Briefing on Market Performance
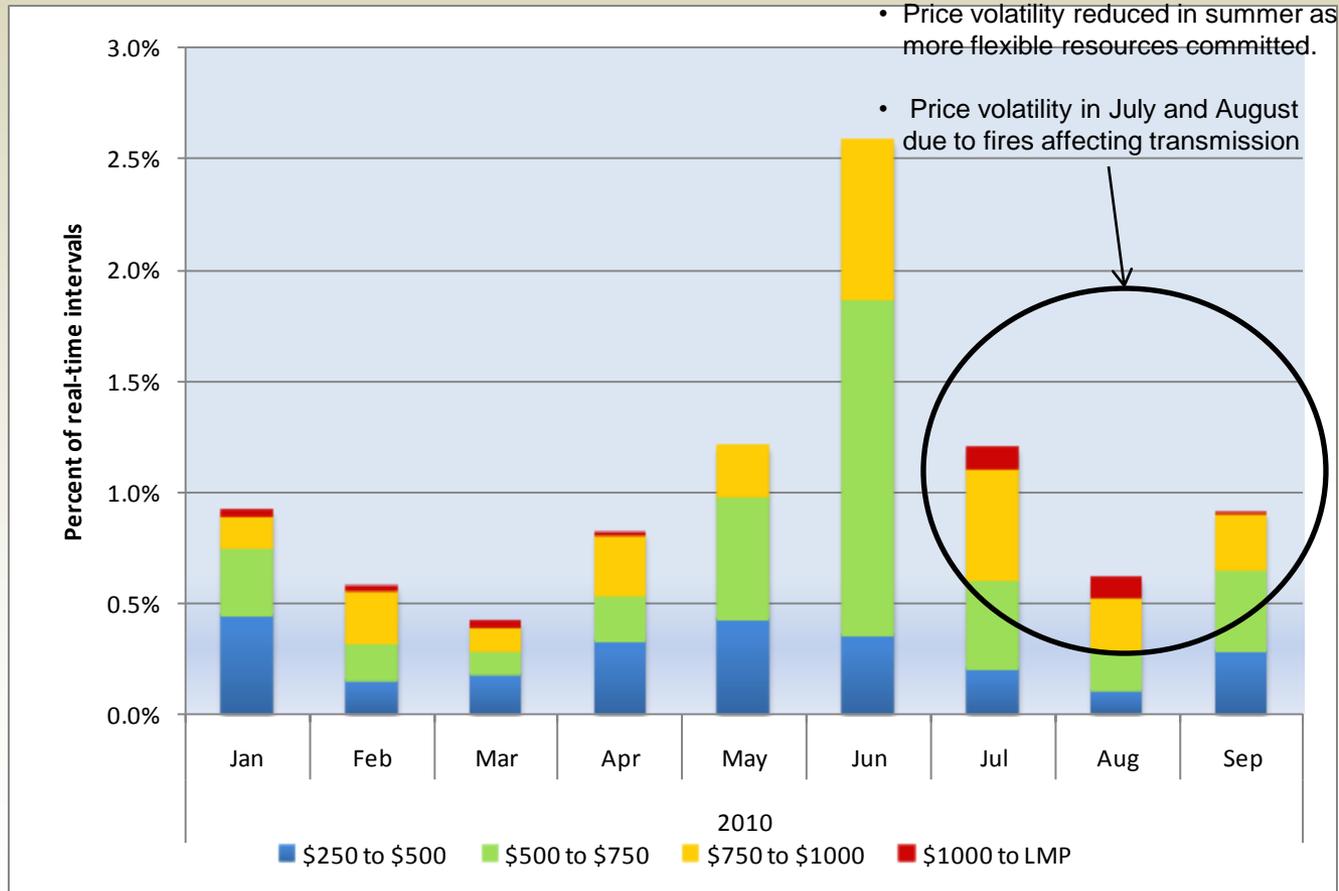
Mark Rothleder

