



Nodal Program Update

Mike Cleary

Chief Operating Officer

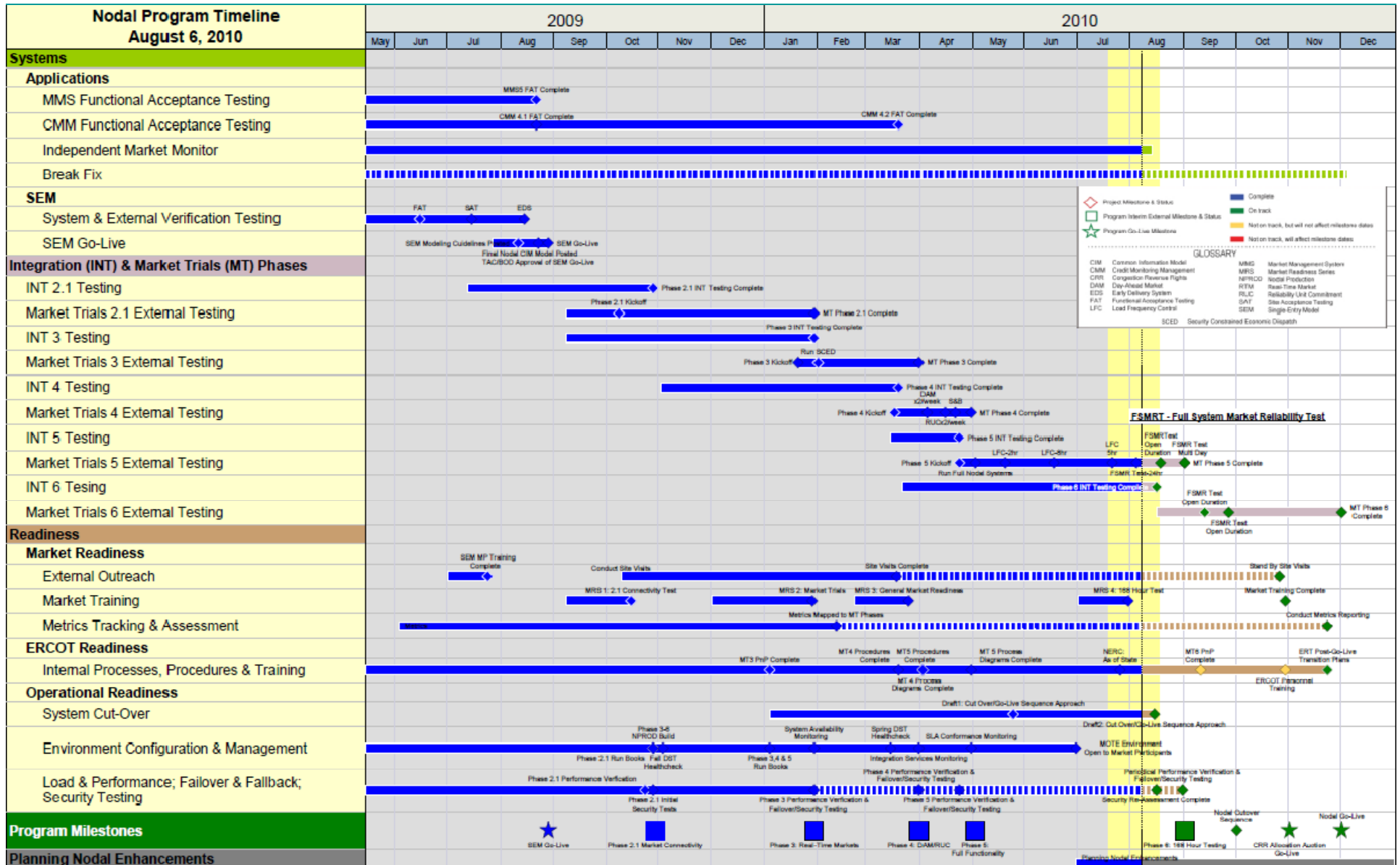
ERCOT Board of Directors

17 August 2010

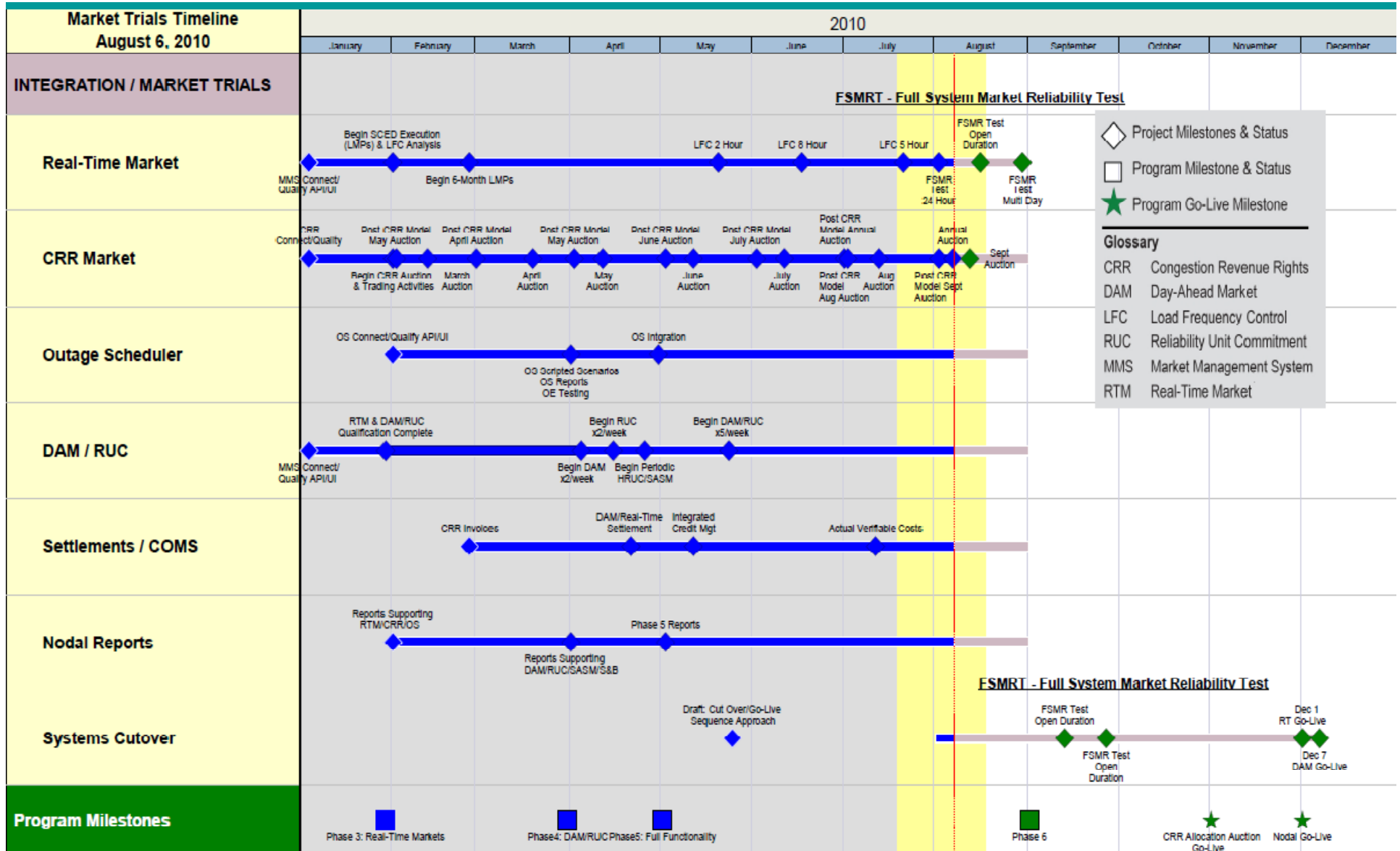
Today's Agenda

- **Program Status**
- **Nodal Parking Deck Items**
- **LFC Test Overview**
- **NMMS Network Modeling Management Update**
- **Nodal Go-Live Update**
 - Outage Scheduler
 - CRR
- **Appendix**

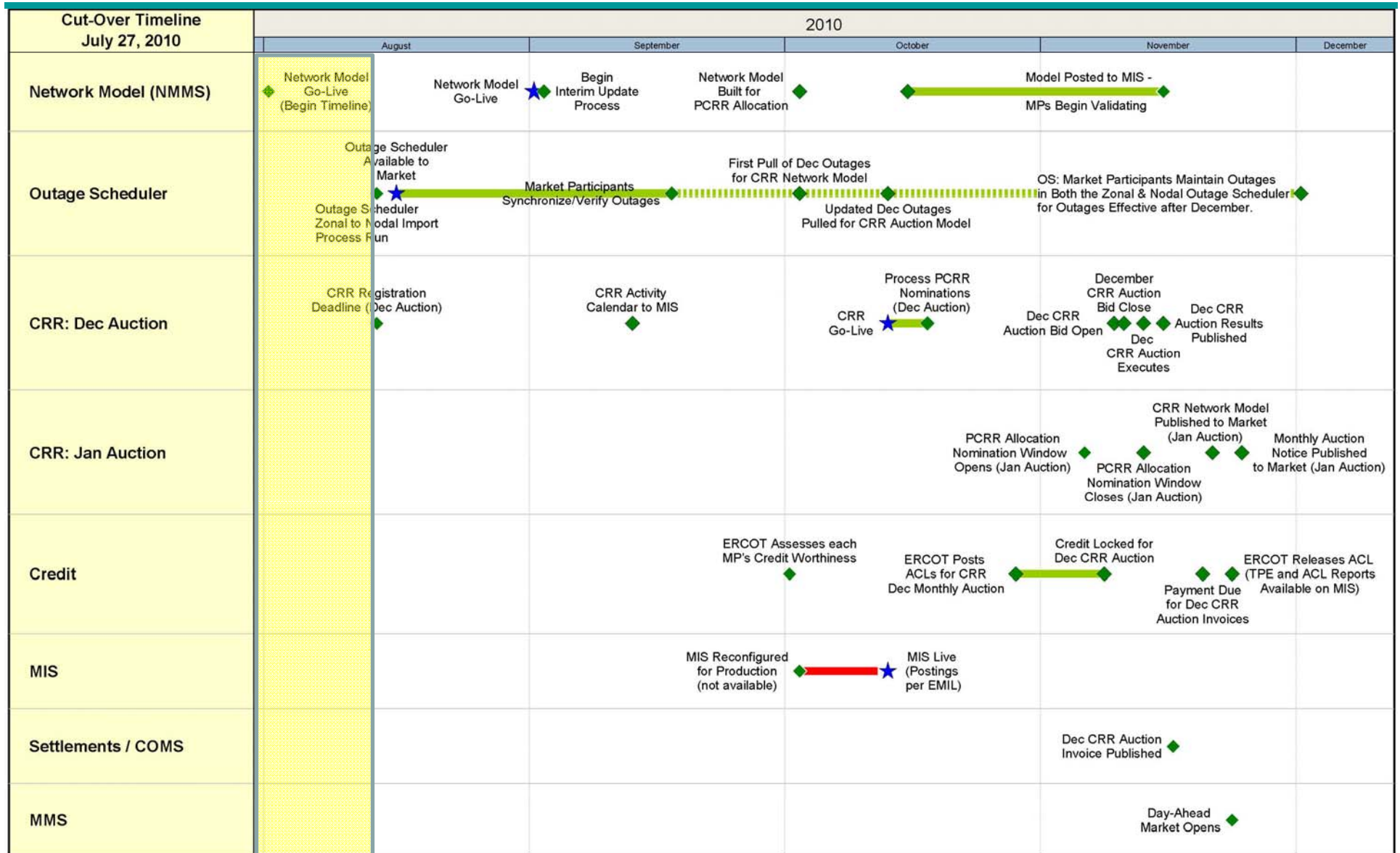
Integrated Nodal Timeline – Go-Live December 1, 2010



