Independent Electricity Market Operator

Ontario Demand Forecast

from January 2004 to December 2013

Executive Summary

The IMO has a responsibility to forecast the demand for electricity on the IMO-controlled grid and to assess whether the existing and proposed generation and transmission facilities are adequate to meet Ontario's needs. This document looks at the demand forecast for the ten-year period from 2004 to 2013.

Compared to the previous 10-year forecast the most significant methodological change has been the transition to an hourly peak from the previously reported 20-minute peak value. Historically, the hourly peak is 80 to 100 MW lower than the 20-minute peak. In addition to this methodological change, the model has been re-estimated based on actual data through to the end of October 2002.

The economic assumptions that underpin the forecast have been updated to reflect the most recent outlook for the Ontario economy. This represents a fairly significant change since the previous 10-Year Outlook. The previous Outlook was produced shortly after the events of 9/11/2001. At that time, the outlook for the U.S. and Canadian was for minimal growth. Although the U.S. economy has held to the expectations at that time, the Canadian economy has shown a remarkable resilience in the face of the war on terrorism, the stock market meltdown and the U.S. economic slump. Presently, the outlook for the Canadian economy continues to be quite optimistic vis-à-vis the other developed nations of the world. Therefore, the economic outlook is significantly better than in the previous 10-year forecast. However, better than expected economic performance in 2002 also meant higher than expected Ontario electricity demand. Therefore, the starting point for this forecast is significantly higher than the previous forecast. The weather corrected energy demand for 2002 was 151.4 TWh as opposed to the forecast of 148.7 TWh.

The impact of these changes can be seen in each of the three major demand components - annual energy demand, winter peak demand and summer peak demand. The median growth scenario has energy demand growing at an annual rate of growth of 1.1% versus 0.9% in the previous ten-year (for the common 2003-2012 time frame). This higher growth rate is the product of generally improved economic expectations. In terms of levels, the forecast is higher in 2012 than the previous forecast (168 TWh vs. 164 TWh). This is due to the combination of a higher growth rate and higher starting point.

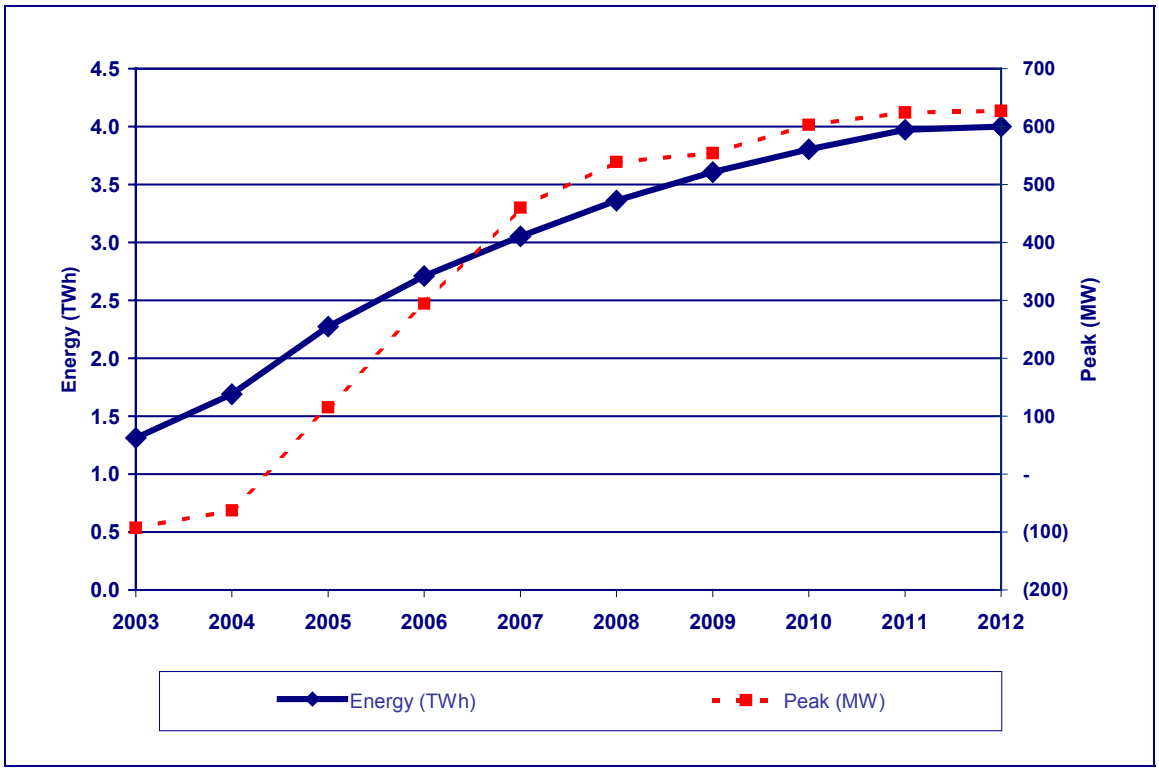
Higher overall economic growth means that peak demand will grow faster than in the previous forecast. For the common time frame of 2003-2012 the updated forecast has summer peak demand averaging annual growth of 1.3% (versus 1.1%) and winter peak demand averaging growth of 0.8% (versus 0.6%). Relative to the overall energy demand growth of 1.1%, we can see that cooling load is growing the fastest, while heating load is growing slower than overall energy demand.

The continued growth of cooling load means that the system will be summer peaking in 2005 under Normal weather and is currently summer peaking under the Extreme weather scenario.

Figure 1 graphically displays the difference in annual energy and peak demand between this forecast and the previous 10-year forecast. For energy the current forecast is higher due to the improved economic outlook and the higher starting point. The forecast of annual peak demand is lower for 2003 and 2004, then higher for the remainder of the forecast. This is partially due to

the switch from a 20-minute to a 60-minute peak demand, which translates into a reduction of roughly 80-100 MW. As well, the first years of the forecast are when the system is winter peaking and heating load continues to experience low growth.

Figure 1: Comparison of Current and Previous Forecast (Current less Previous)



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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 an annual basis for the next 10 years. This Ontario Demand Forecast meets this requirement and covers the 10-Year period from January 2004 to December 2013. It supercedes the previous forecast for the period January 2003 to December 2012, dated April 3, 2002.

1.2 Demand Forecast Document

This document provides a 10-Year forecast of electricity demand for Ontario, based on the stated assumptions, and using the methodology described in the Methodology to Perform Long Term Assessments (IMP_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 demand is the sum of coincident loads plus the losses on the IMO-controlled grid. This demand forecast was based on actual demand, weather and economic data as of October 2002. Actuals reported since the time of the forecast have been incorporated into the tables and figures of this document.

Section 2.0 looks at historical demand and the factors that shape it. Section 3.0 describes the assumptions used in this forecast of electricity demand and Section 4.0 presents the forecast. Appendices A through C 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.demand@theIMO.com. Copies of the forecast, by hour and zone are available upon request.

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2.0 Historical Demand

This section looks at historical energy demand, hourly load shapes and peak demand. Each of these items is discussed from the perspective of how they are impacted by the three classes of drivers (weather, calendar and economic).

Energy demand represents the total consumption of electricity over a specified period of time, be it an hour, day, week, month, season or year. The hourly load shape refers to the daily consumption profile and bridges the discussion from energy to peak demand. Finally, peak demand represents the maximum requirement for electricity in an hour. Ontario measures peak demand over the course of a clock hour. Peaks are classified by the time horizon used: daily, weekly, monthly, seasonal or annual peak.

Table 2.1 shows the actual annual energy and peak demand, on a calendar basis, for the period 1984-2002.

Table 2.1: Historic Ontario Annual Energy and Peak Demand

Calendar Year	Annual Demand			
	Actual Energy (TWh)	Annual Growth (%)	Actual Peak (MW)	Annual Growth (%)
1984	112.29		18,783	
1985	116.05	3.34%	19,257	2.52%
1986	120.57	3.90%	20,586	6.90%
1987	126.46	4.88%	20,536	-0.24%
1988	134.39	6.28%	22,345	8.81%
1989	140.77	4.74%	22,933	2.63%
1990	136.74	-2.86%	23,491	2.43%
1991	136.97	0.16%	23,046	-1.89%
1992	134.38	-1.89%	23,463	1.81%
1993	133.48	-0.67%	21,964	-6.39%
1994	134.87	1.05%	23,857	8.62%
1995	137.04	1.60%	22,812	-4.38%
1996	137.42	0.28%	22,617	-0.85%
1997	138.37	0.69%	22,030	-2.60%
1998	139.93	1.13%	***22,403***	1.69%
1999	144.09	2.97%	***23,433***	4.60%
2000	146.95	1.98%	23,301	-0.56%
2001	146.91	-0.02%	***25,239***	8.32%
2002	152.96	4.12%	***25,414***	0.69%

Notes to Table 2.1:
Bold indicates a summer peak.

2.1 Historical Energy Demand

The historical time frame used for this analysis is 1984 through to 2002. Actual energy demand has averaged annual growth of 1.7% over that time frame. This period spans two segments of strong economic growth and the most severe recession Ontario had ever experienced. As well, dramatic electricity price increases in the early 1990's combined with low natural gas prices started to erode the electric heating load in the province. This trend continues today, but has slowed due to increasing natural gas penetration. Throughout the 1990's there has been a dramatic increase in cooling load as air conditioning has become commonplace in new homes. Therefore, the growth in energy demand has not been consistent across all seasons. Winter energy demand has averaged annual growth of 1.3% whereas summer energy demand has averaged growth of 2.4% per annum. Of course, this is biased by the weather of either the base or most recent year, but gives a fair representation of the fact that demand is not growing evenly throughout the year.

Energy demand is affected by all three classes of drivers but to varying degrees. The next section looks at the impact of weather, followed by calendar and economic impacts.

2.12 Weather Impacts on Energy Demand

Since energy is accrued over a period of time, the impact of weather is mitigated as the time horizon grows. The impact of weather is significant on any particular day but begins to wane in terms of seasons or years. This is due to the fact that the random nature of weather will see periods of extreme heat or cold offset by mild temperatures.

In order to remove the variance of weather from energy demand we standardize or correct demand to a common weather pattern called Normal weather. Table 2.2 shows both annual energy demand and weather corrected demand for the period of 1995-2002.

Table 2.2: Actual and Weather Corrected Annual Energy Demand

Calendar Year	Annual Energy Demand				
	Actual Energy (TWh)	Annual Growth (%)	Weather Corrected Energy (TWh)	Annual Growth (%)	Economic Index Growth (%)
1995	137.0	1.6%	135.7		1.5%
1996	137.4	0.3%	136.6	0.6%	0.9%
1997	138.4	0.7%	138.1	1.1%	1.8%
1998	139.9	1.1%	140.3	1.6%	2.3%
1999	144.1	3.0%	143.3	2.2%	2.5%
2000	146.9	2.0%	147.1	2.6%	2.4%
2001	146.9	0.0%	147.1	0.0%	1.7%
2002	153.0	4.1%	151.4	3.0%	1.6%

The impact of correcting for weather is less than 1.0% for all of the years in Table 2.2, affirming the notion that over the course of a year weather impacts do tend to offset each other. However the weather impacts become more apparent as we move to smaller time segments.

Table 2.3 presents energy demand from a seasonal perspective. Note that the impact of weather correction is much larger than 1% for many of the seasons. The table also illustrates the growth in cooling load, while heating load has remained fairly static.

Table 2.3: Actual and Weather Corrected Seasonal Energy Demand

	Seasonal Energy Demand									
	Actual Energy Demand					Weather Corrected Energy Demand				
Seasonal Year	Winter (TWh)	Spring (TWh)	Summer (TWh)	Fall (TWh)	Total (TWh)	Winter (TWh)	Spring (TWh)	Summer (TWh)	Fall (TWh)	Total (TWh)
1996	62.0	21.5	32.9	21.5	137.9	61.0	21.1	32.9	21.3	136.4
1997	61.0	21.7	33.6	21.8	138.1	61.0	21.5	33.8	21.7	137.8
1998	60.5	21.8	35.7	22.2	140.2	61.4	21.7	35.0	22.0	140.1
1999	61.4	23.4	37.1	23.0	144.8	62.3	23.5	35.9	22.7	144.5
2000	62.9	22.9	36.5	23.3	145.6	64.0	22.7	36.7	23.2	146.5
2001	64.7	22.6	38.0	23.3	148.6	64.5	22.6	37.3	23.1	147.5
2002	62.4	23.7	40.0	25.0	151.1	64.1	23.3	38.8	24.1	150.3
Seasonal Year	Winter Share	Spring Share	Summer Share	Fall Share	Total	Winter Share	Spring Share	Summer Share	Fall Share	Total
1996	45.0%	15.6%	23.9%	15.6%	100%	44.2%	15.3%	23.9%	15.5%	100%
1997	44.1%	15.7%	24.4%	15.8%	100%	44.1%	15.5%	24.5%	15.7%	100%
1998	43.2%	15.5%	25.5%	15.8%	100%	43.8%	15.5%	25.0%	15.7%	100%
1999	42.4%	16.1%	25.6%	15.9%	100%	43.0%	16.3%	24.8%	15.7%	100%
2000	43.2%	15.7%	25.0%	16.0%	100%	43.9%	15.6%	25.2%	15.9%	100%
2001	43.6%	15.2%	25.6%	15.6%	100%	43.4%	15.2%	25.1%	15.5%	100%
2002	41.3%	15.7%	26.5%	16.5%	100%	42.4%	15.4%	25.7%	16.0%	100%
Seasonal Year	Average Daily Energy Demand (GWh)					Average Daily Energy Demand (GWh)				
	Winter	Spring	Summer	Fall	Total	Winter	Spring	Summer	Fall	Total
1996	408	352	358	353	377	401	346	358	350	373
1997	404	355	366	358	378	404	352	367	355	378
1998	401	357	388	364	384	407	355	380	361	384
1999	407	383	403	377	397	413	386	390	373	396
2000	414	375	396	382	398	421	373	399	380	400
2001	429	370	413	381	407	424	371	406	378	404
2002	414	388	434	410	414	422	382	422	395	412
Seasonal Year	Growth in Average Daily Energy Demand					Growth in Average Daily Energy Demand				
	Winter	Spring	Summer	Fall	Total	Winter	Spring	Summer	Fall	Total
1997	-1.1%	0.9%	2.2%	1.3%	0.4%	0.6%	1.6%	2.5%	1.5%	1.3%
1998	-0.7%	0.6%	6.1%	1.6%	1.5%	0.7%	1.0%	3.7%	1.7%	1.6%
1999	1.5%	7.2%	3.8%	3.6%	3.3%	1.5%	8.7%	2.6%	3.2%	3.1%
2000	1.8%	-2.0%	-1.6%	1.5%	0.3%	1.9%	-3.4%	2.2%	2.0%	1.1%
2001	3.5%	-1.3%	4.3%	-0.3%	2.3%	0.9%	-0.6%	1.7%	-0.4%	0.9%
2002	-3.5%	4.9%	5.1%	7.5%	1.7%	-0.7%	3.1%	4.1%	4.5%	1.9%
Avg	0.2%	1.7%	3.3%	1.5%	1.6%	0.8%	1.7%	2.8%	1.6%	1.6%

Of course, the impact of the weather correction on the individual seasons is a product of the severity of the weather for that season. The period 1996 to 2002 has been characterized by

having mild winters and hot summers, which would offset each other on an annual basis. Table 2.4 ranks the summers and winters since 1970.

