

Monthly Market Report



May 2002



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This report provides a summary of key market data from the IMO-administered markets. It is intended to provide a quick reference for all market stakeholders. In all cases, the data used to produce all graphs in this report, are available for download from the [Market Summaries](#) page of the IMO Web site. Any data used in this report is provided for information purposes only, and should not be used for settlement purposes.

1. Market Prices

1.1 Introduction

This section provides information on several of the key prices in the Ontario wholesale electricity market. A brief description of each displayed price item is included. For more information on any of the price items, please refer to appropriate market rules, market manuals and IMO Marketplace Training materials, or contact the IMO Help Centre.

1.2 Hourly Ontario Energy Price (HOEP)

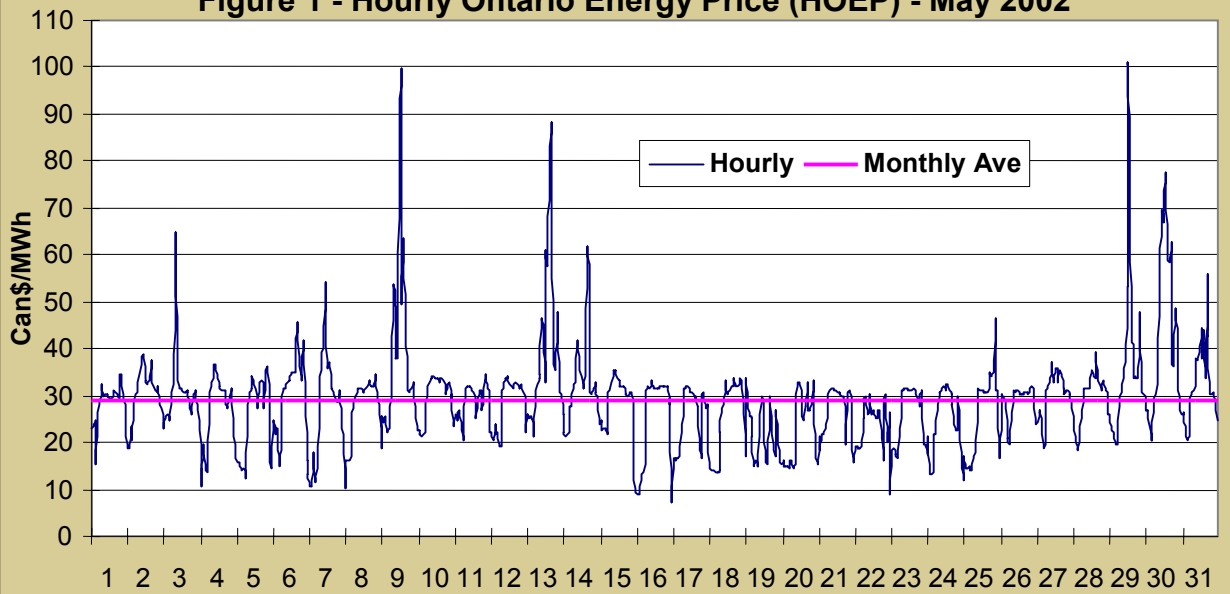
HOEP is the hourly price that is charged to Local Distributing Companies and other non-dispatchable loads. HOEP is also paid to self-scheduling generators. HOEP becomes the basis of the commodity charges in the Retail electricity market if customers receive their electricity from their Local Distributing Company. Customers who have arranged contracts with licensed Retailers are not affected by HOEP, but instead are charged their particular contract rate for the commodity.

Note: The IMO provides a convenient graph of HOEP prices for the current and previous day on the [Today's Market](#) page on the IMO Web site. These graphs also provide an estimate of future HOEP prices for the remainder of the day, and by afternoon, estimates for the next day. The estimates for future Hourly Ontario Energy Prices are extracted from an IMO report referred to as the pre-dispatch. Pre-dispatch data is updated every hour. All future prices are derived by simulating a supply/demand balance, using prices offered by suppliers in the market, prices bid by price-sensitive consumers in the market, and the IMO's forecast of the total demand for electricity in the province. The actual supply/demand balance can vary from these projections for a number of reasons:

- The actual demand for electricity can fluctuate as factors such as weather, (temperature, amount of cloud cover, wind etc.), affect the amount of electricity required by consumers.
- At the same time, operational difficulties or delays in a generation unit returning from an outage can result in higher priced generation being called on to fill the gap.
- Finally, any changes in price resulting from such variations can cause some price-sensitive loads to make alternative consumption decisions, or cause importers and exporters to revise their plans.

