

# The Electricity EXCHANGE

## Electricity Demand Hits All-Time Record

An all-time Ontario electricity demand record was reached on the afternoon of Wednesday, July 13, as 26,160 MW of power were consumed across the province. This broke the previous record of 25,414 MW set on August 13, 2002. The previous all-time record for total daily energy consumption of 527 GWh set on July 3, 2002 was broken twice this summer – first on Tuesday, June 28, at 529 GWh, and then on Wednesday, July 13 at 532.5 GWh.

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We welcome your comments, feedback or suggestions. Please send us an email at: [electricity.exchange@ieso.ca](mailto:electricity.exchange@ieso.ca)

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## A RECORD SUMMER

The summer of 2005 was unprecedented in the Ontario electricity industry.

The hot and humid weather beginning in June and continuing throughout the summer put Ontario's power system under severe strain as high demand levels taxed the province's ability to meet those energy needs. Consumption of more than 25,000 MW was exceeded on 53 occasions. Heading into the summer, the 25,000 MW hourly demand had only been exceeded 19 times, all of which occurred in 2002.

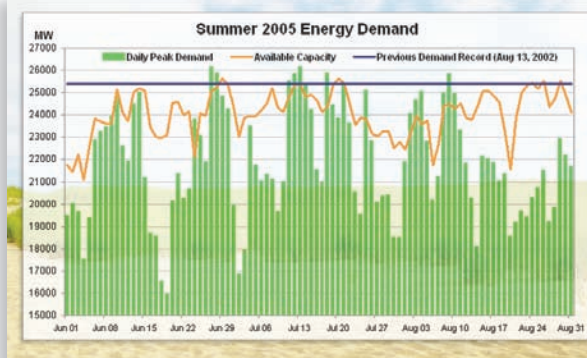
Nine of the top 10 peak electricity demand days in the history of Ontario occurred through June and July.

The demand record, originally set on August 13, 2002 (25,414 MW), was broken on June 27 (26,157 MW) and then again on July 13 with a new all-time Ontario peak demand of 26,160 MW. In addition, Ontarians used more electricity on July 13 than ever before with the 24-hour demand totaling 532,500 MWh.

To manage reliability during these periods of strain on the system, the IESO issued public appeals for customers to reduce consumption on 12 days, compared with none last summer. It was also forced to take emergency control actions, including five per cent voltage reductions on August 3 and 4 to cut demand by 500 MW.

The sustained hot weather and record demands placed operating limits on both generation and transmission facilities which led to significant reliance on imports to supplement Ontario's generation capacity. From May through August, over 3.9 million MWh of energy were imported

from neighbouring jurisdictions, with 4,199 MW of emergency purchases during the month of August alone. Moreover, near drought conditions across most of the province resulted in decreased supply from hydroelectric generating facilities, typically responsible for about 25% of the province's supply mix.



Increased demands on the system also meant volatility in the market. Hourly Ontario Energy Price (HOEP) exceeded \$150/MWh on 252 occasions between May and September. The highest monthly Congestion Management Settlement Credit

(CMSC) was set in August at approximately \$55 million, exceeding the previous record set in September 2002 of \$48 million.

The tight demand/supply situation and the appeals to reduce consumption did raise public awareness about the issue. For example, Loblaw's Inc., with its 100 plus stores across the province, undertook a corporate-wide initiative to cut energy use by reducing lighting by 50% in all Loblaw's and Zehr stores. Dave Goulding, IESO President and CEO recognizes that such measures went a long way in lowering demand and helping to ensure system reliability. "I was very pleased with the response and cooperation from all consumers and thank them for their efforts this past summer. When the power system is strained, as it was many days this summer, efforts from customers to reduce their electricity consumption did make a difference in maintaining system reliability."

## OPA BEGINS PROCUREMENT PROCESS FOR FUTURE POWER RESOURCES

The Ontario Power Authority (OPA) has begun the process for procuring additional electricity resources for Ontario. The procurement process follows a directive issued by former Energy Minister Dwight Duncan on June 15, 2005, which focuses on the need for "significant generation, demand management and demand response initiatives in order to address critical local and regional supply, reliability and voltage support needs." These initiatives are particularly significant in addressing the needs in priority zones including downtown Toronto and the western Greater Toronto Area (GTA).

