



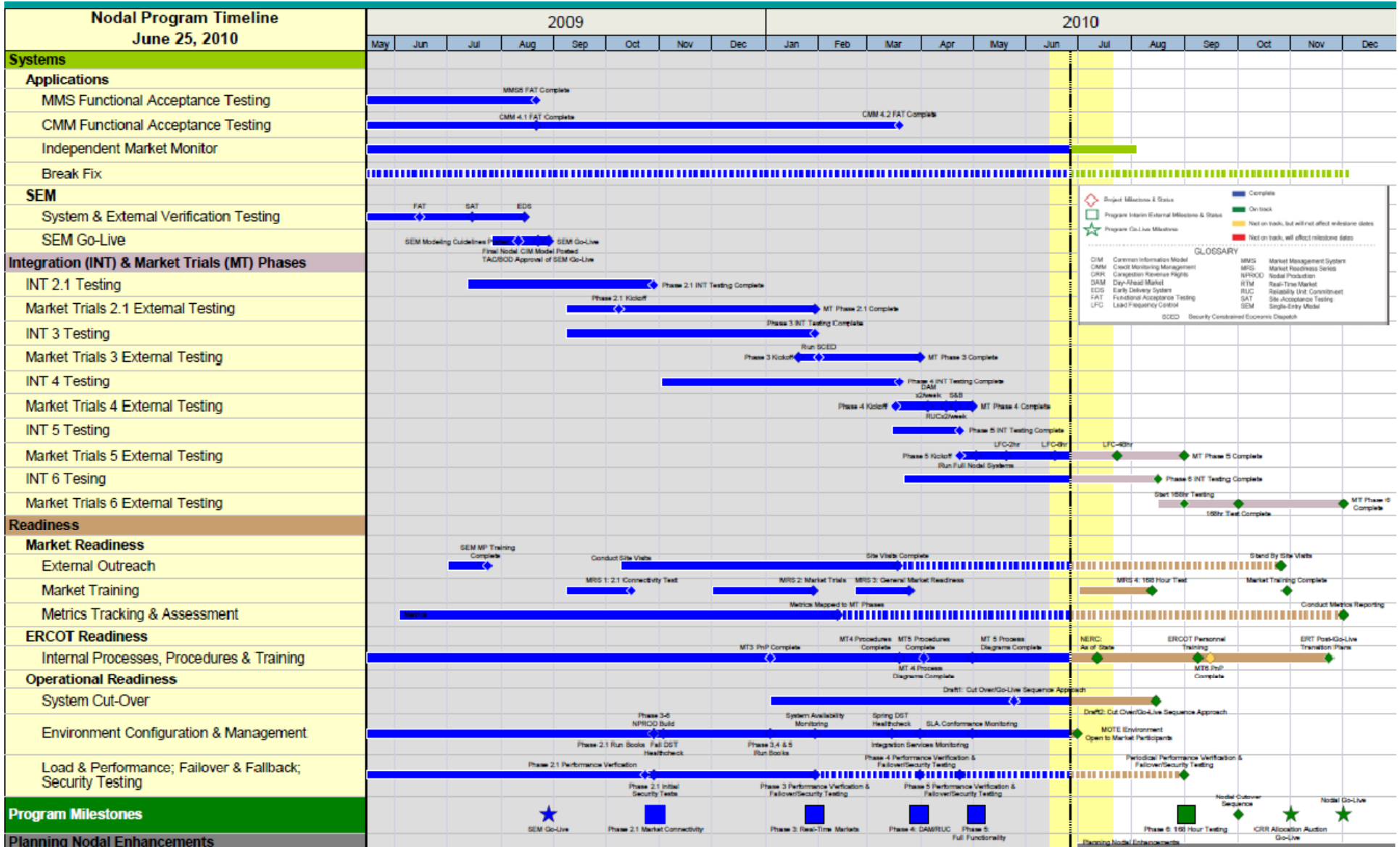
Nodal Program Update

Special Nodal Program Committee
19 July 2010

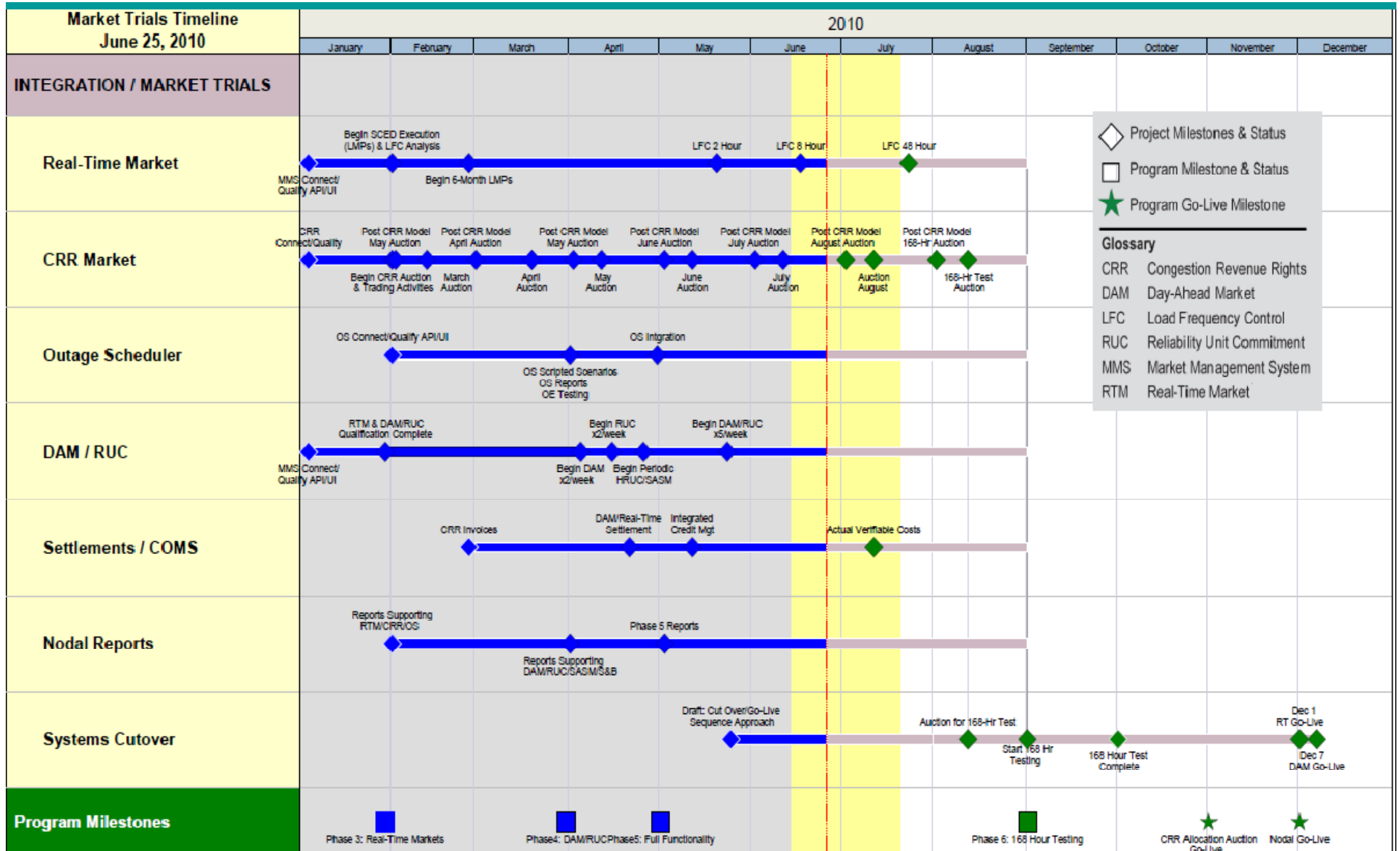
Today's Agenda

- **Program Status**
- **Market Readiness**
- **Financials**
- **Appendix**

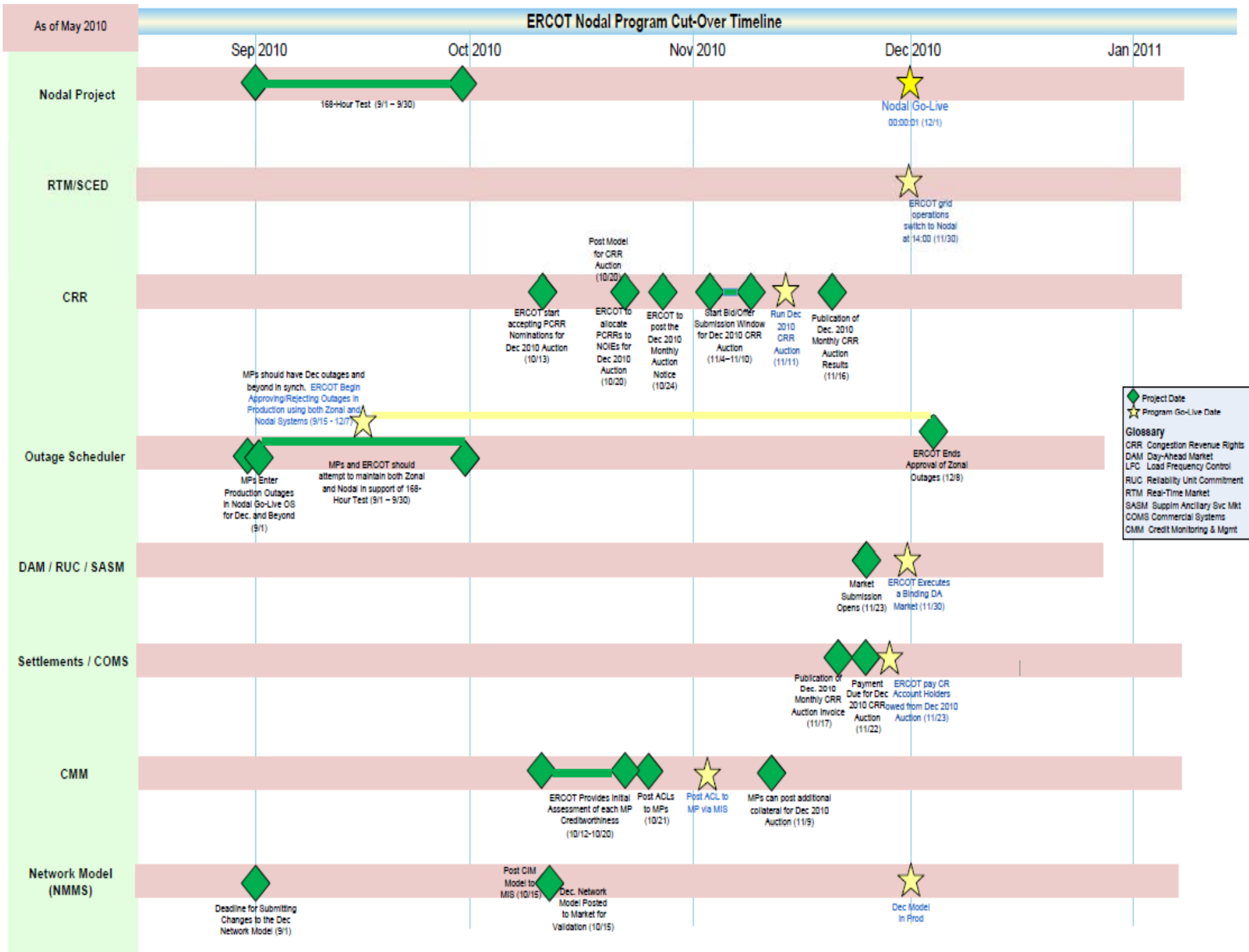
Integrated Nodal Timeline – Go-Live December 1, 2010



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



ERCOT Nodal Program Cut-Over Timeline



134 Days to Go-Live

Market Trials has been running for 22 weeks Market Quality Testing and Operational Readiness

Achievements within Market Trials:

- CRR
 - Six monthly CRR auctions and one Balance of the Year auction have been completed and invoiced
- Real Time Markets
 - SCED
 - Real Time settlements
- DAM / RUC
 - DRUC has been running in conjunction with DAM for 13 weeks
 - DAM Settlements are being executed
 - Settlement and extract data has been available since Mid-May
 - Continual strong participation from the Market Participants (Averaged 197 QSEs / DAM run)
 - Operational scenarios ran twice a week in June
 - DAM / RUC 5 times per wk except for weeks that contain an LFC test
- Ancillary Services
 - Procured in every DAM for production quantities
 - Supplemental AS Market tested as needed
- Closed Loop LFC
 - 2 hour test occurred in May
 - 8 hour test occurred on June 17th
- Credit