2010 Market Trials Timeline - Go-Live December 1, 2010



2010 Cut Over Timeline – 4 month outlook



105 Days to Go-Live

Market Trials has been running for 28 weeks

Achievements within Market Trials:

- CRR
 - Six monthly CRR auctions, one Balance of the Year auction, and one Annual Auction have been completed and invoiced
- Real Time Markets
 - Real Time settlements
 - Occurring daily for 15 weeks
 - Posting Real-Time Prices after every SCED run
- DAM / RUC / WRUC
 - DRUC has been running in conjunction with DAM for 14 weeks
 - Settlement and extract data has been available since Mid-May
 - 12 Operational scenarios were successfully run in June
 - DAM / RUC / WRUC have been running during business hours on non-Full System test days and every hour during the Full System test
- Ancillary Services
 - Supplemental AS Market tested as needed
- Full System Market and Reliability Test (LFC Test)
 - 5 hour test occurred on July 21st
 - 24 Hour test to LFC Test occurred between August 4th – 5th
- Credit
 - NPRR 206, “e” Factors were loaded into production on August 6th
- Cut-Over
 - Market Readiness Seminar #5 was held on July 28th

105 Days to Go-Live

Market Trials has been running for 28 weeks

Upcoming Milestones for Market Trials:

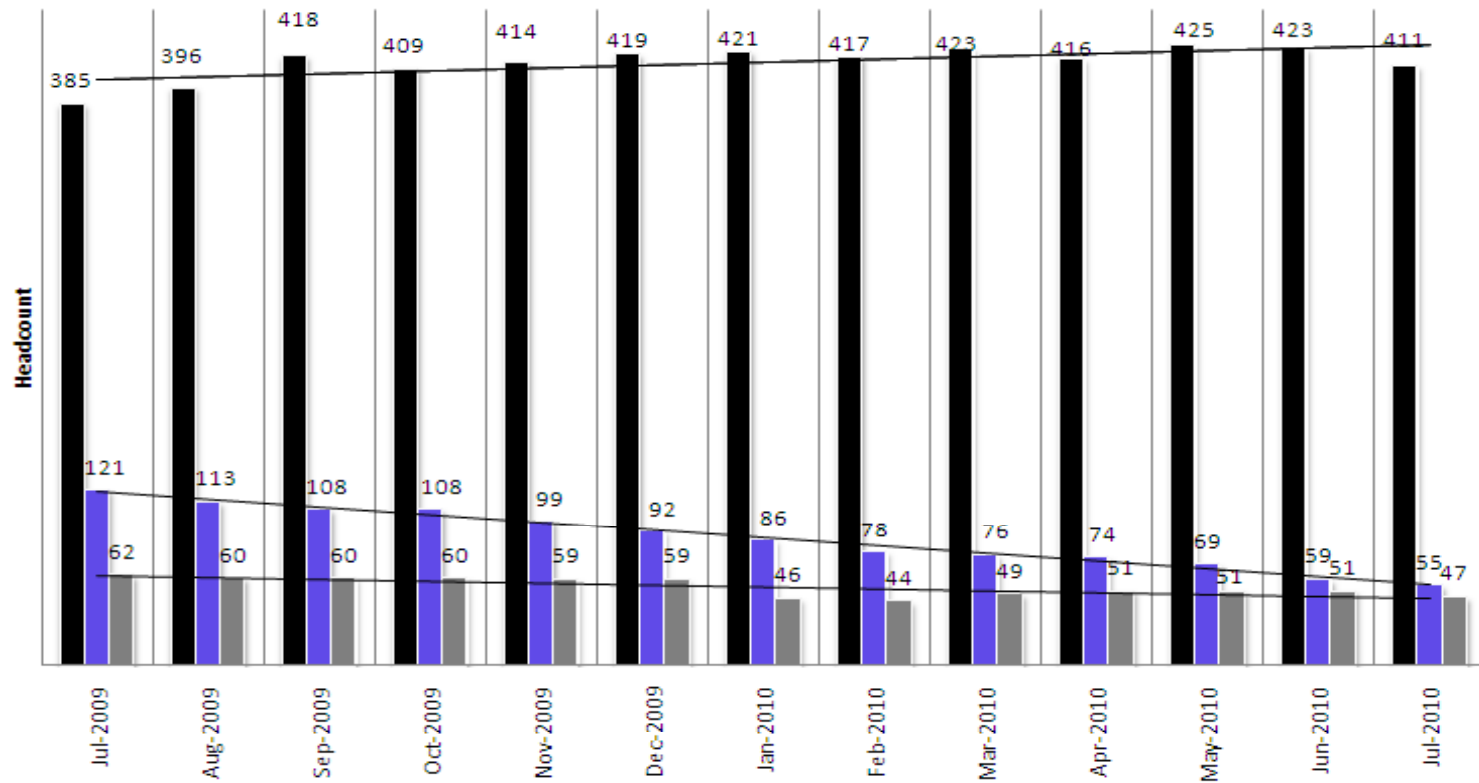
- LFC Tests
 - Additional LFC Test dates are scheduled for August, September, and October
 - The next LFC test on Thurs August 19th will be 24hrs to cover the evening Ramp-down of units
 - Duration decided at NATF
 - 40 hr LFC test is scheduled for August 26th
 - 168 hour Test will include 48 hrs of closed loop testing between Sept 12th – Sept 13th
 - Special NATF on September 16th to discuss exit criteria successes and issues
 - Additional LFC tests being coordinated with NATF and TAC
- DAM/RUC/SASM Scenarios
 - Planning more operational scenarios for August
 - DAM will run continuously for 7 consecutive days starting on 8/8/2010 through 8/15/2010
 - DRUC, WRUC, and HRUC will run 24x7 all 7 days
 - ERCOT's focus for DAM going forward will be on the quality of solution
- Market Changes in trials for August / September
 - QSEs and TSPs begin maintaining outages for September and post Go-Live

System Cut-Over / Go-Live

- Market Readiness Seminar #6 is scheduled for August 31, 2010
- Sept/Oct 2010– Network Modeling, Outage Scheduling
- November 2010- Go-Live CRR Auction
- November 30th DAM
- December 1st – First Operating Day

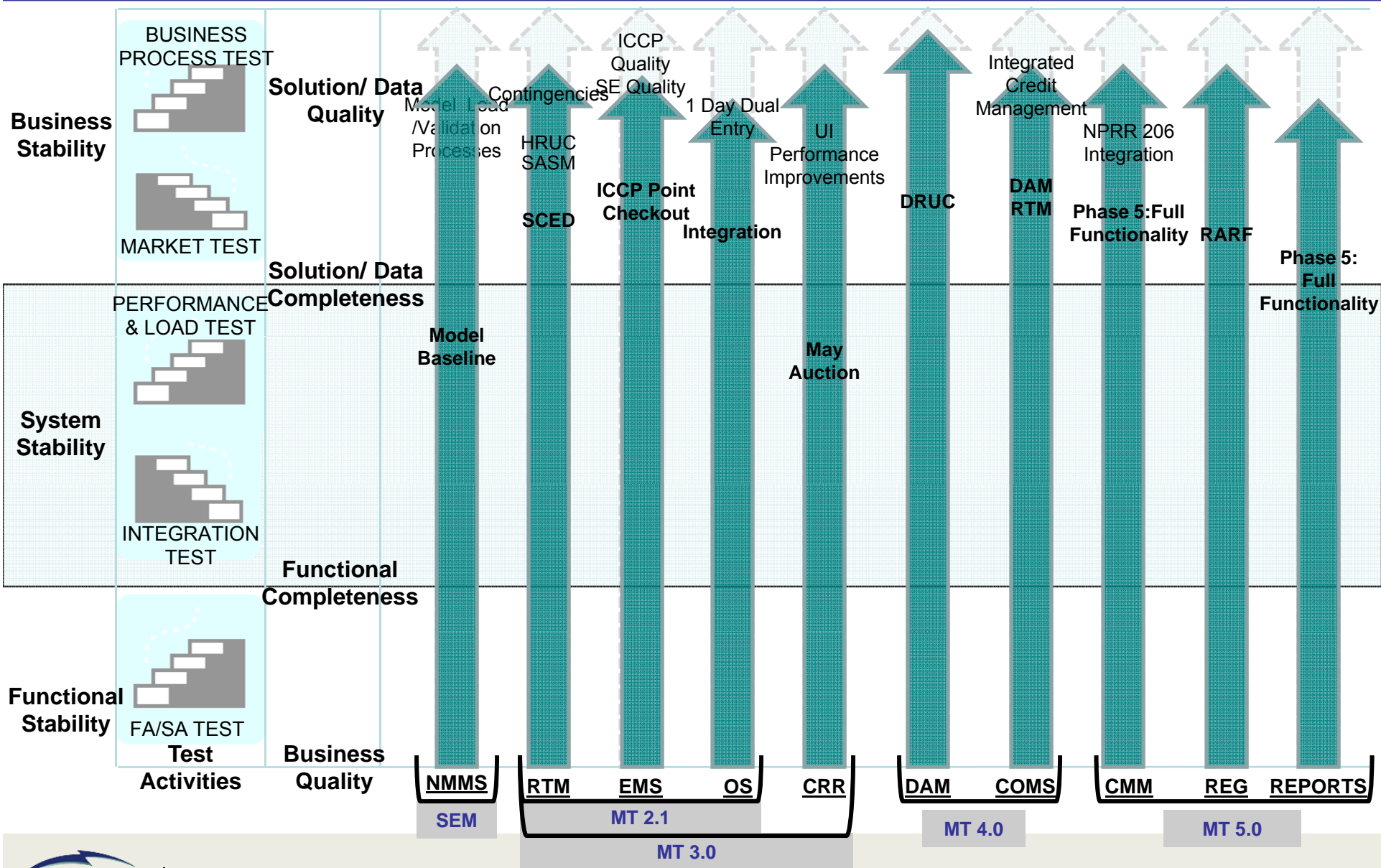
Nodal Internal/External and Vendor Headcount 2010

Nodal Internal/External and Vendor Headcount for 2010



| | Jul-09 | Aug-09 | Sep-09 | Oct-09 | Nov-09 | Dec-09 | Jan-10 | Feb-10 | Mar-10 | Apr-10 | May-10 | Jun-10 | Jul-10 |
|--------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| ■ ERCOT Employees | 385 | 396 | 418 | 409 | 414 | 419 | 421 | 417 | 423 | 416 | 425 | 423 | 411 |
| ■ Contingent Labor | 121 | 113 | 108 | 108 | 99 | 92 | 86 | 78 | 76 | 74 | 69 | 59 | 55 |
| ■ Vendor Labor | 62 | 60 | 60 | 60 | 59 | 59 | 46 | 44 | 49 | 51 | 51 | 51 | 47 |

