Item 4.1: CEO Update

Bill Magness
President & CEO
ERCOT

Board of Directors Meeting

ERCOT Public
December 13, 2016
<table>
<thead>
<tr>
<th>Major Revenue Variances</th>
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<tbody>
<tr>
<td>$2.1 M over budget: system administration fees favorable due to a stronger economy</td>
<td></td>
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<table>
<thead>
<tr>
<th>Major Expenditure Variances</th>
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<tbody>
<tr>
<td>$2.8 M under budget: resource management ($2.5 M staffing management; $0.8 M project work; -$0.5 staff backfill)</td>
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<tr>
<td>$2.0 M under budget: computer hardware and other equipment purchases</td>
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<tr>
<td>$1.1 M under budget: interest expense due to project funding and no revolver usage; interest income due to higher rates</td>
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<tr>
<td>$1.4 M under budget: employee health, relocation, immigration and recognition program costs</td>
<td></td>
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<tr>
<td>$1.0 M under budget: external studies/consulting services</td>
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<tr>
<td>$0.6 M under budget: timing differences</td>
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<thead>
<tr>
<th>Net Revenues Year to Date Actuals: $11.7 M Favorable (as of October 31, 2016)</th>
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<th>Major Revenue Variances</th>
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<tr>
<td>$2.1 M over budget: system administration fees favorable based on current actuals and load forecast for remainder of year</td>
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<th>Major Expenditure Variances</th>
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<tr>
<td>$3.9 M under budget: resource management ($3.2 M staffing management; $1.3 M project work; -$0.6 M staff backfill)</td>
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<tr>
<td>$1.9 M under budget: computer hardware and other equipment purchases</td>
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<tr>
<td>$1.4 M under budget: interest expense due to project funding and no revolver usage; interest income due to higher rates</td>
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<tr>
<td>$1.3 M under budget: employee health, relocation, immigration and recognition program costs</td>
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<tr>
<td>$1.1 M under budget: external studies/consulting services</td>
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2016 R6 Release Summary

- R6 Release Dates: December 6 – 8, 2016
- 94 Change Requests across the application areas
- NPRRs and SCRs
  - NOGRR147 / NPRR713: Reactive Power Testing Requirements
  - NPRR754: Revise Load Distribution Factors Report Posting Frequency
  - SCR787: Maintain NDCRC Data For Generator Transfer Between Resource Entities
  - SCR788: Addition of Integral ACE Feedback to GTBD Calculation
- Majority of the R6 changes are for the following functional areas:
DC4 Technology Refresh Update

• Reliability initiative to replace ERCOT’s aging computer technology
• Project initiated in 2015 with 4 years and $48 million forecast.
• Scope, schedule and budget remain on track for success.

Contracts committed: 60% locked
$48 million budget: 40% spend forecast through 2016
Hardware deployed: 21% as planned

Key Challenges
• Migrating applications to the new computers
• Ensuring no disruption during transition

Financials
• Forecast to meet or be slightly below budget
DC4 Technology Refresh = 11 projects

2015

Program Governance

Database Servers

Core Network

Telecom Control Room / Grid Ops

Network Command & Control

x86 Server

= 8 in-flight

2016

x86 App Migrations

Database Storage

Remote Access

Telecom VoIP

2017

= 3 not started

2018 / 2019

Telecom DC Connectivity
RMR Review Following Board Approval of NPRR 788

• Calpine Corp. Clear Lake –
  Final Determination: **NOT NEEDED**
  – Did not meet RMR criteria to be necessary to support ERCOT transmission system reliability

• Greens Bayou Unit 5 –
  Supplemental Final Determination: **STILL NEEDED**
  – Instability or cascading under defined conditions
  – Unloading Shift Factor >2% on Singleton-Zenith 345 kV transmission lines
  – Unloading impact >5%
2016: New Records for a Growing System

- All-time systemwide demand
  - 71,110 MW (Aug. 11)

- Monthly demand
  - September: 66,853 MW (Sept. 19)
  - October: 59,848 MW (Oct. 5)

- Weekend demand
  - Aug. 7 (Sunday): 66,921 MW

- Wind generation output
  - Three new records in 2016
  - Current record: 15,033 MW
    (12:36 p.m., Nov. 27, 45.18% of load)

- Wind penetration (percent of load)
  - Three new records in 2016
  - Current record: 48.28%
    (1:10 a.m., March 23, 13,154 MW)
Wind Forecasts Continue to Improve: Day Ahead

Day-Ahead Wind Forecast Performance

MAPE = MEAN ABSOLUTE %ERROR

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<tbody>
<tr>
<td>Yearly Average</td>
<td>8.5%</td>
<td>8.3%</td>
<td>8.3%</td>
<td>6.2%</td>
<td>5.7%</td>
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Wind Forecasts Continue to Improve: Hour Ahead

Hour-Ahead Wind Forecast Performance

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<tbody>
<tr>
<td>Yearly Average</td>
<td>5.6%</td>
<td>5.3%</td>
<td>5.3%</td>
<td>4.0%</td>
<td>3.8%</td>
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</table>
## Market Statistics – October 2016

<table>
<thead>
<tr>
<th>Market Statistics</th>
<th>October 2015</th>
<th>October 2016</th>
<th>2015 Average</th>
<th>2016 YTD Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of Real-Time load hedged in Day-Ahead Market</td>
<td>126.47%</td>
<td>121.38%</td>
<td>131.26%</td>
<td>121.95%</td>
</tr>
<tr>
<td>Average ‘ERCOT Hub Average 345 kV Hub’ Settlement Point Price in Day-Ahead Market ($/MWh)</td>
<td>22.55</td>
<td>27.84</td>
<td>28.38</td>
<td>24.74</td>
</tr>
<tr>
<td>Average ‘ERCOT Hub Average 345 kV Hub’ Settlement Point Price in Real-Time ($/MWh)</td>
<td>21.41</td>
<td>25.48</td>
<td>26.05</td>
<td>23.56</td>
</tr>
<tr>
<td>Average East Houston Fuel Index Price ($/MMBtu)</td>
<td>2.35</td>
<td>3.08</td>
<td>2.57</td>
<td>2.34</td>
</tr>
</tbody>
</table>
Wholesale Energy Prices at Record Lows

Load-Weighted Average Energy Prices in ERCOT

$/MWh


$0.00 $10.00 $20.00 $30.00 $40.00 $50.00 $60.00 $70.00 $80.00 $90.00

$25.64 $44.64 $72.79 $56.35 $77.19 $53.23 $34.03 $39.40 $28.33 $33.71 $40.64 $26.77 $24.64

Item 4.1
ERCOT Public
Looking Ahead

• Year-End Reports
  – December 15:
    Capacity, Demand & Reserves
  – December 30:
    Constraints & Needs
  – December 30:
    Long-Term System Assessment

• 2017 Legislative Session
  – January 10, 2017:
    85th Legislature convenes

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