Table 2.4: Seasonal Rankings

Rank	Hottest Summers	Mildest Summers	Coldest Winters	Mildest Winters
1	**2002**	1992	1977	**2002**
2	1995	1982	1994	**2000**
3	**1999**	1972	1978	1983
4	1973	1985	**1996**	**1998**
5	1983	2000	1971	1995
6	**2001**	1986	1982	1991
7	1991	1977	1972	**1999**
8	1988	1971	1984	1975
9	**1998**	1979	1979	1987
10	1987	1978	1981	1988

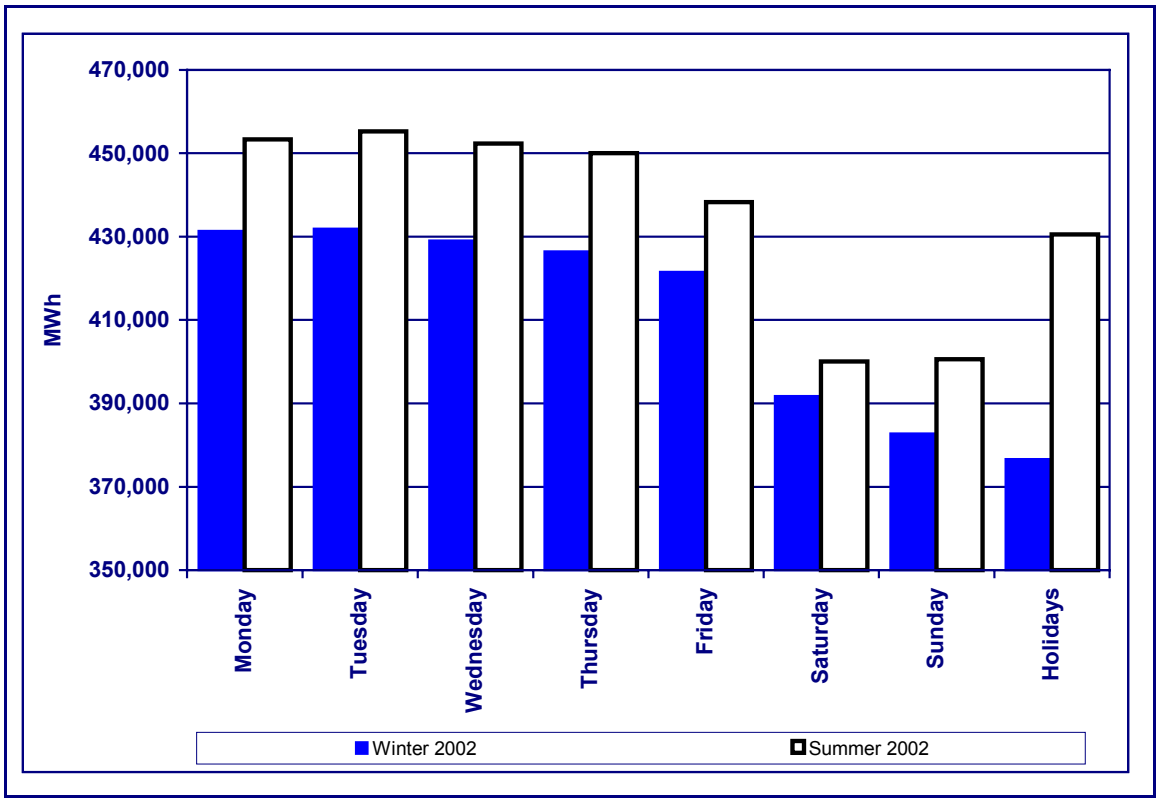
Notes to Table 2.4:
Bold and shading indicate seasons where the weather correction was greater than 1.0%.
Based on the Ontario Temperature Humidity Index (THI).

2.13 Calendar Impacts on Energy Demand

The impact of the calendar on energy demand is inexorably tied to the other two classes of drivers. As seen in Table 2.3, energy demand varies by season, which can be both weather and calendar related. Likewise, energy demand varies by day, the product of calendar and economic activity. Since economic activity is lower on holidays and weekends, energy demand is lower as well.

Figure 2.1 shows the average daily energy demand for the winter and summer of 2002. The figure shows that energy demand is indeed lower on weekends and holidays than on weekdays. The seasonal difference in daily energy demand is a product of the winter of 2002 being mild and the summer of 2002 being hot. July 1st and the August civic holiday, were both extremely hot days in the summer of 2002 so the energy demand for the summer holidays in quite high in Figure 2.1. This reflects the reality that the system is much more heat, rather than cold, sensitive.

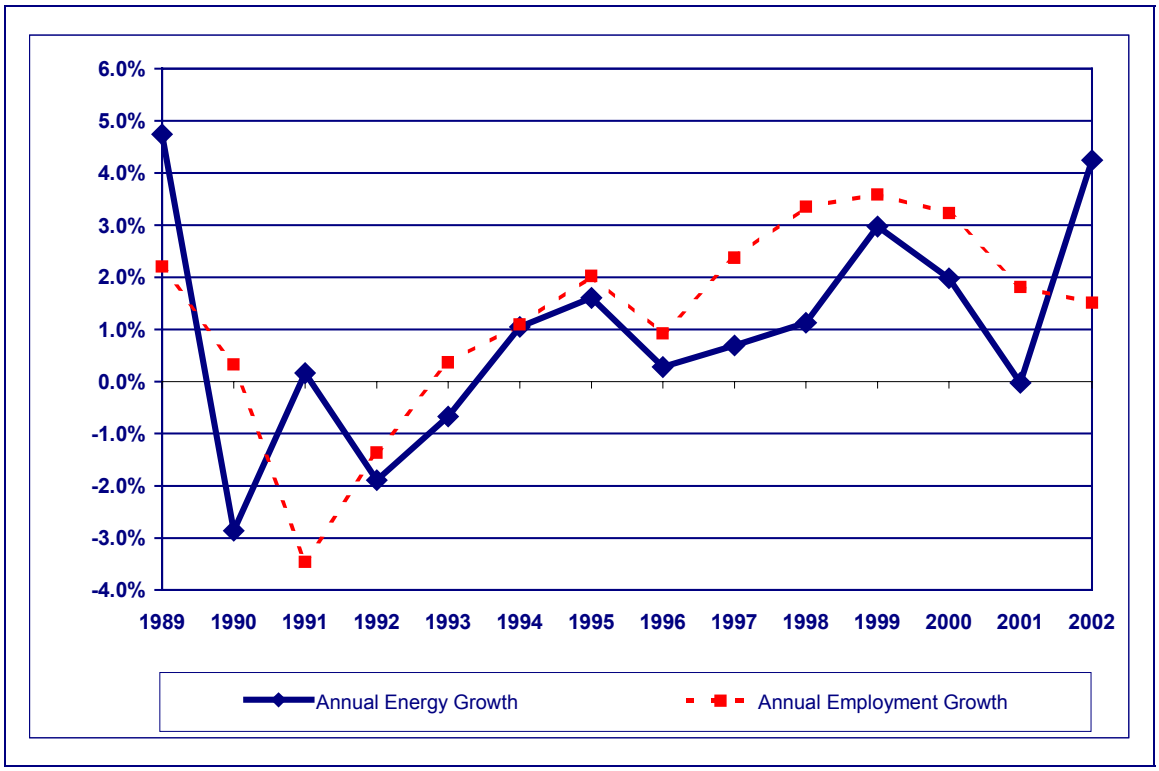
Figure 2.1: Daily Energy Demand - Summer and Winter of 2002



2.14 Economic Impacts on Energy Demand

In the previous section, the impacts of economic activity were evident in the weekly profiles of energy demand. On weekends and holidays when stores and factories are closed – or operate for shorter hours – energy demand is lower. This same concept can be applied to the longer-term economic cycle. Periods of economic growth and contraction have a significant impact on energy demand. Figure 2.2 shows the relationship between employment growth - a measure used in determination of economic growth - and the growth in annual energy demand. Over the long-term forecast horizon it is population and economic growth that will determine energy demand.

Figure 2.2: Annual Energy and Employment Growth



2.2 Historical Hourly Load Profiles

The three classes of drivers come together to influence the hourly load profiles. Weather has a number of impacts on the profiles. Hotter and colder temperatures will shift the load profiles up or down depending on the season. During the summer, the peak occurs late in the afternoon as air conditioners combat the build up of heat while economic activity has yet to slow down for the evening. The winter profile is heavily influenced by calendar impacts. The peak occurs late in the day and is primarily triggered by the setting of the sun and subsequent increase in demand due to lighting load. The fall and spring profiles are the flattest profiles. The fall profile shares some of the impacts of lighting load as the winter profile, but to a much subtler degree.

The profiles for weekends and holidays are similar to those for weekdays but lower and flatter. Similarly, economic activity generally shifts the profiles either up and down. These profiles are shown in Figures 2.4 and 2.5.

