



Power to Ontario.
On Demand.

Control Action Operating Reserve Update on 2006 Experience/Impacts

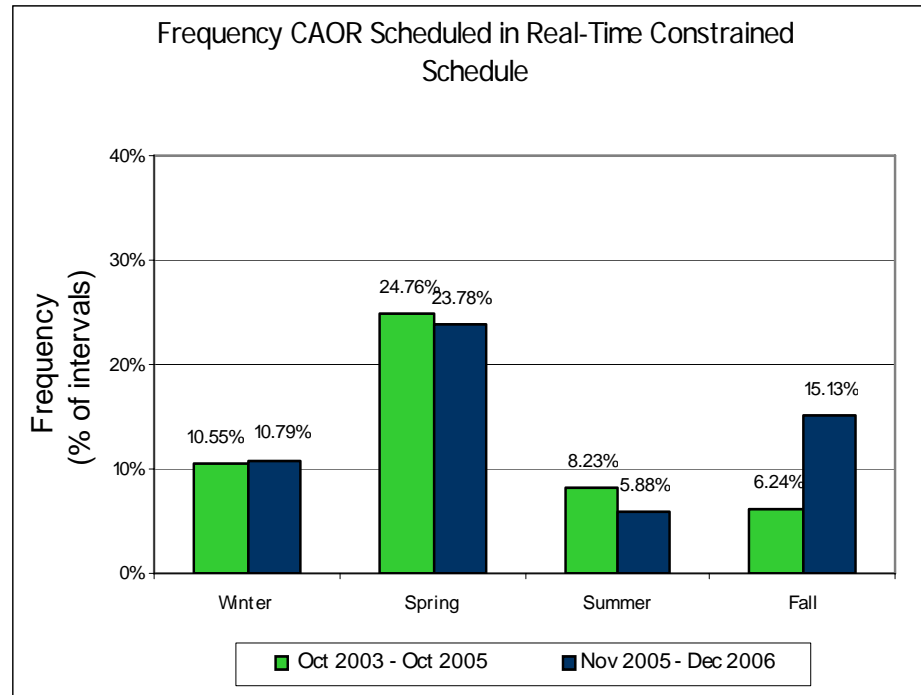
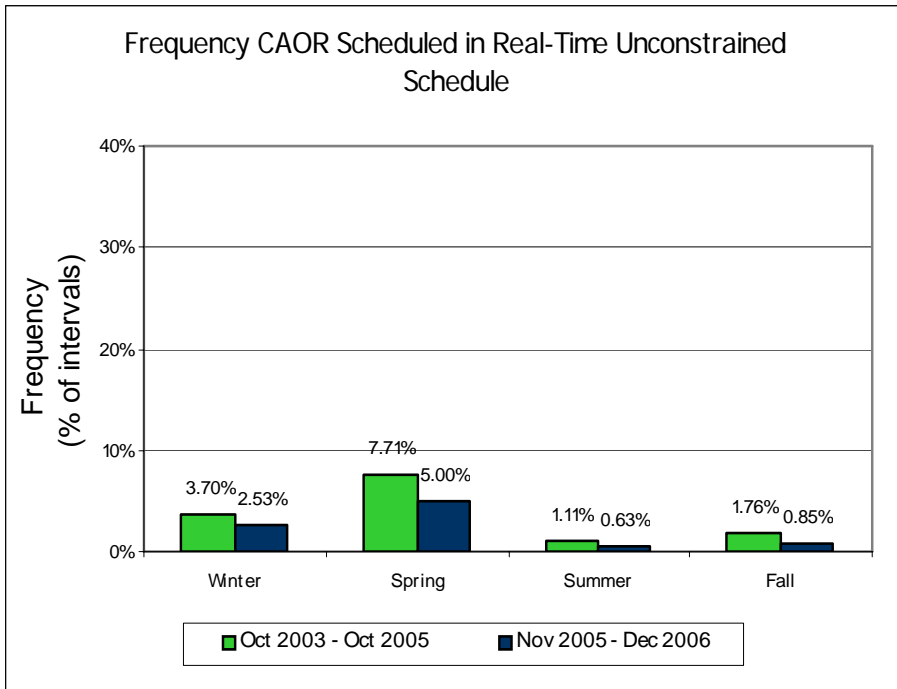
Market Pricing Working Group
March 1, 2007