In this report, two graphs of HOEP are provided; the first shows a chronological graph of hourly HOEP prices for the month. The second graph shows the frequency at which the HOEP fell within specific price bands.

Figure 1 - Hourly Ontario Energy Price (HOEP) - May 2002



Hourly Ontario Energy Price \$/MWh			
	May, 2002	On-Peak	Off-Peak
Average	29.19	34.86	24.10
Maximum	100.47	100.47	46.39
Minimum	7.84	16.07	7.84

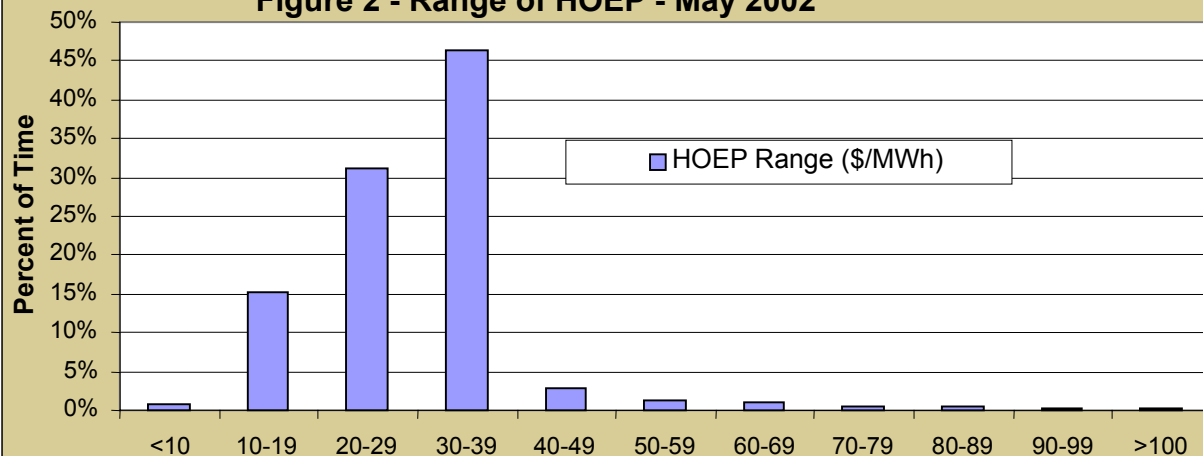
Monthly Weighted Average based on Ontario Demand = \$30.09 / MWh or 3.01 ¢/kWh.

This weighted average is provided as information, and may be of use to customers whose consumption pattern, or that of their local distributing company, approximates that of the total Ontario system.

Note:

