

April 7, 2005 Emergency Event

MPWG

April 19, 2005

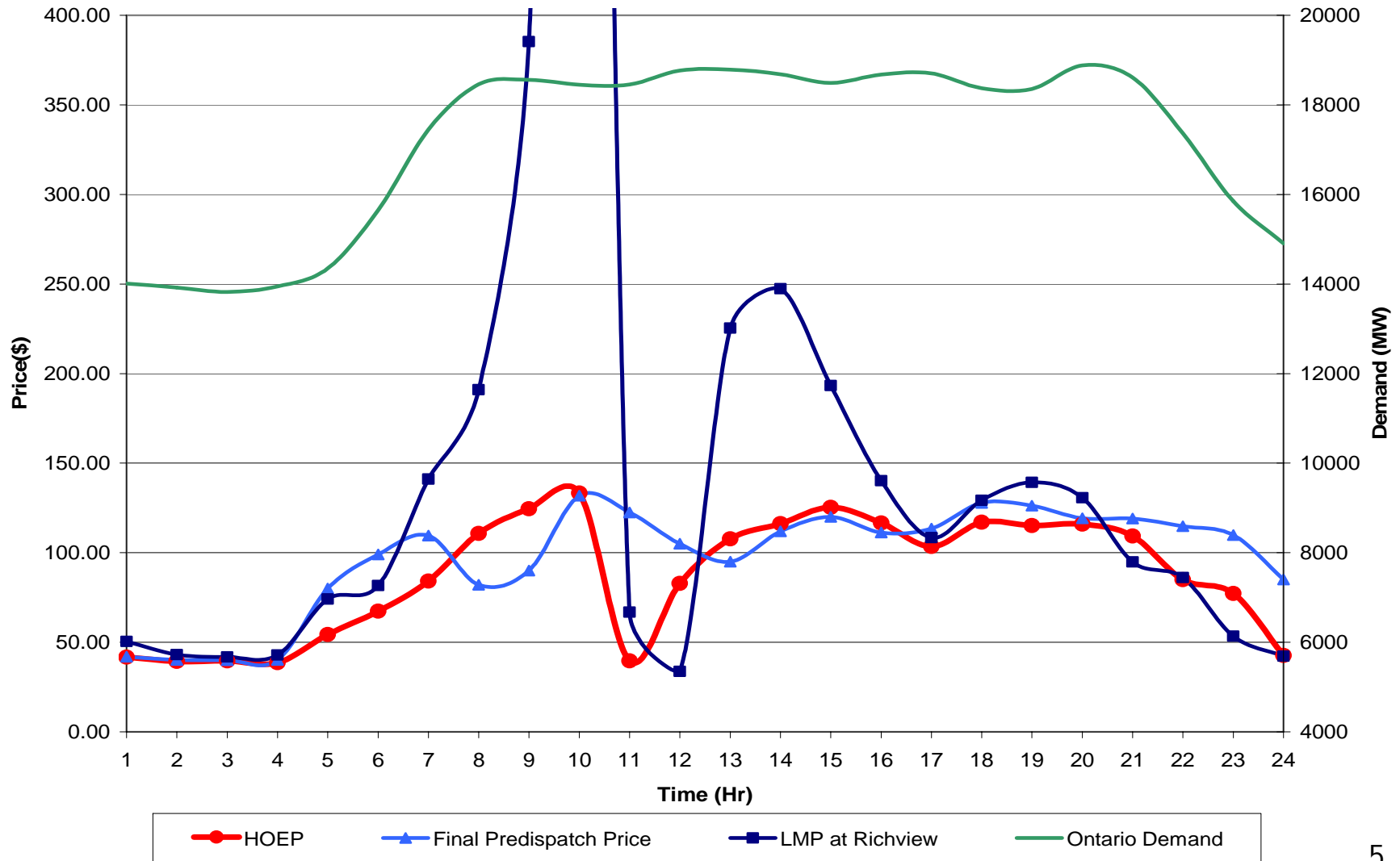


- Several factors combined to produce a capacity and energy shortfall in Ontario on the morning of Thursday April 7, 2005
- This overview will provide:
 - System operations event summary
 - Impacts on price
- In-depth discussion of associated pricing issues and potential solutions to occur at future MPWG meetings

