS::MIDDLE PORT_TS, T7L581, L581_BUS, T6, T6L31, L81L85, N581M::NANTICOKE_TS::MIDDLE PORT_TS	3816868	4 Hour	CWW	Relay & Interface Replacement - Outage to wire in new tripping relays	FETT FABC	350 MW 350 to 600 MW
Dec 09 2007 6:30 AM	Dec 15 2007 4:00 PM	Middleport TS: T6-TL581, T6-LT6, T6	4351982	4 Hour	CWW	To install a Drycoll breather on transformer to help keep moisture out. EMD to perform major mtce on T6 BLIP	FABC	dec. 09 to dec. 14 350 to 600 MW dec. 14 to dec. 15 0 to 50 MW
Aug 07 2007 4:00 AM	Oct 01 2007 7:00 PM	Nanticoke TS: T12, T12-H, T12-F	4416586	36 Hour	CWW	To perform a Nanticoke T12 Oil Dryout/Corrective Repair. Double test trans. o/b T12-F sw.	none	none
Apr 07 2008 4:00 AM	May 30 2008 7:00 PM	Nanticoke TS: T12-F, T12-H, T12	4674837	4 Hour	CWW	Station Construction to install spill pits for Nanticoke T12	none	none
Nov 26 2007 4:00 AM	Dec 09 2007 7:00 PM	Middleport TS: T6-TL581, T6-LT6, T6	4674847	4 Hour	CWW	Station Construction to install spill pits for Middleport T6	FABC	350 to 600 MW
Jan 05 2009 6:00 AM	Jan 30 2009 3:00 PM	Trafalgar TS: K1K2	4702290	3 Day	CWW	Trafalgar TS - K1K2 BBC ELK Mechanism Refurbishment	none	none
Sep 17 2007 7:00 AM	Oct 12 2007 3:30 PM	Harper's JCT: B5GHA-BU, B5G-L, B6G-1, B6G-L	4815067	12 Hour	CWW	To recondition first 4 towers of B5G and B6G out of Burlington and upgrade conductor on first 4 towers. to 477 MCM	none	none
Nov 05 2007 7:00 AM	Nov 12 2007 5:00 PM	Trafalgar TS: T14, T14-M572T, T14-M572T, 40-M572T, T14-TSS14, M572T::MILTON_SS::TRAFALGAR_TS, T14-HT14, M572T::MILTON_SS::TRAFALGAR_TS	4899180	3 Hour	CWW	SCD to install new spill containment system	FETT	450 MW
Oct 22 2007 6:00 AM	Nov 29 2007 5:00 PM	Kirkton JCT: 74L7S-21, 61-L7S, L7S-M18, L7S::KIRKTON_JCT::SEAFORTH_TS, L7S::KIRKTON_JCT::SEAFORTH_TS	5051505	4 Hour	CWW	Line Const. changing 25 str's poles arms and associated hardware on the L7S in section Kirkton x Seaforth	none	none
Oct 15 2007 6:30 AM	Oct 26 2007 2:00 PM	Middleport TS: KL20	5082166	8 Hour	CWW	major overhaul of breaker - rebuild heads	none	none
Oct 30 2007 6:30 AM	Nov 08 2007 2:30 PM	Nanticoke TS: AL582	5140668	Non-Recallable	CWW	remove and install rebuilt W phase North mechanism	none	none
May 28 2007 3:00 PM	Dec 31 2007 4:10 PM	Gage TS: 24-K1G, 24-K2G	5150090	10 Minute	CWW	Transfer Gage T3/T4 to Burlington supply due to defective A4-A5	none	none
Sep 29 2007 8:01 AM	Oct 08 2007 6:01 PM	Scheifele CTS: B BUS	5157356	48 Hour	CWW	Scheifele "B" Bus	none	none
Oct 06 2007 8:01 AM	Oct 13 2007 4:01 PM	Scheifele CTS: Y BUS	5157361	48 Hour	CWW	Scheifele "Y" Bus	none	none
Oct 01 2007 7:00 AM	Oct 13 2007 3:00 PM	Burlington TS: H2L36	5182548	6 Hour	CWW	Major Mtce on Burlington H2L36 Double test to take place October 12th	none	none
Oct 11 2007 7:00 AM	Oct 11 2007 3:00 PM	Burlington TS: H2_BUS, 39-T36B, T9-H2, T9K, T9-H2, T9SS-T	5183176	2 Hour	CWW	TO REMOVE SECTION OF H2 BUS WORK FOR DOBLE TEST ON H2L36 (see separate noms # 150105)	none	none