Director, Market Analysis and Development

Board of Governors Meeting

General Session

November 1-2, 2010
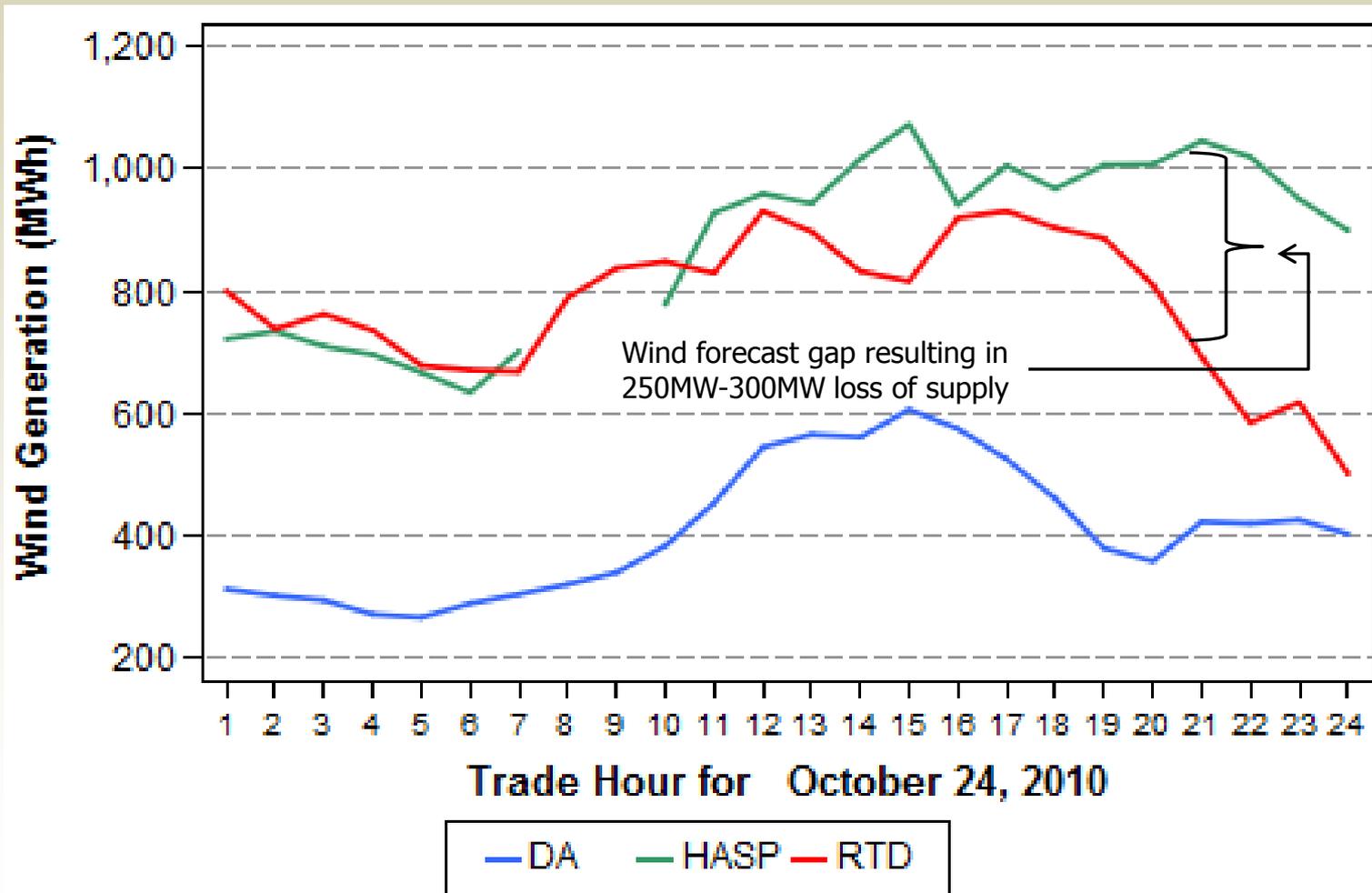
Markets continue to perform well.