 - Credit Module went into effect on May 14th

134 Days to Go-Live

Market Trials has been running for 22 weeks

Upcoming Milestones for Market Trials:

- Closed Loop LFC
 - 5 hour test scheduled for this week
 - 24 hour test scheduled for the week of August 2nd
 - Two additional LFC tests to be scheduled in August
- DAM/RUC/SASM Scenarios
 - Some operational scenarios will be re-run in August
 - Reduce the number of DAMs to create more resource availability to support additional LFC tests
- Market Changes in trials in July/August
 - NPRR206- Change in Credit Management Collateral calculations for Day-Ahead Market
 - NPRR202- Posting of ERCOT network model (redacted version for all MPs)
 - NPRR169- Posting Real-Time Prices after every SCED run
- 168 Hour Test prior to Go-Live (Sept 2010)
 - Market Readiness Seminar scheduled for July 28th

System Cut-Over / Go-Live

- Sept/Oct 2010– Network Modeling, Outage Scheduling
- November 2010- Go-Live CRR Auction
- December 1st - DAM/Real-Time Operations

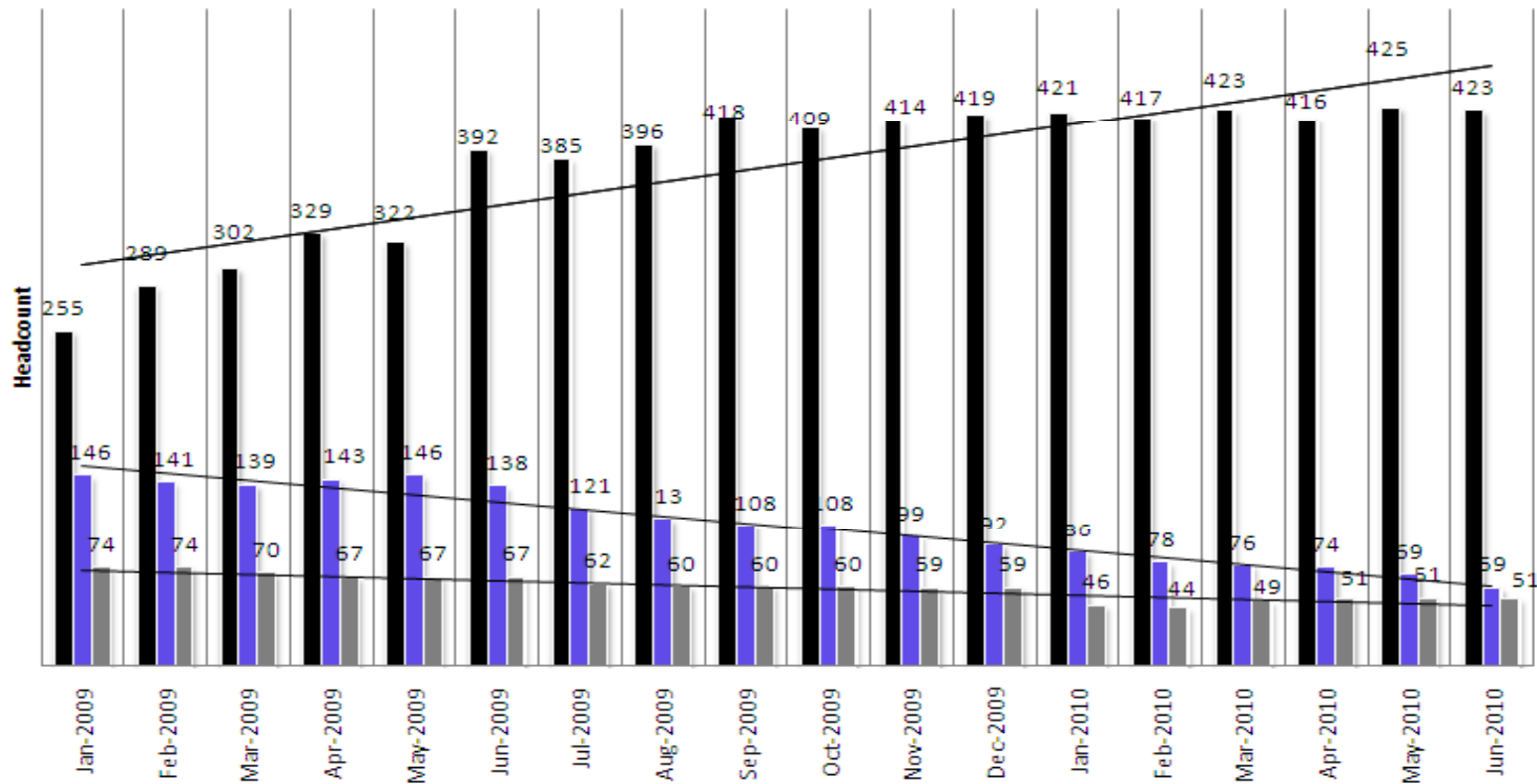
Upcoming Dates for Go-Live Sign Off

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

System (Protocol)	TAC Approval	Board of Directors Approval
Network Operations Modeling (NMMS)	July 20 th	July 20 th
Congestion Revenue Rights (CRR)	August 5 th	August 17 th
Outage Scheduling (OS)	August 5 th	August 17 th