Figure 2.3: 2002 Seasonal Load Profiles

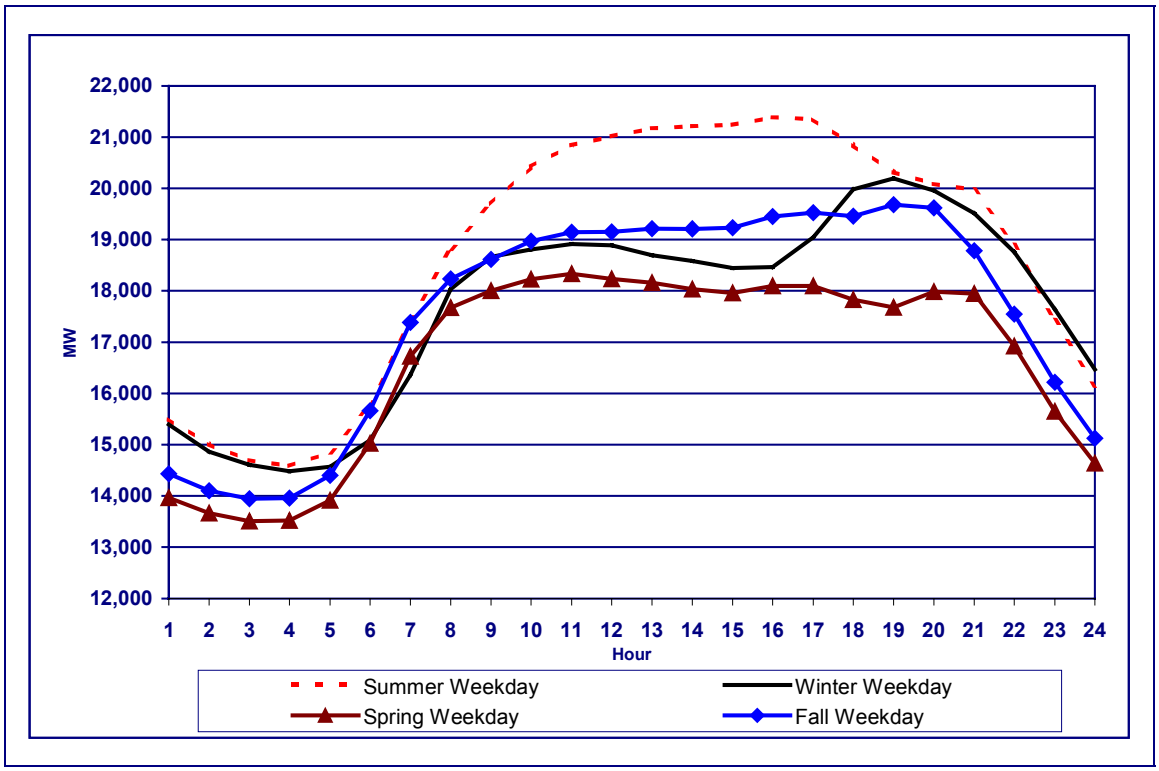


Figure 2.4: 2002 Winter Load Profiles

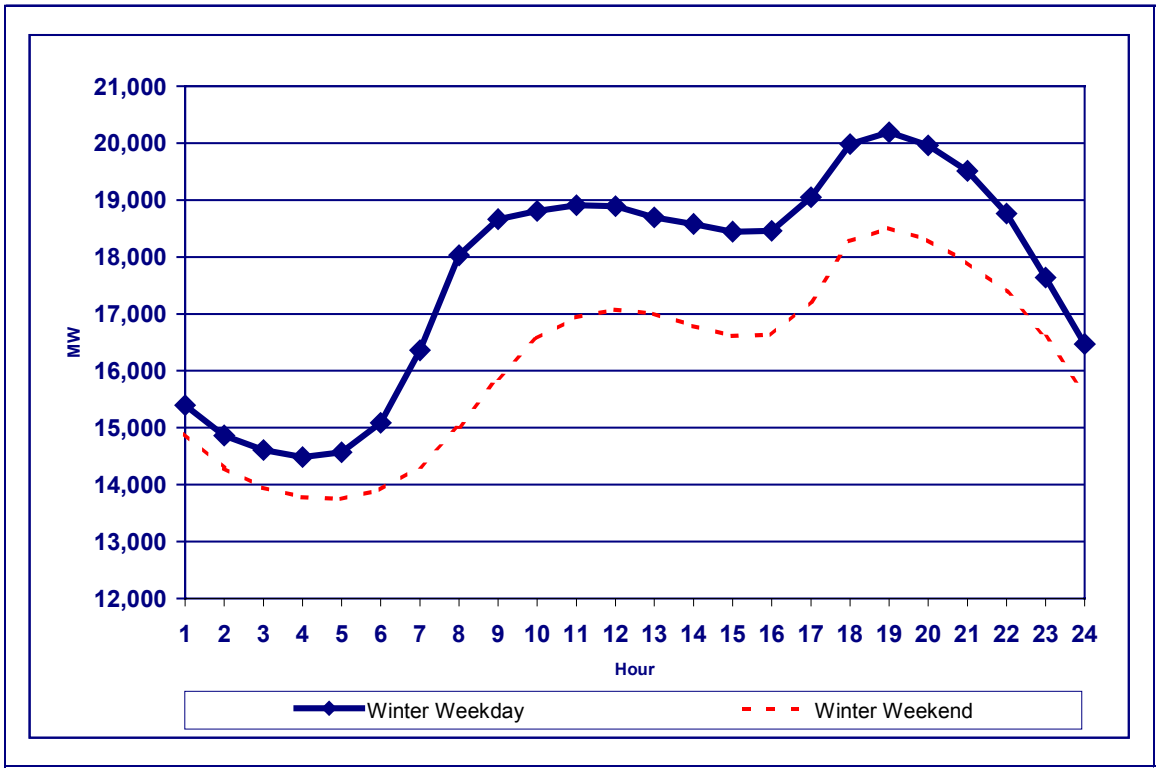
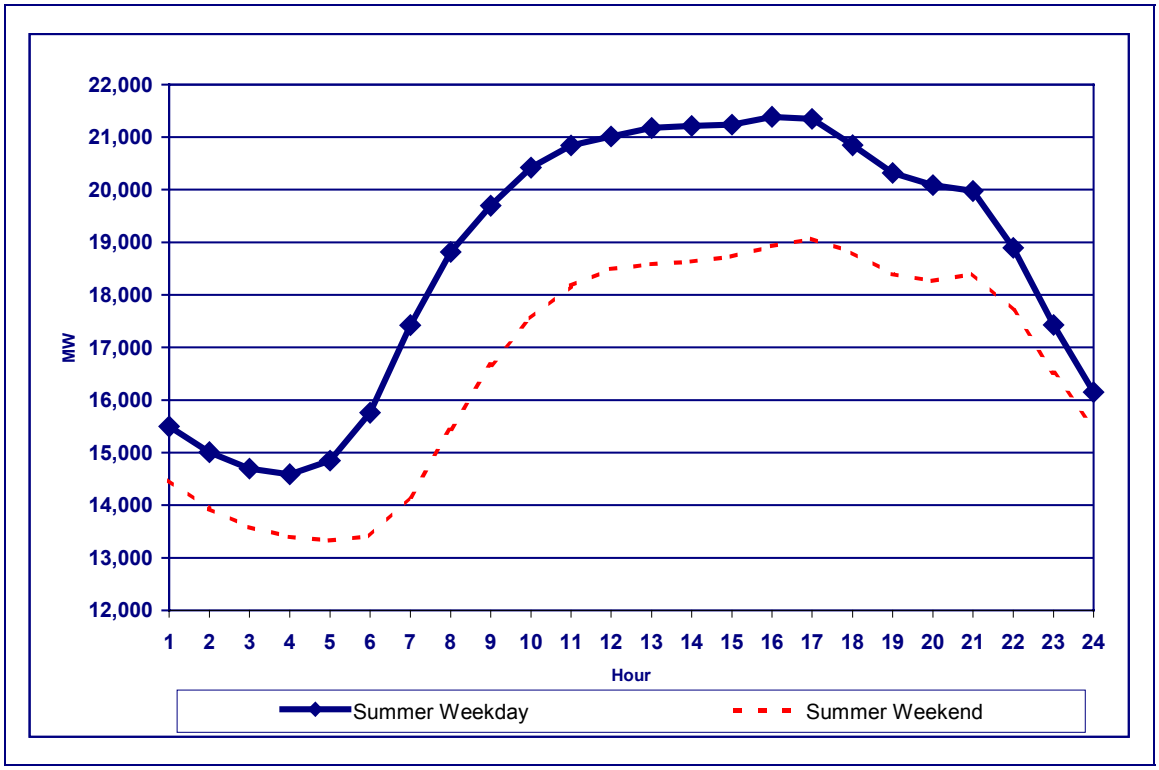


Figure 2.5: 2002 Summer Load Profiles



2.3 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. In recent years – 1998, 1999, 2001 and 2002 - the system has peaked in the summer. The summer peaks of July and August occur late in the afternoon between 3 p.m. and 5 p.m. Peak demand is affected by the three classes of drivers but to varying degrees.

Weather variables, in conjunction with the calendar, have the largest impact on peak demand. Economic activity will push the peak demand up or down, but will have a minimal effect on the time or severity.

2.31 Weather Impacts on Peak Demand

Weekly or monthly peak demands usually occur during episodes of severe weather conditions. Any peak is a combination of factors, both weather and non-weather. For instance, temperature and humidity are the main factors in terms of the summer peak. However, humidity is less of a factor in the winter than wind speed. As well, timing plays a big factor in determining the peak. Consecutive days of hot or cold weather will lead to a build-up so that the peak can occur the day after the hottest/coldest day. It is extremely unusual for a peak to 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. Table 2.5 shows the actual winter peaks and the details of the peak day for the time frame 1985 to 2002. Table 2.6 shows the same information for the historical summer peaks.

Table 2.5: Historical Winter Peak Demand

Seasonal Year	Winter Peak Demand			
	Winter Peak (MW)	Winter Peak Date	Day of Week	Peak Day Temperature (High)
1985	19,257	21-Jan-85	Mon	-10.0
1986	20,586	27-Jan-86	Mon	-13.6
1987	20,536	08-Dec-86	Mon	-8.8
1988	22,345	14-Jan-88	Thu	-11.9
1989	22,933	04-Jan-89	Wed	-14.8
1990	23,491	13-Dec-89	Wed	-8.9
1991	23,046	21-Jan-91	Mon	-13.5
1992	23,463	16-Jan-92	Thu	-12.8
1993	21,964	01-Feb-93	Mon	-11.9
1994	23,857	19-Jan-94	Wed	-19.0
1995	22,812	06-Feb-95	Mon	-15.4
1996	22,617	11-Dec-95	Mon	-8.9
1997	22,030	17-Jan-97	Fri	-14.2
1998	21,494	10-Dec-97	Wed	-0.8
1999	23,150	13-Jan-99	Wed	-18.0
2000	23,301	17-Jan-00	Mon	-15.1
2001	23,126	12-Dec-00	Tue	-8.6
2002	22,623	04-Feb-02	Mon	-10.0
2003	24,158	22-Jan-03	Wed	-13.4

Table 2.6: Historical Summer Peak Demand

Seasonal Year	Summer Peak Demand			
	Summer Peak (MW)	Summer Peak Date	Day of Week	Peak Day Temperature (High)
1985	16,007	14-Aug-85	Wed	30.3
1986	16,882	07-Jul-86	Mon	29.8
1987	18,502	17-Aug-87	Mon	30.1
1988	19,454	04-Aug-88	Thu	33.7
1989	20,025	10-Jul-89	Mon	31.6
1990	20,408	04-Jul-90	Wed	35.0
1991	21,121	29-Aug-91	Thu	30.3
1992	19,939	26-Aug-92	Wed	30.3
1993	20,883	27-Aug-93	Fri	34.0
1994	20,918	17-Jun-94	Fri	32.6
1995	21,674	15-Aug-95	Tue	31.9
1996	21,378	07-Aug-96	Wed	29.7
1997	21,613	14-Jul-97	Mon	33.9
1998	22,403	15-Jul-98	Wed	31.3
1999	23,433	05-Jul-99	Mon	34.7
2000	23,160	31-Aug-00	Thu	29.0
2001	25,239	08-Aug-01	Wed	37.2
2002	25,414	13-Aug-02	Tue	34.6

In order to more accurately assess the growth in peak demand the variances of weather need to be removed from the historical data. Table 2.7 shows both the actual seasonal and weather corrected peak demands for the 1995-2003 time frame. The peak values are corrected by adjusting demand for the difference between the actual weather and the Normal weather for that week.

Table 2.7: Actual and Weather Corrected Seasonal Peak Demand

Seasonal Year	Winter Peak (MW)	Weather Corrected Winter Peak (MW)	Summer Peak (MW)	Weather Corrected Summer Peak (MW)
1995	22,812	22,219	21,674	20,790
1996	22,617	22,042	21,378	20,472
1997	22,030	21,652	21,613	20,617
1998	21,494	21,890	22,403	21,637
1999	23,150	22,284	23,433	21,690
2000	23,301	22,539	23,160	22,101
2001	23,126	23,062	25,239	22,609
2002	22,623	23,320	25,414	24,296
2003	24,589	23,500		
Avg	0.9%	0.7%	2.3%	2.3%

Not surprisingly most of the corrected peaks are lower than the actual peaks. One of the exceptions was the winter of 2002, which was the first winter that did not have a single day with a high of less than –10°C. The weather-corrected peak for the summer of 2002 is also unusual in that demand was exceedingly high given the weather conditions for that particular day. Initially, it was believed that there must be a metering or data error as the demand values represented a substantial deviation from the anticipated or expected value. For this reason, the weather-corrected peak demand for 2002 is treated as anomalous. Given the circumstances for the day, the weather-corrected peak should be roughly 700 MW lower than it is.

Over the course of the last 7 years, the growth in summer peak has been much greater than the growth in winter peak demand. This is reflective of the growing sensitivity to heat due to the increased penetration of air conditioning.

2.32 Calendar Impacts on Peak Demand

The calendar impacts on peak demand have mostly been discussed in the previous section. The weather and calendar combine to influence peak demand. Tables 2.5 and 2.6 show that peak demands do not occur on weekends. Generally, the peak will fall on the day with the highest/coldest temperature that is not a weekend or holiday. For example the hottest day of 2002 was July 1st, Canada Day, therefore the peak day occurred on a day where the maximum temperature was 0.5°C cooler.

Another key aspect of the calendar impacts can be seen in the hourly load profiles. Since sunrise and sunset times are dependent on the calendar, the winter peak is always tied to the time of day

where the lighting load starts to impact the system. In the summer, the lighting load comes too late in the day and other factors are at play to reduce demand.

2.33 Economic Impacts on Peak Demand

Economics factors play the smallest part in determining peak demand. Economic activity determines the underlying non-weather sensitive base load upon which peak demand builds, but adds little in determining the day on which peak demand will occur. It could be argued that economic activity ensures that peak demands will not occur overnight, which they do not. Generally continued economic growth will lead to higher peak demand, all other things being equal, but this will be more of a gradual trend than the variability attributable to either weather or calendar effects.

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3.0 Forecasting Process and Assumptions

A detailed description of the forecasting methodology can be found in the document Methodology to Perform Long Term Assessments (IMP_REP_0044). In addition to the methodology described in the document, the forecast of electricity demand requires inputs and/or assumptions with respect to the three classes of drivers. This section looks at how each of the drivers is generated for the forecast.

3.1 Weather Drivers for Forecast

Since forecasting weather, in the detail required to produce an hourly forecast of demand, is quite problematic, weather scenarios are generated based on historical data. Two scenarios – Normal and Extreme – are utilized in the IMO's assessments. As well, Load Forecast Uncertainty (LFU), a measure of demand fluctuations due to weather variability, is also a critical part of the analysis.

Normal weather is based on historical data and 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.

The Extreme weather scenario is also based on historical weather but uses minimums and maximums rather than the average used in the Normal weather scenario.

Load Forecast Uncertainty (LFU) represents one standard deviation in the weather elements underpinning the peak demand. LFU could be expressed in terms of °C, km/h or MW depending on whether you are discussing temperature, wind speed or peak demand.

The Normal weather scenario, in conjunction with LFU 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.

The Extreme weather scenario is valuable for studying situations where the system is under duress. The Extreme weather scenario is valuable when examining peak conditions but is unrealistic from an energy demand standpoint as severe weather conditions do not persist over a long time horizon.

Figures 3.1 and 3.2 show the daily high (temperature) of the different weather scenarios along with actuals from 2000 and 2002. The first figure shows the data for week 2 (January). The temperature gets progressively colder as one moves from the Normal to the Normal + 1 LFU and finally to the Extreme scenario. The figure would also indicate that the peak demand for week 2 of 2000 would be very close to the Normal peak. However, the energy demand for the week would be lighter than the Normal energy demand as the remainder of the week is milder. The peak and energy demand for week 2 of 2002 would be quite a bit lower than the Normal peak and energy demand as temperatures are quite mild throughout the week.

Figure 3.2 shows the weather scenarios and actuals for week 28 (July). Once again the temperature increases as one moves from Normal through to Extreme weather. Here we see that the actuals for 2000 would indicate much lower peak and energy demand than Normal. The

values for 2002 show that the peak demand would be very close to that underpinned by the Normal +1 LFU weather. Energy demand would also be greater than Normal.

Figure 3.1: Weather Scenarios & Actual Temperatures, Week 2

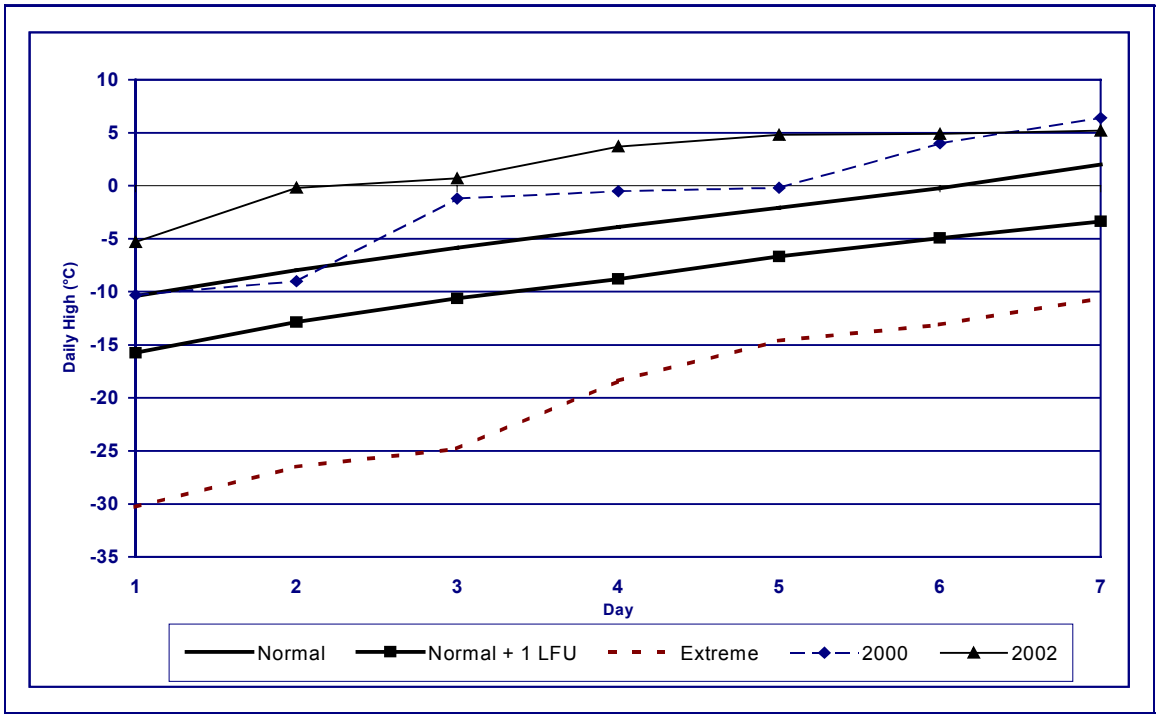
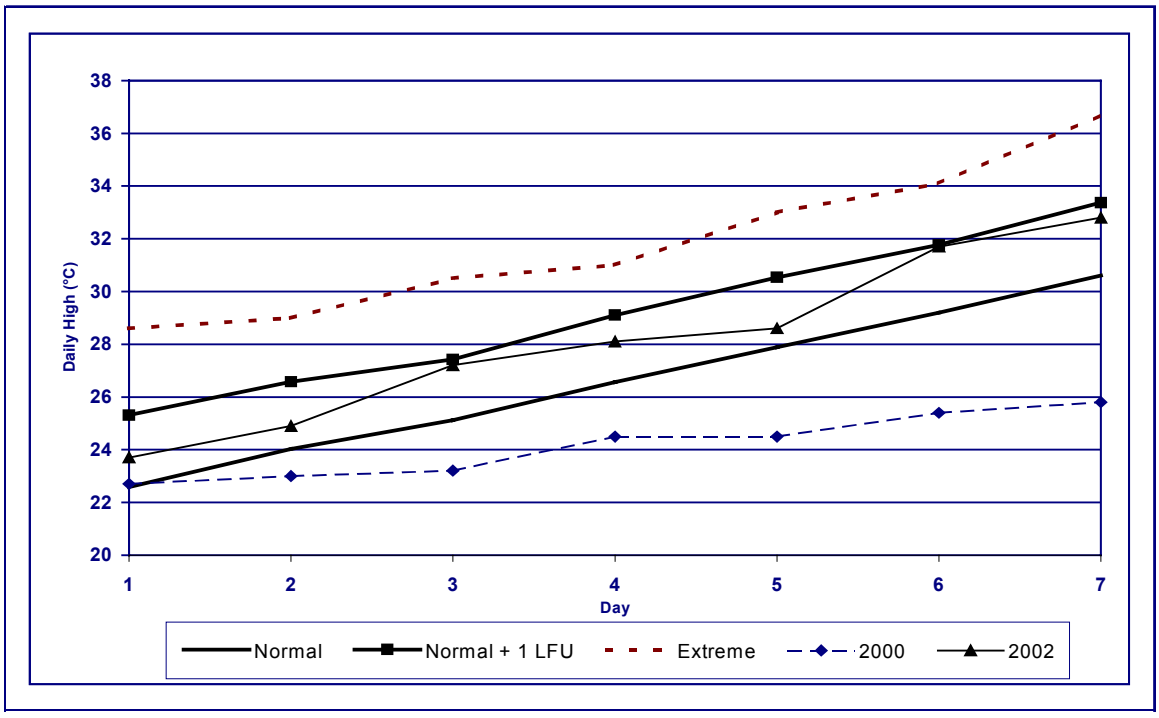


