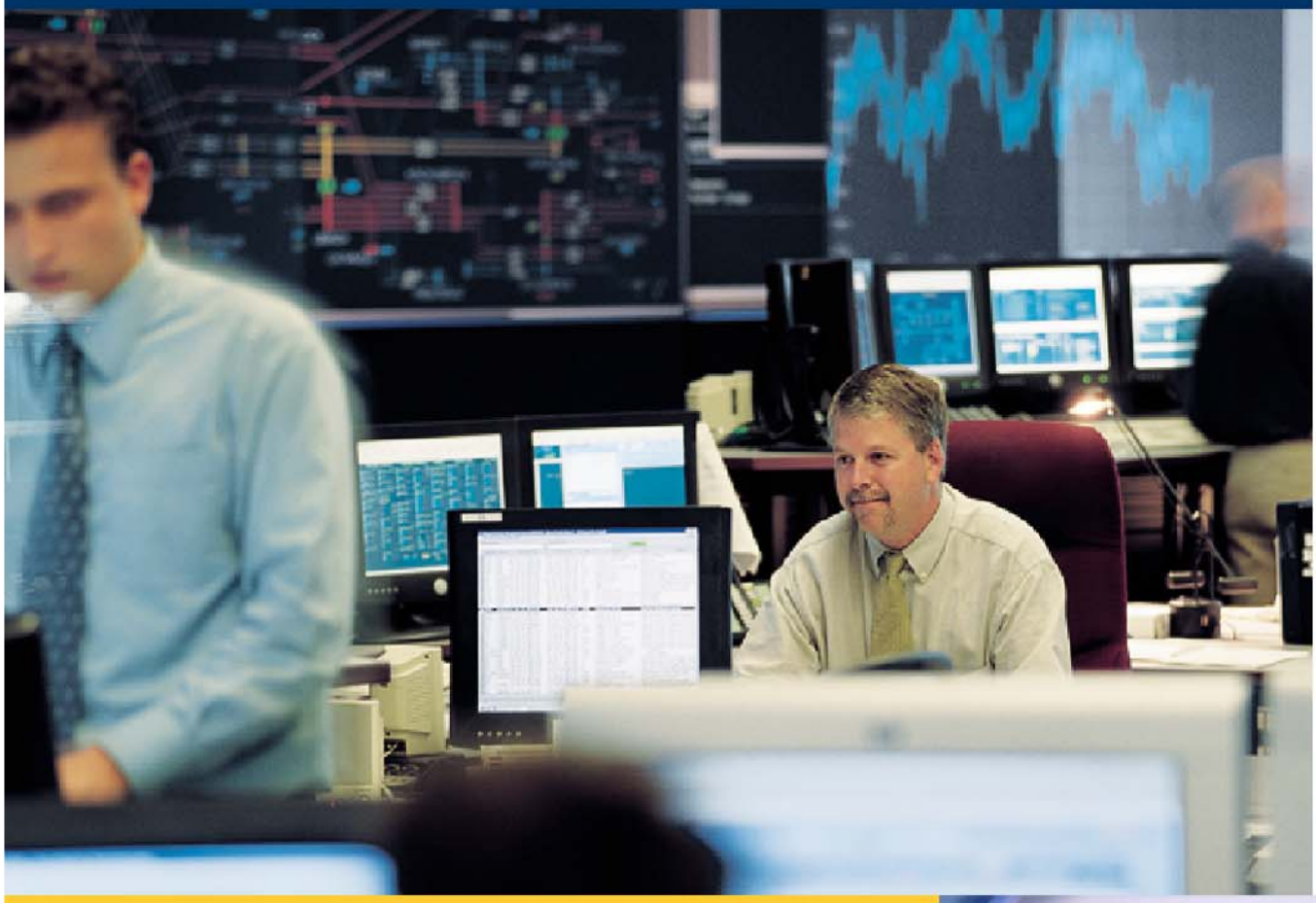
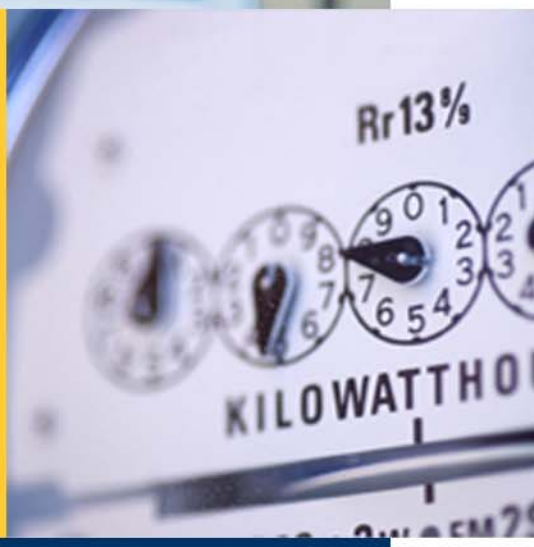
Independent Electricity Market Operator



18-MONTH OUTLOOK:

An Assessment of the Reliability of the Ontario Electricity System

From January 2005 to June 2006



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Executive Summary

The outlook for the reliability of Ontario's electricity system remains positive over the next 18 months as a result of recent and expected additions to the province's generating capacity.

More than 600 MW of capacity was made available to the Ontario system in 2004 alone, with the commissioning of the Brighton Beach (580 MW) and Kirkland Lake (32 MW) facilities. A further 515 MW of generation will be available with the return to service of Pickering Unit 1, which Ontario Power Generation has forecast for September 1, 2005.

The provincial government has also announced 10 new projects totalling 395 MW as part of the recent Request for Proposals for Renewable generation. Some of these projects are expected to be available within the 18-month timeframe of this Outlook. A Request for Proposals for an additional 2500 MW of new clean generation and demand side projects has also been issued. Successful projects from the 2500 RFP are expected to be announced early in 2005.

Hydro One is progressing with the development of a new transformer station to reduce GTA transformer loading that results from the scheduled shutdown of 1,150 MW of coal-fired generation at Lakeview Thermal Generating Station (TGS) in Mississauga. This transformer station is expected to be in service prior to the April 30, 2005 shutdown of the Lakeview plant.

The Independent Electricity Market Operator (IMO) publishes quarterly assessments of the reliability of the Ontario electricity system over the next 18 months. These assessments advise market participants of the resource and transmission reliability of the Ontario electricity system and identify potentially adverse conditions that might be avoided through adjustment or coordination of maintenance plans for generation and transmission equipment.

This report presents the IMO assessment of the 18-month period from January 1, 2005 to June 30, 2006. It is based on the IMO's forecast of electricity demand, information provided by Ontario generators on the supply available and the latest information on the configuration and capability of the transmission system.

Resource Outlook

Forecast available resources are expected to exceed the planning requirements throughout the next 18 months, under the Planned Resource Scenario.

Ontario Power Generation plans to return Pickering A Unit 1 to service by September 1, 2005 will result in a projected capacity increase of 515 MW in the fall of 2005. Four of the ten successful renewable projects are expected to come into service within the 18-month timeframe..

By the end of the 18 month study timeframe, demand response is forecast to exceed 500 MW, due to the introduction of more dispatchable load into the IMO-administered markets.

Under extreme weather conditions, imports may be required into the IMO-administered markets and the IMO may need to cancel generation maintenance to ensure that Ontario demand is met during peak periods.

Transmission Outlook

The Transmission assessment continues to be similar to previous Outlooks. The transmission system is expected to be adequate to supply demand under the forecast conditions studied in this Outlook. Nanticoke, Pickering and Darlington units are required to provide reactive capability to maintain adequate voltage levels, especially during summer peak demand periods.

As discussed earlier, the shutdown of Lakeview TGS by April 30, 2005 in accordance with Ontario Regulation 396/01 has a number of transmission system impacts which are being addressed. Hydro One is progressing with development of Parkway Transformer Station to address transformer overload concerns, with this facility expected to be in service by the spring of 2005. The remaining voltage support requirements are expected to be addressed by the installation of additional shunt capacitors and related transformer controls by Hydro One. Three of the four shunt capacitors required for voltage support have been installed.

Ontario Demand Forecast

The IMO demand forecast has been updated to reflect actual economic, demand and weather data through to the end of September 2004. The updated economic forecast has similar growth expectations for 2005 compared to the previous economic outlook. Oil prices have retreated from the all-time highs reached earlier in the fall and interest rates seem to be holding for the near term, which should help consumers. However a higher Canadian dollar and higher input prices have started to hurt manufacturing. As long as employment growth retains some momentum and consumer confidence doesn't falter, consumer spending should drive the economy to modest growth in 2005.

On a weather-corrected basis, energy demand has been higher than expected over the last few months. This has been due to an upswing in exports of goods and higher levels of industrial activity prior to the recent run-up in the dollar.

Despite the forecast of modest economic growth for 2005, the prospect of a high Canadian dollar will have a negative impact on electricity demand. As such, energy and peak demand are slightly lower than in the previous forecast.

Normal weather peak demand for 2005 is forecasted to be 23,891 MW for the winter and 23,636 MW for the summer. Weather-corrected energy demand is expected to be 153.5 TWh for 2004. Energy demand for 2005 is forecast to reach 154.4 TWh.

The following table summarizes seasonal forecast peak demands for the Outlook period.

Season	Normal Weather Peak (MW)	Expected Seasonal Peak (MW)	Extreme Weather Peak (MW)
Winter 2005	23,891	24,721	25,594
Summer 2005	23,636	25,412	26,583
Winter 2006	23,991	24,750	25,611

- End of Section -

Caution and Disclaimer

The contents of these materials are for discussion and information purposes and are provided "as is" without representation or warranty of any kind, including without limitation, accuracy, completeness or fitness for any particular purpose. The Independent Electricity Market Operator (IMO) assumes no responsibility to you or any third party for the consequences of any errors or omissions. The IMO may revise these materials at any time in its sole discretion without notice to you. Although every effort will be made by the IMO to update these materials to incorporate any such revisions it is up to you to ensure you are using the most recent version

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Date	Version	Reference Section & Paragraph	Description of Change
January 3, 2005	2.0	Section 2.3 Paragraph 3	Corrected typographical error for the second last sentence to read: "By the end of the 18 month study timeframe, demand response is forecast to increase to 544 MW, due to the introduction of more dispatchable load into the IMO-administered markets."

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1.0 Introduction

This Outlook covers the 18-month period from January 1, 2005 to June 30, 2006. It supersedes the report titled "An Assessment of the Reliability of the Ontario Electricity System from October 2004 to March 2006", dated September 24, 2004. Its purpose is to advise market participants of the resource and transmission reliability of the Ontario electricity system, and to assess potentially adverse conditions that might be avoided through adjustment or coordination of maintenance plans for generation and transmission equipment.

Section 2 identifies the resources expected to be available during the study period and Section 3 presents an assessment of the adequacy of these resources under the current generation outage program. An assessment of the reliability of the transmission system is presented in Section 4. Overall observations, findings and conclusions are contained in Section 5.

This Outlook presents an assessment of resource and transmission adequacy based on the stated assumptions, and 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 judgement in considering possible future scenarios. This Outlook provides a base upon which updates in assumptions can be considered. The tables contained in the document can be downloaded from the Independent Electricity Market Operator (IMO) web site in MS Excel format.

In addition to the comprehensive Outlook, the IMO generally publishes Interim Updates to the 18-Month Outlook during each month for which a full Outlook is not issued. These updates consist of a spreadsheet which reflects changes to Total Resources, Total Reductions to Resources, and Reserve Above Requirement values for the Planned Resource Scenario. Similar to the full Outlooks, the Interim Updates are posted on the IMO 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 IMO web site on a weekly and daily basis that progressively supersede information presented in this report.

The contents of this Outlook focus on the assessment of resource and transmission adequacy. Other supporting information and forecasts are contained in separate documents. These documents will be updated as required.

- The document entitled "Ontario Demand Forecast from January 1, 2005 to June 30, 2006" (IMO_REP_0196) (found on the IMO web site at http://www.theimo.com/imoweb/pubs/marketReports/18Month_ODF_2004dec.pdf describes in detail the 18-month forecast of electricity demand for the Ontario Market used in this Outlook. The demand forecast document identifies the assumptions used to determine the forecast and identifies the details regarding peak and energy demand forecasts for the Ontario market and parts thereof. It also contains information regarding variations in demand due to weather, economic growth and calendar day types. Data from the demand forecast document can be downloaded in MS Excel format from the IMO web site.

- The document entitled "Methodology to Perform Long Term Assessments" (IMO_REP_0044) (found on the IMO web site at http://www.theimo.com/imoweb/pubs/marketReports/Methodology_RTAA_2004sep.pdf) contains information regarding the methodology used to perform the demand forecasts, resource adequacy assessments and transmission reliability assessments in this Outlook.
- The document entitled "Ontario Transmission System" (IMO_REP_0045) (found on the IMO web site at www.theimo.com/imoweb/pubs/marketReports/OntTxSystem_2004dec.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 the IMO Help Centre:

- Toll Free: 1-888-448-7777
- Tel: 905-403-6900
- Fax: 905-403-6921
- E-mail: helpcentre@theIMO.com.

Updates from Previous Outlook

Updates to Forecast Demands

The forecast of demand has been updated to reflect the most recent economic and demand information. The methodology used to generate the forecast has not changed since the previous outlook.

