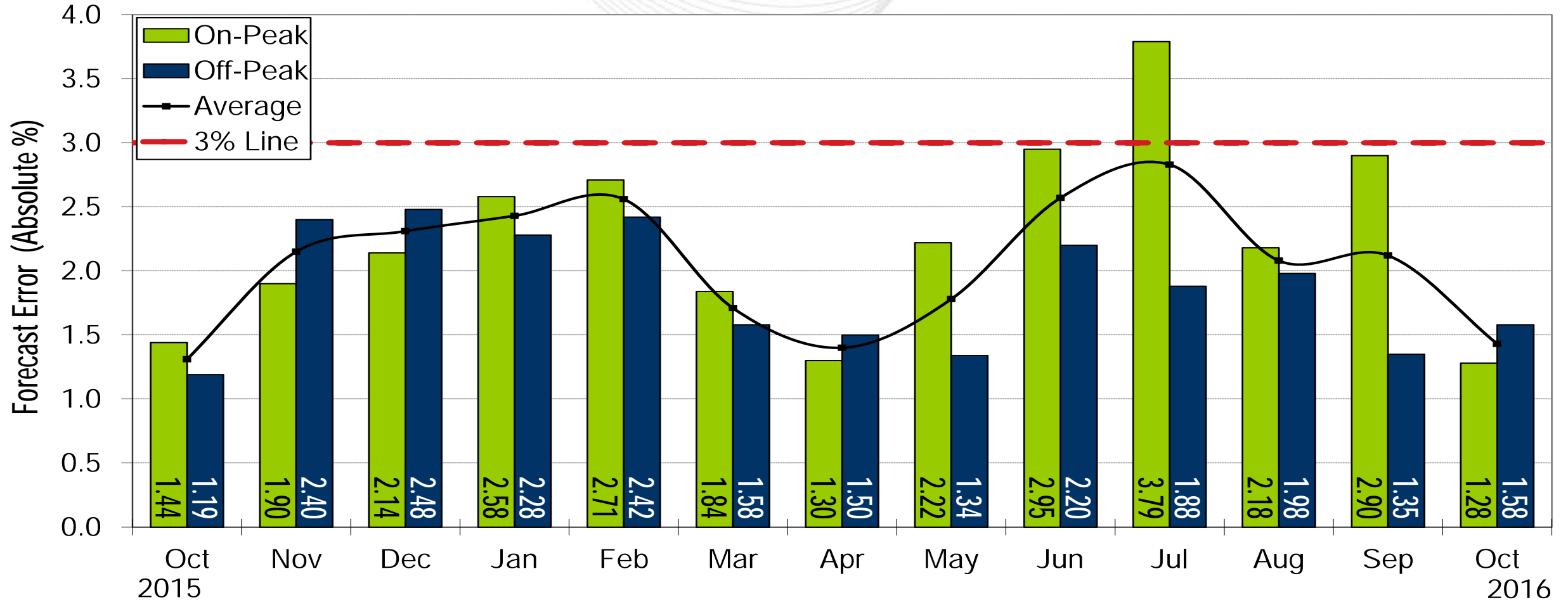




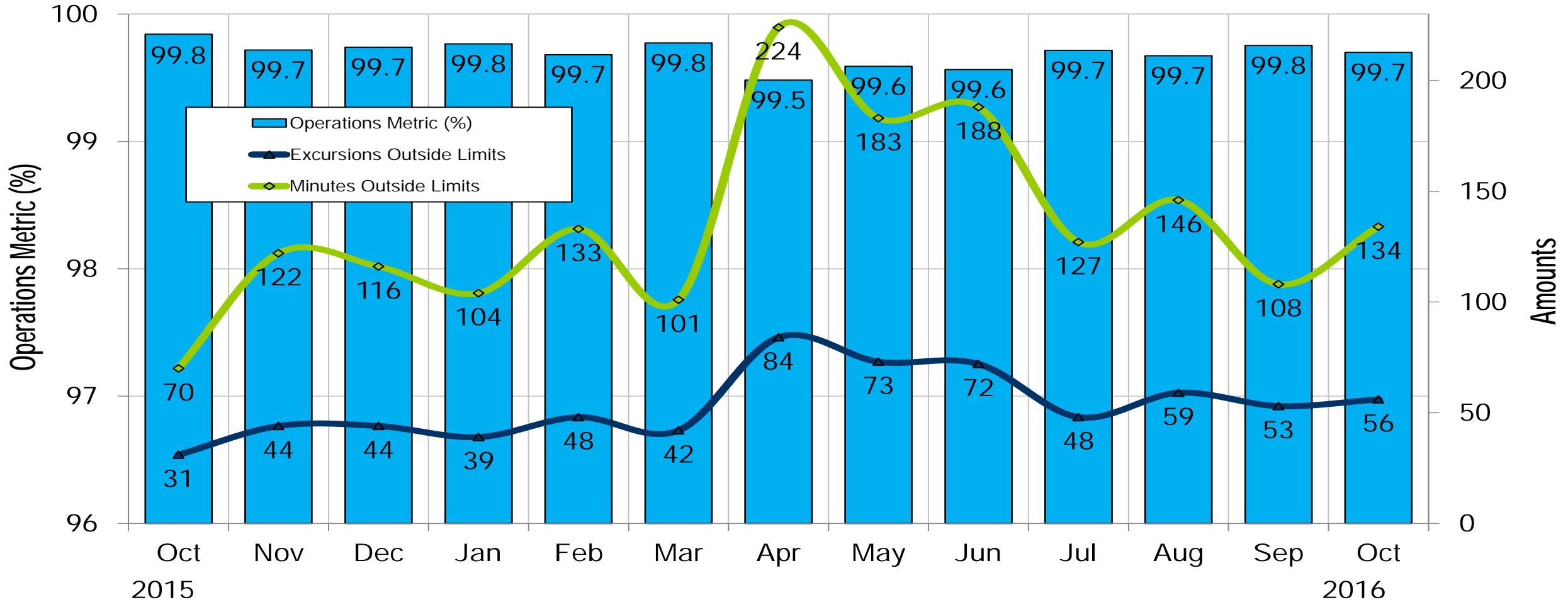
# Operations Report

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Member Committee Webinar  
November 14, 2016