Dec 31 2007 6:45 AM	Dec 31 2007 2:00 PM	Nanticoke TS: T6T11, AT11, T11-H	5183446	2 Hour	CWW	repair burnt jaw of AT11-11 switch.	none	none
Oct 15 2007 6:30 AM	Oct 30 2007 2:30 PM	Beach TS: L24L36	5187731	4 Hour	CWW	Major Mtce on Beach L24L36 Brkr Corrective to repair leaking bushing on W ph	none	none
Oct 15 2007 4:00 AM	Nov 04 2007 6:00 PM	Nanticoke TS: N580M::NANTICOKE_TS::MIDDLE PORT_TS, 59-N580M, N580M::NANTICOKE_TS::MIDDLE PORT_TS, 25-N580M	5239313	4 Hour	CWW	Conductor repair	FETT FABC	350 MW oct. 15 to oct. 17 950 MW (when BLIP pos.) 600 MW (when BLIP neg.) oct. 17 to oct. 20 1000 to 1350 MW (when BLIP pos) 650 to 1000 (when BLIP neg) oct. 20 to oct. 21 50 to 400 MW oct. 21 to oct. 26 350 to 700 MW oct. 26 to oct. 29 50 to 400 MW oct. 29 to nov. 03 1000 to 1350 MW (when BLIP pos) 650 to 1000 (when BLIP neg) nov. 03 to nov. 04 50 to 400 MW

(Table C8 continued)

Nov 26 2007 5:00 AM	Dec 14 2007 6:00 PM	Middleport TS: 25-N581M, N581M::NANTICOKE_TS::MIDDLE PORT_TS, N581M::NANTICOKE_TS::MIDDLE PORT_TS_59-N581M	5239318	4 Hour	CWW	Conductor repair	FETT FABC	350 MW 350 to 600 MW
Nov 13 2007 4:00 AM	Nov 23 2007 6:00 PM	Nanticoke TS: N580M::NANTICOKE_TS::MIDDLE PORT_TS_59-N580M, N580M::NANTICOKE_TS::MIDDLE PORT_TS_75-N580M	5239329	4 Hour	CWW	Conductor repair	FETT FABC	350 MW nov. 13 to nov. 17 50 to 400 MW nov. 17 to nov. 19 50 to 100 MW nov. 19 to nov. 23 350 to 400 MW
Oct 01 2007 4:00 AM	Oct 26 2007 7:00 PM	Beamsville TS: 18Q2AH-17, Q5G::BEAMSVILLE_TS::BEACH_T S_Q5G::BEACH_TS::GAGE_TS, Q5G::HOLLAND_ROAD_JCT::BEA MSVILLE_TS, Q5G::BEACH_TS::GAGE_TS, Q5G::HOLLAND_ROAD_JCT::BEA MSVILLE_TS, Q5G::BEAMSVILLE_TS::BEACH_T S_20Q5G_24Q5G, Q5G::BECK_#1_SS::HOLLAND_R OAD_JCT, Q5G::BECK_#1_SS::HOLLAND_R OAD_JCT, Q2AH::BEAMSVILLE_TS::WINONA _JCT, Q2AH::BEAMSVILLE_TS::WINONA _JCT_18Q2AH-17_115Q2AH-18	5241685	8 Hour	CWW	LCD to complete stringing and tower refurb on Q2AH & Q5G. Q5G & Q2AH on same tower.	none	none
Oct 21 2007 5:00 AM	Oct 26 2007 7:00 PM	Hanover TS: B5V::HANOVER_TS::ORANGEVILL E_TS, B5V::HANOVER_TS::ORANGEVILL E_TS_22-B5V_22_22-B5V	5251995	8 Hour	DNW	To replace Tower steel and rebuild 4 towers on the B5V circuit in the Hanover x Orangeville section	FABC	350 to 700 MW
Nov 19 2007 5:00 AM	Dec 14 2007 7:00 PM	Hanover TS: B5V::HANOVER_TS::ORANGEVILL E_TS, B5V::HANOVER_TS::ORANGEVILL E_TS_22-B5V_22_22-B5V	5251995	5 Day	DNW	To remove sag in Towers 1-30 (Orangeville end) on the B5V circuit in the Hanover x Orangeville section Install a new set of MSO's on the Hanover side of the future site of the new Melancthon 11 wind farm	FABC	nov. 19 to nov. 23 350 to 400 MW nov. 23 to nov. 26 300 MW nov. 26 to dec. 14 350 to 550 MW
Jan 21 2008 5:00 AM	Feb 08 2008 7:00 PM	Hanover TS: B4V::HANOVER_TS::ORANGEVILL E_TS, B4V::HANOVER_TS::ORANGEVILL E_TS_22-B4V_22-B4V	5252024	5 Day	DNW	To remove sag in Towers 1-30 (Orangeville end) on the B4V circuit in the Hanover x Orangeville section Install a new set of MSO's on the Hanover side of the existing Melancthon wind farm	FABC	300 to 450 MW
