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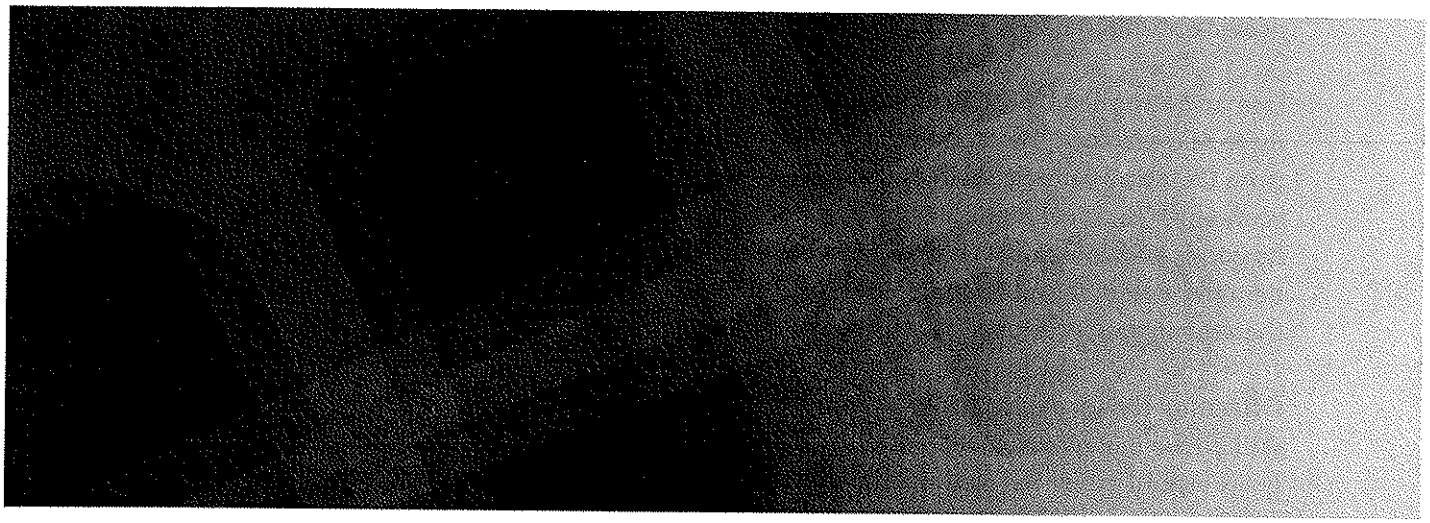
18-MONTH OUTLOOK

UPDATE

From September 2010 to February 2012



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Power to Ontario. On Demand.

An Assessment of the Reliability and Operability of the Ontario Electricity System -Update

Executive Summary

Over the next 18 months, Ontario will have both sufficient generation and transmission resources available to maintain the reliability of the electricity system. With 3,400 megawatts (MW) of new generation expected to come online, and a transmission system adequate to meet expected demands, the period from September 2010 to February 2012 presents no unusual reliability or adequacy concerns.

Of the 3,400 MW of new generation, 1,900 MW consists of new gas-fired and renewable generation. The remaining 1,500 MW are from two refurbished nuclear units at the Bruce A Nuclear Station which are expected in the third and fourth quarters of 2011. This increase in capacity will provide additional supply options to the province, however, the Bruce complex will not be able to operate at full capacity until the completion of the Bruce to Milton transmission line expected in December 2012.

In light of Ontario's continuing positive supply conditions, the move towards the elimination of coal-fired generation by 2014 will continue as planned with the deregistration of four coal-fired units by the end of this year. This represents the additional shutdown of approximately 2,000 MW of coal-fired capacity.

Demand growth over the last decade has resulted in some area loads reaching or exceeding the capability of the local transmission system. To alleviate the situation, several local load supply improvement projects are expected to come into service over the next 18 months to relieve loadings of existing transmission infrastructure and provide additional capacity for future load growth.

Demand supplied by the provincial bulk electricity system continues to be shaped by three main factors: the economy, conservation and the growth in embedded generation from Ontario's renewable initiatives. Despite the strength of Canada's domestic economy, Ontario's manufacturing sector also relies heavily on international demand for its goods and the global recovery has been very soft by historical standards. Industrial demand will rebound from the lows of 2009, albeit slowly and over a longer time frame than the overall economy.

Offsetting the increased demand from the economic recovery and demographic growth will be the impacts of conservation and embedded generation which are expected to grow steadily over the forecast horizon. Over the Outlook timeframe, embedded generation's available capacity is expected to grow by 150 MW while conservation's impact is expected to grow by 100 MW.

Energy demand in Ontario is expected to show modest growth in 2010 and 2011 with increases of 1.5 per cent and 0.3 per cent respectively. The growth will come from a

broad-based expansion of the economy. Peak demands are expected to remain fairly flat as growth is offset by targeted conservation programs.

The following table summarizes the key demand numbers.

Season	Normal Weather Peak (MW)	Extreme Weather Peak (MW)
Winter 2010-11	22,474	23,742
Summer 2011	23,350	25,814
Winter 2011-12	22,515	23,858

Conclusions & Observations

The following conclusions and observations are based on the results of this assessment.

Demand Forecast

- Electricity demand is expected to experience an increase in 2010 and 2011. Despite strong Canadian growth, Ontario's trade based manufacturing sector will show modest increases in demand reflecting the state of the global economic recovery.
- Peak demands are expected to remain fairly flat throughout the forecast. Conservation programs targeting peak demand, the growth in embedded generation and time-of-use rates will offset the increases due to population and building stock growth.
- With lower peak demand levels, system reliability will remain robust. Although high peak demands are likely under extreme weather conditions, they are not expected to pose any province-wide reliability concerns.

Resource Adequacy

- Reserve requirements are expected to be met for all but 1 week in both the firm and planned normal weather scenario.
- Plans to de-register four coal generation units by late 2010 will continue as announced. Plans for the return to service of two refurbished Bruce nuclear units remain expected in Q3 and Q4 of 2011.
- As a result of the low hydroelectric output levels seen during the months from May to July of this year, the methodology used to forecast hydroelectric output capability for the months of September and October 2010 has been changed from median historic hydroelectric output values to 98th percentile values.

	Normal Weather Scenario	Extreme Weather Scenario
Planned Scenario	• There is 1 week where reserve is lower than required	• There are 7 weeks where reserves are lower than required.
Firm Scenario	• There is 1 week where reserve is lower than required	• There are 13 weeks where reserves are lower than required.

- Under the all scenarios, periods where the forecast reserves are not sufficient to meet requirements may result in reliance on imports, the rejection of planned outages by the IESO, or the use of emergency operating procedures.

