ieso
Power to Ontario.
On Demand.

Pricing Events – August & September 2008

October 29, 2008
MPWG

Agenda

1. Monthly Overview
2. Discussion
   - High-price hours
   - Low-price hours
   - Prices compared to uplifts
   - Negative MCP
   - MCP Volatility
   - Operating reserve pricing and activations
   - Demand response programs
   - Administered pricing
   - Emergency control actions

Overview – August Highlights I

- Average Hourly Ontario Demand: 16 864 MW
  - Minimum: 11 986 MW
  - Maximum: 22 707 MW
- Average HOEP: $46.57/MWh
  - Peak: $60.63/MWh
  - Off-peak: $35.96/MWh
- Average OR Prices
  - 10S: $3.14/MW/hr
  - 10N: $3.11/MW/hr
  - 30R: $2.97/MW/hr

Overview – August Highlights II

- Total Ontario Demand: 12.547 TWh
- Interjurisdictional Trade:
  - Average Exports: 2192 MW
  - Average Imports: 578 MW
  - Average Net Exports: 1614 MW
  - New York rule change regarding wheeling transactions
    - Average exports and imports decline by approximately 1000 MW compared to July
- Wind Generation: 59.1 GWh
  - Capacity factor: 15.4%

Overview – September Highlights I

- Average Hourly Ontario Demand: 16 380 MW
  - Minimum: 12 061 MW
  - Maximum: 22 975 MW
- Average HOEP: $49.09/MWh
  - Peak: $58.58/MWh
  - Off-peak: $40.78/MWh
- Average OR Prices
  - 10S: $1.19/MW/hr
  - 10N: $1.06/MW/hr
  - 30R: $1.03/MW/hr

Overview – September Highlights II

- Total Ontario Demand: 11.794 TWh
- Interjurisdictional Trade:
  - Average Exports: 1730 MW
  - Average Imports: 888 MW
  - Average Net Exports: 842 MW
- Wind Generation: 81.1 GWh
  - Capacity factor: 20.8%

Hours with HOEP > $200 I

Date	Hour	HOEP	Issue(s)
August 5	10	$353.45	• Under forecast of demand of 750 MW due to low temperature estimate • 240 MW under-performance of self-scheduled generation
August 24	14	$377.14	• Demand heavier than forecast by approximately 1000 MW (temperature) • 500 MW increase of net exports in the first interval resulted in a large first interval MCP due to ramping
September 2	17	$214.00	• Derating of 730 MW of baseload generation

Hours with HOEP > $200 II

Date	Hour	HOEP	Issue(s)
September 14	11	$279.43	• 75 MW imports failed • Under forecast of demand of 800 MW • 125 MW under-performance of self-scheduled generation
September 14	12	$331.15	• 375 MW net imports failed • Under forecast of demand of 310 MW • 175MW under-performance of self-scheduled generation
September 14	13	$344.93	• 331 MW net imports failed • Under forecast of demand of 160 MW • 250 MW under-performance of self-scheduled generation
September 14	19	$435.00	• 140 MW net imports failed • Under forecast of demand of 225 MW • Forced outage of approx 500 MW

Hours with HOEP < $20

- There were 126 hours in August where HOEP was below $20
- Of these, there were 4 hours with negative HOEP

Date	Hour	HOEP
August 3	5	- $0.66
August 11	1	- $3.08
August 11	3	- $0.18
August 11	4	- $ 3.74

- There were 90 hours in September where HOEP was below $20
  - Lowest HOEP: Monday, September 29th, HE 4: $1.81

August Hours with Uplift > HOEP

Date	Hour	HOEP	Uplift *
August 3	5	- $0.66	$0.80
August 4	6	$4.23	$4.41
August 4	7	$3.82	$3.97
August 8	4	$7.11	$10.92
August 9	4	$16.78	$20.35
August 9	7	$6.21	$8.22
August 9	24	$4.91	$5.74
August 11	1	- $3.08	$0.45
August 11	3	- $0.18	$0.13
August 11	4	- $3.74	$0.26

September Hours with Uplift > HOEP

Date	Hour	HOEP	Uplift *
September 23	4	$2.77	$3.95

* Uplift is preliminary.