Go-Live

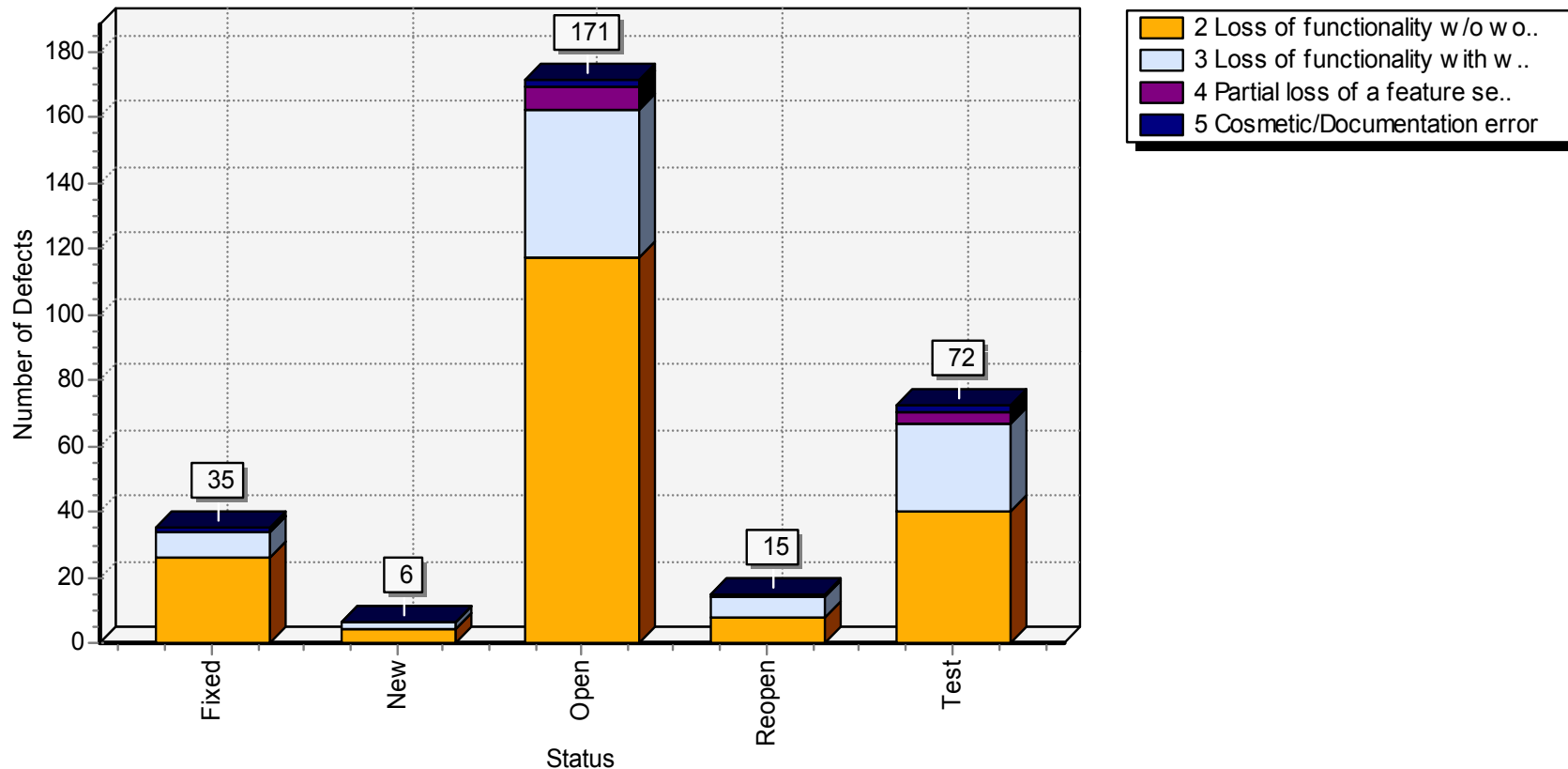


Nodal Program Risks & Issues

| Risk/Issue | Impacted Milestone | Target | Category | Probability | Severity | Status |
|---|--------------------|----------------|---------------------------|-------------|----------|--|
| Network Model Management <i>Performance and availability issues around the NMMS.</i> | Program | September 2010 | Schedule / Budget | Low | Med | <ul style="list-style-type: none"> Working closely with vendor to correct all performance issues Navigation is 43% faster. Significant reductions with validation times have been achieved in testing |
| Market Design Assessment <i>Risk around the protocol traceability project and the market results as each phase of market trials becomes active.</i> | Program | December 2010 | Scope / Budget | High | Low | <ul style="list-style-type: none"> Presenting for the August board meeting risk assessment associated with five identified issues that need to be addressed now and after Go-Live <ul style="list-style-type: none"> <i>PTP Options in the DAM</i> <i>Ancillary Services</i> <i>CRR Derating</i> <i>Scarcity Pricing</i> <i>Zonal Pricing for All Loads</i> |
| Operational Readiness <i>Operational readiness of the Nodal systems and business processes are an increasing risk at this point in the program</i> | Program | September 2010 | Scope / Schedule / Budget | Med | High | <ul style="list-style-type: none"> Organizational capability assessments and improvement recommendations are under review by executive management The PMO has and will continue to identify critical deficiencies and implement mitigation strategies to ensure delivery Analyzing quality of solution with Market Participants Zonal outages workaround is being tested in September CRR Market Trials auction |
| <ul style="list-style-type: none"> DAM CRR | | | | | | |

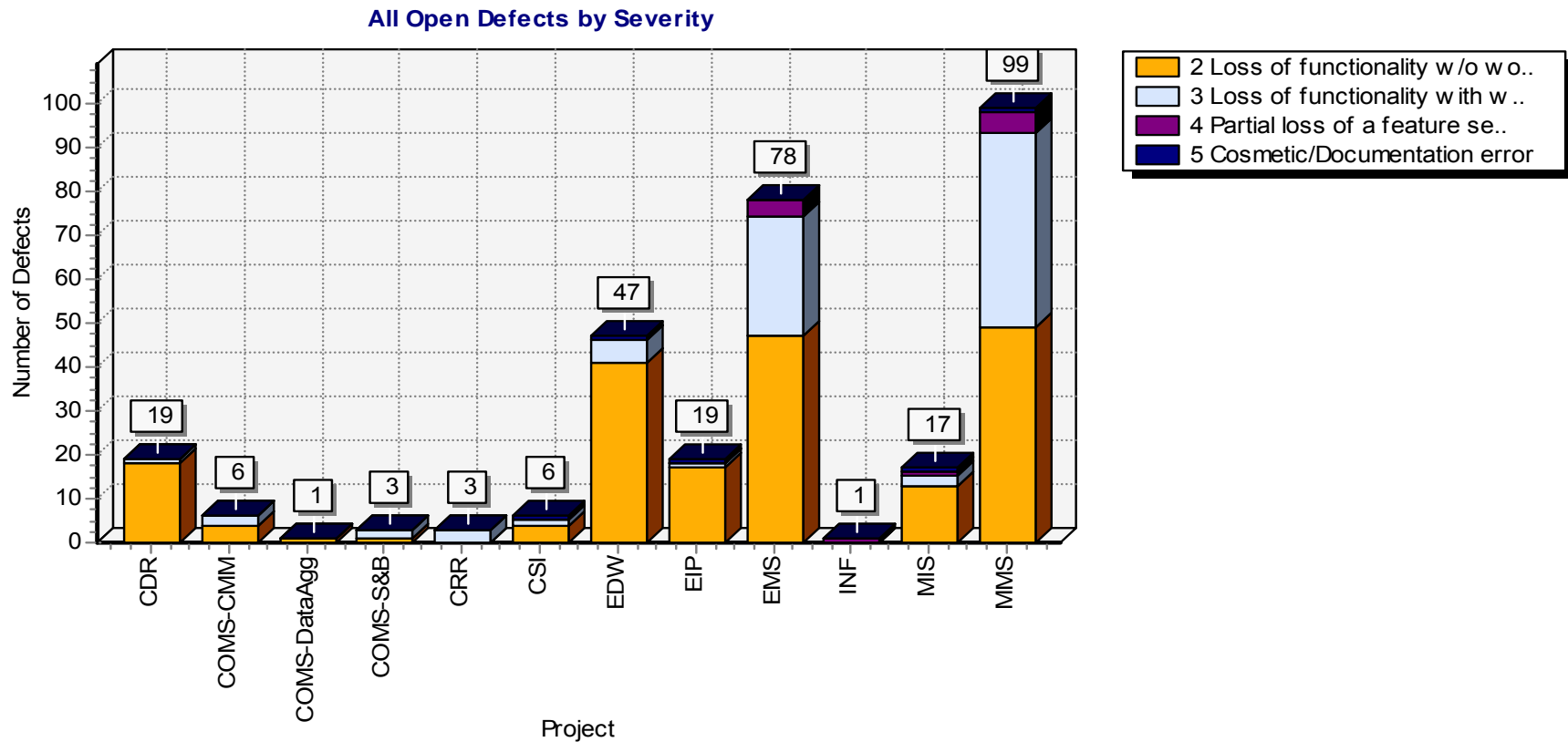
Nodal Defects Trends - High Priority (Must Fix Before Go-Live)

All Open Defects by Severity



- 299 Total Open (Fixed, New, Open, Reopen, Test)
- 195 are Severity 2 and 88 are Severity 3
- 72 are pending test and migration to NPROD
- Highest volume of defects are tracking Vendor delivery (MMS/EMS)

Nodal Defects by Application - High Priority (Must Fix Before Go-Live)



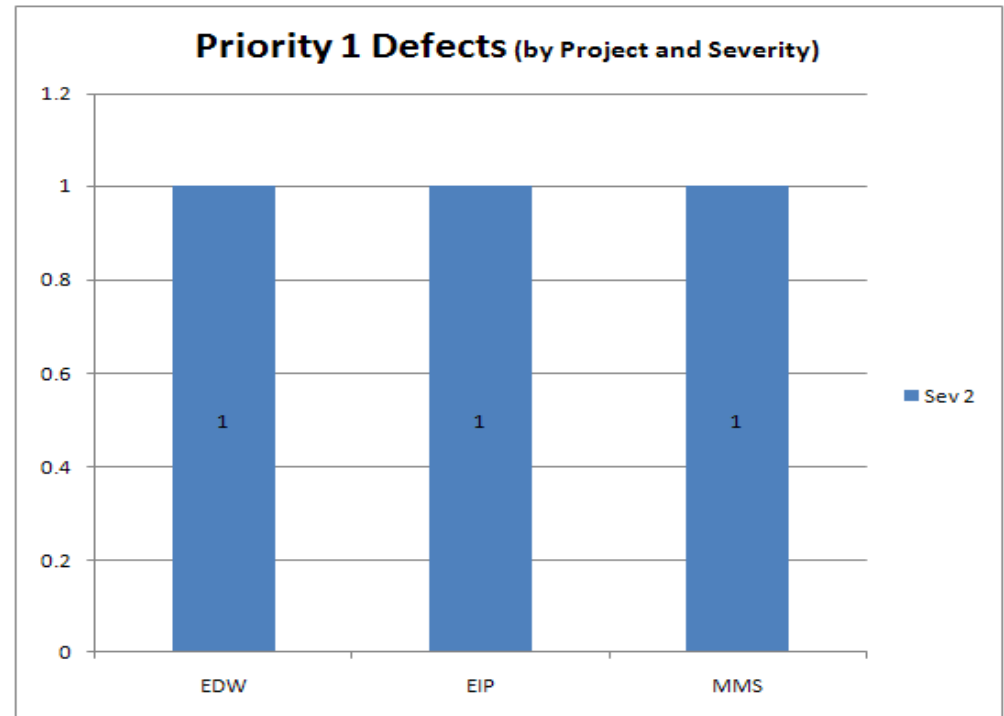
- EDW dependent on data from system generated data to complete testing
- MMS expecting final patch in early September
- EMS expecting final patch delivery in early September

Nodal Defects Target Completion - High Priority (Must Fix Before Go-Live)

| Application | Target Completion | Comments |
|-------------|-------------------|--|
| CDR | 09/03/2010 | |
| COMS-ALL | 09/03/2010 | |
| CRR | 09/24/2010 | Targeting Vendor fix by this date or go live with manual process |
| CSI | 08/20/2010 | Build delivered on 08/13/2010 under validation |
| EDW | 08/20/2010 | |
| EIP | 09/03/2010 | Low Severity Defects |
| EMS | 09/03/2010 | Working for final build by this date |
| MMS | 09/03/2010 | Working for final build by this date |
| MIS | 09/03/2010 | Goes Live 10/12/2010 |

Nodal Defect Reporting

- EDW: Sev 1, Priority 1:
 - Resource Status Data Mart: EXCL_CLR_RR_NS does not capture RRS deployments to CLRs
 - Migration to NProd: 8/18/10
- EIP: Sev 1, Priority 1:
 - MID Phase 2 - MID file posting is failing with the error "Could not connect to IFS database: IFSCONNECTION :: connect :: when call Is.connect()"
 - Migration to NProd: 8/20/10
- EIP: Sev 1, Priority 1:
 - Request input data to SCED PVT
 - Migration to NProd: 9/3/10



Market Trials delivery risk is being managed through a focus on key systems.