Figure 3.2: Weather Scenarios & Actual Temperatures, Week 28



3.2 Calendar Drivers for Forecast

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.

3.3 Economic Drivers for Forecast

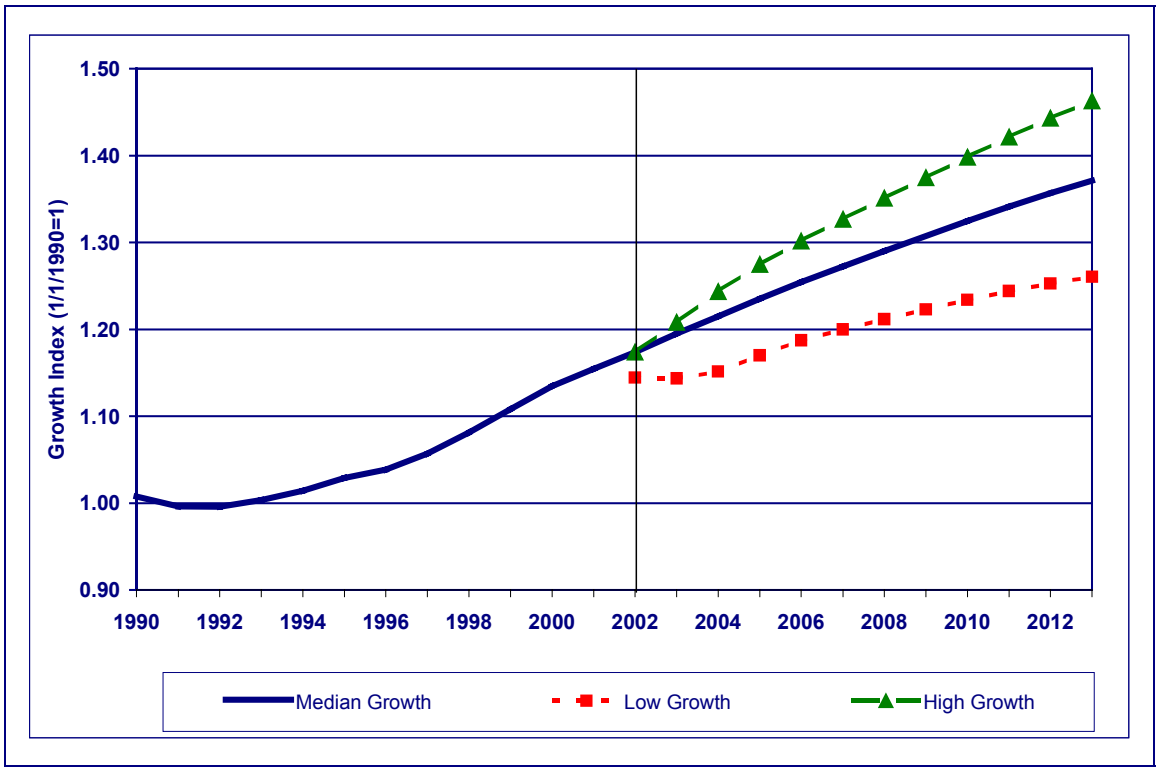
To produce both an energy and peak demand forecast, an economic forecast of various drivers is required. A consensus of four major, publicly available provincial forecasts was utilized to generate the economic drivers used in the near term part of the forecast (2002-2004). For the years beyond the consensus (2005-2013), population projections from Statistics Canada were used as a proxy for the economic driver variables. Table 3.1 summarizes the key economic drivers for energy and peak demand on the IMO-controlled grid.

Table 3.1: Forecasted 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	5,962	1.8	70.3	4.2
2002 (f)	6,051	1.5	79.8	13.6
2003 (f)	6,169	2.0	70.4	(11.7)
2004 (f)	6,274	1.7	66.5	(5.6)
2005 (f)	6,388	1.8	71.8	8.0
2006 (f)	6,482	1.5	75.2	4.8
2007 (f)	6,563	1.3	73.6	(2.2)
2008 (f)	6,645	1.2	70.1	(4.7)
2009 (f)	6,727	1.2	67.5	(3.7)
2010 (f)	6,810	1.2	66.0	(2.2)
2011 (f)	6,893	1.2	61.6	(6.6)
2012 (f)	6,975	1.2	46.4	(24.7)
2013 (f)	7,058	1.2	41.3	(11.0)

The above forecast represents the base case, most likely scenario or Median Economic Growth. For the purpose of further analysis, two additional economic growth scenarios were developed. The Low Economic Growth Scenario has a recession in 2003-2004, followed by years of low immigration, population and economic growth. The High Economic Growth scenario exhibits very high growth in the near term followed by years of high immigration, population and economic growth. Neither of these scenarios have a probability associated with them as it is not the likelihood of their development that is as important as is the case they represent.

Figure 3.3: Economic Scenarios



- End of Section -

4.0 Demand Forecast

The demand forecast is split into two separate parts, the energy demand forecast and the peak demand forecast. This section presents information on the system, more detailed information for the individual zones can be found in Appendices A and B.

4.1 Energy Demand Forecast

The predicted annual energy demand for the system for the time frame 2003 through to 2013 is contained in Table 4.1. This table contains the forecast of energy demand under the three economic growth scenarios – Low, Median and High. Although 2003 does not fall within the time frame of this document, the values for 2003 are consistent with the 18-Month Outlook covering the period April 2003 to September 2004. Energy demand is expected to exhibit average annual growth of 1.0% throughout the forecast. Growth in demand is driven by changes in economic activity, the number of end-users and the penetration of electric powered devices.

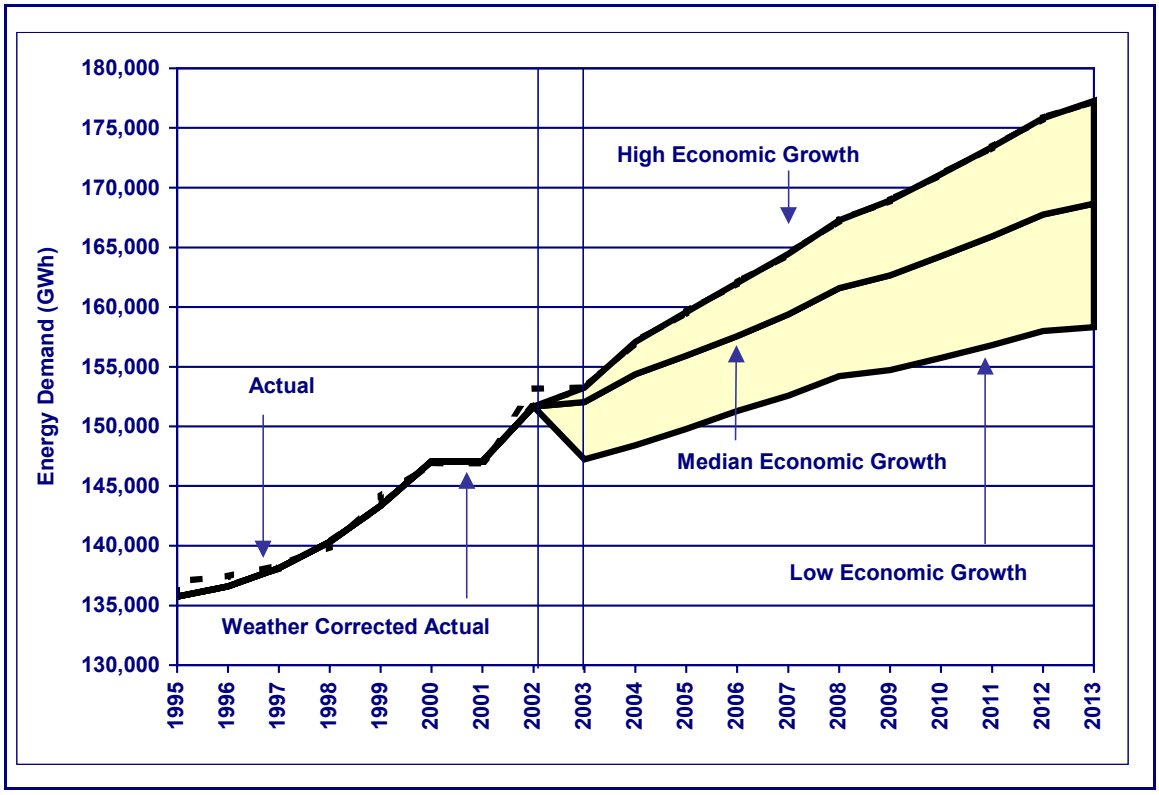
Table 4.1: Forecasted Ontario Annual Energy Demand

Calendar Year	Energy Demand - Median Growth	Energy Demand - Low Growth	Energy Demand - High Growth
	(TWh)	(TWh)	(TWh)
2002 (WC)	151.43	151.43	151.43
2003 (18)	152.60	147.23	153.25
2004	154.37	148.43	157.06
2005	155.91	149.80	159.59
2006	157.57	151.31	162.02
2007	159.38	152.57	164.44
2008	161.60	154.22	167.28
2009	162.66	154.72	168.93
2010	164.26	155.73	171.13
2011	165.92	156.79	173.39
2012	167.76	158.00	175.83
2013	168.66	158.30	177.26
Avg Growth	1.0%	0.4%	1.4%

Notes to Table 4.1:
2002 (WC) indicates that the annual energy demand has been weather corrected.
2003 (18) indicates that these values are not in the time frame of this document but can be found in the 18-Month Outlook that covers the period April 2003 to September 2004.
Avg. Growth indicates the average annual growth rate for the 2002-2013 time frame.

Figure 4.1 shows the annual energy demand under the three economic growth scenarios.

Figure 4.1: Annual Energy Demand – Economic Scenarios



4.2 Peak Demand Forecast

The key message of the peak demand forecast is the difference between the growth of the winter and summer peaks. The summer peaks are growing faster than the winter peaks as cooling load continues to grow while the heating load remains stagnant.

Table 4.2 shows the forecast of seasonal peak demands. The table shows the winter and summer peaks under both Normal and Extreme weather. In addition, the table contains two columns with the title of "Expected Peak Demand". These values are the anticipated peak demand for the season and are constructed by using the Normal peak demands and the Load Forecast Uncertainty (LFU). The Normal weather represents the "average" weather for any given week. Therefore, using summer as an example, the chances are 50/50 that any week will have colder or hotter weather. However, over the course of a season it is likely at least one of the weeks during the summer will have hotter than Normal weather. The Expected peak therefore captures the likelihood that at least one of the Normal weather peaks will be exceeded over the course of the season.

As discussed in Section 2.31, the weather-corrected peak for the summer 2002 is anomalous and therefore the growth rates using 2002 as a starting point are skewed. For that reason, Table 4.2 shows the average annual growth rates for both 2002-2013 and 2003-2013. The second set of numbers shows that the summer peaks are growing over 1.5 times as fast as the winter peaks.

Table 4.2: Forecasted Ontario Seasonal Peak Demand

Seasonal Year	Normal Weather Winter Peak Demand	Normal Weather Summer Peak Demand	Expected Winter Peak Demand	Expected Summer Peak Demand	Extreme Weather Winter Peak Demand	Extreme Weather Summer Peak Demand
	(MW)	(MW)	(MW)	(MW)	(MW)	(MW)
2002 (A)	23,320	24,296	22,623	25,414	22,623	25,414
2003 (18)	23,500	23,684	24,158	25,571	24,158	26,397
2004	24,112	24,014	25,252	25,902	25,878	26,710
2005	24,233	24,360	25,460	26,279	25,998	27,098
2006	24,422	24,689	25,631	26,609	26,187	27,435
2007	24,603	25,005	25,822	26,922	26,368	27,756
2008	24,808	25,326	26,004	27,230	26,573	28,063
2009	25,024	25,641	26,178	27,526	26,789	28,341
2010	25,101	25,945	26,344	27,814	26,866	28,583
2011	25,273	26,247	26,482	28,167	27,038	28,986
2012	25,431	26,530	26,647	28,447	27,197	29,273
2013	25,595	26,803	26,792	28,705	27,360	29,535
Avg Growth (2002-13)	0.8%	0.9%	1.5%	1.1%	1.7%	1.4%
Avg Growth (2003-13)	0.9%	1.2%	1.0%	1.2%	1.3%	1.1%

Notes to Table 4.2:
2002 (A) indicates that the peak demand has been weather corrected for Normal weather but are actuals for the Extreme weather scenario and Expected peaks. Voltage reductions in January 2003 reduced the energy supplied. Without the reductions, demand would have been roughly 430 MW higher.
2003 (18) indicates that these values are not in the time frame of this document but can be found in the 18-Month Outlook that covers the period April 2003 to September 2004.
Avg. Growth indicates the average annual growth rate for the 2002-13 and 2003-13 time frame.