- The Market Surveillance Panel has amended its standard for investigating anomalous pricing events
  - $500 000 CMSC or IOG payments
  - $100 000 OR payments

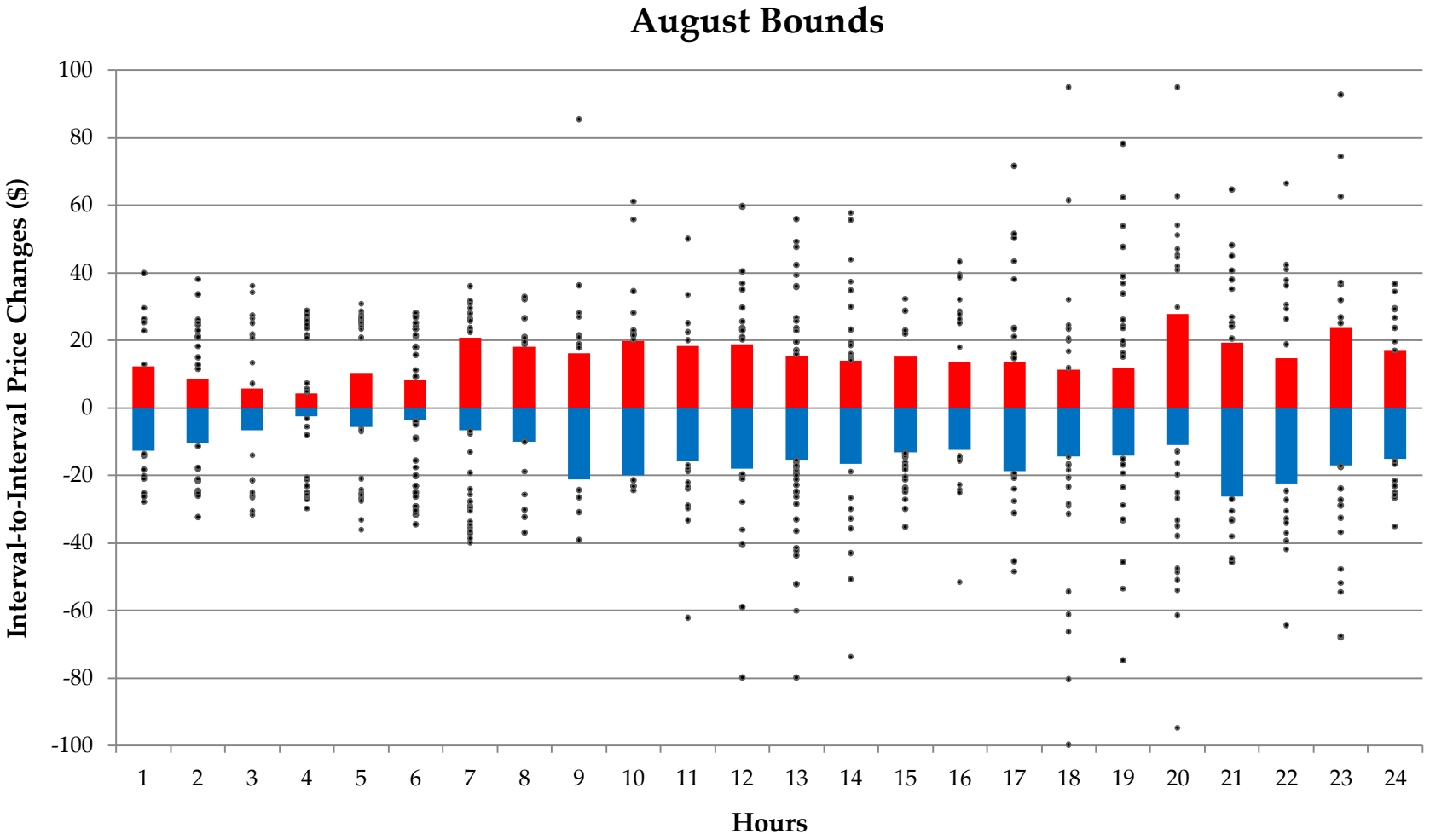
Negative MCPs

Date	Hour(s)	# Negative MCPs	Issue
August 3	2, 3 & 5	8	• Surplus baseload generation • 320 MW of failed exports
August 11	1 & 3 - 7	42	• Surplus baseload generation • Up to 410 MW of failed exports
August 17	7 & 8	5	• Surplus baseload generation • 260 MW of failed exports
September 3	3	1	• Demand less than forecast