The directive by the Energy Ministry to the OPA includes the commencement of several procurement processes including:

- Up to 1000 MW of generation in the GTA west of Toronto, including Mississauga, Brampton and Oakville.
- 250 MW or more of demand side management and/or demand response initiatives across the province, with particular focus on Toronto, Mississauga, Brampton and Oakville.
- Up to 1000 MW of high efficiency combined head and power projects across Ontario including industrial co-generation projects and district energy projects. Preference will be given here, through a separate procurement process, for projects fuelled by renewable energy sources.

A separate directive will be issued to procure up to 600 MW of generation for downtown Toronto.

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## HARNESSING THE WIND

With an additional 1000 MW of renewables announced this spring, one-half to two-thirds (1350-1800 MW) of the government's renewable energy target could potentially be harnessed from wind energy.

As part of the Ontario Government's commitment to providing five per cent, or 1,350 MW of the province's electrical capacity from renewable energy by 2007, five individual wind projects totalling 355 MW were announced last fall through the government's renewable energy RFP process.

### A viable alternative?

Through the opening of the electricity market, municipalities across the province are exploring wind power as a commercially viable source of electricity. As a form of renewable energy that does not release emissions or hazardous wastes, wind energy creates the potential for a second income for landowners and farmers that can co-exist with existing agricultural practices. As farmers are finding their land in increasing demand for turbine locations, wind farms are cropping up across the province.

### The Erie Shores Wind Farm Project

Construction on southern Ontario's largest wind farm began on July 22 in Port Burwell (just south of Tillsonburg). Former Ontario Energy Minister Dwight Duncan joined the land owners and developers in the groundbreaking ceremony of the \$186 million Erie Shores Wind Farm project. Once operational (spring 2006), the 66 wind turbines will generate 99 MW of electricity across 26 farmers' properties, spanning 29 kms of the Lake Erie shoreline. Providing 270,000 MWh of electricity annually – or enough energy to service 32,000 Ontario homes – Duncan remarked that, "This project stands as a shining example of the enormous potential we see for alternative forms of energy in Ontario, and it is an excellent

example of the kind of conservation culture our government is encouraging citizens and businesses to adopt."

The Erie Shores Wind Farm project is owned by



Former Energy Minister Dwight Duncan (centre) joins officials in the ground-breaking ceremony at Erie Shores Wind Farm.

Clean Power Income Fund, which is currently invested in 44 power generating facilities across Canada and the U.S., with particular focus on environmentally preferred technologies including hydro, wind power, biomass and landfill gas recovery. Toronto-based AIM PowerGen Corporation is the project developer – prominent in the wind power business with projects in Ontario and Western/Atlantic Canada. General Electric (GE) Canada will deliver the 66 wind turbines (1.5 MW each) and provide operating and management services to the project for its first four years of operation.

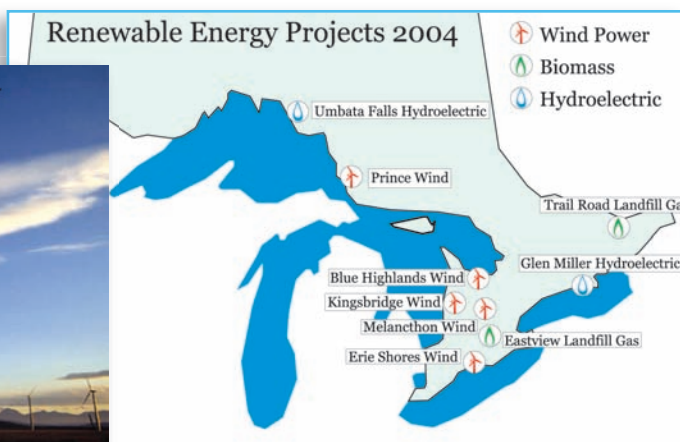
### Melancthon I and II Wind Projects

Construction also began this summer on the \$120 million Melancthon I Wind Project near Shelburne. The 45 wind turbines are expected to begin harnessing power from wind energy next spring. Dispersed over 2,500 hectares across the Township of Melancthon, the turbines will