As part of the regular updating process, the forecasting models' equations are re-estimated based on recent economic, weather and demand data. Peak demand was lower than expected throughout the fall. Energy demand was higher however as industrial activity pushed weather-corrected demand above expectations. The economic outlook has also been updated to reflect the current consensus. The expectations for 2005 are a modest improvement over the previous forecast. However the higher dollar will have a disproportionate impact on electricity demand compared to the general economic indicators.

The overall impact of the inclusion of recent actuals, the updated economic consensus and the higher dollar are a decline in peak and energy demand compared to the previous forecast.

Updates to Resources

One of the three shutdown Pickering A nuclear units is scheduled to return to service on September 1, 2005. This unit is not considered to be part of the Existing Installed Generation Resources shown in Table 2.1.

Both resource scenarios include almost the same quantity of forecast demand response since the previous Outlook. By the end of the 18 month study timeframe, in the Planned Resource Scenario, demand response is forecast to exceed 500 MW due to the introduction of more dispatchable load into the IMO-administered markets. This capability to reduce demand, based

on signals sent from the IMO, represents an additional resource that may be deployed to maintain the balance between supply and demand. In the Existing Resource Scenario, there is 204 MW of demand response included in the forecast.

There have been updates to the generator outages submitted by market participants.

Updates to Transmission Outlook

The list of transmission projects and planned and forced transmission outages has been updated from the previous 18-Month Outlook.

- End of Section -

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2.0 Resources

This section describes the generation resources that were considered in this Outlook based on information available to the IMO.

2.1 Existing Generation Resources Included in the Study

The existing installed generating capacity within Ontario is summarized in Table 2.1. This includes nuclear, coal, oil, gas, hydroelectric, wood and waste-fuelled generation, and results in a total capacity of 31,164 MW.

The capacity of installed generation resources in Table 2.1 does not include Pickering A Units 1 to 3 and Bruce Units 1 to 2. It also does not include the 395 MW of generating capacity from the renewable sources (wind, water and land fill gas) the government procured through its Request for Proposals. Four of the ten successful renewable projects are expected to come into service within the 18-month timeframe. In accordance with Ontario Regulation 396/01, the four units at Lakeview Thermal Generating Station (TGS) will stop producing power by the end of April 2005, resulting in a decrease in the installed generation resources by 1,148 MW.

Table 2.1 Existing Installed Generation Resources[1]

Fuel Type	Total Capacity (MW)	Number of Stations
Nuclear	10,882	5
Coal	7,564	5
Oil / Gas	4,976	23
Hydroelectric	7,676	61
Miscellaneous	66	2
Total	31,164	

2.2 Potential Generation Resource Additions

Table 2.2 summarizes the significant new generation facilities that are scheduled to come into service within the 18-month study period. This includes projects in the IMO's Connection Assessment and Approval (CAA) process that are under construction and are scheduled to be placed in-service within the 18-month study period. Generator owners or operators have provided the information regarding the status of their projects and the in-service dates listed in Table 2.2.

[1] In Table 2.1, the number of coal stations will decrease to four with the retirement of the Lakeview TGS.

Table 2.2 Potential Generation Resource Additions in Ontario

Proponent/Project Name	Zone	Fuel Type	Capacity MW	Connection Applicant's Estimated I/S Date
Pickering Unit 1	Toronto	Nuc	515	September 2005
Total			515	

The Ontario Government RFP for 300 MW of renewable resources resulted in a total of 10 successful projects that add up to 395 MW of installed capacity. A total of 10 MW of this generation is expected to become operational during 2005, and a further 170 MW of installed generation is expected to become operational before the second quarter of 2006. It should be recognized that each MW of installed capacity may not reliably be available to meet demand when capacity is needed. Some of these renewable resources may only contribute intermittently to meeting Ontario demand. For each of the renewable generation projects, the amount of dependable capacity that can be relied on to meet peak demand needs to be determined.

A study has been initiated to determine the amount of dependable capacity that can be relied on from wind-powered generation projects in Ontario, and once these studies have been completed, future Outlooks would take the findings into consideration. Other areas in North America typically rely on 10 to 30% of the installed capacity of intermittent wind powered generation, but this amount varies depending on the prevailing wind patterns, and how the resulting generation pattern coincides with peak demand. Until further study information is available, the capacity contribution from these projects is assumed to be zero.

New generators that are embedded in the distribution network or are displacing a wholesale market load have the option of participating directly in the wholesale market, or of reducing the wholesale market load of the consumer that is directly participating in the wholesale market. Further information on how each new embedded generator will be accounted is expected to be available for the next full quarterly Outlook.

Details regarding the IMO'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 IMO's web site www.theIMO.com under the "Services - Connection Assessments" link. There are also a number of smaller generation capacity changes that may occur during the forecast timeframe. For this Outlook timeframe, the combined result of these generator capacity changes is about 100 MW. Some of the smaller capacity changes may not be significant enough to require the formal CAA process, and therefore not all of the capacity additions may have a project listed in the CAA queue.

2.3 Summary of Resource Scenarios

In assessing future resource adequacy, it is necessary to make a number of assumptions regarding the magnitude of resources expected to be available for operation. Two resource scenarios were considered in this Outlook: an Existing Resource Scenario and a Planned Resource Scenario.

Both resource scenarios were established starting from the existing installed resources shown in Table 2.1.

Under the **Existing Resource Scenario,** Ontario generation resources identified in Table 2.1 were assumed to be in-service for the duration of the study period with the exception of the four coal-fired units (1,148 MW) at the Lakeview TGS which were assumed to cease operation by April 30, 2005 in accordance with Ontario Regulation 396/01. This resource scenario assumed that none of the additional generation resources listed in Table 2.2 would be placed in service over the study period. The existing resource scenario includes 204 MW of demand response capability. This value is based on the existing capability to decrease demand below the demand forecast levels.

Under the **Planned Resource Scenario** existing Ontario generation resources were assumed to be in-service for the duration of the study period with the exception of the four coal-fired units (1,148 MW) at the Lakeview TGS which were assumed to cease operation by April 30, 2005. Additionally, all potential generation additions listed in Table 2.2 were included in this scenario. Demand response capability is forecast to be higher under the Planned Resource Scenario, compared to the Existing Resource Scenario. By the end of the 18 month study timeframe, demand response is forecast to increase to 544 MW, due to the introduction of more dispatchable load into the IMO-administered markets. This scenario is considered more likely to occur than the Existing Resource Scenario.

Forecasts of available resources were derived for each of the two resource scenarios described above, using information regarding generator output capabilities, planned outages, allowances for hydroelectric generation production below rated capacity, assumptions for the amount of demand response, and major transmission interface limitations.

Table 2.3 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 installed resources in Table 2.3 start with the values listed in Table 2.1 and are decreased by the size of Lakeview TGS at the end of April 2005. The installed resources in Table 2.3 increase over the study timeframe, due to some increases in the forecast net installed capacity of existing generation facilities. For the Planned Resource Scenario only, resources are also increased by the generation additions listed in Table 2.2. The total reductions to resources include generator deratings, generator planned outages under each resource scenario, capacity limitations due to transmission interface constraints and allowances for hydroelectric generation production below rated capacity. The total reductions were subtracted and the demand response was added to the total resources, to obtain the available resources. In this Outlook, demand response ranges from about 200 MW to a maximum of about 550 MW under the Planned Resource Scenario, as shown in Table 2.3.

Table 2.3 Summary of Available Resources

Notes	Description \ Year	Winter Peak 2005		Summer Peak 2005		Winter Peak 2006	
		Existing Resource Scenario	Planned Resource Scenario	Existing Resource Scenario	Planned Resource Scenario	Existing Resource Scenario	Planned Resource Scenario
1	Installed Resources (MW)	31,164	31,164	30,042	30,042	30,093	30,608
2	Imports (MW)	0	0	0	0	0	0
3	Total Resources (MW)	31,164	31,164	30,042	30,042	30,093	30,608
4	Total Reductions in Resources (MW)	3,081	3,081	2,982	2,982	1,316	1,316
5	Demand Response (MW)	204	272	204	547	204	547
6	Available Resources (MW)	28,287	28,355	27,264	27,607	28,981	29,839

Notes to Table 2.3:

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 IMO-administered markets at the beginning of the 18-month period. It also reflects minor unit re-ratings resulting from equipment upgrades that occurred prior to the publication of this Outlook. Only one of the four Pickering A nuclear units is included in the existing installed generation resources. 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, under each of the two scenarios, the sum of generator deratings, generator planned outages under each resource scenario, generation limitations due to transmission interface constraints and allowances for hydroelectric generation production below rated capacity.

5. Demand Response: This is the amount of demand which is assumed to respond to changes in the market clearing price by reducing consumption, under each resource scenario.

6. Available Resources (MW): This equals Total Resources (line 3) minus Total Reductions in Resources (line 4) plus Demand Response (line 5).

2.4 Energy Production Capability Forecast

The monthly forecast of energy production capability, as provided by market participants, is included in Appendix A, Table A6.

- End of Section -

3.0 Resource Adequacy Assessment

This section provides an assessment of the adequacy of the resources described in Section 2 to meet the forecast demand. The purpose of the two resource scenarios described in Section 2.3 is to present a range of possible outcomes, in recognition of the uncertainty which exists regarding the future availability of resources. The Existing Resource Scenario, which assumes no generation resource additions and a base amount of demand response, represents the lower boundary of the range, considering the potential for delays to the in-service dates of additional generation capacity, and additional price responsive demand capability. The Planned Resource Scenario assumes additional quantities of demand response and generation capacity additions based on project status and in-service date estimates. This scenario represents the higher boundary of the outcome range.

As mentioned in Section 1, the methodology used to carry out this assessment is described in detail in the document titled "Methodology to Perform Long Term Assessments" (IMO_REP_0044). Results of the adequacy assessment, as well as an analysis of risk factors, are described in Sections 3.1 through 3.5. Observations, findings and conclusions are provided in Section 5, and detailed tables of results can be found in Appendix A of this document.

3.1 Weekly Adequacy Assessment

The assessment of weekly adequacy takes into consideration a range of forecast demands based on a probability distribution of historical weather data. Reserve Above Requirement levels have been calculated assuming both normal weather (with an allowance for the probability of experiencing extreme weather) and assuming extreme weather (with no further allowance for weather uncertainty). Figure 3.1 shows the normal and extreme weather demands assumed for each week in the study period.

Figure 3.1 Demand Forecast Range

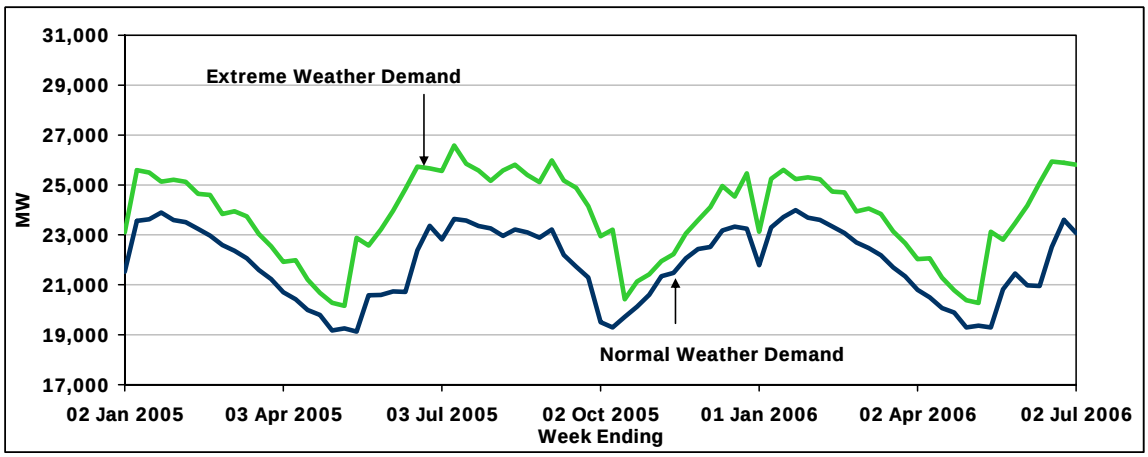


Figure 3.2 shows the Total Reductions in Resources used in the calculation of the Available Resources (as described in Section 2.3).

Figure 3.2 Total Reductions in Resources

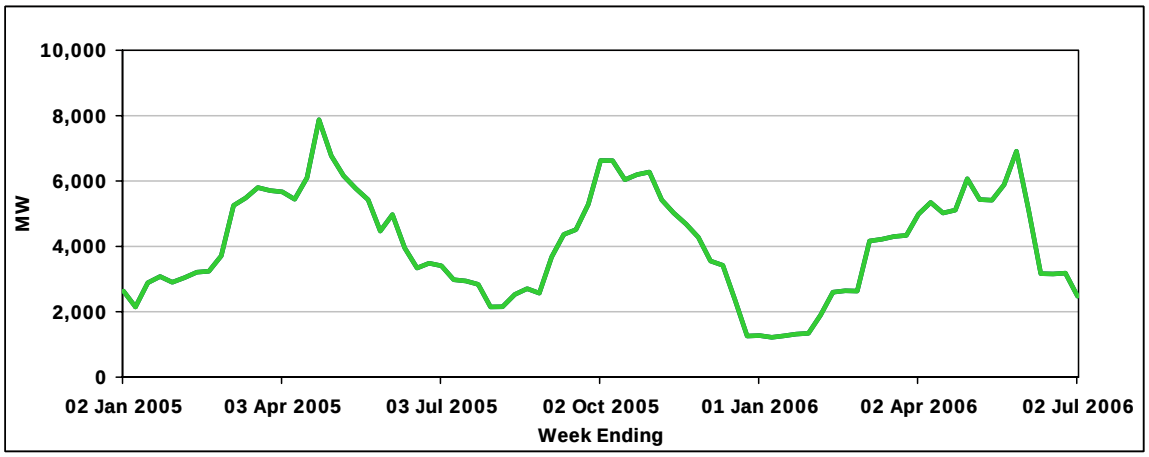


Figure 3.3 provides a comparison between Available Resources, and Required Resources for each week, for the Existing Resource Scenario. The latter quantity is the sum of Demand and Required Reserve, and is based on a probabilistic calculation, which takes into account load forecast uncertainty due to weather and random generator forced outages. Figure 3.4 provides a similar comparison for the Planned Resource Scenario.