Jun 02 2008 5:00 AM	Jun 27 2008 7:00 PM	Orangeville TS: 22-B5V, B5V::HANOVER_TS::ORANGEVILL E_TS_22-B5V_22-B5V, B5V::HANOVER_TS::ORANGEVILL E_TS	5252041	5 Day	DNW	To remove conductor sag on the B5V circuit in the Hanover x New MSO's @ Melancthon section	FABC	300 MW
Sep 08 2008 5:00 AM	Oct 10 2008 7:00 PM	Orangeville TS: B5V::HANOVER_TS::ORANGEVILL E_TS_22-B5V_22-B5V, B5V::HANOVER_TS::ORANGEVILL E_TS	5252051	5 Day	DNW	To remove conductor sag on the B5V circuit in the Hanover x New MSO's @ Melancthon section	FABC	300 MW
Oct 13 2008 5:00 AM	Dec 12 2008 7:00 PM	Orangeville TS: B4V::HANOVER_TS::ORANGEVILL E_TS_22-B4V_22-B4V, B4V::HANOVER_TS::ORANGEVILL E_TS_22-B4V_22-B4V	5252056	5 Day	DNW	To remove conductor sag on the B4V circuit in the Hanover x New MSO's @ Melancthon section To replace Tower steel and rebuild 4 towers	FABC	300 MW
Jul 04 2007 2:00 PM	Dec 31 2007 7:00 AM	Wallenstein JCT: 83D10H-26	5273792	3 Hour	CWW	To transfer Elmira to Hanover supply after outage for hot spot repair between Elmira and Palmerston - Place Elmira on Hanover supply for the summer due to potential low voltage because of Debris in SC11 UVA	none	none
Apr 07 2008 7:00 AM	Apr 18 2008 5:00 PM	Burlington TS: H2L23	5286504	6 Day	CWW	Burlington H2L23 Breaker Failure Replacement	none	none
May 05 2008 7:00 AM	May 16 2008 5:00 PM	Burlington TS: L23L37	5286569	6 Day	CWW	Burlington L23L37 Breaker Failure Replacement	none	none
May 19 2008 7:00 AM	May 30 2008 5:00 PM	Middleport TS: L5L25	5286665	6 Day	CWW	Middleport L5L25 Breaker Failure Replacement	none	none
May 19 2008 7:00 AM	May 30 2008 5:00 PM	Burlington TS: A2L25	5286681	6 Day	CWW	Burlington A2L25 Breaker Failure Replacement	none	none
Jun 02 2008 7:00 AM	Jun 13 2008 5:00 PM	Middleport TS: KL25	5286695	6 Day	CWW	Middleport KL25 Breaker Failure Replacement	none	none
Sep 15 2008 7:00 AM	Sep 26 2008 5:00 PM	Middleport TS: KL30	5286709	6 Day	CWW	Middleport KL30 Breaker Failure Replacement	none	none
Sep 29 2008 7:00 AM	Oct 10 2008 5:00 PM	Middleport TS: L1L30	5286754	6 Day	CWW	Middleport L1L30 Breaker Failure Replacement	none	none
Oct 14 2008 7:00 AM	Oct 24 2008 5:00 PM	Burlington TS: A2L37	5286839	6 Day	CWW	Burlington A2L37 Breaker Failure Replacement	none	none
Oct 27 2008 7:00 AM	Nov 07 2008 5:00 PM	Burlington TS: H2L36	5286908	6 Day	CWW	Burlington H2L36 Breaker Failure Replacement	none	none

Table C9 Toronto Zone

Planned Start Date	Planned End Date	Equipment O/S	Outage Request Id	Recall Time	Type	Purpose	Major Transmission Interface Impacted	Reduction in Limit
Oct 29 2007 4:00 AM	Dec 28 2007 7:00 PM	Cherrywood TS: T15-W2, T15, T15-HT15	4622703	36 Hour	CWW	To perform a Cherrywood TS T15 Oil Dryout/Corrective Repair -	none	none
Oct 20 2007 6:00 AM	Oct 27 2007 6:00 PM	Cherrywood TS: C17L::CHERRYWOOD_TS::SCARBORO_JCT, 81-C17L, C17L::BERMONDSEY_TS::LEASIDE_TS, C17L::SCARBORO_JCT::WARDEN_TS, T4-C17L, C17L::SCARBORO_JCT::BERMONDSEY_TS, T1-C17L, C17L::BERMONDSEY_TS::LEASIDE_TS, T3-C17L, 34-C17L, C17L::SCARBORO_JCT::WARDEN_TS, C17L::CHERRYWOOD_TS::SCARBORO_JCT, C17L::SCARBORO_JCT::BERMONDSEY_TS	4709959	2 Hour	CWW	Metro Lines to change insulators on ckt C17L	none	none
