



Item 4.3: Operations Report **(September & October 2015)**

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President & CEO

Board of Directors Meeting
ERCOT Public
December 8, 2015

Summary – September 2015

Operations

- The peak demand of 64,430 MW on September 8th was greater than the mid-term forecast peak of 62,619 MW of the same operating period. In addition, it was slightly greater than the September 2014 actual peak demand of 64,397 MW. The instantaneous peak load on September 8th was 64,507 MW.
- Day-ahead load forecast error for September was 2.32%.
- ERCOT issued seven notifications.
 - Three Operational Information notices due to a GMD (Geomagnetic Disturbance) warning of K-7
 - Two advisories due to GMD alerts of K-7
 - One OCN due to the development of a new Generic Transmission Constraint (GTC) due to a local voltage stability issue
 - One OCN due to a delay in the posting of MIS reports

Planning Activities

- 267 active generation interconnection requests totaling 62,993 MW, including 24,648 MW of wind generation as of September 30, 2015. Two fewer requests and a decrease of 402 MW from August 31, 2015.
- 14,192 MW wind capacity in commercial operations on September 30, 2015.

Summary – October 2015

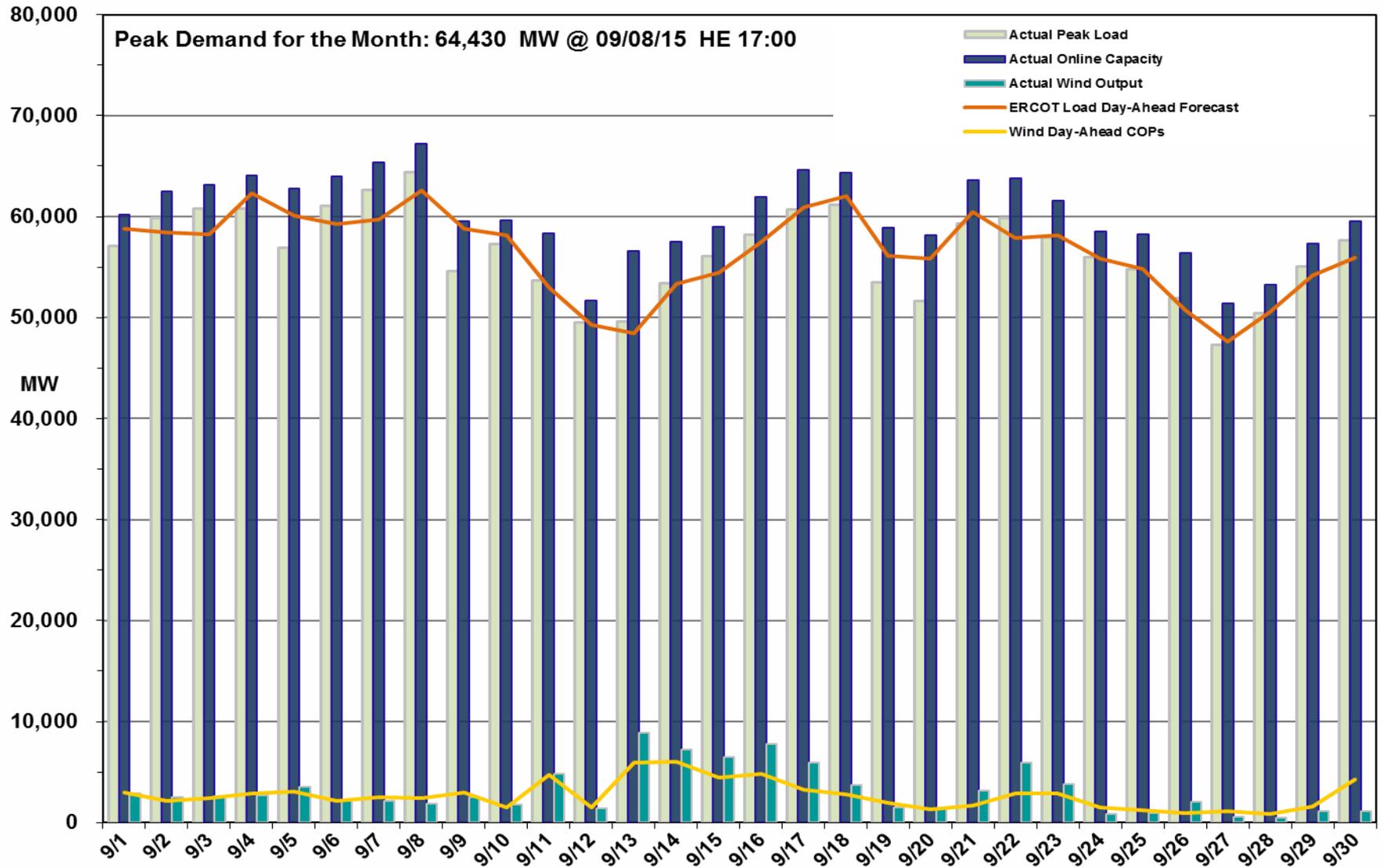
Operations

- The peak demand of 59,153 MW on October 12th was greater than the day-ahead mid-term forecast peak of 57,378 MW of the same operating period. In addition, it was slightly greater than the October 2014 actual peak demand of 58,421 MW. The instantaneous peak load on October 12th was 59,337 MW.
- Day-ahead load forecast error for October was 2.46%.
- ERCOT issued six notifications.
 - One advisory due to a GMD alert of K-7
 - One media appeal for energy conservation due to a potential Rio Grande Valley import limit exceedance
 - Two transmission emergency notices due to a potential Rio Grande Valley import limit exceedance
 - One OCN due to a projected reserve capacity insufficiency
 - One OCN due to a significant rain event affecting the ERCOT region

