Independent Electricity Market Operator

Ontario Demand Forecast

from April 2002 to September 2003

Executive Summary

This 18-Month forecast is an update to and supercedes the demand forecast released December 21, 2001. There have been no methodological or process changes since the last forecast. As such, the forecasts are relatively similar. Lower actual and weather corrected values for 2001 and lower economic growth expectations for 2002 have reduced the energy demand forecast for 2002. The energy demand forecast for 2002 is 148.7 TWh which represents a 1.1% increase over the weather corrected total for 2001.

The peak demand forecast for the summer of 2002 and the winter of 2003 are quite similar to the previous forecast. This summer's peak demand is expected to exceed 23,000 MW while next winter's peak demand is anticipated to be just under 24,000 MW. All forecasts are based on Normal weather.

Figure 1 shows the difference between the current and previous demand forecasts over their common time frame. The difference is calculated as the current less the previous forecast. Negative values indicate that energy demand for 2002 is lower in this forecast.

Figure 1 Difference in Monthly Peak and Energy Demand – Current Forecast Vs Previous

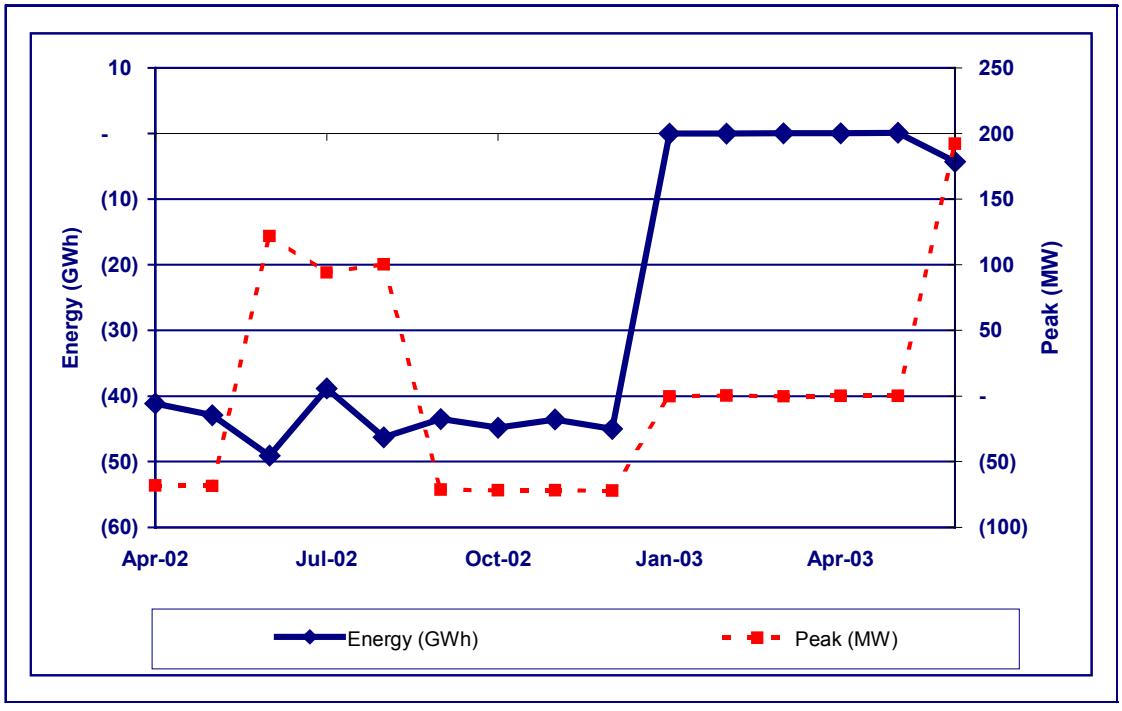

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Table of Contents

List of Tables

List of Figures

1.0 Introduction

1.1 Outlook Documents

The Ontario Electricity Market Rules (Chapter 5 Section 7.1) require that the Independent Electricity Market Operator (IMO) produce and publish demand forecasts on a quarterly basis for the next 18 months. This Ontario Demand Forecast covers the 18-Month period from April 1, 2002 to September 30, 2003 and supercedes the previous forecast from January 2002 to June 2003, dated December 17, 2001.

1.2 Demand Forecast Document

This document provides an 18-Month forecast of electricity demand for Ontario, based on the stated assumptions, and using the described methodology in the document Methodology to Perform Demand Forecasts, Resource Adequacy Assessments and Transmission Adequacy Assessments (IMO_REP_0044). 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 forecast provides a base upon which changes in assumptions can be considered.

The Ontario electricity demand is the sum of coincident loads plus the losses on the IMO-controlled grid. Ontario demand does not include loads that are supplied by embedded generation nor those not served by the IMO-controlled grid. This forecast was based on actual demand, weather and economic data as of December 2001.

Section 2.0 describes the assumptions used in this forecast of electricity demand. Section 3.0 looks at historical demand, Section 4.0 presents the forecast and Appendices A through D contain additional demand forecast details and analysis.

Readers are invited to provide comments on this report or to give suggestions as to the content of future reports. To do so, please call the IMO Help Centre at 905-403-6900 or 1-888-448-7777 or send an email to helpcentre@theIMO.com, or to forecasts.assessments@theIMO.com.

2.0 Forecasting Inputs and Assumptions

A detailed description of the forecasting methodology can be found in the document Methodology to Perform Demand Forecasts, Resource Adequacy Assessments and Transmission Adequacy Assessments (IMO_REP_0044). In addition to the methodology described in the document, the forecast of electricity demand requires inputs and/or assumptions with respect to economic activity and weather. This section describes these inputs.

Consumption of energy is modeled using three sets of forecast drivers: calendar variables, weather effects and economic conditions. Each of these drivers is embedded in the forecasting system and each plays a role in shaping the results. Appendix C, Analytical Factors Affecting Demand, summarizes the relative impacts on energy and peak demand for the driver variables.

Calendar variables are relatively static and are not addressed here. For a more detailed discussion the reader is encouraged to look at the Methodology document.

Weather effects include measures of temperature, cloud cover, wind speed and dew point. Both energy and peak demand are weather sensitive. The length and severity of a season's weather contributes to the level of energy consumed and severe weather conditions usually underpin the seasonal peaks.

For purposes of the demand forecast "Normal" weather - based on historical data – is utilized rather than forecast weather. Normal weather is composed by ranking the weather within each historical week, then taking the average of each of the ranked days. In this way, the Normal weather for each week would have both hotter and colder days. An Extreme weather scenario is also based on historical weather but uses minimums and maximums rather the average in the Normal weather scenario. It is interesting to note that the Extreme scenario essentially is built of a series of 1 in 30-year events. The possibility of this occurring every week is very remote, however the possibility of having at least one week with a 1in 30-year event is significant. Hence the need for the Extreme scenario. A more detailed explanation of how the Extreme and Normal weather scenarios are generated are contained in the Methodology document.

Load Forecast Uncertainty (LFU) is a measure used to capture the uncertainty in demand due to weather variations. LFU represents the variation in peak demand due to one standard deviation in the weather elements underpinning the peak demand. This information is valuable in determining a distribution of potential outcomes under various weather conditions. It should be recognized that for resource adequacy assessments, the "Normal" weather forecast is used in conjunction with a measure of LFU to consider a full range of peak demands that can occur with various weather conditions with varying probability of occurrence.

