



Ontario Energy Board

Commission de l'énergie de l'Ontario

The IESO Administered Markets May – October 2009

Market Surveillance Panel's

15th Monitoring Report

Presentation to the Stakeholder Advisory Committee

by Neil Campbell, MSP Chair, March 31, 2010

Agenda

- Recent Panel Activities
- Summary of Key Findings / Highlights
- Recommendations
- Identified Issues where IESO has Taken Action
- OPG's 2009 CO₂ Emissions Limit and 2010 CO₂ Emissions Strategy
- Preliminary Review of the New Quebec DC Interface
- Actions of a Combined-Cycle Generator

Recent Panel Activities

- New semi-annual report format
 - First streamlined mid-year report
- Monitoring of Offers and Bids Document
 - Issued for comment in October
 - Two comments received
 - Finalized without change March 10, 2010



Summer of 2009 – Key Findings

- Market worked reasonably well according to its design
- Hourly prices generally reflected underlying supply and demand forces or were explainable by Ontario's two-schedule model
- No formal abuse of market power or gaming investigations were initiated
- There were occasions where actions by market participants or the IESO led to inefficient market outcomes

Highlights - Compared to Previous Summer Period – Anomalous Events

	May – October 2008	May – October 2009	% Change
High Price Hours (>\$200/MWh)	17	6	-65%
Low Price Hours (<\$20/MWh)	724	1,619	+124%
Negative Price Hours	28	121	+332%
Anomalous Uplift	4	4	0%

- Increase in low price hours primarily caused by lower domestic and export demand and abundant low-price supply

Highlights - High Price Hours

- Only 6 hours with HOEP > \$200/MWh this summer
 - Highest HOEP of \$382.64/MWh occurred on August 17, HE 10
- Factors previously identified by Panel continue to explain price spikes
 - Real-time demand higher than pre-dispatch forecast
 - Generating units available in pre-dispatch fail to deliver in real-time
 - Imports fail real-time delivery
- Hydro resources typically marginal when MCP > \$200/MWh
 - Hydro pricing strategies to be reviewed in future MSP report

Highlights - Low and Negative Price Hours

- Low price hours much more frequent
 - Lowest HOEP since market opening (-\$52.08/MWh on June 7, HE 6)
- Factors previously identified by Panel continue to explain low prices
 - Low market demand
 - Real-time demand below pre-dispatch forecast
 - Failed exports
 - Abundant low price supply and commissioning of new generators

Recommendations - Overview

- Panel has made 5 recommendations in this report:
 - Four relate to dispatch
 - One relates to reducing uplifts
- Two recommendations are addressed to IESO, one to Hydro One, one to IESO and Hydro One jointly, and one to OPA



Recommendations on Dispatch

DR3 Program Activations

- In previous report, the Panel concluded:
 - Inefficient program from a short-term perspective
 - Avoiding the cost of building a corresponding amount of new peaking generation is not being achieved due to poor targeting
- Summer 2009 results indicate targeting continues to be ineffective
 - IESO supply cushion is a key contributor to inaccurate targeting
 - Addition of a variable floor-price trigger (3 to 6 hour ahead PD price > \$./MWh) added in September 2009 did not improve targeting

Recommendations on Dispatch

DR3 Program Activations

- Summary of DR3 Activations Since August 2008 Launch

Total Activations			
	100-hour Participants	200-hour Participants	Total
# of Activations	13	21	21
# of Hours	52	84	84
Total MW	1,667	2,575	4,242

Targeting of Activations			
Period	#	# Within 21 Highest Hours	
		<i>Demand</i>	<i>Price</i>
Aug – Dec 2008	15	2	1
Jan – Aug 2009	3	1	0
Sept – Oct 2009	3	0	0
Total	21	3	1

Recommendations on Dispatch

DR3 Program (cont'd)