Oct 08 2007 6:00 AM	Oct 21 2007 6:00 PM	Bloor Street JCT: H1L::BLOOR_STREET_JCT::LEASIDE_TS, H1L-34, 34-H1L, H1L::BLOOR_STREET_JCT::LEASIDE_TS, H1L::GERRARD_TS::BLOOR_STREET_JCT, H1L::GERRARD_TS::BLOOR_STREET_JCT	4747457	Non-Recallable	CWW	Contractor to pull in new section of cable, freeze and cut existing cables & pipe and splice in new section of H1L cable.	none	none
Jan 07 2008 7:00 AM	Jan 14 2008 5:00 PM	Gerrard TS: H3L-34, H3L::GERRARD_TS::BLOOR_STREET_JCT, H3L::BLOOR_STREET_JCT::LEASIDE_TS, H3L::BLOOR_STREET_JCT::LEASIDE_TS, 34-H3L, H3L::GERRARD_TS::BLOOR_STREET_JCT	4747559	4 Hour	DWW	Contractor to erect scaffolding, install new terminations and remove scaffolding.	none	none
Jan 15 2008 6:00 AM	Jan 22 2008 6:00 PM	Leaside TS: 34-H3L, H3L-34, H3L::GERRARD_TS::BLOOR_STREET_JCT, H3L::BLOOR_STREET_JCT::LEASIDE_TS, H3L::BLOOR_STREET_JCT::LEASIDE_TS, H3L::GERRARD_TS::BLOOR_STREET_JCT	4747565	4 Hour	DWW	Contractor to erect scaffolding, install new terminations and remove scaffolding.	none	none
Nov 03 2007 5:00 AM	Nov 12 2007 6:00 PM	Richview TS: H2L22, H2L72, H1H2, SC21H, T7, T7B, R13K::MANBY_EAST_TS::RICHVIEW_TS, A2L13, H2_BUS, R13K::MANBY_EAST_TS::RICHVIEW_TS, H2L18, H3L13, H2L20, H2L76	4834054	Non-Recallable	CWW	This is a place holder for the line outage of R13K - B protection both ends for the protection replacement program NERC compliance for 2007	FETT	0 to 500 MW
Nov 03 2007 5:00 AM	Nov 12 2007 6:00 PM	Richview TS: R13K::MANBY_EAST_TS::RICHVIEW_TS, H2_BUS, H2L22, T7, H2L18, H1H2, SC21H, H2L76, H3L13, A2L13, H2L72, T7B, H2L20, R13K::MANBY_EAST_TS::RICHVIEW_TS	4834342	Non-Recallable	CWW	This is a place holder for the line outage of R13K - A protection both ends for the protection replacement program NERC compliance for 2007	FETT	0 to 500 MW
Sep 04 2007 7:30 AM	Nov 08 2007 6:00 PM	Claireville TS: KL76, K1_BUS, K2_BUS, KL72, K1-K2, KT16, KL83, KL71, K1K2	4856207	20 Day	CWW	To replace K1 and K2 Buses	none	none
Oct 19 2007 7:00 AM	Oct 26 2007 5:00 PM	Pickering A SS: D_BUS, P8C::PICKERING_A_SS::CHERRYWOOD_TS, L3L6, K_BUS, 44-P8C, L6K, L8D, P6C::CHERRYWOOD_TS::PICKERING_A_SS, T1L6, P6C::CHERRYWOOD_TS::PICKERING_A_SS, L6K, 81-P8C, T1D, DL6, T1D, T2K, T1L6, T2L8, T2K, P8C::PICKERING_A_SS::CHERRYWOOD_TS	4982415	Non-Recallable	CWW	Construction to replace all control, relay and metering cables in the Pickering A G1/G2 yard as follows: P6C including Cherrywood Terminal, P8C, T1L6, T1D, G1, SS2, L8D, T2L8, G2, T2K, SS1, L6K	none	none
Oct 26 2007 7:00 AM	Nov 16 2007 5:00 PM	Cherrywood TS: 81-P6C, D_BUS, P8C::PICKERING_A_SS::CHERRYWOOD_TS, L8D, T2L8, 44-P6C, 81-P8C, T1L6, K_BUS, 44-P8C, P6C::CHERRYWOOD_TS::PICKERING_A_SS, T1D, P6C::CHERRYWOOD_TS::PICKERING_A_SS, L6K, T2K, T1D, P8C::PICKERING_A_SS::CHERRYWOOD_TS, T2K	5031201	Non-Recallable	CWW	Construction to replace all control, relay and metering cables in the Pickering A G1/G2 yard as follows: P6C, P8C, T1L6, T1D, G1, SS2, L8D, T2L8, G2, T2K, SS1, L6K	none	none