Economic conditions contribute to the growth in both energy and peak demand. To produce a demand forecast an economic forecast of various drivers is required. A consensus of four major, publicly available provincial forecasts was utilized to generate the economic drivers used in the model. Table 2.1 summarizes the key economic drivers for energy and peak demand on the IMO-controlled grid.

In general the economic outlook for the Ontario economy is for continued weakness through 2002 before picking up in 2003. In comparison to the previous demand forecast the growth expectations are lower in 2002 and 2003.

Table 2.1 Ontario Economic Drivers

Year	Ontario Employment		Ontario Housing Starts	
	Thousands	Annual Growth (%)	Thousands	Annual Growth (%)
1995	5,128	2.0	31.9	(23.3)
1996	5,175	0.9	39.5	23.9
1997	5,298	2.4	50.0	26.5
1998	5,476	3.4	50.1	0.2
1999	5,672	3.6	62.9	25.6
2000	5,856	3.2	67.4	7.1
2001 (f)	5,962	1.8	69.9	3.6
2002 (f)	5,968	0.1	66.4	(4.9)
2003 (f)	6,108	2.4	69.8	5.0

Notes to Table 2.1:

(f) indicates a forecasted value.

3.0 Historical Demand

This section looks at historical energy and peak demand and the factors affecting them. Energy demand represents the total consumption of electricity during a specified period of time, be it an hour, day, week, month, season or year. Peak demand represents the maximum requirement for electricity at a specific point in time. Ontario measures peak demand as a 20-minute average. One can look at the daily, weekly, monthly, seasonal or annual peak.

Table 3.1 shows the actual annual energy and peak demand, on a calendar basis, for the period 1984-2001.

Table 3.1 Ontario Annual Energy and Peak Demand

Calendar Year	Annual Demand			
	Actual Energy (TWh)	Annual Growth (%)	Actual Peak (MW)	Annual Growth (%)
1984	112.29		18,896	
1985	116.05	3.34%	20,473	8.35%
1986	120.57	3.90%	20,668	0.95%
1987	126.46	4.88%	20,524	-0.70%
1988	134.39	6.28%	23,012	12.12%
1989	140.77	4.74%	23,630	2.69%
1990	136.74	-2.86%	22,311	-5.58%
1991	136.97	0.16%	23,212	4.04%
1992	134.38	-1.89%	23,540	1.41%
1993	133.48	-0.67%	22,087	-6.17%
1994	134.87	1.05%	24,007	8.69%
1995	137.04	1.60%	22,855	-4.80%
1996	137.42	0.28%	22,321	-2.34%
1997	138.37	0.69%	22,197	-0.56%
1998	139.93	1.13%	***22,443***	1.11%
1999	144.09	2.97%	***23,435***	4.42%
2000	146.95	1.98%	23,428	-0.03%
2001	146.91	-0.02%	***25,269***	7.86%

Notes to Table 3.1:
Italics, bold and shading indicate a summer peak.

3.1 Historical Energy Demand

Actual primary energy demand has averaged annual growth of 1.6% over the historic period of 1984 to 2001. Energy demand is affected by the three classes of drivers but to varying degrees. On an annual basis, all years would be equal in terms of calendar effects except for leap years, which would have an additional day. Weather will impact annual energy consumption, however not to the degree that peak values are weather sensitive. As well, throughout the course of the year, the variability of weather will mean that highs and lows have a tendency to offset each other. The growth in energy demand is highly influenced by the economic class of drivers, which includes both economic activity and demographic factors.

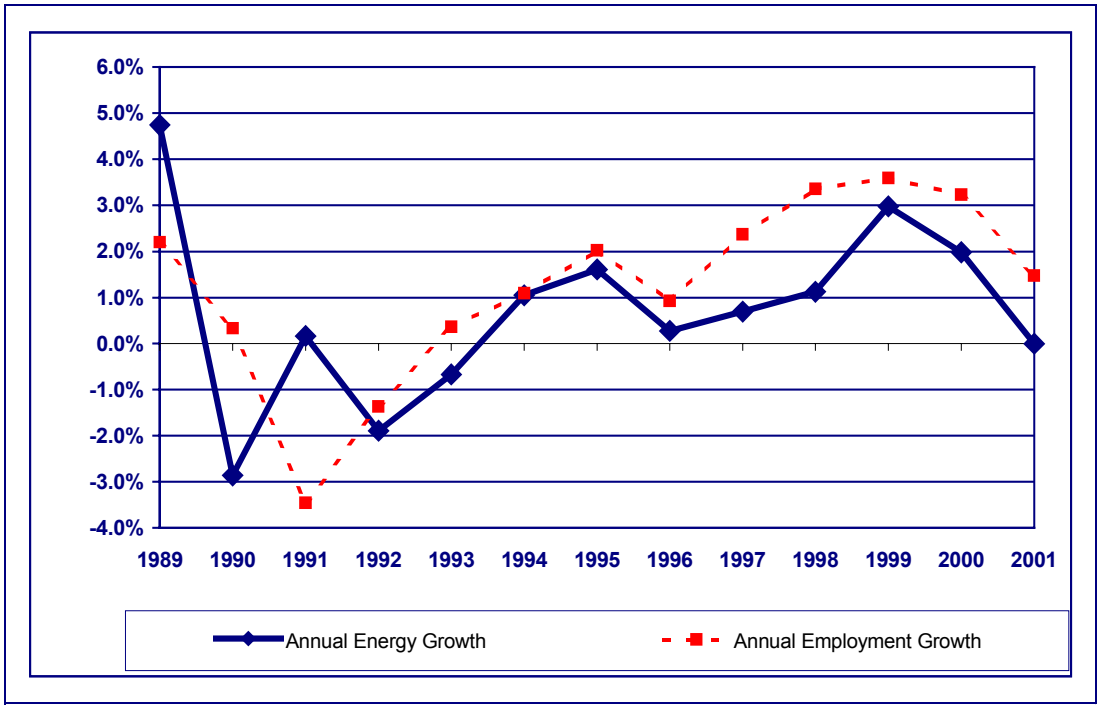
Table 3.2 shows the weather corrected annual energy demand. The actual energy demand is adjusted to reflect the Normal weather that underpins the forecast. The correction for each of the years is less than 1%, showing that variations in weather throughout the year tend to mitigate each other. It is also interesting to note that weather corrections have lowered the value in 4 of the 7 years shown. However, this recent trend has not influenced this forecast any more than the previous 20 years of historical data, since the forecasting methodology employed does not attempt to include cyclical effects of weather, which occur with various frequencies.

Table 3.2 Ontario Annual Energy Demand, Actual and Weather Corrected

Calendar Year	Annual Energy Demand			
	Actual Energy (TWh)	Annual Growth (%)	Weather Corrected Energy (TWh)	Annual Growth (%)
1995	137.04	1.60%	135.79	
1996	137.42	0.28%	136.59	0.59%
1997	138.37	0.69%	138.12	1.12%
1998	139.93	1.13%	140.39	1.64%
1999	144.09	2.97%	143.42	2.16%
2000	146.95	1.98%	147.07	2.55%
2001	146.91	-0.02%	147.13	0.04%

Figure 3.1 graphically shows employment and annual energy demand. It is easy to see that over the course of recent history the level of economic activity has heavily influenced energy demand.