Nodal Internal/External and Vendor Headcount 2010

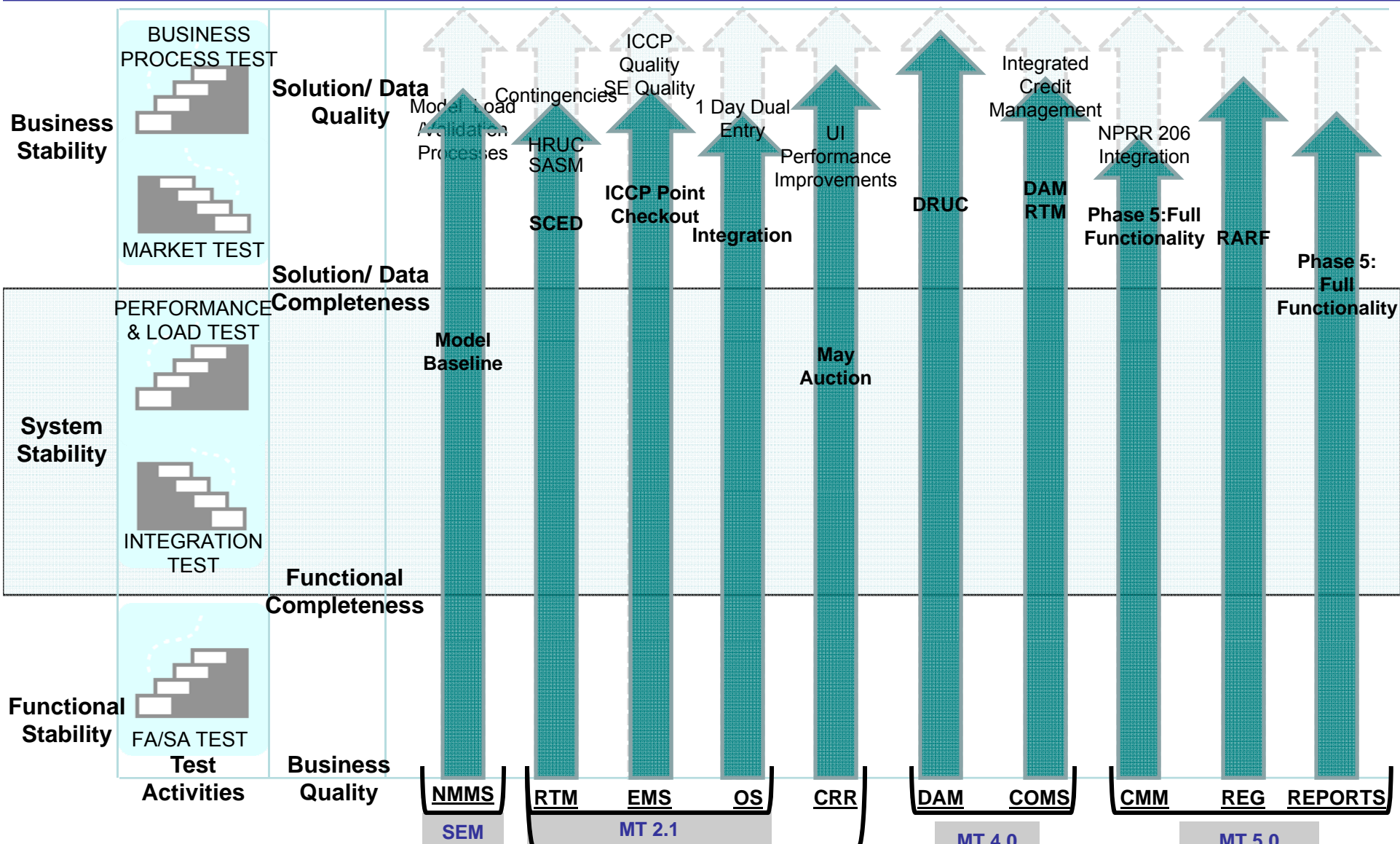
Nodal Internal/External and Vendor Headcount for 2010



	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10
■ ERCOT Employees	255	289	302	329	322	392	385	396	418	409	414	419	421	417	423	416	425	423
■ Contingent Labor	146	141	139	143	146	138	121	113	108	108	99	92	86	78	76	74	69	59
■ Vendor Labor	74	74	70	67	67	67	62	60	60	60	59	59	46	44	49	51	51	51



Go-Live



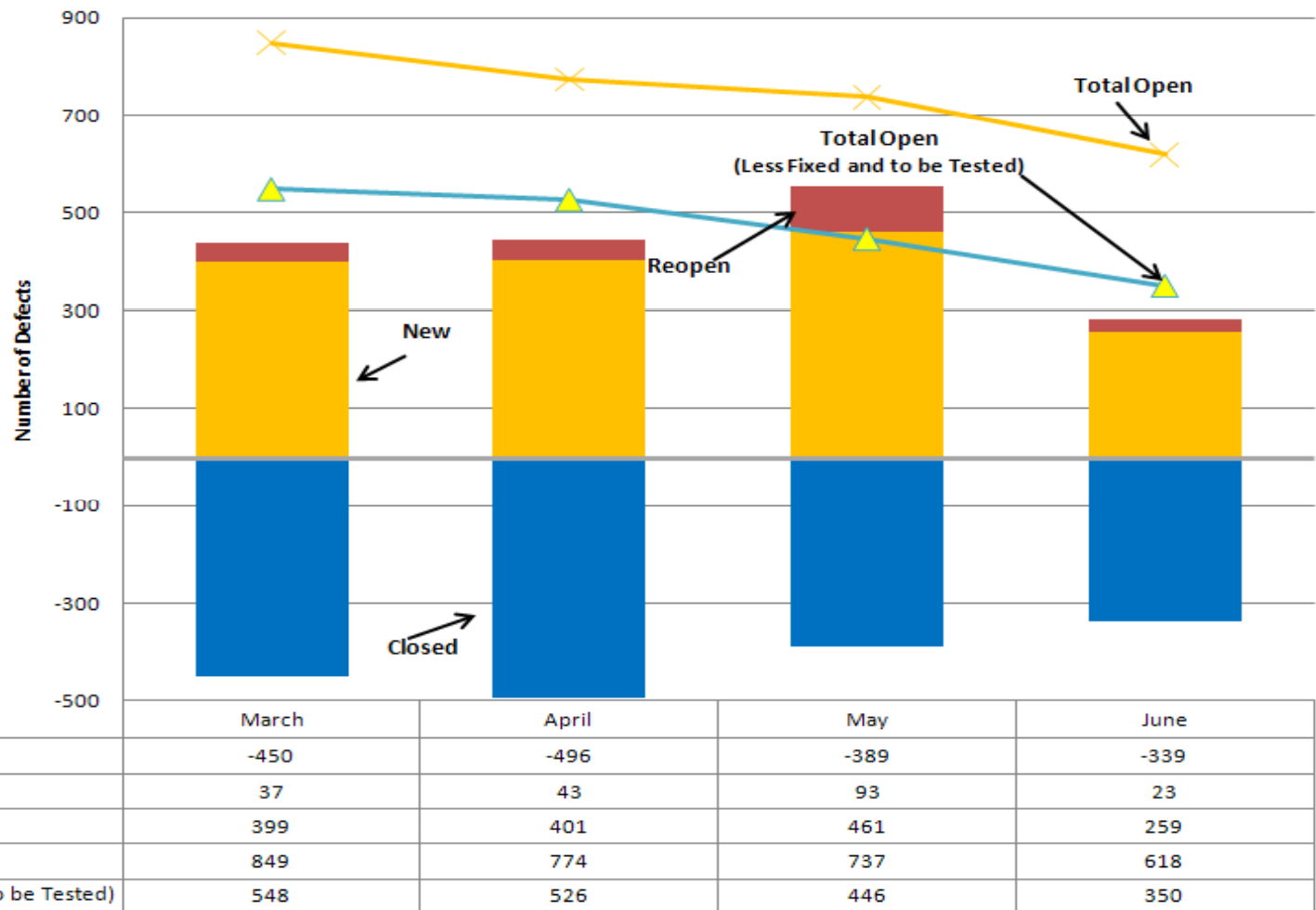
Nodal Program Risks & Issues

Risk/Issue	Impacted Milestone	Target	Category	Probability	Severity	Status
Network Model Management <i>Performance and availability issues around the NMMS.</i>	Program	July 2010	Schedule / Budget	Med	High	<ul style="list-style-type: none"> Update given at NATF on 06/23 Working closely with vendor to correct all issues Scheduled update at NAFT on 7/08
Market Design Assessment <i>Risk around the protocol traceability project and the market results as each phase of market trials becomes active.</i>	Program	August 2010	Scope / Budget	Low	High	<ul style="list-style-type: none"> Building experienced market design team to review and assess design and protocol alignment with market trials results
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

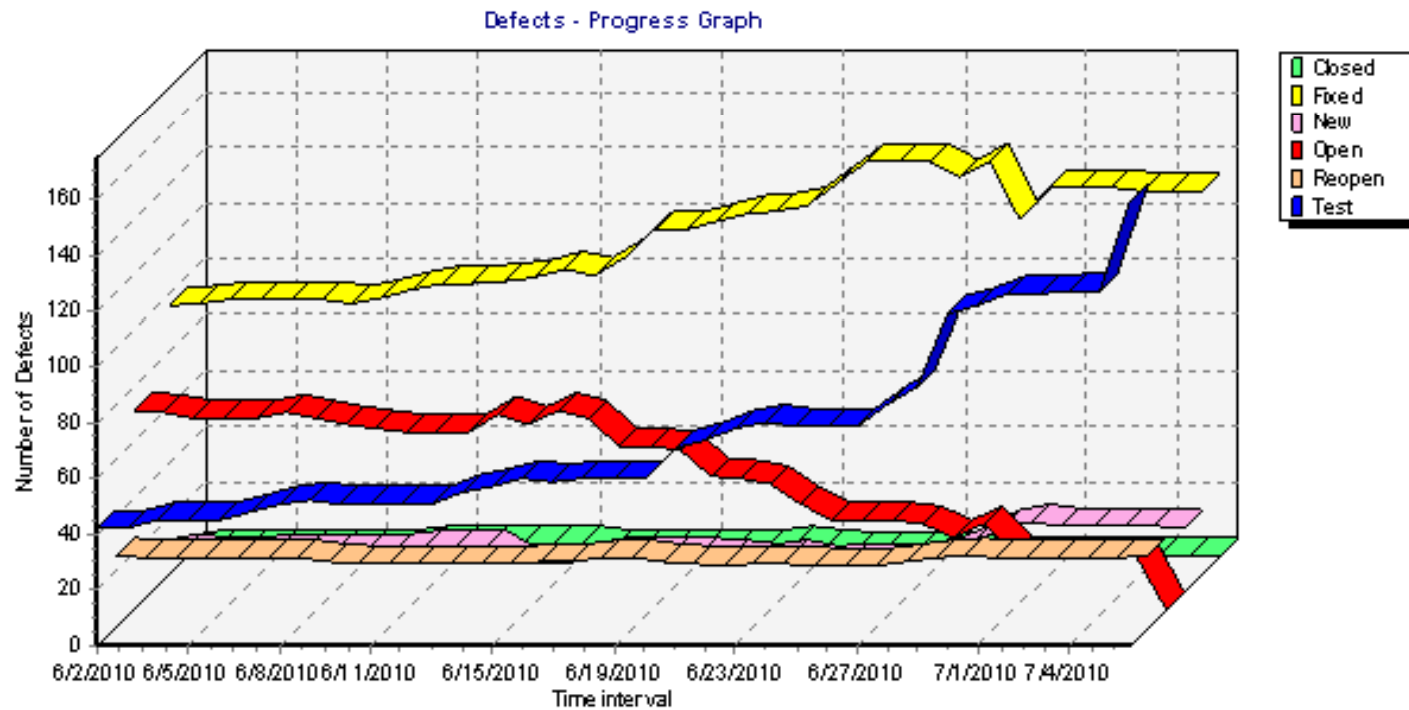
Nodal Defects Trends - High Priority (Must Fix Before Go-Live)