Continued on next page



Source: Canadian Wind Energy Association



Source: Ontario Ministry of Energy

## HARNESSING THE WIND – Continued from page 2

produce 67.5 MW of electricity, or enough to power over 20,000 homes. As assembly of the first turbines began, Geoff Carnegie, Manager of Ontario Projects for Canadian Hydro Developers Inc., noted that, "Melancthon is an ideal place to harness wind energy. We're on a plateau, about 490 meters above sea level, so conditions are as ideal as they get for wind power in Ontario."

Environmental Notices of Commencement have also begun for the Melancthon II Wind Project proposed to be located in Amaranth and Melancthon Townships. Although presently in the early planning stages, as envisioned, Melancthon II will be designed to generate between 100 and 135 MW of renewable energy from 55 to 90 turbines. Included in the project will also be transmission lines, a transformer station, interconnection with the province's grid and other ancillary facilities. Canadian Hydro Developers Inc., is a Calgary-based company that currently owns and operates seventeen low-impact, renewable energy facilities across the country.

Erie Shores and Melancthon were among the five successful candidates selected as part of the government's RFP for 300 MW of renewable energy. Others include:

- Prince Wind Farm in Prince Township, near Sault St. Marie (99 MW)
- Blue Highlands Wind Farm in the Blue Mountains (49.5 MW)
- Kingsbridge Wind Farm Project in Goderich (39.6 MW)

To facilitate the further development of wind energy in the province, the Ontario government announced a new application receiving period (ending September 30) that would allow wind energy proponents to submit applications for Crown land. It also launched the Ontario Wind Resource Atlas online which provides interactive information on wind statistics and identifies sites for future wind development ([www.energy.gov.on.ca/index.cfm?fuseaction=renewable.wind](http://www.energy.gov.on.ca/index.cfm?fuseaction=renewable.wind)). These efforts are intended to galvanize support around this burgeoning industry which has become the fastest growing source of electricity worldwide.

The development of these new wind projects across the province is particularly timely as the events of this past summer demonstrated the importance of grid reliability through adequate supply. As Robert Hornung, President of the Canadian Wind Energy Association notes, "The installation of these initial wind energy projects will provide a secure energy supply for years to come and ensures the development of a strong wind industry in Ontario. With the addition of new wind energy projects through the RFP process, Ontario can expect to see wind development, and its economic benefits, continue to be distributed in numerous rural areas across the province."

To find out more about wind projects across Ontario, visit: [www.energy.gov.on.ca/index.cfm?fuseaction=renewable.wind](http://www.energy.gov.on.ca/index.cfm?fuseaction=renewable.wind)

## ERNST & YOUNG GIVES IESO CLEAN AUDIT

As the electricity settlement agent for the province, Ontario's IESO settled more than \$10 billion worth of energy transactions in the IESO-administered markets and issued 146,000 settlement statements in the last market year (May 2004 – April 2005). Ernst & Young's recent audit confirmed that the IESO has effective and adequate controls within its settlement processes, systems and procedures. This is the second consecutive clean settlement audit for the IESO.

To carry out its responsibility as the settlement agent, the IESO places the highest importance on the internal controls necessary to ensure the operational effectiveness of its settlement processes and procedures. These controls ensure that each step of the settlement process – from gathering market and metering data to producing and distributing settlement statements and invoices

– is accurate, timely and adheres to established procedures. The audit covered a three month period from February 1 to April 30, 2005.

This audit is conducted for the IESO by external auditors every two years and is made available to all market participants and interested parties.

The full audit is available at: [www.ieso.ca/imoweb/pubs/settlements/IESOSection5900Report2005Apr30.pdf](http://www.ieso.ca/imoweb/pubs/settlements/IESOSection5900Report2005Apr30.pdf).