Figure 3.3 Available vs. Required Resources: Existing Resource Scenario

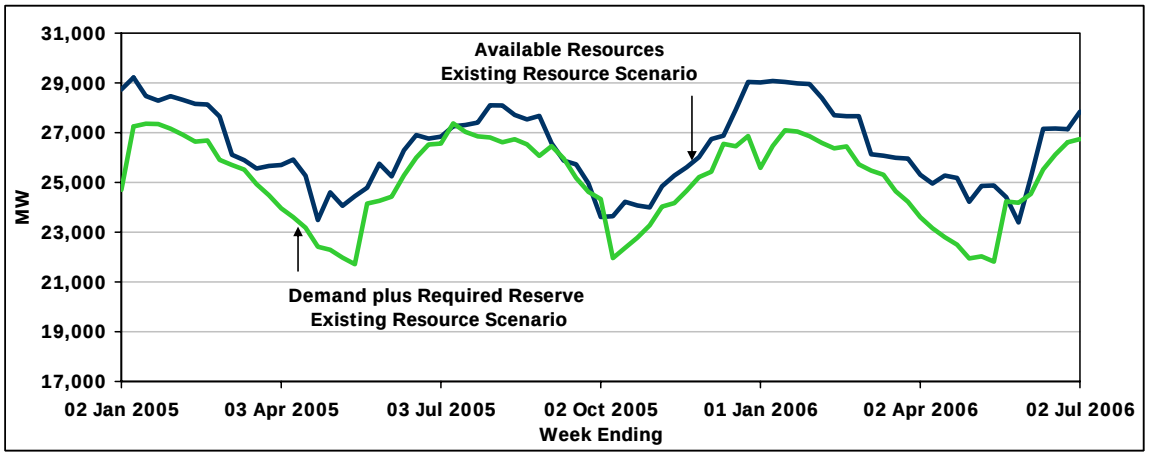
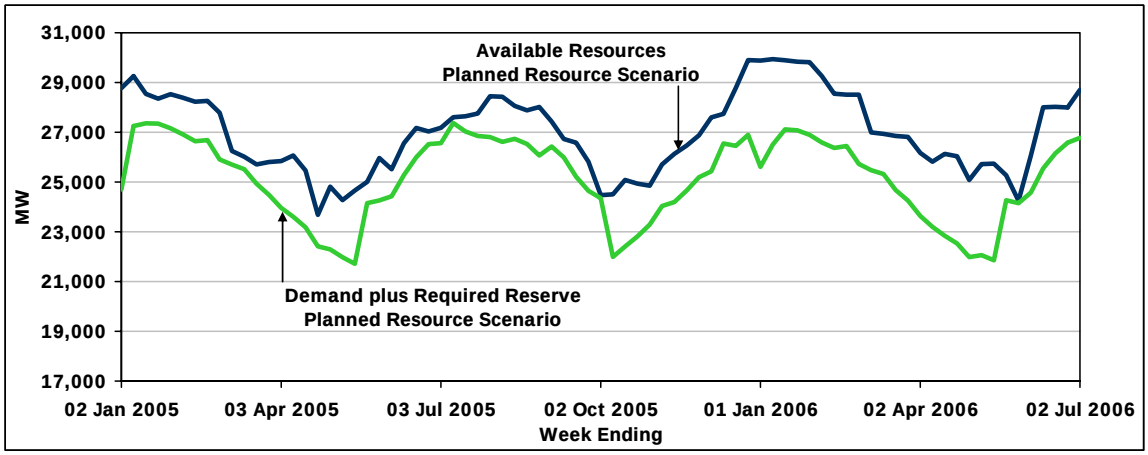
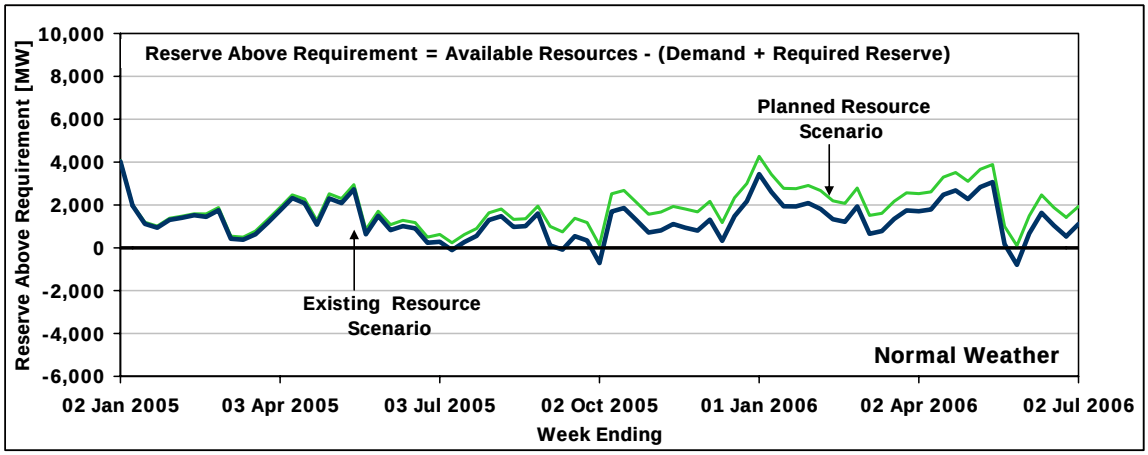


Figure 3.4 Available vs. Required Resources: Planned Resource Scenario



Reserve Above Requirement levels, which represent the difference between Available Resources and Required Resources, are shown in Figure 3.5 for each resource scenario studied.

Figure 3.5 Reserve Above Requirement: Existing Resource Scenario and Planned Resource Scenario



Under the **Existing Resource Scenario**, the forecast reserves are generally adequate for the study period. Reserves are forecast to be below requirements for four weeks, only, During these weeks some planned generator outages are at risk of cancellation by the IMO for reliability purposes depending on their priority and the resource adequacy situation at the time their approval is being sought.

The results above must be assessed considering the risk factors described in Section 3.3 and the probability of this scenario occurring. During most of the study period, a combination of high demand levels under extreme weather conditions and lower than forecast levels of available resources could lead to reliance on imports and upward pressure on the wholesale market prices.

Under the more likely **Planned Resource Scenario**, the resource adequacy situation is improved compared to the Existing Resource Scenario. For all weeks of the Outlook timeframe, the forecast available resources exceed the planning requirements. To the extent this scenario

materializes, opportunities will exist for additional planned generator maintenance and exports. Again, the risk factors described in Section 3.3 must be considered.

Figures 3.6 and 3.7 provide 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 September 24, 2004. Under both the Existing Resource Scenario and the Planned Resource Scenario, the combined changes in forecast demands, demand response and generator planned outages yield generally the same resource outlook for the overlapping period when compared to the previous 18-Month Outlook.

Figure 3.6 Reserve Above Requirement: Existing Resource Scenario vs. Previous Existing Resource Scenario

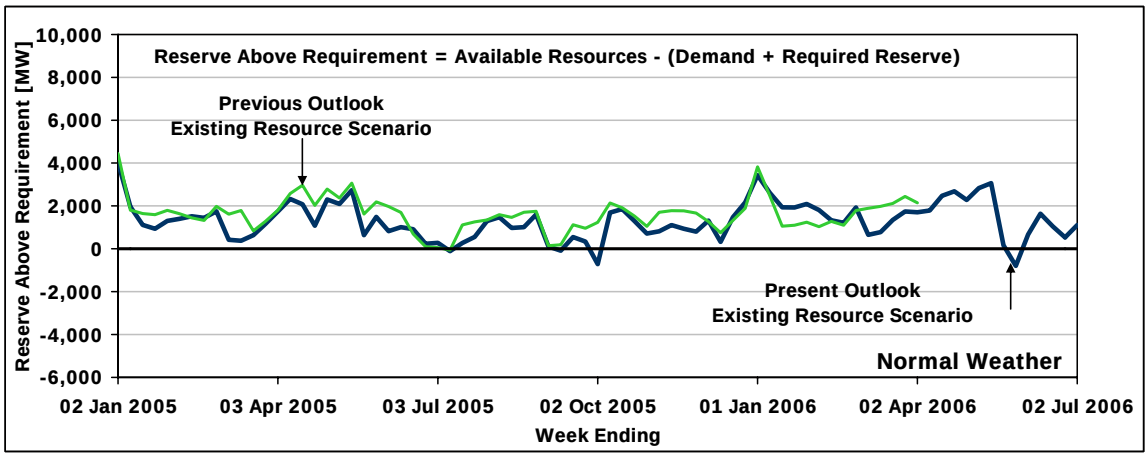
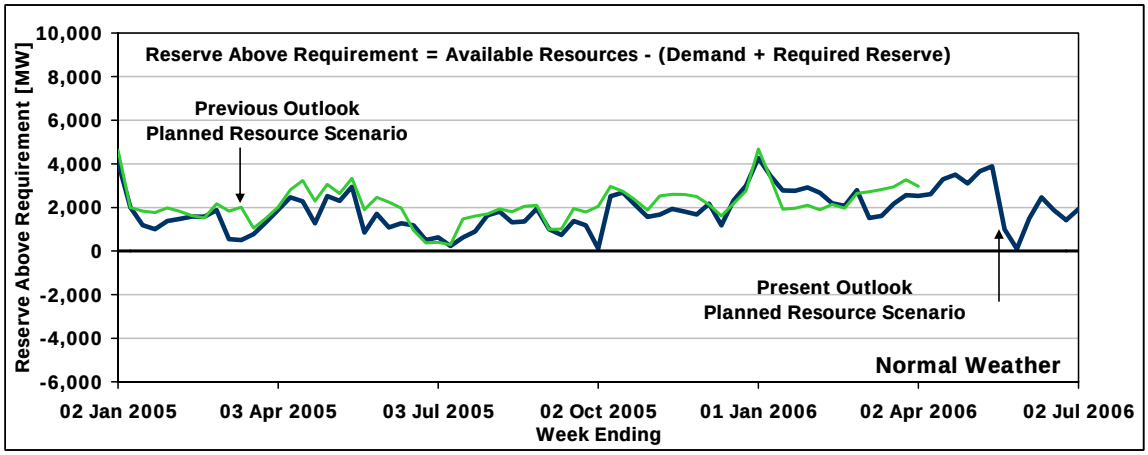


Figure 3.7 Reserve Above Requirement: Planned Resource Scenario vs. Previous Planned Resource Scenario



3.2 Loss of Load Expectation

Loss of Load Expectation (LOLE) simulation results indicate that, in order to achieve the NPCC target LOLE, only a minimal level of additional resources would be required to offset the reserve deficiencies under the existing resource scenario shown in Table A1 in Appendix A.

3.3 Resource Adequacy Risks

The forecast reserve levels for both the Existing Resource Scenario and the Planned Resource Scenario should be assessed bearing in mind the risks discussed below. Each of these risks, whether considered alone or in combination with the others, could result in lower than forecast reserve levels and the need for higher levels of imports or curtailment of planned outages.

3.3.1 Extreme Weather

The Existing 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 August 2002, when Ontario established an all-time peak demand of 25,414 MW. Approximately 1,700 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 Existing 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 infinitesimally small; however the probability of an occurrence in any given week is greater (about 2.5 percent). When one looks at the summer or winter periods, the expectation of at least one occurrence of extreme weather becomes considerably higher. Results for extreme weather are shown in Figures 3.8, 3.9, and 3.10.

The magnitude of resource deficiencies, under extreme weather, clearly illustrates there are circumstances under which reliance on interconnected supply could occur. This emphasizes the continued need for reliable supply and demand response within Ontario.