- Defect counts decreased due to planned defect migrations into Nodal iTest.
- Primary source of Open defect counts are EDW, EIP, EMS and MMS.
- Total active high priority defects are currently at 618.

**Nodal Defects
Total Open vs. Monthly Variation**

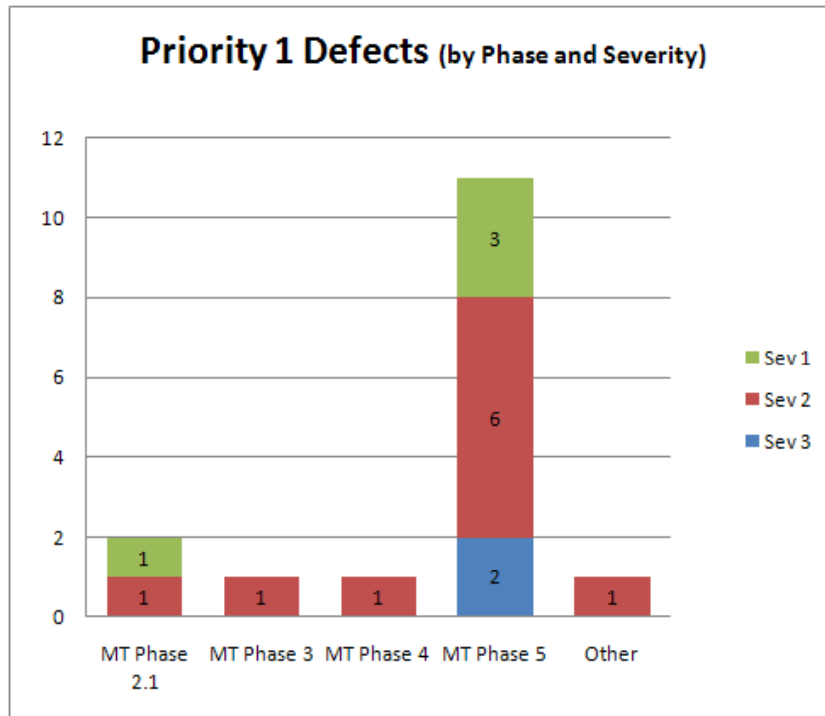


Nodal Defect Reporting

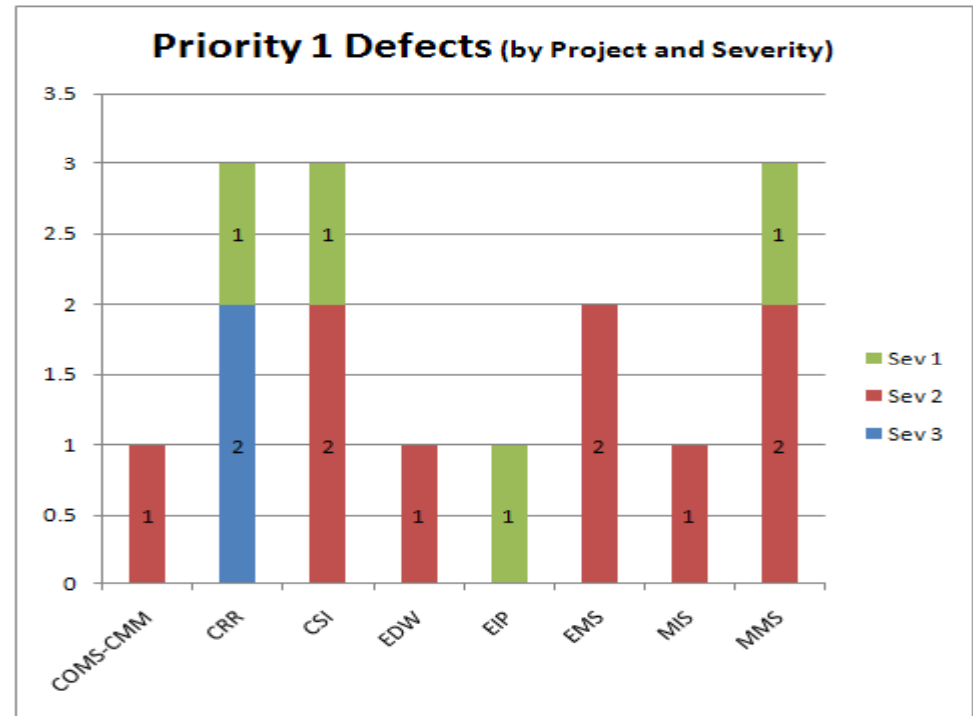


Market Trials delivery risk is being managed through a focus on key systems.

Nodal Defect Reporting



Systems & Testing teams are focused on the most important defects.



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

Nodal Defects Status Overview

System	# of Critical Defects (P1 & P2)	Target Release Date	Status
CDR	24	• 08/06/2010	
COMS-CMM	19	• 07/23/2010	
COMS-S&B	18	• 08/06/2010	
CRR	9	• 07/09/2010	
CSI	19	• 07/23/2010	
EDW	125	• 08/06/2010	
EIP	75	• 07/23/2010	
EMS	101	• 08/13/2010	At Risk
MIS	46	• 07/23/2010	
MMS	114	• 08/13/2010	
MMS MM UI	6	• 08/06/2010	
MPIM	4	• 07/09/2010	
NMMS	7	• 08/06/2010	
OS	35	• 07/09/2010	
OS RUI	16	• 07/23/2010	