Transmission Adequacy

- The Ontario transmission system with the planned system enhancements and scheduled maintenance outages is expected to be adequate to supply the demand under the normal weather conditions forecast for the Outlook period.
- The supply reliability under extreme weather conditions, in particular to the GTA, will be further improved with the addition of the Halton Hills Generating Station in the third

quarter of 2010. Under extreme weather conditions the long-term de-rate currently on a Trafalgar autotransformer may require some load reduction measures if additional elements are out of service.

- Several projects relating to local load supply improvements, shown in Appendix B, will be placed in service during the timeframe of this Outlook to help relieve loadings of existing transformer stations and provide additional transformer capacity for future load growth.
- Demand growth over the last decade has resulted in some area loads reaching or exceeding the capability of the local transmission system. To address this problem and provide additional transmission capacity for future load growth, Ontario transmitters and distributors have initiated plans to build new or replace existing transformer stations and reinforce the transmission system as necessary.
- In order to help facilitate outages of two of the Niagara interties scheduled for November and December 2010, Hydro One is constructing a bypass facility around the failed R76 voltage regulator. This bypass facility will allow BP76 circuit to be returned to service during this work. The expected return to service of BP76, with R76 replaced, is currently December 2012.
- Transmission constraints over the 230 kV Sarnia/Windsor to London area may limit the ability to utilize the generation resources in southwestern Ontario in conjunction with imports from Michigan. This congestion could further increase as a result of transmission outages and weather conditions. The scheduled shutdown of two Lambton GS units in October 2010 is expected to reduce local congestion over the remainder of this Outlook period.
- In preparation for the planned removal from service of major southern Ontario coal-fired units, Hydro One is installing additional reactive compensation in western and southwestern Ontario.
- Managing grid voltages in the Northwest has always required special attention, but with the significantly lower demand, it has been increasingly difficult to maintain an acceptable voltage profile without compromising the security and reliability of the supply. The IESO has contacted Hydro One, and is also in conversations with the OPA, in efforts to examine the short- and long-term solutions to this problem.

Operability

- SBG conditions are expected in summer and winter 2011 although may occur during other periods but should be of minor duration.
- In November and December 2010, scheduled outages on the Ontario – New York interconnection at Niagara will impact Ontario's ability to export power, and increase the risk of SBG.

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 System Operator (IESO) assumes no responsibility to you or any third party for the consequences of any errors or omissions. The IESO may revise these materials at any time in its sole discretion without notice to you. Although every effort will be made by the IESO 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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1.0 Introduction

This Outlook covers the 18-month period from September 2010 to February 2012 and supersedes the last Outlook released in May 2010.

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 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. Additional supporting documents are located on the IESO website at http://www.ieso.ca/imoweb/monthsYears/monthsAhead.asp

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.

Security and Adequacy Assessments are published on the IESO web site on a weekly and daily basis, and progressively supersede information presented in this report.

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.

- End of Section -

2.0 Updates to This Outlook

2.1 Updates to Demand Forecast

The demand forecast was based on actual demand, weather and economic data through to the end of May 2010. The economic outlook has been updated based on the most recent data. Actual weather and demand data for June and July have been included in the tables.

2.2 Updates to Resources

Installed capacity has not increased since the previous outlook.

The assessment uses planned generator outages as submitted by market participants to the IESO's Integrated Outage Management System (IOMS). This Outlook is based on submitted generation outage plans as of July 19, 2010.

2.3 Updates to Transmission Outlook

The list of transmission projects, planned transmission outages and actual experience with forced transmission outages have been updated from the previous 18-Month Outlook. For this Outlook, transmission outage plans submitted to the IOMS as of June 28, 2010 were used.

2.4 Updates to Operability Outlook

A forecast of surplus baseload generation (SBG) conditions for the next 18 months has been updated with submitted generation outage plans as of July 19, 2010. The expected contribution to baseload from variable resources such as hydroelectric and wind generation has also been updated to reflect the most recent information.

- End of Section -

3.0 Demand Forecast

The IESO is responsible for forecasting electricity demand on the IESO-controlled grid. This demand forecast covers the period September 2010 to February 2012 and supersedes the previous forecast released May 2010. Tables containing supporting information are contained in the 2010 Q3 Outlook Tables spreadsheet.

Electricity demand is expected to increase over the forecast horizon as the Ontario economy resumes growth after 2009's recessionary impacts. Despite relatively strong Canadian economic growth, Ontario electricity demand will lag as energy intensive industry is more closely linked to the global economy. The global economic recovery has been slow and fraught with debt risks, and expectations are that growth will be gradual going forward.

Peak demands are expected to remain fairly flat over the forecast horizon as conservation programs, the growth in embedded generation and time-of-use rates will act to offset increases from economic and demographic growth.

The following table shows the seasonal peaks and annual energy demand over the forecast horizon of the Outlook.

Table 3.1: Forecast Summary

Season	Normal Weather Peak (MW)	Extreme Weather Peak (MW)
Winter 2010-11	22,474	23,742
Summer 2011	23,350	25,814
Winter 2011-12	22,515	23,858
Year	**Normal Weather Energy (TWh)**	**% Growth in Energy**
2006 Energy	152.3	-1.9%
2007 Energy	151.6	-0.5%
2008 Energy	148.9	-1.8%
2009 Energy	140.4	-5.7%
2010 Energy (Forecast)	142.5	1.5%
2011 Energy (Forecast)	142.9	0.3%

Forecast Details

The following table shows the weekly peak and energy demands for the system. Tables in the 2010 Q3 Outlook Tables spreadsheet contain additional demand information on both the forecast and historical data.