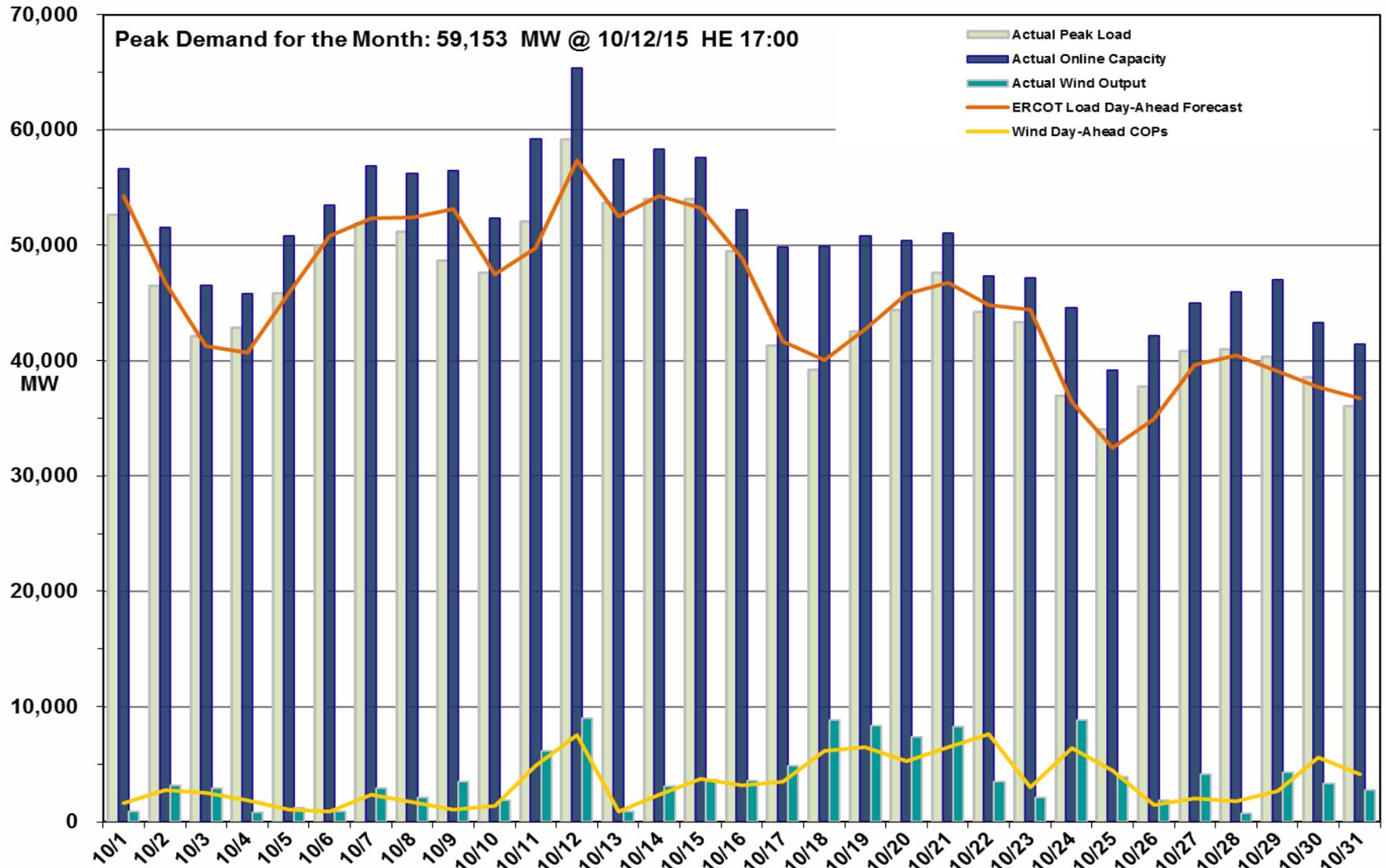
Planning Activities

- 269 active generation interconnection requests totaling 63,026 MW, including 24,753 MW of wind generation, as of October 31, 2015. Two additional requests and an increase of 33 MW from September 30, 2015.
- 14,386 MW wind capacity in commercial operations on October 31, 2015.

Daily Peak Demand: Hourly Average Actual vs. Forecast, Wind Day-Ahead COPs & On-line Capacity at Peak – September 2015



Daily Peak Demand: Hourly Average Actual vs. Forecast, Wind Day-Ahead COPs & On-line Capacity at Peak – October 2015



Market Statistics – September 2015

Market Statistics	September 2014	September 2015	2014 Average	2015 YTD Average
Percentage of Real-Time load hedged in Day-Ahead Market	118.06%	123.35%	124.80%	131.53%
Average 'ERCOT Hub Average 345 kV Hub' Settlement Point Price in Day-Ahead Market (\$/MWh)	36.00	26.20	40.81	30.65
Average 'ERCOT Hub Average 345 kV Hub' Settlement Point Price in Real-Time (\$/MWh)	34.53	24.53	38.87	27.96
Average East Houston Fuel Index Price (\$/MMBtu)	3.92	2.61	4.31	2.73

Market Statistics – October 2015

Market Statistics	October 2014	October 2015	2014 Average	2015 YTD Average
Percentage of Real-Time load hedged in Day-Ahead Market	126.01%	126.47%	124.80%	131.02%
Average 'ERCOT Hub Average 345 kV Hub' Settlement Point Price in Day-Ahead Market (\$/MWh)	37.21	22.55	40.81	29.90
Average 'ERCOT Hub Average 345 kV Hub' Settlement Point Price in Real-Time (\$/MWh)	34.23	21.41	38.87	27.36
Average East Houston Fuel Index Price (\$/MMBtu)	3.72	2.35	4.31	2.69

Operational Performance Measures – Sep & Oct 2015

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

Operational Dashboard – September & October 2015

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

Operational Dashboard – September & October 2015

Metric	Trending as Expected	Further Information
Hourly Reliability Unit Commitment (HRUC) Monthly Summary	Yes	<ul style="list-style-type: none"> Capacity committed by the HRUC process indicates the level of out of market activity needed during the Operating Day to maintain reliability 9 resources were committed in September to resolve congestion; 14 resources were committed in October to resolve congestion, capacity and voltage stability.
Supplemental Ancillary Service Market Monthly Summary	Yes	<ul style="list-style-type: none"> Normal trend indicates that deliverability was not a major concern
Non-Spinning Reserve Service Deployment	Yes	<ul style="list-style-type: none"> Offline Non-Spin was deployed in September and October due to transmission congestion
Congestion Revenue Rights Price Convergence	Yes	<ul style="list-style-type: none"> Normal trend indicates good ability of market participants to estimate value of hedges