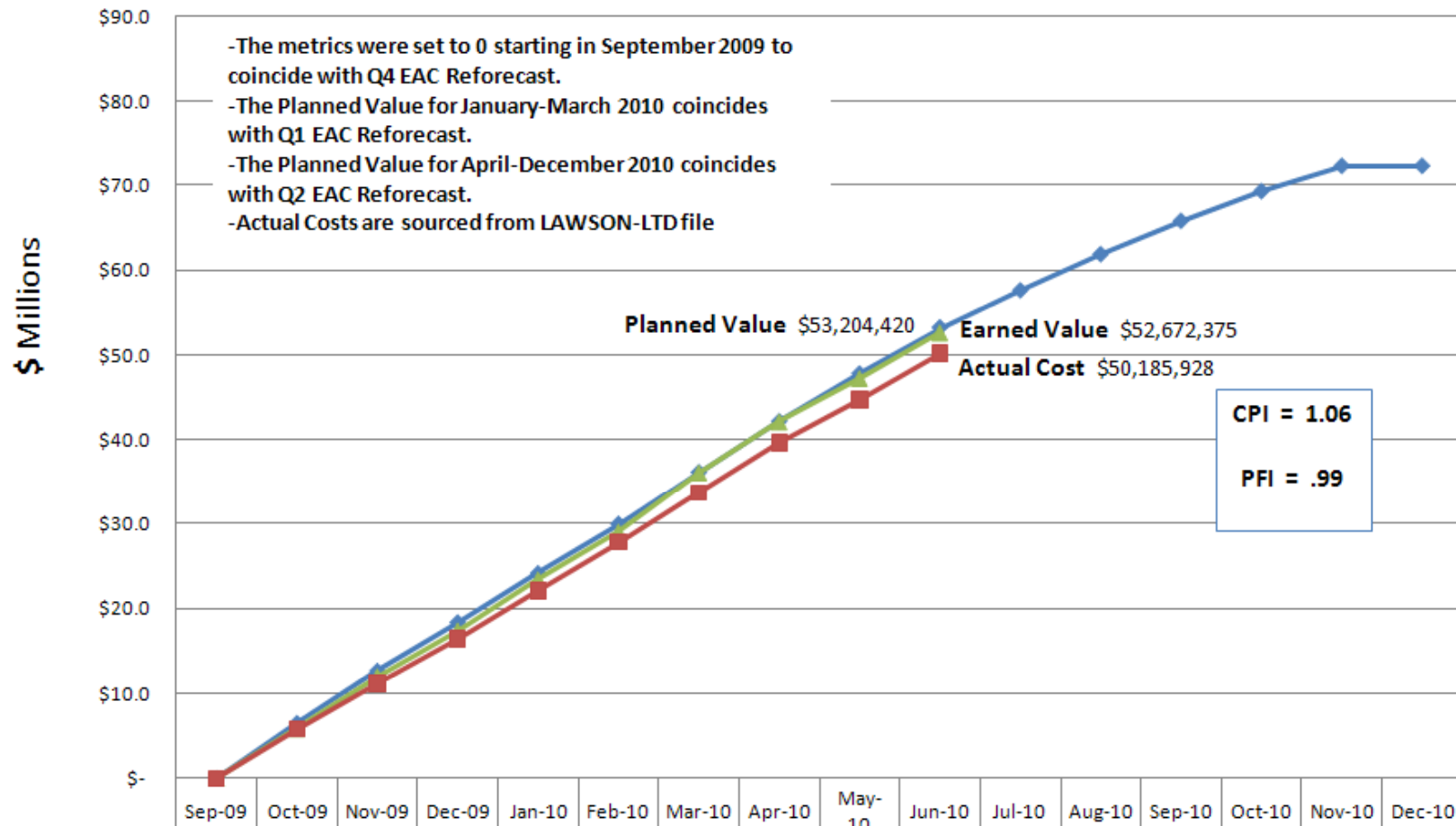
Deferred Nodal Defects Overview

Functional Area	Loss of functionality with workaround	Partial loss of a feature set	Cosmetic / Documentation	Enhancement	Total In Review
COMS-CMM	14	26	19		59
COMS-DataAgg	2	3			5
COMS-REG		2	6		8
COMS-S&B	18	12	4	6	40
CRR	2	8	2		12
CSI	1	2	1		4
EIP	35	3			38
EMS	75	154	24	21	274
INF	1				1
MIS	6	2	3		11
MMS	20	13	7		40
MMS MM	11	6	3		20
MPIM	5		2		7
NMMS	61	33	7		101
NMMS Data	1	3			4
OS	15	31	3	14	63
OS UI	22	18	3		43
Total In Review	290	316	84	41	731

Earned Value for the Nodal Program

Nodal Program

Chart only uses values associated with Internal Labor Costs, External Resource Costs, Administrative & Employee Expenses, Vendor & Backfill

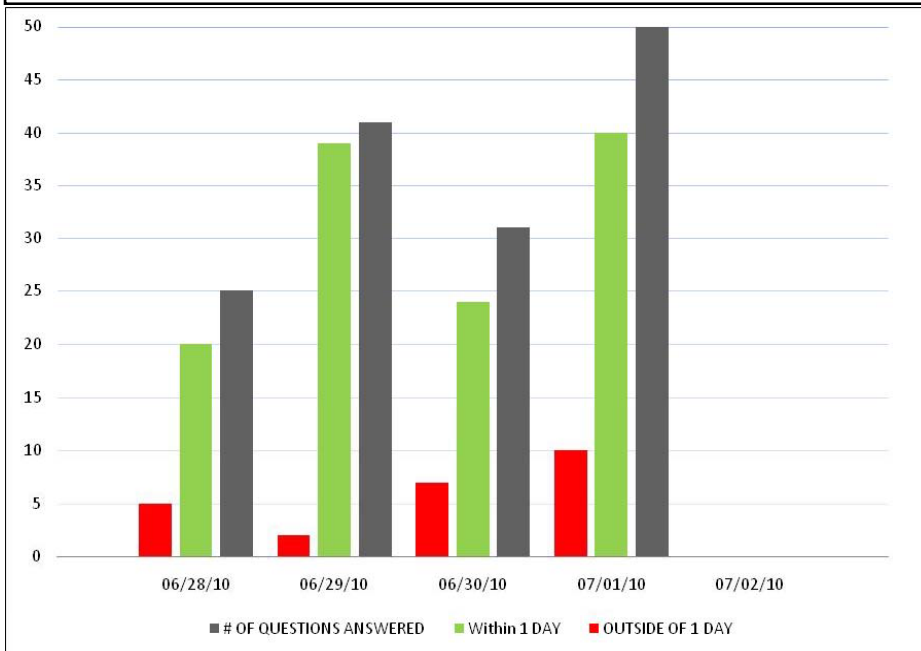


	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10
Planned Value	\$-	\$6.5	\$12.7	\$18.4	\$24.2	\$30.0	\$36.2	\$42.2	\$47.8	\$53.2	\$57.6	\$61.8	\$65.8	\$69.3	\$72.2	\$72.2
Earned Value	\$-	\$5.8	\$12.0	\$17.4	\$23.4	\$29.1	\$36.2	\$42.2	\$47.3	\$52.7						
Actual Cost	\$-	\$5.8	\$11.2	\$16.4	\$22.1	\$27.8	\$33.8	\$39.6	\$44.7	\$50.2						

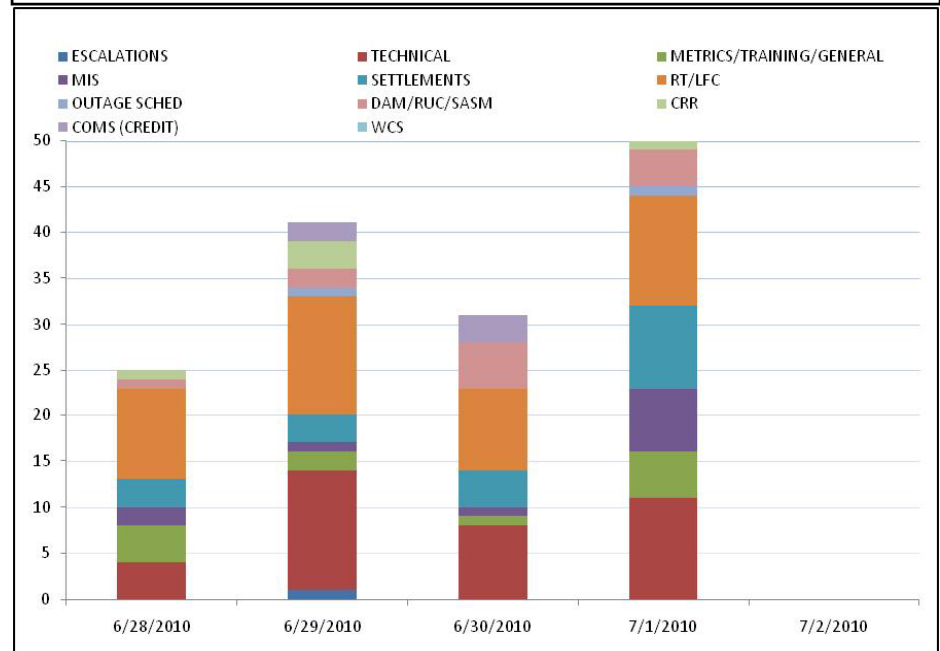


Incoming Questions for Market Trials Team

Question Turnaround Time



Question Area



Nodal Parking Deck - Approved

Source Document	Title	Priority	Current Status
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
NPRR210	Wind Forecasting Change to P50, Synchronization with PRR841	High	BoD Approved 6/15/2010
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 Document	Title	Suggested Priority	Current Status
NPRR207	Unit Deselection	High	Pending at Board TAC approved 7/1/2010
NPRR208	Registration and Settlement of Distributed Generation (DG) Less Than One MW	High/Medium	Pending at Board TAC approved 7/1/2010
NPRR222	Half-Hour Start Unit RUC Clawback	High	Tabled at Board TAC approved 6/3/2010
NOGRR034	Rescind Telemetry Performance Calculation Exclusions	TBD	Pending at ROS OWG approved 5/19/2010
SCR756	Enhancements to the MarkeTrack Application	Critical	Pending at Board TAC approved 6/3/2010
SCR759	acLineSegment Name Length Increase in Information Model Manager	TBD	Pending at ROS

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

Nodal Parking Deck –Additional Items for Consideration

Title	Current Status
Wind Cost Allocation	High level impact assessment of two options is near completion
Deferred NOGRR025 Reports	Draft NPRR 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 NPRR156
Automated Default Uplift Invoice	Automation of manual process as a result of NPRR221
EILS Enhancements	Automation of manual process
Price Validation Tool (PVT) Enhancements	Enhancements to be identified during market testing and Nodal implementation
Load Participation in SCED	Functionality to be considered for post-go-live development



LFC Test Overview

Kenneth Ragsdale
Market Trials

Special Nodal Program Committee
19 July 2010

8-Hour LFC Test Update

8-Hour LFC Test Update

Test Activities

Approx Timeline

Market WebEx start	7:00 AM
ERCOT - MP pre-test troubleshooting period	7:00 AM – 10:00 AM
Test start	10:00 AM
Zonal-Nodal cutover	10:00 AM – 10:46 AM
System frequency controlled by nodal systems	10:46 AM – 5:10 PM
RRS Scenario	2:15 PM – 2:25 PM
EMBP Scenario	3:00 PM – 3:20 PM
Nodal-Zonal cutover	5:10 PM – 5:42 PM

Results of the 8 Hour Test

ERCOT operational perspective

- The switching of control between systems went smoothly
- Frequency was controlled for duration of test by nodal systems
- Planned operational scenarios were executed as planned
- CPS1 scores were passing except for one hour
- ERCOT Operators able to manage numerous active constraints with SCED