Figure 3.1 Annual Energy Demand and Employment



3.2 Historical Peak Demand

Historically, Ontario's electricity peak demand has occurred during the winter, usually in the months of December through February and between the hours of 5 p.m. to 7 p.m. Exceptions to this were in 1998, 1999, and 2001, when the annual peak demand occurred during the afternoon of July and August. Peak demand is affected by the three classes of drivers but to varying degrees.

Calendar variables, in conjunction with weather, have a large impact on peak demand. Weekly or monthly peak demands rarely occur on a weekend or holiday. Since 1985 only 4 of the 204 monthly peaks have occurred on a weekend and none of those were summer or winter peaks.

In conjunction with calendar impacts, weather plays the biggest role in determining peak values. Severe weather conditions underpin peak demand, particularly so if those weather conditions persist over several days.

Over the course of a season, weather can exhibit great variability. For example, a winter that is generally mild will have a lower than normal energy demand, but can still give rise to a higher than normal peak demand due to a short cold spell. These severe weather episodes are captured in the IMO's analysis in the LFU and the Extreme weather scenario. Using the LFU allows a probability to be assigned to these weather events.

Table 3.4 shows the actual summer and winter peaks from 1990 through to 2001. Unlike energy demand which shows a generally smooth upward trend, peak demand shows the variability more closely associated with the weather underpinning that day's peak.

Table 3.4 Actual Historical Peak Demand

Seasonal Year	Winter Peak (MW)	Summer Peak (MW)
1990	23,630	20,453
1991	23,212	21,150
1992	23,540	19,976
1993	22,087	20,937
1994	24,007	20,923
1995	22,855	21,770
1996	22,823	21,428
1997	22,197	21,667
1998	21,575	22,443
1999	23,308	23,435
2000	23,428	23,222
2001	23,291	25,269

Notes to Table 3.4:
The winter season is from November through March. Therefore, in the case of 1996, the winter spans November 1995 through to March 1996. Spring consists of April and May, summer of June through August and fall September and October.

As with energy demand, peak demand can be adjusted to reflect Normal weather rather than the actual weather underpinning it. The results of this correction are shown in Table 3.5. By comparing this table with the previous one it is possible to discern those seasons where the peak weather conditions were above or below the Normal weather.

Table 3.5 Weather Corrected Historical Peak Demand

Seasonal Year	Winter Peak (MW)	Summer Peak (MW)	Winter Peak Correction Factor (MW)	Summer Peak Correction Factor (MW)
1995	22,351	20,841	-504	-929
1996	22,256	20,463	-567	-965
1997	21,744	20,702	-453	-965
1998	22,050	21,700	475	-743
1999	22,453	21,776	-855	-1,659
2000	22,690	22,221	-738	-1,001
2001	23,294	22,632	3	-2,637

4.0 Demand Forecast

The demand forecast is split into two separate parts, the energy demand forecast and the 20-minute peak demand forecast. In this section, the discussion focuses on the system, more detailed information on the individual zones can be found in Appendices A and B.

4.1 Energy Demand Forecast

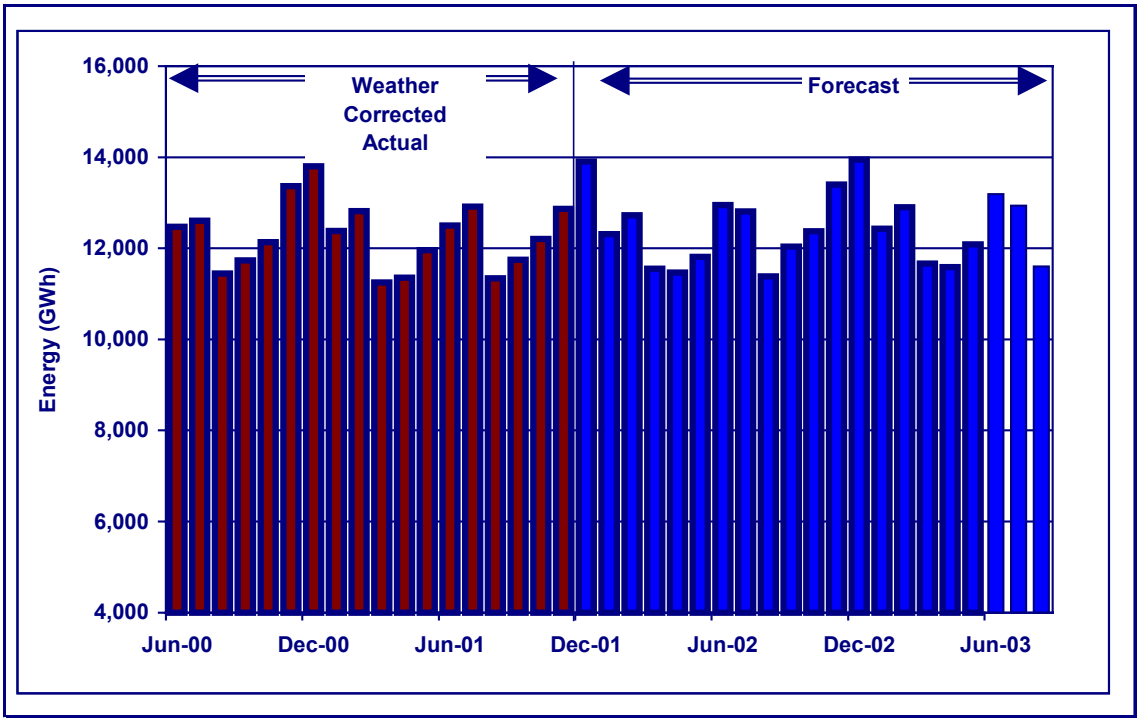
The predicted monthly energy demand for the system for the time frame April 2002 through to September 2003 is contained in Table 4.1. This table contains the forecast of energy demand under both the Normal and Extreme weather scenarios. Figure 4.1 shows the monthly energy demand. Energy demand is expected to exhibit average annual growth of 1.1% in 2002 and 1.4% in 2003. Growth in demand is driven by changes in economic activity, the number of end-users and the penetration of electric powered devices.

Although this section of the report deals with summary details at the system level, the demand forecast is produced on an hourly basis for all ten zones within the system. A forecast of zonal energy demand by week is provided in Appendix A. Energy demand growth varies across the zones as they are subject to different economic forces.