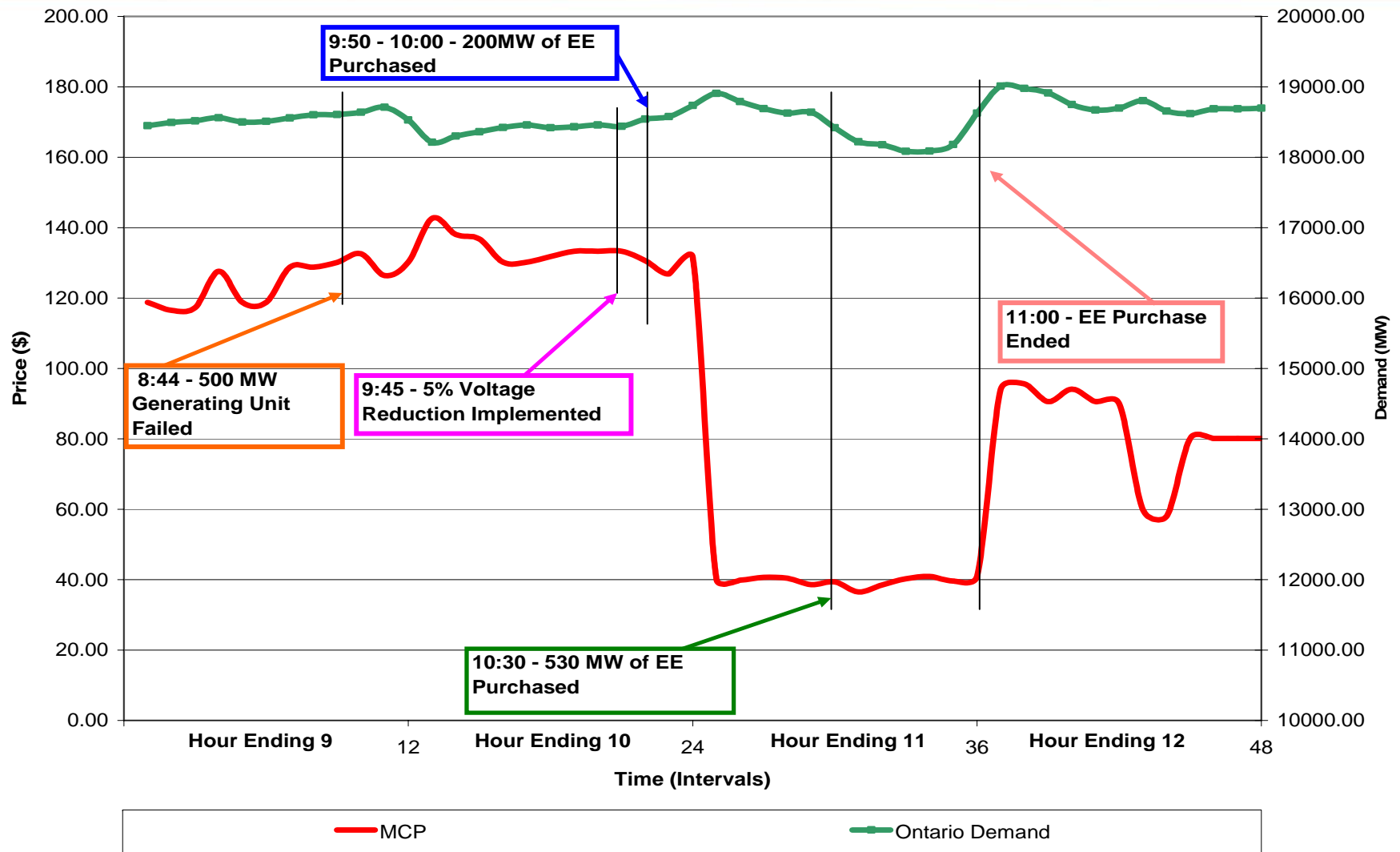
- On April 6 IESO was notified of a problem with a large generating unit (~900 MW) that would result in that unit's outage the next day at 9:00
- On April 7:
 - 8:00 - Ontario demand trending 380 MW heavier than forecast
 - 8:40 – 525 MW of import transaction failures identified
 - 8:44 – a 500 MW generating unit failed
 - 9:00 – IESO is deficient in 10 NS and 30 minute OR
 - 9:05 – The forewarned large unit outage begins. Output to zero by 9:16.