Table 3.2: Weekly Energy and Peak Demand

Week Ending	Normal Peak (MW)	Extreme Peak (MW)	Load Forecast Uncertainty (MW)	Normal Energy Demand (GWh)	Week Ending	Normal Peak (MW)	Extreme Peak (MW)	Load Forecast Uncertainty (MW)	Normal Energy Demand (GWh)
05-Sep-10	21,443	24,549	1,256	2,701	05-Jun-11	19,568	24,427	1,546	2,574
12-Sep-10	20,566	24,655	1,643	2,570	12-Jun-11	19,609	22,916	1,302	2,546
19-Sep-10	19,859	24,921	1,560	2,555	19-Jun-11	21,335	24,113	1,023	2,680
26-Sep-10	19,139	23,997	1,503	2,547	26-Jun-11	22,156	24,975	1,475	2,733
03-Oct-10	18,523	22,535	509	2,505	03-Jul-11	21,705	24,415	1,349	2,704
10-Oct-10	17,953	22,637	741	2,525	10-Jul-11	22,187	24,050	1,206	2,805
17-Oct-10	18,158	19,237	522	2,500	17-Jul-11	22,860	24,716	962	2,795
24-Oct-10	18,486	19,576	537	2,574	24-Jul-11	23,350	25,814	1,426	2,919
31-Oct-10	18,855	19,769	559	2,625	31-Jul-11	22,942	24,922	939	2,852
07-Nov-10	19,067	19,982	806	2,623	07-Aug-11	21,741	24,599	1,033	2,772
14-Nov-10	19,713	20,724	716	2,667	14-Aug-11	22,624	25,756	1,083	2,844
21-Nov-10	20,365	21,510	499	2,731	21-Aug-11	22,739	25,023	951	2,819
28-Nov-10	20,655	22,032	828	2,774	28-Aug-11	21,348	24,284	1,042	2,750
05-Dec-10	20,718	22,566	789	2,809	04-Sep-11	21,367	24,251	1,231	2,716
12-Dec-10	21,631	22,830	557	2,889	11-Sep-11	20,316	24,340	1,614	2,586
19-Dec-10	21,878	22,896	271	2,895	18-Sep-11	19,583	24,486	1,468	2,571
26-Dec-10	21,023	22,160	491	2,845	25-Sep-11	18,937	23,646	1,407	2,566
02-Jan-11	20,942	22,349	529	2,771	02-Oct-11	18,494	22,234	811	2,518
09-Jan-11	21,709	22,855	657	2,943	09-Oct-11	17,702	22,193	646	2,511
16-Jan-11	22,147	23,445	563	3,047	16-Oct-11	18,155	19,203	498	2,518
23-Jan-11	22,474	23,552	563	3,103	23-Oct-11	18,373	19,579	641	2,592
30-Jan-11	22,351	23,742	431	3,048	30-Oct-11	18,816	19,644	741	2,639
06-Feb-11	22,186	23,233	348	3,045	06-Nov-11	19,046	19,901	747	2,639
13-Feb-11	21,717	22,829	431	3,022	13-Nov-11	19,438	20,577	831	2,677
20-Feb-11	21,574	22,617	490	3,008	20-Nov-11	20,072	21,364	738	2,741
27-Feb-11	21,129	22,584	502	2,923	27-Nov-11	20,525	21,890	803	2,788
06-Mar-11	21,020	21,869	367	2,932	04-Dec-11	20,738	22,549	717	2,825
13-Mar-11	20,441	22,128	716	2,877	11-Dec-11	21,588	22,776	553	2,903
20-Mar-11	19,849	21,270	788	2,817	18-Dec-11	21,704	22,713	269	2,907
27-Mar-11	19,350	20,929	889	2,761	25-Dec-11	21,432	22,599	498	2,911
03-Apr-11	18,950	20,390	790	2,678	01-Jan-12	21,038	22,506	592	2,781
10-Apr-11	18,577	20,331	943	2,635	08-Jan-12	21,763	22,893	627	2,940
17-Apr-11	18,153	19,589	795	2,593	15-Jan-12	22,318	23,614	562	3,080
24-Apr-11	17,944	21,909	778	2,509	22-Jan-12	22,515	23,590	561	3,136
01-May-11	17,456	21,734	813	2,493	29-Jan-12	22,470	23,858	430	3,078
08-May-11	17,410	21,011	885	2,487	05-Feb-12	22,285	23,327	346	3,074
15-May-11	17,944	22,090	337	2,484	12-Feb-12	21,846	22,956	430	3,042
22-May-11	18,176	21,695	898	2,496	19-Feb-12	21,520	22,556	486	3,014
29-May-11	18,606	22,722	1,346	2,444	26-Feb-12	21,173	22,617	475	2,920

3.1 Actual Weather and Demand

Since the last forecast the actual demand and weather data for May, June and July have been recorded.

- May was warmer than normal with extreme temperatures towards the end of the month. Energy demand was up over 2009 (11.4 Twh and 11.1 TWh weather corrected). The peak of 22,904 MW occurred on May 26th, which was also the hottest day. Wholesale customers' consumption was up 8% compared to May 2009.
- June's weather was near normal. Demand peaked at 21,527 MW (21,945 MW weather corrected). Energy demand was 11.4 TWh (weather corrected) and represents an increase of 4.1% over June 2009. Wholesale customers' consumption continued its strong showing, increasing by 11% compared to the previous June.

- July was much hotter than average and it was reflected in both the peak and energy demand numbers. Peak demand was 25,075 MW (23,916 MW weather corrected). This is the first time demand has surpassed 25,000 since August of 2007. Energy demand was 13.3 TWh (12.7 TWh weather corrected) and represents a significant increase over last July. Wholesale customers' consumption gained momentum, increasing by 12.3% over the previous July.

Since the start of the year, wholesale customers' consumption has increased in five of the seven months. Overall, demand is only up 2.6% over the previous year but the results are encouraging. The impacts do vary quite significantly by industry group with chemicals, steel and automotive leading the growth.

The 2010 Q3 Outlook Tables spreadsheet has several tables with historical data. They are:

- Table 3.3.1 weekly weather and demand history since market opening
- Table 3.3.2 monthly weather and demand history since market opening
- Table 3.3.3 monthly demand data by Market Participant role.

3.2 Forecast Drivers

Economic Outlook

The economic outlook has not really changed since the last Outlook. The global recovery remains weak by most accounts. Debt concerns remain and the stimulus of expenditure spending will eventually be replaced by austerity measures. Despite this gloomy backdrop, inflation remains muted, borrowing costs are still near historic lows and Canada has a strong domestic economy.

With some of the structural impacts of the recent recession the linkage between economic growth and electricity demand will continue to weaken. The economy will grow but industrial electricity demand will not grow as quickly.

- Table 3.3.4 of the 2010 Q3 Outlook Tables spreadsheet has the economic assumptions for the demand forecast

Weather Scenarios

For the purpose of forecasting the IESO uses weather scenarios to produce demand forecasts. These scenarios include Normal and Extreme weather, along with a measure of uncertainty in demand due to weather volatility. This measure is called Load Forecast Uncertainty.

- Table 3.3.5 of the 2010 Q3 Outlook Tables spreadsheet has the weekly weather data for the forecast period.

Conservation and Demand Management

This forecast assumes that conservation will continue to grow based on information provided by the OPA. The demand forecast is decremented for the impacts of conservation and embedded generation.