Table 4.1 Ontario Monthly Energy Demand, Normal & Extreme Weather

Month	Energy Demand - Normal Weather	Energy Demand - Extreme Weather
	(GWh)	(GWh)
Apr-02	11,554	12,195
May-02	11,469	12,357
Jun-02	11,808	13,117
Jul-02	12,948	14,246
Aug-02	12,812	14,251
Sep-02	11,383	12,244
Oct-02	12,035	12,514
Nov-02	12,374	13,164
Dec-02	13,395	14,574
Jan-03	13,950	15,053
Feb-03	12,429	13,572
Mar-03	12,907	13,927
Apr-03	11,665	12,302
May-03	11,589	12,480
Jun-03	12,089	13,427
Jul-03	13,186	14,482
Aug-03	12,936	14,389
Sep-03	11,603	12,423

Figure 4.1 Monthly System Energy Demand – Normal Weather



4.2 Peak Demand Forecast

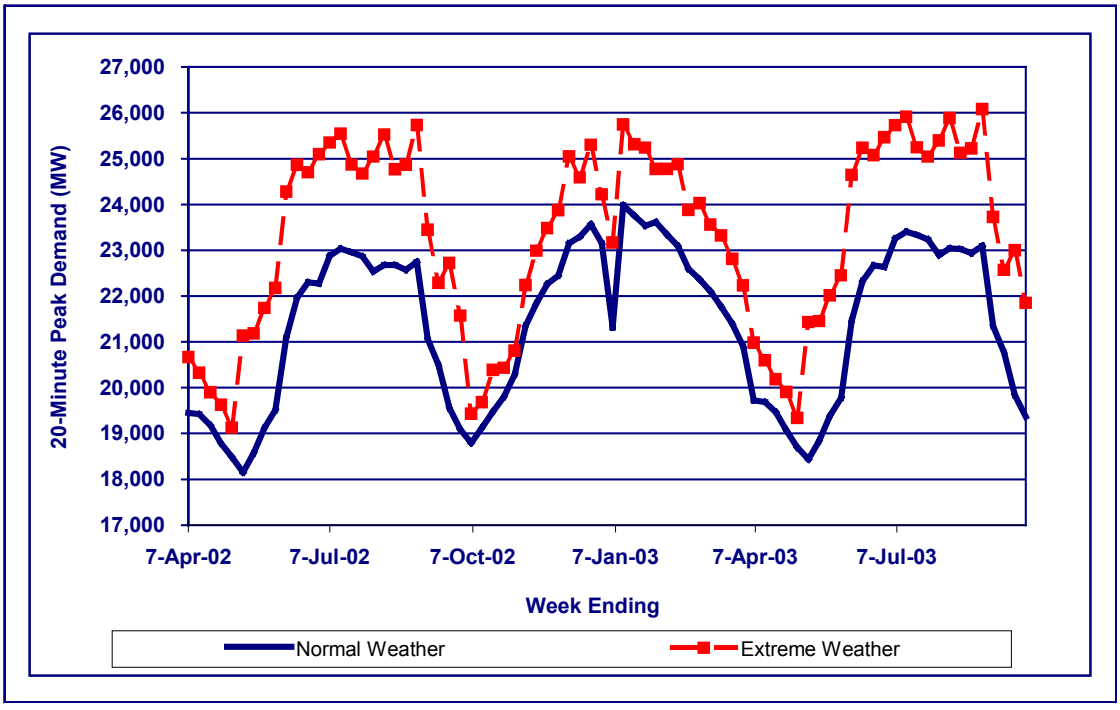
The forecast of monthly peak demand is contained in Table 4.2. This table contains the forecast under both the Normal and Extreme weather scenarios. A forecast of zonal weekly peak demand (both coincident and non-coincident) is contained in Appendix B. The Normal weather summer peak for 2002 is expected to be 23,035 MW, increasing to 23,404 MW for summer 2003. The Normal weather winter peak for 2003 is projected to be 23,984 MW. These values represent the combination of the forecast of economic activity and the Normal weather scenario. Figure 4.2 displays the forecast of weekly system peaks for both the Normal and Extreme weather scenarios.

The resource adequacy assessments described in the companion document, "An Assessment of the Adequacy of the Ontario Electricity System", take into consideration the full range of possible weather conditions on a probabilistic basis. Results are presented assuming Normal weather as a base. Allowance for the probability of demand being higher than those assumed in the base case is made in the calculation of the required reserve level. For the purposes of the assessment, it has been assumed that 300 MW of the peak demand is dispatchable.

Table 4.2 Forecast of Monthly Peak Demand – Normal & Extreme Weather

Month	Normal Weather Peak Demand (MW)	Extreme Weather Peak Demand (MW)
Apr-02	19,450	20,669
May-02	19,513	22,178
Jun-02	22,299	25,096
Jul-02	23,035	25,542
Aug-02	22,748	25,730
Sep-02	21,065	23,442
Oct-02	20,293	25,542
Nov-02	22,447	25,730
Dec-02	23,565	23,442
Jan-03	23,984	25,741
Feb-03	23,346	24,872
Mar-03	22,100	23,557
Apr-03	19,721	20,940
May-03	19,783	22,449
Jun-03	22,673	25,462
Jul-03	23,404	25,910
Aug-03	23,096	26,078
Sep-03	21,348	23,725

Figure 4.2 Forecast of Weekly 20-Minute System Peak Demand - Normal & Extreme Weather



4.3 Comparison of Current Forecast to Previous Forecasts

The most recent forecast with which this 18-Month forecast can be compared is the one published December 21, 2001, covering the period January 2002 to June 2003. The changes to the previous forecast are mostly "updating" in nature. In addition to an updated economic forecast for 2002 and 2003, actual economic, weather and demand data for the remainder of 2001 were fed into the demand forecasting model. As well, there were some minor modifications to the treatment of summer wind. The combined impacts of the updating and the wind correction are relatively small.

The economic outlook sees a marginally weaker 2002 and 2003 as compared to the previous forecast. The lower growth in conjunction with a lower than anticipated total energy demand for 2001 has led to a lower forecast of energy demand for 2002.

The December 2001 forecast predicted a 2002 summer Normal peak of 22,941 MW as opposed to this document, which contains a summer 2002 Normal peak of 23,035 MW. The winter 2003 Normal peaks are the same at 23,984 MW. The Extreme weather summer peak for 2002 is roughly 100 MW higher than the previous forecast (25,542 MW vs. 25,412 MW). The Extreme winter peak for 2003 is lower than the previous forecast 25,741 MW.

The energy demand outlook has been revised downward as a result of the lower economic growth expectations. A decrease in economic activity has meant that the anticipated annual electricity demand for 2002 has dropped to 148.7 TWh from the 149.2 TWh predicted in December 2001.