Figure 4.2 shows the annual peak demands under three weather scenarios. The Mild weather scenario is derived from the mildest historical data. The Normal weather peak demand forecast is roughly in the center of the band and the Extreme weather scenario constitutes the upper bound of the graph.

Figures 4.3 depicts the summer and winter peaks for the Normal weather scenario. Figure 4.4 shows the forecasted Expected seasonal peaks and Figure 4.5 shows the Extreme weather scenario seasonal peaks. The figures reflect the fact that the system is much more heat-sensitive than cold sensitive. For the Normal weather scenario, the system is winter peaking until 2005 whereas under the Extreme weather scenario the system is summer peaking immediately.

The resource adequacy assessments 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. This assessment is based on the assumption that between 0 MW and 300 MW of demand is price responsive.

Figure 4.2: Annual Peak Demand – Weather Scenarios

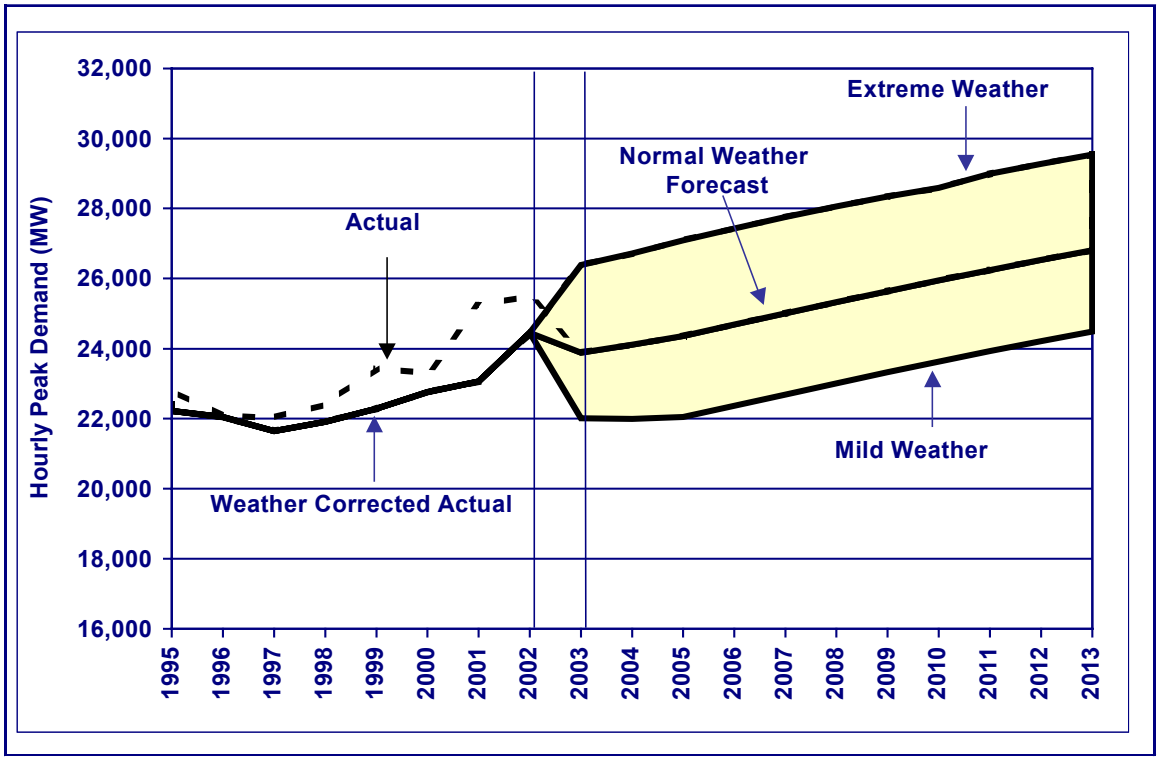


Figure 4.3: Seasonal Peak Demand – Normal Weather Scenario

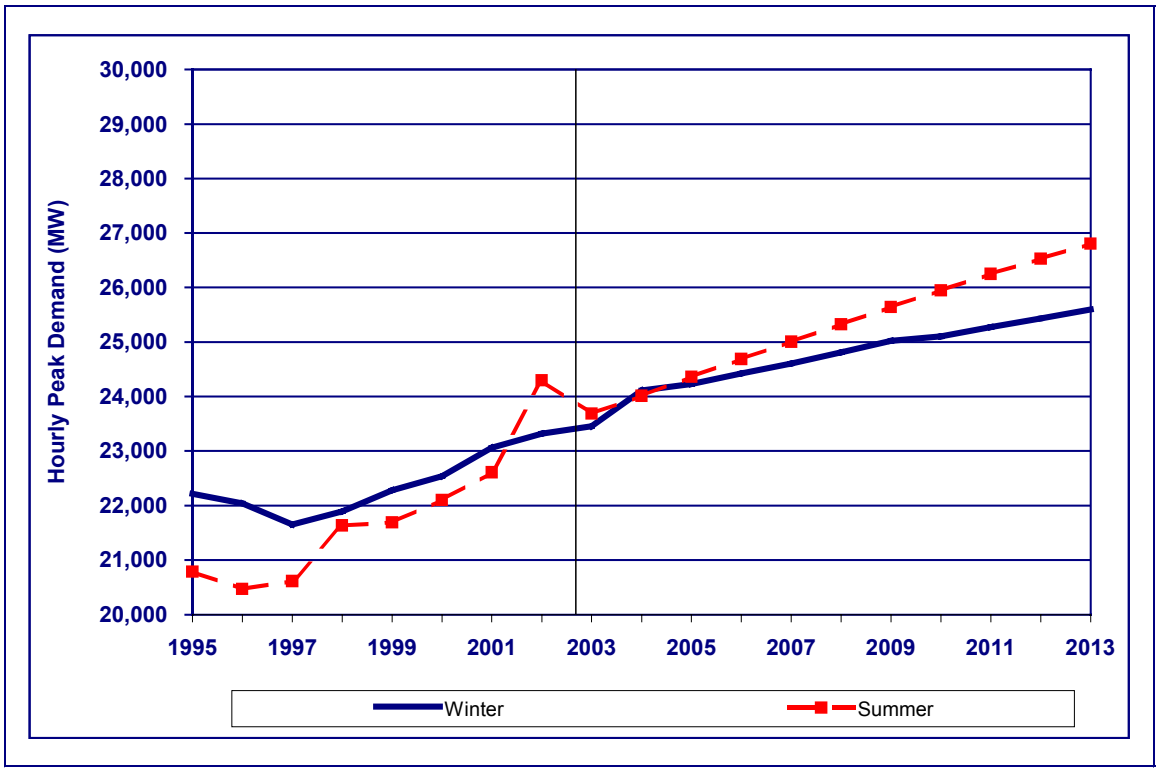


Figure 4.4: Expected Seasonal Peak Demand

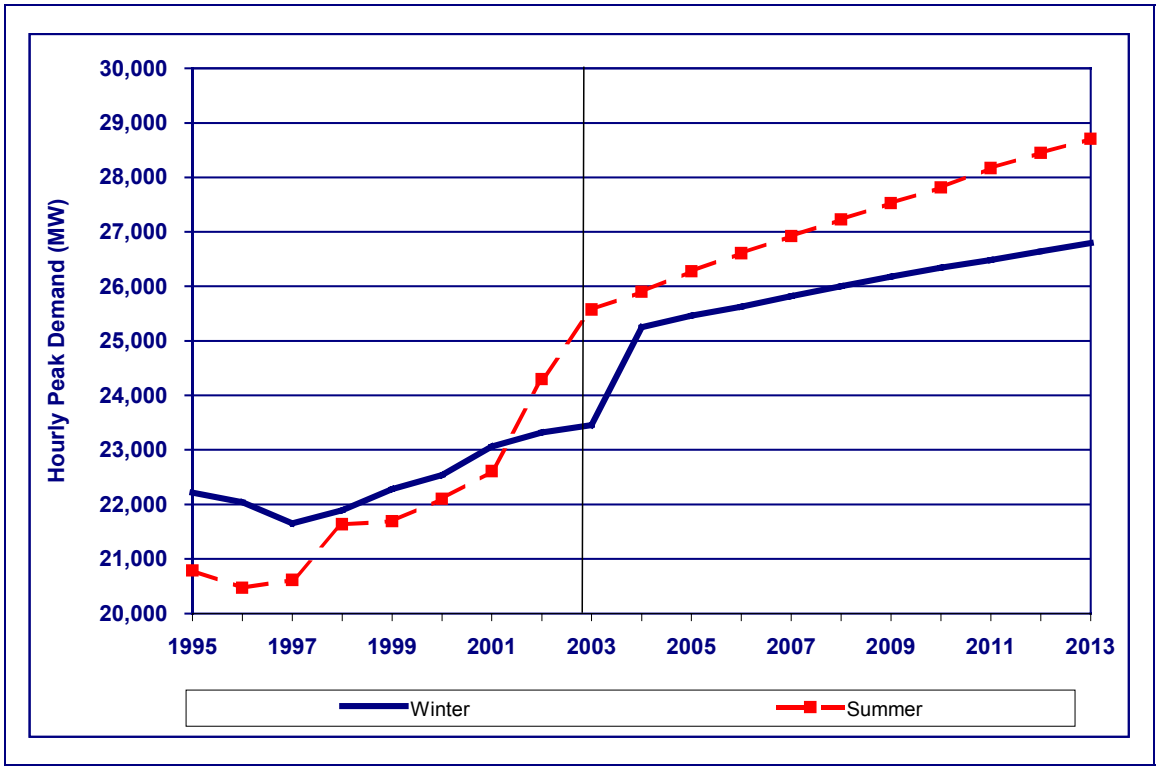
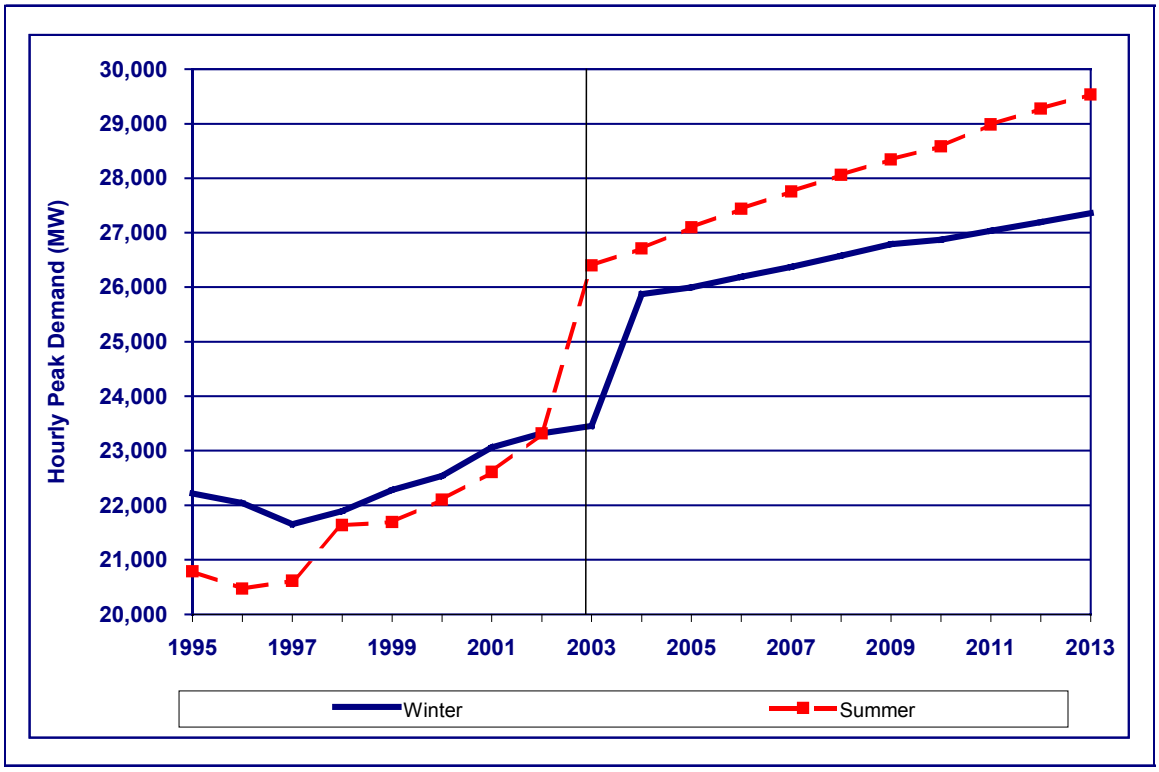


Figure 4.5: Seasonal Peak Demand – Extreme Weather Scenario



4.3 Comparison of Current Forecast to Previous 10-Year Forecast

This 10-Year forecast can be compared to the previous one published April 3, 2002, covering the period of January 2003 to December 2012. The change with the greatest impact on the forecast has been the improved economic outlook at this time. As well, the system continues to exhibit increased heat sensitivity through increase space cooling penetration and growth.

With respect to the forecasting methodology, the previous forecast used a 20-minute peak value whereas; this forecast uses a 60-minute peak value. This is significant in that the 60-minute peak has historically been 80-100 MW lower. Otherwise, the methodology remains very similar as that used in the previous forecast. In addition to the Normal and Extreme weather scenarios, this forecast is the first to introduce the concept of Expected seasonal peaks.

The economic outlook has improved for 2003 and 2004 as Canada's economy has experienced modest growth despite the struggling U.S. economy, stock market depreciation, military activity in Afghanistan and political uncertainty surrounding Iraq and the United States. In fact, Canada is expected to enjoy some of the best growth amongst the developed nations of the world.

The economic outlook has pushed up total energy demand both in terms of the growth rate and the levels. As well, incorporating actual weather, demand and economic data for the past year shows that the system continues to grow more heat sensitive and less cold sensitive. The forecast of energy demand is 1.7 TWh higher in 2004 and is 4.0 TWh higher in 2012. Likewise although the annual peak is 62 MW lower in 2004 – a product of lower heating load and a switch to a 60-minute peak – the annual peak is expected to be over 600 MW higher in 2012 than the previous forecast.

Table 4.2 shows some of the differences between the current and previous forecast.

