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## **Item 4.3: Operations Report** **(May & June 2014)**

*Trip Doggett*  
President & CEO

Board of Directors Meeting  
ERCOT Public  
August 12, 2014

# Summary – May 2014

- **Operations**

- The peak demand of 52,625 MW on May 30<sup>th</sup> was greater than the mid-term forecast peak of 50,260 MW but less than the May 2013 actual peak demand of 56,209 MW. The instantaneous load on May 30<sup>th</sup> was 52,825 MW.
- Day-ahead load forecast error for May was 3.02%
- ERCOT issued two notifications
  - A single advisory for PRC below 3000 MW
  - A single watch due to market system being unavailable for one hour

- **Planning Activities**

- 233 active generation interconnection requests totaling over 59,700 MW, including 26,400 MW of wind generation as of May 31, 2014. One less request and 700 fewer MW from April 30, 2014.
- 11,049 MW wind capacity in commercial operations May 31, 2014.

# Summary – June 2014

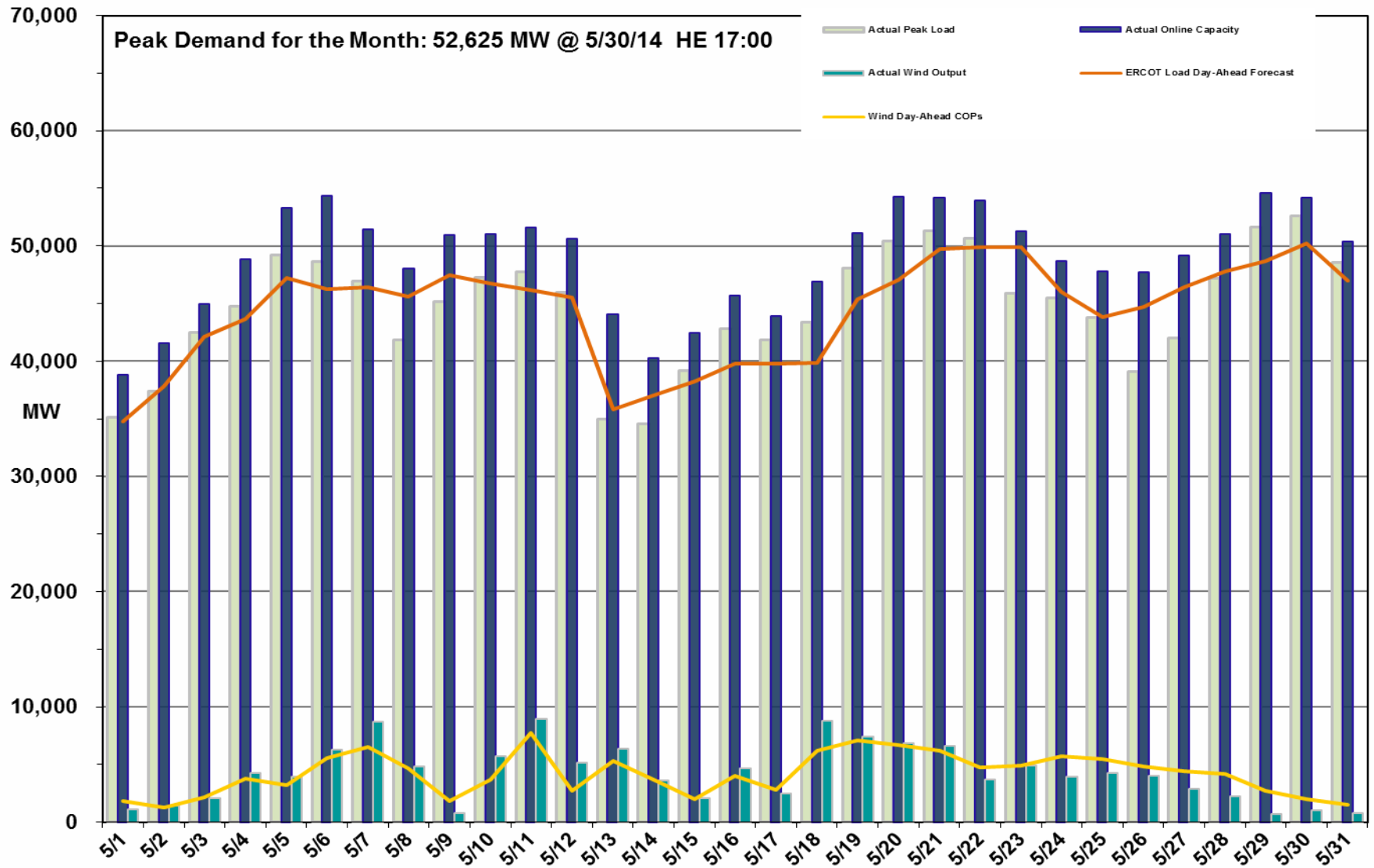
- **Operations**

- The peak demand of 59,754 MW on June 30<sup>th</sup> was less than the mid-term forecast peak of 60,253 MW as well as the June 2013 actual peak demand of 64,418 MW. The instantaneous load on June 30<sup>th</sup> was 59,870 MW.
- Day-ahead load forecast error for June was 3.56%
- ERCOT issued 2 notifications
  - A single advisory for GMD at level K7.
  - A single transmission watch for congestion.