Demand measures such as dispatchable loads, demand response programs, and contracted loads are not decremented from the demand forecast but instead are treated as resources in the

assessment. Therefore the effects of demand measures are added back into the demand history and the forecast is produced prior to these impacts. That total demand measure capacity is discounted – based on historical and contract data - to reflect the reliably available capacity

- End of Section -

4.0 Resource Adequacy Assessment

This section provides an assessment of the adequacy of resources to meet the forecast demand. The key messages are:

- When reserves are below required levels, with potentially adverse effects on the reliability of the grid, the IESO has the authority to reject outages based on their order of precedence.
- Conversely, an opportunity exists for additional outages when reserves are above required levels.

These actions address shortages and surpluses of reserves to a large extent.

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

Over the course of the Outlook period about 3,400 MW of new and refurbished supply is scheduled to come into service. Most of the new supply projects have started their commissioning phase or are in the construction phase.

The existing installed generating capacity is summarized in Table 4.1. This excludes capacity that is commissioning.

Table 4.1 Existing Generation Resources as of July 20, 2010

Fuel Type	Total Installed Capacity (MW)	Forecast Capability at Winter Peak* (MW)	Number of Stations	Change in Installed Capacity (MW)	Change in Stations
Nuclear	11,446	11,339	5	0	0
Hydroelectric	7,903	6,165	70	0	0
Coal	6,434	4,267	4	0	0
Oil / Gas	8,792	8,973	27	0	0
Wind	1,084	348	8	0	0
Biomass / Landfill Gas	122	36	6	0	0
Total	35,781	31,128	120	0	0

* Actual Capability may be less as a result of transmission constraints

4.1 Committed and Contracted Generation Resources

Table 4.2 summarizes generation that is scheduled to come into service, be upgraded or shut down within the Outlook period. This includes generation projects in the IESO's Connection Assessment and Approval Process (CAA) that are under construction and projects contracted by the OPA. Details regarding the IESO's CAA process and the status of these projects can be found on the IESO's web site at http://www.ieso.ca/imoweb/connassess/ca.asp.

The estimated effective date in Table 4.2 indicates the date on which additional capacity is assumed to be available to meet Ontario demand or shut down. 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. If a project is delayed the estimated effective date will be the best estimate of the commercial in-service date for the project.

Table 4.2 Committed and Contracted Generation Resources

Proponent/Project Name	Zone	Fuel Type	Estimated Effective Date	Change	Project Status	Capacity Considered	
						Firm (MW)	Planned (MW)
Halton Hills Generating Station	Southwest	Gas	2010-Q3		Commissioning	632	632
Shutdown of Lambton G1 and G2	West	Coal	2010-Q4			-970	-970
Shutdown of Nanticoke G3 and G4	Southwest	Coal	2010-Q4			-980	-980
Return of Sandy Falls as 60 Hz plant	Northeast	Water	2010-Q4		Construction	5	5
Return of Wawaitin as 60 Hz plant	Northeast	Water	2010-Q4		Construction		15
Return of Lower Sturgeon as 60 Hz plant	Northeast	Water	2010-Q4		Construction		14
Hound Chute	Northeast	Water	2010-Q4		Construction		10
Grid-connected FIT Projects	West	Wind	2010Q4		At Various Stages		166
Raleigh Wind Energy Centre	West	Wind	2011-Q1		Construction		78
Leamington Pollution Control Plant	West	Oil	2011-Q1		Approvals & Permits		2
Bruce Unit 2	Bruce	Uranium	2011-Q3		Construction		750
Grid-connected FIT Projects	West	Wind	2011-Q1		At Various Stages		49
Grid-connected FIT Projects	Northeast	Wind	2011-Q1		At Various Stages		60
Grid-connected FIT Projects	Southwest	Wind	2011-Q2		At Various Stages		69
Becker Cogeneration	Northwest	Biomass	2011-Q3		Construction		15
Bruce Unit 1	Bruce	Uranium	2011-Q4		Construction		750
Grid-connected FIT Projects	Southwest	Wind	2011-Q3		At Various Stages		125
Kruger Energy Chatham Wind Project	Southwest	Wind	2011-Q4		Construction		101
Greenwich Wind Farm	Northwest	Wind	2011-Q4		Approvals & Permits		99
Talbot Windfarm	Southwest	Wind	2011-Q4		Construction		99
Grid-connected FIT Projects	Southwest	Wind	2011-Q4		At Various Stages		100
Grid-connected FIT Projects	Northeast	Wind	2011-Q4		At Various Stages		20
Grid-connected FIT Projects	Northwest	Wind	2011-Q4		At Various Stages		60
Grid-connected FIT Projects	West	Wind	2011-Q4		At Various Stages		210
Total						**-1,313**	**1,478**

Notes to Table 4.2:

1. Shading indicates a change from the previous Outlook.
2. The total may not add up due to rounding. Total does not include in-service facilities.
3. Project status provides an indication of the project progress. The milestones used are:
   a. Connection Assessment - the project is undergoing an IESO system impact assessment
   b. Approvals & Permits - the proponent is acquiring major approvals and permits required to start construction (e.g. environmental assessment, municipal approvals etc.)
   c. Construction - the project is under construction
   d. Commissioning - the project is undergoing commissioning tests with the IESO

4.2 Summary of Scenario Assumptions

In order to assess future resource adequacy, the IESO must make assumptions on the amount of available resources. The Outlook considers two scenarios: a Firm Scenario and a Planned Scenario as compared in Table 4.3

Both scenarios' starting point is the existing installed resources shown in Table 4.1. The planned scenario assumes that all resources that are scheduled to come into service are available over the study period while the Firm Scenario only assumes those scheduled to come into service over the first three months. Both scenarios recognize that resources that are in service are not available during times for which the generator has submitted planned outages. What is also considered for both scenarios is the generator planned shutdown or retirement which has high certainty of happening in the future. The Firm and Planned Scenarios also differ in their assumptions regarding the amount of demand measures and generation capacity.

The generation capability assumptions are as follows:

- Hydroelectric capability (including energy and operating reserve) is based on median historical values during weekday peak demand hours from May 2002 to March 2010. For the months of May, June and July 2010, hydroelectric production and contribution to operating reserve were significantly lower than the median historical values typically used to reflect hydroelectric capability in the 18 Month Outlook.

- Actual hydroelectric capability during these months has been closer to 98th percentile historical values during weekday peak demand hours, from data collected since market opening (May 2002) to March 2010.
- To reflect this unique hydroelectric capacity situation, hydroelectric capability (energy and operating reserve) for the months of September and October 2010 is based on 98th percentile historical values.
- For the remainder of the Outlook period, hydroelectric capability (including energy and operating reserve) is based on typical median historical values
- Thermal generators' capacity and energy contributions are based on market participant submissions, including planned outages, expected forced outage rates and seasonal deratings.
- For wind generation the monthly Wind Capacity Contribution (WCC) values are used at the time of weekday peak, while total energy contribution is assumed to be 30%.