Figure 3.8 Available vs. Required Resources: Existing Resource Scenario Extreme Weather Demand

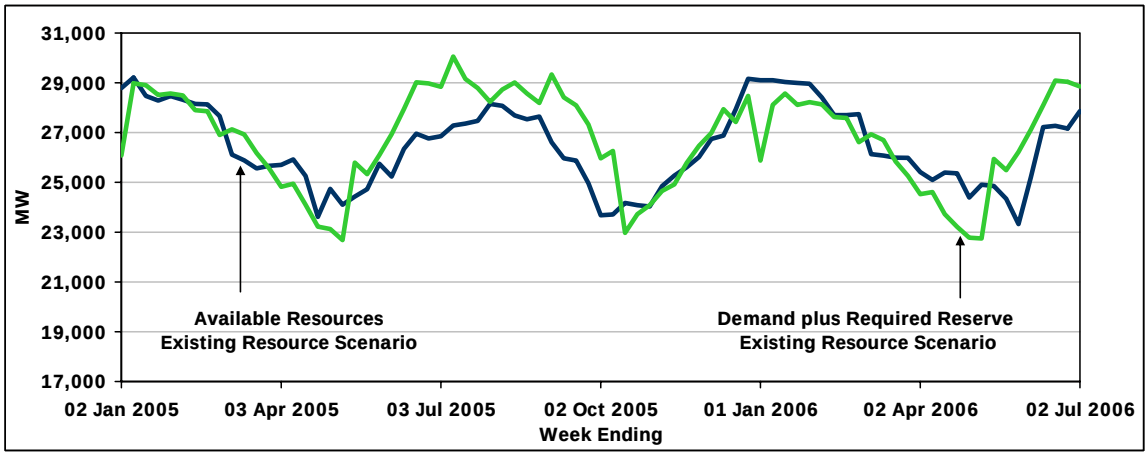


Figure 3.9 Available vs. Required Resources: Planned Resource Scenario Extreme Weather Demand

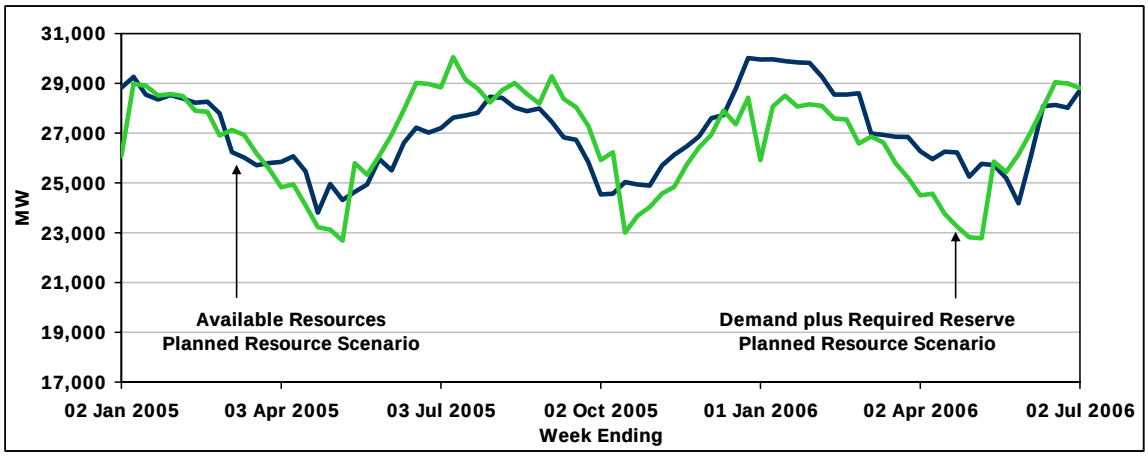
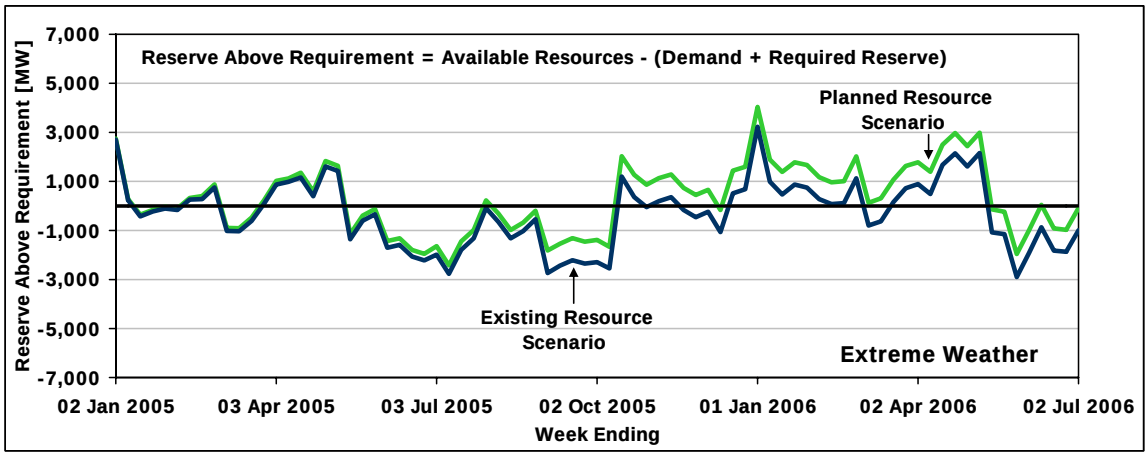


Figure 3.10 Reserve Above Requirement: Existing Resource Scenario and Planned Resource Scenario, Extreme Weather Demand



3.3.2 New Resource Risks

For the 18-month period under study, the improved demand-supply situation for the Planned Resource Scenario is dependent on the additional generation and demand response coming into service as forecast.

3.3.3 Extensions to Generator Planned Outages

A number of large generating units are scheduled to return to service from outage prior to winter 2005/06 and summer 2006. 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.

3.3.4 Higher than Forecast Generator Unavailability

IMO 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.

3.3.5 Lower than Forecast Hydroelectric Resources

IMO resource adequacy assessments include forecast amounts of hydroelectric generation 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 so far in advance is impossible. Drought conditions over some or all of the study period would lower the amount of generation available from hydroelectric resources.

Experience over the summer of 2002 has also shown that even when sufficient capacity is available, its use can be limited because of a lack of energy due to scheduling decisions. An example of this occurs when peaking hydroelectric generation is operated extensively during the early portion of a week in response to market demands and, as a result, there is insufficient water available in storage reservoirs to support required levels of operation later in the week.

Conditions going into 2005 are improved dramatically from a year ago. Water levels in the Great Lakes are approaching normal, after several years below normal.

3.4 External Resources

An analysis of historical power flows on Ontario's interconnections for the five years prior to 2002 shows that, outside of summer peak demand periods, up to 1,800 MW of external generation resources might be expected to be available to Ontario. During Ontario's summer peak demand periods of July and August opportunities for imports still exist and imports are still expected to be available despite the fact that many neighbouring systems are often experiencing their peak demand. This is mainly due to the availability of spare capacity from systems that are not summer peaking. From the same analysis, up to 1,400 MW would be expected to be available based on observations during summer peak months in recent years prior to 2002.

The actual hourly import levels experienced from market opening indicates an average import level of about 1,130 MW for all hours. During the hours when Ontario demand exceeded 20,000 MW the average import level was about 1,480 MW. During the hours when Ontario demand exceeded 23,000 MW the average import level was around 2,250 MW, and occasionally reached the Ontario coincident import capability of approximately 4,000 MW.

Future levels of imports into Ontario will vary depending on several factors, including the availability and willingness of resources in external jurisdictions to supply the Ontario market, and the availability of required transmission capacity either within or outside of Ontario.

3.5 Energy Conservation and Peak Reduction through Demand Response

The IMO has been identifying the suitability of demand-side initiatives as part of the supply picture for several years and believes demand reductions and demand shifting should be vigorously pursued in Ontario, as clean and potentially less expensive ways to reduce future supply requirements. The application of such conservation measures is virtually unrestricted in location.

Programs would improve the supply-demand balance in two main ways:

- Demand reduction through technological or process efficiency improvements would have beneficial effects on the environment and reduce the need for generation capacity additions through years.
- Shifting the time of use from peak to off-peak periods through demand-response programs would achieve peak demand reductions, influencing electricity prices downward and improving utilization rates of generation resources.

- End of Section -

4.0 Transmission Reliability Assessment

This section provides an assessment of the reliability of the Ontario transmission system.

4.1 Transmission Projects

Committed transmission projects, summarized in Appendix B by transmission zone, represent a subset of the transmission projects in the Connection Assessments and Approval queue. Only those projects that have a significant impact and that have an estimated in-service date within the 18-month period under study are listed. To make cross referencing easier, the CAA-ID number of each project has been included. In general, the work listed below represents some or all of the work associated with the CAA-ID.

For example, the IMO SIA Report 2003-099 for the proposed 500/230 kV Parkway Transformer Station initially identified the following work:

1. Establish a new 230 kV switching station at Parkway TS.
2. Extend 230 kV circuits V71R and V75R from Richmond Hill MTS No. 2 to Parkway TS. Install a 230 kV circuit switcher in each circuit between Vaughan MTS No. 1 and Richmond Hill MTS no 1.
3. Terminate three sections of circuits C11R and C12R on to the new 230 kV bus bar at Parkway. These three sections include the section eastwards towards Cherrywood TS, the section westwards towards Richview TS and the section northwards towards Buttonville TS.
4. Equip Parkway TS with two new autotransformers, to be tapped on to C550V and C551V.

The scheduled in-service date for all of this work is now estimated to be by the end of 2005. Since Ontario Regulation 396/01 requires Lakeview to cease burning coal on April 30, 2005, it was determined that transfers through the Claireville auto-transformers could be excessive unless the first of the two auto-transformers at Parkway were installed prior to the expected shut-down of Lakeview GS.

Therefore project 2003-099 was effectively split into two distinct phases, with the installation of the first auto-transformer being scheduled for completion prior to the scheduled shut-down of Lakeview, and the remainder of the work is now scheduled for completion by the end of 2005.

Additional information regarding each the transmission projects in the CAA queue can be found at the IMO's Connection Assessment and Approval web-page, at the following location: http://www.theimo.com/imoweb/connAssess/ca.asp.

4.2 Planned Transmission Outages

The principal purpose 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. Another purpose of the transmission reliability assessment is to identify the possibility of any

security-related events on the IMO-controlled grid that could require contingency planning by market participants or by the IMO. As a result, the transmission outages are reviewed 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 reducing the scheduled duration or recall time.

The assessment of transmission outages will also identify any resources that 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 3.1, 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 IMO-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 participant's conflicts such that both or all outages cannot be approved by the IMO, the IMO will inform the affected market participants and request that they resolve the conflict. If the conflict remains unresolved, the IMO shall 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 IMO's Integrated Outage Management System (IOMS) as of the middle of November 2004 were used.

The IMO'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. The methodology used to assess the transmission outage plans is described in the IMO document titled "Methodology to Perform Long Term Assessments" (IMO_REP_0044).

None of the transmission outages planned within the timeframe of this Outlook is judged to have a material impact on the overall reliability of the IMO-controlled grid.

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 at least one outage has a scheduled duration of greater than five days. The IMO recognize that there are expected to be additional outage requirements and/or changes 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 IMO will reassess the outage for potential system impacts, taking into account all current and forecasted conditions.

4.3 System Voltage, Thermal Limits and Supply Reliability

As in previous Outlooks, low system voltage concerns in certain sub-areas of the province may limit some generation and transmission outages from being planned during summer peak demand periods. The various system voltage concerns are described below.

In the Windsor area, load growth will continue to stress the capability of the existing system under extreme-weather, summer peak conditions, such that voltages are expected to be near the low end of the acceptable range even with most static reactive sources in-service. Planned

outages to generating units and/or transmission circuits during peak load conditions with coincident purchases from Michigan will require special control actions to prevent post-contingency thermal overloading of transmission facilities. The special control actions could include the arming of the Windsor overload protection scheme to split the Windsor 115 kV local area and arming of the Kingsville under-voltage load rejection scheme. Splitting the Windsor area will result in some Windsor 115 kV loads being served by a single supply. Avoiding planned outages in this area during peak load conditions is desired. The reactive power supply provided by the addition of the ATCO-Brighton Beach generators improves the voltage profile in this area.

When peak demands exceeded 25,000 MW in August 2001 and July, August, and September 2002, pre-contingency voltage levels in the Toronto zone were acceptable but with little margin for contingencies. The reactive requirement to maintain voltage levels at or above the minimum required levels was very high. Most static reactive resources and transmission elements were required in-service and the Lakeview, Pickering and Darlington units had to supply higher than normal amounts of reactive power. The high demand for reactive power left significantly lower than normal reactive margin for contingencies. The performance of these units in providing reactive power to maintain acceptable voltage levels in the Toronto zone during summer peak periods is extremely important. Planned outages and restrictions on the use of the reactive capability of the Pickering and Darlington units should be avoided during the summer of 2005. With Lakeview shutdown in April 2005, reactive support from Nanticoke units will become more important as described in Section 4.3.1. The addition of 125 Mvar, 115 kV shunt capacitors at the Hearn Switching Station and at the Leaside Transformer Station will improve the voltage profile in this area under summer peak conditions.

Under 2002 summer peak conditions, loadings on the 230/115 kV Burlington autotransformers in the Southwest zone were also high. For a contingency involving the loss of one autotransformer, the post-contingency loading on the remaining three autotransformers would have been at levels near the 10-Day Limited Time Ratings. The recent addition by Hydro One of a 125 Mvar, 115 kV capacitor bank at Burlington TS helps alleviate this concern and will provide additional voltage support in the area.

4.3.1 Impact of Lakeview Thermal Generating Station (TGS) Shutdown

The IMO has been notified by Ontario Power Generation that, in accordance with Ontario Regulation 396/01, the Lakeview TGS will stop producing power by the end of April 2005. The 1,148 MW Lakeview facility currently has four units in service.