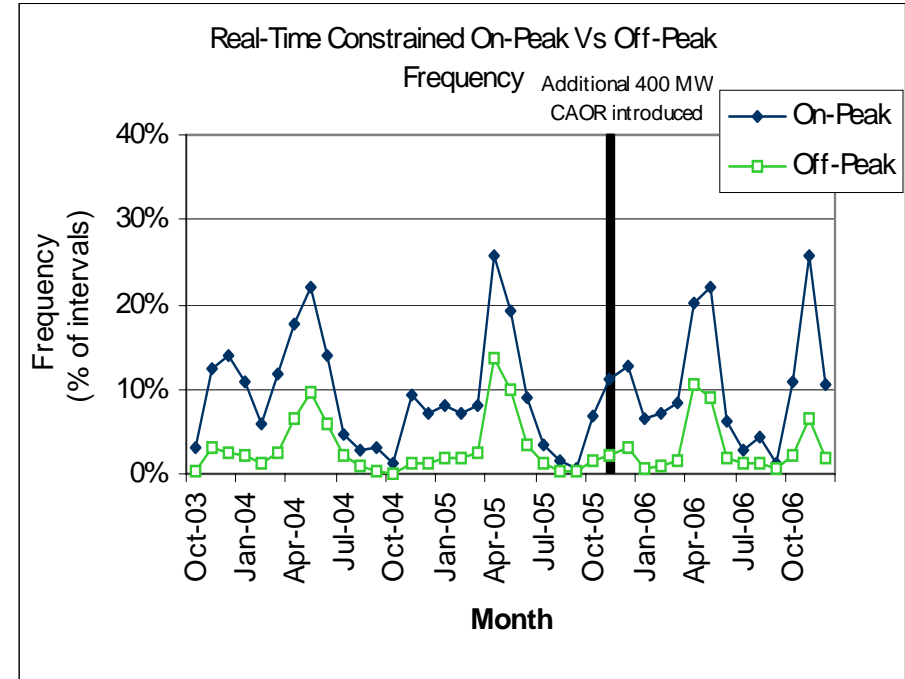
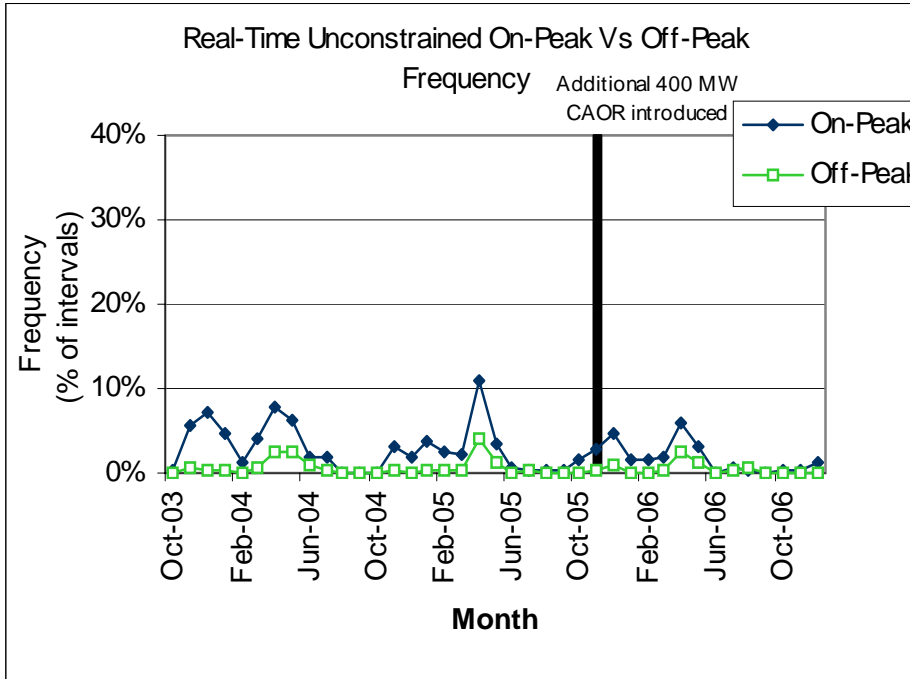
- Review of CAOR changes
- Scheduling of CAOR since November 2005
- Reliability and Price Impacts
- Proposed Conclusions