Nov 16 2007 6:00 AM	Dec 07 2007 4:00 PM	Pickering A SS: K_BUS, L8D, L8D, P8C::PICKERING_A_SS::CHERRYWOOD_TS, T1D, T2K, 44-P6C, 81-P6C, T1L6, KL8, T2L8, L6K, T2L8, L8L24, P8C::PICKERING_A_SS::CHERRYWOOD_TS, T2K, P6C::CHERRYWOOD_TS::PICKERING_A_SS	5031267	Non-Recallable	CWW	Construction to replace all control, relay and metering cables in the Pickering A G1/G2 yard as follows: P6C, P8C including Cherrywood Terminal, T1L6, T1D, G1, SS2, L8D,	none	none
Oct 04 2007 6:30 AM	Oct 19 2007 2:30 PM	Cherrywood TS: W2L541	5040462	8 Hour	CWW	Major overhaul and Mech Box Upgrade	none	none
Sep 17 2007 6:30 AM	Oct 26 2007 3:00 PM	Fairchild TS: T3Q, T3J, 80T3-C18R	5041929	1 Week	CWW	CMS with the assistance of field EMD to overhaul Fairchild T3 as per oil leak reduction program.	none	none
Sep 08 2008 8:00 AM	Oct 10 2008 4:00 PM	Leaside TS: 34-C16L, T1-C16L, T4-C16L, C16L::CHERRYWOOD_TS::SHEPPARD_TS, C16L::SHEPPARD_TS::LEASIDE_TS, C16L::SHEPPARD_TS::LEASIDE_TS, C16L::CHERRYWOOD_TS::SHEPPARD_TS, 81-C16L	5127188	2 Hour	CNW	Metro lines to replace insulators on ckt C16L	none	none
Oct 13 2008 8:00 AM	Nov 14 2008 4:00 PM	Leaside TS: C17L::BERMONDSEY_TS::LEASIDE_TS, 81-C17L, C17L::SCARBORO_JCT::BERMONDSEY_TS, 34-C17L, C17L::SCARBORO_JCT::WARDEN_TS, C17L::SCARBORO_JCT::BERMONDSEY_TS, T4-C17L, T1-C17L, C17L::SCARBORO_JCT::WARDEN_TS, C17L::CHERRYWOOD_TS::SCARBORO_JCT, T3-C17L, C17L::CHERRYWOOD_TS::SCARBORO_JCT, C17L::BERMONDSEY_TS::LEASIDE_TS	5127212	2 Hour	CNW	Metro lines to replace insulators on ckt C17L	none	none
Nov 09 2007 7:30 AM	Dec 21 2007 6:00 PM	Claireville TS: HL73, H1-H2, H1-H2, H1_BUS, HT14, HL75, H2_BUS, HL74, HL82	5183029	29 Day	CWW	To replace H1 bus	none	none
Sep 21 2007 8:00 AM	Oct 22 2007 4:00 PM	Bowmanville SS: H2L520, H2A	5186132	3 Hour	CWW	Hydro One P&C protection mtce during unit 2 outage. Darlington G2 O/S.	none	none
Aug 21 2007 6:00 AM	Oct 31 2007 7:00 PM	Hearn SS: 22H7L-L, 22H11L-L, H11L-22, H7L-22, H11L::HEARN_SS::MAIN_TS, H7L::HEARN_SS::MAIN_TS, H11L::HEARN_SS::MAIN_TS, H7L::HEARN_SS::MAIN_TS	5256412	Non-Recallable	CWW	Contractor to move H7L and H11L cables from of CN property	none	none
Oct 31 2007 8:40 AM	Nov 23 2007 3:10 PM	Hearn SS: SC12A-A, SC12, SC12A, SC12SC	5298978	15 Day	CWW	EMD to replace the existing SC12A breaker and P&C/EMD to provide commissioning function checks.	none	none

Table C10 West Zone

Planned Start Date	Planned End Date	Equipment O/S	Outage Request Id	Recall Time	Type	Purpose	Major Transmission Interface Impacted	Reduction in Limit
Dec 25 2005 8:00 AM	Dec 25 2007 4:00 PM	Longwood TS: HL562, W52-B562L, B562L::LONGWOOD_TS::BRUCE_A_TS, B562L::LONGWOOD_TS::BRUCE_A_TS, PL562, 21-B562L, W52-B562L	2902390	3 Hour	CWW	Switch overhaul & /repairs to the following switches: W52-B562L & HL562-L.	NBLIP BLIP FABC	500 MW 500 MW 950 MW (when BLIP pos.) 600 MW (when BLIP neg.)