Table 4.3: Current Versus Previous Forecast

Year	Annual Energy Demand	Normal Weather Winter Peak Demand	Normal Weather Summer Peak Demand	Extreme Weather Winter Peak Demand	Extreme Weather Summer Peak Demand
	(TWh)	(MW)	(MW)	(MW)	(MW)
2003	152.1	23,891	23,672	25,657	26,385
Difference (Current - Previous)	1.3	-93	268	-84	475
2006	157.6	24,422	24,689	26,187	27,435
Difference (Current - Previous)	2.7	28	459	36	698
2009	162.7	25,024	25,641	26,789	28,341
Difference (Current - Previous)	3.6	116	554	123	748
2012	167.8	25,431	26,530	27,197	29,273
Difference (Current - Previous)	4.0	134	627	143	864

- End of Section -

Appendix A - Energy Demand Forecast Details

Table A1: Monthly Zonal Energy Forecast, Normal Weather

	Monthly Energy (GWh)										
Month	Northwest	Northeast	East	Essa	Ottawa	Toronto	Niagara	Bruce	Southwest	West	Total System
Jan-04	740	1,063	1,075	912	894	4,608	562	38	2,671	1,528	14,090
Feb-04	683	967	977	829	802	4,255	524	38	2,474	1,409	12,959
Mar-04	697	970	970	863	791	4,325	552	38	2,529	1,452	13,186
Apr-04	645	887	842	724	671	3,933	505	28	2,291	1,339	11,865
May-04	637	842	845	724	648	3,938	507	26	2,300	1,351	11,818
Jun-04	614	800	792	656	777	4,427	542	28	2,493	1,503	12,633
Jul-04	615	815	833	699	856	4,808	574	26	2,639	1,627	13,492
Aug-04	634	861	804	667	848	4,709	574	28	2,562	1,702	13,391
Sep-04	613	852	762	595	726	4,096	507	31	2,304	1,399	11,886
Oct-04	666	944	854	685	766	4,199	520	30	2,388	1,407	12,459
Nov-04	676	954	931	781	786	4,276	533	38	2,455	1,436	12,867
Dec-04	705	1,016	1,045	900	856	4,510	544	39	2,613	1,496	13,724
Jan-05	743	1,057	1,082	921	895	4,635	569	38	2,696	1,544	14,182
Feb-05	665	935	963	826	789	4,199	517	38	2,442	1,394	12,768
Mar-05	704	975	994	885	807	4,416	561	39	2,579	1,482	13,442
Apr-05	654	896	862	741	691	4,034	515	29	2,346	1,372	12,140
May-05	643	840	861	749	653	4,005	515	26	2,345	1,374	12,012
Jun-05	618	800	791	659	779	4,450	546	28	2,509	1,521	12,699
Jul-05	617	815	833	699	860	4,845	579	26	2,664	1,642	13,581
Aug-05	636	862	824	694	878	4,886	592	28	2,642	1,766	13,808
Sep-05	612	841	769	603	737	4,207	519	32	2,356	1,445	12,120
Oct-05	667	934	851	684	769	4,245	526	30	2,411	1,426	12,543
Nov-05	673	938	927	783	777	4,280	539	39	2,462	1,448	12,865
Dec-05	706	1,002	1,044	903	849	4,521	550	40	2,627	1,508	13,750
Jan-06	743	1,049	1,095	939	899	4,687	575	39	2,728	1,565	14,320
Feb-06	666	927	971	837	790	4,231	523	38	2,464	1,410	12,857
Mar-06	705	964	1,001	898	807	4,457	569	39	2,606	1,502	13,549
Apr-06	656	891	867	740	690	4,052	516	29	2,357	1,382	12,180
May-06	646	835	874	767	664	4,098	525	27	2,395	1,407	12,237
Jun-06	620	803	796	664	788	4,509	551	28	2,535	1,553	12,848
Jul-06	619	815	843	709	876	4,944	589	26	2,711	1,681	13,813
Aug-06	639	862	831	702	891	4,976	602	27	2,684	1,804	14,019
Sep-06	615	840	776	610	738	4,232	522	32	2,375	1,457	12,197
Oct-06	671	929	863	699	779	4,332	534	31	2,457	1,455	12,751
Nov-06	675	929	938	798	780	4,328	545	39	2,493	1,468	12,993
Dec-06	707	996	1,052	909	848	4,541	555	40	2,643	1,521	13,810
Jan-07	747	1,044	1,114	965	911	4,769	585	40	2,778	1,598	14,550
Feb-07	667	919	979	847	790	4,259	528	39	2,486	1,427	12,940
Mar-07	705	954	1,003	900	801	4,455	572	40	2,612	1,512	13,555
Apr-07	659	884	877	752	696	4,116	523	30	2,395	1,409	12,341
May-07	648	830	883	777	671	4,159	532	27	2,429	1,434	12,388
Jun-07	622	802	802	669	800	4,584	561	27	2,575	1,584	13,025
Jul-07	621	819	855	724	893	5,049	600	26	2,760	1,731	14,076
Aug-07	641	861	835	707	901	5,039	609	27	2,717	1,837	14,175
Sep-07	618	838	785	618	740	4,258	526	32	2,396	1,470	12,281
Oct-07	674	925	874	715	789	4,417	543	31	2,503	1,488	12,960
Nov-07	677	922	947	810	781	4,360	551	39	2,517	1,487	13,091
Dec-07	711	992	1,068	926	855	4,605	564	41	2,686	1,550	13,998
Jan-08	748	1,039	1,125	979	914	4,814	592	40	2,807	1,618	14,678
Feb-08	691	943	1,019	888	817	4,441	553	40	2,595	1,494	13,482
Mar-08	702	943	1,001	899	790	4,425	572	40	2,606	1,512	13,491
Apr-08	656	880	888	783	702	4,198	534	29	2,445	1,437	12,550
May-08	650	826	887	780	672	4,192	535	27	2,446	1,448	12,464
Jun-08	623	801	809	676	815	4,677	570	27	2,623	1,616	13,238
Jul-08	624	819	868	743	918	5,208	617	25	2,830	1,792	14,444
Aug-08	642	866	830	697	901	5,037	611	27	2,719	1,846	14,177
Sep-08	622	833	797	637	752	4,345	534	32	2,445	1,497	12,495
Oct-08	678	926	884	727	795	4,483	550	31	2,537	1,512	13,123
Nov-08	679	921	955	814	780	4,363	554	40	2,526	1,495	13,126
Dec-08	715	992	1,095	962	876	4,725	577	41	2,756	1,591	14,332

Table A1 – continued

	Monthly Energy (GWh)										
Month	Northwest	Northeast	East	Essa	Ottawa	Toronto	Niagara	Bruce	Southwest	West	Total System
Jan-09	748	1,029	1,125	979	906	4,810	595	40	2,809	1,626	14,668
Feb-09	668	904	992	868	790	4,315	539	39	2,527	1,457	13,099
Mar-09	706	936	1,016	920	798	4,502	583	41	2,652	1,542	13,695
Apr-09	659	875	891	784	703	4,228	537	29	2,461	1,451	12,617
May-09	652	824	893	786	675	4,225	539	27	2,469	1,463	12,554
Jun-09	624	805	821	691	836	4,803	584	27	2,676	1,673	13,540
Jul-09	626	818	873	748	928	5,277	625	25	2,868	1,816	14,603
Aug-09	644	864	835	703	911	5,109	618	26	2,755	1,877	14,342
Sep-09	624	833	810	655	755	4,396	541	32	2,478	1,518	12,642
Oct-09	681	922	884	727	797	4,517	553	31	2,554	1,528	13,196
Nov-09	681	916	969	833	788	4,429	562	41	2,567	1,521	13,308
Dec-09	715	984	1,101	974	875	4,747	581	42	2,772	1,604	14,396
Jan-10	748	1,021	1,126	980	899	4,802	598	41	2,812	1,632	14,658
Feb-10	672	905	1,009	887	801	4,377	546	40	2,565	1,481	13,282
Mar-10	712	942	1,046	955	821	4,628	595	41	2,724	1,582	14,046
Apr-10	666	880	910	802	718	4,310	544	29	2,507	1,478	12,845
May-10	657	824	907	804	675	4,260	544	27	2,497	1,476	12,670
Jun-10	628	806	822	695	840	4,840	588	27	2,699	1,689	13,634
Jul-10	627	819	870	745	931	5,297	628	25	2,881	1,831	14,653
Aug-10	645	866	852	724	937	5,255	633	27	2,822	1,933	14,693
Sep-10	622	821	815	659	769	4,511	552	33	2,526	1,565	12,874
Oct-10	680	915	898	742	795	4,522	557	31	2,573	1,536	13,250
Nov-10	679	900	970	843	783	4,450	569	41	2,585	1,538	13,357
Dec-10	711	966	1,093	971	858	4,714	582	42	2,760	1,604	14,301
Jan-11	752	1,016	1,141	1,000	908	4,863	607	41	2,855	1,658	14,840
Feb-11	673	898	1,016	897	800	4,404	551	40	2,585	1,496	13,360
Mar-11	713	934	1,054	967	822	4,660	601	42	2,746	1,600	14,138
Apr-11	668	876	914	804	719	4,335	548	30	2,523	1,492	12,908
May-11	659	817	918	819	684	4,336	552	27	2,539	1,504	12,855
Jun-11	630	807	829	703	853	4,925	597	27	2,739	1,726	13,835
Jul-11	628	820	872	744	938	5,340	633	25	2,903	1,855	14,759
Aug-11	648	868	863	739	956	5,380	646	26	2,880	1,982	14,988
Sep-11	626	818	821	667	769	4,534	555	33	2,545	1,575	12,944
Oct-11	683	912	906	751	802	4,579	562	31	2,605	1,558	13,390
Nov-11	681	897	983	859	788	4,500	576	42	2,616	1,560	13,501
Dec-11	714	961	1,103	982	861	4,748	588	43	2,786	1,622	14,406
Jan-12	751	1,008	1,152	1,016	911	4,906	612	42	2,882	1,677	14,958
Feb-12	697	922	1,061	942	831	4,598	577	42	2,702	1,567	13,940
Mar-12	710	920	1,048	964	809	4,628	603	42	2,737	1,602	14,063
Apr-12	669	866	921	809	719	4,369	552	30	2,545	1,509	12,989
May-12	659	811	928	833	695	4,423	561	27	2,582	1,538	13,058
Jun-12	631	807	830	703	861	4,970	602	27	2,765	1,743	13,940
Jul-12	629	825	884	758	957	5,448	643	25	2,946	1,910	15,026
Aug-12	650	871	865	741	966	5,439	654	26	2,908	2,012	15,132
Sep-12	630	820	824	664	767	4,520	554	33	2,544	1,572	12,927
Oct-12	686	910	920	773	814	4,682	573	32	2,659	1,593	13,642
Nov-12	683	889	992	871	789	4,529	580	42	2,638	1,573	13,586
Dec-12	716	959	1,114	989	864	4,777	594	43	2,809	1,639	14,503
Jan-13	754	1,005	1,170	1,040	922	4,983	622	43	2,928	1,706	15,174
Feb-13	673	881	1,026	913	797	4,440	561	41	2,616	1,521	13,470
Mar-13	710	912	1,047	960	800	4,600	602	42	2,728	1,600	14,002
Apr-13	668	865	928	834	727	4,446	561	29	2,591	1,535	13,184
May-13	662	807	933	841	699	4,466	566	27	2,608	1,554	13,163
Jun-13	631	811	834	703	870	5,016	608	26	2,781	1,775	14,056
Jul-13	631	823	896	775	979	5,586	659	25	3,017	1,952	15,343
Aug-13	651	869	863	739	969	5,464	657	26	2,921	2,029	15,187
Sep-13	631	815	836	683	770	4,567	560	33	2,579	1,591	13,066
Oct-13	689	906	924	776	821	4,734	578	32	2,684	1,612	13,754
Nov-13	684	887	997	875	789	4,535	585	42	2,647	1,584	13,626
Dec-13	717	952	1,127	1,007	870	4,823	600	44	2,840	1,657	14,637

- End of Section -.