	Prior to November 23, 2005	Since November 23, 2005
Amount	400 MW	Additional 400 MW
Price	10N @ \$30.10/MWh 30R @ \$30.00/MWh	200 MW @ \$75/MWh for 10N 200 MW @ \$100/MWh for 10N
Timeframe	Pre-dispatch and real-time	Real-time
All CAOR offers have an associated energy offer price of \$2,000/MWh		

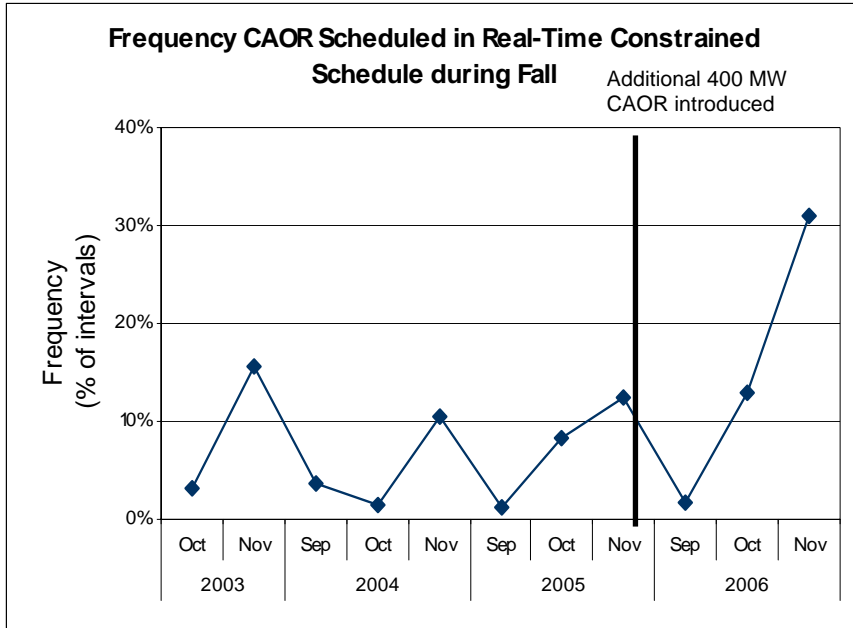
- Rationale for additional 400 MW of CAOR:
 - To further reduce instances of counter-intuitive pricing
 - Offered only in real-time to reduce likelihood of planning for reliance on Emergency Control Actions
- Also eliminated practice of reducing operating reserve (OR) requirement



- Scheduling of CAOR less frequent in 2006 than in previous years
 - Better supply/demand balance
 - Increase in OR providers (e.g. more dispatchable load)
- Patterns of CAOR scheduling since Nov 2005 consistent with previous experience
 - Most frequently scheduled during Spring
 - More frequently scheduled in constrained schedule than unconstrained schedule