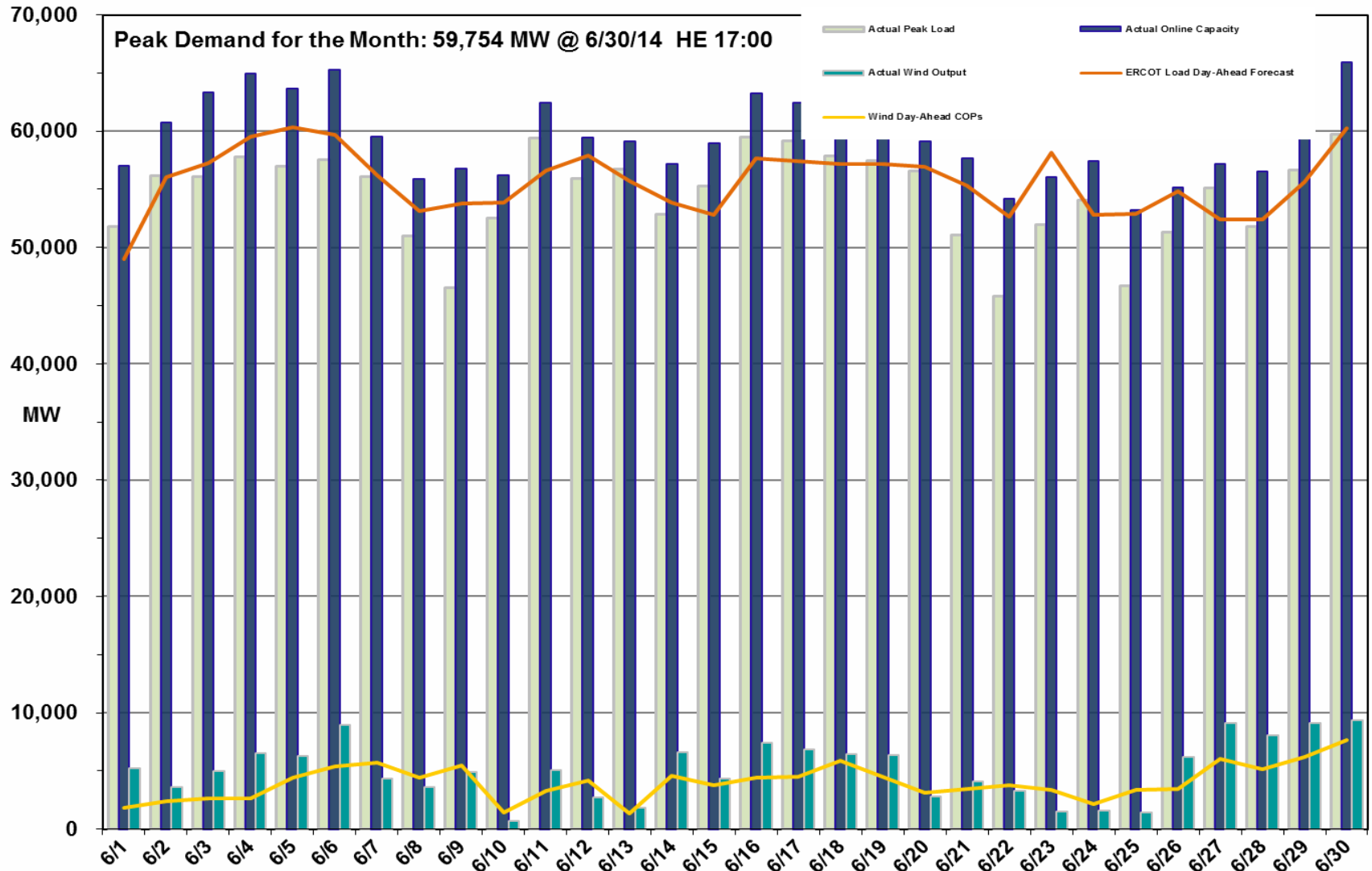
- **Planning Activities**

- 230 active generation interconnection requests totaling over 60,400 MW, including 25,400 MW of wind generation as of June 30, 2014. Three fewer requests and 700 more MW from May 31, 2014.
- 11,575 MW wind capacity in commercial operations on June 30, 2014.

# Daily Peak Demand: Hourly Average Actual vs. Forecast, Wind Day-Ahead COPs & On-line Capacity at Peak – May 2014



# Daily Peak Demand: Hourly Average Actual vs. Forecast, Wind Day-Ahead COPs & On-line Capacity at Peak – June 2014



# Market Statistics – May 2014

| Market Statistics                                                                          | May 2013 | May 2014 | 2013 Average | 2014 YTD Average |
|--------------------------------------------------------------------------------------------|----------|----------|--------------|------------------|
| Percentage of Real-Time load hedged in Day-Ahead Market                                    | 119.39%  | 120.83%  | 121.18%      | 127.52%          |
| Average 'ERCOT Hub Average 345 kV Hub' Settlement Point Price in Day-Ahead Market (\$/MWh) | 34.70    | 38.37    | 34.14        | 46.22            |
| Average 'ERCOT Hub Average 345 kV Hub' Settlement Point Price in Real-Time (\$/MWh)        | 29.94    | 38.07    | 32.45        | 46.65            |

# Market Statistics – June 2014

| <b>Market Statistics</b>                                                                   | <b>June 2013</b> | <b>June 2014</b> | <b>2013 Average</b> | <b>2014 YTD Average</b> |
|--------------------------------------------------------------------------------------------|------------------|------------------|---------------------|-------------------------|
| Percentage of Real-Time load hedged in Day-Ahead Market                                    | 115.52%          | 116.81%          | 121.18%             | 125.73%                 |