Recommendation 3-1

- i. The Panel recommends that the Ontario Power Authority (OPA) should target all Demand Response Phase 3 (DR3) activations except those required for ‘testing’ purposes, based on efficiency considerations. This would involve improved identification of periods when system need is greatest and the value of foregone consumption is less than the incremental cost of providing the energy.**
- ii. The Panel recommends that OPA explore the feasibility of introducing a bidding process to allow demand response resources to bid the value at which they are prepared to reduce consumption and work with the IESO to align such a process with the Enhanced Day-Ahead Commitment (EDAC) process in order to avoid over-commitment of generation and/or imports.**

Recommendations on Dispatch

BP76 Transmission Line

- BP76 was forced out of service on January 30, 2008
 - Reduced import and export capability by about 500 MW
 - Contributed to more frequent export congestion at NY/Ontario interface (for exports to both NYISO and PJM through MISO)
- Had BP76 been in service between November 2008 and October 2009, the number of hours when IESO curtailed imports and/or manoeuvred nuclear units as a result of SBG would have declined:
 - from 620 hours to 190 hours if 500 MW more exports flowed
 - from 620 hours to 445 hours if 200 MW more exports flowed
- The total estimated benefit to the market if BP76 had been in service between November 2008 – October 2009 was between \$3 million and \$15 million

Recommendations on Dispatch

BP76 Transmission Line (cont'd)

Recommendation 3-3

The Panel recommends that Hydro One work with its transmission counterpart in New York (National Grid) to return the BP76 transmission line at the New York/Ontario interface at Niagara into service in order to mitigate Surplus Baseload Generation (SBG) situations and realize gains from efficient trading opportunities for participants in the Ontario and New York markets.

Recommendations on Dispatch

LEC and PARs at the Michigan Interface

- **March 2009** – NYISO began using the TLR procedure more frequently at NY/ONT interface and at the Central-East flowgate in NY
- **July 16, 2009** – FERC issued an order to NYISO to work with neighbouring markets to develop long-term comprehensive solutions to the “loop flow problem”
- **July 17, 2009** – IESO updates and clarifies its procedure (PU #153) of removing inertie transactions before the final pre-dispatch run to better reflect actual conditions as early as possible

Recommendations on Dispatch

LEC and PARs at the Michigan Interface (cont'd)

- When NYISO invokes its TLR procedure, the IESO often needs to cut exports to NY as well as to PJM through MISO
 - Can lead to price distortions between pre-dispatch and real-time
 - Reduction in congestion at the Michigan interface may induce more (and higher priced) export bids
 - This further increases the amount of exports that must be curtailed by the IESO
- After assessing possible alternatives, the Panel believes that PU #153 is the most practical short-term way of dealing with the NY congestion issues under the current situation

Recommendations on Dispatch

LEC and PARs at the Michigan Interface (cont'd)

- Longer-term efficient solution - Involves greater coordination among market operators and properly pricing inter-jurisdictional transactions by including the congestion costs.
- “Broader Regional Markets” initiatives proposed to FERC in January 2010 by a group of system operators including IESO, NYISO, MISO, PJM, and ISO-NE
 - Important component is placing the Michigan/Ontario PARs into service
 - ITC (Michigan transmission company) is blocking in an attempt to negotiate financial compensation

Recommendations on Dispatch

LEC and PARs at the Michigan Interface (cont'd)

Recommendation 3-2

The Panel recommends that IESO and Hydro One work with their counterparts in Michigan and New York to bring the Phase Angle Regulators (PARs) into service as soon as possible. The Panel encourages the IESO and Hydro One to pursue available channels, including intra-regional discussions, to address any potential future delays resulting from issues raised by ITC's position in order that Ontario and its neighbouring markets obtain the benefits available from operation of this equipment.