A number of generation and transmission proposals have been identified to address potential reliability impacts associated with the shutdown of Lakeview.

These reliability impacts include potential loss of load associated with overloading of transformers at the Claireville Transformer Station, and lower than acceptable voltages in the western portion of the Greater Toronto Area (GTA) during heavy load conditions with all transmission elements in service. These load levels could occur as early as June 2005. The risk to supply reliability increases significantly for contingency conditions or when transmission elements are out of service.

In order to address some of the initial reliability impacts associated with the shutdown of Lakeview TGS, Hydro One are constructing the Parkway Transformer Station, with this facility expected to be in service by the spring of 2005. However, this autotransformer will not address the reactive power support required to maintain an acceptable voltage profile throughout the western portion of the GTA.

To help address the voltage support concerns, Hydro One have recently installed shunt capacitors with a reactive power capability of approximately 800 Mvar at Burlington TS, Richview TS and John TS. In addition a 300 Mvar shunt capacitor bank is to be installed on the 230 kV system at Trafalgar TS by May 2005. These capacitors will address reactive power needs under extreme weather loads with up to four generating units unavailable at Nanticoke TGS, Pickering Nuclear Generating Station (NGS) and Darlington NGS.

It is critical that all of the work above be completed by April 30, 2005, to improve the reliability of the GTA during the summer of 2005. As the summer progresses, the probability of experiencing higher temperatures and higher demands increases, along with the likelihood of requiring all available reactive resources.

In the event that all reactive resources are not available, due to delays or outages, it is considered prudent to have possible control actions ready to be taken, to help maintain the required voltage profile on the high voltage transmission network. Therefore, procedures that would avoid automatic low voltage control are being examined for possible implementation during times when all reactive resources are not available, and peak demands are forecast.

4.4 Forced Outages

Due to a forced outage, 230 kV circuit B3N (Scott Transformer Station x Bunce Creek, Michigan) is presently identified to be unavailable until December 31, 2005. The B3N outage increases the upper limit of the Ontario – Michigan import limit by 200 MW in the summer and by 300 MW in the winter. The Ontario – Michigan export limit decreases by approximately 500 MW in the summer and in the winter. The 230 kV PS3 phase angle regulator (PAR) on circuit B3N in Michigan is identified as being unavailable until December 31, 2006.

The PS4 PAR on circuit L4D is unavailable until March 15, 2005 but does not affect the import and export limits of the Ontario – Michigan interconnection.

- End of Section -

5.0 Overall Observations, Findings and Conclusions

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

Resource Adequacy

- Under the **Existing Resource-Normal Weather Scenario**, forecast reserves are generally adequate for the study period. Reserves are forecast to be above requirements for all but four weeks of the Outlook timeframe. During these weeks some planned generator outages are at risk of cancellation by the IMO for reliability purposes depending on their priority and the resource adequacy situation at the time their approval is being sought.
- Under the more likely **Planned Resource-Normal Weather Scenario**, the resource adequacy situation is improved over the Existing Resource Scenario, mainly in the last six months of the Outlook period. For all weeks of the Outlook timeframe, the forecast available resources exceed the planning requirements. To the extent this scenario materializes, opportunities will exist for additional planned generator maintenance and exports.
- 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
Existing Resource Scenario	**- opportunities for additional outages/exports exist in many weeks** **- there are four weeks when reserves are lower than required (planned outages at risk or imports potentially required)**	**- many planned outages at risk** **- imports required during some peak periods**
Planned Resource Scenario	**- opportunities for additional outages/exports exist in all weeks** **- there are no weeks when reserves are lower than required**	**- some planned outages at risk** **- imports required during some peak periods**

- The magnitude of resource deficiencies under extreme weather emphasizes the continued need for reliable supply and demand response 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 and demand response coming into the market as forecast.

- A number of large generating units are scheduled to return to service from outage prior to the winter of 2005/2006. Meeting these planned outage schedules is critical to maintaining adequate reserve levels.
- High generator unavailability, whether caused by higher forced outage rates, delays in returning generators to service, could lead to reliance on imports. Under these circumstances, opportunities for planned outages, especially during the peak summer period, would be limited.
- Over the 18-month period under study, the Northeast Power Coordinating Council resource adequacy criterion is expected to be met.

Transmission Adequacy

- Avoiding planned outages and maximizing the reactive capability of the Nanticoke, Pickering and Darlington units, in conjunction with new shunt capacitor banks is required to maintain voltage levels above the minimum required levels in the Toronto zone during summer peak conditions.
- Restricting planned outages to transmission facilities in the Windsor area will assist in maintaining adequate voltage levels during summer peak periods
- Lakeview TGS will cease operations as a coal-fired generating station by April 30, 2005 in accordance with Ontario Regulation 396/01. Adequate plans are being implemented to address the immediate reliability impacts associated with the shutdown of Lakeview TGS.

- End of Section -

Appendix A Resource Adequacy Assessment Details

Table A1 Assessment of Resource Adequacy: Existing Resource Scenario

Week Ending Day	Total Resources MW	Total Reductions in Resources MW	Demand Response MW	Available Resources MW	Required Resources MW	Available Reserve %	Available Reserve MW	Required Reserve %	Required Reserve MW	Reserve Above Requirement MW
02-Jan-05	31,164	2,633	204	28,735	24,708	33.5	7,212	14.8	3,185	4,027
09-Jan-05	31,164	2,148	204	29,220	27,257	24.0	5,659	15.7	3,696	1,963
16-Jan-05	31,164	2,888	204	28,480	27,364	20.6	4,855	15.8	3,739	1,116
23-Jan-05	31,164	3,081	204	28,287	27,349	18.4	4,396	14.5	3,458	938
30-Jan-05	31,164	2,902	204	28,466	27,158	20.6	4,871	15.1	3,563	1,308
06-Feb-05	31,164	3,044	204	28,324	26,919	20.5	4,817	14.5	3,412	1,405
13-Feb-05	31,164	3,209	204	28,159	26,642	21.2	4,919	14.6	3,402	1,517
20-Feb-05	31,164	3,236	204	28,132	26,682	22.5	5,163	16.2	3,713	1,450
27-Feb-05	31,164	3,714	204	27,654	25,907	22.4	5,057	14.7	3,310	1,747
06-Mar-05	31,164	5,253	204	26,115	25,698	16.7	3,745	14.9	3,328	417
13-Mar-05	31,164	5,478	204	25,890	25,515	17.4	3,832	15.7	3,457	375
20-Mar-05	31,164	5,803	204	25,565	24,931	18.4	3,970	15.5	3,336	634
27-Mar-05	31,164	5,707	204	25,661	24,488	20.8	4,425	15.3	3,252	1,173
03-Apr-05	31,164	5,666	204	25,702	23,960	24.2	5,002	15.8	3,260	1,742
10-Apr-05	31,164	5,443	204	25,925	23,605	27.0	5,507	15.6	3,187	2,320
17-Apr-05	31,164	6,101	204	25,267	23,185	26.4	5,280	16.0	3,198	2,082
24-Apr-05	31,164	7,875	204	23,493	22,415	18.7	3,706	13.3	2,628	1,078
01-May-05	31,164	6,766	204	24,602	22,295	28.3	5,429	16.3	3,122	2,307
08-May-05	30,016	6,158	204	24,062	21,975	25.0	4,806	14.1	2,719	2,087
15-May-05	30,016	5,772	204	24,448	21,716	27.8	5,324	13.6	2,592	2,732
22-May-05	30,016	5,426	204	24,794	24,157	20.5	4,213	17.4	3,576	637
29-May-05	30,016	4,466	204	25,754	24,263	25.1	5,161	17.8	3,670	1,491
05-Jun-05	30,016	4,971	204	25,249	24,432	21.8	4,516	17.8	3,699	817
12-Jun-05	30,042	3,952	204	26,294	25,283	26.9	5,576	22.0	4,565	1,011
19-Jun-05	30,042	3,338	204	26,908	26,000	20.2	4,528	16.2	3,620	908
26-Jun-05	30,042	3,485	204	26,761	26,525	14.5	3,398	13.5	3,162	236
03-Jul-05	30,042	3,407	204	26,839	26,559	17.6	4,019	16.4	3,739	280
10-Jul-05	30,042	2,982	204	27,264	27,375	15.4	3,628	15.8	3,739	-111
17-Jul-05	30,042	2,941	204	27,305	27,034	15.8	3,728	14.7	3,457	271
24-Jul-05	30,042	2,837	204	27,409	26,851	17.4	4,053	15.0	3,495	558
31-Jul-05	30,042	2,146	204	28,100	26,808	20.8	4,838	15.2	3,546	1,292
07-Aug-05	30,042	2,157	204	28,089	26,619	22.4	5,135	16.0	3,665	1,470
14-Aug-05	30,042	2,530	204	27,716	26,739	19.4	4,498	15.2	3,521	977
21-Aug-05	30,042	2,705	204	27,541	26,531	19.2	4,440	14.9	3,430	1,010
28-Aug-05	30,042	2,572	204	27,674	26,072	20.9	4,783	13.9	3,181	1,602
04-Sep-05	30,042	3,675	204	26,571	26,463	14.4	3,353	14.0	3,245	108
11-Sep-05	30,042	4,370	204	25,876	25,964	16.6	3,678	17.0	3,766	-88
18-Sep-05	30,042	4,516	204	25,730	25,181	18.4	4,000	15.9	3,451	549
25-Sep-05	30,042	5,286	204	24,960	24,620	17.2	3,670	15.6	3,330	340

Note: The reader should be aware that Security and Adequacy Assessments are published on the IMO web site on a weekly and daily basis that progressively supersede information presented in this report.

(Table A1 continued)

Week Ending Day	Total Resources MW	Total Reductions in Resources MW	Demand Response MW	Available Resources MW	Required Resources MW	Available Reserve %	Available Reserve MW	Required Reserve %	Required Reserve MW	Reserve Above Requirement MW
02-Oct-05	30,042	6,629	204	23,617	24,327	21.1	4,112	24.7	4,822	-710
09-Oct-05	30,067	6,622	204	23,649	21,958	22.6	4,360	13.8	2,669	1,691
16-Oct-05	30,067	6,045	204	24,226	22,372	22.9	4,514	13.5	2,660	1,854
23-Oct-05	30,067	6,194	204	24,077	22,781	19.6	3,950	13.2	2,654	1,296
30-Oct-05	30,067	6,274	204	23,997	23,279	16.5	3,394	13.0	2,676	718
06-Nov-05	30,067	5,422	204	24,849	24,033	16.4	3,501	12.6	2,685	816
13-Nov-05	30,093	5,021	204	25,276	24,168	17.7	3,799	12.5	2,691	1,108
20-Nov-05	30,093	4,683	204	25,614	24,673	16.1	3,554	11.8	2,613	941
27-Nov-05	30,093	4,280	204	26,017	25,212	16.0	3,580	12.4	2,775	805
04-Dec-05	30,093	3,551	204	26,746	25,433	18.8	4,226	12.9	2,913	1,313
11-Dec-05	30,093	3,419	204	26,878	26,555	16.0	3,702	14.6	3,379	323
18-Dec-05	30,093	2,367	204	27,930	26,455	19.7	4,598	13.4	3,123	1,475
25-Dec-05	30,093	1,256	204	29,041	26,871	24.9	5,792	15.6	3,622	2,170
01-Jan-06	30,093	1,273	204	29,024	25,585	33.2	7,237	17.4	3,798	3,439
08-Jan-06	30,093	1,218	204	29,079	26,471	24.8	5,779	13.6	3,171	2,608
15-Jan-06	30,093	1,262	204	29,035	27,098	22.4	5,318	14.3	3,381	1,937
22-Jan-06	30,093	1,316	204	28,981	27,048	20.8	4,990	12.7	3,057	1,933
29-Jan-06	30,093	1,343	204	28,954	26,864	22.2	5,259	13.4	3,169	2,090
05-Feb-06	30,093	1,896	204	28,401	26,591	20.3	4,797	12.7	2,987	1,810
12-Feb-06	30,093	2,598	204	27,699	26,371	18.7	4,360	13.0	3,032	1,328
19-Feb-06	30,093	2,639	204	27,658	26,445	19.9	4,587	14.6	3,374	1,213
26-Feb-06	30,093	2,636	204	27,661	25,729	21.9	4,965	13.4	3,033	1,932
05-Mar-06	30,093	4,165	204	26,132	25,476	16.3	3,658	13.4	3,002	656
12-Mar-06	30,093	4,219	204	26,078	25,304	17.6	3,893	14.1	3,119	774
19-Mar-06	30,093	4,302	204	25,995	24,648	19.8	4,296	13.6	2,949	1,347
26-Mar-06	30,093	4,338	204	25,959	24,221	21.6	4,619	13.5	2,881	1,738
02-Apr-06	30,093	4,989	204	25,308	23,605	21.7	4,504	13.5	2,801	1,703
09-Apr-06	30,093	5,343	204	24,954	23,165	21.8	4,459	13.0	2,670	1,789
16-Apr-06	30,093	5,023	204	25,274	22,803	26.0	5,210	13.7	2,739	2,471
23-Apr-06	30,093	5,114	204	25,183	22,500	26.6	5,295	13.1	2,612	2,683
30-Apr-06	30,093	6,072	204	24,225	21,945	25.6	4,936	13.8	2,656	2,280
07-May-06	30,093	5,434	204	24,863	22,032	28.4	5,505	13.8	2,674	2,831
14-May-06	30,093	5,418	204	24,879	21,816	29.0	5,587	13.1	2,524	3,063
21-May-06	30,093	5,888	204	24,409	24,238	17.3	3,593	16.4	3,422	171
28-May-06	30,093	6,906	204	23,391	24,186	9.0	1,939	12.7	2,734	-795
04-Jun-06	30,093	5,090	204	25,207	24,540	20.1	4,225	17.0	3,558	667
11-Jun-06	30,119	3,170	204	27,153	25,522	29.6	6,198	21.8	4,567	1,631
18-Jun-06	30,119	3,154	204	27,169	26,121	20.7	4,651	16.0	3,603	1,048
25-Jun-06	30,119	3,178	204	27,145	26,613	15.0	3,546	12.8	3,014	532
02-Jul-06	30,119	2,474	204	27,849	26,745	20.7	4,779	15.9	3,675	1,104