# Load Forecasting Error (Achieved 80% of the Time)

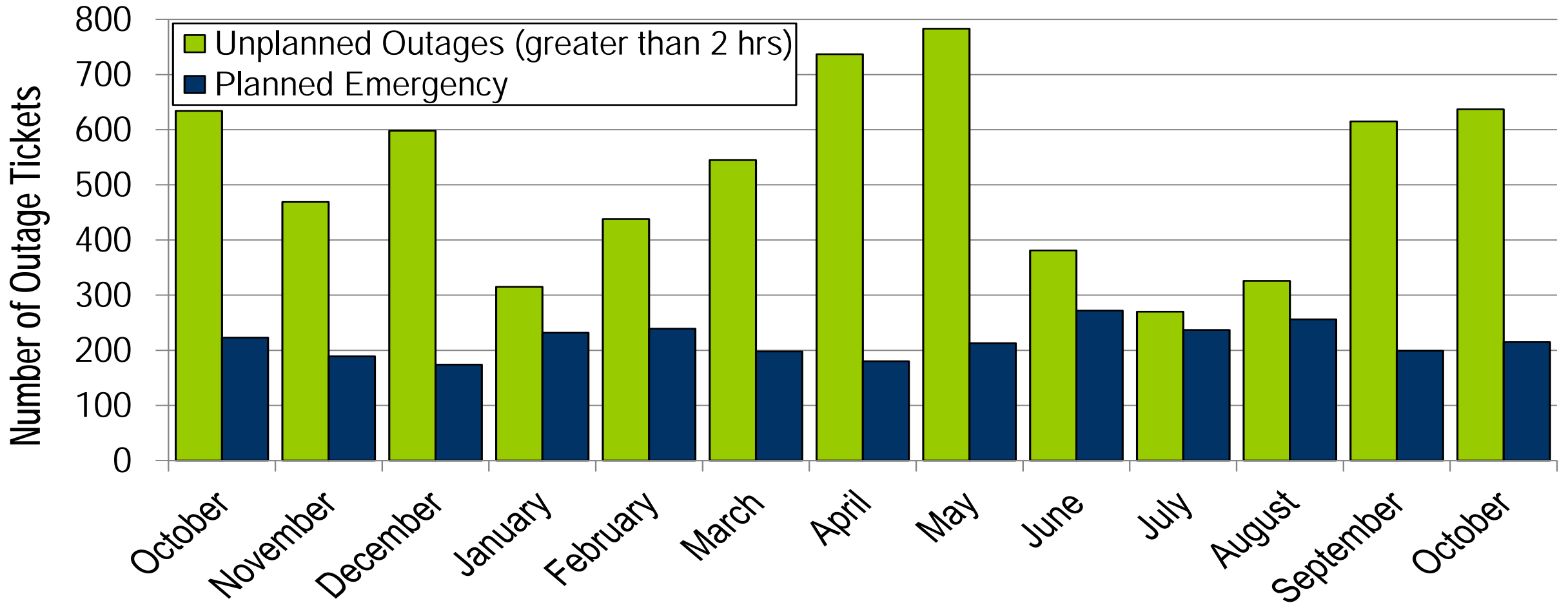


Average RTO load forecast error performance for October was 1.43%, within the goal of 3%.



PJM's BAAL performance has exceeded the goal of 99% for each month in 2016.

- Two spinning events in the month of October
- Three reserve sharing events with NPCC