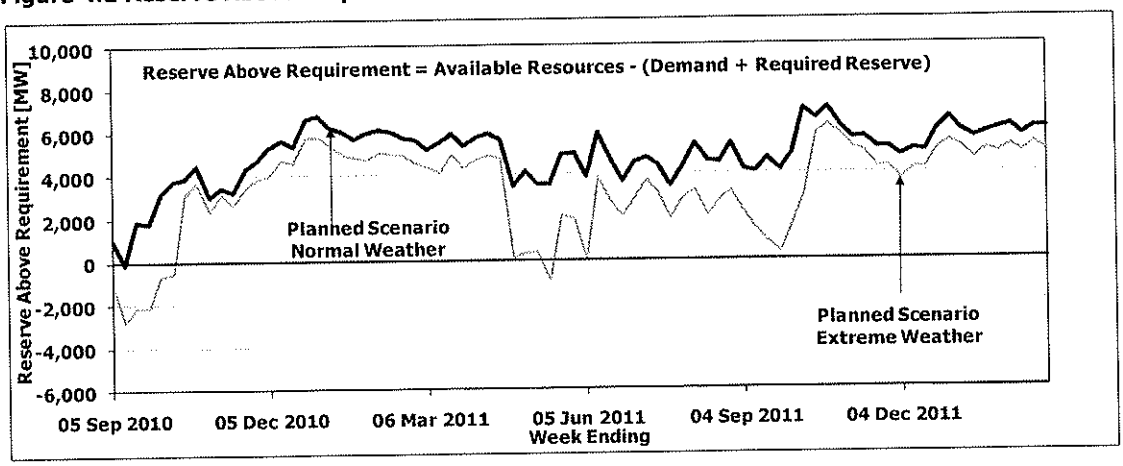
Table 4.3 Summary of Scenario Assumptions

Assumptions		Planned Scenario	Firm Scenario
Resource	Existing Installed Resources	Total Capacity	Total Capacity
		35,781 MW	35,781 MW
	New Generation and Capacity Changes	All	Only Capacity Changes, Generator shutdowns or retirements, Commissioning Generators and Generators starting in the first 3 months
		1,871	-1,313 MW
Demand Forecast	Conservation	Incremental	
		Incremental growth of 100 MW on peak	
	Embedded Generation	Incremental	
		Incremental growth of 150 MW on peak	
	Demand Measures	Incremental	Existing
		1,049 MW	685 MW

4.3 Planned Scenario with Normal and Extreme Weather

Reserve Above Requirement levels, which represent the difference between Available Resources and Required Resources, are shown in Figure 4.1.

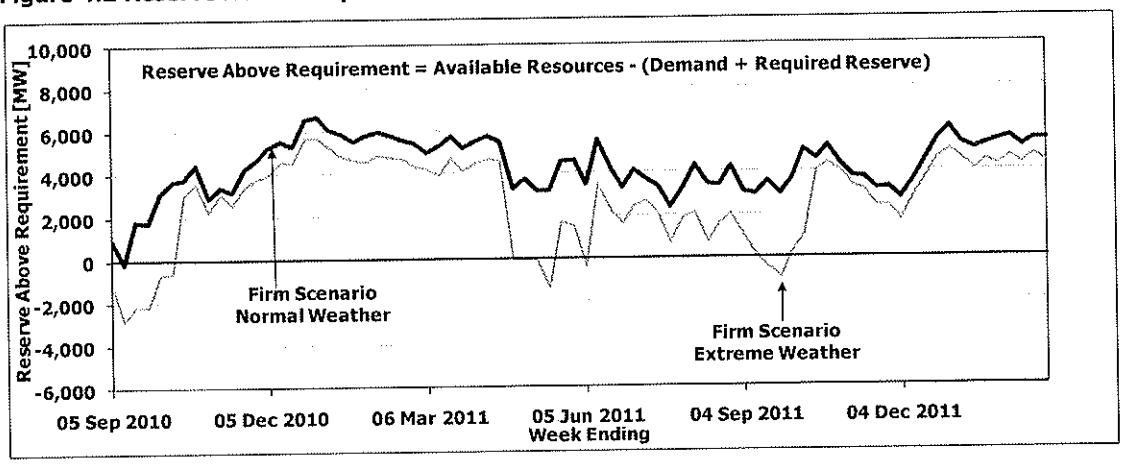
Figure 4.1 Reserve Above Requirement: Planned Scenario with Normal vs. Extreme Weather



4.4 Firm Scenario with Normal and Extreme Weather

Reserve Above Requirement levels, which represent the difference between Available Resources and Required Resources, are shown in Figure 4.2.

Figure 4.2 Reserve Above Requirement: Firm Scenario with Normal vs. Extreme Weather



4.5 Comparison of Resource Scenarios

Table 4.4 shows a snapshot of the forecast available resources, under the two scenarios, at the time of the summer and winter peak demands during the Outlook.

The monthly forecast of energy production capability, as provided by market participants, is included in the 2010 Q3 Outlook Tables Appendix A, Table A7.

Table 4.4 Summary of Available Resources

Notes	Description	Winter Peak 2011		Summer Peak 2011		Winter Peak 2012	
		Firm Scenario	Planned Scenario	Firm Scenario	Planned Scenario	Firm Scenario	Planned Scenario
1	Installed Resources (MW)	34,463	34,751	34,463	35,805	34,463	37,259
2	Imports (MW)	0	0	0	0	0	0
3	Total Resources (MW)	34,463	34,751	34,463	35,805	34,463	37,259
4	Total Reductions in Resources (MW)	3,977	4,179	5,616	6,173	4,074	6,472
5	Demand Measures (MW)	685	763	685	1,049	685	1,049
6	Available Resources (MW)	31,171	31,335	29,532	30,681	31,074	31,837