Table A2 Assessment of Resource Adequacy: Planned Resource Scenario

Week Ending Day	Total Resources MW	Total Reductions in Resources MW	Demand Response MW	Available Resources MW	Required Resources MW	Available Reserve %	Available Reserve MW	Required Reserve %	Required Reserve MW	Reserve Above Requirement MW
02-Jan-05	31,164	2,633	245	28,776	24,708	33.7	7,253	14.8	3,185	4,068
09-Jan-05	31,164	2,148	245	29,261	27,257	24.2	5,700	15.7	3,696	2,004
16-Jan-05	31,164	2,888	272	28,548	27,364	20.8	4,923	15.8	3,739	1,184
23-Jan-05	31,164	3,081	272	28,355	27,349	18.7	4,464	14.5	3,458	1,006
30-Jan-05	31,164	2,902	272	28,534	27,158	20.9	4,939	15.1	3,563	1,376
06-Feb-05	31,164	3,044	272	28,392	26,919	20.8	4,885	14.5	3,412	1,473
13-Feb-05	31,164	3,209	272	28,227	26,642	21.5	4,987	14.6	3,402	1,585
20-Feb-05	31,164	3,236	332	28,260	26,682	23.0	5,291	16.2	3,713	1,578
27-Feb-05	31,164	3,714	332	27,782	25,907	23.0	5,185	14.7	3,310	1,875
06-Mar-05	31,164	5,253	332	26,243	25,698	17.3	3,873	14.9	3,328	545
13-Mar-05	31,164	5,478	332	26,018	25,515	18.0	3,960	15.7	3,457	503
20-Mar-05	31,164	5,803	348	25,709	24,931	19.1	4,114	15.5	3,336	778
27-Mar-05	31,164	5,707	348	25,805	24,488	21.5	4,569	15.3	3,252	1,317
03-Apr-05	31,164	5,666	348	25,846	23,960	24.9	5,146	15.8	3,260	1,886
10-Apr-05	31,164	5,443	348	26,069	23,605	27.7	5,651	15.6	3,187	2,464
17-Apr-05	31,164	6,101	398	25,461	23,185	27.4	5,474	16.0	3,198	2,276
24-Apr-05	31,164	7,875	398	23,687	22,415	19.7	3,900	13.3	2,628	1,272
01-May-05	31,164	6,766	416	24,814	22,295	29.4	5,641	16.3	3,122	2,519
08-May-05	30,016	6,158	416	24,274	21,975	26.1	5,018	14.1	2,719	2,299
15-May-05	30,016	5,772	416	24,660	21,716	29.0	5,536	13.6	2,592	2,944
22-May-05	30,016	5,426	416	25,006	24,157	21.5	4,425	17.4	3,576	849
29-May-05	30,016	4,466	416	25,966	24,263	26.1	5,373	17.8	3,670	1,703
05-Jun-05	30,016	4,971	471	25,516	24,432	23.1	4,783	17.8	3,699	1,084
12-Jun-05	30,042	3,952	471	26,561	25,283	28.2	5,843	22.0	4,565	1,278
19-Jun-05	30,042	3,338	471	27,175	26,000	21.4	4,795	16.2	3,620	1,175
26-Jun-05	30,042	3,485	471	27,028	26,525	15.7	3,665	13.5	3,162	503
03-Jul-05	30,042	3,407	547	27,182	26,559	19.1	4,362	16.4	3,739	623
10-Jul-05	30,042	2,982	547	27,607	27,375	16.8	3,971	15.8	3,739	232
17-Jul-05	30,042	2,941	547	27,648	27,034	17.3	4,071	14.7	3,457	614
24-Jul-05	30,042	2,837	547	27,752	26,851	18.8	4,396	15.0	3,495	901
31-Jul-05	30,042	2,146	547	28,443	26,808	22.3	5,181	15.2	3,546	1,635
07-Aug-05	30,042	2,157	547	28,432	26,619	23.9	5,478	16.0	3,665	1,813
14-Aug-05	30,042	2,530	547	28,059	26,739	20.9	4,841	15.2	3,521	1,320
21-Aug-05	30,042	2,705	547	27,884	26,531	20.7	4,783	14.9	3,430	1,353
28-Aug-05	30,042	2,572	547	28,017	26,072	22.4	5,126	13.9	3,181	1,945
04-Sep-05	30,557	3,675	547	27,429	26,428	18.1	4,211	13.8	3,210	1,001
11-Sep-05	30,557	4,370	547	26,734	25,990	20.4	4,536	17.1	3,792	744
18-Sep-05	30,557	4,516	547	26,588	25,212	22.4	4,858	16.0	3,482	1,376
25-Sep-05	30,557	5,286	547	25,818	24,643	21.3	4,528	15.8	3,353	1,175

Note: The reader should be aware that Security and Adequacy Assessments are published on the IMO web site on a weekly and daily basis that progressively supersede information presented in this report.

(Table A2 continued)

Week Ending Day	Total Resources MW	Total Reductions in Resources MW	Demand Response MW	Available Resources MW	Required Resources MW	Available Reserve %	Available Reserve MW	Required Reserve %	Required Reserve MW	Reserve Above Requirement MW
02-Oct-05	30,557	6,629	547	24,475	24,354	25.5	4,970	24.9	4,849	121
09-Oct-05	30,582	6,622	547	24,507	21,991	27.1	5,218	14.0	2,702	2,516
16-Oct-05	30,582	6,045	547	25,084	22,406	27.3	5,372	13.7	2,694	2,678
23-Oct-05	30,582	6,194	547	24,935	22,814	23.9	4,808	13.4	2,687	2,121
30-Oct-05	30,582	6,274	547	24,855	23,291	20.6	4,252	13.1	2,688	1,564
06-Nov-05	30,582	5,422	547	25,707	24,036	20.4	4,359	12.6	2,688	1,671
13-Nov-05	30,608	5,021	547	26,134	24,203	21.7	4,657	12.7	2,726	1,931
20-Nov-05	30,608	4,683	547	26,472	24,663	20.0	4,412	11.8	2,603	1,809
27-Nov-05	30,608	4,280	547	26,875	25,195	19.8	4,438	12.3	2,758	1,680
04-Dec-05	30,608	3,551	547	27,604	25,433	22.6	5,084	12.9	2,913	2,171
11-Dec-05	30,608	3,419	547	27,736	26,555	19.7	4,560	14.6	3,379	1,181
18-Dec-05	30,608	2,367	547	28,788	26,455	23.4	5,456	13.4	3,123	2,333
25-Dec-05	30,608	1,256	547	29,899	26,899	28.6	6,650	15.7	3,650	3,000
01-Jan-06	30,608	1,273	547	29,882	25,614	37.2	8,095	17.6	3,827	4,268
08-Jan-06	30,608	1,218	547	29,937	26,506	28.5	6,637	13.8	3,206	3,431
15-Jan-06	30,608	1,262	547	29,893	27,115	26.0	6,176	14.3	3,398	2,778
22-Jan-06	30,608	1,316	547	29,839	27,080	24.4	5,848	12.9	3,089	2,759
29-Jan-06	30,608	1,343	547	29,812	26,899	25.8	6,117	13.5	3,204	2,913
05-Feb-06	30,608	1,896	547	29,259	26,591	24.0	5,655	12.7	2,987	2,668
12-Feb-06	30,608	2,598	547	28,557	26,371	22.4	5,218	13.0	3,032	2,186
19-Feb-06	30,608	2,639	547	28,516	26,445	23.6	5,445	14.6	3,374	2,071
26-Feb-06	30,608	2,636	547	28,519	25,729	25.7	5,823	13.4	3,033	2,790
05-Mar-06	30,608	4,165	547	26,990	25,480	20.1	4,516	13.4	3,006	1,510
12-Mar-06	30,608	4,219	547	26,936	25,326	21.4	4,751	14.2	3,141	1,610
19-Mar-06	30,608	4,302	547	26,853	24,680	23.8	5,154	13.7	2,981	2,173
26-Mar-06	30,608	4,338	547	26,817	24,255	25.7	5,477	13.7	2,915	2,562
02-Apr-06	30,608	4,989	547	26,166	23,639	25.8	5,362	13.6	2,835	2,527
09-Apr-06	30,608	5,343	547	25,812	23,202	25.9	5,317	13.2	2,707	2,610
16-Apr-06	30,608	5,023	547	26,132	22,838	30.2	6,068	13.8	2,774	3,294
23-Apr-06	30,608	5,114	547	26,041	22,532	30.9	6,153	13.3	2,644	3,509
30-Apr-06	30,608	6,072	547	25,083	21,982	30.0	5,794	14.0	2,693	3,101
07-May-06	30,608	5,434	547	25,721	22,064	32.9	6,363	14.0	2,706	3,657
14-May-06	30,608	5,418	547	25,737	21,852	33.4	6,445	13.3	2,560	3,885
21-May-06	30,608	5,888	547	25,267	24,268	21.4	4,451	16.6	3,452	999
28-May-06	30,608	6,906	547	24,249	24,152	13.0	2,797	12.6	2,700	97
04-Jun-06	30,608	5,090	547	26,065	24,574	24.2	5,083	17.1	3,592	1,491
11-Jun-06	30,634	3,170	547	28,011	25,546	33.7	7,056	21.9	4,591	2,465
18-Jun-06	30,634	3,154	547	28,027	26,156	24.5	5,509	16.2	3,638	1,871
25-Jun-06	30,634	3,178	547	28,003	26,583	18.7	4,404	12.6	2,984	1,420
02-Jul-06	30,634	2,474	547	28,707	26,779	24.4	5,637	16.1	3,709	1,928

Table A3 Demand Forecast Range For Required Resources Calculation

Week Ending Day	Ontario Demand Normal Weather MW	Ontario Demand Extreme Weather MW
02-Jan-05	21523	23104
09-Jan-05	23561	25594
16-Jan-05	23625	25493
23-Jan-05	23891	25138
30-Jan-05	23595	25209
06-Feb-05	23507	25124
13-Feb-05	23240	24641
20-Feb-05	22969	24600
27-Feb-05	22597	23841
06-Mar-05	22370	23945
13-Mar-05	22058	23737
20-Mar-05	21595	23033
27-Mar-05	21236	22540
03-Apr-05	20700	21924
10-Apr-05	20418	21985
17-Apr-05	19987	21212
24-Apr-05	19787	20681
01-May-05	19173	20279
08-May-05	19256	20160
15-May-05	19124	22880
22-May-05	20581	22571
29-May-05	20593	23219
05-Jun-05	20733	23968
12-Jun-05	20718	24838
19-Jun-05	22380	25729
26-Jun-05	23363	25665
03-Jul-05	22820	25561
10-Jul-05	23636	26583
17-Jul-05	23577	25849
24-Jul-05	23356	25577
31-Jul-05	23262	25167
07-Aug-05	22954	25582
14-Aug-05	23218	25807
21-Aug-05	23101	25402
28-Aug-05	22891	25110
04-Sep-05	23218	25985
11-Sep-05	22198	25180
18-Sep-05	21730	24891
25-Sep-05	21290	24154

(Table A3 continued)

Week Ending Day	Ontario Demand Normal Weather MW	Ontario Demand Extreme Weather MW
02-Oct-05	19505	22949
09-Oct-05	19289	23210
16-Oct-05	19712	20423
23-Oct-05	20127	21132
30-Oct-05	20603	21423
06-Nov-05	21348	21946
13-Nov-05	21477	22227
20-Nov-05	22060	23058
27-Nov-05	22437	23586
04-Dec-05	22520	24116
11-Dec-05	23176	24956
18-Dec-05	23332	24535
25-Dec-05	23249	25463
01-Jan-06	21787	23123
08-Jan-06	23300	25253
15-Jan-06	23717	25611
22-Jan-06	23991	25235
29-Jan-06	23695	25306
05-Feb-06	23604	25224
12-Feb-06	23339	24737
19-Feb-06	23071	24704
26-Feb-06	22696	23938
05-Mar-06	22474	24053
12-Mar-06	22185	23841
19-Mar-06	21699	23141
26-Mar-06	21340	22667
02-Apr-06	20804	22028
09-Apr-06	20495	22062
16-Apr-06	20064	21288
23-Apr-06	19888	20782
30-Apr-06	19289	20380
07-May-06	19358	20274
14-May-06	19292	23126
21-May-06	20816	22807
28-May-06	21452	23469
04-Jun-06	20982	24169
11-Jun-06	20955	25090
18-Jun-06	22518	25939
25-Jun-06	23599	25888
02-Jul-06	23070	25811