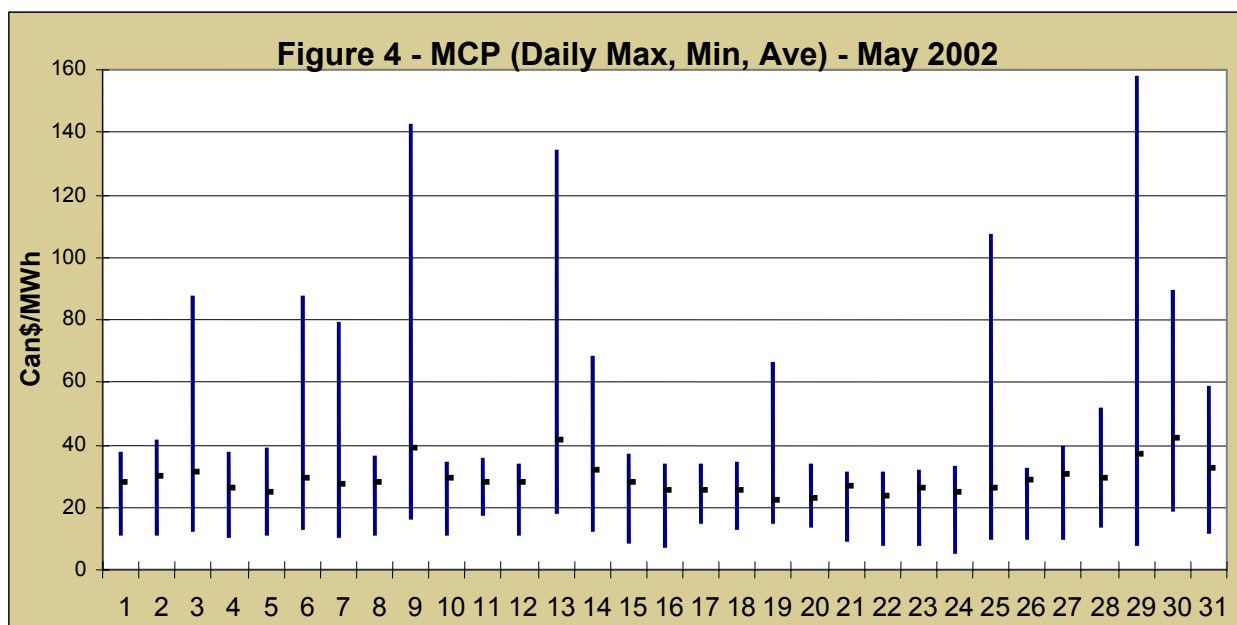
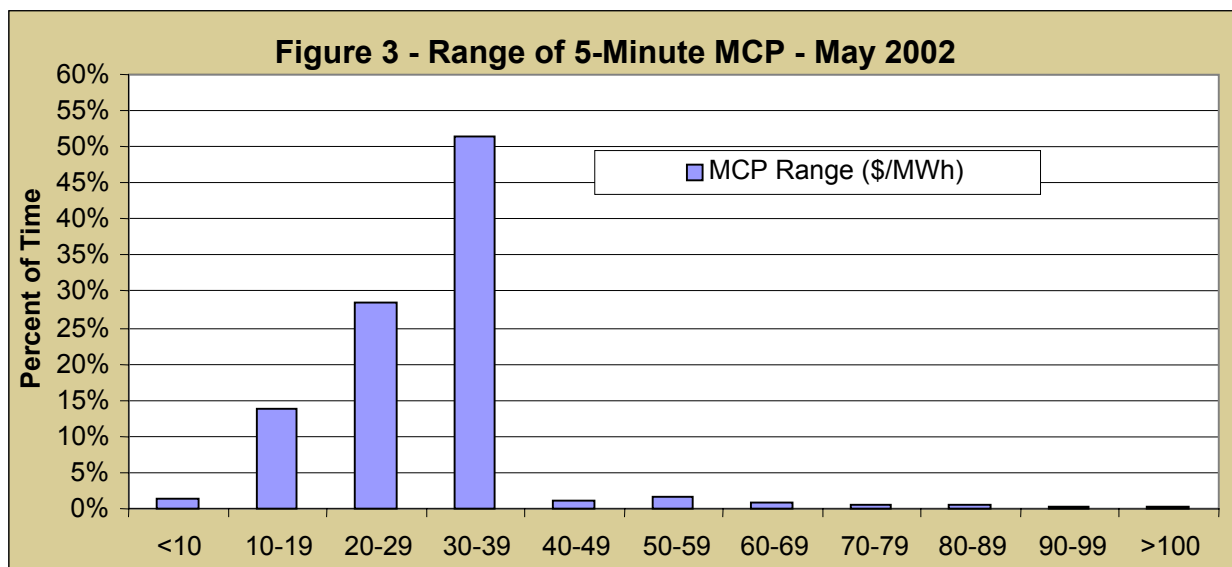
On Peak average price is the straight arithmetic average of HOEP in hours 07 to 22 (EST), Monday to Friday (5 x 16). Off Peak average price is the straight arithmetic average of HOEP for all remaining hours in the week. Monday, May 18th was considered as 24 off-peak hours, in recognition of the Victoria Day statutory holiday. The wholesale market does not use a formal definition of on and off-peak hours. The IMO is providing this calculation purely for information purposes, and will continue to use this definition throughout the year.

Figure 2 - Range of HOEP - May 2002



1.3 Ontario 5-Minute Market Clearing Price (MCP)

The Ontario 5-minute MCP is the price paid to dispatchable generators and charged to dispatchable loads. All other participants are charged or paid using hourly prices. The 5-minute price is calculated immediately after the fact for every 5-minute interval, using the unconstrained dispatch algorithm. The algorithm takes generator offers to sell and price-sensitive loads' bids to buy and dispatches these resources to achieve a supply-demand balance, and resulting price. The price is posted on the [Market Data](#) page on the IMO Web site, within 5-minutes of the conclusion of an interval. The 5-minute price, by its nature, will fluctuate more than the HOEP (an arithmetic average of the 12 MCPs for any particular hour), as it more directly reflects the short-term supply/demand variations caused by unexpected fluctuations in the demand for electricity or by equipment breakdowns.