Nodal Parking Deck Items

Troy Anderson

Manager Enterprise Project Portfolio

Nodal Parking Deck - Approved

| Source | Title | Priority | Current Status |
|---------|---|----------|------------------------|
| NPRR208 | Registration and Settlement of Distributed Generation (DG) Less Than One MW | Critical | BoD Approved 7/20/2010 |
| SCR756 | Enhancements to the MarkeTrak Application | Critical | BoD Approved 7/20/2010 |
| NPRR131 | Ancillary Service Trades with ERCOT | High | BoD Approved 1/19/2010 |
| NPRR146 | ICCP Telemetry Information Submittals | High | BoD Approved 6/15/2010 |
| NPRR181 | FIP Definition Revision | High | BoD Approved 1/19/2010 |
| NPRR207 | Unit Deselection | High | BoD Approved 7/20/2010 |
| NPRR210 | Wind Forecasting Change to P50, Synch PRR841 | High | BoD Approved 6/15/2010 |
| NPRR222 | Half-Hour Start Unit RUC Clawback | High | BoD Approved 7/20/2010 |
| NPRR153 | Generation Resource Fixed Quantity Block Offer | Medium | BoD Approved 1/19/2010 |
| NPRR164 | Resubmitting Ancillary Service offers in SASM | Medium | BoD Approved 1/19/2010 |
| SCR755 | ERCOT.com Website Enhancements | Medium | BoD Approved 2/16/2010 |

Nodal Parking Deck – Pending

| Source | Title | Suggested Priority | Current Status |
|----------|--|--------------------|---|
| NPRR240 | Proxy Energy Offer Curve | TBD | Pending PRS Impact Analysis Approval |
| NPRR241 | Aggregate Incremental Liability (AIL) Calculation and Credit Reports Publish Corrections | TBD | Pending PRS Impact Analysis Approval |
| NPRR251 | Sync of PRR845, Definition for IDR Meters and Optional Removal of IDR Meters at a Premise Where an Advanced Meter Can be Provisioned | High | Pending at PRS RMS approved 7/14/2010 |
| NPRR256 | Synchronize Nodal Protocols with PRR787, Add Non-Compliance Language to QSE Performance Standards | TBD | Pending at PRS |
| NOGRR034 | Rescind Telemetry Performance Calculation Exclusions | Medium | Pending at Board TAC approved 8/5/2010 |
| SCR759 | acLineSegment Name Length Increase in Information Model Manager | High | Pending at PRS ROS approved 8/12/2010 |

The following items were removed from the Parking Deck in the past month:
None

Nodal Parking Deck –Additional Items for Consideration

| Title | Current Status / Description |
|----------------------------------|---|
| Wind Cost Allocation | High level impact assessment of two options is near completion |
| Deferred NOGRR025 Reports | Draft NPPR in progress to gray-box reports planned for delivery after Nodal go-live |
| NMMS API | Functionality to be considered for post-go-live development |
| CRR API | Functionality to be considered for post-go-live development |
| MMS Multiple Network Models | Functionality to be considered for post-go-live development |
| Add PSS Status to RARF | Automation of manual process as a result of NPPR156 |
| Automated Default Uplift Invoice | Automation of manual process as a result of NPPR221 |
| EILS Enhancements | Automation of manual process |
| Load Participation in SCED | Functionality to be considered for post-go-live development |
| EMS Upgrade | Upgrade EMS system from v2.3 to v2.5/v2.6 |
| Deferred Defects | Defects not addressed during Nodal stabilization period Approximately 700 deferred defects as of July 2010 Review underway to confirm issues and confirm acceptable workarounds |

Nodal Parking Deck –Additional Items for Consideration

| Title | Current Status / Description |
|--|--|
| Large Wind Power Production Ramp Forecasting Phase 2 | Phase 2 of the project that built a display for ERCOT operators to indicate periods of time within the next 6 hours during which there is a high risk for a large wind power production ramp to occur |
| TML Transition to MIS | Upon go live, most applications that are currently available through TML will migrate to MIS and will only be accessible to MPs through the MIS portal. RMS has requested that Zonal Reports, Find ESI ID, Find Transactions, and Transaction submission be accessed through TML until MIS has had sufficient time to stabilize. |
| Decommission of Zonal Wholesale | After go-live of the redesigned ERCOT wholesale market, certain ERCOT systems and components that were only applicable to zonal wholesale operations will become disposable and need to be decommissioned. |
| Nodal Cutover Cleanup | Remove pre-go-live data from Nodal systems |
| Move Price Validation Tool (PVT) to a Server Application | Functionality to be considered for post-go-live development |
| PVT Enhancements | Enhancements to be identified during market testing and Nodal implementation |
| PVT Reporting Tools | Functionality to be considered for post-go-live development |

Nodal Parking Deck – Prioritization Guidelines

| Priority | Definition |
|---------------|---|
| Critical | Required by Statute, PUCT Order, NERC compliance or <u>critical</u> reliability of: <ul style="list-style-type: none">• Grid Operations• IT Infrastructure• Commercial Settlement |
| High | <u>High</u> value for a majority of market segments or ERCOT |
| High / Medium | <u>High</u> value to one or two segments, or <u>Medium</u> value for a majority of market segments or ERCOT |
| Medium | <u>Medium</u> value for only one segment |



24 Hr Full System Market and Reliability Test Overview

Kenneth Ragsdale
Principle Market Operations

24-Hour Full System Reliability and Market Test Results

| Date | Time (<i>CDT</i>) | Event |
|-------------|---|--|
| Aug 4 | 08:30 | <ul style="list-style-type: none"> • Pre-test meeting for Nodal Support Staff |
| | 09:00 | <ul style="list-style-type: none"> • Hotline call by ERCOT Operators to announce the 12:00 test start time • Kick-off of the Market WebEx • Market Notice to be sent out with the test start time • Start troubleshooting period with QSEs |
| | 10:00 | <ul style="list-style-type: none"> • Operators to start using OC3s to manage congestion |
| | 12:00 (<i>actual start 12:04</i>) | <ul style="list-style-type: none"> • Hotline call to QSEs/TOs to announce the start of the test |
| | | <ul style="list-style-type: none"> • ERCOT Operators begin switching QSEs to Nodal control |
| | 12:45 (<i>actual end 12:47</i>) | <ul style="list-style-type: none"> • All participating QSEs switched to Nodal control |
| | | <ul style="list-style-type: none"> • Hotline call to announce that all participating QSEs are on Nodal control |
| | 16:00-18:00 | <ul style="list-style-type: none"> • Planned period for ERCOT LFC tuning with AREVA and ERCOT Engineers (1 of 2) |
| 19:00-19:30 | <ul style="list-style-type: none"> • ERCOT nodal staff transition to night shift | |

24-Hour Full System Reliability and Market Test Results

| Date | Time (<i>CDT</i>) | Event |
|-------|-------------------------------------|---|
| Aug 5 | 05:00-05:30 | <ul style="list-style-type: none"> ERCOT nodal staff transition back to day shift |
| | 06:00-08:00 | <ul style="list-style-type: none"> Planned period for ERCOT LFC tuning with AREVA and ERCOT Engineers (2 of 2) |
| | 11:15 (<i>actual start 11:24</i>) | <ul style="list-style-type: none"> Hotline call to announce that ERCOT will begin switching QSEs back to Zonal control |
| | | <ul style="list-style-type: none"> ERCOT Operators begin switching QSEs back to Zonal control |
| | 12:00 (<i>actual end 11:53</i>) | <ul style="list-style-type: none"> All QSEs on Zonal control |
| | | <ul style="list-style-type: none"> Hotline call to QSEs/TOs to announce that the test has concluded |
| | After cutover is complete | <ul style="list-style-type: none"> Once QSEs have complete switchover back to Zonal, ERCOT will provide a debrief of the test and an initial review of the completion criteria |

24-Hour Full System Reliability and Market Test Results

Issues and Observations from the test

- Total of 19 constraints activated, 7 at one time during the test
 - One contingency was defined incorrectly, but resolved and activated during the test.
- QSEs released from AS obligations
 - 2 instances where QSEs were released from their Regulation Obligation to make resources available to SCED to resolve congestion.
 - This was the correct Operator action. Not previously observed during a closed loop test.
- CPS1 score of -34
 - Primarily due to resources being off of their expected generation (HE 17)
 - Resources were also having equipment problems and did not reflect those changes in telemetry.
 - Time Error Correction was also being performed during this time.
 - For some intervals, ERCOT Operations responded with a manual offset in SCED.

24-Hour Full System Reliability and Market Test Results

Issues and Observations from the test

- Quick Starts coming on or offline
 - For testing purposes QSEs will need to call the ERCOT Operators before coming on or going offline.
- Energy constraints superseding transmission constraints
 - Occurred during the peak load intervals.
- Telemetry Inconsistencies
 - Cases where HSLs were being set lower than MWs.
 - QSEs were not using the “ONTEST” resource status as expected. Some resources were testing and not using this status. There were also resources which were using this status who were not testing.

24-Hour Full System Reliability and Market Test Results

Issues and Observations from the test

- **Ramping down of resources to take them offline**
 - A number of resources were off their expected generation which negatively affected ERCOT's ability to manage frequency.
 - More guidance for ramp-offs and start-ups will be provided on the 8/13 RTM Market Call.
- **Shift Factors being sent to SCED**
 - Issue #1 - 3 intervals with shift factors not sent to SCED (1815, 1835 and 1850). This is a known issue and the fix is planned to be implemented before the next full system test.
 - Issue #2 – For specific constraints with unresolved contingencies, shift factors were not passed. Vendor is working on an emergency patch.