Table A4 Assessment of Resource Adequacy: Extreme Weather, Existing Resource Scenario

Week Ending Day	Total Resources MW	Total Reductions in Resources MW	Demand Response MW	Available Resources MW	Required Resources MW	Available Reserve %	Available Reserve MW	Required Reserve %	Required Reserve MW	Reserve Above Requirement MW
02-Jan-05	31,164	2,574	204	28,794	26,091	24.6	5,690	12.9	2,987	2,703
09-Jan-05	31,164	2,148	204	29,220	28,987	14.2	3,626	13.3	3,393	233
16-Jan-05	31,164	2,888	204	28,480	28,906	11.7	2,987	13.4	3,413	-426
23-Jan-05	31,164	3,081	204	28,287	28,513	12.5	3,149	13.4	3,375	-226
30-Jan-05	31,164	2,901	204	28,467	28,572	12.9	3,258	13.3	3,363	-105
06-Feb-05	31,164	3,044	204	28,324	28,492	12.7	3,200	13.4	3,368	-168
13-Feb-05	31,164	3,209	204	28,159	27,900	14.3	3,518	13.2	3,259	259
20-Feb-05	31,164	3,236	204	28,132	27,854	14.4	3,532	13.2	3,254	278
27-Feb-05	31,164	3,704	204	27,664	26,913	16.0	3,823	12.9	3,072	751
06-Mar-05	31,164	5,253	204	26,115	27,136	9.1	2,170	13.3	3,191	-1,021
13-Mar-05	31,164	5,478	204	25,890	26,926	9.1	2,153	13.4	3,189	-1,036
20-Mar-05	31,164	5,803	204	25,565	26,178	11.0	2,532	13.7	3,145	-613
27-Mar-05	31,164	5,707	204	25,661	25,579	13.9	3,121	13.5	3,039	82
03-Apr-05	31,164	5,666	204	25,702	24,829	17.2	3,778	13.3	2,905	873
10-Apr-05	31,164	5,443	204	25,925	24,947	17.9	3,940	13.5	2,962	978
17-Apr-05	31,164	6,101	204	25,267	24,105	19.1	4,055	13.6	2,893	1,162
24-Apr-05	31,164	7,747	204	23,621	23,228	14.2	2,940	12.3	2,547	393
01-May-05	31,164	6,623	204	24,745	23,129	22.0	4,466	14.1	2,850	1,616
08-May-05	30,016	6,113	204	24,107	22,685	19.6	3,947	12.5	2,525	1,422
15-May-05	30,016	5,789	204	24,431	25,794	6.8	1,551	12.7	2,914	-1,363
22-May-05	30,016	5,491	204	24,729	25,334	9.6	2,158	12.2	2,763	-605
29-May-05	30,016	4,468	204	25,752	26,093	10.9	2,533	12.4	2,874	-341
05-Jun-05	30,016	4,986	204	25,234	26,941	5.3	1,266	12.4	2,973	-1,707
12-Jun-05	30,042	3,894	204	26,352	27,944	6.1	1,514	12.5	3,106	-1,592
19-Jun-05	30,042	3,291	204	26,955	29,021	4.8	1,226	12.8	3,292	-2,066
26-Jun-05	30,042	3,485	204	26,761	28,981	4.3	1,096	12.9	3,316	-2,220
03-Jul-05	30,042	3,390	204	26,856	28,841	5.1	1,295	12.8	3,280	-1,985
10-Jul-05	30,042	2,962	204	27,284	30,053	2.6	701	13.1	3,470	-2,769
17-Jul-05	30,042	2,879	204	27,367	29,156	5.9	1,518	12.8	3,307	-1,789
24-Jul-05	30,042	2,774	204	27,472	28,793	7.4	1,895	12.6	3,216	-1,321
31-Jul-05	30,042	2,093	204	28,153	28,242	11.9	2,986	12.2	3,075	-89
07-Aug-05	30,042	2,171	204	28,075	28,730	9.8	2,493	12.3	3,148	-655
14-Aug-05	30,042	2,553	204	27,693	29,013	7.3	1,886	12.4	3,206	-1,320
21-Aug-05	30,042	2,705	204	27,541	28,571	8.4	2,139	12.5	3,169	-1,030
28-Aug-05	30,042	2,598	204	27,648	28,193	10.1	2,538	12.3	3,083	-545
04-Sep-05	30,042	3,637	204	26,609	29,342	2.4	624	12.9	3,357	-2,733
11-Sep-05	30,042	4,274	204	25,972	28,413	3.2	792	12.8	3,233	-2,441
18-Sep-05	30,042	4,370	204	25,876	28,093	4.0	985	12.9	3,202	-2,217
25-Sep-05	30,042	5,279	204	24,967	27,323	3.4	813	13.1	3,169	-2,356

(Table A4 continued)

Week Ending Day	Total Resources MW	Total Reductions in Resources MW	Demand Response MW	Available Resources MW	Required Resources MW	Available Reserve %	Available Reserve MW	Required Reserve %	Required Reserve MW	Reserve Above Requirement MW
02-Oct-05	30,042	6,564	204	23,682	25,972	3.2	733	13.2	3,023	-2,290
09-Oct-05	30,067	6,560	204	23,711	26,262	2.2	501	13.2	3,052	-2,551
16-Oct-05	30,067	6,097	204	24,174	22,976	18.4	3,751	12.5	2,553	1,198
23-Oct-05	30,067	6,184	204	24,087	23,725	14.0	2,955	12.3	2,593	362
30-Oct-05	30,067	6,235	204	24,036	24,090	12.2	2,613	12.5	2,667	-54
06-Nov-05	30,067	5,422	204	24,849	24,656	13.2	2,903	12.4	2,710	193
13-Nov-05	30,093	5,021	204	25,276	24,919	13.7	3,049	12.1	2,692	357
20-Nov-05	30,093	4,683	204	25,614	25,780	11.1	2,556	11.8	2,722	-166
27-Nov-05	30,093	4,280	204	26,017	26,473	10.3	2,431	12.2	2,887	-456
04-Dec-05	30,093	3,550	204	26,747	26,988	10.9	2,631	11.9	2,872	-241
11-Dec-05	30,093	3,419	204	26,878	27,943	7.7	1,922	12.0	2,987	-1,065
18-Dec-05	30,093	2,359	204	27,938	27,427	13.9	3,403	11.8	2,892	511
25-Dec-05	30,093	1,138	204	29,159	28,479	14.5	3,696	11.8	3,016	680
01-Jan-06	30,093	1,191	204	29,106	25,881	25.9	5,983	11.9	2,758	3,225
08-Jan-06	30,093	1,188	204	29,109	28,119	15.3	3,856	11.4	2,866	990
15-Jan-06	30,093	1,262	204	29,035	28,570	13.4	3,424	11.6	2,959	465
22-Jan-06	30,093	1,307	204	28,990	28,119	14.9	3,755	11.4	2,884	871
29-Jan-06	30,093	1,331	204	28,966	28,221	14.5	3,660	11.5	2,915	745
05-Feb-06	30,093	1,887	204	28,410	28,132	12.6	3,186	11.5	2,908	278
12-Feb-06	30,093	2,598	204	27,699	27,625	12.0	2,962	11.7	2,888	74
19-Feb-06	30,093	2,598	204	27,699	27,586	12.1	2,995	11.7	2,882	113
26-Feb-06	30,093	2,554	204	27,743	26,618	15.9	3,805	11.2	2,680	1,125
05-Mar-06	30,093	4,165	204	26,132	26,930	8.6	2,079	12.0	2,877	-798
12-Mar-06	30,093	4,219	204	26,078	26,705	9.4	2,237	12.0	2,864	-627
19-Mar-06	30,093	4,302	204	25,995	25,845	12.3	2,854	11.7	2,704	150
26-Mar-06	30,093	4,309	204	25,988	25,265	14.7	3,321	11.5	2,598	723
02-Apr-06	30,093	4,878	204	25,419	24,526	15.4	3,391	11.3	2,498	893
09-Apr-06	30,093	5,196	204	25,101	24,614	13.8	3,039	11.6	2,552	487
16-Apr-06	30,093	4,901	204	25,396	23,724	19.3	4,108	11.4	2,436	1,672
23-Apr-06	30,093	4,932	204	25,365	23,218	22.1	4,583	11.7	2,436	2,147
30-Apr-06	30,093	5,901	204	24,396	22,781	19.7	4,016	11.8	2,401	1,615
07-May-06	30,093	5,383	204	24,914	22,753	22.9	4,640	12.2	2,479	2,161
14-May-06	30,093	5,438	204	24,859	25,939	7.5	1,733	12.2	2,813	-1,080
21-May-06	30,093	5,956	204	24,341	25,495	6.7	1,534	11.8	2,688	-1,154
28-May-06	30,093	6,972	204	23,325	26,229	-0.6	-144	11.8	2,760	-2,904
04-Jun-06	30,093	5,095	204	25,202	27,121	4.3	1,033	12.2	2,952	-1,919
11-Jun-06	30,119	3,096	204	27,227	28,095	8.5	2,137	12.0	3,005	-868
18-Jun-06	30,119	3,052	204	27,271	29,091	5.1	1,332	12.2	3,152	-1,820
25-Jun-06	30,119	3,157	204	27,166	29,039	4.9	1,278	12.2	3,151	-1,873
02-Jul-06	30,119	2,460	204	27,863	28,855	8.0	2,052	11.8	3,044	-992

Table A5 Assessment of Resource Adequacy: Extreme Weather, Planned Resource Scenario

Week Ending Day	Total Resources MW	Total Reductions in Resources MW	Demand Response MW	Available Resources MW	Required Resources MW	Available Reserve %	Available Reserve MW	Required Reserve %	Required Reserve MW	Reserve Above Requirement MW
02-Jan-05	31,164	2,574	245	28,835	26,091	24.8	5,731	12.9	2,987	2,744
09-Jan-05	31,164	2,148	245	29,261	28,987	14.3	3,667	13.3	3,393	274
16-Jan-05	31,164	2,888	272	28,548	28,906	12.0	3,055	13.4	3,413	-358
23-Jan-05	31,164	3,081	272	28,355	28,513	12.8	3,217	13.4	3,375	-158
30-Jan-05	31,164	2,901	272	28,535	28,572	13.2	3,326	13.3	3,363	-37
06-Feb-05	31,164	3,044	272	28,392	28,492	13.0	3,268	13.4	3,368	-100
13-Feb-05	31,164	3,209	272	28,227	27,900	14.6	3,586	13.2	3,259	327
20-Feb-05	31,164	3,236	332	28,260	27,854	14.9	3,660	13.2	3,254	406
27-Feb-05	31,164	3,704	332	27,792	26,913	16.6	3,951	12.9	3,072	879
06-Mar-05	31,164	5,253	332	26,243	27,136	9.6	2,298	13.3	3,191	-893
13-Mar-05	31,164	5,478	332	26,018	26,926	9.6	2,281	13.4	3,189	-908
20-Mar-05	31,164	5,803	348	25,709	26,178	11.6	2,676	13.7	3,145	-469
27-Mar-05	31,164	5,707	348	25,805	25,579	14.5	3,265	13.5	3,039	226
03-Apr-05	31,164	5,666	348	25,846	24,829	17.9	3,922	13.3	2,905	1,017
10-Apr-05	31,164	5,443	348	26,069	24,947	18.6	4,084	13.5	2,962	1,122
17-Apr-05	31,164	6,101	398	25,461	24,105	20.0	4,249	13.6	2,893	1,356
24-Apr-05	31,164	7,747	398	23,815	23,228	15.2	3,134	12.3	2,547	587
01-May-05	31,164	6,623	416	24,957	23,129	23.1	4,678	14.1	2,850	1,828
08-May-05	30,016	6,113	416	24,319	22,685	20.6	4,159	12.5	2,525	1,634
15-May-05	30,016	5,789	416	24,643	25,794	7.7	1,763	12.7	2,914	-1,151
22-May-05	30,016	5,491	416	24,941	25,334	10.5	2,370	12.2	2,763	-393
29-May-05	30,016	4,468	416	25,964	26,093	11.8	2,745	12.4	2,874	-129
05-Jun-05	30,016	4,981	471	25,506	26,941	6.4	1,538	12.4	2,973	-1,435
12-Jun-05	30,042	3,894	471	26,619	27,944	7.2	1,781	12.5	3,106	-1,325
19-Jun-05	30,042	3,291	471	27,222	29,021	5.8	1,493	12.8	3,292	-1,799
26-Jun-05	30,042	3,485	471	27,028	28,981	5.3	1,363	12.9	3,316	-1,953
03-Jul-05	30,042	3,390	547	27,199	28,841	6.4	1,638	12.8	3,280	-1,642
10-Jul-05	30,042	2,962	547	27,627	30,053	3.9	1,044	13.1	3,470	-2,426
17-Jul-05	30,042	2,879	547	27,710	29,156	7.2	1,861	12.8	3,307	-1,446
24-Jul-05	30,042	2,774	547	27,815	28,793	8.8	2,238	12.6	3,216	-978
31-Jul-05	30,042	2,125	547	28,464	28,242	13.1	3,297	12.2	3,075	222
07-Aug-05	30,042	2,171	547	28,418	28,730	11.1	2,836	12.3	3,148	-312
14-Aug-05	30,042	2,553	547	28,036	29,013	8.6	2,229	12.4	3,206	-977
21-Aug-05	30,042	2,705	547	27,884	28,571	9.8	2,482	12.5	3,169	-687
28-Aug-05	30,042	2,598	547	27,991	28,193	11.5	2,881	12.3	3,083	-202
04-Sep-05	30,557	3,637	547	27,467	29,284	5.7	1,482	12.7	3,299	-1,817
11-Sep-05	30,557	4,274	547	26,830	28,372	6.6	1,650	12.7	3,192	-1,542
18-Sep-05	30,557	4,370	547	26,734	28,050	7.4	1,843	12.7	3,159	-1,316
25-Sep-05	30,557	5,279	547	25,825	27,285	6.9	1,671	13.0	3,131	-1,460