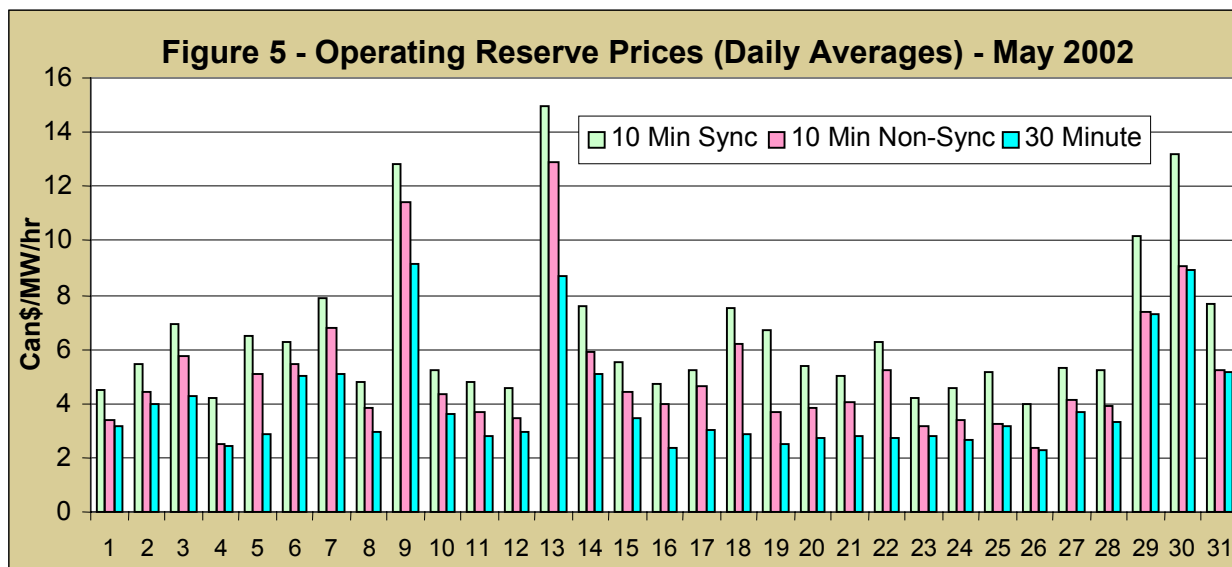


1.4 Operating Reserve Prices

Operating Reserve is generation capacity or load reduction capacity that the IMO can call upon on short notice. Operating Reserve is purchased by the IMO in amounts needed to meet the reliability rules established by the North American Electricity Reliability Council (NERC), and the Northeast Power Coordinating Council (NPCC). The IMO recovers the required funds to pay for the purchased operating reserve from all customers in the wholesale market, via the Hourly Uplift Settlement Charges. These Charges are discussed further and presented in Section 1.5 of this report.

The IMO purchases defined amounts of Operating Reserve from Participants via three real-time markets; a 10 minute synchronized reserve market, a 10 minute non-synchronized reserve market, and a 30-minute reserve market.

The operating reserve is like a buffer - a shock absorber to maintain the reliability of the system by allowing for sudden unexpected surges in demand or unanticipated reductions in supply - that is, in available generation. Like energy dispatch instructions, Operating Reserve schedules are determined every 5 minutes, with a resultant price for each type of operating reserve for every 5-minute interval. The IMO's decisions, on who will provide the market with operating reserve, and who will supply the market with energy, are integrated to arrive at the optimum market outcome. This creates a strong correlation between the energy price fluctuations and the fluctuations in reserve prices.