- **Key observations:**
  - Prices remain competitive and consistent with market conditions
  - Price convergence improves as seasonal flexibility increases
  - Exceptional dispatches remain at low levels
  - Congestion revenue rights (CRR) revenue adequacy continues to improve
  - Price corrections decreased
- **Areas of focus:**
  - Improve market convergence
  - Improve forecasting
  - Provide for dispatch flexibility

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Frequency and magnitude of 5-minute price volatility decreased as seasonal online ramping capability increased.

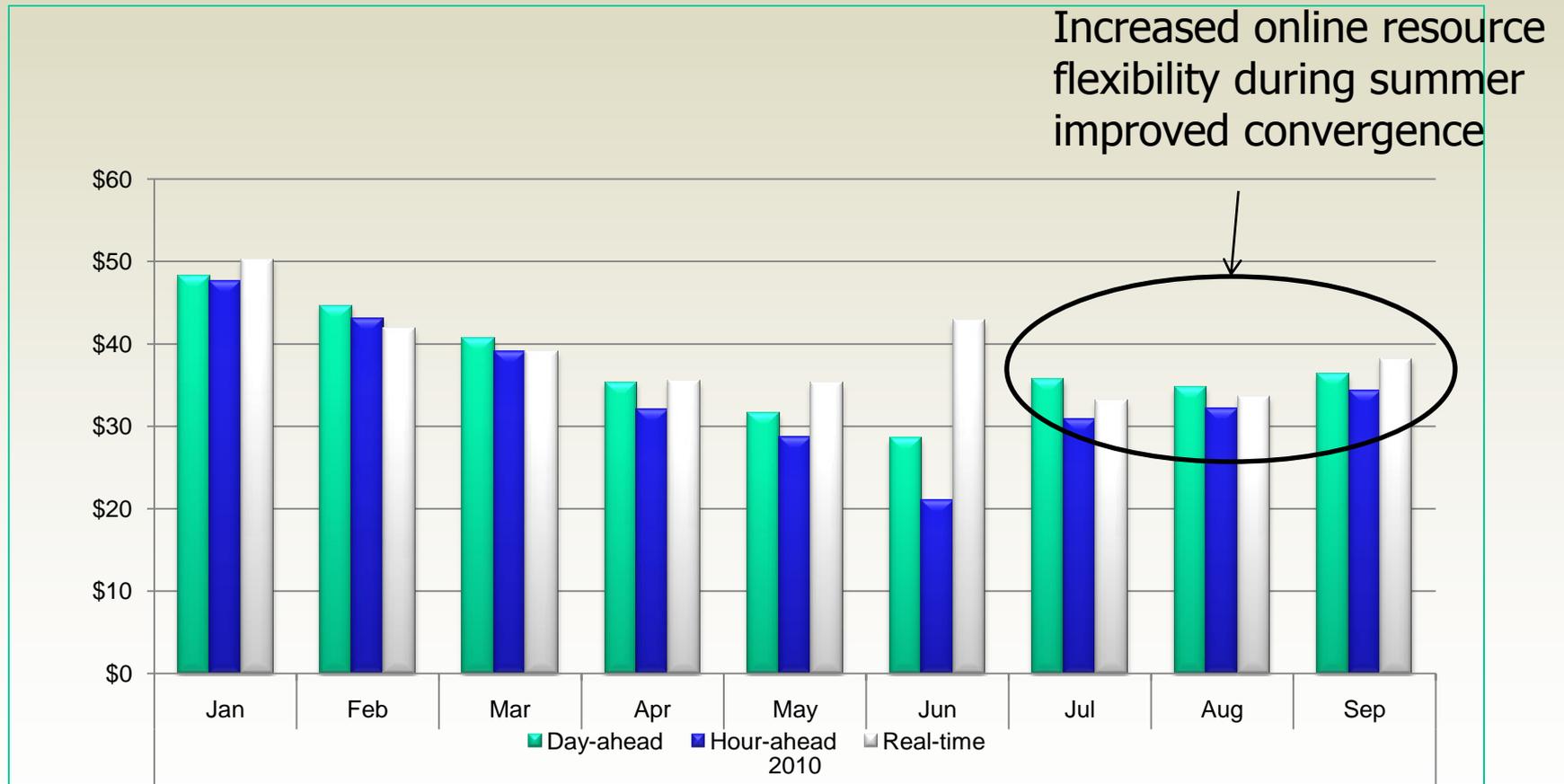- Price volatility reduced in summer as more flexible resources committed.