## MAINTAINING POWER SYSTEM RELIABILITY THROUGH DAY-AHEAD COMMITMENT PROCESSES

Continued reliability of Ontario's power system remains the IESO's key priority as supply, transmission and import strains have increasingly taxed the province's ability to meet electricity demands.

This was demonstrated this past summer as extended periods of hot weather, low hydro-electric energy availability, transmission system limitations, and failure of import transactions resulted in the extensive use of emergency control actions to avoid load shedding.

A number of initiatives, scheduled to be in place by summer 2006, are currently being pursued by the IESO to reduce the use of emergency control actions in times of tight

supply. Increasing the certainty of market mechanisms through day-ahead commitment processes are of particular importance in this regard. Efficient and intensive stakeholder involvement and input will be critical over the next few months as the design for these processes evolves. The table below details the activities and target dates associated with the 2006 day-ahead commitment processes design phase.

### Stakeholder Engagement Schedule: 2006 Day-Ahead Commitment Processes

| Activity                                                                                                                                                                                       | Target Date                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| Formation of Representative Stakeholder Working Group for detailed review of "Draft 2006 Day-Ahead Commitment Processes Design".                                                               | Early October                 |
| Stakeholder Working Group "Draft 2006 Day-Ahead Commitment Processes Design" review and input process (6 -10 full day facilitated working sessions).                                           | October through November      |
| Draft "2006 Day-Ahead Commitment Processes Design" including Stakeholder Working Group input posted on the web for stakeholder review in preparation for the November 17 stakeholder workshop. | November 9                    |
| Open Stakeholder Workshop to gather input on the draft "2006 Day-Ahead Commitment Processes Design".                                                                                           | November 17                   |
| Open Stakeholder Workshop to gather input on the draft "2006 Day-Ahead Commitment Processes Design".                                                                                           | November 18                   |
| Stakeholder Advisory Committee Meeting to gather input and advice for the IESO Board of Directors on the proposed "2006 Day-Ahead Commitment Processes Design".                                | Late November/ Early December |
| Technical Panel meeting to review proposed market rule amendments needed to implement the proposed design.                                                                                     | November 29                   |
| Proposed "2006 Day-Ahead Commitment Processes Design" provided to the IESO Board of Directors including Advisory Committee advice and any written stakeholder comments received.               | December                      |
| IESO Board of Directors meeting seeking endorsement to proceed with implementation of the proposed "2006 Day-Ahead Commitment Processes Design".                                               | To be established             |
| Technical Panel meeting to recommend market rule amendments needed to implement the approved design.                                                                                           | December 13                   |
| IESO Board of Directors' consideration of Technical Panel recommendations on market rule amendments.                                                                                           | Early February                |

More information on the day-ahead commitment processes, including the stakeholder engagement plan, is available on the web at: [www.ieso.ca/imoweb/consult/consult\\_isr.asp](http://www.ieso.ca/imoweb/consult/consult_isr.asp)

## PROPOSED GREENHOUSE TRI-GEN PROJECT A FIRST IN NORTH AMERICA

A pioneering venture is currently in the works in Essex County which is expected to take the "heat" off the province's peak load power demands. As the production of agricultural products in large greenhouses throughout South-western Ontario expands at a rate of over 10% per year, Essex Energy and GenSet have embarked on a venture that will produce clean power as a bi-product of greenhouse growth. Dubbed "Tri-Generation" or "Tri-Gen", this technology involves the use of distributed generators to produce three specific products: heat, carbon dioxide (CO<sub>2</sub>) and electricity. This differs from traditional co-generation in that CO<sub>2</sub> is also produced, but in a way which can be profitably utilized by greenhouse growers. Instead of simply being released into the atmosphere as a hazardous pollutant, the CO<sub>2</sub> is consumed directly by greenhouse flowers and vegetables. As GenSet President Cole Cacciavillani notes, "This advance can both increase the efficiency of greenhouse operations and enhance the environment, doing so in a cost effective and environmentally friendly manner."