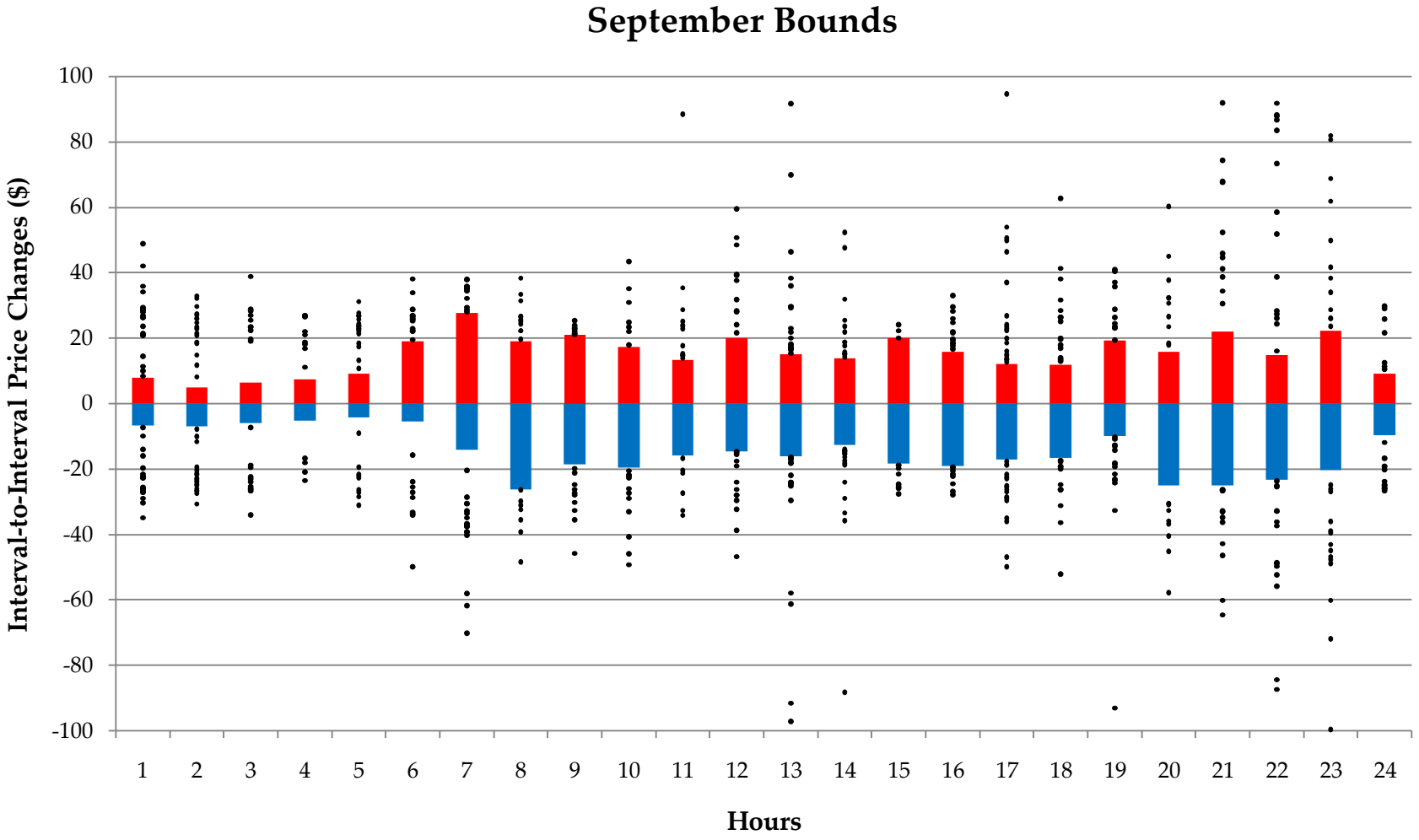
MCP Volatility

- The following diagrams illustrate MCP changes on an interval-to-interval basis
- Upper and lower bounds were constructed based on historical data to help us identify especially large interval-to-interval fluctuations
  - Previous 4 years of monthly data
  - Capture 95% of historical interval-level changes
- For each month the interval-to-interval price changes exceeding the constructed historical bounds are shown