- CAOR scheduled more frequently in on-peak than off-peak

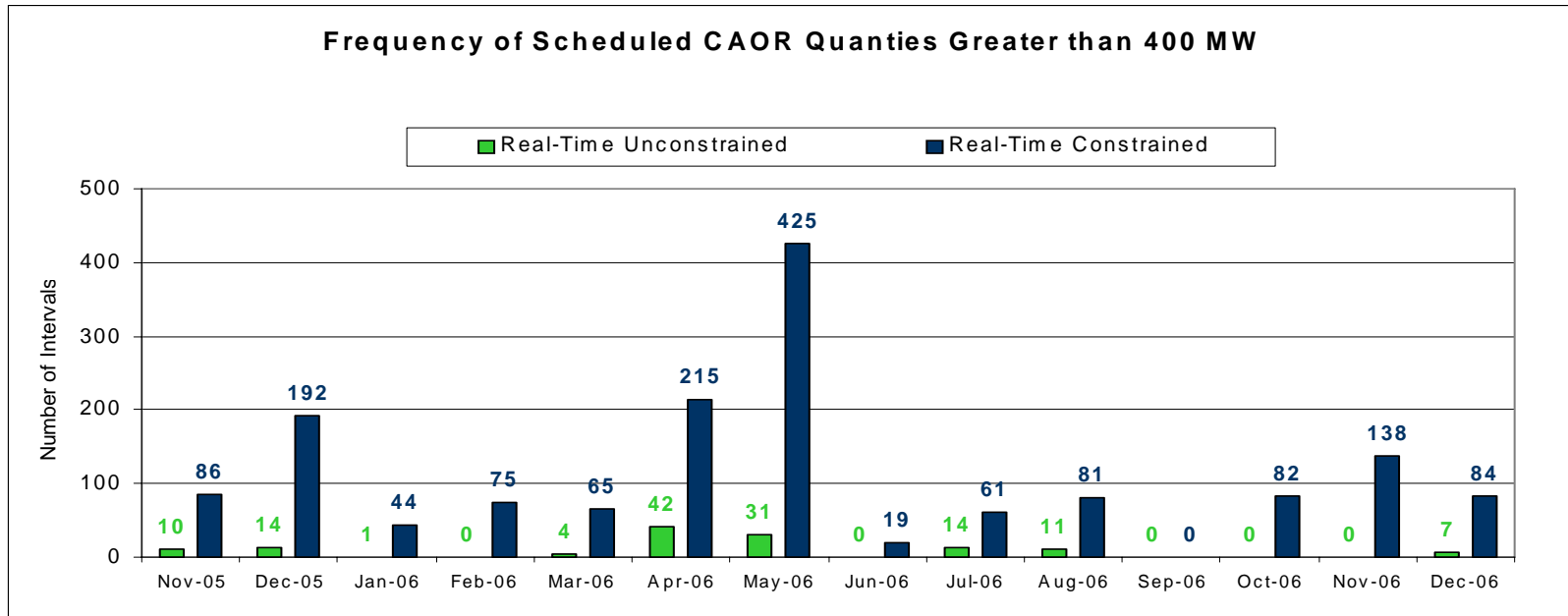


# Intervals CAOR Scheduled in Real-Time Constrained Schedule		
	Nov 2005	Nov 2006
400 MW @ \$30/MWh	982	2,531
200 MW @ \$75/MWh	72	110
200 MW @ \$100/MWh	14	28