Issues & Observations During the 8 Hour Test on June 17th

Issue/ Observation	Timeframe	Root Cause	Resolution Plan
Frequency Dip to 59.9	10:55am	<ul style="list-style-type: none"> Parameter setting (Balancing Authority ACE Limit) was not providing the desired effect Subsequently turned off 	<ul style="list-style-type: none"> Confirm all parameter settings in all systems prior to each test SPR written for BAAL parameter
Negative Load Zone Prices •Load Zone, Hub, and Electrical Bus LMPs/SPPs incorrect when constraints binding or violated	11:30am - 2pm	<ul style="list-style-type: none"> Missing Shift Factors for Electrical Buses affected SPP calculation EMS integration did not properly provide electrical bus shift factors WGRs became the marginal Resources because incorrect flag setting in EMS led ERCOT to not use the load distributed bus as the reference bus Telemetry changes created topology changes which changed the reference bus in EMS to be a bus in the west zone 3% Shift Factor heightened the issue 	<ul style="list-style-type: none"> The fix in EMS was migrated to nProd last Friday Set Shift Factor cut-off to a much smaller value such as .0001 Changed flag to be load distributed bus
West – North Stability Limit was changing and differed from zonal	10:50am – 3:25pm	<ul style="list-style-type: none"> Initially, lower W-N limit was entered in nodal to prevent W-N being binding in zonal Due to QSEs not following basepoints, the nodal and zonal W-N 80% limit was exceeded 	<ul style="list-style-type: none"> Leave OC1 in zonal during all transitions between nodal and zonal Once 100% Nodal take out OC1 in zonal.
Constraints were ignored by SCED for 19 minutes	1:20pm - 1:39pm	<ul style="list-style-type: none"> Shift factor transfer between EMS and MMS was not occurring 	<ul style="list-style-type: none"> The fix in EMS was migrated to nProd on Friday
Resources not following base points and regulation	10am – 5pm	<ul style="list-style-type: none"> Misunderstanding of test expectations Coordination of system tuning 	<ul style="list-style-type: none"> Provide feedback from tests moving forward Possible metric introduction and escalation Provide specific timeslots for tuning

Issues During the 8 Hour Test - ERCOT

- **Issue #1 – Missing Shift Factors for Electrical Busses affected SPP calculation**
 - EMS integration did not properly provide electrical bus shift factors
 - Load Zone, Hub, and Electrical Bus LMPs/SPPs incorrect when constraints binding or violated
 - Issue introduced with EMS Bug Fix end of last year
- **Issue #2 – Missing Shift Factors for constraints in SCED for brief period**
 - Shift Factor transfer from EMS to MMS from 1320-1339 had issues
 - Constraints were ignored by SCED for 19 minutes
 - Dispatch closely monitored by Operators until resolved
 - Issue introduced with EMS Bug fix in mid-May
- **Issue #3 – Incorrect flag setting in EMS**
 - ERCOT did not use load distributed bus as the reference bus
 - Telemetry changes created topology changes which lead to a bus in the west zone to be the reference bus
 - Having 3% shift factor cut off caused several WGRs to have no shift factors on the constraint causing WGRs to be marginal

Issues During the 8 Hour Test – Market Participants

Issues during test for Market Participants

- Telemetry:
 - Inconsistencies between JOU owners (e.g., telemetry, COP)
 - Incorrect Ancillary Service values in telemetry for Resource
 - Incorrect Resource Status Codes
 - Incorrect HSL/LSL values telemetered
- Resource with nodal Output Schedule offering BES into zonal market
- Resources not following their nodal Base Points
- Resources not following regulation signals
- Zonal Resource Plans not in agreement with Nodal

Next Steps – LFC Tests

- Migrate fix to views that will resolve the issue with the Shift Factors not being available (*Code migrated, still monitoring*)
- Migrate fix to views that will resolve the issue with transferring an incomplete Shift Factor set (*Code migrated, still monitoring*)
- Use Distributed Load Bus as the Reference Bus instead of Single Reference Bus
- Set Shift Factor cut-off to a much smaller value such as .0001
- More closely monitor resources on how they are following their base points and provide feedback
- Confirm parameter settings prior to every test
- Leave OC1 in zonal during transition. Once 100% Nodal take out OC1 in zonal. Bring the OC1 back at the start of transitioning back to zonal
- Specific time slots for tuning for both Market Participants and ERCOT

Next Steps – LFC Test Schedule

- Tentatively scheduled 6 LFC tests through September
- 5 Hour LFC test scheduled the week of July 19th
- 24 Hour LFC (noon to noon) scheduled the week of the August 2nd
- 2 additional tests in August
- 2 tests in September (after 168 hour test)



Network Model Management System Update

Jerry Dreyer
Director of Application Services

Special Nodal Program Committee

19 July 2010

Network Model Management System Update

- **Configuration parameter fix put in on July 2nd to mitigate system restarts caused by memory management/allocation issues**
 - System stability has improved significantly
 - Some users may experience slower performance with the user interface.
- **Further analysis and performance optimization ongoing**

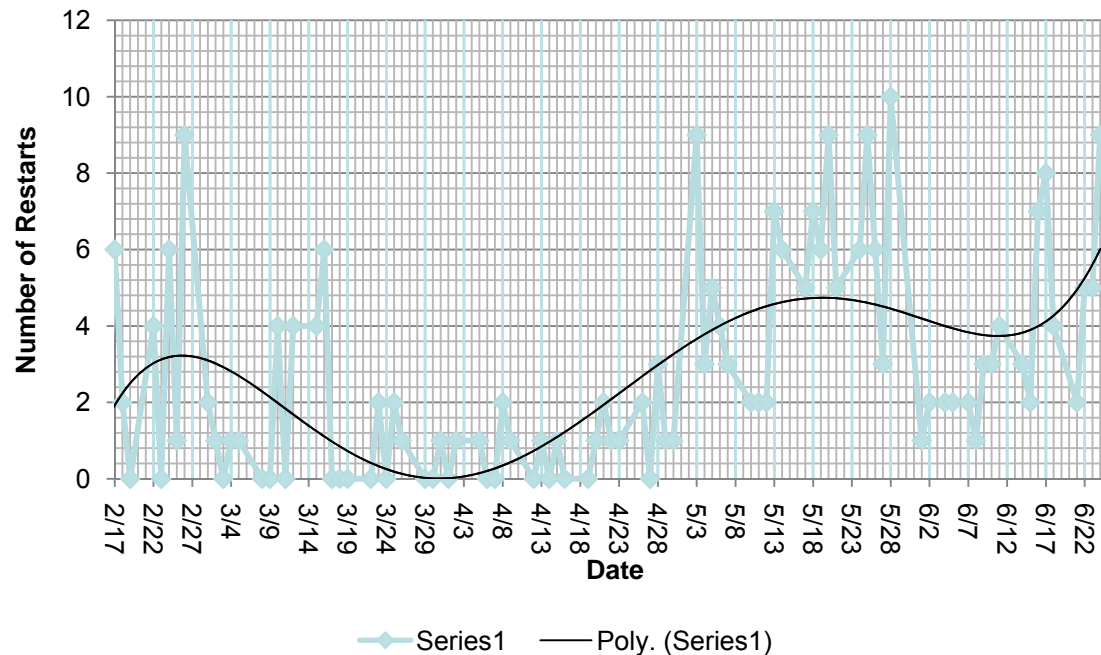
Network Model Management System

•Current State of NMMS Production system

- The System installed in production in August, 2009
- Database and System of Record for Nodal and Entry Point for Zonal.

•Issue: System has not been stable

- NMMS System had a software defect that impacted how the system managed computer memory.
- The application restarted itself or crashed when a memory error was detected.
- A restart frequently caused TSPs to lose interim model changes.
- The May release materially increased the frequency of the restarts.



Network Model Management System

•Issue Escalation:

- The ERCOT Operations team, Application team and Siemens have been working this as priority
- The resources with the right skills have been available to help solve
- Resources work together at a single site in Taylor when deemed beneficial to the process

•Resolution Strategy: Obtained sufficient analysis data to fix the problem

- The nature of the defect was that the system continued to run after the problem occurs
- By the time the system detected the problem, the evidence of the cause was no longer available
- Lack of evidence of the root cause resulted in extended resolution time

•Other activities underway: Improve NMMS Metrics

- Develop response time metric to measure system availability and response time for simple transactions and more complex transactions

•Progress

- On Friday July 2nd, a parameter change was made to the NMMS Database application (Oracle)
- The change affected the memory allocation process when accessing the database
- There have been no system restarts attributable to memory management since fix was applied

•Next Steps

- Confirm that the system has stabilized and assess performance challenges.
- Continue to aggressively manage NMMS stability and performance as a high priority.