Recommendations on Dispatch

Plant Operating Characteristics

- Examination of actions of a combined-cycle generator included changes to its plant operating characteristics
 - Generator increased the Minimum Run-Time and Minimum Loading Point associated with its units in a way that increased payments under the Generation Cost Guarantee (GCG) program
 - Panel concluded that the revised parameters were not materially higher relative to other similar generators

Recommendation 3-5

- i. The Panel recommends that the IESO provide market participants with specific parameters for determining operating plant characteristics, including Minimum Loading Point (MLP), Minimum Run-Time (MRT) and Minimum Generation Block Run-Time (MGBRT) in order to ensure that submitted operating characteristics, which affect market outcomes, reflect actual operating capabilities.**
- ii. The Panel recommends that the IESO develop a compliance or other review mechanism for ensuring that submitted operating characteristics are appropriate having regard to the parameters specified and equipment capabilities.**

Recommendations on Dispatch

Actions of A Combined-Cycle Generator

- Panel examined several areas of activity which raised potential gaming and/or efficiency concerns
- Most dealt with through recommendations to IESO (including #3-5 above) or by changes IESO is making to GCG programs (see background slides for details)
- One issue outstanding on October 31, 2009 is now resolved by participant change of offering practice

Recommendation on Uplifts

Issues in the Northwest Area

- Chronic Supply/Demand imbalance:
 - Large amount of local generation
 - Relatively limited internal demand
 - Relatively limited transmission connections with the rest of Ontario
 - Limited import/export capability at the Minnesota and Manitoba interfaces
 - Abundant import offers from Manitoba
- Two-schedule system has distorted generators' and importers' incentives to offer at their incremental or opportunity cost and has provided an incentive for exporters to bid strategically low, thus providing a means to extract large CMSC payments

Recommendation on Uplifts

Issues in the Northwest Area (cont'd)

- Annual CMSC Payments (May 2002 to October 2009 in \$millions)

Year	Northwest						Ontario			
	Constrained Off			Constrained On			Total	Constrained Off	Constrained On	Total
	Generators	MBSI	MNSI	Generators	MBSI	MNSI				
2002*	24	9	2	1	0	0	36	39	107	146
2003	6	9	8	3	0	0	26	68	42	110
2004	20	3	1	0	0	0	24	55	25	80
2005	48	17	6	0	0	6	77	121	81	202
2006	16	9	0	1	0	2	28	62	41	103
2007	14	13	2	2	0	4	35	68	39	107
2008	16	30	3	1	1	16	67	98	53	151
2009**	7	15	3	1	2	6	34	61	45	106
Total	151	105	25	9	3	34	327	572	433	1,005
Claw-back							10			28
Net CMSC							317			977

* from May to Dec 2002

** from Jan to Oct 2009



Recommendation on Uplifts

Issues in the Northwest Area (cont'd)

- Minnesota Interface
 - Regularly has over 10 active traders but large CMSC opportunities continue to exist
 - Under certain circumstances, extremely negative export bids (e.g. -\$1,900/MWh) can be constrained on based on differences in pre-dispatch MCP and shadow prices
 - Instances when the intertie capability has been limited have also led to large CMSC payments
 - \$59 million in CMSC payments to traders since 2002
 - \$1.7 million paid to constrained-off exports between September 18 and October 31, 2009

Recommendation on Uplifts

Issues in the Northwest Area (cont'd)

- **Manitoba Interface**

- Historically, there has been effectively one trader (Manitoba Hydro)
- Manitoba Hydro received approximately \$100 million for constrained-off imports since 2002
- IESO implemented a new procedure on September 8, 2009 to provide traders with sufficient time to acquire transmission service through Manitoba so they can export at the interface
- Since inception of the new procedure, one participant began to export energy to MISO and is often constrained-on based on its submitted bids (almost \$2.2 million of CMSC between September 8, 2009 and the end of February 2010).

Recommendation on Uplifts

Issues in the Northwest Area (cont'd)

- The current design of Local Market Power and Constrained-Off Watch Zones have only been partially effective in recovering CMSC payments under these circumstances
- Panel has previously recommended that constrained-on payments be reviewed
 - If they are retained the opportunity to receive CMSC on negative bids should be limited
- Unlike generators and imports, constrained-on payments for exports are not capped by a deemed offer of \$0/MWh
 - Assume \$30/MWh HOEP: exporter CMSC if a -\$1,900/MWh bid is constrained-on is \$1,930/MWh ($30 - (-1,900)$)
 - Assume \$30/MWh HOEP: importer or generator CMSC if a -\$1,900/MWh offer is constrained-off is \$30/MWh ($30 - 0$)