Operational Dashboard – September 2015

Metric	Trending as Expected	Further Information
Retail Transactions	Yes	<ul style="list-style-type: none"> Seasonal variations in transaction volumes trending as expected
Advanced Metering	Yes	<ul style="list-style-type: none"> 98.7 % of ERCOT load settled with 15-minute interval data. 6.8M Advanced Metering System (AMS) Electric Service Identifier (ESIIDs) included in settlement as of September 2015.
Settlement Dollars	Yes	<ul style="list-style-type: none"> As of settlement of Operating Day 09/30/2015, the daily average settlement dollars for September are \$9.99M, which is down from \$18.27M in August 2015 and down from September 2014 which had an average of \$13.12M.
Revenue Neutrality	Yes	<ul style="list-style-type: none"> As of settlement of Operating Day 09/30/2015, Revenue Neutrality uplift is a charge of \$4.74M, which is up from a \$0.14M charge in August 2015 and down from a \$7.90M charge in September 2014.
Market-Based Uplift to Load	Yes	<ul style="list-style-type: none"> As of settlement of Operating Day 09/30/2015, the market-based uplift to load is a charge of \$4.18M, as opposed to a \$63.44M charge in August 2015 and a charge of \$12.80M in September 2014.

Operational Dashboard – October 2015

Metric	Trending as Expected	Further Information
Retail Transactions	Yes	<ul style="list-style-type: none"> Seasonal variations in transaction volumes trending as expected
Advanced Metering	Yes	<ul style="list-style-type: none"> 98.7% of ERCOT load settled with 15-minute interval data. 6.8M Advanced Metering System (AMS) Electric Service Identifier (ESIIDs) included in settlement as of October 2015.
Settlement Dollars	Yes	<ul style="list-style-type: none"> As of settlement of Operating Day 10/31/2015, the daily average settlement dollars for October are \$8.95M, which is down from \$9.99M in September 2015 and down from October 2014 which had an average of \$15.96M.
Revenue Neutrality	Yes	<ul style="list-style-type: none"> As of settlement of Operating Day 10/31/2015, Revenue Neutrality uplift is a charge of \$3.25M, which is up from September 2015 which was a charge of \$4.74M and up from October 2014 which was a charge of \$1.42M.
Market-Based Uplift to Load	Yes	<ul style="list-style-type: none"> As of settlement of Operating Day 10/31/2015, the market-based uplift was a charge of \$16.25M, as opposed to a charge of \$4.18M in September 2015 and a charge of \$24.26M in October 2014.

Market Enhancements Under Consideration

Enhancement	Further Information
Evaluating market design improvement proposals	<ul style="list-style-type: none">• Future Ancillary Services Team (FAST) Activity<ul style="list-style-type: none">• NPRR 667 was posted on 11/18/2014• Brattle presented the results from the Cost Benefit Analysis (CBA) on the Future Ancillary Services framework on 11/9/2015• Full report to be completed before end of 2015• Next steps: Stakeholders to consider NPRR and CBA beginning January 2016
Evaluating Pilot Project Feasibility	<ul style="list-style-type: none">• No current pilot projects

Major Project Highlights (as of 11/19/2015)

Project	Trending as Expected	Further Information
<p>EMS Upgrade Program – Upgrade EMS and OTS from ALSTOM EMP 2.3 to EMP 3.0</p>	<p>Yes</p>	<ul style="list-style-type: none"> • Program is in the Execution Phase and tracking to the planned schedule and budget • ALSTOM Development <ul style="list-style-type: none"> ◦ Providing defect fixes and testing support • ERCOT Development <ul style="list-style-type: none"> ◦ Phase 6.1 & 6.2 defect fixes delivered, currently working on Phase 6.3 defect resolution • Infrastructure <ul style="list-style-type: none"> ◦ Production application installations and testing in progress • Testing <ul style="list-style-type: none"> ◦ Functional Acceptance Testing (FAT) ongoing ◦ EMS internal integrated testing ongoing ◦ Integrated testing with down stream systems completed - next test pending results analysis ◦ Failover, backups and recovery testing ongoing ◦ Close Loop testing begins in March 2016 ◦ Go-live scheduled for May 2016
<p>NMMS Upgrade Project – Replace the current Siemens NMMS application with the next generation of model management software available from Siemens</p>	<p>No</p>	<ul style="list-style-type: none"> • As reported in October 2015, the team is modifying the scope and the project approach to align business processes with the capabilities of the vendor solution <ul style="list-style-type: none"> ◦ Based on a redistribution of work, the vendor has delivered a revised estimate for schedule and budget to address their deliveries; ERCOT is now evaluating the full schedule and budget impacts, inclusive of ERCOT deliveries ◦ The team continues to closely monitor the vendor development progress and to assess the quality with monthly development check points and hands-on demos of the application. A scheduled check-point, held in mid-November, indicates development efforts are progressing as planned ◦ A change control is targeted for Executive review and approval by the end of December 2015