- CAOR scheduled more than twice as often in Nov 2006 compared to Nov 2005

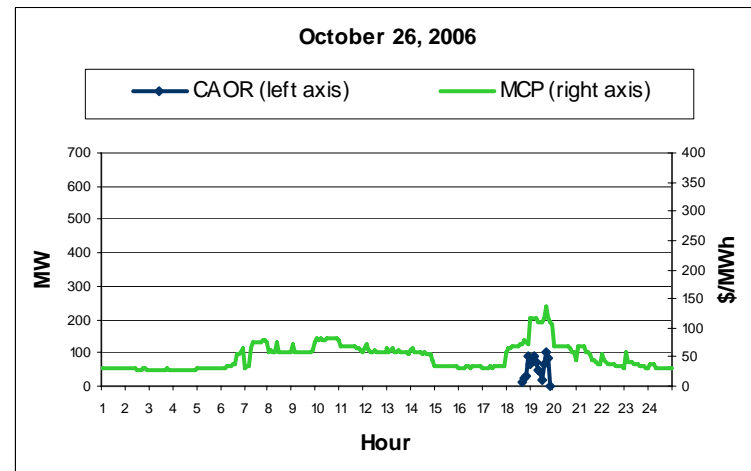
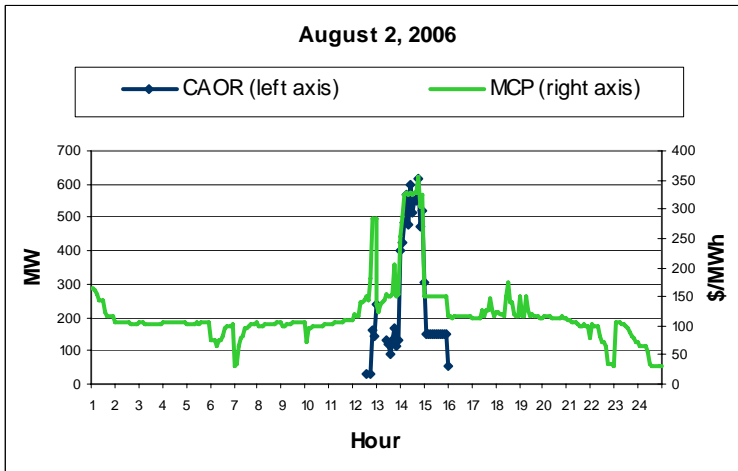
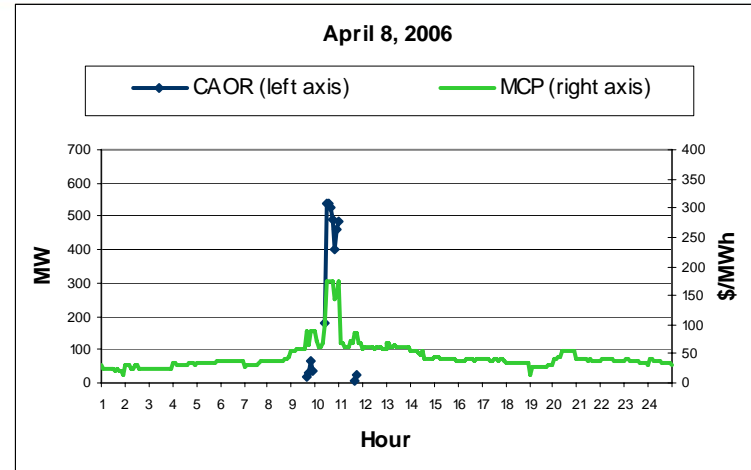
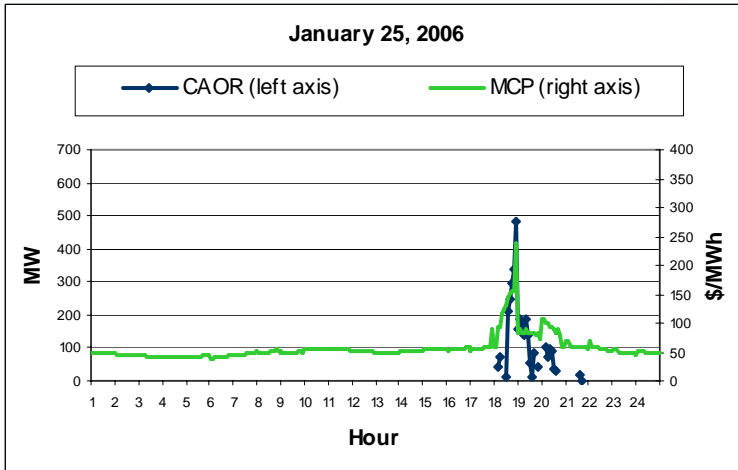
Increase in CAOR scheduled can be explained by:

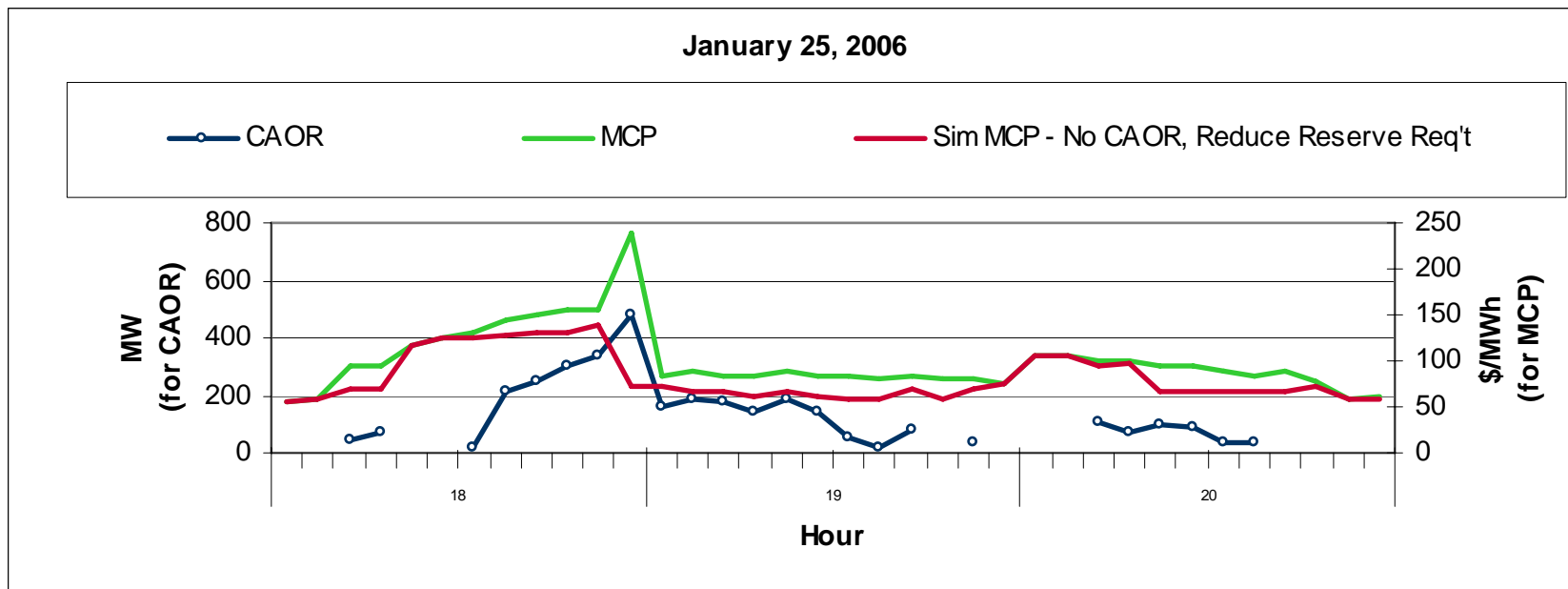
- Prolonged outage on 500 kV transmission line between Hanmer and Essa (Flow South/Flow North interface)
 - Hydroelectric resources in the north that would have been providing OR under normal circumstances were bottled
- Ontario net importer in Nov 2006 versus net exporter in Nov 2005:
 - Fewer OR resources available (imports not eligible to provide OR)



- Additional 400 MW of CAOR scheduled infrequently:
 - Unconstrained schedule: 134 intervals, or 0.1 % of time
 - Constrained schedule: 1,576 intervals, or 1.3% of time