- 9:17 – 440 MW of SAR activated (ended at 9:50)
- 9:20 – Recalling transmission outages to relieve interface restrictions
- 9:45 – IESO respecting Emergency Condition Limits and 5% voltage reduction implemented
- 9:50 – 200 MW emergency energy purchased to provide synchronized reserve (until 10:00)
- 10:30 – 530 MW of EE purchased
- 10:34 – Voltage restored
- 11:00 – EE purchase ended
- 13:00 – Emergency Operating State ended

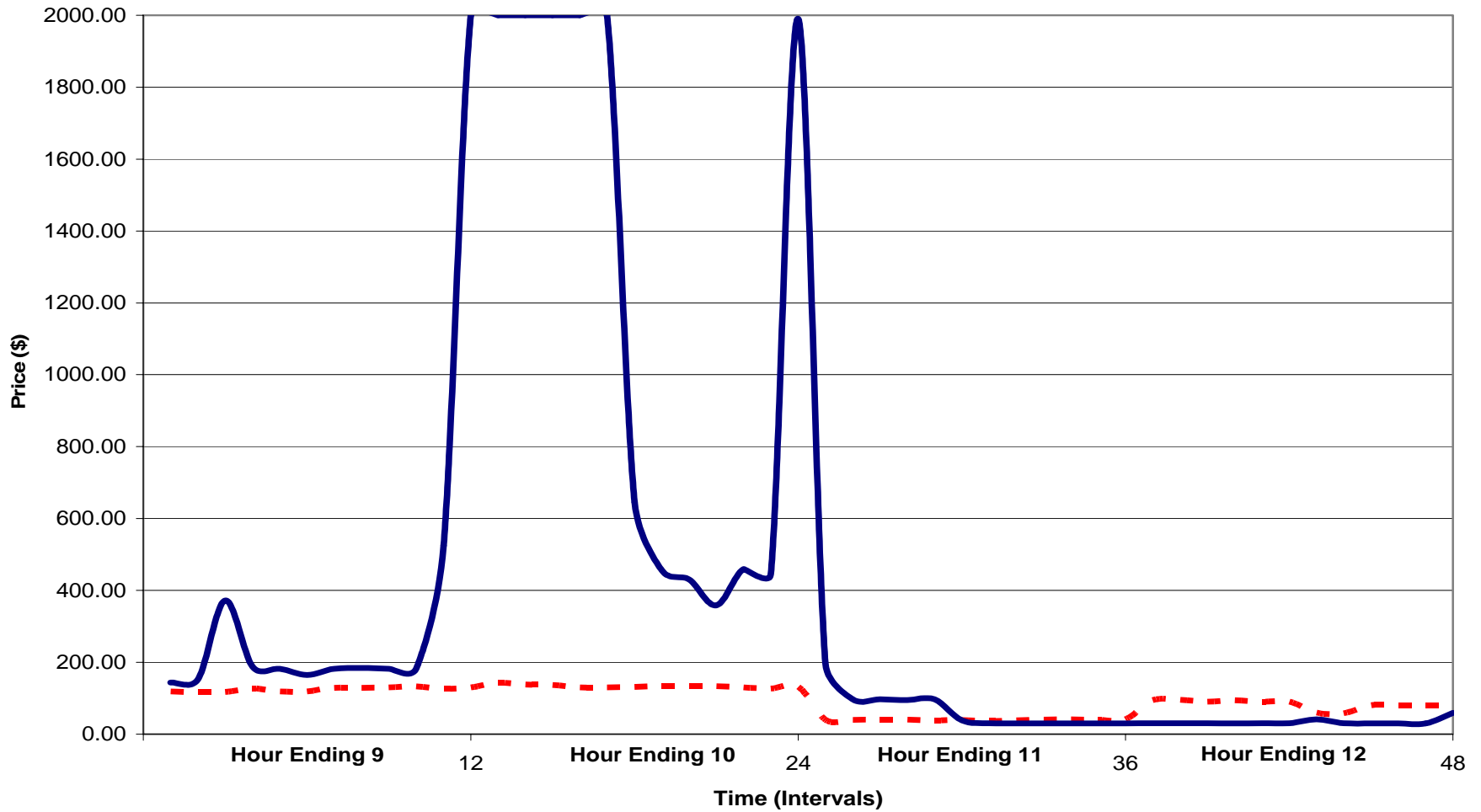
April 7, 2005 Prices & Demand



Market Clearing Prices – Hours 9-12



Richview LMP Prices – Hours 9-12



- Voltage reduction reduces demand and will lower prices
- Same for emergency energy purchase, demand is reduced by amount of purchase and price will be lower
- Reducing the OR requirement reduces total demand (energy + OR) and lowers price
- If these actions could be implemented to exactly match requirements, then LMP prices would indicate shortage
 - These are all coarse actions that cannot be implemented precisely

- IESO operators control the power system using the constrained schedule (RTC)
- Unconstrained schedule (RTU) is for pricing and CMSC only
- During this event, RTU had about 500 MW more resources available to it than RTC
 - Due to transmission limitations
 - Results in MCP lower than Richview LMP
- Control actions taken have equal effect in RTC and RTU

- Pricing issues associated with this incident are already identified by MPWG, and are either being worked on now or will be shortly
 - Effects of emergency energy
 - Imports/exports setting price
 - CAOR