24-Hour Full System Reliability and Market Test Results

Overview – Exit Criteria

- **ERCOT will communicate an initial assessment of the following completion criteria upon conclusion of the test on August 5th:**
 - The rolling CPS1 one minute average score must equal or exceed 100% during the test period
 - Note that the CPS1 average will not take into account the periods where ERCOT is transitioning to Nodal and then back to Zonal
 - Note that the CPS1 average will not take into account the periods where ERCOT is performing system tuning
 - **Hourly CPS1 Scores:**
 - » **Max: 167, Min: -34,**
 - » **Average: 130 (137 when HE17 -34 is removed)**
 - Zonal Commercially Significant Constraints (CSCs) and Closely Related Elements (CREs) managed below thermal limits. **None active**
 - Local Congestion managed below thermal limits **Yes**
 - Stability limits managed below transfer limits **None active**
 - No NERC Disturbance Control Standard (DCS) failure if applicable. **No DCS failures during the test**
 - No LFC-SCED system issues that result in termination of the test. **No LFC / SCED failures**
 - Procedural and software fixes have been verified to address lessons learned from previous rounds of testing. **All software fixes put in prior to the test worked as expected.**

Key Lessons Learned from the initial 24 Hour LFC Test

- **ERCOT requests that all Market Participants follow their basepoints**
- **QSEs need to keep their COPS updated during LFC testing to support HRUC solutions**
- **Market appropriate bids and offers from MPs results in a higher quality solution**
- **Quick Starts on or off, should be communicated with the ERCOT Real-Time desk to get the necessary help with adjusting limits as appropriate to facilitate coming online/offline**

Upcoming LFC Tests and the 168 Test Schedule

Next 24-Hr Test:

- Thurs., Aug 19th, 12pm to Fri., Aug 20, 12pm

Next 40-Hr Test:

- Thurs., Aug 26th

168 Hour Test: September 8th – 15th

• 48-Hour Test Closed-Loop Window:

- Sept 12th, 13th , & 14th – Noon on the 12th – Noon on the 14th
- These 48 hours of closed loop testing will be conducted during the 168-Hr test, which begins on Sep 8th

Special NATF Sep 16th

- Discuss successes from the 168-Hr Test and what this means for overall nodal readiness**

Additional LFC tests are finalized for September and October

- 36 Hour Test**
- 24 Hour Test**

Market Trials Quality of Solution:

Issues with Quality of Solution from Market Trials:

- **Day-Ahead Market and RUC:**
 - DAM/RUC running since May
 - DAM/RUC solution heavily dependent on inputs:
 - Market submissions (unit status for RUC, and Bids/Offer for DAM)
 - ERCOT's underlying system data (ratings, model, constraints, contingencies, load distribution factors)
 - Improving analysis of results and inputs
 - No significant software issues
 - Ironing out data issues, and resolution process of data inconsistencies and synchronization of moving data
 - 2x/week deep-dive conference calls with market to discuss data issues
 - Explainable differences in dispatch and prices based on inputs
 - Increasing confidence in solution

Market Trials Quality of Solution:

Issues with Quality of Solution from Market Trials:

- **Day-Ahead Market and RUC**
 - LFC Testing (2hr, 8hr, 5hr, 24hr) - has increased market focus on SCED solution quality
 - SCED has been running since Feb 2010
 - LFC tests increase market and ERCOT focus on Prices, Dispatch, Constraints, Frequency Control and Reliability
 - Increasing confidence in solution



NMMS Update

Jerry Dreyer

Director Application Services

Network Model Management System Update

- **Improvement in stability - final stability patch installed August 1st**
 - Two unscheduled restarts through August 14th
 - Resolution target: 1 or fewer unscheduled restarts/week
 - Stability is deemed acceptable
- **Navigation Performance:**
 - Navigation performance patch was installed on Sunday, August 1st
 - Feedback, internal and external, is that performance has improved
 - Performance measured a 42% improvement.
 - Navigation Performance is deemed acceptable
- **Validation Performance:**
 - Assessment results: opportunity to reduce redundant validation
 - Patch is targeting 20-40% improvement
 - Target is to implement improvements by the end of August

NMMS Update:

- **Overall status: Yellow – good for go live, minor issues**
- **7 NMMS defects discussed in the board last month were resolved**
- **NMMS continues to perform as a production system**
- **NMMS is meeting all requirements for Nodal Go-Live**
- **Stability and Navigation performance were solved**
 - Performance measured a 42% improvement
- **Validation performance is targeted to improve validation time 20-40% targeted for August**



Nodal Go-Live Update

Review of Outage Scheduler and CRR Go-Live Items

Kenneth Ragsdale
Market Trials

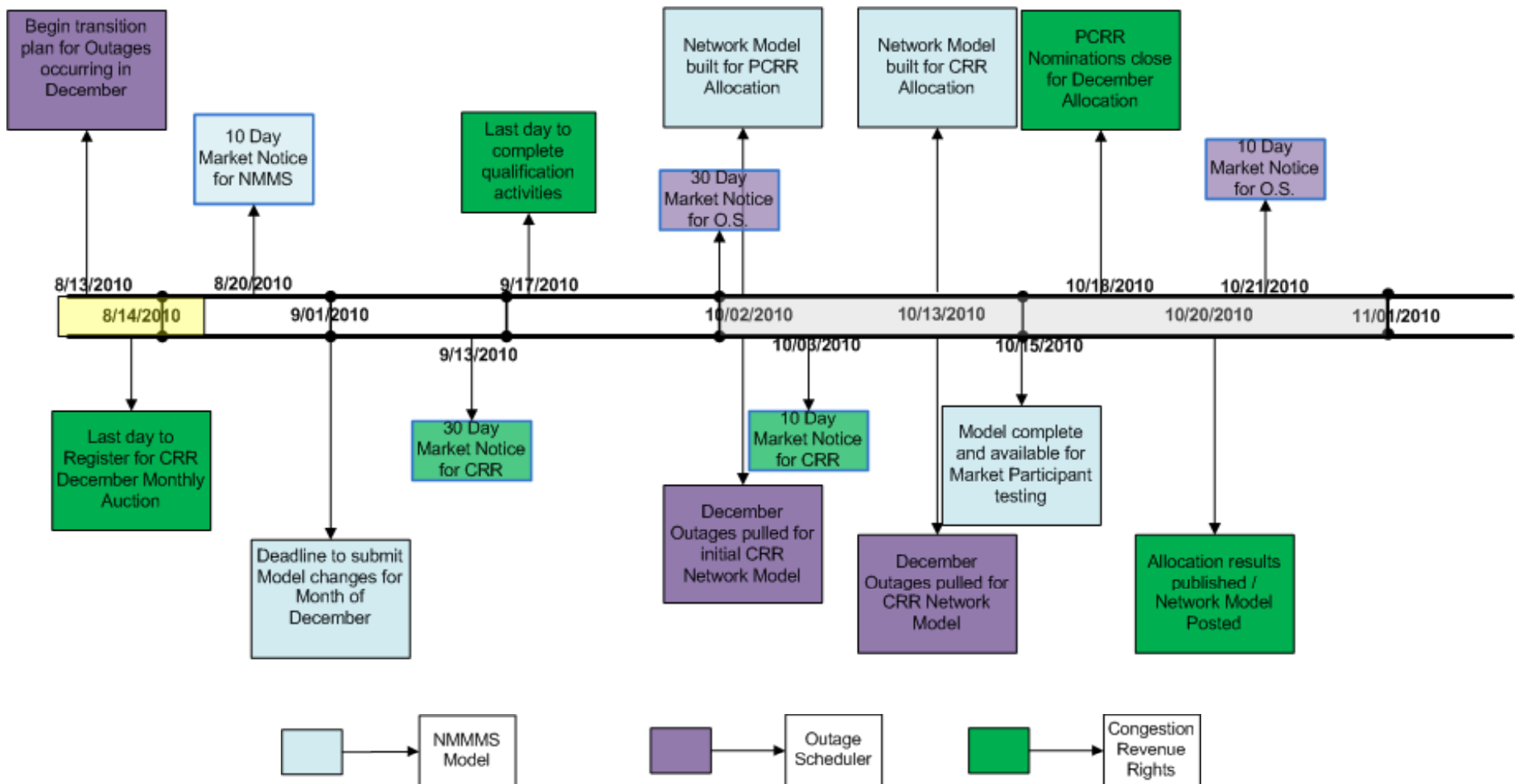
Upcoming Dates for Go-Live Sign Off

The table below outlines key approval dates for TAC and Board Signoff

| System (Protocol) | TAC Approval | Board of Directors Approval |
|---------------------------------|-------------------------------------|------------------------------------|
| NMMS Model | Completed on July 20 th | Completed on July 20 th |
| Congestion Revenue Rights (CRR) | Completed on August 5 th | August 17 th |
| Outage Scheduling (OS) | Completed on August 5 th | August 17 th |
| Full Nodal Operations | October 7 th | October 19 th |

Nodal Program Cutover Schedule: NMMS, OS, and CRR

The table below outlines key dates and activities for Nodal cutover



ERCOT will measure readiness by the following categories:

- ***System Readiness*** – an evaluation of a particular system needed to support identified market activities
- ***Process Readiness*** – an evaluation of the Processes and Procedures necessary to support identified market activities
- ***People Readiness*** – an evaluation of ERCOT and Market Participant capabilities to support identified market activities

ERCOT reviewed the Market Readiness Criteria for Outage Scheduling and Congestion Revenue Rights at NATF and subsequently received unanimous votes from TAC to meet the requirements of Section 21.12.3, Notice to Market Participants of Effective Date for Nodal Protocol Provisions and Retirement of Zonal Protocol Provision




21.12.3 Notice to Market Participants of Effective Date for Nodal Protocol Provisions and Retirement of Zonal Protocol Provision

No part of the nodal market design may start operation until all the Market Readiness Criteria for that part of the nodal market design have been met. Certification that all Market Readiness Criteria have been met must be made at least by each of the following: the Technical Advisory Committee (TAC), ERCOT and the ERCOT Board. Upon such certification, ERCOT shall issue two Notices alerting Market Participants to the effective date of Nodal Protocol sections and the retirement of Zonal Protocol sections, as applicable. ERCOT shall issue the first Notice no less than thirty (30) days prior to the effective date or retirement date, as applicable, and the second Notice no less than ten (10) days prior to the effective date or retirement date, as applicable. The Notice shall include:

- (1) The Nodal Protocol Sections to become effective; and
- (2) The Zonal Protocol Sections to be retired, if any

Outage Scheduler Overview




Recommendation of Certification

| | |
|-------|---|
| ERCOT |  |
| NATF |  |
| TAC |  |
| BOD | |

Status:

- No defects reported in the Outage Scheduler
 - Outage Scheduler transition tasks were completed on 8/13 and the system was ready for dual entry and validation on 8/16
 - Market Notice for dual entry and validation was sent on August 16th
 - 107 Deferred Defects
-

Open Defects:

| | | |
|---|---------|----------|
|  | Sev 1 | 0 |
|  | Sev 2 | 0 |
|  | Sev 3-5 | 0 |

Outage Scheduling – Go Live

| System Readiness | Planned Completion | Status |
|---|--------------------|----------|
| Outage Scheduler released to Market Trials | 2/01/10 | Complete |
| Outages Scheduler Integrated with DAM, RUC | 4/15/10 | Complete |
| Outage Scheduler Qualification Connectivity Qualification (MP20) | 4/01/10 | Green |
| Process Readiness | | |
| Verify Outage Evaluation System Functionality (EMO3 #1) | 6/23/10 | Green |
| Outage Coordination Procedures | 7/16/10 | Complete |
| Nodal Protocol Transition Plan Updated for Outage Scheduling | 7/29/10 | Complete |
| Outage Scheduling Transition Plan Established | 7/08/10 | Complete |

Outage Scheduling – Go Live

| People Readiness | Planned Completion | Status |
|---|----------------------------------|-------------------------|
| ERCOT Staff Support of Market Trials | Ongoing | In Progress |
| ERCOT Staff Trained on System and Processes | 09/03/10 | In Progress |
| Market Participant Training Delivered | 7/15/10 | NMMS/OS work-shop added |
| Overall Readiness | | |
| NATF Review | 7/08/10, 07/29/10 08/03/10 | Complete |
| ERCOT Management Signoff | 8/04/10 | Complete |
| TAC Approval | 8/05/10 | Complete |
| BOD Approval | 8/17/10 | |
| 30 Day Market Notice | 10/01/10 | |
| 10 Day Market Notice | 10/21/10 | |

TAC's Outage Scheduler Certification – Unanimous Approval 8/5/10

WHEREAS, Protocols Section 21.12.3 (Notice to Market Participants of Effective Date for Nodal Protocol Provisions and Retirement of Zonal Protocol Provisions) provides that before a “part of the nodal market design may start operation,” a vote of the Technical Advisory Committee (TAC) is required affirming that the “Market Readiness Criteria for that part of the nodal market design have been met”

WHEREAS, the Section 21.12.3 certification by TAC, Electric Reliability Council of Texas, Inc. (ERCOT) staff, and the ERCOT Board of Directors regarding the satisfaction of “Market Readiness Criteria” for a particular part of the nodal market design will result in ERCOT issuing “two Notices alerting Market Participants to the effective date of Nodal Protocol sections and the retirement of Zonal Protocol sections, as applicable”;

WHEREAS, the Protocols do not define the term “Market Readiness Criteria,” and ERCOT, in conjunction with Market Participants, has developed specific metrics and a Nodal Readiness Scorecard that are used to determine the progress of specific parts of the nodal market design in meeting the criteria necessary for implementing the Nodal Protocols and starting operations;

WHEREAS, the members of TAC recognize that there are issues that remain to be addressed regarding the implementation and operation of the Outage Scheduler before the Texas Nodal Market Implementation Date (TNMID), but that none of those issues should prevent the Outage Scheduler Go-Live on November 1, 2010, which is an integral occurrence in the progress toward meeting the TNMID on schedule;

WHEREAS, TAC has reviewed the market readiness metrics documentation underlying ERCOT staff’s recommendation regarding the Outage Scheduler part of the nodal market design, and has conducted due diligence on ERCOT staff’s conclusion that the Outage Scheduler has satisfied all of the steps necessary to make the declaration of market readiness required by Section 21.12.3, in order to authorize Outage Scheduler Go-Live on November 1, 2010;

THEREFORE be it RESOLVED, that this Resolution shall serve as the TAC certification that all Market Readiness Criteria have been met, for purposes of ERCOT Protocols Section 21.12.3, regarding Outage Scheduler Go-Live on November 1, 2010.