Jun 09 2006 6:30 AM	Dec 31 2007 6:00 PM	Lambton TS #2: PS51, PS51-1, PS51-2	4219977	30 Minute	CWW	PS51 bypassed for summer to improve the import thermal limits.	none	none
Sep 15 2007 4:00 AM	Oct 03 2007 6:00 PM	Sarnia Scott TS: L21L43	4300795	Non-Recallable	CWW	Construction. SMS & P&C to replace oil breaker with new SF6 breaker.	none	none
Oct 05 2007 4:00 AM	Oct 24 2007 5:00 PM	Sarnia Scott TS: L6L23	4385678	Non-Recallable	CWW	Construction. SMS & P&C to replace oil breaker with new SF6 breaker.	none	none
Oct 27 2007 4:00 AM	Nov 14 2007 5:00 PM	Sarnia Scott TS: L7L22	4385681	Non-Recallable	CWW	Construction. SMS & P&C to replace oil breaker with new SF6 breaker.	none	none
Sep 10 2007 5:00 AM	Oct 26 2007 6:00 PM	Lambton TS #2: 27-T7, T7-L4D, T7	4622862	2 Day	CWW	Part of the oil leak reduction program	Michigan Export Michigan Import	sept. 10 to oct. 14 575 MW exp 450 MW imp oct. 14 to oct. 26. about 300 MW both.
Dec 26 2006 6:00 AM	Dec 31 2007 6:00 PM	Lambton TS #2: PS4-2, PS4-1, PS4	4764494	30 Minute	CWW	PS4 bypassed for summer to improve the import thermal limits.	none	none
Mar 18 2008 4:00 AM	May 21 2008 7:00 PM	Wonderland TS: SC2, SC2Y, SC2Y	4856672	Non-Recallable	CWW	Wonderland SC2 Capacitor Replacement Install an inrush Current Limiting Reactor	none	none
Nov 26 2007 5:00 AM	Dec 14 2007 6:00 PM	Lambton TS #2: L4D::ST.CLAIR_CTS::LAMBTON_TS_#2, PS4-1, L4D::ST.CLAIR_CTS::LAMBTON_TS_#2, T7-L4D, PS4-S, KL4, PL4, T8-L4D	4863580	Non-Recallable	CWW	Replace buswork and insulators	NBLIP BLIP FABC Michigan Export Michigan Import	500 MW 500 MW 350 to 600MW 575 MW 450 MW
Sep 02 2007 6:00 PM	Oct 05 2007 6:00 PM	Lambton TS #2: 27-L38G, L26L38, P2-MSO1, 27-L26L, L26L38, L4D::ST.CLAIR_CTS::LAMBTON_TS_#2, KL4, KL26, K2-MSO1, PS4-1, T7-L4D, PL38, T8-L4D, L4D::ST.CLAIR_CTS::LAMBTON_TS_#2, PL4, PS4-S	4863840	Non-Recallable	CWW	Replace buswork. Permanently remove switch P2-P3.	NBLIP BLIP FABC Michigan Export Michigan Import	700 MW 700 MW 0 to 300 MW 575 MW 450 MW
Oct 05 2007 6:00 PM	Oct 12 2007 6:00 PM	Lambton TS #2: 27-L26L, KL4, KL26, 27-L38G, L26L38, PL38, L26L38, K2-MSO1, P2-MSO1	4863902	Non-Recallable	CWW	Replace buswork	NBLIP BLIP FABC Michigan Export Michigan Import	700 MW 700 MW 0 to 300 MW 575 MW 450 MW
Oct 17 2007 5:00 AM	Nov 17 2007 5:00 AM	Lambton TS #2: KL4, KL26, KL28, L27L28, P1P2, 27-L28C, K2-MSO1, P2-MSO1, K1K2, KL28, PL27, L27L28, 27-L27V	4863994	Non-Recallable	CWW	Replace buswork and insulators.	NBLIP BLIP FABC	oct. 17 to oct. 20 900 MW oct. 20 to oct. 29 700 MW oct. 29 to nov. 03 900 MW nov. 03 to nov. 17 700 MW oct. 17 to oct. 20 900 MW oct. 20 to oct. 29 700 MW oct. 29 to nov. 03 900 MW nov. 03 to nov. 17 700 MW oct. 17 to oct. 20 1000 to 1350 MW (when BLIP pos) 650 to 1000 (when BLIP neg) oct. 20 to oct. 21 50 to 400 MW oct. 21 to oct. 26 350 to 700 MW oct. 26 to oct. 29 50 to 400 MW oct. 29 to nov. 03 1000 to 1350 MW (when BLIP pos) 650 to 1000 (when BLIP neg)