- Price volatility in July and August due to fires affecting transmission

Percent of real-time intervals

3.0%
2.5%
2.0%
1.5%
1.0%
0.5%
0.0%

Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep

2010

■ $250 to $500   ■ $500 to $750   ■ $750 to $1000   ■ $1000 to LMP

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Intermittency of wind production contributes to real-time price volatility

Wind forecast gap resulting in 250MW-300MW loss of supply

Trade Hour for October 24, 2010

— DA — HASP — RTD

Price convergence between markets improved in last quarter.

Average Hourly PGAE LAP Prices

Increased online resource flexibility during summer improved convergence
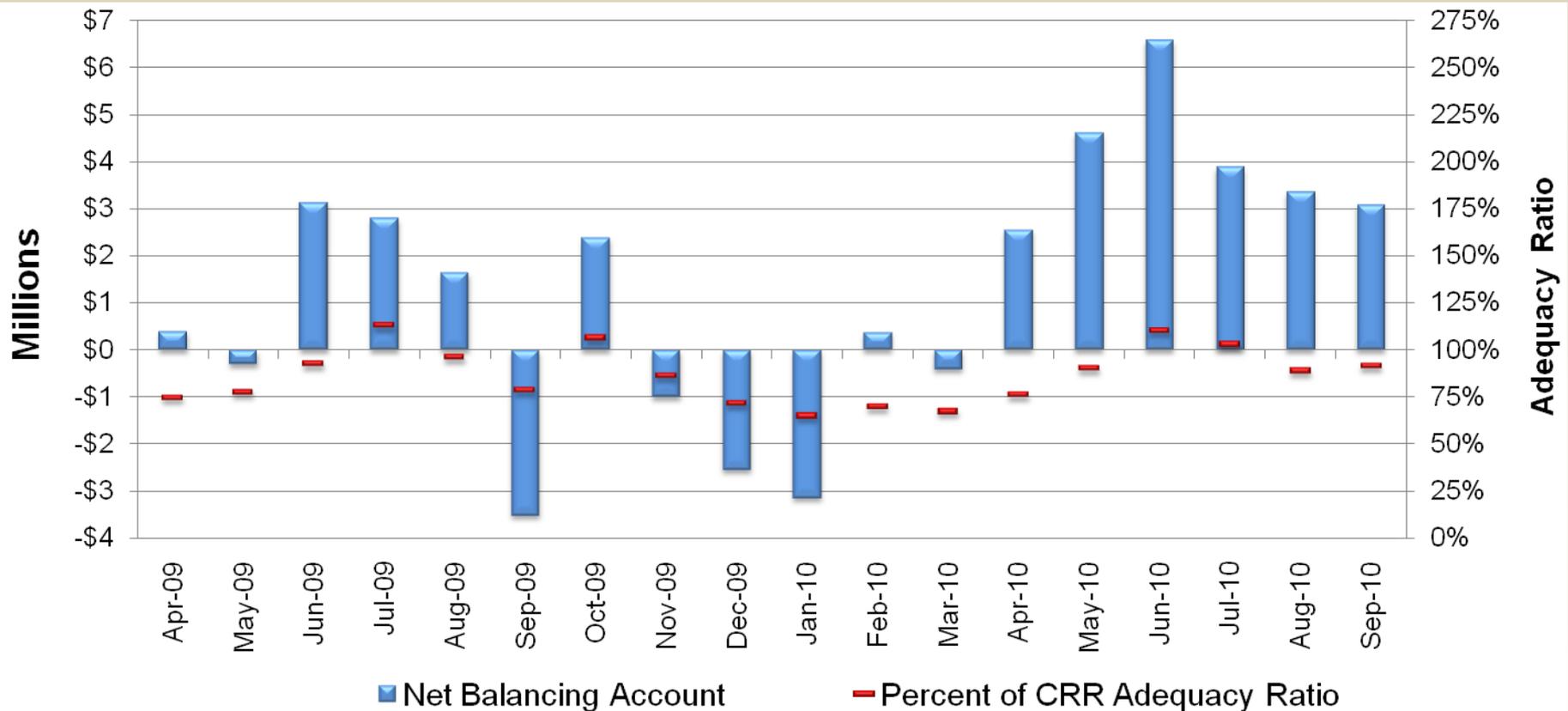
Day ahead exceptional dispatch volumes continue to