Recommendation on Uplifts

Issues in the Northwest Area (cont'd)

- CMSC under current rules vs. with a deemed cap on export bids of \$0/MWh – illustration using results from an hour in October 2009

	Actual Outcome	Deemed \$0/MWh Cap
Export Bid	-\$1,600/MWh	\$0/MWh (replacement bid)
Shadow Price	-\$1,850/MWh	-\$1,850/MWh
PD MCP	\$29/MWh	\$29/MWh
Constrained-On MW	16 MW	16 MW
HOEP (\$/MWh)	\$22/MWh	\$22/MWh
CMSC/MWh (\$)	\$1,622/MWh	\$22/MWh
Total CMSC (\$)	\$25,952	\$352

Recommendation on Uplifts

Limiting Constrained-on Payments

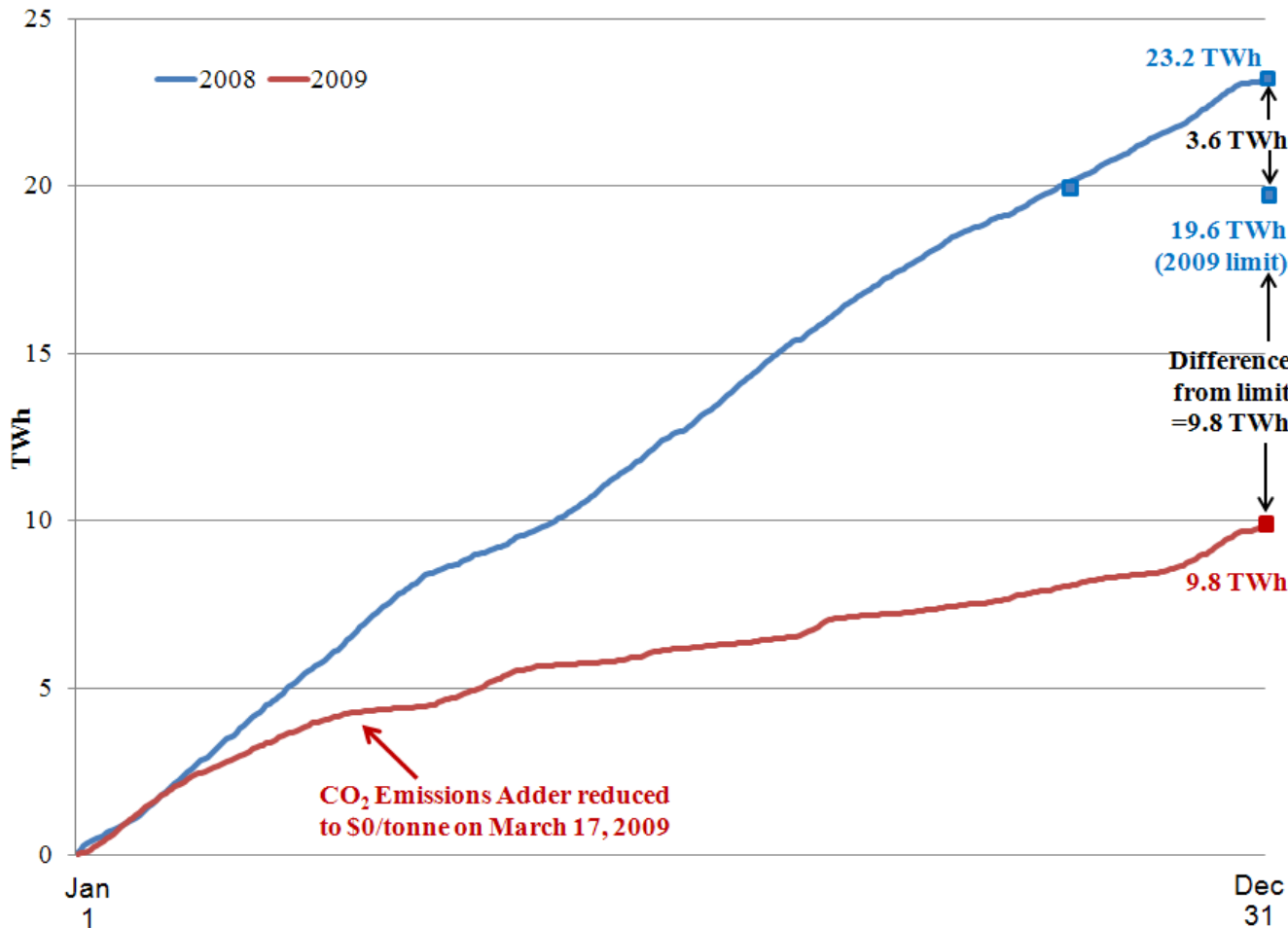
Recommendation 3-4

The Panel recommends that, for the purposes of calculating Congestion Management Settlement Credit (CMSC) payments, the IESO should revise its constrained-on payment calculation using a replacement bid (such as \$0/MWh) when market participants (both exporters and dispatchable loads) bid at a negative price. This would create more consistent treatment with generators and importers that are constrained-off.