| Average 'ERCOT Hub Average 345 kV Hub' Settlement Point Price in Day-Ahead Market (\$/MWh) | 38.78            | 41.86            | 34.14               | 45.36                   |
| Average 'ERCOT Hub Average 345 kV Hub' Settlement Point Price in Real-Time (\$/MWh)        | 32.39            | 36.98            | 32.45               | 44.75                   |

# Operational Performance Measures – May 2014

| Performance Measure                            | Target Met | Further Information                                                                                       |
|------------------------------------------------|------------|-----------------------------------------------------------------------------------------------------------|
| Retail Transaction Performance<br>(Target 98%) | Yes        | <ul style="list-style-type: none"><li>• Retail transaction processing performance was near 100%</li></ul> |
| Settlements Performance<br>(Target 99%)        | Yes        | <ul style="list-style-type: none"><li>• 100% timely statement and invoice posting</li></ul>               |



# Operational Performance Measures – June 2014

| Performance Measure                            | Target Met | Further Information                                                                                       |
|------------------------------------------------|------------|-----------------------------------------------------------------------------------------------------------|
| Retail Transaction Performance<br>(Target 98%) | Yes        | <ul style="list-style-type: none"><li>• Retail transaction processing performance was near 100%</li></ul> |
| Settlements Performance<br>(Target 99%)        | Yes        | <ul style="list-style-type: none"><li>• 100% timely statement and invoice posting</li></ul>               |