- The following Emergency Procedures occurred in October:
  - 22 Post-Contingency Local Load Relief Warnings (PCLLRW)
  - 1 Geomagnetic Disturbance Warning
  - 7 High System Voltages
  - 1 Minimum Generation Alert

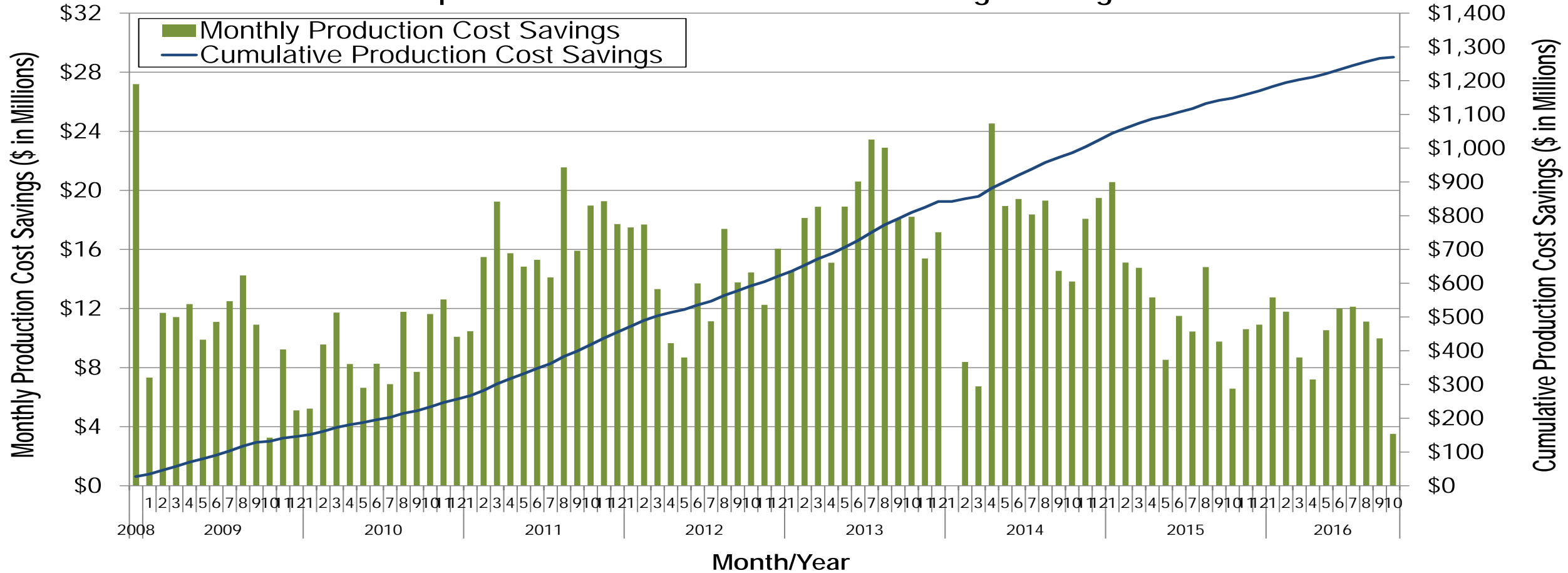


Note: "Unplanned Outages" include tripped facilities. One tripping event may involve multiple facilities.