Nodal Go-Live Update

Review of Network Modeling Go-Live Items

Kenneth Ragsdale
Market Trials

Special Nodal Program Committee

19 July 2010

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 readiness criteria at the 6/23/10 NATF and is requested a vote from the 7/1/10 TAC on the Market Readiness Criteria per 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

Nodal Program Cutover

The table below outlines key dates and activities requiring Market Participant support

Cutover Timeline Key Dates (Aug – Oct)		
Network Operations Modeling	08/01	Begin transition plan for Network Modeling timelines
	09/01	Deadline to submit Model changes for Month of December
	10/02	Network Model built for PCRR Allocation
	10/13	Network Model built for CRR Auction
	10/15	Model complete and available for Market Participant testing
Outage Scheduling	08/13	Begin transition plan for Outages occurring in December
	10/02	December Outages pulled for initial CRR Network Model
	10/13	December Outages pulled for CRR Network Model
Credit Management	10/21	Initial Credit Limit for CRR Auction posted
Congestion Revenue Rights	08/13	Last day to Register for CRR Monthly Auction
	10/18	PCRR Nominations close for December Allocation
	10/20	Allocation results published / Network Model Posted

Network Operations Modeling – Go Live

System Readiness	Planned Completion	Status
SEM Go-Live	8/31/09	Complete
TSP Model Validation (Metric MP14C)	4/30/10	Complete
Model Change Request Tools Support Market Updates	Ongoing	Green
Regular Model Loads into Market Trials Systems	Ongoing	Green
8 Hour LFC Test Executed w/ Network Model from NMMS	6/17/10	Complete
Process Readiness		
Network Operations Change Request Timeline Transition Plan established	6/03/10	Complete
Network Modeling Procedures Ready	8/01/10	Ongoing
Market Rules – Protocol Transition Plan for September	7/23/10	In Progress

Network Operations Modeling – Go Live

People Readiness	Planned Completion	Status
ERCOT Staff Support of Market Trials	Ongoing	Green
ERCOT Staff Trained on System and Processes	6/22/10	Green
Market Participant Training Delivered	7/29/09	Green
Readiness Review and Approval		
NATF Review	6/23/10 7/08/10	Complete
ERCOT Management Approval	6/30/10	Complete
TAC Approval	7/20/10	
BOD Approval	7/20/10	
30 Day Market Notice	7/30/10	
10 Day Market Notice	8/20/10	



Market Readiness

Brandon McElfresh
Readiness & Transformation

Special Nodal Program Committee

19 July 2010

Reminder – Nodal Registration Cutoff – QSEs and CRRAHs

- **Scope**

- What is the cutoff date for QSEs and CRRAHs to begin registration for Nodal Go-Live (based on ERCOT resource availability)?

- **Registration must begin by these dates to be qualified for Nodal Go-Live**

- **August 13th, 2010**

- QSEs with Resources with a new WAN connection *
- CRRAHs (to be qualified for the 10/13 PCRR nomination and for the 11/11 December 2010 CRR Auction) * ~

- **October 1st, 2010**

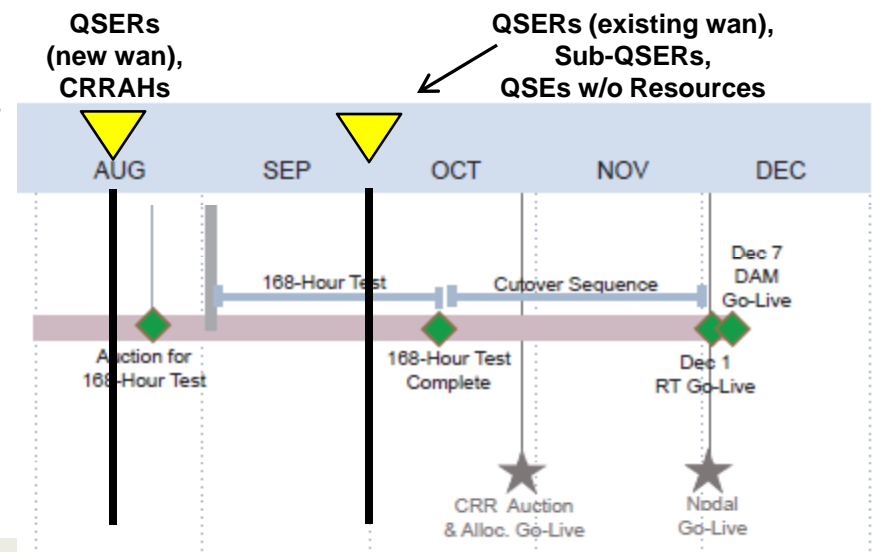
- QSE with Resources using a Nodal qualified service provider *
- QSEs without Resources *
- Sub-QSEs using a Nodal qualified parent QSE *

- **Mechanics**

- Qualification will follow the Nodal production qualification process and all testing will be done in the MOTE environment
- MPs that want to begin registration past these deadlines will be examined on a case-by-case basis
- Nodal Metric MP22 will measure progress of new entrants

* QSE Application or CRRAH Application must be submitted, which includes Credit Application

~ Doesn't include NOIE Allocation Eligibility Form, which must be submitted by 6/30 for CRRAHs eligible for PCRRs



Next 60-days of Classes/Workshops

Course	Start Date	Location
Market Settlements 301	July 6	ERCOT Met Center (Austin)
ERCOT 101 for Wind Generation	July 12	Norris Conference Center (Houston)
Generation 201	July 13	Norris Conference Center (Houston)
Transmission 101	July 13	CenterPoint Energy (Houston)
Outage Scheduler	July 15	CenterPoint Energy (Houston)
Load Serving Entity 201	July 20	Optim Energy (Dallas)
Congestion Revenue Rights	July 21	Optim Energy (Dallas)
ERCOT Nodal 101	July 26	First Choice (Dallas)

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

Next 60-days of Classes/Workshops - continued

Course	Start Date	Location
Generation 101	July 27	Calpine (Houston)
Transmission 101	August 3	ERCOT Met Center (Austin)
Basic Training Program	August 10	Calpine (Houston)
ERCOT Nodal 101	August 10	ERCOT Met Center (Austin)
Market Settlements 301	August 17	City of Garland Fire Administration Building (Dallas)

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

RED/AMBER Metrics Summary

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	94.2%	0.0%	0.0%	5.8%	Successful submission CRR transactions	66/74 CRRAHs qualified. Greater than 5% RED.
MP16 DAM Participation	Amber	QSEs	Even Weighting	78.6%	6.6%	12.6%	1.1%	Participation in 50% of the Day-Ahead Market runs	143/182 QSEs w/o Resources

ERCOT Metrics

Metric Name	Current Score	Applies to	Weight	Green %	Yellow %	Red %	Not Scored %	Primary Criteria	Notes
ERCOT Metrics									
EMO9(A) State Estimator Convergence	Amber	ERCOT	N/A	N/A	95.44	N/A	N/A	State Estimator converges 97% of runs during a monthly test period.	95.44% Convergence for State Estimator for the month of May.
EMO9(B) RTCA Modeling Differences	Red	ERCOT	N/A	N/A	N/A	84.33%	N/A	95% of load tap setting values matched between Zonal/Nodal	84.33% Match for transformer tap settings. 1430 transformers in Nodal.



Monthly Financial Review

Mike Petterson
Controller

Special Nodal Program Committee

19 July 2010

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

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	1 in progress; 16 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	8/2/10