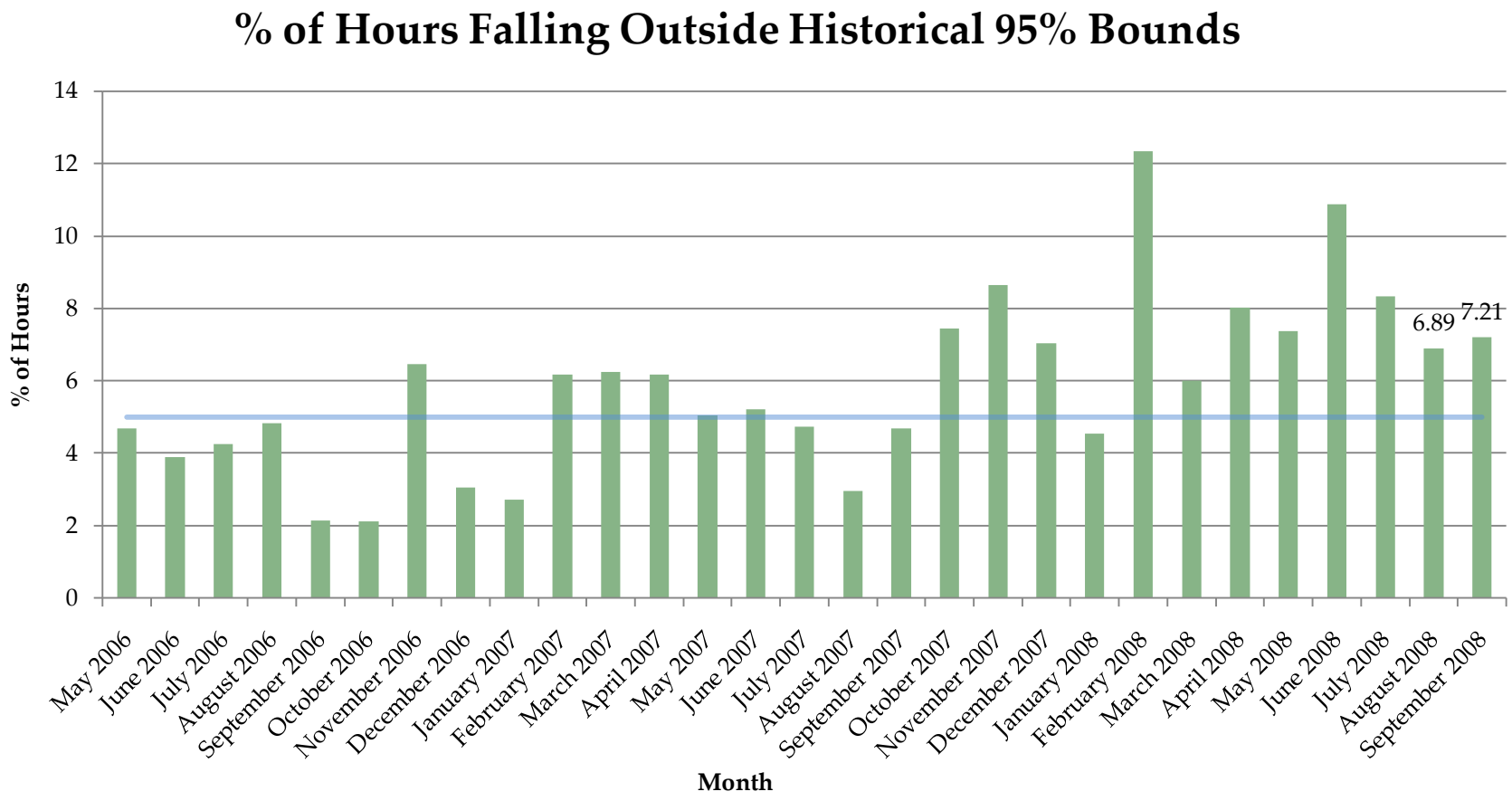
MCP Volatility – August Illustration



MCP Volatility – September Illustration