Appendix A - Energy Demand Forecast Details

Table A1 Weekly Zonal Energy Forecast, Normal Weather

	(GWh)										
Week Ending	Northwest	Northeast	East	Essa	Ottawa	Toronto	Niagara	Bruce	Southwest	West	Total System
7-Apr-02	144	218	338	121	141	827	114	16	529	296	2,745
14-Apr-02	149	213	336	120	140	820	116	15	518	303	2,731
21-Apr-02	147	207	329	118	137	803	116	15	509	298	2,678
28-Apr-02	143	201	323	116	135	788	114	15	502	294	2,632
5-May-02	143	195	320	115	134	781	113	15	499	292	2,606
12-May-02	141	193	317	114	133	775	112	15	494	292	2,585
19-May-02	139	192	317	114	132	774	112	15	491	292	2,578
26-May-02	137	193	312	112	130	762	110	14	479	287	2,537
2-Jun-02	137	189	324	115	137	790	113	15	499	302	2,621
9-Jun-02	138	188	336	117	145	812	116	16	527	321	2,716
16-Jun-02	140	185	345	120	149	835	118	16	537	325	2,771
23-Jun-02	141	183	351	122	152	849	120	16	541	330	2,804
30-Jun-02	140	182	355	124	153	858	121	16	546	333	2,828
7-Jul-02	135	182	363	126	157	878	122	17	554	343	2,877
14-Jul-02	135	181	367	128	159	889	123	17	559	351	2,910
21-Jul-02	136	182	370	129	160	897	123	17	562	356	2,932
28-Jul-02	136	183	365	127	158	883	121	17	556	356	2,903
4-Aug-02	139	183	365	127	158	883	121	17	559	356	2,909
11-Aug-02	140	189	357	124	154	863	122	16	551	351	2,869
18-Aug-02	141	192	360	126	156	871	122	17	558	355	2,898
25-Aug-02	142	198	358	125	155	866	123	17	560	353	2,896
1-Sep-02	143	205	359	125	155	868	125	17	563	354	2,914
8-Sep-02	136	203	331	115	143	801	116	15	512	319	2,690
15-Sep-02	143	202	330	115	143	799	116	15	511	315	2,689
22-Sep-02	144	200	324	113	140	784	113	15	502	306	2,643
29-Sep-02	146	201	323	113	140	782	112	15	501	302	2,633
6-Oct-02	150	204	310	116	150	789	112	15	499	299	2,643
13-Oct-02	150	210	312	118	154	804	113	15	507	298	2,682
20-Oct-02	150	217	311	118	154	802	112	15	507	295	2,679
27-Oct-02	150	222	322	122	159	829	115	16	525	303	2,763
3-Nov-02	155	220	318	120	157	819	116	16	522	305	2,748
10-Nov-02	156	230	329	124	162	847	122	16	529	315	2,831
17-Nov-02	158	233	339	128	167	873	123	16	540	320	2,897
24-Nov-02	158	236	345	130	170	888	123	16	548	322	2,937
1-Dec-02	159	239	349	135	174	899	123	17	557	324	2,975
8-Dec-02	164	243	348	157	186	911	125	17	571	329	3,051
15-Dec-02	163	246	352	159	188	922	125	17	575	330	3,077
22-Dec-02	163	250	357	161	191	935	126	17	580	334	3,115
29-Dec-02	148	240	337	152	180	883	117	16	541	315	2,928

Notes to Table A1:
Figures may not add due to rounding.

Table A1 – continued

	(GWh)										
Week Ending	Northwest	Northeast	East	Essa	Ottawa	Toronto	Niagara	Bruce	Southwest	West	Total System
5-Jan-03	157	248	347	152	170	883	118	16	541	312	2,946
12-Jan-03	166	255	381	165	180	958	129	18	590	341	3,183
19-Jan-03	166	255	378	164	179	951	128	18	587	339	3,164
26-Jan-03	166	253	375	163	177	944	128	18	586	338	3,147
2-Feb-03	167	252	379	164	179	953	129	18	591	340	3,171
9-Feb-03	165	249	377	163	178	949	129	18	591	340	3,159
16-Feb-03	166	246	372	161	176	937	128	17	586	337	3,127
23-Feb-03	164	241	363	157	172	914	127	17	574	331	3,061
2-Mar-03	163	238	364	158	172	915	127	17	571	331	3,056
9-Mar-03	160	233	357	155	169	898	127	17	562	327	3,003
16-Mar-03	158	232	351	152	166	885	126	17	557	324	2,968
23-Mar-03	155	229	344	149	163	865	126	16	549	319	2,915
30-Mar-03	150	226	332	144	157	836	124	16	535	312	2,832
6-Apr-03	145	218	341	142	145	825	117	12	539	303	2,789
13-Apr-03	150	212	340	141	142	816	118	11	529	308	2,767
20-Apr-03	147	207	327	135	137	785	116	11	510	299	2,673
27-Apr-03	144	202	327	135	137	786	116	11	513	300	2,672
4-May-03	143	195	325	124	136	787	115	13	509	298	2,645
11-May-03	141	192	322	116	135	787	114	15	506	298	2,624
18-May-03	139	192	322	115	134	786	114	15	502	298	2,616
25-May-03	137	192	317	114	132	774	112	15	491	293	2,575
1-Jun-03	137	190	328	118	138	800	115	14	507	305	2,652
8-Jun-03	138	188	341	122	148	831	119	9	541	329	2,766
15-Jun-03	140	185	351	125	152	853	121	9	551	333	2,820
22-Jun-03	140	183	356	127	154	867	122	9	555	338	2,853
29-Jun-03	140	182	360	129	156	877	124	9	560	341	2,878
6-Jul-03	135	182	368	132	159	896	125	9	569	350	2,926
13-Jul-03	135	181	373	133	162	908	126	9	574	358	2,960
20-Jul-03	136	182	376	134	163	916	126	9	577	363	2,982
27-Jul-03	136	183	371	132	160	902	124	9	571	363	2,952
3-Aug-03	138	183	371	131	160	900	124	12	573	363	2,955
10-Aug-03	140	188	362	126	157	877	124	17	565	359	2,916
17-Aug-03	140	191	366	128	158	885	125	17	572	362	2,945
24-Aug-03	141	197	363	127	157	880	125	17	574	361	2,943
31-Aug-03	143	203	365	127	158	884	127	17	580	365	2,970
7-Sep-03	136	202	336	117	145	813	119	16	523	324	2,731
14-Sep-03	143	201	335	117	145	811	118	16	523	321	2,730
21-Sep-03	144	200	329	115	142	796	115	15	514	312	2,683
28-Sep-03	145	200	328	114	142	793	114	15	512	308	2,672

Notes to Table A1:
Figures may not add due to rounding.