Nov 26 2007 7:00 AM	Dec 21 2007 2:00 PM	Walker TS #1: T3, T3-Z7E, T3Q	4868744	18 Hour	CWW	Major overhaul-leak refurbishment work on Walker T3 transformer and T3 ULTC upgrade /modification work	none	none
Oct 22 2007 7:00 AM	Nov 23 2007 2:00 PM	Walker TS #1: T4E, T4-Z1E, T4	4868749	18 Hour	CWW	Major overhaul-leak refurbishment work on Walker T4 transformer and T4 ULTC upgrade /modification work	none	none
Sep 29 2007 4:00 AM	Oct 14 2007 6:00 PM	Lambton TS #2: L4D, L4D	5013314	Non-Recallable	CWW	MISO outages affecting MICH-ONT interface	Michigan Export Michigan Import	575 MW 450 MW
Apr 02 2007 5:00 AM	Dec 31 2007 6:00 PM	Wanstead TS: SC1B	5022127	4 Hour	CWW	Wanstead SC1B-B is defective and can only be operated if the bus is taken o/s . Wanstead SC1B will not close from control . So SC1B is available for service but it would take approx 4 hours to call out personnel and perform load transfers to place c	none	none
Oct 29 2007 6:00 AM	Nov 03 2007 5:00 PM	Longwood TS: B563L::LONGWOOD_TS::BRUCE_B_SS, B563L::LONGWOOD_TS::BRUCE_B_SS, W52-B563L, HL563, 29-B563L, W52-B563L, KL563	5040909	3 Hour	CWW	Longwood TS - HL563-L, KL563-L, W52-B563L & 52B563L-G switch refurbishment	NBLIP BLIP FABC	900 MW 900 MW 1000 to 1350 MW (when BLIP pos) 650 to 1000 (when BLIP neg)
Oct 15 2007 7:00 AM	Oct 20 2007 5:00 PM	Longwood TS: W52-B562L, HL562, PL562, B562L::LONGWOOD_TS::BRUCE_A_TS, 21-B562L, B562L::LONGWOOD_TS::BRUCE_A_TS, W52-B562L	5046792	3 Hour	CWW	Longwood TS L562 bus switch refurbishments	NBLIP BLIP FABC	oct. 15 to oct. 17 500 MW oct. 17 to oct. 20 900 MW oct. 15 to oct. 17 500 MW oct. 17 to oct. 20 900 MW oct. 15 to oct. 17 950 MW (when BLIP pos.) 600 MW (when BLIP neg.) oct. 17 to oct. 20 1000 to 1350 MW (when BLIP pos) 650 to 1000 (when BLIP neg)
Mar 03 2008 8:00 AM	Apr 25 2008 4:00 PM	Chatham SS: 86-W44LC, W44LC::CHATHAM_SS::COWAL_JCT, W44LC::CHATHAM_SS::COWAL_JCT, 53L4, 86	5048555	4 Hour	DWW	Replace Skywire with OPGW	none	none

(Table C10 continued)

Apr 28 2008 8:00 AM	May 23 2008 4:00 PM	Buchanan TS: W44LC::BUCHANAN_TS::EDGEWAR 23JCT, T2-W44LC, 19-W44LC, W44LC::EDGEWARE_TS::EDGEWAR 23JCT,	5048564	4 Hour	DWW	Replace Skywire with OPGW	none	none
Oct 06 2008 8:00 AM	Oct 17 2008 4:00 PM	Buchanan TS: W45LC::BUCHANAN_TS::EDGEWAR 23JCT, W45LC::BUCHANAN_TS::EDGEWAR 23JCT, 53L45-19, W45LC::EDGEWARE_TS::EDGEWAR 23JCT, W45LC::EDGEWARE_TS::EDGEWAR 23JCT, W45LC::COWAL_JCT::EDGEWAR23J CT, 19-W45LC, W45LC::COWAL_JCT::EDGEWAR23J	5048572	4 Hour	DWW	Replace Skywire with OPGW	none	none
Apr 17 2007 4:00 PM	Dec 31 2007 11:59 PM	Lambton TS: TMPH, TMPE	5055122	Non-Recallable	CWW	To ensure the correct connectivity in the DSO with Lambton T5 connected to K1 bus as normal.	none	none
Sep 04 2007 6:00 AM	Oct 12 2007 5:00 PM	Lambton TS #2: KL26	5084164	Non-Recallable	CWW	Construction, SMS & P&C to replace oil breaker with new SF6 breaker.	none	none
Aug 03 2007 5:00 AM	Oct 12 2007 5:00 PM	Lambton TS #2: L26L38, PL38	5098837	Non-Recallable	CWW	Breaker replacement	none	none