decrease as more operational constraints are incorporated into the market.
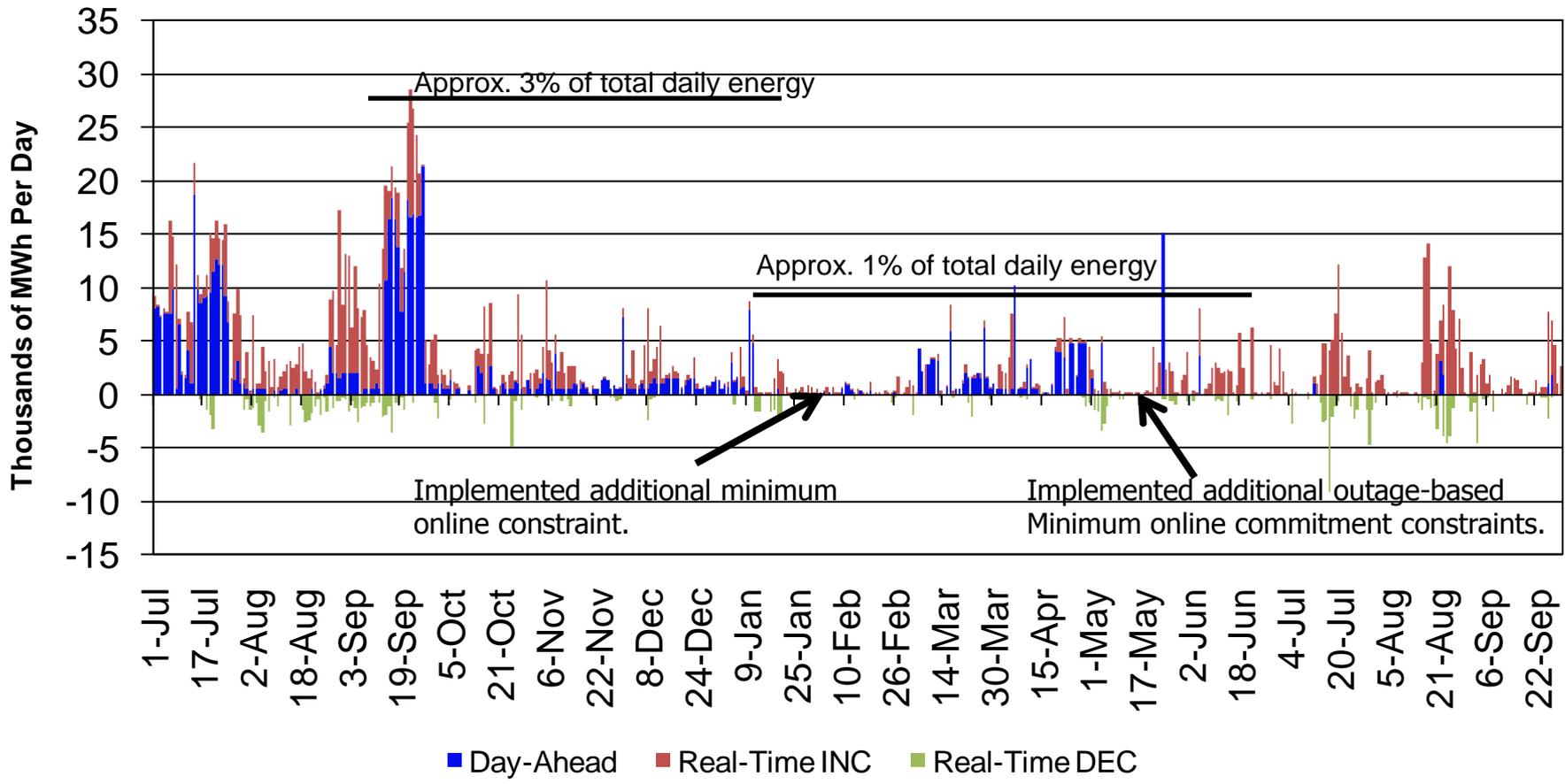
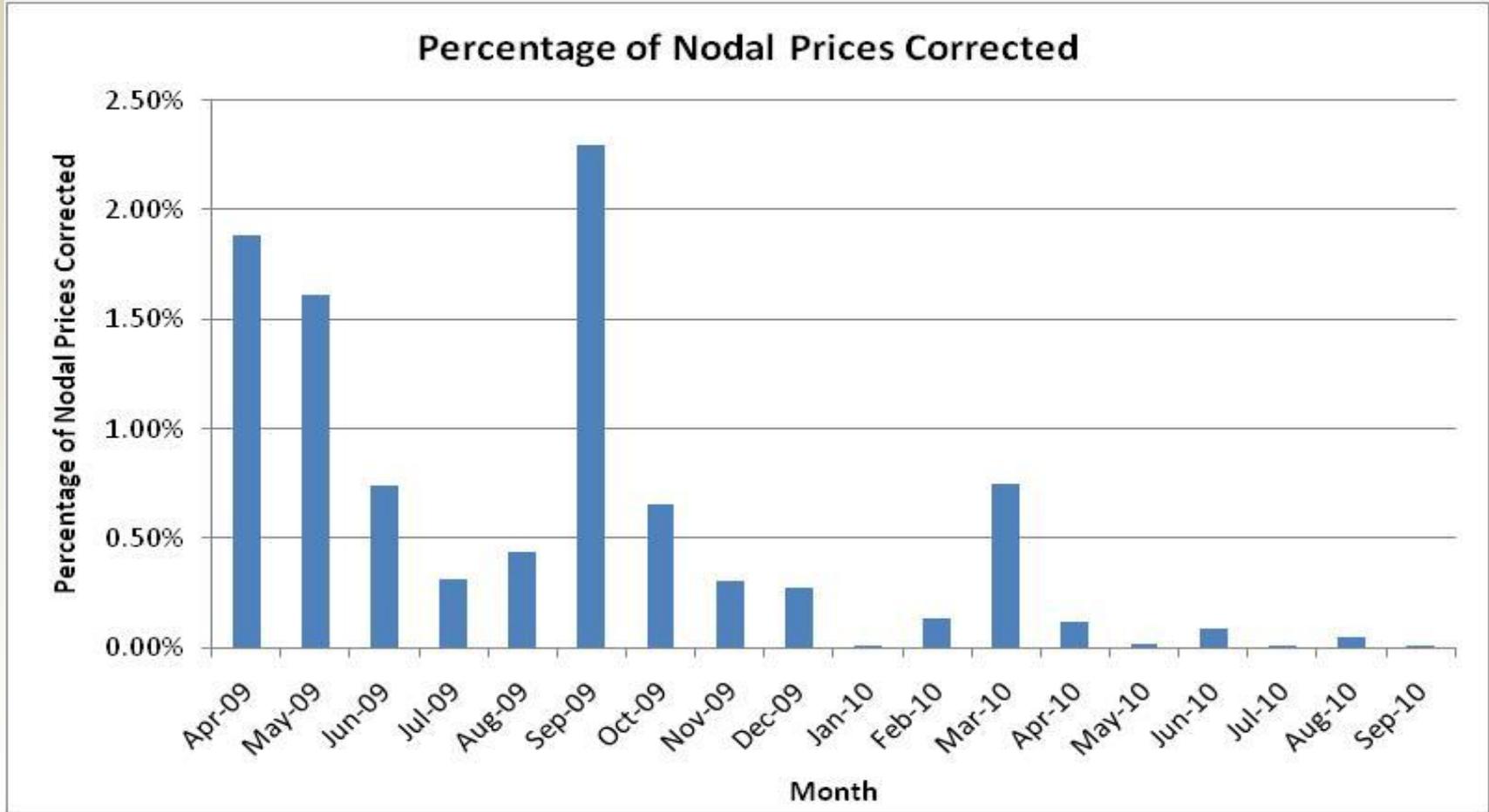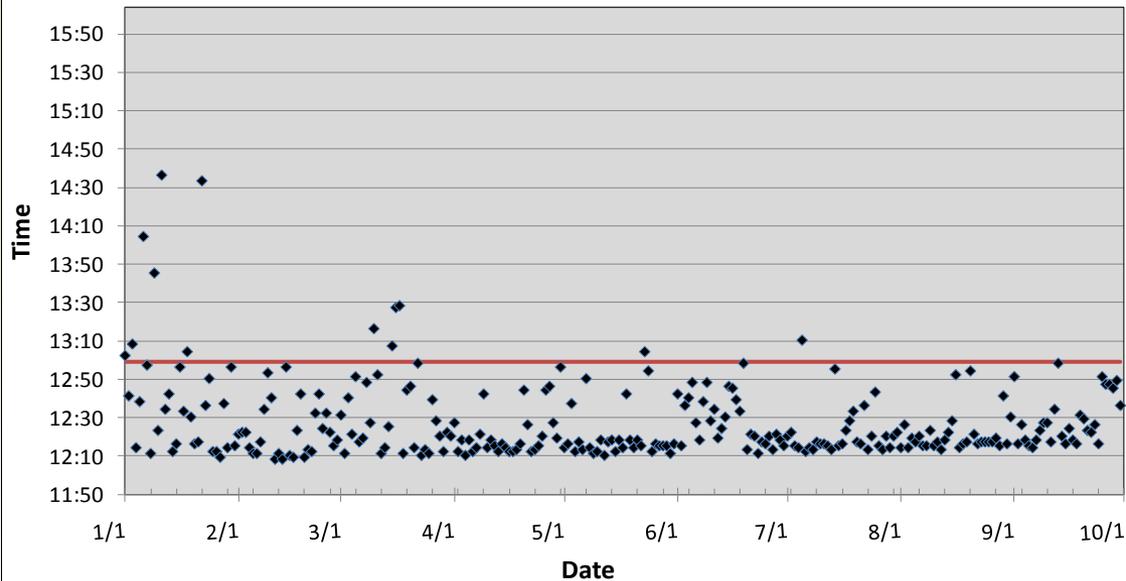# Monthly congestion revenue rights revenue adequacy stabilized.