Appendix B - Peak Demand Forecast Details

Table B1 Weekly Zonal Coincident Peak Demand Forecast, Normal Weather

	20-Minute Coincident Peak Demand (MW)											
Week Ending	Northwest	Northeast	East	Essa	Ottawa	Toronto	Niagara	Bruce	Southwest	West	System	Load Forecast Uncertainty
7-Apr-02	884	1,359	2,488	892	1,039	6,079	778	113	3,774	2,044	19,450	553
14-Apr-02	934	1,367	2,461	883	1,028	6,012	805	110	3,707	2,114	19,421	463
21-Apr-02	919	1,340	2,434	873	1,017	5,946	806	107	3,655	2,084	19,181	442
28-Apr-02	908	1,291	2,387	856	997	5,833	803	106	3,549	2,058	18,788	390
5-May-02	908	1,250	2,345	841	980	5,729	799	103	3,495	2,034	18,484	369
12-May-02	857	1,165	2,305	827	963	5,632	767	102	3,433	2,099	18,150	1,198
19-May-02	847	1,200	2,367	849	989	5,783	799	103	3,465	2,166	18,568	1,612
26-May-02	842	1,206	2,463	883	1,029	6,017	818	105	3,535	2,221	19,119	1,367
2-Jun-02	839	1,216	2,521	904	1,053	6,160	832	110	3,618	2,260	19,513	1,451
9-Jun-02	860	1,172	2,721	949	1,178	6,586	878	123	4,108	2,521	21,096	1,318
16-Jun-02	871	1,170	2,866	1,000	1,240	6,936	906	128	4,261	2,583	21,961	1,327
23-Jun-02	878	1,164	2,914	1,016	1,261	7,053	927	130	4,313	2,643	22,299	1,196
30-Jun-02	874	1,155	2,916	1,017	1,262	7,057	934	127	4,293	2,636	22,271	1,406
7-Jul-02	841	1,158	3,008	1,049	1,302	7,281	949	132	4,415	2,749	22,884	1,290
14-Jul-02	844	1,146	3,032	1,057	1,312	7,338	954	133	4,428	2,791	23,035	1,120
21-Jul-02	848	1,150	3,014	1,051	1,304	7,295	947	132	4,412	2,803	22,956	1,005
28-Jul-02	852	1,151	2,990	1,043	1,294	7,237	940	133	4,407	2,822	22,869	974
4-Aug-02	858	1,145	2,940	1,025	1,273	7,116	923	130	4,363	2,764	22,537	1,093
11-Aug-02	872	1,163	2,952	1,029	1,278	7,144	931	130	4,392	2,790	22,681	1,224
18-Aug-02	877	1,195	2,938	1,025	1,271	7,110	935	132	4,393	2,798	22,674	991
25-Aug-02	881	1,226	2,917	1,017	1,263	7,060	928	131	4,389	2,763	22,575	1,229
1-Sep-02	892	1,257	2,922	1,019	1,265	7,073	943	132	4,443	2,802	22,748	1,348
8-Sep-02	865	1,275	2,716	947	1,176	6,574	902	118	3,962	2,530	21,065	1,247
15-Sep-02	874	1,256	2,629	917	1,138	6,362	882	113	3,849	2,469	20,489	895
22-Sep-02	890	1,211	2,501	872	1,082	6,053	827	110	3,691	2,322	19,559	1,337
29-Sep-02	896	1,209	2,433	849	1,053	5,888	800	109	3,608	2,242	19,087	1,350
6-Oct-02	957	1,274	2,254	852	1,112	5,801	781	107	3,589	2,070	18,797	351
13-Oct-02	937	1,313	2,315	875	1,142	5,958	781	109	3,642	2,057	19,129	353
20-Oct-02	936	1,348	2,362	892	1,165	6,077	786	111	3,722	2,078	19,477	387
27-Oct-02	934	1,379	2,406	909	1,187	6,190	793	113	3,790	2,100	19,801	432
3-Nov-02	986	1,373	2,459	929	1,213	6,328	784	119	3,943	2,159	20,293	373
10-Nov-02	1,004	1,443	2,604	984	1,285	6,701	869	119	4,036	2,307	21,352	564
17-Nov-02	1,021	1,458	2,678	1,012	1,321	6,891	880	122	4,108	2,352	21,843	432
24-Nov-02	1,024	1,487	2,743	1,036	1,353	7,060	886	126	4,181	2,373	22,269	592
1-Dec-02	1,008	1,547	2,762	1,043	1,363	7,108	891	127	4,226	2,372	22,447	543
8-Dec-02	1,057	1,530	2,763	1,248	1,477	7,244	902	129	4,376	2,429	23,155	869
15-Dec-02	1,052	1,544	2,785	1,258	1,489	7,304	903	132	4,402	2,431	23,300	728
22-Dec-02	1,054	1,568	2,821	1,274	1,508	7,396	912	132	4,434	2,466	23,565	924
29-Dec-02	1,033	1,626	2,763	1,248	1,477	7,245	904	129	4,310	2,420	23,155	598

Notes to Table B1:
Load Forecast Uncertainty (LFU) is one standard deviation in system peak demand due to variations in weather.

Table B1 - continued

	20-Minute Coincident Peak Demand (MW)											
Week Ending	Northwest	Northeast	East	Essa	Ottawa	Toronto	Niagara	Bruce	Southwest	West	System	Load Forecast Uncertainty
5-Jan-03	1,008	1,553	2,629	1,140	1,245	6,619	841	117	3,949	2,219	21,320	761
12-Jan-03	1,065	1,598	3,004	1,303	1,422	7,563	917	134	4,479	2,499	23,984	878
19-Jan-03	1,058	1,596	2,969	1,287	1,406	7,474	914	133	4,436	2,480	23,753	972
26-Jan-03	1,052	1,579	2,944	1,277	1,394	7,413	906	132	4,404	2,438	23,539	870
2-Feb-03	1,055	1,574	2,956	1,282	1,399	7,441	909	132	4,426	2,441	23,615	607
9-Feb-03	1,039	1,554	2,916	1,265	1,381	7,343	906	131	4,392	2,419	23,346	723
16-Feb-03	1,037	1,535	2,880	1,249	1,364	7,251	901	129	4,356	2,389	23,091	794
23-Feb-03	1,026	1,507	2,810	1,219	1,330	7,075	891	127	4,268	2,346	22,599	793
2-Mar-03	1,030	1,484	2,774	1,203	1,313	6,984	878	126	4,214	2,354	22,360	823
9-Mar-03	1,011	1,458	2,740	1,188	1,297	6,898	875	124	4,169	2,340	22,100	788
16-Mar-03	991	1,445	2,693	1,168	1,275	6,779	869	123	4,120	2,308	21,771	747
23-Mar-03	973	1,432	2,636	1,143	1,248	6,638	865	121	4,063	2,275	21,394	729
30-Mar-03	942	1,414	2,567	1,113	1,215	6,464	857	119	3,975	2,231	20,897	685
6-Apr-03	888	1,349	2,521	1,043	1,053	6,054	790	83	3,856	2,084	19,721	553
13-Apr-03	936	1,359	2,493	1,031	1,041	5,986	818	82	3,788	2,153	19,687	463
20-Apr-03	920	1,338	2,468	1,020	1,031	5,924	821	82	3,736	2,123	19,463	442
27-Apr-03	899	1,304	2,411	997	1,007	5,789	810	81	3,687	2,084	19,069	398
4-May-03	897	1,255	2,373	981	991	5,697	808	77	3,553	2,065	18,697	368
11-May-03	862	1,168	2,340	839	977	5,716	784	104	3,513	2,140	18,443	1,197
18-May-03	851	1,201	2,397	860	1,001	5,857	815	106	3,543	2,207	18,838	1,613
25-May-03	844	1,210	2,494	894	1,042	6,092	834	109	3,610	2,261	19,390	1,367
1-Jun-03	840	1,221	2,552	915	1,066	6,235	848	110	3,696	2,300	19,783	1,451
8-Jun-03	859	1,174	2,762	987	1,195	6,720	898	69	4,219	2,581	21,464	1,318
15-Jun-03	869	1,174	2,907	1,038	1,258	7,073	926	70	4,369	2,643	22,327	1,327
22-Jun-03	879	1,166	2,956	1,056	1,279	7,192	947	70	4,425	2,703	22,673	1,197
29-Jun-03	876	1,157	2,958	1,056	1,280	7,196	954	70	4,405	2,685	22,637	1,406
6-Jul-03	842	1,160	3,052	1,090	1,321	7,426	970	71	4,530	2,799	23,261	1,289
13-Jul-03	843	1,146	3,075	1,098	1,331	7,480	974	70	4,540	2,847	23,404	1,120
20-Jul-03	846	1,151	3,059	1,093	1,324	7,442	968	72	4,523	2,855	23,333	1,005
27-Jul-03	851	1,153	3,033	1,083	1,313	7,380	961	71	4,517	2,873	23,235	975
3-Aug-03	856	1,143	2,981	1,065	1,290	7,253	943	70	4,473	2,819	22,893	1,093
10-Aug-03	871	1,162	2,993	1,044	1,295	7,244	951	135	4,499	2,845	23,039	1,223
17-Aug-03	878	1,194	2,979	1,039	1,289	7,209	955	133	4,503	2,852	23,031	992
24-Aug-03	882	1,222	2,959	1,032	1,280	7,161	948	133	4,498	2,818	22,933	1,229
31-Aug-03	890	1,252	2,963	1,033	1,282	7,170	962	136	4,552	2,856	23,096	1,348
7-Sep-03	864	1,282	2,749	959	1,190	6,653	920	120	4,042	2,569	21,348	1,248
14-Sep-03	874	1,263	2,660	928	1,151	6,437	900	117	3,929	2,510	20,769	896
21-Sep-03	891	1,215	2,533	883	1,096	6,130	845	112	3,770	2,362	19,837	1,337
28-Sep-03	897	1,210	2,465	860	1,067	5,967	819	110	3,688	2,282	19,365	1,350

Notes to Table B1:
Load Forecast Uncertainty (LFU) is one standard deviation in system peak demand due to variations in weather.