Nov 25 2007 5:00 AM	Dec 18 2007 5:00 PM	Lambton TS #2: L26L38	5098848	Non-Recallable	CWW	Breaker replacement	none	none
Oct 01 2007 7:15 AM	Oct 19 2007 2:00 PM	Lauzon TS: T6Q, 56T6-H, T6	5143182	48 Hour	CWW	Major mid-life Maintenance on T6 Transformer Doble test T6	none	none
Sep 29 2007 4:01 AM	Oct 14 2007 6:01 PM	Lambton TS #2: L4D::ST.CLAIR_CTS::LAMBTON_TS _#2 L4D::ST.CLAIR_CTS::LAMBTON_TS _#2	5170064	Non-Recallable	CWW	o/s	Michigan Export Michigan Import	575 MW 450 MW
Oct 01 2007 6:00 AM	Oct 19 2007 4:00 PM	Wanstead TS: T2-L, T1T2-Y, T1-L, T1T2-Y, T1, T2	5177788	4 Hour	CWW	T1 leak reduction program. (T2 o/s by config) Repair T2-L disconnect switch not leaning back properly	none	none
May 05 2008 8:00 AM	May 29 2008 6:00 PM	Bostwick Road JCT: N21W::BOSTWICK_ROAD_JCT::BU CHANAN_TS, T6-N21W, 19-N21W, N21W::BOSTWICK_ROAD_JCT::WO NDERLAND_TS, N21W::BOSTWICK_ROAD_JCT::WO NDERLAND_TS, N21W::BOSTWICK_ROAD_JCT::BU CHANAN_TS, 62N21W-36	5205060	4 Hour	CWW	Provincial Lines work	BLIP NBLIP FABC	500 MW 500 MW 0 to 150 MW
Jan 07 2008 5:00 AM	Mar 13 2008 6:00 PM	Sarnia Scott TS: 40-N22W, N22W::BOSTWICK_ROAD_JCT::WO NDERLAND_TS, N22W::BOSTWICK_ROAD_JCT::LUC ASVILLE_JCT, N22W::BOSTWICK_ROAD_JCT::LUC ASVILLE_JCT, T5-N22W, N22W::LUCASVILLE_JCT::SARNIA_ SCOTT_TS, N22W::LUCASVILLE_JCT::SARNIA_ SCOTT_TS, N22W::LUCASVILLE_JCT::MODELA ND_TS, N22W::BOSTWICK_ROAD_JCT::BU CHANAN_TS, N22W::BOSTWICK_ROAD_JCT::BU CHANAN_TS, N22W::BOSTWICK_ROAD_JCT::WO NDERLAND_TS, T4-N22W, 19- N22W, N22W::LUCASVILLE_JCT::MODELA	5208516	4 Hour	CWW	Provincial Lines Work	BLIP NBLIP FABC	500 MW 500 MW Jan. 07 to Jan. 21 0 to 150 MW Jan. 21 to Feb. 08 300 to 450 MW Feb. 08 to Mar. 13 0 to 150 MW
Jan 07 2008 5:00 AM	Mar 30 2008 6:00 PM	Sydenham JCT: W2S::BUCHANAN_TS::SYDENHAM_ JCT, W2S::SYDENHAM_JCT::STRATHRO Y_TS, W2S::BUCHANAN_TS::SYDENHAM_ JCT, 29-W2S, 19-W2S, W2S::SYDENHAM_JCT::STRATHRO Y_TS	5208976	4 Hour	CWW	Provincial Lines Mtce	none	none
Aug 30 2007 6:00 PM	Oct 12 2007 4:00 AM	Lambton TS #2: 27-L38G, 27-L26L, PL38, L26L38, KL26, L26L38	5210765	Non-Recallable	CWW	Replace Stage 9 buswork	NBLIP BLIP FABC	700 MW 700 MW 0 to 300 MW
Oct 12 2007 6:00 PM	Nov 17 2007 5:00 AM	Lambton TS #2: P2-MSO1, KL4, K2- MSO1, KL26	5211419	Non-Recallable	CWW	NOMS Slips to indicate equipment unavailable	none	none
Mar 17 2008 8:00 AM	May 01 2008 6:00 PM	Lucasville JCT: N21W::BOSTWICK_ROAD_JCT::LUC ASVILLE_JCT, 36N21W-62, 62N21W 36, N21W::BOSTWICK_ROAD_JCT::LUC ASVILLE_JCT	5225447	4 Hour	CWW	Provincial Lines work	BLIP NBLIP FABC	500 MW 500 MW 0 to 150 MW
Sep 24 2007 8:00 AM	Oct 12 2007 4:00 PM	Buchanan TS: L9P	5250493	4 Hour	DWW	Buchanan L9P major breaker maintenance (P1,P1,S1)	none	none
Jun 09 2006 6:00 AM	Dec 31 2007 6:00 PM	Lambton TS #2: PS4-2, PS4-1, PS4	5262034	30 Minute	CWW	PS4 bypassed for summer to improve the import thermal limits.	none	none

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