Average Operating Reserve Prices for May, 2002 were:

10 minute synchronized reserve:	\$6.5318/MW/hr
10 minute non-synchronized reserve:	\$5.06/MW/hr
30 minute reserve:	\$3.99/MW/hr

1.5 Hourly Uplift Settlement Charges

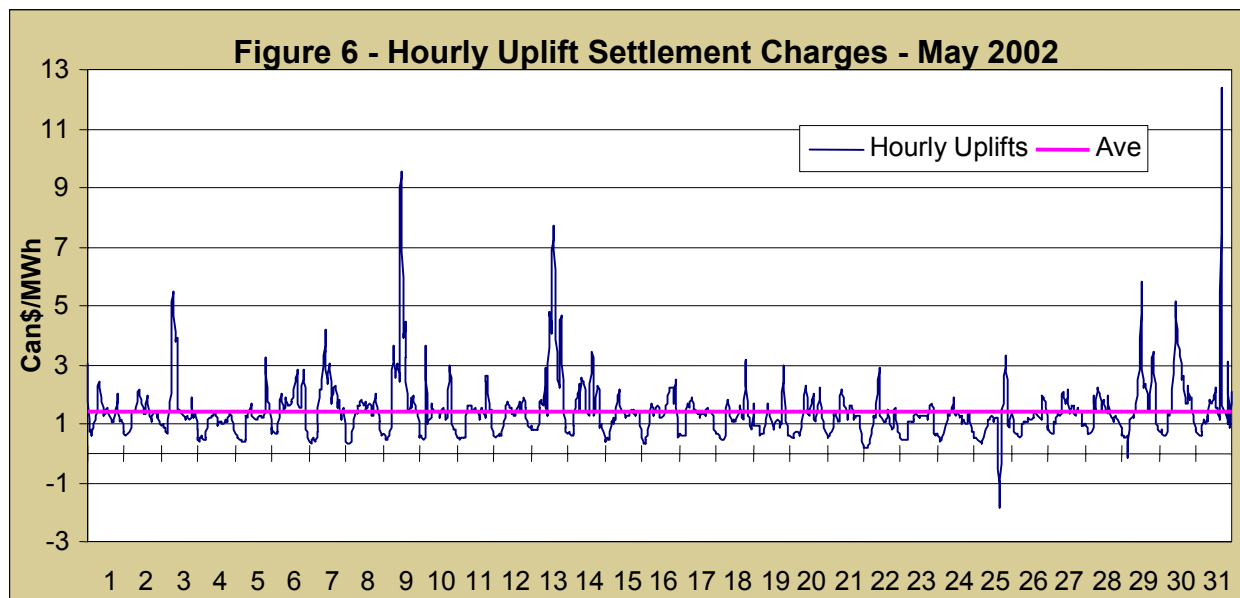
Hourly Uplift Settlement Charges are applied to all customers in the wholesale market. The IMO uses funds collected under these charges to pay for such items as the three types of Operating Reserve, any Congestion Management Settlement Credits owed to dispatchable resources, and other incurred hourly costs such as energy losses on the IMO-controlled grid.

For a description of Operating Reserve, and information on Operating Reserve prices in May 2002, please see Section 1.4 above.

Congestion Management Settlement Credits are payments made by the IMO to all dispatchable resources, such as generators or large consumers, who responded to instructions from the IMO to take specific actions to avoid possible overloads of the transmission system, or to maintain the balance between supply and demand.

Energy losses occur when electricity flows across transmission lines. The resistance in the lines causes them to heat up, consuming power in the same way, as does the filament in a toaster. This is referred to as line losses. Since the IMO pays generators using the same price as it uses to charges customers, and since the presence of line losses requires generators to produce more than what is consumed by customers, the IMO must recoup the additional money required to pay all generators in full, and does so via the Hourly Uplift Settlement Charge.

The information on Hourly Uplift Settlement Charges graph shown below is collected from Market Participant Settlement Statements.



Average Hourly Uplift Settlement Charges to wholesale customers for May, 2002 = \$1.35 / MWh or 0.135 ¢/kWh

1.6 Monthly Uplift Charges

The IMO incurs some monthly costs in purchasing services required to ensure the reliability of the Ontario power network, and to meet commitments to other system operators throughout the North America. Specifically, there are three services that the IMO must purchase under contract from suppliers; Black Start Capability, Voltage Support, and Regulation Service. The monthly costs incurred by the IMO under these contracts are shared among all wholesale customers on a pro rata basis. In May 2002, the payments made by the IMO for these services resulted in charges to wholesale customers totaling \$0.23/MWh, or 0.023 ¢/kWh.