Major Project Highlights (as of 11/19/2015) – continued

Project	Trending as Expected	Further Information
<p>OSI PI Visualization Enhancements – Provide hardware and OSI PI tools for improved visualization to Operations staff to support development of control room displays and web-based tools that delivers fast, easy, and secure access to all PI System data.</p>	<p>Yes</p>	<ul style="list-style-type: none"> • As previously reported, the team extended the schedule in order to implement environment recommendations resulting from a cyber security assessment. A change control was approved in late October that extended the Execution phase into December; however, budget remains intact <ul style="list-style-type: none"> ◦ The CCA environment components went live in early November ◦ Work to deliver the remaining non-CCA environment components continues and is expected to complete by late December
<p>CIP v5 Readiness Program – Develop, modify and implement processes, procedures, workflows, and tools to ensure ERCOT's compliance with NERC CIP v5 standards</p>	<p>No</p>	<ul style="list-style-type: none"> • NERC Critical Infrastructure Protection (CIP) Cybersecurity Standards version 5 is a regulatory requirement that is effective April 1, 2016 • The overall program is managed by the Readiness Project which is on schedule. The following efforts are ongoing: <ul style="list-style-type: none"> ◦ Changes to corporate standards, policies, procedures and workflows ◦ Enterprise wide compliance training (completes in December) ◦ Access management & recovery plans ◦ Change and configuration management ◦ Information protection & incident response ◦ Asset management ◦ Remote access • The following projects are on track to deliver program dependencies <ul style="list-style-type: none"> ◦ Configuration Management System and Privileged Account Management • The following projects have completed <ul style="list-style-type: none"> ◦ Firewall Access System, Next Generation Scanning and Information Technology Change Management ◦ The budget is trending unfavorable due to additional internal labor required to develop custom solutions

Major Project Highlights (as of 11/19/2015) – continued

Project	Trending as Expected	Further Information
<p>Data Center 4.0 Optimization (DC4) Program – Replace the aging data center infrastructure with modernized infrastructure technologies to minimize the impact of failures, support future business growth, deliver highly automated next-generation infrastructure services, and ensure sustained reliability</p>	Yes	<ul style="list-style-type: none"> • The Program Control is in Planning and is tracking to the approved schedule and budget <ul style="list-style-type: none"> ◦ Planning effort includes the development of a migration framework, analysis of the asset inventory, development of the migration patterns, and planning the migrations based on resource, project, business, and release dependencies • Other projects under the program: <ul style="list-style-type: none"> ◦ The DC4-Compute-DB Infrastructure Install and Migration project is in Initiation and is tracking as expected. Resource and project task planning is underway
<p>Enterprise Resource Management – Provide a single, integrated software solution for Human Resource, Accounting/ Finance, Purchasing, Asset Management and related general business planning, strategy, and reporting functions</p>	No	<ul style="list-style-type: none"> • The project is in process of extending Planning activities into January 2016 which could impact the target go-live schedule and overall budget; impact, if any, will be determined upon completion of Planning activities • Completed and ongoing activities include: <ul style="list-style-type: none"> ◦ Completion of initial Discovery and Configuration Design discussions for Human Resources (HR) and Financial (FIN) business process flows ◦ Completion of the Workday Prototype System for HR, based on information gathered from the discovery and configuration sessions. The FIN components are on track to deliver in late November 2015 ◦ Onsite meetings to review the prototype system with ERCOT staff and the vendor commence in mid-November and continue through early December 2015 ◦ The team has also started addressing system integrations needed with contingent labor, contract management and identify/access management systems at ERCOT. These activities will continue into January 2016

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