Recommended Board Resolution for Outage Scheduler Certification

WHEREAS, ERCOT Protocol Section 21.12.3, Notice to Market Participants of Effective Date for Nodal Protocol Provisions and Retirement of Zonal Protocol Provisions, provides that before a “part of the nodal market design may start operation,” a vote of the Electric Reliability Council of Texas, Inc. (ERCOT) Board of Directors is required affirming that the “Market Readiness Criteria for that part of the nodal market design have been met”;

WHEREAS, the Section 21.12.3 certification by the Technical Advisory Committee (TAC), ERCOT staff, and the ERCOT Board of Directors regarding the satisfaction of “Market Readiness Criteria” for a particular part of the nodal market design will result in ERCOT issuing “two Notices alerting Market Participants to the effective date of Nodal Protocol sections and the retirement of Zonal Protocol sections, as applicable”;

WHEREAS, the Protocols do not define the term “Market Readiness Criteria,” and ERCOT, in conjunction with Market Participants, has developed specific metrics and a Nodal Readiness Scorecard that are used to determine the progress of specific parts of the nodal market design in meeting the criteria necessary for implementing the Nodal Protocols and starting operations;

WHEREAS, the members of the ERCOT Board of Directors recognize that there are issues that remain to be addressed regarding the implementation and operation of the Outage Scheduler before the Texas Nodal Market Implementation Date (TNMID), but that none of those issues should prevent the Outage Scheduler Go-Live on November 1, 2010, which is an integral occurrence in the progress toward meeting the TNMID on schedule;

WHEREAS, the ERCOT Board of Directors has reviewed the market readiness metrics documentation that ERCOT staff has executed regarding the Outage Scheduler part of the nodal market design, and has reviewed ERCOT staff’s conclusion that the Outage Scheduler has satisfied all of the steps necessary to make the declaration of market readiness required by Section 21.12.3, in order to authorize Outage Scheduler Go-Live on November 1, 2010;




WHEREAS, ERCOT staff provided its Section 21.12.3 certification document, attached hereto as Exhibit A, to TAC prior to TAC’s consideration of this issue and on August 5, 2010 TAC voted unanimously on a similar resolution, attached hereto as Exhibit B, to certify that all Market Readiness Criteria have been met for purposes of Section 21.12.3 regarding Outage Scheduler on November 1, 2010

THEREFORE be it RESOLVED, that this Resolution shall serve as the ERCOT Board of Directors certification that all Market Readiness Criteria have been met, for purposes of ERCOT Protocol Section 21.12.3, regarding Outage Scheduler Go-Live on November 1, 2010.

FURTHERMORE, the ERCOT Board of Directors directs that status updates regarding outstanding issues be provided at future ERCOT Board of Directors meetings.

Congestion Revenue Rights Overview

Recommendation of Certification

| | |
|-------|---|
| ERCOT |  |
| NATF |  |
| TAC |  |
| BOD | |

Status:

- Working with Siemens on automated processor fix. Expectation is to receive fix before Go-Live.
- Three related Sev 3 defects:
 - Incorrect Loadzone Designation from Topology Processor Output file
 - Resource Nodes missing from Settlept output file produced by Topology Processor
 - Topology Processor cannot consume outages information for CRR modeling
- 2 Deferred Defects

Open Defects:

| | | | |
|---|---------|----------|----------------------|
|  | Sev 1 | 0 | |
|  | Sev 2 | 0 | |
|  | Sev 3-5 | 3 | Three Sev 3 defects. |

CRR Allocation and Auction Issues and Defects

| Issue / Defect | ERCOT Mitigation Strategy | Target Date | Status |
|--|--|------------------------------|---|
| <p>Topology Processor(TP) cannot properly consume outage information. <i>With TP version 8 delivered in early July it was identified that the outages were not properly consumed. Working with Siemens and also working on manual work-around.</i></p> | <ul style="list-style-type: none"> ERCOT has postponed the posting of the September CRR model. Plan to execute manual work-around or automated process to properly incorporate outages before the model is posted and the auction is executed. Exercised a proven Zonal manual work-around with the August CRR model that incorporating outages. | <p>September 2010</p> | <ul style="list-style-type: none"> ERCOT working with Siemens to create a patch for Topology Processor <ul style="list-style-type: none"> Expectation of receiving at ERCOT before Go-Live. Zonal workaround in place for September Market Trials testing |
| <p>Incorrect Load Zone Designation from TP <i>Possible data issue. Continue to investigate with Siemens</i></p> | <ul style="list-style-type: none"> Confirmed that this problem stems from the issues with the Topology Processor. | <p>September 2010</p> | <ul style="list-style-type: none"> ERCOT working with Siemens to create a patch for Topology Processor <ul style="list-style-type: none"> Expectation of receiving at ERCOT before Go-Live. Zonal workaround in place for September Market Trials testing |
| <p>Resource Nodes missing from output file produced by TP <i>Test in progress to confirm it is a data issue. Manual work-around being investigated</i></p> | <ul style="list-style-type: none"> Confirmed that this problem stems from the issues with the Topology Processor. | <p>September 2010</p> | <ul style="list-style-type: none"> ERCOT working with Siemens to create a patch for Topology Processor <ul style="list-style-type: none"> Expectation of receiving at ERCOT before Go-Live. Zonal workaround in place for September Market Trials testing |

CRR Allocation and Auction – Go Live

| System Readiness | Planned Completion | Status |
|--|--------------------|----------|
| CRR System released to Market Trials | 2/01/10 | Complete |
| CRR Integrated in Market Trials | 5/01/10 | Complete |
| CRR Account Holder Connectivity Qualification MP 15 (B) | 9/17/10 | Red** |
| Operation of CRR Auctions and Allocations (CRR3) | Ongoing | Green |
| Verify CRR Auction Invoices (CO8) | Ongoing | Green |
| Process Readiness | | |
| CRR Procedures | 6/25/10 | Complete |
| Nodal Protocol Transition Plan Updated for CRR | 7/29/10 | Complete |
| TCR to CRR Transition Plan (CRR4) | 9/29/09 | Complete |

** Red due to MPs registering but not working to get qualified. (inflated denominator)

CRR Allocation and Auction – Go Live

| People Readiness | Planned Completion | Status |
|---|-----------------------------------|---------------|
| ERCOT Staff Support of Market Trials | Ongoing | In Progress |
| ERCOT Staff Trained on System and Processes | 06/25/10 | In Progress |
| Market Participant Training Delivered | 07/15/09 | Complete |
| Overall Readiness | | |
| ERCOT Management Signoff | 08/04/10 | Complete |
| NATF Review | 07/08/10, 07/29/10 08/03/10 | Complete |
| TAC Approval | 08/05/10 | Complete |
| BOD Approval | 08/17/10 | |
| 30 Day Market Notice | 09/13/10 | |
| 10 Day Market Notice | 10/03/10 | |

TAC's CRR Certification – Unanimous Approval 8/5/10

WHEREAS, Protocols Section 21.12.3 (Notice to Market Participants of Effective Date for Nodal Protocol Provisions and Retirement of Zonal Protocol Provisions) provides that before a “part of the nodal market design may start operation,” a vote of the Technical Advisory Committee (TAC) is required affirming that the “Market Readiness Criteria for that part of the nodal market design have been met”

WHEREAS, the Section 21.12.3 certification by TAC, Electric Reliability Council of Texas, Inc. (ERCOT) staff, and the ERCOT Board of Directors regarding the satisfaction of “Market Readiness Criteria” for a particular part of the nodal market design will result in ERCOT issuing “two Notices alerting Market Participants to the effective date of Nodal Protocol sections and the retirement of Zonal Protocol sections, as applicable”;

WHEREAS, the Protocols do not define the term “Market Readiness Criteria,” and ERCOT, in conjunction with Market Participants, has developed specific metrics and a Nodal Readiness Scorecard that are used to determine the progress of specific parts of the nodal market design in meeting the criteria necessary for implementing the Nodal Protocols and starting operations;

WHEREAS, the members of TAC recognize that there are issues that remain to be addressed regarding the implementation and operation of the Congestion Revenue Rights before the Texas Nodal Market Implementation Date (TNMID), but that none of those issues should prevent the Congestion Revenue Rights Go-Live in October 2010, which is an integral occurrence in the progress toward meeting the TNMID on schedule;

WHEREAS, TAC has reviewed the market readiness metrics documentation underlying ERCOT staff’s recommendation regarding the Congestion Revenue Rights part of the nodal market design, and has conducted due diligence on ERCOT staff’s conclusion that the Congestion Revenue Rights has satisfied all of the steps necessary to make the declaration of market readiness required by Section 21.12.3, in order to authorize Congestion Revenue Rights Go-Live in October 2010;

THEREFORE be it RESOLVED, that this Resolution shall serve as the TAC certification that all Market Readiness Criteria have been met, for purposes of ERCOT Protocols Section 21.12.3, regarding Congestion Revenue Rights Go-Live in October 2010;

FURTHERMORE, TAC directs that status updates regarding outstanding issues be provided at future TAC meetings.