Appendix B - Peak Demand Forecast Details

Table B1: Monthly Zonal Coincident Peak Demand Forecast, Normal Weather

	Hourly Coincident Peak Demand (MW)											
Month	Northwest	Northeast	East	Essa	Ottawa	Toronto	Niagara	Bruce	Southwest	West	Total System	Load Forecast Uncertainty
Jan-04	1,070	1,537	1,888	1,921	1,614	7,970	916	61	4,581	2,554	24,112	883
Feb-04	1,037	1,497	1,842	1,838	1,554	7,811	904	63	4,510	2,482	23,538	729
Mar-04	1,021	1,424	1,694	1,746	1,431	7,460	874	66	4,290	2,394	22,400	793
Apr-04	958	1,380	1,435	1,356	1,223	6,723	822	49	3,859	2,221	20,026	469
May-04	873	1,145	1,401	1,361	1,199	7,084	848	44	3,851	2,380	20,186	1,497
Jun-04	883	1,176	1,470	1,535	1,507	8,627	1,008	54	4,718	2,733	23,711	1,333
Jul-04	853	1,166	1,499	1,568	1,550	8,759	1,016	48	4,729	2,826	24,014	1,158
Aug-04	890	1,259	1,414	1,440	1,542	8,503	1,002	48	4,467	3,066	23,631	1,393
Sep-04	856	1,200	1,417	1,388	1,331	7,765	920	55	4,177	2,674	21,783	1,287
Oct-04	936	1,362	1,541	1,524	1,313	7,038	832	47	4,040	2,273	20,906	378
Nov-04	1,023	1,467	1,771	1,757	1,494	7,695	902	64	4,472	2,496	23,141	781
Dec-04	1,052	1,506	1,880	1,915	1,594	7,954	927	64	4,619	2,566	24,077	856
Jan-05	1,068	1,522	1,896	1,935	1,608	8,008	927	62	4,628	2,579	24,233	883
Feb-05	1,043	1,501	1,880	1,890	1,583	7,916	919	63	4,582	2,522	23,899	608
Mar-05	1,030	1,429	1,719	1,778	1,445	7,578	889	67	4,358	2,434	22,727	827
Apr-05	972	1,388	1,460	1,391	1,259	6,910	837	51	3,953	2,279	20,500	560
May-05	881	1,133	1,390	1,357	1,193	6,968	844	44	3,830	2,367	20,007	1,410
Jun-05	887	1,176	1,453	1,496	1,479	8,500	995	51	4,670	2,835	23,542	1,398
Jul-05	858	1,164	1,509	1,593	1,583	8,876	1,030	45	4,733	2,969	24,360	1,158
Aug-05	878	1,189	1,448	1,537	1,576	8,688	1,011	45	4,549	3,125	24,046	1,365
Sep-05	867	1,184	1,410	1,383	1,365	7,897	929	57	4,219	2,714	22,025	1,287
Oct-05	933	1,329	1,514	1,499	1,298	7,018	835	47	4,026	2,275	20,774	438
Nov-05	1,022	1,414	1,748	1,760	1,491	7,732	921	66	4,493	2,522	23,169	601
Dec-05	1,053	1,485	1,884	1,924	1,585	7,999	939	66	4,662	2,595	24,192	931
Jan-06	1,071	1,507	1,914	1,957	1,611	8,077	938	63	4,675	2,609	24,422	883
Feb-06	1,047	1,487	1,899	1,915	1,586	7,983	930	64	4,629	2,553	24,093	608
Mar-06	1,033	1,417	1,735	1,800	1,450	7,654	900	68	4,410	2,464	22,931	827
Apr-06	977	1,376	1,470	1,406	1,272	7,012	847	50	4,007	2,314	20,731	560
May-06	882	1,125	1,444	1,406	1,212	7,269	868	45	3,943	2,451	20,645	1,497
Jun-06	888	1,173	1,468	1,515	1,497	8,619	1,009	53	4,731	2,919	23,872	1,405
Jul-06	861	1,163	1,530	1,614	1,603	9,019	1,045	47	4,805	3,002	24,689	1,158
Aug-06	880	1,182	1,464	1,560	1,594	8,815	1,024	44	4,614	3,181	24,358	1,391
Sep-06	870	1,177	1,435	1,410	1,368	7,982	939	57	4,274	2,750	22,262	1,287
Oct-06	960	1,351	1,453	1,407	1,317	7,381	837	52	4,123	2,369	21,250	364
Nov-06	1,024	1,398	1,762	1,777	1,491	7,793	931	68	4,540	2,550	23,334	601
Dec-06	1,056	1,469	1,900	1,945	1,588	8,069	951	67	4,710	2,625	24,380	931
Jan-07	1,074	1,492	1,930	1,979	1,613	8,138	949	64	4,722	2,642	24,603	883
Feb-07	1,044	1,451	1,894	1,902	1,559	8,002	939	65	4,650	2,569	24,075	729
Mar-07	1,020	1,379	1,739	1,819	1,431	7,633	907	65	4,424	2,481	22,898	793
Apr-07	982	1,365	1,475	1,417	1,287	7,106	855	50	4,060	2,351	20,948	560
May-07	885	1,118	1,465	1,426	1,216	7,340	877	45	3,992	2,511	20,875	1,497
Jun-07	891	1,181	1,492	1,533	1,528	8,746	1,023	51	4,765	2,980	24,190	1,404
Jul-07	860	1,160	1,547	1,630	1,619	9,132	1,059	46	4,897	3,055	25,005	1,158
Aug-07	902	1,273	1,461	1,494	1,607	8,910	1,049	50	4,679	3,252	24,677	1,393
Sep-07	872	1,171	1,462	1,439	1,369	8,056	949	58	4,327	2,787	22,490	1,287
Oct-07	968	1,323	1,467	1,447	1,350	7,556	861	51	4,213	2,430	21,666	378
Nov-07	1,026	1,384	1,779	1,797	1,494	7,858	943	68	4,573	2,584	23,506	601
Dec-07	1,059	1,454	1,918	1,966	1,592	8,134	961	67	4,769	2,656	24,576	931
Jan-08	1,077	1,481	1,952	2,008	1,618	8,208	960	63	4,768	2,673	24,808	883
Feb-08	1,046	1,439	1,911	1,926	1,561	8,064	950	66	4,696	2,600	24,259	729
Mar-08	1,023	1,369	1,753	1,840	1,435	7,705	918	67	4,470	2,511	23,091	793
Apr-08	935	1,319	1,467	1,518	1,279	7,186	854	39	4,116	2,331	21,044	560
May-08	891	1,114	1,484	1,452	1,225	7,431	887	46	4,049	2,515	21,094	1,497
Jun-08	893	1,183	1,506	1,553	1,547	8,871	1,038	50	4,827	3,036	24,504	1,410
Jul-08	863	1,163	1,566	1,650	1,639	9,271	1,075	47	4,966	3,086	25,326	1,158
Aug-08	903	1,272	1,479	1,518	1,623	9,030	1,064	46	4,741	3,307	24,983	1,393
Sep-08	875	1,167	1,487	1,467	1,370	8,133	959	57	4,379	2,819	22,713	1,287
Oct-08	969	1,314	1,484	1,470	1,355	7,638	870	51	4,265	2,461	21,877	378
Nov-08	1,029	1,371	1,790	1,812	1,493	7,910	953	69	4,612	2,610	23,649	601
Dec-08	1,060	1,450	1,950	2,007	1,602	8,213	973	65	4,801	2,690	24,811	867

Table B1 - continued

	Hourly Coincident Peak Demand (MW)											
Month	Northwest	Northeast	East	Essa	Ottawa	Toronto	Niagara	Bruce	Southwest	West	Total System	Load Forecast Uncertainty
Jan-09	1,080	1,468	1,974	2,035	1,624	8,287	973	66	4,813	2,704	25,024	883
Feb-09	1,047	1,428	1,928	1,951	1,564	8,128	961	67	4,742	2,631	24,447	729
Mar-09	1,027	1,360	1,772	1,864	1,439	7,786	929	68	4,521	2,541	23,307	793
Apr-09	943	1,302	1,478	1,541	1,283	7,275	859	39	4,174	2,368	21,262	560
May-09	895	1,112	1,501	1,475	1,231	7,509	897	45	4,102	2,549	21,316	1,497
Jun-09	895	1,188	1,529	1,567	1,576	8,991	1,052	50	4,854	3,118	24,820	1,403
Jul-09	864	1,166	1,577	1,670	1,646	9,402	1,089	49	5,064	3,114	25,641	1,158
Aug-09	902	1,261	1,492	1,541	1,639	9,146	1,076	45	4,800	3,359	25,261	1,393
Sep-09	876	1,164	1,517	1,502	1,364	8,199	969	58	4,432	2,849	22,930	1,287
Oct-09	967	1,304	1,503	1,498	1,355	7,706	879	53	4,318	2,489	22,072	378
Nov-09	1,031	1,357	1,800	1,825	1,494	7,967	963	68	4,640	2,637	23,782	601
Dec-09	1,062	1,436	1,967	2,030	1,605	8,276	984	68	4,855	2,719	25,002	856
Jan-10	1,077	1,454	1,981	2,043	1,616	8,308	981	66	4,852	2,723	25,101	883
Feb-10	1,052	1,433	1,963	1,995	1,591	8,215	973	67	4,801	2,665	24,755	608
Mar-10	1,033	1,365	1,794	1,893	1,451	7,882	942	70	4,577	2,575	23,582	827
Apr-10	982	1,352	1,537	1,496	1,290	7,341	885	50	4,218	2,438	21,589	560
May-10	902	1,099	1,491	1,466	1,223	7,378	891	44	4,072	2,529	21,095	1,410
Jun-10	897	1,178	1,528	1,592	1,573	9,119	1,073	53	4,993	3,116	25,122	1,398
Jul-10	870	1,164	1,588	1,694	1,680	9,516	1,101	42	5,032	3,258	25,945	1,158
Aug-10	889	1,194	1,525	1,633	1,673	9,318	1,083	43	4,874	3,414	25,646	1,266
Sep-10	877	1,174	1,585	1,583	1,420	8,466	1,003	57	4,558	2,964	23,687	1,271
Oct-10	948	1,286	1,604	1,616	1,331	7,454	883	48	4,295	2,440	21,905	438
Nov-10	1,028	1,335	1,807	1,835	1,490	8,023	971	69	4,669	2,656	23,883	593
Dec-10	1,062	1,416	1,966	2,032	1,591	8,291	993	70	4,886	2,740	25,047	931
Jan-11	1,079	1,440	1,998	2,067	1,618	8,366	991	68	4,894	2,752	25,273	883
Feb-11	1,054	1,420	1,981	2,021	1,594	8,273	983	68	4,847	2,694	24,935	608
Mar-11	1,036	1,353	1,810	1,915	1,453	7,945	952	72	4,621	2,603	23,760	827
Apr-11	987	1,342	1,545	1,510	1,301	7,427	893	52	4,265	2,470	21,792	560
May-11	906	1,093	1,508	1,489	1,229	7,453	899	44	4,119	2,562	21,302	1,410
Jun-11	899	1,179	1,543	1,611	1,592	9,241	1,079	52	5,056	3,171	25,423	1,398
Jul-11	869	1,166	1,600	1,709	1,696	9,621	1,114	45	5,119	3,308	26,247	1,158
Aug-11	891	1,191	1,539	1,653	1,690	9,433	1,095	42	4,934	3,468	25,936	1,364
Sep-11	890	1,141	1,526	1,512	1,403	8,392	985	58	4,511	2,914	23,332	1,287
Oct-11	951	1,275	1,611	1,625	1,340	7,527	891	49	4,340	2,467	22,076	438
Nov-11	1,033	1,331	1,849	1,890	1,500	8,089	986	72	4,761	2,697	24,208	601
Dec-11	1,064	1,402	1,985	2,056	1,595	8,354	1,004	71	4,929	2,769	25,229	931
Jan-12	1,082	1,427	2,013	2,086	1,620	8,421	1,002	66	4,934	2,780	25,431	883
Feb-12	1,057	1,407	1,998	2,043	1,595	8,325	994	68	4,888	2,722	25,097	608
Mar-12	1,023	1,317	1,811	1,931	1,433	7,914	958	67	4,633	2,614	23,701	793
Apr-12	991	1,332	1,552	1,522	1,312	7,512	902	50	4,311	2,502	21,986	560
May-12	905	1,086	1,558	1,533	1,247	7,737	922	46	4,223	2,642	21,899	1,497
Jun-12	900	1,179	1,554	1,626	1,608	9,341	1,091	50	5,108	3,251	25,708	1,404
Jul-12	871	1,166	1,616	1,726	1,715	9,745	1,128	46	5,182	3,335	26,530	1,158
Aug-12	891	1,185	1,550	1,671	1,706	9,539	1,107	44	4,989	3,518	26,200	1,388
Sep-12	891	1,136	1,546	1,535	1,404	8,455	993	58	4,555	2,945	23,518	1,287
Oct-12	983	1,280	1,537	1,539	1,387	7,972	906	52	4,459	2,585	22,700	378
Nov-12	1,034	1,317	1,859	1,902	1,498	8,124	995	71	4,794	2,719	24,313	601
Dec-12	1,066	1,389	1,997	2,071	1,595	8,398	1,014	71	4,963	2,793	25,357	931
Jan-13	1,085	1,415	2,031	2,110	1,623	8,475	1,011	67	4,972	2,806	25,595	883
Feb-13	1,054	1,373	1,989	2,028	1,566	8,329	1,001	69	4,898	2,733	25,040	729
Mar-13	1,027	1,308	1,824	1,947	1,438	7,976	968	69	4,671	2,640	23,868	793
Apr-13	945	1,282	1,531	1,611	1,310	7,582	897	42	4,357	2,478	22,035	560
May-13	910	1,081	1,574	1,553	1,252	7,801	930	46	4,270	2,665	22,082	1,497
Jun-13	902	1,188	1,573	1,640	1,638	9,452	1,104	49	5,128	3,304	25,978	1,409
Jul-13	871	1,166	1,633	1,738	1,731	9,855	1,141	46	5,267	3,355	26,803	1,158
Aug-13	912	1,276	1,545	1,604	1,714	9,610	1,130	48	5,040	3,577	26,456	1,393
Sep-13	891	1,133	1,575	1,567	1,398	8,505	1,002	58	4,600	2,971	23,700	1,287
Oct-13	981	1,270	1,554	1,564	1,386	8,022	913	53	4,503	2,607	22,853	378
Nov-13	1,036	1,304	1,866	1,911	1,497	8,163	1,004	72	4,810	2,741	24,404	601
Dec-13	1,068	1,375	2,010	2,087	1,597	8,445	1,023	72	5,008	2,815	25,500	931