The project essentially has two key objectives: (i) to develop sustainable technology to generate and distribute two of the key requirements for the greenhouse industry; and (ii) to produce electricity for the province which is free of carbon dioxide emissions. This, in turn, directly supports the provincial government's goal of eliminating coal burning electricity plants while at the same time supporting the federal government's commitments to the Kyoto Protocol.

It is further expected that these assets could also be effectively utilized to assist with the current constraint issue on the 115 kVA lines in parts of Essex County.

More information on the Tri-Gen project is available by contacting Cole Cacciavillani at 1.519.322.2311.

## 18-MONTH OUTLOOK UNDERLINES NEED TO ADDRESS RELIABILITY ISSUES

The need to address reliability issues that severely strained the Ontario power system this past summer underlines the latest 18-Month Outlook, released by the IESO on September 27. According to the Outlook, under normal weather conditions, Ontario is expected to be able to meet its capacity and energy needs. During extreme weather conditions, however, Ontario will need good performance from generation and reliance on imports from neighbouring markets to ensure power warnings and voltage reductions are not required to keep the lights on. "This is clearly a situation we cannot afford to repeat in the summer of 2006," said Paul Murphy, IESO's Chief Operating Officer.

A number of new supply additions are scheduled to come into service over this timeframe, including the return to service of Pickering A Unit 1 in the fourth quarter of 2005, with a projected increase of 515 MW of generation into the system. In addition, 350 MW of wind and 117 MW of gas-fired generation from the government's Request for Proposals for Renewable Energy are also expected to be available during this period.

Hydro One's development of the second phase of the Parkway Transformer Station – scheduled for completion by next summer – will also help maintain supply concerns



## ELECTRIC RELIABILITY ORGANIZATION: A CANADIAN PERSPECTIVE

U.S. Federal Energy legislation was passed into law in August, making compliance with reliability standards mandatory by all users, owners and operators of the bulk power system in the U.S.

To date, compliance with reliability standards in the U.S. has been done on a voluntary basis. Canadian provinces are in a different position, however, as compliance with North American Electric Reliability Council (NERC) and Regional Reliability Council standards are mandatory across the country. Because the objective of this new legislation is to ultimately have a single set of standards applicable to both countries, system operators across Canada, including the IESO, are taking a keen interest in these U.S. developments. As the August 2003 blackout reminds us, reliability in Ontario is impacted by actions of neighbouring jurisdictions, thereby reinforcing the IESO's interest in this process.

The new U.S. legislation calls for the creation of an Electric Reliability Organization (ERO) that will be subject to regulatory oversight by the U.S. Federal Energy Regulatory Commission (FERC). FERC's authority will include certifying regional entities delegated the task of enforcing compliance with the ERO's reliability standards and reviewing new standards and proposed penalties against violators.

As a first step in implementing the ERO, FERC recently issued its Notice of Proposed Rulemaking (NOPR) which lays out the proposed rules under which the ERO and other regional entities will operate. Based on comments received by both the U.S. and Canada, FERC will issue a final order on

the ERO in February 2006, detailing the specific requirements of the organization and the rules under which it will operate. The IESO is currently in the process of developing its submission to FERC on this Notice of Proposed Rulemaking.

### NERC REGIONS



Dave Goulding, IESO President and CEO, chairs the Post-Legislation Steering Committee (PLSC) which is tasked with oversight of ERO membership issues. Goulding recognizes that coordination on these standards is vital in ensuring that the risk to reliability across both borders is minimized. As he notes, "It is very important to Ontario and the rest of Canada that we get the formation of the ERO and its regional entities right. FERC's new oversight roles in the U.S. must be harmonized with provincial regulators in Canada in a manner that leads to a common set of effective standards throughout the North American grid."

in the Western Greater Toronto Area (GTA).

This report presents the IESO assessment of the 18 month period from October 1, 2005 to March 31, 2007. It is based on the IESO's forecast of electricity demand, information provided by Ontario

generators on available supply, and the latest information on the capability of the transmission system.