Table B2 Weekly Zonal Non-Coincident Peak Demand Forecast, Normal Weather

	20-Minute Non-Coincident Peak Demand (MW)										
Week Ending	Northwest	Northeast	East	Essa	Ottawa	Toronto	Niagara	Bruce	Southwest	West	Total
7-Apr-02	930	1,433	2,488	892	1,039	6,079	778	113	3,774	2,055	19,581
14-Apr-02	958	1,408	2,461	883	1,028	6,012	809	111	3,707	2,114	19,491
21-Apr-02	940	1,358	2,434	873	1,017	5,946	812	109	3,655	2,090	19,234
28-Apr-02	922	1,319	2,387	856	997	5,833	803	109	3,596	2,062	18,884
5-May-02	914	1,286	2,346	841	980	5,731	799	106	3,547	2,041	18,591
12-May-02	907	1,327	2,305	827	963	5,632	777	104	3,437	2,105	18,384
19-May-02	894	1,316	2,371	850	990	5,792	799	104	3,472	2,166	18,754
26-May-02	878	1,299	2,466	884	1,030	6,024	818	106	3,542	2,221	19,268
2-Jun-02	873	1,260	2,524	905	1,054	6,166	832	110	3,625	2,260	19,609
9-Jun-02	879	1,233	2,721	949	1,178	6,586	884	123	4,108	2,521	21,182
16-Jun-02	887	1,219	2,866	1,000	1,240	6,936	913	128	4,261	2,584	22,034
23-Jun-02	889	1,202	2,914	1,016	1,261	7,053	934	130	4,313	2,644	22,356
30-Jun-02	889	1,204	2,916	1,017	1,262	7,057	941	130	4,293	2,636	22,345
7-Jul-02	865	1,204	3,008	1,049	1,302	7,281	956	132	4,415	2,749	22,961
14-Jul-02	868	1,206	3,032	1,057	1,312	7,338	961	133	4,428	2,791	23,126
21-Jul-02	873	1,208	3,014	1,051	1,304	7,295	953	132	4,412	2,803	23,045
28-Jul-02	873	1,206	2,990	1,043	1,294	7,237	946	133	4,407	2,822	22,951
4-Aug-02	891	1,214	2,940	1,025	1,273	7,116	929	131	4,363	2,764	22,646
11-Aug-02	893	1,252	2,952	1,029	1,278	7,144	937	130	4,392	2,790	22,797
18-Aug-02	895	1,274	2,938	1,025	1,271	7,110	942	132	4,393	2,798	22,778
25-Aug-02	901	1,311	2,917	1,017	1,263	7,060	935	131	4,389	2,763	22,687
1-Sep-02	906	1,364	2,922	1,019	1,265	7,073	950	132	4,443	2,802	22,876
8-Sep-02	903	1,368	2,718	948	1,176	6,579	902	119	3,965	2,530	21,208
15-Sep-02	916	1,362	2,632	918	1,139	6,371	882	116	3,857	2,469	20,662
22-Sep-02	929	1,363	2,501	872	1,082	6,053	838	111	3,691	2,326	19,766
29-Sep-02	936	1,362	2,433	849	1,053	5,888	811	109	3,616	2,244	19,301
6-Oct-02	962	1,345	2,301	855	1,116	5,821	781	107	3,589	2,070	18,947
13-Oct-02	962	1,385	2,315	875	1,142	5,958	786	109	3,642	2,083	19,257
20-Oct-02	955	1,424	2,362	892	1,165	6,077	789	111	3,722	2,091	19,588
27-Oct-02	953	1,463	2,406	909	1,187	6,190	794	114	3,790	2,101	19,907
3-Nov-02	993	1,521	2,459	929	1,213	6,328	837	119	3,943	2,159	20,501
10-Nov-02	1,010	1,558	2,604	984	1,285	6,701	869	119	4,036	2,307	21,473
17-Nov-02	1,022	1,583	2,678	1,012	1,321	6,891	880	122	4,108	2,352	21,969
24-Nov-02	1,024	1,597	2,743	1,036	1,353	7,060	886	126	4,181	2,373	22,379
1-Dec-02	1,021	1,621	2,762	1,043	1,363	7,108	891	128	4,246	2,386	22,569
8-Dec-02	1,059	1,648	2,763	1,248	1,477	7,244	903	130	4,376	2,429	23,277
15-Dec-02	1,052	1,669	2,785	1,258	1,489	7,304	905	132	4,402	2,431	23,427
22-Dec-02	1,057	1,691	2,821	1,274	1,508	7,396	913	132	4,434	2,466	23,692
29-Dec-02	1,046	1,703	2,763	1,248	1,477	7,245	904	129	4,332	2,443	23,290