# Operational Dashboard – May & June 2014

| Metric                                                                     | Trending as Expected | Further Information                                                                                                                                                                                                                                               |
|----------------------------------------------------------------------------|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Day-Ahead Schedule                                                         | Yes                  | <ul style="list-style-type: none"> <li>• Normal level of market activity and liquidity</li> <li>• Loads appear to have hedged against exposure to Real-Time prices</li> </ul>                                                                                     |
| Day-Ahead Electricity And Ancillary Service Hourly Average Prices          | Yes                  | <ul style="list-style-type: none"> <li>• Hourly average prices correctly reflect the opportunity cost of energy</li> </ul>                                                                                                                                        |
| Day-Ahead vs Real-Time Load Zone Settlement Point Price (Hourly Average)   | Yes                  | <ul style="list-style-type: none"> <li>• Day-Ahead &amp; Real-Time prices for different Load Zones reflect relative transmission congestion</li> </ul>                                                                                                            |
| Day-Ahead vs Real-Time Trading Hub Settlement Point Price (Hourly Average) | Yes                  | <ul style="list-style-type: none"> <li>• The average energy price across the system reflects marginal offers and scarcity pricing impacts</li> <li>• Higher average Day-Ahead energy prices reflect the risk premium between Day-Ahead &amp; Real-Time</li> </ul> |
| Day-Ahead Reliability Unit (DRUC) Commitment Monthly Summary               | Yes                  | <ul style="list-style-type: none"> <li>• Capacity committed by the DRUC process indicates the level of out of market activity needed Day-Ahead to maintain reliability</li> <li>• No resource was committed in DRUC in this period</li> </ul>                     |

# Operational Dashboard – May & June 2014

| Metric                                                    | Trending as Expected | Further Information                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hourly Reliability Unit Commitment (HRUC) Monthly Summary | Yes                  | <ul style="list-style-type: none"> <li>Capacity committed by the HRUC process indicates the level of out of market activity needed during the Operating Day to maintain reliability</li> <li>11 resources were committed in May and 6 resources were committed in June to help resolve congestion or capacity.</li> </ul> |
| Supplemental Ancillary Service Market Monthly Summary     | Yes                  | <ul style="list-style-type: none"> <li>Normal trend indicates that deliverability was not a major concern</li> </ul>                                                                                                                                                                                                      |
| Non-Spinning Reserve Service Deployment                   | Yes                  | <ul style="list-style-type: none"> <li>Offline Non-Spin was deployed to solve local congestion in May</li> <li>Offline Non-Spin was not deployed in June</li> </ul>                                                                                                                                                       |
| Congestion Revenue Rights Price Convergence               | Yes                  | <ul style="list-style-type: none"> <li>Normal trend indicates good ability of market participants to estimate value of hedges</li> </ul>                                                                                                                                                                                  |

# Operational Dashboard – May 2014

| Metric                      | Trending as Expected | Further Information                                                                                                                                                                                                                                             |
|-----------------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Retail Transactions         | No                   | <ul style="list-style-type: none"> <li>Mass Transition of 4975 ESI IDs</li> <li>Seasonal variations in transaction volumes trending as expected</li> </ul>                                                                                                      |
| Advanced Metering           | Yes                  | <ul style="list-style-type: none"> <li>98.2 % of ERCOT load settled with 15-minute interval data.</li> <li>6.6M Advanced Metering System (AMS) Electric Service Identifier (ESIID)s included in settlement as of May 2014.</li> </ul>                           |
| Settlement Dollars          | Yes                  | <ul style="list-style-type: none"> <li>As of settlement of Operating Day 05/31/2014, the daily average settlement dollars for May are \$13.65M, which is down from \$14.52M in April 2014 and higher than May 2013 which had an average of \$12.87M.</li> </ul> |
| Revenue Neutrality          | Yes                  | <ul style="list-style-type: none"> <li>As of settlement of Operating Day 05/31/2014, Revenue Neutrality uplift is a charge of \$1.16M, which is down from a \$8.92M charge in April 2014 and a \$7.28M charge in May 2013.</li> </ul>                           |
| Market-Based Uplift to Load | Yes                  | <ul style="list-style-type: none"> <li>As of settlement of Operating Day 05/31/2014, the market-based uplift to load is a charge of \$0.36M, as opposed to a \$24.22M charge in April 2014 and a charge of \$4.12M in May 2013.</li> </ul>                      |