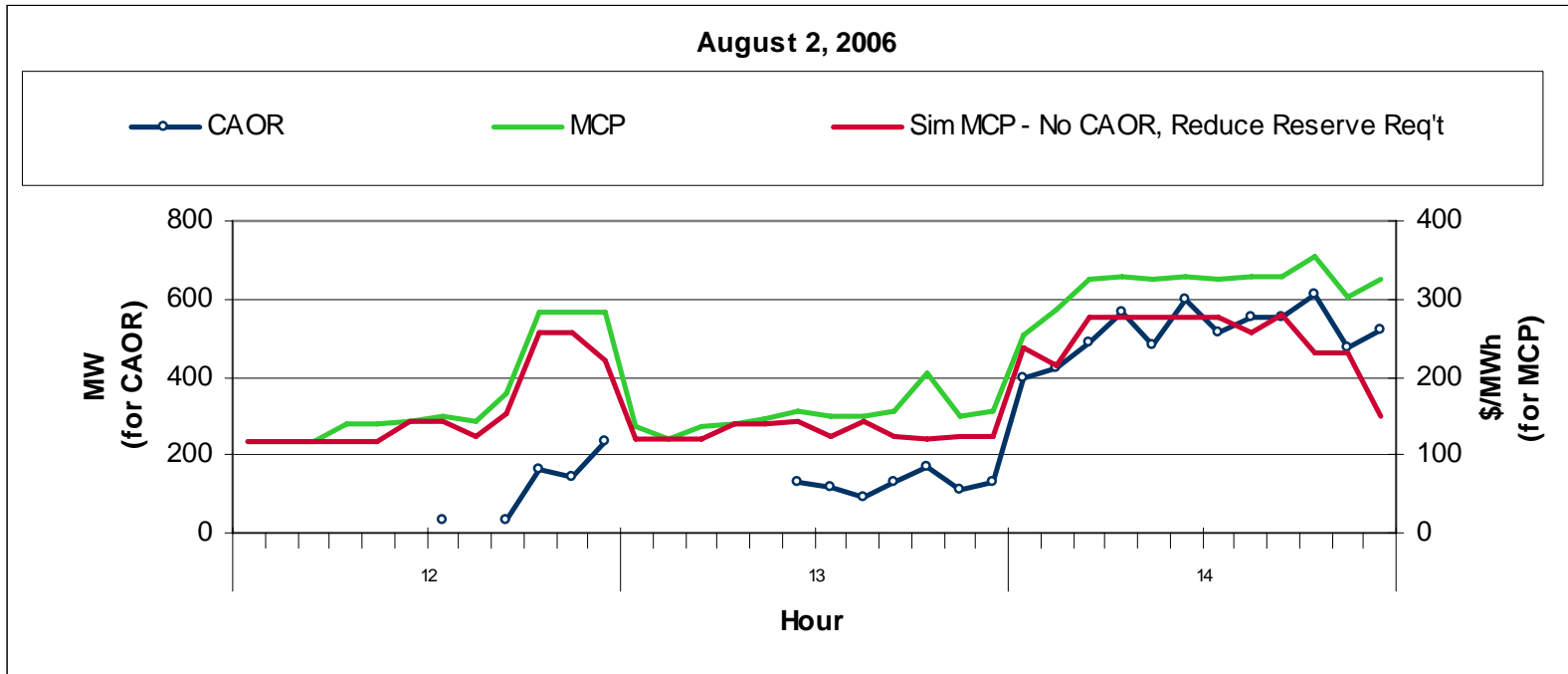
Scheduling of CAOR: Some Real-Time Examples





Average MCP from HR 18 – HR 20

- Actual MCP: \$99.36/MWh
- Simulated MCP - no CAOR, reduce reserve requirement: \$81.44/MWh



Average MCP from HR 12 – HR 14

- Actual MCP: \$214.18/MWh
- Simulated MCP - no CAOR, reduce reserve requirement: \$179.65/MWh

- No reliability concerns identified by IESO regarding the scheduling of CAOR
- Since Nov 2005, only two hours with manual reductions in OR requirement when CAOR was scheduled:
 - Hour 19 December 6, 2005 and Hour 8 April 21, 2006
 - Both instances inadvertent and had no material impact on price*

** from Market Surveillance Panel Report from the period November 2005 - April 2006, published June 14, 2006*

- Scheduling of CAOR working as expected and intended
- Market Surveillance Panel (MSP) has asked the Market Assessment Unit (MAU) to continue to monitor appropriateness of CAOR quantities and prices
(from MSP Report for the period May - October 2006, released December 13, 2006)
- No need to change current CAOR regime at this time due to:
 - Infrequent scheduling
 - No reliability concerns identified
 - Ongoing, independent monitoring