Event	Date	Start Time	End Time	Duration	Region	Tier 1 Estimate (MW)	Tier 1 Response (MW)
1	10/12/2016	08:21	08:26	00:05	RTO	734.7	402.6
2	10/12/2016	14:40	14:47	00:07	RTO	1253.3	921.8

Event	Date	Start Time	End Time	Duration	Region	Tier 2 Assigned (MW)	Tier 2 Response (MW)	Tier 2 Penalty (MW)
1	10/12/2016	08:21	08:26	00:05	RTO	716.0	716.0	0.0
2	10/12/2016	14:40	14:47	00:07	RTO	196.7	196.7	0.0

## Perfect Dispatch Estimated Production Cost Savings Through October 2016





The year-to-date Perfect Dispatch performance score through October 2016 is 88.68%.

The estimated cumulative production cost savings through October 2016 is over \$1.2 billion with over \$99 million in savings thus far in 2016.

## Member Feedback: Topics and frequency of the Operations Reports

### CURRENT

#### Monthly System Operations Reports

1. Review of Operational Events
2. Review of Operating Metrics

#### Operating Metric Topics

##### System:

- Load Forecast Analysis
- Balancing Authority ACE Limit – Interconnection Frequency Performance
- Emergency Procedures
- Perfect Dispatch

##### Generation:

- Generation Outage Rates Trends, Spin Response and CT LOC

##### Transmission:

- Transmission Outage Summary Trends, PCLLRW Trends

### FUTURE

#### Options:

##### 1. Change Frequency of Review

##### 2. Include Additional Topics:

- System Conditions Summary
- Major Topology Changes
- Weather Summary & Weather trends (3 years)
- Seasonal Comparisons:
  - Load
  - Temperature
  - Generation & Transmission Metrics
- Capacity Performance
- Key Current Topics (quarterly)

##### 3. Combine Reports

# Appendix

## Goal Measurement: Balancing Authority ACE Limit (BAAL)

- The purpose of the new BAAL standard is to maintain interconnection frequency within a predefined frequency profile under all conditions (normal and abnormal), to prevent frequency-related instability, unplanned tripping of load or generation, or uncontrolled separation or cascading outages that adversely impact the reliability of the interconnection. NERC requires each balancing authority demonstrate real-time monitoring of ACE and interconnection frequency against associated limits and shall balance its resources and demands in real time so that its ACE does not exceed the BAAL (BAALLOW or BAALHIGH) for a continuous time period greater than 30 minutes for each event.
- PJM directly measures the total number of BAAL excursions in minutes compared to the total number of minutes within a month. PJM has set a target value for this performance goal at 99% on a daily and monthly basis. In addition, current NERC rules limit the recovery period to no more than 30 minutes for a single event.

Perfect Dispatch refers to the hypothetical least production cost commitment and Dispatch, achievable only if all system conditions (load forecast, unit availability / performance, interchange, transmission outages, etc.) were known and controllable in advance. While being hypothetical and not achievable in reality, this is useful as a baseline for performance measurement.

The Perfect Dispatch performance goal is designed to measure how well PJM commits combustion turbines (CTs) in real time operations compared to a calculated optimal CT commitment profile.

The Perfect Dispatch performance measure is calculated as  $100\% \times (\text{The accumulative year-to-date optimal CT production cost in Perfect Dispatch} / \text{The accumulative year-to-date actual real-time CT production cost})$ .

The Perfect Dispatch performance goal was removed as a goal beginning in 2015. Currently Perfect Dispatch does not have a performance goal, but the metric will continue to be tracked.

The cumulative Estimated Production Cost Savings helps to demonstrate the savings that result from PJM's process changes since the inception of the Perfect Dispatch analysis in 2008. This estimate is determined by comparing the Perfect Dispatch performance for all resources to benchmarks set at the beginning of the Perfect Dispatch analysis. A benchmark of 98.18% is used for comparison of the 2016 metric which is 99.13% through the end of October.