1.7 Transmission Rights Auction

The Transmission Rights Market is a financial market that is based on the import and export of electricity on the interconnection lines between Ontario and its surrounding markets in Manitoba, Quebec, New York, Michigan and Minnesota. The transmission capacity of these interconnections is limited. When the interconnection lines reach their limits, energy prices can differ between Ontario and its surrounding markets. The Transmission Rights Market allows participants to buy financial protection ahead of time, to hedge against the possible price differences. These transmission rights are financial only. They do not give the holder of these rights any scheduling priority and do not limit other participants' access to physical transmission across the interconnection lines.

The Transmission Rights contracts are auctioned off by the IMO. Successful bidders pay the market clearing price for the particular Transmission Right, in return for the right to receive revenues from the IMO in amounts proportional to the financial congestion which may occur over that interface for the duration of the contract.

In May, the IMO conducted six transmission rights auctions. The market clearing prices in each auction are listed in the table below. The prices have been rounded to the nearest dollar.

Intertie Zone	Short Term Auction June, 2002 \$/MWh/Month		1st Long Term Auction July, 2002 to June, 2003 \$/MWh/Year		2nd Long Term Auction July, 2002 to June, 2003 \$/MWh/Year		Long Term Auction July, 2002 \$/MWh/Month		Long Term Auction August, 2002 \$/MWh/Month		Long Term Auction September, 2002 \$/MWh/Month	
	Import to Ontario	Export from Ontario	Import to Ontario	Export from Ontario	Import to Ontario	Export from Ontario	Import to Ontario	Export from Ontario	Import to Ontario	Export from Ontario	Import to Ontario	Export from Ontario
New York	<1	<1	4468	4468	5600	5600	7	37	200	56	125	40
Michigan	<1	<1	1000	911	1732	1413	20	1	100	100	120	120
Minnesota	151	187	2761	2286	3000	2500	417	20	612	86	800	111
Manitoba	260	<1	3500	108	4239	150	525	20	1100	30	800	35
Quebec - D5A	<1	<1	1413	706	2119	1130	1	20	10	20	50	45
Quebec - D4Z	74	n/a	1000	n/a	2119	n/a	200	n/a	220	n/a	250	n/a
Quebec - P33C	11	n/a	200	n/a	300	n/a	37	n/a	44	n/a	48	n/a
Quebec - X2Y	<1	n/a	12	n/a	30	n/a	11	n/a	21	n/a	45	n/a
Quebec - H4Z	n/a	<1	n/a	706	n/a	1130	n/a	107	n/a	69	n/a	105
Quebec - B5D/B31L	<1	n/a	3532	n/a	3698	n/a	<1	n/a	123	n/a	138	n/a

1.8 Transmission Rights Payments

There were no Transmission Rights in effect for May, 2002, and therefore any differences between intertie zones prices and the Ontario prices did not result in Transmission Rights payments. Future reports will summarize the average payments for the various Intertie Zones.