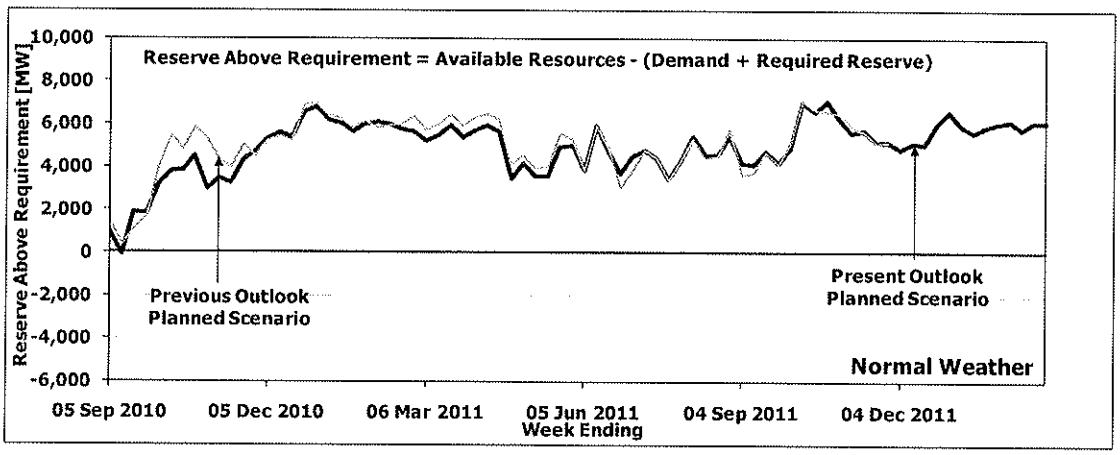
Notes to Table 4.4:

1. Installed Resources: This is the total generation capacity assumed to be installed at the time of the summer and winter peaks.
2. Imports: The amount of external capacity considered to be delivered to Ontario.
3. Total Resources: The sum of Installed Resources (line 1) and Imports (line 2).
4. Total Reductions in Resources: Represent the sum of deratings, planned outages, limitations due to transmission constraints, generation constraints due to transmission outages/limitations and allowance for capability levels below rated installed capacity.
5. Demand Measures: The amount of demand available to be reduced.
6. Available Resources: Equals Total Resources (line 3) minus Total Reductions in Resources (line 4) plus Demand Measures (line 5).

Comparison of the Weekly Adequacy Assessments for the Planned Scenario

Figure 4.3 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 May 20, 2010. The difference is mainly due to the changes to outages, and the change in the demand forecast.

Figure 4.3 Reserve Above Requirement: Planned Scenario with Present Outlook vs. Previous Outlook



Resource adequacy risks are discussed in detail in the "Methodology to Perform Long Term Assessments" (IESO_REP_0266).

- End of Section -

5.0 Transmission Reliability Assessment

This section provides an assessment of the reliability of the Ontario transmission system for the Outlook period. The transmission reliability assessment has three key objectives:

- To identify all major transmission and load supply projects that are planned for completion during the Outlook period and present their reliability benefits;
- 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 its base flow limit;
- To identify equipment outages that could require contingency planning by market participants or by the IESO. Planned transmission outages are reviewed in conjunction with major planned resource outages and the scheduled completion of new generation and transmission projects to identify transmission reliability risks.

5.1 Transmission and Load Supply Projects

The IESO requires transmitters to provide information on the transmission projects that are planned for completion within the 18-month period. Construction of several transmission reinforcements are planned for service during the Outlook period. Major transmission and load supply projects planned to be in service are shown in Appendix B. Projects that are in service or whose completion has been deferred well beyond the period of this Outlook are not shown. The list includes only the transmission projects that represent major modifications or are considered to provide significant improvement to system reliability. Minor transmission equipment replacements or refurbishments are excluded.

Demand growth over the last decade has resulted in some area loads reaching or exceeding the capability of the local transmission system. To address this problem and provide additional transmission capacity for future load growth, Ontario transmitters and distributors have initiated plans to build new or replace existing transformer stations and reinforce the transmission system as necessary.

These needed reinforcements were confirmed by the IESO during related connection assessments. Several of these projects are currently under construction and planned for in service during the period of this Outlook.

5.2 Transmission Outages

The assessment of transmission outages is limited to those with a scheduled duration of greater than five days or to those outages that are part of a project where the combined scheduled duration is greater than five days. As the start time of the outage approaches, actual outage schedule and additional outage requirements, as well as outages with a scheduled duration of five days or less, could impose further transmission capacity restrictions. 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 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 interconnection limits. Where multiple outages are

scheduled during the same period, the combined effect of all outages on the reduction in transmission interface and interconnection limits is presented. Where multiple outages are scheduled during the same period and reliability is affected, the IESO will request 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 reviewed in correlation with major planned resource outages and scheduled completion dates of new generation and transmission projects. This allows the IESO to identify transmission system reliability concerns and to highlight those outage plans that need to be adjusted. A change to an outage may include rescheduling the outage, reducing the scheduled duration or reducing the recall time.

This assessment will also identify any resources that have potential or are forecast to be constrained due to transmission outage conditions. Transmitters and generators are expected to develop 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 deficiency in reserve is forecast. 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. This Outlook contains transmission outage plans submitted to the IESO as of June 28, 2010.

5.3 Transmission System Adequacy

Generally, IESO Outlooks identify the 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. Where the loading is projected to exceed the capability of the transmission facilities, there is also an increased risk of load interruptions.

The Ontario generation mix is changing rapidly with the addition of new resources and the planned shutdown of coal resources. The transmission system needs to evolve to accommodate the supply mix changes and the incorporation of new generation while maintaining the reliable delivery of electricity to the consumers. Over the last few years, Hydro One, the OPA and the IESO have been collaborating in the development of a number of transmission enhancements required to accommodate these changes. Some of these transmission enhancements are scheduled to come into service during the period of this Outlook.