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

	Hourly Non-Coincident Peak Demand (MW)											
Month	Northwest	Northeast	East	Essa	Ottawa	Toronto	Niagara	Bruce	Southwest	West	System	Zonal Total
Jan-04	1,082	1,601	1,928	1,921	1,624	7,970	916	63	4,581	2,554	24,112	24,240
Feb-04	1,055	1,543	1,842	1,851	1,554	7,811	904	65	4,510	2,482	23,538	23,617
Mar-04	1,034	1,482	1,707	1,746	1,460	7,460	878	65	4,290	2,394	22,400	22,516
Apr-04	975	1,410	1,465	1,403	1,223	6,758	836	52	3,859	2,221	20,026	20,202
May-04	938	1,300	1,401	1,361	1,199	7,104	854	64	3,851	2,380	20,186	20,452
Jun-04	908	1,270	1,472	1,535	1,507	8,655	1,013	53	4,718	2,845	23,711	23,976
Jul-04	889	1,260	1,500	1,570	1,564	8,772	1,021	52	4,729	3,047	24,014	24,404
Aug-04	914	1,346	1,431	1,526	1,549	8,532	1,008	48	4,467	3,066	23,631	23,887
Sep-04	942	1,354	1,417	1,388	1,331	7,802	928	55	4,177	2,674	21,783	22,068
Oct-04	955	1,428	1,541	1,524	1,313	7,038	832	49	4,040	2,273	20,906	20,993
Nov-04	1,025	1,516	1,815	1,757	1,499	7,695	905	65	4,472	2,496	23,141	23,245
Dec-04	1,060	1,577	1,923	1,915	1,596	7,954	927	67	4,630	2,566	24,077	24,215
Jan-05	1,080	1,587	1,934	1,935	1,617	8,008	927	63	4,628	2,579	24,233	24,358
Feb-05	1,062	1,558	1,880	1,901	1,583	7,916	919	66	4,582	2,522	23,899	23,989
Mar-05	1,042	1,500	1,736	1,778	1,475	7,578	894	66	4,358	2,434	22,727	22,861
Apr-05	986	1,421	1,485	1,416	1,260	6,913	849	53	3,953	2,279	20,500	20,615
May-05	946	1,301	1,422	1,407	1,193	6,988	849	64	3,830	2,367	20,007	20,367
Jun-05	917	1,278	1,454	1,510	1,499	8,526	1,004	52	4,682	2,846	23,542	23,768
Jul-05	889	1,266	1,510	1,600	1,588	8,879	1,033	51	4,794	3,164	24,360	24,774
Aug-05	915	1,368	1,448	1,553	1,580	8,698	1,023	50	4,549	3,136	24,046	24,320
Sep-05	953	1,346	1,419	1,383	1,365	7,925	936	56	4,219	2,714	22,025	22,316
Oct-05	963	1,399	1,514	1,499	1,317	7,138	835	54	4,031	2,288	20,774	21,038
Nov-05	1,024	1,476	1,796	1,760	1,491	7,732	921	66	4,493	2,522	23,169	23,281
Dec-05	1,060	1,560	1,928	1,924	1,585	7,999	939	68	4,662	2,595	24,192	24,320
Jan-06	1,083	1,576	1,955	1,957	1,618	8,077	938	64	4,675	2,609	24,422	24,552
Feb-06	1,064	1,550	1,899	1,926	1,586	7,983	930	67	4,629	2,553	24,093	24,187
Mar-06	1,044	1,494	1,757	1,800	1,479	7,654	906	67	4,410	2,464	22,931	23,075
Apr-06	991	1,417	1,496	1,435	1,274	7,012	857	53	4,007	2,314	20,731	20,856
May-06	954	1,299	1,444	1,427	1,212	7,285	873	64	3,943	2,451	20,645	20,952
Jun-06	928	1,303	1,474	1,529	1,518	8,656	1,018	68	4,751	2,919	23,872	24,164
Jul-06	892	1,272	1,532	1,622	1,608	9,021	1,048	51	4,869	3,220	24,689	25,135
Aug-06	919	1,370	1,465	1,577	1,596	8,822	1,038	49	4,614	3,193	24,358	24,643
Sep-06	956	1,341	1,435	1,410	1,368	8,008	945	56	4,274	2,750	22,262	22,543
Oct-06	965	1,394	1,526	1,512	1,336	7,381	844	54	4,123	2,369	21,250	21,504
Nov-06	1,026	1,463	1,811	1,779	1,491	7,793	931	67	4,540	2,550	23,334	23,451
Dec-06	1,063	1,555	1,946	1,945	1,588	8,069	951	69	4,710	2,625	24,380	24,521
Jan-07	1,085	1,564	1,975	1,979	1,619	8,138	949	65	4,722	2,642	24,603	24,738
Feb-07	1,063	1,525	1,894	1,927	1,559	8,002	939	67	4,650	2,574	24,075	24,200
Mar-07	1,035	1,464	1,744	1,819	1,459	7,633	908	68	4,424	2,481	22,898	23,035
Apr-07	995	1,414	1,510	1,451	1,290	7,106	865	53	4,060	2,351	20,948	21,095
May-07	952	1,294	1,465	1,446	1,216	7,354	881	64	3,992	2,511	20,875	21,175
Jun-07	930	1,283	1,492	1,547	1,535	8,763	1,030	52	4,810	2,988	24,190	24,430
Jul-07	895	1,279	1,549	1,640	1,627	9,132	1,061	68	4,933	3,278	25,005	25,462
Aug-07	926	1,371	1,481	1,598	1,613	8,935	1,052	49	4,679	3,252	24,677	24,956
Sep-07	958	1,337	1,462	1,439	1,369	8,083	955	57	4,327	2,787	22,490	22,774
Oct-07	968	1,402	1,547	1,523	1,362	7,556	861	55	4,213	2,430	21,666	21,917
Nov-07	1,028	1,449	1,829	1,803	1,494	7,858	943	67	4,573	2,584	23,506	23,628
Dec-07	1,064	1,542	1,963	1,966	1,592	8,134	961	69	4,769	2,656	24,576	24,716
Jan-08	1,088	1,555	1,998	2,008	1,621	8,208	961	66	4,768	2,673	24,808	24,946
Feb-08	1,064	1,521	1,911	1,952	1,561	8,064	950	68	4,696	2,604	24,259	24,391
Mar-08	1,037	1,460	1,762	1,840	1,463	7,705	920	67	4,470	2,511	23,091	23,235
Apr-08	986	1,408	1,524	1,518	1,294	7,186	875	52	4,116	2,351	21,044	21,310
May-08	959	1,291	1,484	1,452	1,225	7,444	892	64	4,049	2,515	21,094	21,375
Jun-08	934	1,299	1,507	1,564	1,553	8,889	1,044	52	4,873	3,048	24,504	24,763
Jul-08	899	1,287	1,569	1,657	1,644	9,271	1,076	52	5,026	3,333	25,326	25,814
Aug-08	929	1,377	1,495	1,605	1,631	9,051	1,066	48	4,741	3,307	24,983	25,250
Sep-08	960	1,335	1,487	1,467	1,370	8,160	964	57	4,386	2,819	22,713	23,005
Oct-08	982	1,403	1,565	1,537	1,365	7,638	870	55	4,265	2,461	21,877	22,141
Nov-08	1,030	1,464	1,840	1,819	1,493	7,911	953	68	4,612	2,610	23,649	23,800
Dec-08	1,066	1,531	1,997	2,007	1,602	8,213	973	70	4,811	2,690	24,811	24,960

Table B2 - continued

	Hourly Non-Coincident Peak Demand (MW)											
Month	Northwest	Northeast	East	Essa	Ottawa	Toronto	Niagara	Bruce	Southwest	West	System	Zonal Total
Jan-09	1,090	1,545	2,020	2,035	1,624	8,287	973	66	4,813	2,704	25,024	25,157
Feb-09	1,064	1,515	1,928	1,974	1,564	8,128	961	69	4,742	2,634	24,447	24,579
Mar-09	1,041	1,454	1,787	1,864	1,467	7,786	932	68	4,521	2,541	23,307	23,461
Apr-09	994	1,394	1,538	1,541	1,300	7,275	885	53	4,174	2,387	21,262	21,541
May-09	967	1,285	1,501	1,475	1,231	7,521	903	64	4,102	2,549	21,316	21,598
Jun-09	936	1,307	1,529	1,581	1,576	8,998	1,056	51	4,929	3,133	24,820	25,096
Jul-09	904	1,294	1,581	1,672	1,661	9,404	1,090	52	5,086	3,338	25,641	26,082
Aug-09	931	1,374	1,510	1,628	1,646	9,168	1,077	48	4,800	3,359	25,261	25,541
Sep-09	962	1,332	1,517	1,502	1,364	8,228	974	57	4,451	2,849	22,930	23,236
Oct-09	981	1,418	1,583	1,533	1,362	7,706	879	55	4,318	2,489	22,072	22,324
Nov-09	1,035	1,451	1,850	1,835	1,494	7,967	963	69	4,640	2,637	23,782	23,941
Dec-09	1,069	1,511	2,015	2,030	1,605	8,276	984	71	4,866	2,719	25,002	25,146
Jan-10	1,088	1,535	2,020	2,043	1,616	8,308	981	67	4,852	2,723	25,101	25,233
Feb-10	1,070	1,532	1,963	2,021	1,591	8,215	973	70	4,801	2,668	24,755	24,904
Mar-10	1,046	1,472	1,813	1,893	1,479	7,882	945	69	4,577	2,575	23,582	23,751
Apr-10	1,003	1,406	1,565	1,535	1,291	7,341	897	53	4,218	2,440	21,589	21,749
May-10	977	1,290	1,494	1,514	1,223	7,389	900	66	4,088	2,529	21,095	21,470
Jun-10	948	1,316	1,532	1,607	1,594	9,136	1,074	52	5,010	3,116	25,122	25,385
Jul-10	904	1,300	1,592	1,698	1,682	9,516	1,101	50	5,091	3,453	25,945	26,387
Aug-10	932	1,397	1,527	1,650	1,677	9,318	1,088	47	4,874	3,426	25,646	25,936
Sep-10	962	1,324	1,585	1,583	1,420	8,494	1,007	58	4,577	2,964	23,687	23,974
Oct-10	974	1,383	1,604	1,616	1,352	7,454	884	49	4,295	2,440	21,905	22,051
Nov-10	1,029	1,419	1,874	1,847	1,490	8,023	971	69	4,669	2,656	23,883	24,047
Dec-10	1,067	1,505	2,017	2,033	1,591	8,291	993	71	4,886	2,740	25,047	25,194
Jan-11	1,089	1,530	2,042	2,067	1,618	8,366	991	67	4,894	2,752	25,273	25,416
Feb-11	1,071	1,526	1,981	2,045	1,594	8,273	983	70	4,847	2,697	24,935	25,087
Mar-11	1,049	1,466	1,832	1,915	1,480	7,945	956	70	4,621	2,603	23,760	23,937
Apr-11	1,006	1,397	1,571	1,536	1,302	7,427	905	54	4,265	2,474	21,792	21,937
May-11	975	1,282	1,517	1,529	1,229	7,463	909	66	4,149	2,562	21,302	21,681
Jun-11	948	1,324	1,547	1,625	1,612	9,254	1,083	52	5,068	3,183	25,423	25,696
Jul-11	905	1,307	1,604	1,717	1,702	9,621	1,114	50	5,182	3,506	26,247	26,708
Aug-11	932	1,413	1,540	1,670	1,694	9,433	1,103	49	4,934	3,478	25,936	26,246
Sep-11	970	1,320	1,538	1,512	1,403	8,409	988	58	4,552	2,914	23,332	23,664
Oct-11	982	1,380	1,611	1,625	1,361	7,651	893	55	4,346	2,481	22,076	22,385
Nov-11	1,033	1,410	1,903	1,904	1,500	8,089	986	71	4,761	2,697	24,208	24,354
Dec-11	1,069	1,492	2,036	2,060	1,595	8,354	1,004	72	4,929	2,769	25,229	25,380
Jan-12	1,092	1,524	2,059	2,086	1,620	8,421	1,002	68	4,934	2,780	25,431	25,586
Feb-12	1,073	1,521	1,998	2,067	1,595	8,325	994	71	4,888	2,725	25,097	25,257
Mar-12	1,038	1,436	1,816	1,931	1,459	7,914	958	71	4,633	2,614	23,701	23,870
Apr-12	1,011	1,386	1,579	1,552	1,315	7,512	914	54	4,311	2,506	21,986	22,140
May-12	980	1,280	1,558	1,546	1,247	7,744	931	65	4,245	2,642	21,899	22,238
Jun-12	950	1,317	1,563	1,640	1,629	9,365	1,097	51	5,130	3,251	25,708	25,993
Jul-12	907	1,314	1,622	1,734	1,721	9,745	1,128	67	5,251	3,557	26,530	27,046
Aug-12	940	1,415	1,554	1,689	1,708	9,539	1,117	48	4,991	3,529	26,200	26,530
Sep-12	971	1,315	1,546	1,535	1,404	8,471	996	58	4,606	2,945	23,518	23,847
Oct-12	983	1,403	1,634	1,633	1,394	7,972	906	56	4,459	2,585	22,700	23,025
Nov-12	1,034	1,403	1,913	1,917	1,498	8,124	995	71	4,794	2,719	24,313	24,468
Dec-12	1,070	1,488	2,048	2,079	1,595	8,398	1,014	73	4,963	2,793	25,357	25,521
Jan-13	1,094	1,518	2,080	2,110	1,623	8,475	1,013	69	4,972	2,806	25,595	25,760
Feb-13	1,070	1,497	1,989	2,064	1,566	8,329	1,001	72	4,902	2,741	25,040	25,231
Mar-13	1,041	1,431	1,835	1,947	1,464	7,976	969	72	4,671	2,640	23,868	24,046
Apr-13	1,002	1,396	1,589	1,611	1,326	7,582	920	53	4,357	2,502	22,035	22,338
May-13	986	1,273	1,574	1,558	1,252	7,806	940	66	4,303	2,665	22,082	22,423
Jun-13	951	1,336	1,576	1,652	1,644	9,460	1,108	51	5,181	3,317	25,978	26,276
Jul-13	910	1,323	1,639	1,745	1,736	9,855	1,141	51	5,339	3,604	26,803	27,343
Aug-13	941	1,415	1,564	1,692	1,723	9,633	1,130	47	5,048	3,577	26,456	26,770
Sep-13	972	1,313	1,575	1,567	1,398	8,524	1,007	58	4,659	2,971	23,700	24,044
Oct-13	982	1,403	1,650	1,633	1,390	8,022	913	56	4,503	2,607	22,853	23,159
Nov-13	1,036	1,408	1,920	1,929	1,497	8,164	1,004	72	4,810	2,741	24,404	24,581
Dec-13	1,072	1,476	2,060	2,100	1,597	8,445	1,023	73	5,008	2,815	25,500	25,669

- End of Section -

Appendix C - Analytical Factors

Table C1: 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	6,370 MWh Increase
	10ºC > and < 16º C	1ºC Increase	390 MWh Increase
	< 10ºC	1ºC Decrease	2,580 MWh Increase
	Daily Avg Humidity - Dewpoint		
	> 16º C	1ºC Increase	2,450 MWh Increase
	10ºC > and < 16º C	1ºC Increase	140 MWh Increase
	< 10ºC	1ºC Decrease	940 MWh Increase
	Wind		
	Summer	1 km/hr Decrease	280 MWh Increase
	Winter	1 km/hr Increase	230 MWh Increase
	Cloud		
	Summer	Decrease of 1 on Scale	1,210 MWh Increase
	Winter	Increase of 1 on Scale	1,830 MWh Increase
Economic	Employment	Increase of 1,000 jobs	25 MWh Increase
	Housing Stock	Increase of 1,000 houses	35 MWh Increase
Calendar	Holidays	New Year's Day	65,000 MWh Decrease
		Good Friday	45,000 MWh Decrease
		Victoria Day	49,000 MWh Decrease
		Canada Day	25,000 MWh Decrease
		August Civic Holiday	38,000 MWh Decrease
		Labour Day	54,000 MWh Decrease
		Thanksgiving Day	55,000 MWh Decrease
		Rememberance Day	6,000 MWh Decrease
		Christmas	85,000 MWh Decrease
		Boxing Day	51,000 MWh Decrease
		New Year's Eve	20,000 MWh Decrease
		Week Between Christmas and New Years Eve	38,000 MWh Decrease
	Day of Week	Monday vs Sunday	44,000 MWh Increase
		Tuesday vs Sunday	46,000 MWh Increase
		Wednesday vs Sunday	47,000 MWh Increase
		Thursday vs Sunday	47,000 MWh Increase
		Friday vs Sunday	43,000 MWh Increase
		Saturday vs Sunday	11,000 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	380 MW Increase
	10ºC > and < 16º C	1ºC Increase	50 MW Increase
	< 10ºC	1ºC Decrease	110 MW Increase
	Humidity - Dewpoint		
	> 16º C	1ºC Increase	140 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	20 MW Increase
	Cloud		
	Summer	Decrease of 1 on Scale	90 MW Increase
	Winter	Increase of 1 on Scale	80 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	2,300 MW Decrease
		Canada Day	900 MW Decrease
		August Civic Holiday	1,600 MW Decrease
		Labour Day	2,300 MW Decrease
		Thanksgiving Day	2,500 MW Decrease
		Rememberance Day	300 MW Decrease
		Christmas	4,700 MW Decrease
		Boxing Day	2,400 MW Decrease
		New Year's Eve	1,100 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	2,000 MW Increase
		Wednesday vs Sunday	2,000 MW Increase
		Thursday vs Sunday	1,900 MW Increase
		Friday vs Sunday	1,700 MW Increase
		Saturday vs Sunday	200 MW Increase

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