2. Market Demand

2.1 Market Demand Definitions and Graphs

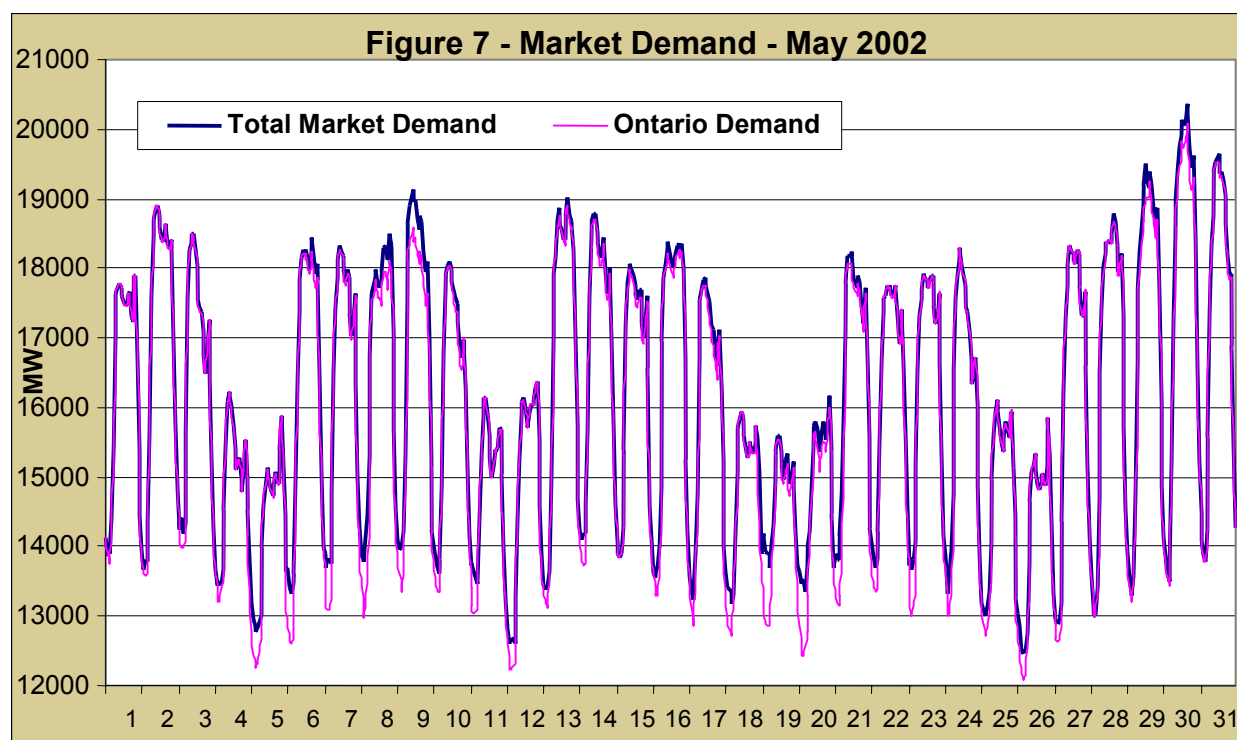
The graph below plots values for both Total Market Demand and Ontario Demand.

Total Market Demand represents the total energy that was supplied from the IMO-Administered Market.

The IMO calculates Total Market Demand by summing all output from generators registered in the Market plus all scheduled imports to the province. It is also equal to the sum of all load supplied from the Market plus exports from the province, plus all line losses incurred on the IMO-controlled grid.

Ontario Demand represents the total energy that was supplied from the IMO-Administered Market for the sake of supplying load within Ontario.

The IMO calculates Ontario Demand by subtracting exports from the Total Market Demand quantity. It is also equal to the sum of all load within Ontario which is supplied from the Market, plus all line losses incurred on the IMO-controlled grid.



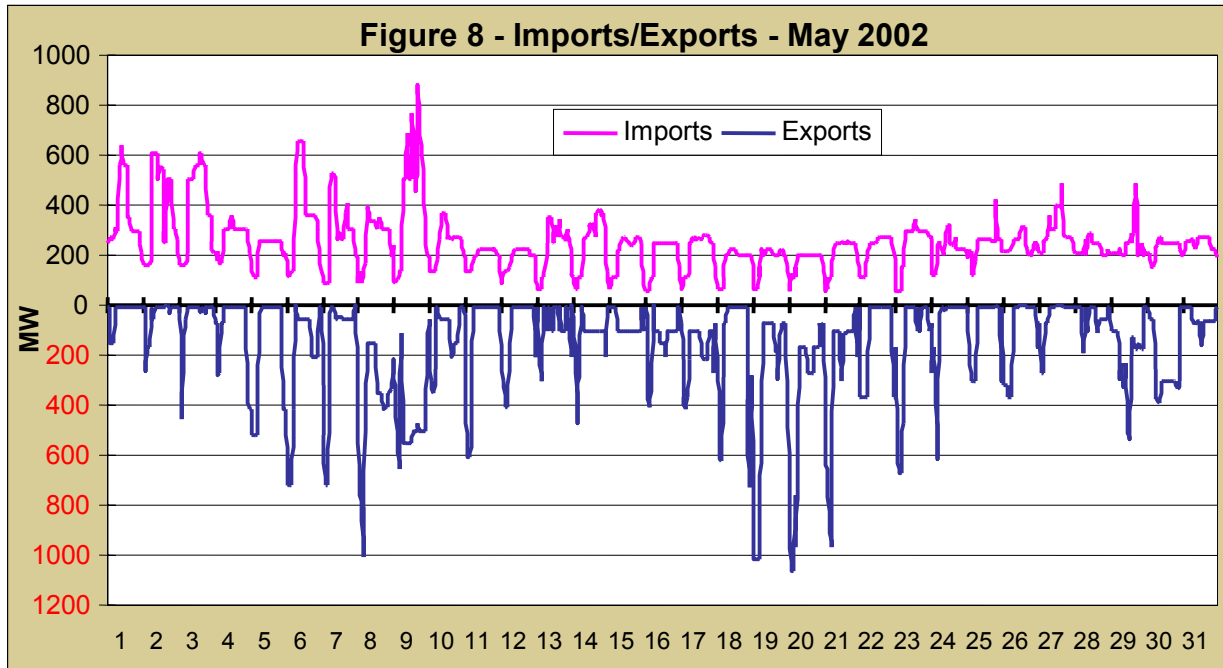
Average hourly values for the month:
Maximum hourly values for the month:
Minimum hourly values for the month:

Total Market Demand
16,114 MW
20,372 MW
12,461 MW

Ontario Demand
15,962 MW
20,068 MW
12,092 MW

2.2 Imports & Exports

The graph below plots both imports to Ontario and exports from Ontario over May. Economic **imports** and **exports** are scheduled into/out of Ontario on an hourly basis, up to the physical capabilities of the Grid and the interconnections between the systems.

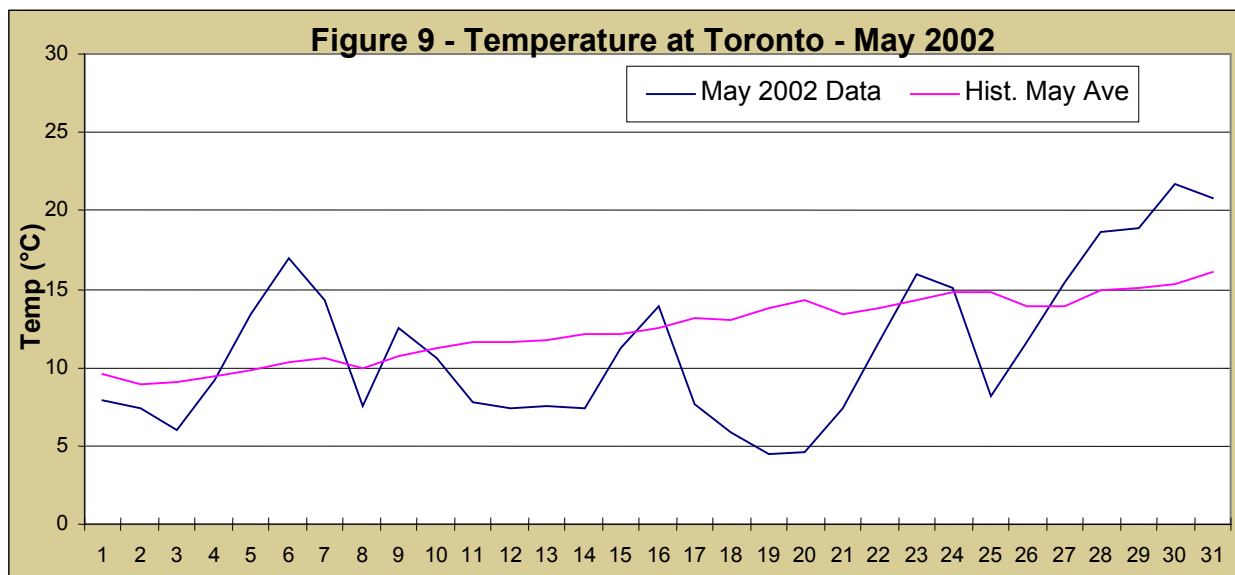


Average export schedule for the month = 152 MW
 Average import schedule for the month = 254 MW
 Average net intertie schedule = 102 MW net import

3. Weather

3.1 Temperature

Demand for electricity is affected by weather in many ways. By far the most significant factor is temperature, with warm summer-like temperatures causing an increase in load due to air conditioning use, and cold winter temperatures resulting in additional heating load. The graph below shows the average daily temperature in Toronto throughout May, 2002, and compares it to historic average temperatures for the corresponding days. This graph displays Toronto temperatures. However, the IMO monitors weather conditions (temperature, humidity, wind speed, illumination, storm activities) across the entire province and factors these conditions into our demand forecasting and our operational decisions.



Questions on any information contained in this report should be directed to:

IMO Help Centre
1-888-448-7777
helpcentre@theIMO.com