# Operational Dashboard – June 2014

| Metric                      | Trending as Expected | Further Information                                                                                                                                                                                                                                             |
|-----------------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Retail Transactions         | Yes                  | <ul style="list-style-type: none"> <li>Seasonal variations in transaction volumes trending as expected</li> </ul>                                                                                                                                               |
| Advanced Metering           | Yes                  | <ul style="list-style-type: none"> <li>97.9 % of ERCOT load settled with 15-minute interval data.</li> <li>6.6M Advanced Metering System (AMS) Electric Service Identifier (ESIIDs) included in settlement as of June 2014.</li> </ul>                          |
| Settlement Dollars          | Yes                  | <ul style="list-style-type: none"> <li>As of settlement of Operating Day 6/30/2014, the daily average settlement dollars for June are \$13.00M, which is down from \$13.40M in May 2014 and from June 2013 which had an average of \$13.61M.</li> </ul>         |
| Revenue Neutrality          | Yes                  | <ul style="list-style-type: none"> <li>As of settlement of Operating Day 6/30/2014, Revenue Neutrality uplift is a charge of \$1.19M, which is up from May 2014 which was a charge of \$1.16M and down from June 2013 which was a charge of \$4.82M.</li> </ul> |
| Market-Based Uplift to Load | Yes                  | <ul style="list-style-type: none"> <li>As of settlement of Operating Day 6/30/2014, the market-based uplift was a credit of \$11.52M, as opposed to a \$0.36M charge in May 2014 and a credit of \$11.89M in June 2013.</li> </ul>                              |

# Market Enhancements Under Consideration

| Enhancement                                    | Further Information                                                                                                              |
|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Evaluating market design improvement proposals | <ul style="list-style-type: none"><li>• ERCOT is working with stakeholders in RATF meetings to improve the ORDC design</li></ul> |

# Major Project Highlights (as of 7/25/2014)

| Project                                                                                                                                                                                                 | Trending as Expected                                | Further Information                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>2014 Market Enhancements –</b><br/>Delivery of several NPRRs to address Operating Reserve Demand Curve (ORDC) enhancements, Loads in SCED enhancements, and other related Market enhancements</p> | <p>Yes – <i>schedule</i><br/>No – <i>budget</i></p> | <ul style="list-style-type: none"> <li>• Production changes occurred in three releases, with the final go-live occurring as scheduled on June 1               <ul style="list-style-type: none"> <li>○ February 2014: <b>NPRR240</b>, Proxy Energy Offer Curve</li> <li>○ April 2014: <b>NPRR564</b>, Thirty-Minute Emergency Response Service (ERS) and Other ERS Revisions</li> <li>○ June 2014: <b>NPRR568</b>, Real-Time Reserve Price Adder Based on Operating Reserve Demand Curve; <b>NPRR555</b>, Load Resource Participation in Security-Constrained Economic Dispatch; <b>NPRR532</b>, Performance Measurement and Verification and Telemetry Requirements for Load Resources Providing Non-Spin; <b>NPRR591</b>, As-Built Clarification &amp; Corrections Related to NPRR568; <b>NPRR598</b>, Clarify Inputs to PRC &amp; ORDC, and updates to MIS Dashboards, ERCOT.com and Mobile App</li> </ul> </li> <li>• Some small issues were worked during Stabilization and resolved with Release 4</li> <li>• <b>New requirements found during testing, more defect work than planned, and additional hours due to extension of Stabilization period led to project costs being higher than forecasted</b></li> </ul> |
| <p><b>EMS Upgrade –</b><br/>Upgrade EMS and OTS from ALSTOM EMP 2.3 to EMP 3.0</p>                                                                                                                      | <p>Yes</p>                                          | <ul style="list-style-type: none"> <li>• The project is tracking to the approved schedule and budget</li> <li>• Planning Phase 2 – the tasks in progress are:               <ul style="list-style-type: none"> <li>○ Draft Execution phase schedule and budget development in progress</li> <li>○ Major SOW reviews and updates complete at ERCOT and ALSTOM; minor text updates, pricing and schedule revisions in progress</li> </ul> </li> <li>• Other work completed or in progress:               <ul style="list-style-type: none"> <li>○ Mid-Term Load Forecast unit testing by ERCOT complete; additional testing and fixes in progress</li> <li>○ Load Frequency Control unit testing in progress at ERCOT; additional testing and fixes in progress</li> <li>○ Network Analysis unit testing of the planned groups of customs in progress at ALSTOM and ERCOT; unit testing of planned standard/base groups complete; issues being fixed</li> <li>○ SCADA – no further issues reported for the work previously completed</li> <li>○ ETS (CIM Importer) – a minor issue reported and fixed for the work previously completed</li> </ul> </li> </ul>                                                                |