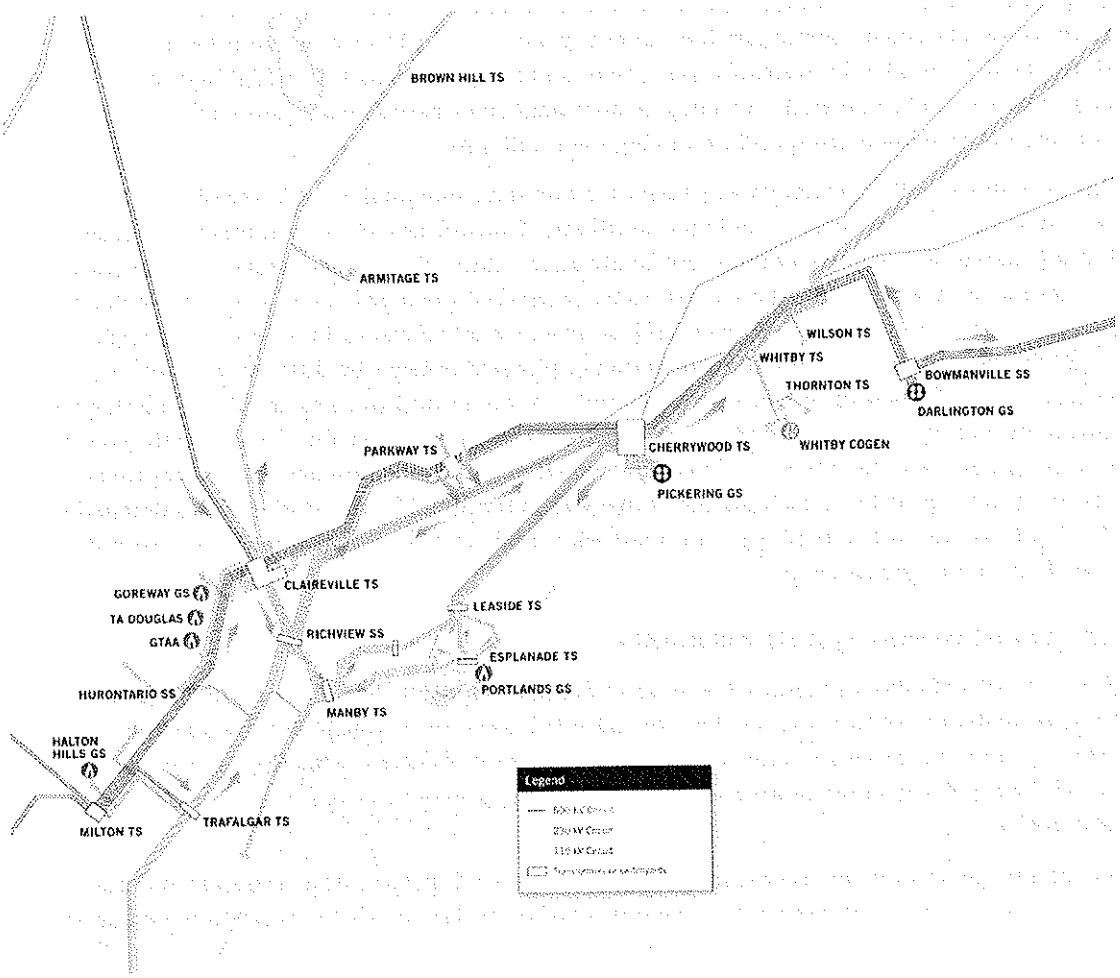
The IESO works with Hydro One and other Ontario transmitters to identify the highest priority transmission needs, and to ensure that those projects whose in service dates are at risk are given as much priority as practical, especially those addressing reliability needs for peak demand periods of this Outlook. We have also been working closely with the OPA to specify the transmission enhancements location, timing and requirements to satisfy reliability standards.

Within the context of this approach, the Ontario transmission system with the planned system enhancements and known transmission outages is expected to be adequate to supply the demand under the normal weather conditions forecast for the Outlook period.

5.3.1 Toronto and Surrounding Area

The Greater Toronto Area (GTA) electricity supply is mainly provided by the Trafalgar, Claireville, Parkway and Cherrywood 500/230 kV autotransformers, Pickering generation station (GS) and other local resources as depicted in Figure 5.1. The availability of these facilities is critical to ensuring reliable electricity supply for Toronto and surrounding area.

Figure 5.1 Greater Toronto Area Electricity System



The capability of the GTA 500/230 kV autotransformers is sufficient to supply the summer 2011 normal and extreme weather demand. If any one GTA 500/230 kV autotransformer is forced out of service, the capability of the remaining transformers will suffice as long as at least four Pickering units are in service at the time of the contingency. Similarly, at least five Pickering units would need to be in service to offset the loss of two 500/230kV autotransformers. Subsequent autotransformer, generation outages or de-rates could result in mitigating measures being required to reduce the remaining GTA 500/230 kV autotransformers loadings within their capability.

The planned addition of Halton Hills GS in the third quarter of 2010 will further reduce the peak loading of the Trafalgar 500/230 kV autotransformers and allow for more operational flexibility.

The York Region load-serving capability will be reinforced with the addition of York Energy Centre that is scheduled to go in service mid 2012.

Some outages at Claireville TS, Parkway TS and Cherrywood TS scheduled during the current Outlook period will result in reductions to southern Ontario transmission interfaces limits.

5.3.2 Bruce and Southwest Zones

Planned refurbishments at the Bruce generation station and new wind power resources in southwestern Ontario will increase generation capacity in the Bruce and Southwest zones. The interim transmission reinforcements required to accommodate the extra generation are on schedule with the installation of dynamic voltage control facilities at Nanticoke and Detweiler and modifications to the existing Bruce special protection system that will continue during this Outlook period. The planned shutdown of four coal-fired units in October 2010 reduces the potential for constrained generation.

In the longer term, the proposed 500 kV line from Bruce to Milton will provide the required transmission capability to deliver the full benefits of the Bruce refurbishment project and the development of new renewable resources in southwestern Ontario. The preparatory work for this line has begun and will continue during this Outlook period. Outages related to this work have the potential of temporarily reducing the transfer capability out of the Bruce zone. Hydro One and the affected parties have finalized a mutually agreeable outage plan which minimizes the overall impact of these outages.

To prevent low voltage conditions in the 115 kV transmission system in the Woodstock area during summer extreme weather conditions, Hydro One is planning to add a new transformer station and a second supply point by extending the 230 kV transmission lines from Ingersoll to Woodstock area and installing a new 230/115 kV transformer station. These plans, scheduled to be completed during the second quarter of 2011, will provide an increased level of supply reliability, and support further load growth in the area.

Hydro One is currently undertaking major upgrade work at Burlington TS which will resolve limitations in the station's ability to supply the Burlington 115 kV area loads, allow future load growth and yield a more flexible configuration. The remaining work, which includes the replacement of all 115 kV breakers and the replacement of limiting bus sections, is scheduled to be completed by the end of the fourth quarter of 2012.

In the Guelph area, the existing 115kV transmission facilities are operating close to capacity and have limited margin for additional load. A combined effort by the OPA, Hydro One, the affected distributors and the IESO is expected to determine the optimum solution for enhancing the overall supply capability to this local area and have that solution in service by May 2014.

As identified in previous IESO reports the existing transmission infrastructure in the Cambridge area is unable to meet the IESO's load restoration criteria following a contingency. The OPA is currently working on solutions to alleviate this issue pending a decision during the first part of this Outlook period.

5.3.3 Niagara Zone and the New York Interconnection

The completion date for transmission reinforcements from the Niagara region into the Hamilton-Burlington area continues to be delayed. This delay impacts both the use of the available Ontario

generation in the Niagara area and imports into the province, particularly during hot weather and high demand periods.

As indicated in previous outlooks, outages requiring the removal of two of the Niagara interties (PA301 and PA302) are currently being planned for November and December 2010. These outages will reduce the transfer capability of the Niagara interconnection and also impact the Ontario to Michigan transfers. In order to help facilitate these outages, Hydro One is constructing a bypass facility around the failed R76 voltage regulator. This bypass facility will allow BP76 circuit to be returned to service during this work. The expected return to service of BP76, with R76 replaced, is currently December 2012.