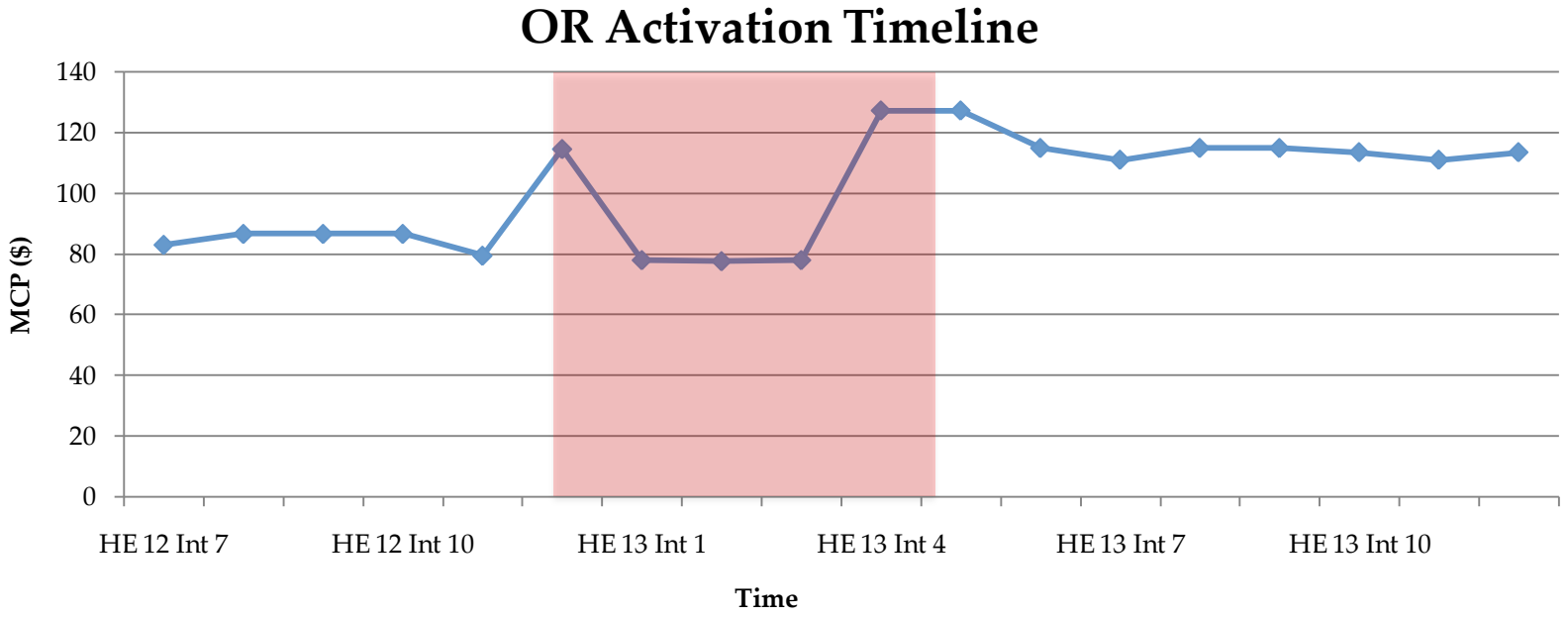
MCP Volatility - Findings



Absolute number of intervals – August: 615 & September: 623.