Recommended Board Resolution for CRR Certification

WHEREAS, ERCOT Protocol Section 21.12.3, Notice to Market Participants of Effective Date for Nodal Protocol Provisions and Retirement of Zonal Protocol Provisions, provides that before a “part of the nodal market design may start operation,” a vote of the Electric Reliability Council of Texas, Inc. (ERCOT) Board of Directors is required affirming that the “Market Readiness Criteria for that part of the nodal market design have been met”;

WHEREAS, the Section 21.12.3 certification by the Technical Advisory Committee (TAC), ERCOT staff, and the ERCOT Board of Directors regarding the satisfaction of “Market Readiness Criteria” for a particular part of the nodal market design will result in ERCOT issuing “two Notices alerting Market Participants to the effective date of Nodal Protocol sections and the retirement of Zonal Protocol sections, as applicable”;

WHEREAS, the Protocols do not define the term “Market Readiness Criteria,” and ERCOT, in conjunction with Market Participants, has developed specific metrics and a Nodal Readiness Scorecard that are used to determine the progress of specific parts of the nodal market design in meeting the criteria necessary for implementing the Nodal Protocols and starting operations;

WHEREAS, the members of the ERCOT Board of Directors recognize that there are issues that remain to be addressed regarding the implementation and operation of the Congestion Revenue Rights before the Texas Nodal Market Implementation Date (TNMID), but that none of those issues should prevent the Congestion Revenue Rights Go-Live in October 2010, which is an integral occurrence in the progress toward meeting the TNMID on schedule;

WHEREAS, the ERCOT Board of Directors has reviewed the market readiness metrics documentation that ERCOT staff has executed regarding the Congestion Revenue Rights part of the nodal market design, and has reviewed ERCOT staff’s conclusion that the Congestion Revenue Rights has satisfied all of the steps necessary to make the declaration of market readiness required by Section 21.12.3, in order to authorize Congestion Revenue Rights Go-Live in October 2010;

WHEREAS, ERCOT staff provided its Section 21.12.3 certification document, attached hereto as Exhibit A, to TAC prior to TAC’s consideration of this issue and on August 5, 2010 TAC voted unanimously on a similar resolution, attached hereto as Exhibit B, to certify that all Market Readiness Criteria have been met for purposes of Section 21.12.3 regarding Congestion Revenue Rights in October 2010;

THEREFORE be it RESOLVED, that this Resolution shall serve as the ERCOT Board of Directors certification that all Market Readiness Criteria have been met, for purposes of ERCOT Protocol Section 21.12.3, regarding Congestion Revenue Rights Go-Live in October 2010.

FURTHERMORE, the ERCOT Board of Directors directs that status updates regarding outstanding issues be provided at future ERCOT Board of Directors meetings.



Market Readiness

Brandon McElfresh
Readiness & Transformation

Next 60-days of Nodal Classes/Workshops

| Course | Start Date | Location |
|---|------------|---|
| Load Serving Entity 201 | August 16 | Reliant Energy (Houston) |
| Market Settlements 301 | August 17 | City of Garland Fire Administration Building (Dallas) |
| Network Model/Outage Scheduler Workshop | August 18 | ERCOT (Taylor) |
| GCPA Retail Workshop | August 19 | Centerpoint (Houston) |
| NOIE QSE Operations | August 20 | City of Garland Fire Administration Building (Dallas) |
| Congestion Revenue Rights | August 24 | University of Delaware (Newark, DE) |
| Generation 201 | August 25 | University of Delaware (Newark, DE) |
| Congestion Revenue Rights | August 31 | ERCOT Met Center (Austin) |

Enrollment at: <http://nodal.ercot.com/training/courses/index.html>

Next 60-days of Nodal Classes/Workshops - continued

| Course | Start Date | Location |
|-------------------------------|--------------|--------------------------------|
| Generation 201 | September 1 | Hilton Austin Airport (Austin) |
| Economics of LMP | September 13 | ERCOT Met Center (Austin) |
| ERCOT 101 for Wind Generation | September 13 | Optim Energy (Dallas) |
| ERCOT Nodal 101 | September 14 | StarTex Power (Houston) |
| Generation 101 | September 15 | Hilton Austin Airport (Austin) |
| Basic Training Program | September 20 | LCRA (Austin) |
| Load Serving Entity 201 | September 27 | ERCOT Met Center (Austin) |
| Congestion Revenue Rights | September 29 | Suez Energy (Houston) |
| ERCOT Nodal 101 | October 5 | RBS Sempra (Stamford, CT) |
| Basic Training Program | October 18 | Suez Energy (Houston) |

Enrollment at: <http://nodal.ercot.com/training/courses/index.html>

RED/AMBER Metrics Summary – Market Participant Metrics

Market Participant Metrics

| Metric Name | Current Score | Applies to | Weight | Green % | Yellow % | Red % | Not Scored % | Primary Criteria | Notes |
|---|---------------|-----------------|------------------------------------|---------|----------|-------|--------------|---|--|
| Market Participant Metrics | | | | | | | | | |
| MP15(B) CRR Connectivity Qualification | Red | CRRAHs | Even weighting | 94% | 0.0% | 6% | 0.0% | Successful submission CRR transactions | 78/83 CRRAHs qualified. Greater than 5% RED. |
| MP16 DAM Participation | Amber | QSEs | Even Weighting | 68.4% | 9.6% | 15.0% | 7.0% | Participation in 50% of the Day-Ahead Market runs | 128/187 QSEs w/o Resources |
| MP21 WGRs ICCP Meteorological Telemetry | Amber | REs (only WGRs) | Registered MW Capacity Ratio Share | 66.0% | 32.3 | 1.7 | N/A | WGRs must meet reasonability tests for MET ICCP | < 5% RED, so the metric is currently listed at AMBER |

MP15(B)

- 5 not qualified, but working to submit qualification transactions
- Minimal risk to running the December 2010 Auction

MP16

- QSEs w/o Resources DAM participation between 70%-80% since measurement started in April.
- These QSEs represent 1% of Load.
- Minimal risk to Go-Live

MP21

- 67 WGRs – 42 passed reasonability test, 22 working with ERCOT to resolve, 3 with no response
- Steady improvement since metric began 7/14
- Any WGRs not meeting reasonability tests are subject to escalation to the TRE

Questions ?

Appendix

Nodal Program Risks & Issues: Definitions

Definitions for Category, Probability and Severity of Risks & Issues:

- **Category**
 - Scope : Will require a scope change
 - Schedule: Will require a schedule change
 - Budget: Will require a budget change
- **Probability**
 - High : Probability to occur is $\geq 90\%$; perceived impact would require a Change Request over the next 1-3 months
 - Medium: Probability to occur is between 31 – 89%; perceived impact would require a Change Request over the next 4 -10 months
 - Low: Probability to occur is $\leq 30 \%$; not expected to require a Change Request
- **Severity**
 - High: Milestone impact, or budget impact $> \$250,000$
 - Medium: Milestone impact - but expected to be mitigated, or budget impact between \$0 - \$250,000
 - Low: No milestone impact, or no budget impact

DAM/RUC/SASM Operational Scenarios

| Scenario | Date of execution | ERCOT activity | MP activity required |
|---|-------------------|--|--|
| ERCOT submits RMR Units into DAM | June 1, 2010 | Create and activate RMR Three-Part Offers | Submit COP for RMR units. |
| RUC fails; commitment/ decommitment through VDI | June 3, 2010 | Simulate RUC failure. Commit/decommit using VDIs. As a technical test, we will send all QSEs with Resources one VDI xml message. Settlements of this scenario is not yet available so it will be redone in August | Acknowledge electronic VDI message |
| DAM fails to complete | June 8, 2010 | Abort DAM. Issue DAM failure notification/Emergency Condition. Shift AS procurement to the SASM. | Resubmit self-arrangement of AS once ERCOT has opened the SASM. |
| More than one SASM for the same Operating Hour; increase load forecast throughout the day prior to executing market processes | June 10, 2010 | Execute two SASMs for the same Operating Hour. Manually increase load forecast prior to DRUC and HRUC | None (optional self-arrangement of additional AS Obligation, if any) |
| AS Offers insufficient to meet AS Plan; RUC deployment for Ancillary Services | June 15, 2010 | Declare AS Insufficiency, delay DAM execution by 30 minutes, request additional AS Offers be submitted during that time. When the AS is still insufficient after this process, reduce AS Plan and clear DAM; commit Resources in DRUC for purpose of providing AS. | None |
| [None] | June 17, 2010 | | None |

DAM/RUC/SASM Operational Scenarios

| Scenario | Date of execution | ERCOT activity | MP activity required |
|---|-------------------|---|---|
| Manual DRUC commitment/ decommitment; Cancel previous RUC commitment | June 22, 2010 | Operator will manually select Resources in addition to those recommended by the RUC software. Operator will decommit some Resources Cancel previous RUC commitment in HRUC. | Inform markettrials@ercot.com at least 2 days in advance that you need to repeat the technical test done in April and would like to be selected to receive a RUC instruction. |
| Resolving undeliverable AS and failure to provide AS | June 29, 2010 | Communicate and resolve failure to provide AS and undeliverable AS. Two different SASMs will be opened for these two reasons. | None |
| Delay DAM publishing of results | July 1, 2010 | Delay publishing of results past DAM timeline of 1330; issue related notice. | None |

Defect Definitions

| Severity | Definition |
|---|--|
| Severity 1: Data loss/critical error | Defects that render unavailable the critical functions of the system under test. These include errors such as system errors, application failures, loss of data, incorrect calculations, inability to transfer data, failure to access database, and inability to display information to the user. |
| Severity 2: Loss of functionality w/o workaround | Defects that render unavailable partial functionality of the system under test with no workaround available. These include errors such as incorrect information displayed to the user, information not updating correctly, extracts failing, and missing export files. |
| Severity 3: Loss of functionality with workaround | Defects that render unavailable partial functionality of the system under test with a workaround available. These include errors such as incorrect message displayed, optional information missing or not displayed correctly, not receiving e-mail notifications, and incorrect defaults. |
| Severity 4: Partial loss of a feature set | Defects that affect a feature that is not executed on a frequent basis and there is not a significant impact on the system. These include errors such as help information, filtering, and consistent naming. |
| Severity 5: Cosmetic/documentation error | Defects that are cosmetic and need to be resolved, but are not a factor in the functionality or stability of the system. These include errors such as field alignment, report formatting, drop down list order, fonts, column order and documentation that is inconsistent with the system(s) as tested. |

| | Prescription in Quality Center |
|------------|------------------------------------|
| Priority 1 | Must fix ASAP |
| Priority 2 | Must fix prior to Go-Live |
| Priority 3 | Not critical to fix before Go-Live |
| Priority 4 | Minor system/user impact |
| Priority 5 | No system/user impact |

Critical Defect Definitions

- **Critical defects are required to be fixed before go-live**
- **Critical defects are identified as:**
 - Severity 1
 - Severity 2
 - Severity 3 priority 1 & priority 2
 - Severity 4 priority 1 & priority 2
 - Severity 5 priority 1 & priority 2
- **A continual defect review process will ensure that, after review and approval by the business, non-critical defects are deferred in Quality Center with adequate documentation (e.g., test script results, impacted functions, recreation steps, workarounds)**

NOTE: All documented workarounds for deferred defects will be provided to the ERCOT readiness team for review and inclusion in desk procedures, when applicable

External Audit Status Summary

| Audit | Audit Points Identified | Audit Points in Execution | Date to Complete Last Point |
|------------------------------|--------------------------------|----------------------------------|------------------------------------|
| Utilicast Report 8 | 6 | 6 complete | 2011* |
| Utilicast Report 10 (Cleary) | 17 | 17 complete | 8/2/10** |

* Audit point required for go-live complete with the construction of the TCC1 expansion in Taylor.