(Table A5 continued)

Week Ending Day	Total Resources MW	Total Reductions in Resources MW	Demand Response MW	Available Resources MW	Required Resources MW	Available Reserve %	Available Reserve MW	Required Reserve %	Required Reserve MW	Reserve Above Requirement MW
02-Oct-05	30,557	6,564	547	24,540	25,924	6.9	1,591	13.0	2,975	-1,384
09-Oct-05	30,582	6,560	547	24,569	26,237	5.9	1,359	13.0	3,027	-1,668
16-Oct-05	30,582	6,097	547	25,032	23,005	22.6	4,609	12.6	2,582	2,027
23-Oct-05	30,582	6,184	547	24,945	23,676	18.0	3,813	12.0	2,544	1,269
30-Oct-05	30,582	6,235	547	24,894	24,031	16.2	3,471	12.2	2,608	863
06-Nov-05	30,582	5,422	547	25,707	24,572	17.1	3,761	12.0	2,626	1,135
13-Nov-05	30,608	5,021	547	26,134	24,846	17.6	3,907	11.8	2,619	1,288
20-Nov-05	30,608	4,683	547	26,472	25,737	14.8	3,414	11.6	2,679	735
27-Nov-05	30,608	4,280	547	26,875	26,427	13.9	3,289	12.1	2,841	448
04-Dec-05	30,608	3,550	547	27,605	26,944	14.5	3,489	11.7	2,828	661
11-Dec-05	30,608	3,419	547	27,736	27,907	11.1	2,780	11.8	2,951	-171
18-Dec-05	30,608	2,359	547	28,796	27,357	17.4	4,261	11.5	2,822	1,439
25-Dec-05	30,608	1,138	547	30,017	28,424	17.9	4,554	11.6	2,961	1,593
01-Jan-06	30,608	1,191	547	29,964	25,920	29.6	6,841	12.1	2,797	4,044
08-Jan-06	30,608	1,188	547	29,967	28,073	18.7	4,714	11.2	2,820	1,894
15-Jan-06	30,608	1,262	547	29,893	28,509	16.7	4,282	11.3	2,898	1,384
22-Jan-06	30,608	1,307	547	29,848	28,070	18.3	4,613	11.2	2,835	1,778
29-Jan-06	30,608	1,331	547	29,824	28,160	17.9	4,518	11.3	2,854	1,664
05-Feb-06	30,608	1,887	547	29,268	28,091	16.0	4,044	11.4	2,867	1,177
12-Feb-06	30,608	2,598	547	28,557	27,590	15.4	3,820	11.5	2,853	967
19-Feb-06	30,608	2,598	547	28,557	27,548	15.6	3,853	11.5	2,844	1,009
26-Feb-06	30,608	2,554	547	28,601	26,584	19.5	4,663	11.1	2,646	2,017
05-Mar-06	30,608	4,165	547	26,990	26,861	12.2	2,937	11.7	2,808	129
12-Mar-06	30,608	4,219	547	26,936	26,625	13.0	3,095	11.7	2,784	311
19-Mar-06	30,608	4,302	547	26,853	25,789	16.0	3,712	11.4	2,648	1,064
26-Mar-06	30,608	4,309	547	26,846	25,217	18.4	4,179	11.3	2,550	1,629
02-Apr-06	30,608	4,878	547	26,277	24,502	19.3	4,249	11.2	2,474	1,775
09-Apr-06	30,608	5,196	547	25,959	24,566	17.7	3,897	11.4	2,504	1,393
16-Apr-06	30,608	4,901	547	26,254	23,760	23.3	4,966	11.6	2,472	2,494
23-Apr-06	30,608	4,932	547	26,223	23,254	26.2	5,441	11.9	2,472	2,969
30-Apr-06	30,608	5,901	547	25,254	22,817	23.9	4,874	12.0	2,437	2,437
07-May-06	30,608	5,383	547	25,772	22,785	27.1	5,498	12.4	2,511	2,987
14-May-06	30,608	5,438	547	25,717	25,857	11.2	2,591	11.8	2,731	-140
21-May-06	30,608	5,956	547	25,199	25,440	10.5	2,392	11.5	2,633	-241
28-May-06	30,608	6,972	547	24,183	26,149	3.0	714	11.4	2,680	-1,966
04-Jun-06	30,608	5,095	547	26,060	27,049	7.8	1,891	11.9	2,880	-989
11-Jun-06	30,634	3,096	547	28,085	28,039	11.9	2,995	11.8	2,949	46
18-Jun-06	30,634	3,052	547	28,129	29,046	8.4	2,190	12.0	3,107	-917
25-Jun-06	30,634	3,157	547	28,024	28,994	8.3	2,136	12.0	3,106	-970
02-Jul-06	30,634	2,460	547	28,721	28,814	11.3	2,910	11.6	3,003	-93

Table A6 Energy Production Capability Forecast

Month	Existing Resource Scenario Forecast Energy Production Capability (GWh)	Planned Resource Scenario Forecast Energy Production Capability (GWh)
Jan 2005	17,134	17,134
Feb 2005	15,135	15,135
Mar 2005	15,361	15,361
Apr 2005	14,185	14,185
May 2005	15,155	15,155
Jun 2005	15,562	15,562
Jul 2005	16,798	16,798
Aug 2005	17,009	17,009
Sep 2005	15,139	15,139
Oct 2005	14,379	14,379
Nov 2005	15,593	15,593
Dec 2005	17,512	17,864
Jan 2006	17,834	18,198
Feb 2006	15,066	15,419
Mar 2006	15,519	15,883
Apr 2006	14,761	15,125
May 2006	14,947	15,276
Jun 2006	15,862	16,226

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Appendix B Transmission Projects

CAA-ID #	Bruce Zone	

CAA-ID #	East Zone	Projected I/S Date
2003-EX176	Kingston: Second DESN at Kingston-Gardiner TS	2005-Q2
2003-EX143	Upgrade 115 KV circuits D7/9G	2005-Q2
2004-161	Cornwall 115KV Transmission	2005-Q2

CAA-ID #	Essa Zone	Projected I/S Date
2004-135	Essa Shunt Capacitor	2006-Q2
2004-112	Armitage No. 3 TS	2006-Q2

CAA-ID #	Niagara Zone	Projected I/S Date

CAA-ID #	Northeast Zone	Projected I/S Date
2002-070	Sault #1 and Sault #2 circuits (115 kV) taken out of service	2005-Q1
2004-EX208	New 115 kV tie breaker at Third Line TS between CB 445 & CB 455 in service	2005-Q4
2002-070	One new 230 kV Sault circuit (K24G - 374 MVA continuous) in service	2005-Q4
2002-070	One new 230 kV Anjigami circuit (W23K - 374 MVA continuous) in service	2005-Q4
2002-070	New MacKay TS 230 kV switchyard in service with one 230/115 kV autotransformer & 40 MVAr reactor	2005-Q4
2002-070	New Third Line TS 230 kV ring-bus in service	2005-Q4
2004-EX181	Andrews TS Transformer Replacement	2005-Q1
2004-EX186	Northern Avenue TS Project	2005-Q1
2004-EX204	Porcupine TS	2005-Q4

CAA-ID #	Northwest Zone	

CAA-ID #	Ottawa Zone	Projected I/S Date
2003-EX160	Upgrade 115 kV circuit H9A.	2004-Q4

CAA-ID #	Southwest Zone	Projected I/S Date
2004-115	Trafalgar TS: New 230 kV, 300 MVAR shunt capacitor	2005-Q2
2003-EX143	Detweiler TS: Upgarde circuitsD5/9G	2006-Q2

CAA-ID #	Toronto Zone	Projected I/S Date
2003-EX141	Leaside TS: Install second 125 Mvar shunt capacitor.	2005-Q2
2003-104	Cardiff TS: New transformer station (formerly Mississauga TS).	2005-Q1
2003-099	Parkway TS - Build new transformer station with first of two 750 MVA, 500/230 kV auto-transformers.	2005-Q2
2003-099	Parkway TS - Completion of second auto-transformer and the remaining work for project 2003-099	2005-Q4
2003-100	Armitage TS New 230 KV line from Parkway to Armitage	2006-Q2
2003-089	Vaughan MTS #1: Add new 3rd transformer.	2005-Q2
2004-113	Cooksville TS reconfigure connections from Applewood Junction	2005-Q3
2004-EX202	Hearn SS - Temporary Cables	2005-Q4
2004-180	Oshawa Gneeral Motors TS	2005-Q4

CAA-ID #	West Zone	
2002-072	Belle River East DS	2005-Q2

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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

No outages to assess.

Table C2 East Zone

No outages to assess.

Table C3 Essa Zone

Start Date/Time	End Date/Time	Equipment	Outage Type	Recall	Impact	Reduction in Limit
9/19/05 5:00 AM	9/25/05 6:00 PM	Parry Sound TS: 77T1-E27, T1, T1B	CWW	Non-Recallable		
9/26/05 5:00 AM	10/2/05 6:00 PM	Parry Sound TS: T2, 77T2-E26, T2Y	CWW	Non-Recallable		
10/3/05 5:00 AM	10/9/05 6:00 PM	Waubaushene TS: T5J, 98-E27, T5	CWW	Non-Recallable		
10/10/05 5:00 AM	10/16/05 6:00 PM	Waubaushene TS: T6Q, 98-E26, T6	CWW	Non-Recallable		

Table C4 Niagara Zone

Start Date/Time	End Date/Time	Equipment	Outage Type	Recall	Impact	Reduction in Limit
9/17/03 12:01 PM	12/31/05 11:59 PM	Atlas Steel CTS: 29T3	CWW	Non-Recallable		
4/2/05 5:00 AM	4/15/05 6:00 PM	Crowland TS: T6, QY, Q_BUS, T6Q, 41T6-A7C	CWW	3 Day		
4/23/05 5:00 AM	5/2/05 6:00 PM	Crowland TS: QY, SC1Y, T5, T5Y, Y_BUS, 41T5-A6C	CWW	3 Day		

Table C5 Northeast Zone

Start Date/Time	End Date/Time	Equipment	Outage Type	Recall	Impact	Reduction in Limit
4/18/04 3:37 PM	4/19/05 11:59 PM	Anjigami Line #1	CWW	Non-Recallable		

Table C6 Northwest Zone

Start Date/Time	End Date/Time	Equipment	Outage Type	Recall	Impact	Reduction in Limit
6/12/05 12:01 AM	6/19/05 11:59 PM	Thunder Bay C1	CWW	Non-Recallable		
12/12/05 12:01 AM	12/18/05 11:59 PM	Thunder Bay C1	CWW	Non-Recallable		
6/19/06 12:01 AM	6/25/06 11:59 PM	Thunder Bay C1	CWW	Non-Recallable		

Table C7 Ottawa Zone

No outages to assess.

Table C8 Southwest Zone

No outages to assess.

Table C9 Toronto Zone

Start Date/Time	End Date/Time	Equipment	Outage Type	Recall	Impact	Reduction in Limit
10/3/05 5:00 AM	11/18/05 6:00 PM	Manby East TS: T5-H2, TR5-T, TR5-S, T5	CWW	4 Week		
3/6/06 5:00 AM	4/14/06 6:00 PM	Manby East TS: T5-H2, TR5-T, TR5-S, T5	CWW	4 Week		
3/7/05 7:00 AM	4/29/05 3:00 PM	Claireville TS: KL83	CWW	5 Day		
7/12/04 8:01 AM	5/1/05 4:00 PM	Markham MTS #3: SC2	CWW	Non-Recallable		
11/29/04 7:00 AM	2/4/05 6:00 PM	Cecil TS: T3A5A6	CWW	Non-Recallable		
4/4/05 7:00 AM	4/15/05 6:00 PM	Fairchild TS: SS1-X, B_BUS, BSC1, BY, T1B, BY, T2B	CWW	Non-Recallable		
10/7/05 5:00 AM	12/9/05 6:00 PM	Claireville TS: HT14	CWW	8 Week		

Table C10 West Zone

Start Date/Time	End Date/Time	Equipment	Outage Type	Recall	Impact	Reduction in Limit
12/13/04 6:00 AM	1/21/05 5:00 PM	Tillsonburg TS: T2-LC, T2Y, T2, T2-L	CWW	Non-Recallable		
7/15/04 12:00 PM	12/31/05 3:00 PM	Chatham SS: SC21K, SC21	CWW	Non-Recallable		

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