Identified Issues where the IESO has taken Action

- Panel observed a participant increasing offer prices after generator has been constrained-on under GCG program
 - Panel is satisfied that the incidents were isolated events
 - Market Rule Amendment 252 would deny or significantly limit CMSC payment under this situation
- November 25, 2009 - IESO coding practice change to export failures (TLRi to TLRe) triggered by certain import failures at Minnesota
 - Exports failures now removed from unconstrained sequence so market price is not distorted and unwarranted constrained-off payments are reduced
 - Consistent with the Panel's recommendation on coding issues for intertie transactions in July 2008

OPG's 2009 CO₂ Emissions Strategy



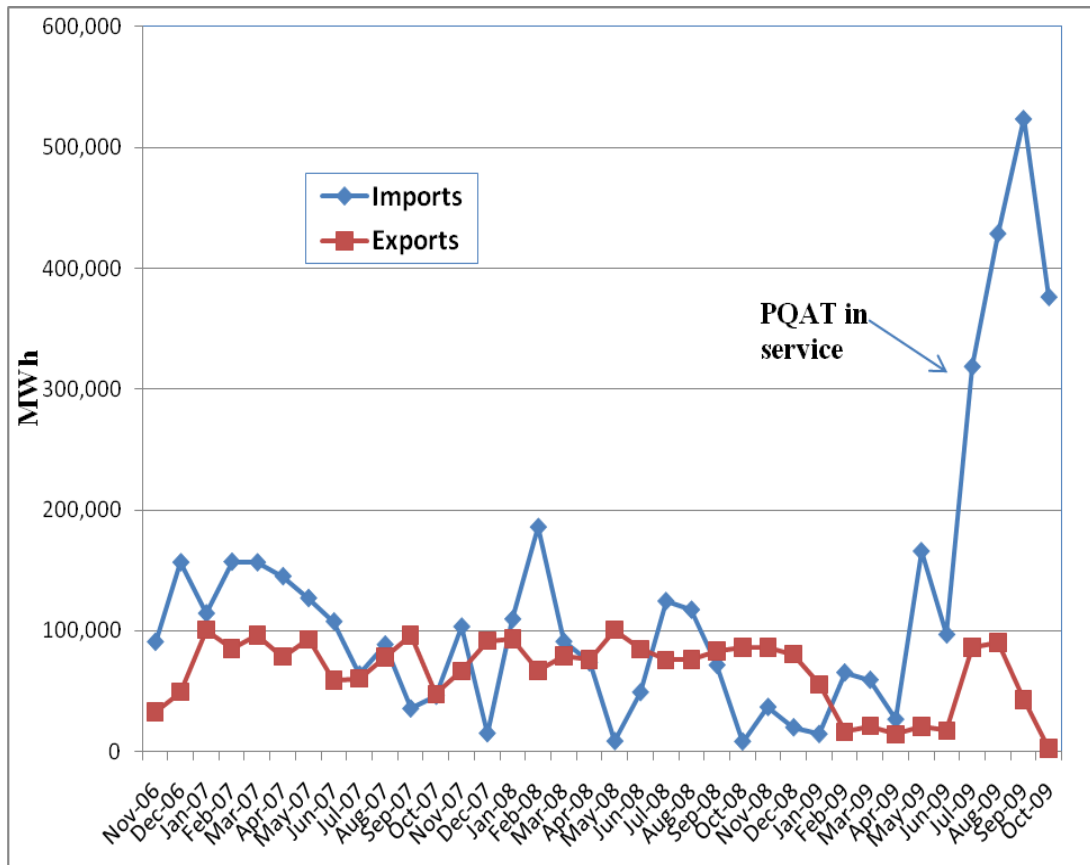
- In 2009, there were 139 NOBA days and 245 days with at least one unit on CO₂ outage
- OPG not close to 2009 emissions limit of 19.6 Mt of CO₂ emissions