** Updated end date to reflect date to complete remaining audit points

Audit Points to Address from Utilicast Report 10-1

| ID | Short Description | Recommendation | Action Plan Status | Resp. Dir. | Resp. Mgr. | Target Date |
|------------|--|---|--|------------|------------|-----------------|
| UTI-10-06C | End-to-End Business Readiness Activities | Ensure Nodal processes and procedures are completed so they can be exercised during End-to-End testing. | <p>Planning is complete for ensuring that all nodal processes and procedures that will need to be exercised during end-to-end testing are scheduled for completion prior to the execution of those processes and procedures per the end-to-end schedule.</p> <p>The schedule below reflects the Nodal test schedule for 4 audit points:</p> <ol style="list-style-type: none"> 1. Phase 6 – Integrated final code: Audit point UTI10-06C was set up for the final test phase (Market Trials 6). This phase is now essentially the 168-hour test. As such, the end has changed to 8/2/10 to coincide with the 168-hour test. | V. Gates | J. Adams | COMPLETE |

CRR Metrics

| Metric Name | Current Score | Applies to | Weight | Green % | Yellow % | Red % | Not Scored % | Primary Criteria | Notes |
|--|---------------|------------|----------------|---------|----------|-------|--------------|--|---|
| Market Participant Metrics | | | | | | | | | |
| MP15(B) CRR Connectivity Qualification | Red | CRRAHs | Even weighting | 91.2% | 0.0% | 8.8% | 0.0% | Successful submission CRR transactions | 78/85 CRRAHs qualified. Greater than 5% RED. |
| CRR3 Operation of CRR Auctions and Allocations | Green | CRRAHs | Even weighting | 81.2% | 0% | 18.8% | 0.0% | Participation in at least 1 of the last 2 auctions or allocations. > 80% total participating | 63/77 CRRAHs with adequate participation in June or July auction or allocation |
| ERCOT Metrics | | | | | | | | | |
| CRR3 Operation of CRR Auctions and Allocations | Green | ERCOT | N/A | N/A | N/A | N/A | N/A | Auction results distributed to participants per schedule in CRR Handbook | 8/10/2010 Annual Auction results posted (delayed 1 day due additional validation needed) |
| | Green | ERCOT | N/A | 100% | 0% | 0% | 0% | Allocated Revenue Rights in statistical sample = 100% accurate | Source – Sink price/clearing prices quality check performed successfully by CRR team after each auction |
| CO8 Verify CRR Auction Invoices | Green | ERCOT | N/A | 100% | 0% | 0% | 0% | CRR Auction Result for MP(n) – CRR Auction Invoices for MP(n) = 0\$ | S&B validated invoices reflected awards for each CRRAH in the March, April, May, June, July, and August auctions, . |
| | Green | ERCOT | N/A | 100% | 0% | 0% | 0% | System Generated CRR Auction Invoices not posted = 0 | Annual CRR auction invoices submitted to all 40 CRRAHs who participated |

Real-Time Metrics

| Metric Name | Current Score | Applies to | Weight | Green % | Yellow % | Red % | Not Scored % | Primary Criteria | Notes |
|---|---------------|------------|------------------------|---------|----------|-------|--------------|--|---|
| Market Participant Metrics | | | | | | | | | |
| MP3 Market Submissions Connectivity Qualification | Green | QSERS | Generation Ratio Share | 99.0% | 1.0% | 0.0% | 0.0% | Successful submission of RT and DAM transactions | 79/81 QSERS qualified |
| | Green | QSEs | Even weighting | 97.3% | 0.0% | 0.5% | 2.2% | | 182/187 QSEs qualified. |
| EMO6 Individual LFC Testing | Green | QSERS | Generation Ratio Share | 93.0% | 0% | 0% | 7.0% | 80% of generation has completed individual test LFC prior to the system-wide LFC tests | 69/79 QSERS completed their individual LFC test or provided attestation |
| MP15-A Real-time Market Participation | Green | QSERS | Generation Ratio Share | 98.8% | 1.2% | 0.0% | 0.0% | Weekly average of daily SCED submissions | 78/79 QSERS above 95% weekly average for SCED submissions. |
| ERCOT Metrics | | | | | | | | | |
| MO3 Verify SASM | Green | ERCOT | N/A | 100% | N/A | N/A | N/A | Multiple SASMs are successfully executed during Market Trials and the 168 hour test. | SASMs successfully run on 4/28, 4/30, 5/4, 5/6, 5/7, 5/12, 5/14, 6/9, and 6/10. No issues reported. |
| MO4 Verify SCED Execution Quality | Green | ERCOT | N/A | 100% | 0% | 0% | 0% | All successful SCED executions passed the post-execution price validations. | 7/27 – 8/9 period – 4,027 Price Validation runs with no rule violations |
| MO5 Generate 6 Months of LMPs | Green | ERCOT | N/A | 99.5% | 0% | .5% | 0% | 95% of SCED executions completed with LMPs posted on MIS. | 7/27 – 8/9 period, 4,015 out of 4,037 SCED runs with LMPs posted. |
| CO5 Verify RTM Settlement Statements/CO6 Verify RTM Settlement Invoices | Green | ERCOT | N/A | 100% | 0% | 0% | 0% | System Generated RT Statement Dollars- Independently Generated RT Calculation Dollars =\$0 | 7/1 – 7/30 RTM Statements and Invoices validated \$\$ = system generated (with some rounding differences) |
| | Green | ERCOT | N/A | 100% | 0% | 0% | 0% | System Generated RT Statements/Invoices not posted = 0 | 7/1 – 7/30 RTM Statements and Invoices All posted on time |



Day-Ahead Market Metrics

| Metric Name | Current Score | Applies to | Weight | Green % | Yellow % | Red % | Not Scored % | Primary Criteria | Notes |
|--|---------------|------------|------------------------|---------|----------|-------|--------------|---|---|
| Market Participant Metrics | | | | | | | | | |
| MP16 DAM Participation | Green | QSERs | Generation Ratio Share | 97.0% | 3.0% | 0.0% | 0.0% | Participation in 50% of the Day-Ahead Market runs | 67/79 QSEs with Resources |
| | Amber | QSEs | Even Weighting | 68.4% | 9.6% | 15.0% | 7.0% | | 128/188 QSEs w/o Resources |
| ERCOT Metrics | | | | | | | | | |
| MO9 Generate DAM LMPs | Green | ERCOT | N/A | N/A | N/A | N/A | N/A | 95 percent DAM execution as evidenced by DAM LMP postings | 7/27 – 8/9 – 10/10 DAM runs execute (doesn't measure quality) |
| MO10 DRUC Execution | Green | ERCOT | N/A | N/A | N/A | N/A | N/A | 95 percent DRUC execution | 7/27 – 8/9 - 7 out of 7 DRUC runs executed (DRUC was not scheduled for everyday) |
| CO3 Verify DAM Settlement Statements/CO7 Verify DAM Invoices | Green | ERCOT | N/A | 100% | 0% | 0% | 0% | System Generated RT Statement Dollars- Independently Generated RT Calculation Dollars = \$0 | 7/1 – 7/30 DAM Statements and Invoices All validated \$\$ = system generated (with some rounding differences) |
| | Green | ERCOT | N/A | 100% | 0% | 0% | 0% | System Generated RT Statements/Invoices not posted = 0 | 7/1 – 7/30 DAM Statements and Invoices All posted on time |

1. MP16 – Metric is based on a 2 week rolling average (7/19 – 7/30 – 10 runs).
2. MP16 – 91% Load participating.

Network Modeling Metrics

| Metric Name | Current Score | Applies to | Weight | Green % | Yellow % | Red % | Not Scored % | Primary Criteria | Notes |
|--|---------------|-----------------|------------------------------------|---------|----------|-------|--------------|---|--|
| Market Participant Metrics | | | | | | | | | |
| MP6 Telemetry Compliance with Nodal Protocols 3.10.7.5 | Green | QSERS | Generation Ratio Share | 100% | 0.0% | 0.0% | 0.0% | Expected State Estimator telemetry submitted. | 78/78 complete. 3502 total SE points provided |
| | Green | QSERS | Generation Ratio Share | 100% | 0.0% | 0.0% | 0.0% | Expected SCED telemetry submitted. | 78/78 complete. 7629 SCED points provided |
| | Green | TSPs | Ownership Ratio Share | 99.3% | 0.0% | 0.0% | .7% | Expected TSP telemetry per ICCP Handbook submitted | 14/17 TSPs above 98% threshold for GREEN. 143 points outstanding |
| N2 Telemetry ICCP System Failover | 9/1/2010 | QSERS | Generation Ratio Share | 89.5% | 0% | 0% | 10.5% | ICCP Failover test completed successfully prior to the 8-hour LFC test. | 64/79 QSERS completed ICCP telemetry failover test. |
| MP21 WGRs ICCP Meteorological Telemetry | Amber | REs (only WGRs) | Registered MW Capacity Ratio Share | 66.0% | 32.3 | 1.7 | N/A | WGRs must meet reasonability tests for MET ICCP | < 5% RED, so the metric is currently listed at AMBER |

1. MP6 does not include 405 QSE CB and DSC points from TSP outreach. ERCOT is determining whether these rollback into the QSER MP6 measurement.

Network Model Metrics

| Metric Name | Current Score | Applies to | Weight | Green % | Yellow % | Red % | Not Scored % | Primary Criteria | Notes |
|--|---------------|------------|--------|---------|----------|-------|--------------|--|---|
| ERCOT Metrics | | | | | | | | | |
| EMO9(A) State Estimator Standards Performance | Green | ERCOT | N/A | N/A | N/A | N/A | N/A | State Estimator converges 97% during monthly test period | 98.4% Convergence for State Estimator for the month of July. |
| EMO9(B) RTCA Modeling Differences | Green | ERCOT | N/A | 96.8% | N/A | N/A | N/A | 95% of impedance values matched between Zonal/Nodal | 97.9% match for impedances for lines and transformers. 6718 lines and transformers in Nodal. |
| | Green | ERCOT | N/A | 96.8% | N/A | N/A | N/A | 95% of dynamic line ratings matched between Zonal/Nodal | 99.2% match for ratings for lines. 5288 lines in Nodal. |
| | Green | ERCOT | N/A | N/A | 98.6% | N/A | N/A | 95% of load tap setting values matched between Zonal/Nodal | 98.6% Match for transformer tap settings. 1430 xfrms in Nodal. |
| EMO10 Anomalous / Auto-Disabled Telemetered Points | Green | ERCOT | N/A | 1.91% | N/A | N/A | N/A | The % of Anomalous and Auto-Disabled Measurements < 2% of Total Measurements | April Nodal 2.58% May Nodal 1.92% June Nodal 1.91% July Nodal 1.44% |
| EMO9(C) RTCA CSC Comparison | Green | ERCOT | N/A | 99.6% | N/A | N/A | N/A | CSC Pre-contingency SE Flows within 5% (Hourly snapshot) | Measurement establishes baseline flows on Commercial lines between Zonal and Nodal (7/27 – 8/9) |

Other Readiness Metrics

| Metric Name | Current Score | Applies to | Weight | Green % | Yellow % | Red % | Not Scored % | Primary Criteria | Notes |
|--|---------------|------------|------------------------------------|---------|----------|-------|--------------|---|--|
| Market Participant Metrics | | | | | | | | | |
| MP20 Outage Scheduler Connectivity Qualification | Green | QSERS | Generation Ratio Share | 98.9% | 0.0% | 0.0% | 1.1% | Successful submission of OS transactions | 78/79 QSERS qualified. |
| | Green | TSPs | Ownership Ratio Share | 99.7% | 0% | 0% | .3% | | 20/23 TSPs qualified. |
| MP11 Resource Registration | Green | REs | Registered MW Capacity Ratio Share | 99.6% | 0.0% | .4% | 0.0% | Decision Making Authority form submitted, and GENMAP validated | 154/157 Resources completed. |
| ERCOT Metrics | | | | | | | | | |
| E1 ERCOT Staff Completes Training | Green | ERCOT | N/A | 100% | N/A | N/A | N/A | Training plans must be adhered to for highly impacted departments | 15 out of 15 highly impacted departments are up to date with their training plans. |
| E9 Develop Nodal Procedures | Green | ERCOT | N/A | 100% | N/A | N/A | N/A | Procedures developed 1 month prior and exercised in the appropriate Market Trials Phase | All MT5 procedures exercised as scheduled in MT5. |
| EMO3 Verify Outage Evaluation System Functionality | Green | ERCOT | N/A | N/A | N/A | N/A | N/A | A test of the Outage Management Process is completed | OS to OE integration tested throughout Market Trials and reviewed at 6/23 NATF |