**The full report is available on the web at: [www.ieso.ca/imoweb/news/newsItem.asp?newsItemID=2545](http://www.ieso.ca/imoweb/news/newsItem.asp?newsItemID=2545)**

## EVENTS CALENDAR

October – December 2005

More information on these and other events is available at:  
[www.ieso.ca/imoweb/events/calendar.asp](http://www.ieso.ca/imoweb/events/calendar.asp)

10/18

Marketplace Training:  
 Introduction to Ontario's  
 Physical Markets – Mississauga

10/19

Marketplace Training:  
 Interjurisdictional Energy Trading  
 – Mississauga

10/19

Market Operations Standing  
 Committee Conference Call

10/20

Marketplace Training:  
 Commercial Reconciliation  
 – Mississauga

10/24

Grocery Innovations Canada  
 Conference Workshop – Toronto

10/24

Power ON 2005 – Toronto

10/25

Exercise "Southern Exposure"

11/09

Hydro Ottawa: Powering the  
 Future 2005 – Ottawa

11/10

Ontario Waterpower  
 Association, Fifth Annual  
 Conference – Kingston

11/16

Revenue Metering Sub-Committee  
 Meeting – Mississauga

11/21

APPrO 2005 – Toronto

12/02

Market Pricing Working Group  
 Meeting – Mississauga

## EXERCISE "SOUTHERN EXPOSURE" TESTS ONTARIO'S ELECTRICITY EMERGENCY RESPONSE CAPABILITY

Almost 200 representatives from 37 companies and organizations across Southern Ontario participated in two workshops last June in preparation for a major emergency response exercise this fall.

This large-scale exercise, dubbed "Southern Exposure", will take place on October 25 and involve the IESO and market participants who will simulate a comprehensive operational response to a major emergency affecting Ontario's electricity system. Stuart Brindley, IESO Manager of Emergency Preparedness notes that, "As the events of this past summer demonstrated, we must continue to show we are capable of maintaining grid reliability through emergency conditions."

Day one of this spring's two-day preparatory workshops offered reliability training that included practical exercises and small group discussions to relate policy and procedures to actual operation. Day two centred on a tabletop drill initiated by a partial provincial blackout, abnormal frequency and automatic interruptions as a result of under-frequency load shedding. Participants assessed the workshops as being very effective and provided feedback that will be used to determine the scope and logistics of workshops for 2006.

On October 25, "Southern Exposure" participants will act to limit the extent of the emergency and re-establish grid reliability by implementing emergency control actions and system restoration. Various market participants and government emergency response agencies and command centres will also be activated to mitigate the impact of the emergency on public health and safety. The exercise will include all of Ontario south of the French River east through Lake Nipissing to the Quebec border.

### OPA BEGINS PROCUREMENT PROCESS – Continued from page 2

A workshop was held by the OPA on September 28 in Toronto for current and future project proponents for the 1000 MW of industrial co-generation/high efficiency combined heat and power (CHP) projects across Ontario. A Strawman document was presented at the workshop which outlined a number of aspects of the proposed CHP process, including project qualification criteria, phases of procurement, timelines and contract structures. Paul Bradley, the OPA's Vice President of Generation Development



The IESO updates its restoration strategy based on new information

Certain electricity companies in New York and Manitoba will also participate in order to consider the impact on our interconnected neighbours.

Participants will have the opportunity to exercise internal and external communications between real-time operations and other emergency response organizations, including simulated media messages.

As these exercises are simulated, they will have no impact on the reliability of the electricity system. For more information on participant requirements and exercise details, please contact Steve Cooper, IESO Senior Operations Officer, at [steve.cooper@ieso.ca](mailto:steve.cooper@ieso.ca) or at 905.855.6159.

noted that "the workshop presented an important opportunity for future project proponents to review the directives, understand the procurement process being considered by the OPA, and reflect on input received during stakeholder consultations."

**All related information on the OPA's procurement process, including timelines, is available on the Ontario Electricity RFP web page at: [www.ontarioelectricityrfp.ca/Index.aspx?id=36](http://www.ontarioelectricityrfp.ca/Index.aspx?id=36)**