# Major Project Highlights (as of 7/25/2014) – continued

| Project                                                                                                                                                                                                                                                                               | Trending as Expected                         | Further Information                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Oracle 11g Upgrade –</b><br/>Upgrade Oracle databases and related tools that support ERCOT's application portfolio from Oracle 10g to Oracle 11g</p>                                                                                                                            | <p>Yes</p>                                   | <ul style="list-style-type: none"> <li>• Upgrades have been completed for three of the last four remaining applications in scope of this project               <ul style="list-style-type: none"> <li>○ Market Information System (MIS)</li> <li>○ Credit Monitoring and Management (CMM)</li> <li>○ Congestion Revenue Rights (CRR)</li> </ul> </li> <li>• The remaining fourth application, Nodal TIBCO, has completed upgrades in both the development and iTest environments and is pending completion for the production environment.               <ul style="list-style-type: none"> <li>○ This final upgrade has been rescheduled from mid-July to early August as a result of issues found during testing that extended the testing window, as well as to avoid scheduling conflicts with Release 4 activities in late July</li> </ul> </li> </ul>                                                                                                                                                                                                                                                                                                         |
| <p><b>ABB MMS/OS Technology Refresh –</b><br/>Improve ERCOT's ability to support and maintain the Market Management System (MMS) and Outage Scheduler (OS) system by upgrading the underlying infrastructure and its required components to versions on mainstream vendor support</p> | <p><b>No – schedule</b><br/>Yes – budget</p> | <ul style="list-style-type: none"> <li>• <b>Ongoing negotiations with a hardware vendor pushed out the Planning phase exit by six weeks; project is expected to gate into Execution phase in mid-August</b></li> <li>• ERCOT and ABB agreed on a revised scope and cost for the remainder of the project. ABB is on track to deliver recompiled code to ERCOT by end of August 2014. Integrated testing follows and will take place at ERCOT's site.</li> <li>• Other ERCOT milestones completed include:               <ul style="list-style-type: none"> <li>○ Delivery of Development environment at ERCOT site. This included procuring, building and installing the necessary hardware, as well as installing required third party software</li> <li>○ Completion of test strategy and test scripts</li> <li>○ Delivery of documented test procedures, to be used by ABB for vendor unit testing</li> <li>○ Delivery of Technical Architecture document for final review; those reviews currently underway</li> <li>○ Completion of the work breakdown structure for the Execution phase</li> </ul> </li> </ul>                                                |
| <p><b>Settlement System Upgrade –</b><br/>Replace proprietary code, data structures and tools with an ERCOT supported solution</p>                                                                                                                                                    | <p>Yes</p>                                   | <ul style="list-style-type: none"> <li>• Project continues to track to approved schedule that delivers to production in Q4 2014               <ul style="list-style-type: none"> <li>○ On track for production go-live of Data Aggregation functionality with Release 4 in July 2014</li> <li>○ Settlements and Billing (S&amp;B) go-live follows with Release 6 in December 2014</li> </ul> </li> <li>• S&amp;B development and testing efforts expected to complete on time               <ul style="list-style-type: none"> <li>○ Code development now 85% complete for required components (up from 73% in June)</li> <li>○ Delivery of Eligibility code remains critical path and this work closely monitored to ensure no delays</li> <li>○ Functional Acceptance Testing (FAT) completion at 78% (up from 57% in June)</li> </ul> </li> <li>• Successfully added two NPRRs to project scope for delivery with S&amp;B go-live               <ul style="list-style-type: none"> <li>○ NPRR580, Congestion Revenue Rights Credit Calculations &amp; Payments</li> <li>○ NPRR,467 Balancing Account resettlement Due to DAM Resettlement</li> </ul> </li> </ul> |





The ***ERCOT Monthly Operational Overview*** is posted on or about the 15<sup>th</sup> of the following month to (<http://www.ercot.com/committees/board/>)