5.3.4 East Zone and Ottawa Zone

The planned outages in the East and Ottawa zones are not expected to have any impact on the load supply in this area.

5.3.5 West Zone and the Michigan Interconnection

Transmission constraints in this zone may restrict resources in southwestern Ontario and imports from Michigan. This is evident in the bottled generation amounts shown for the Bruce and West zones in Tables A3 and A6. The planned shutdown of two Lambton GS coal-fired units will reduce, but not eliminate the amount of bottled generation in this zone.

Phase angle regulators (PARs) are installed on the Ontario-Michigan interconnection at Lambton TS, representing two of the four interconnections with Michigan, but will not be operational until completion of agreements between the IESO, MISO, Hydro One and International Transmission Company (ITC). The agreement is expected to be executed by the end of 2010.. The operation of these PARs along with the PAR on the Ontario-Michigan interconnection near Windsor will control flows to a limited extent, and assist in the management of system congestion.

The capability to control flows on the Ontario-Michigan interconnection between Scott TS and Bunce Creek is unavailable, pending execution of the four-party agreement mentioned above. The Bunce Creek PAR that failed several years ago was recently replaced by ITC and is now being commissioned.

5.3.6 Northeast and Northwest Zones

The transmission lines east of Mississagi TS and the north-south corridor have experienced increased congestion due to the continuing addition of new renewable resources and the lack of transmission reinforcements. It is expected that congestion will further increase with the proposed and under construction projects in the area becoming operational.

To help reduce this congestion and incorporate the future Lower Mattagami expansion projects and other renewables, Hydro One is planning to install additional dynamic and static reactive compensation facilities at Porcupine TS in the fourth quarter of 2010 and the fourth quarter of 2011, dynamic reactive compensation facilities at Kirkland Lake TS in the first quarter of 2011 and series compensation at Nobel SS on the north-south corridor in the third quarter of 2010.

During the last quarter of 2010, extensive work on the transmission circuits in the Kenora - Fort Frances area is scheduled. The associated outages will reduce the Ontario-Manitoba and Ontario-Minnesota interconnection transfer capacity and also the East-West transmission

interface capability. The reduction of the East-West Transfer East (EWTE) limit is expected to contribute to the increased amount of bottled generation in the Northwest zone.

Managing grid voltages in the Northwest has always required special attention. With significantly lower demands, it is increasingly difficult to maintain an acceptable voltage profile without compromising the reliability of the supply.

Over the past year it has become more difficult to manage voltages throughout the Northwest transmission system. On several occasions normal dispatch actions were exhausted, and exceptional voltage control measures were required, including the temporary removal of one or more transmission circuits from service during light load or low transfer conditions to maintain voltages within acceptable ranges. This reduced the grid's ability to withstand disturbances and subsequently undermined the customer's supply reliability. Additional reactive compensation is required for voltage control in this zone.

The IESO has contacted Hydro One, and is also in conversations with the OPA, in an effort to examine the short- and long-term solutions to this problem.

- End of Section -

6.0 Operability Assessment

The IESO monitors existing and emerging operability issues that could potentially impact system reliability. This year we have seen a stabilization of the economy, relatively warmer temperatures over the summer, and minimal precipitation throughout the year. This has resulted in higher than expected minimum demands and reduced output from baseload hydroelectric resources, which has ultimately alleviated surplus baseload generation (SBG) conditions thus far in 2010.

Over the next 18 months, the IESO expects the risk of experiencing SBG conditions will be most relevant over the summer and winter of 2011. Some residual risk exists towards the end of 2010, as baseload generation returns from planned outage. In November and December 2010, scheduled planned outages on the Ontario-New York transmission interface at Niagara will reduce Ontario's ability to export, and has the potential to exacerbate potential surplus conditions. If precipitation levels remain low, some of this risk would be mitigated.

Figure 6.1 Minimum Demand and Baseload Generation

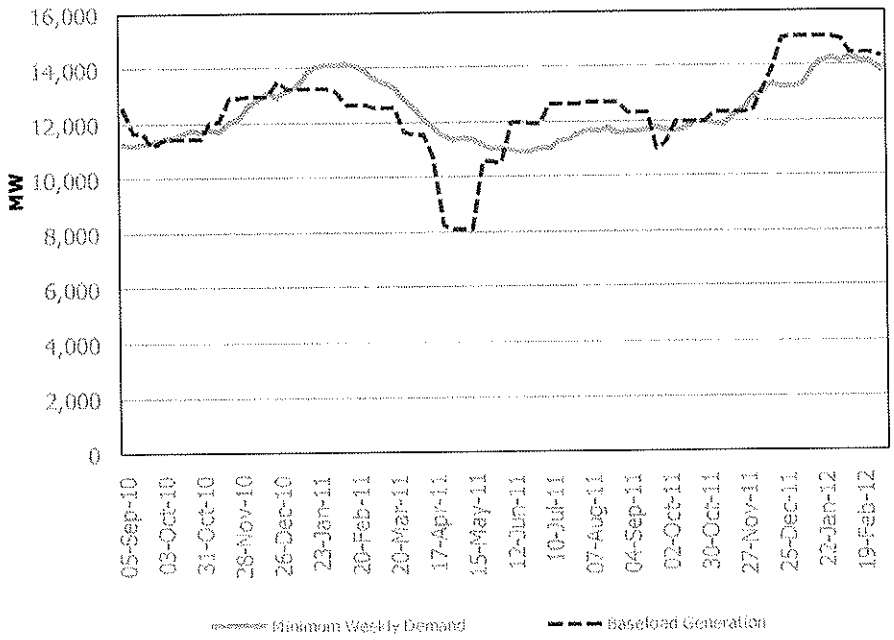


Figure 6.1 shows projected weekly minimum demand against the expected level of expected baseload generation. Baseload generation assumptions have been updated to include exports[1], the latest planned outage information, market participant submitted data, and in-service dates for new or refurbished generation. The expected contribution from self-scheduling and intermittent

[1] The 1,200 MW export assumption will be applied when forecast planned outages are expected to limit Ontario's aggregate export capacity to between 1,400MW and 2,600 MW. For forecast planned outages that further limit export capacity to below 1,400 MW, an export assumption value of 700 MW will be used. See Appendix C of the 18-Month Outlook Tables for forecast reduction to major transmission interface limits, including interconnection interfaces.

generation has also been updated to reflect the latest data. Output from commissioning units is explicitly excluded from this analysis due to uncertainty and highly variable nature of commissioning schedules.

- End of Document -