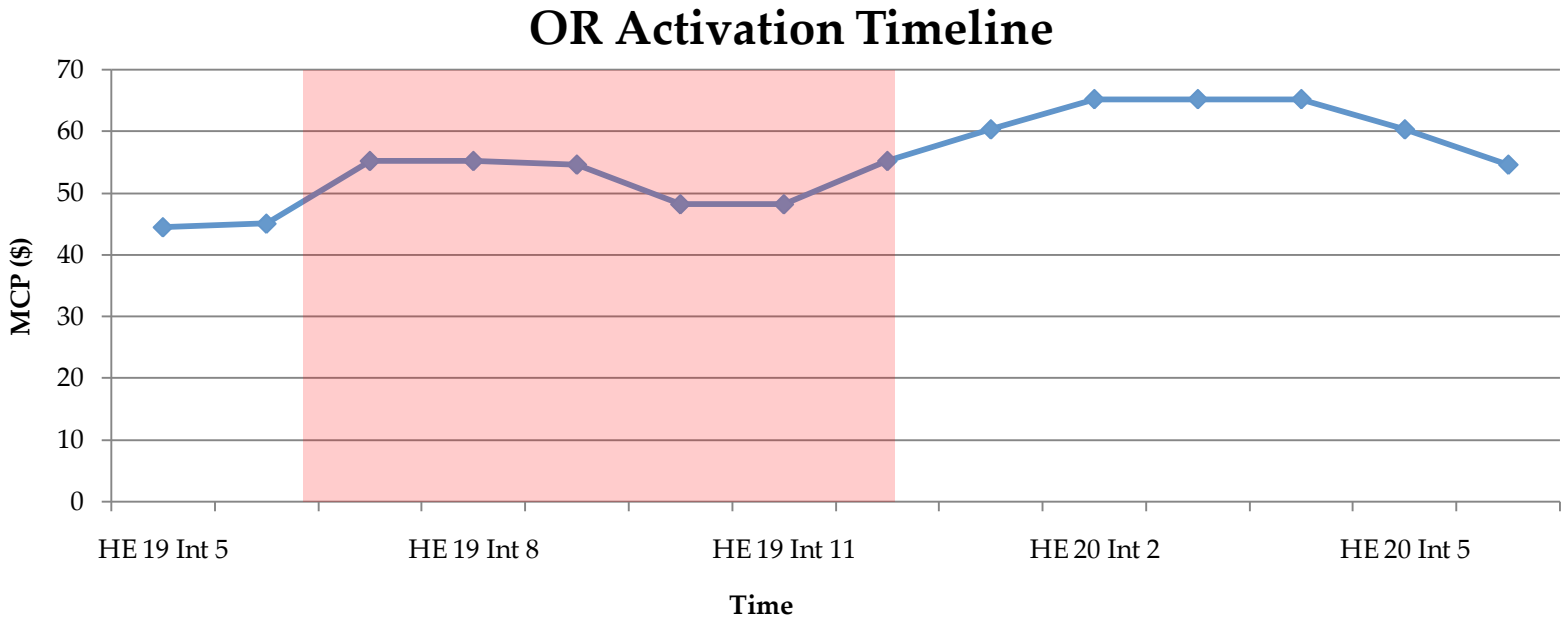
August OR Activations

- 17 hours with OR activations
- Largest activation occurred on Friday 1 at 11:57
  - 800 MW activated (500 MW SAR, IESOs share was 250 MW)
  - Due to approximately 900 MW of generation loss
  - Duration: 24 minutes



September OR Activations

- 17 hours with OR activations
- Largest activation occurred on Sunday 21 at 18:29
  - 600 MW activated
  - Due to continuous load pick-up, ACE control
  - Duration: 29 minutes



Demand Response Program Activations

- DR3 Program Activations

Month	Number of Activations
August	1
September	5

Administered Pricing Events & Emergency Control Actions

- August
  - 7 events required administered pricing
    - 23 intervals due to planned outages
    - 4 intervals due to input data problems
- September
  - 5 events required administered pricing
    - 10 intervals due to planned outages
    - 5 intervals due to input data problems

- There were no emergency control actions in either August or September