Table B2 - continued

20-Minute Non-Coincident Peak Demand (MW)											
Week Ending	Northwest	Northeast	East	Essa	Ottawa	Toronto	Niagara	Bruce	Southwest	West	Total
5-Jan-03	1,050	1,711	2,629	1,150	1,361	6,678	845	118	3,949	2,219	21,710
12-Jan-03	1,071	1,717	3,004	1,303	1,422	7,563	917	134	4,479	2,499	24,109
19-Jan-03	1,065	1,702	2,969	1,287	1,406	7,474	914	133	4,436	2,480	23,866
26-Jan-03	1,061	1,673	2,944	1,277	1,394	7,413	906	132	4,404	2,438	23,642
2-Feb-03	1,068	1,653	2,956	1,282	1,399	7,441	909	132	4,426	2,441	23,707
9-Feb-03	1,055	1,612	2,916	1,265	1,381	7,343	906	131	4,392	2,420	23,421
16-Feb-03	1,054	1,571	2,880	1,249	1,364	7,251	901	129	4,356	2,398	23,153
23-Feb-03	1,045	1,533	2,810	1,219	1,330	7,075	891	127	4,270	2,364	22,664
2-Mar-03	1,036	1,517	2,777	1,204	1,315	6,991	886	126	4,214	2,354	22,420
9-Mar-03	1,021	1,493	2,740	1,188	1,297	6,898	877	124	4,169	2,340	22,147
16-Mar-03	1,004	1,480	2,693	1,168	1,275	6,779	869	123	4,120	2,308	21,819
23-Mar-03	990	1,458	2,636	1,143	1,248	6,638	865	121	4,063	2,275	21,437
30-Mar-03	959	1,439	2,567	1,113	1,215	6,464	857	119	3,975	2,233	20,941
6-Apr-03	932	1,426	2,521	1,043	1,123	6,054	843	112	3,856	2,143	20,053
13-Apr-03	961	1,413	2,493	1,031	1,041	5,986	820	82	3,788	2,153	19,768
20-Apr-03	945	1,363	2,468	1,020	1,031	5,924	825	82	3,736	2,127	19,521
27-Apr-03	928	1,328	2,418	1,000	1,010	5,804	817	81	3,687	2,100	19,173
4-May-03	914	1,289	2,373	981	991	5,697	808	105	3,626	2,072	18,856
11-May-03	912	1,325	2,340	839	977	5,716	793	106	3,516	2,146	18,670
18-May-03	899	1,318	2,402	861	1,003	5,868	815	107	3,551	2,207	19,031
25-May-03	882	1,300	2,497	896	1,043	6,101	834	109	3,618	2,261	19,541
1-Jun-03	881	1,293	2,555	916	1,067	6,242	848	111	3,705	2,300	19,918
8-Jun-03	879	1,238	2,762	987	1,195	6,720	904	69	4,219	2,581	21,554
15-Jun-03	885	1,226	2,907	1,038	1,258	7,073	932	70	4,369	2,643	22,401
22-Jun-03	890	1,206	2,956	1,056	1,279	7,192	953	71	4,425	2,703	22,731
29-Jun-03	891	1,207	2,958	1,056	1,280	7,196	961	70	4,405	2,685	22,709
6-Jul-03	887	1,204	3,052	1,090	1,321	7,426	976	71	4,530	2,799	23,356
13-Jul-03	867	1,205	3,075	1,098	1,331	7,480	981	72	4,540	2,847	23,496
20-Jul-03	872	1,208	3,059	1,093	1,324	7,442	974	72	4,523	2,855	23,422
27-Jul-03	873	1,209	3,033	1,083	1,313	7,380	966	72	4,517	2,873	23,319
3-Aug-03	892	1,210	2,981	1,065	1,290	7,253	948	119	4,473	2,819	23,050
10-Aug-03	894	1,255	2,993	1,044	1,295	7,244	956	135	4,499	2,845	23,160
17-Aug-03	897	1,270	2,979	1,039	1,289	7,209	961	134	4,503	2,852	23,133
24-Aug-03	901	1,306	2,959	1,032	1,280	7,161	954	133	4,498	2,818	23,042
31-Aug-03	907	1,341	2,963	1,033	1,282	7,170	969	136	4,552	2,856	23,209
7-Sep-03	904	1,370	2,751	959	1,191	6,658	920	121	4,045	2,569	21,488
14-Sep-03	917	1,366	2,664	929	1,153	6,447	900	118	3,939	2,510	20,943
21-Sep-03	931	1,364	2,533	883	1,096	6,130	856	113	3,775	2,366	20,047
28-Sep-03	935	1,363	2,465	860	1,067	5,967	829	110	3,712	2,285	19,593

Appendix C - Analytical Factors Affecting Demand

Table C1 Approximate Analytical Factors Affecting Demand

Factors Affecting Daily Energy Demand			
Variable Class	Variable	Change in Variable	Impact On Daily Energy Demand (MWh)
Weather	Daily Avg Temperature		
	> 16º C	1ºC Increase	6,450 MWh Increase
	10ºC > and < 16º C	1ºC Increase	375 MWh Increase
	< 10ºC	1ºC Decrease	2,525 MWh Increase
	Daily Avg Humidity - Dewpoint		
	> 16º C	1ºC Increase	2,350 MWh Increase
	10ºC > and < 16º C	1ºC Increase	125 MWh Increase
	< 10ºC	1ºC Decrease	925 MWh Increase
	Wind		
	Summer	1 km/hr Decrease	225 MWh Increase
	Winter	1 km/hr Increase	225 Mwh Increase
	Cloud		
	Summer	Decrease of 1 on Scale	1,000 MWh Increase
	Winter	Increase of 1 on Scale	1,625 MWh Increase
Economic	Employment	Increase of 1,000 jobs	20 MWh Increase
	Housing Stock	Increase of 1,000 houses	30 MWh Increase
Calendar	Holidays	New Year's Day	65,000 MWh Decrease
		Good Friday	45,000 MWh Decrease
		Victoria Day	48,000 MWh Decrease
		Canada Day	25,000 MWh Decrease
		Simcoe Day	37,000 MWh Decrease
		Labour Day	54,000 MWh Decrease
		Thanksgiving Day	53,000 MWh Decrease
		Rememberance Day	3,000 MWh Decrease
		Christmas	83,000 MWh Decrease
		Boxing Day	51,000 MWh Decrease
		New Year's Eve	14,000 MWh Decrease
		Week Between Christmas and New Years Eve	37,500 MWh Decrease
	Day of Week	Monday vs Sunday	44,250 MWh Increase
		Tuesday vs Sunday	45,800 MWh Increase
		Wednesday vs Sunday	46,300 MWh Increase
		Thursday vs Sunday	46,550 MWh Increase
		Friday vs Sunday	43,300 MWh Increase
		Saturday vs Sunday	11,550 MWh Increase

Table C1 - continued

Factors Affecting Daily Peak Demand			
Variable Class	Variable	Change in Variable	Impact On Daily Peak Demand (MW)
Weather	Temperature		
	> 16º C	1ºC Increase	370 MW Increase
	10ºC > and < 16º C	1ºC Increase	50 MW Increase
	< 10ºC	1ºC Decrease	110 MW Increase
	Humidity - Dewpoint		
	> 16º C	1ºC Increase	130 MW Increase
	10ºC > and < 16º C	1ºC Increase	20 MW Increase
	< 10ºC	1ºC Decrease	40 MW Increase
	Wind		
	Summer	1 km/hr Decrease	10 MW Increase
	Winter	1 km/hr Increase	15 MW Increase
	Cloud		
	Summer	Decrease of 1 on Scale	80 MW Increase
	Winter	Increase of 1 on Scale	70 MW Increase
Economic	Employment	Increase of 1,000 jobs	1 MW Increase
	Housing Stock	Increase of 1,000 houses	2 MW Increase
Calendar	Holidays	New Year's Day	2,900 MW Decrease
		Good Friday	2,000 MW Decrease
		Victoria Day	2,200 MW Decrease
		Canada Day	900 MW Decrease
		Simcoe Day	1,400 MW Decrease
		Labour Day	2,250 MW Decrease
		Thanksgiving Day	2,300 MW Decrease
		Rememberance Day	425 MW Decrease
		Christmas	4,600 MW Decrease
		Boxing Day	2,400 MW Decrease
		New Year's Eve	800 MW Decrease
		Week Between Christmas and New Years Eve	1,500 MW Decrease
	Day of Week	Monday vs Sunday	2,000 MW Increase
		Tuesday vs Sunday	1,950 MW Increase
		Wednesday vs Sunday	1,950 MW Increase
		Thursday vs Sunday	1,900 MW Increase
		Friday vs Sunday	1,650 MW Increase
		Saturday vs Sunday	250 MW Increase