Note: Net balancing account includes auction revenues

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Frequency of price corrections continues to decrease.

Publishing day-ahead market on time every day for last two months.

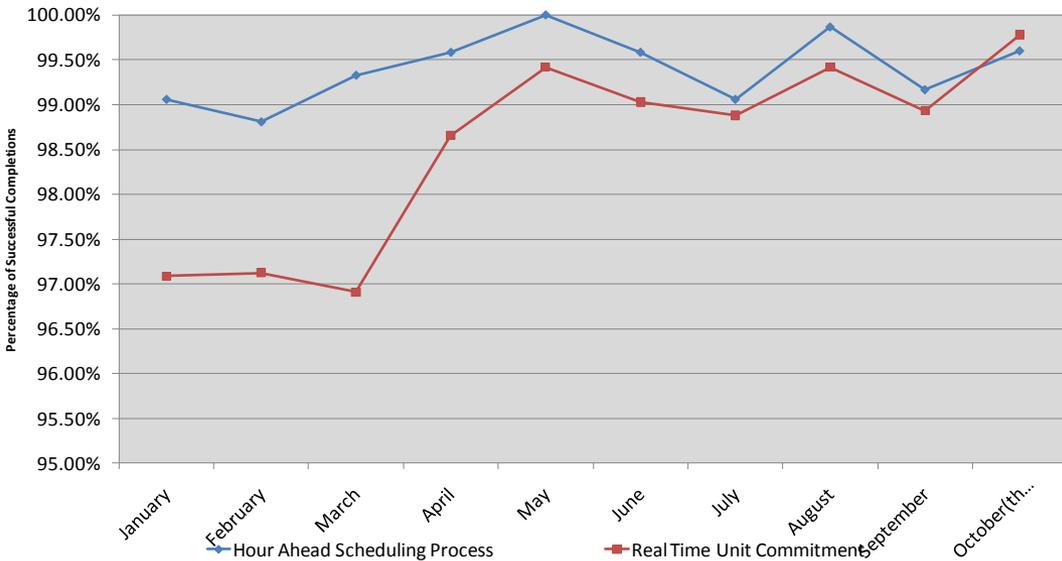2010 DA Publish Time

Monthly Performance	DAM	
	Days On-Time	% Success
January	24	77.42%
February	28	100.00%
March	27	87.10%
April	30	100.00%
May	30	96.77%
June	30	100.00%
July	30	96.77%
August	31	100.00%
September	30	100.00%

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Real-time market success rate reduced slightly.

Hour-Ahead and Real-Time Unit Comimttment Success Rate

Hour Ahead Scheduling Process (HASP)
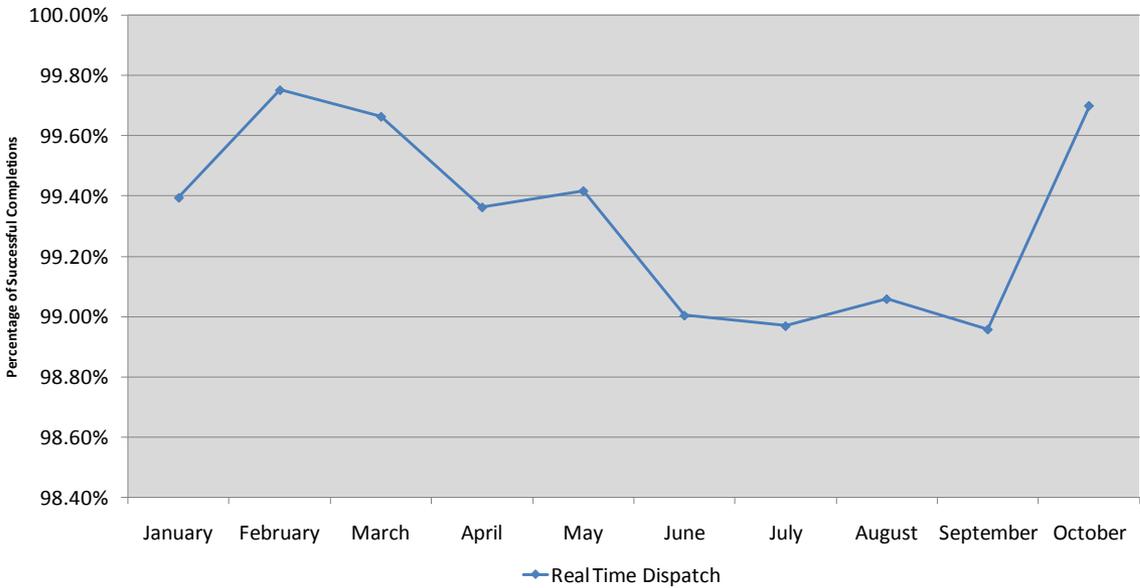
Real Time Unit Commitment Process (RTUC)

Small increase in failures due to:
1) software infeasible solutions
2) database related issues

Monthly Performance	HASP % Success	RTUC % Success
January	99.06%	97.09%
February	98.81%	97.12%
March	99.33%	96.91%
April	99.58%	98.66%
May	100.00%	99.42%
June	99.58%	99.03%
July	99.06%	98.88%
August	99.87%	99.42%
September	99.17%	98.94%
October(thru 10/23)	99.60%	99.78%

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Real-time market completions

Real Time Dispatch Success Rate

Real-time dispatch successful completion declined due to some database timeouts.

Database was split in October to address

Monthly Performance	Real-Time % Success
January	99.40%
February	99.75%
March	99.66%
April	99.36%
May	99.42%
June	99.00%
July	98.97%
August	99.06%
September	98.96%
October(thru 10/23)	99.70%

Real Time 5 Min Dispatch Intervals

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Areas of focus going forward:

- Increase robustness of system

- Increase the flexibility of the market to respond to changes in conditions

- Improve load forecasting capabilities

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