OPG's 2010 CO₂ Emissions Strategy

- OPG has announced that NOBA units and CO₂ outages will be eliminated for 2010
- OPG will offer certain units at prices above marginal cost to reduce starts
 - If unit appears to be needed, OPG will run the unit and reduce the offer price to better reflect actual cost prior to real-time
- 2010 strategy is an improvement over last year, although concerns could arise under certain circumstances
- The Panel will monitor the impact of OPG's 2010 CO₂ emissions strategy as it is implemented

Preliminary Review of the New Quebec DC Interface

*Monthly Imports and Exports at All Quebec Interfaces
November 2006 to October 2009, MWh*



- New Quebec interface (Outaouais) was brought partially into service in July 2009 and then fully into service in November 2009
 - Represents 1,250 MW of additional intertie capability with Ontario
- Ontario a net importer from Quebec throughout 2009
- Seven active traders on the interface, although Hydro Quebec is responsible for 72 percent of transactions
- Large amount of constrained-on imports due to higher shadow prices in the Ottawa area
- The Panel will monitor the impact of this new interface on the Ontario market



Background Slides



Actions of a Combined-Cycle Generator

Background Slides

Allocation of costs between gas and steam units

- Concern was that some costs being incurred by the gas units were being allocated to the steam unit thus inflating the cost recovery amount relative to a plant-wide cost allocations.
- Recommendation in previous Panel report stated that the IESO should improve the mechanisms for aligning submitted costs and associated revenue streams at combined cycle stations for its GCG programs or otherwise eliminate allocations that result in over-compensation.
- Market Rule Amendment 356 – With the exception of start-up costs, the basis for recovering generation cost guarantees is related to submitted offers rather than after the fact submissions.

Actions of a Combined-Cycle Generator

Background Slides (cont'd)

Participation in the OR market for the purposes of obtaining high CMSC payments

- Concern was OR participation being used to collect CMSC payments for energy
- Over a 15 day period in May and June 2009, participant received approximately \$600,000 in payments associated with its OR offer strategy
- Panel concluded that these were isolated instances and activity has ceased (even though occasional opportunities have remained)
- Participant has been made aware that reimplementing of strategy could trigger gaming investigation

Offer strategy potentially designed to maximize revenues that resulted in overnight runs

- Market participant would lower offer prices throughout the day:
 - Targeting evening peak hours to maximize revenues
 - MRT resulted in generation units running overnight when uneconomic
- Concerns should be alleviated through Market Rule Amendment 356 implemented on December 9, 2009.

Actions of a Combined-Cycle Generator

Background Slides (cont'd)

Raising offer prices after being selected in RT-GCG program

- Panel is satisfied that the incidents were isolated events
- Market Rule Amendment 252 will deny or significantly limit CMSC payments to generators that revise offer prices once constrained-on under GCG programs

Offering high prices during ramp up and ramp down hours

- Very high offer prices were being submitted to signal start-up and shut-down
- Led to high CMSC payments, particularly during shut-down intervals
- In a previous report, the Panel recommended that these CMSC payments be limited and IESO is proposing to do so under Market Rule Amendment 252
- Other participants using similar strategies had voluntarily lowered their shut-down offer prices
- This participant has now done so as well