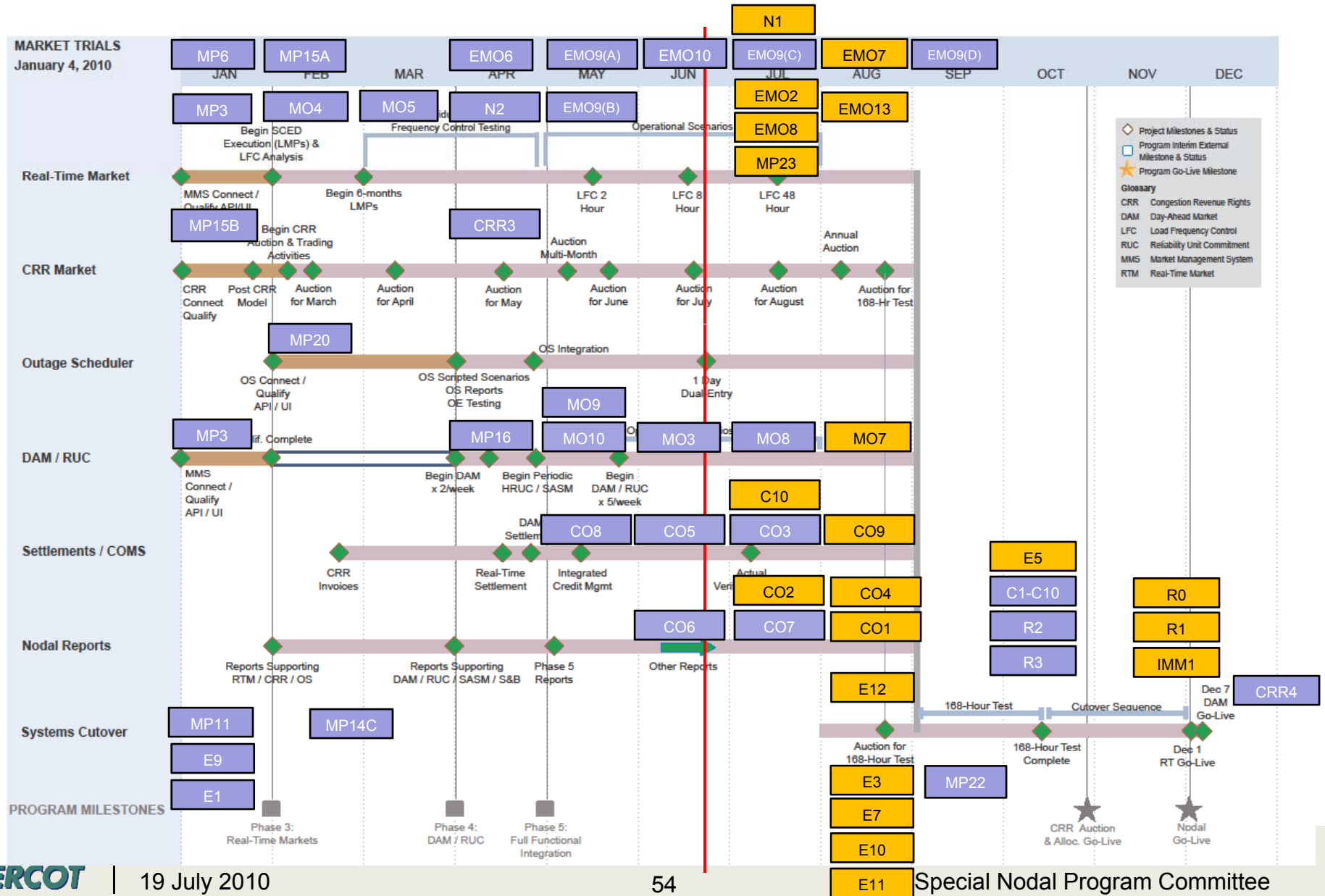
Active Nodal Metrics

ACTIVE NODAL METRICS								
Metric #	Metrics Name	Category	ERCOT	QSERS	QSEs	TSPs	CRRAHs	REs
MO4	Verify SCED Execution Quality	RT	Green	N/A	N/A	N/A	N/A	N/A
MO5	Generate LMPs for 6 months	RT	Green	N/A	N/A	N/A	N/A	N/A
CRR3 (ERCOT)	Operation of CRR Auctions and Allocations	CRR	Green	N/A	N/A	N/A	N/A	N/A
MO9	Generate Day-Ahead LMPs	DAM	Green	N/A	N/A	N/A	N/A	N/A
MO10	DRUC Execution	DAM	Green	N/A	N/A	N/A	N/A	N/A
CO8	Verify CRR Auction Invoices	COMS	Green	N/A	N/A	N/A	N/A	N/A
EMO9(A)	State Estimator Convergence	NM	Amber	N/A	N/A	N/A	N/A	N/A
EMO9(B)	RTCA Modeling Differences	NM	Red	N/A	N/A	N/A	N/A	N/A
EMO10	Anomalous/Auto-Disabled Telemeted Points	NM	Green	N/A	N/A	N/A	N/A	N/A
E1	ERCOT Internal Training	READ	Green	N/A	N/A	N/A	N/A	N/A
E9	Develop Nodal Procedures	READ	Green	N/A	N/A	N/A	N/A	N/A
MP3	Market Submissions Connectivity Qualification	CONN	Green	Green	Green	N/A	N/A	N/A
MP15B	CRR Connectivity Qualification	CONN	Red	N/A	N/A	N/A	Red	N/A
MP20	Outage Scheduler Connectivity Qualification	CONN	Green	Green	N/A	Green	N/A	N/A
EMO6	Individual LFC Testing	RT	N/A	Green	N/A	N/A	N/A	N/A
MP15A	Real-Time Market Daily Participation	RT	N/A	Green	N/A	N/A	N/A	N/A
EMO6	Individual LFC Testing	RT	N/A	Green	N/A	N/A	N/A	N/A
CRR3	Operation of CRR Auctions and Allocations	CRR	N/A	N/A	N/A	N/A	Green	N/A
MP16	DAM Participation	DAM	N/A	Green	Amber	N/A	N/A	N/A
MP20	Outage Scheduler Connectivity Qualification	OS	N/A	Green	N/A	Green	N/A	N/A
N2	Telemetry/ICCP System Failover	NM	N/A	Green	N/A	N/A	N/A	N/A
MP6(SE)	Telemetry Compliance 3.10.7.5	NM	N/A	Green	N/A	N/A	N/A	N/A
MP6(SCED)	Telemetry Compliance 3.10.7.5	NM	N/A	Green	N/A	N/A	N/A	N/A
MP6 (TSP)	Telemetry Compliance 3.10.7.5	NM	N/A	N/A	N/A	Green	N/A	N/A
MP14B	Participation in NOMCR Trials	NM	N/A	N/A	N/A	Green	N/A	N/A
MP14C	Network Model Validation	NM	N/A	N/A	N/A	Green	N/A	N/A
MP11	Resource Registration	RES	N/A	N/A	N/A	N/A	N/A	Green

Metrics Roadmap

- PURPLE Timing and Design Confirmed
- ORANGE Timing subject to change, design in progress

New Metric



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	90.7%	0.0%	9.3%	0.0%	Successful submission CRR transactions	68/75 CRRAHs qualified. Greater than 5% RED.
CRR3 Operation of CRR Auctions and Allocations	Green	CRRAHs	Even weighting	87.8%	0%	12.2%	0.0%	Participation in at least 1 of the last 2 auctions or allocations. > 80% total participating	58/66 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	6/21 2010 June Monthly Auction results posted to market.
	TBD	ERCOT	N/A	100%	0%	0%	0%	Allocated Revenue Rights in statistical sample = 100% accurate	Source – Sink prices = CRR Clearing prices for obligations for BOY auction. ERCOT working on similar validation process for options.
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, and July auctions, .
	Green	ERCOT	N/A	100%	0%	0%	0%	System Generated CRR Auction Invoices not posted = 0	6/22 July CRR auction invoices submitted to all 48 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	98.9%	1.1%	0.0%	0.0%		178/182 QSEs qualified.
EMO6 Individual LFC Testing	Green	QSERS	Generation Ratio Share	96.9%	0%	0%	3.1%	80% of system-wide generation has completed individual QSE tests for LFC	70/73 QSERS completed their individual LFC test or provided attestation
MP15-A Real-time Market Participation	Green	QSERS	Generation Ratio Share	100.0%	0.0%	0.0%	0.0%	Weekly average of daily SCED submissions	79/79 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.	6/1 - 6/14 period - 4,035 Price Validation runs with no rule violations
MO5 Generate 6 Months of LMPs	Green	ERCOT	N/A	98.1%	0%	1.9%	0%	95% of SCED executions completed with LMPs posted on MIS.	6/1 - 6/14 period, 3,971 out of 4,031 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	6660 RTM Statements; 1609 RTM 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	6660 RTM Statements; 1609 RTM 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	99.0%	1.0%	0.0%	0.0%	Participation in 50% of the Day-Ahead Market runs	78/79 QSEs with Resources
	Amber	QSEs	Even Weighting	78.6%	6.6%	12.6%	1.1%		143/182 QSEs w/o Resources
CO10 Credit Calculations	6/30/2010	QSERS, QSEs	Gen Ratio Share, Even Weighting	N/A	N/A	N/A	N/A	<= 25% of MPs credit limits inconsistent with protocols	To be determined
ERCOT Metrics									
MO8 Verify DAM Execution Quality	Report in Progress	ERCOT	N/A	N/A	N/A	N/A		DAM executions pass the post-execution price validations	Report in progress
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	6/1 – 6/14 – 7/7 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	6/1 – 6/14 - 7 out of 7 DRUC runs executed (doesn't measure quality)
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	4715 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	4715 DAM Statements and Invoices All posted on time
CO10 Credit Calculations	6/30/2010	ERCOT	N/A	N/A	N/A	N/A	N/A	ERCOT performs credit calcs for a stat. sample of MPs	To be determined

1. MP16 – Metric is based on a 2 week rolling average (6/7 – 6/18 – 9 runs).
2. MP16 – 97% Load participating.

Network Modeling Metrics

Metric Name	Current Score	Applies to	Weight	Green %	Yellow %	Red %	Not Scored %	Primary Criteria	Notes
Market Participant Metrics									
MP14-C TSP Model Validation	Green	TSPs	Ownership Ratio Share	99.9%	.1%	0.0%	0.0%	Network Model data validated by TSP	24/28 TSPs have submitted model validation e-mail to ERCOT.
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	Green/White only	QSERS	Generation Ratio Share	68.9%	0%	0%	31.1%	ICCP Failover test completed successfully prior to the 8-hour LFC test.	37/78 QSERS completed ICCP telemetry failover test.
MP18 Mapping of Resources and Loads in Private Use Networks	6/30/2010	QSERS	Generation Ratio Share	N/A	N/A	N/A	N/A	# of QSE(n) PUN Points Provided / # of QSE(n) PUN Points Expected	306 points across 7 QSEs with Resources. 15 points still assigned to TSP.
MP21 WGRs ICCP Meteorological Telemetry	6/30/2010	REs (only WGRs)	Registered MW Capacity Ratio Share	N/A	N/A	N/A	N/A	WGRs must meet reasonability tests for MET ICCP	To be determined
MP23 Telemetry Quality (MP to ICCP server)	6/30/2010	TSPs	Ownership Ratio Share	N/A	N/A	N/A	N/A	# of TSP(n) Suspect/Bad points provided / # of TSP(n) points total	1077 Suspect/Bad points (98.3% good quality).
	6/30/2010	QSERS	Generation Ratio Share	N/A	N/A	N/A	N/A	# of QSER(n) Suspect/Bad points provides / # of QSER(n) points total	277 Suspect/Bad points (98% good quality)

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	Amber	ERCOT	N/A	N/A	N/A	N/A	N/A	State Estimator converges 97% during monthly test period	95.44% Convergence for State Estimator for the month of May.
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	97.5% match for ratings for lines. 5288 lines in Nodal.
	Red	ERCOT	N/A	N/A	N/A	84.33	N/A	95% of load tap setting values matched between Zonal/Nodal	84.3% 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%
EMO9(C) RTCA CSC Comparison	7/14/2010	ERCOT	N/A	N/A	N/A	N/A	N/A	CSC Pre-contingency SE Flows within 5% (Hourly snapshot)	Measurement establishes baseline flows on Commercial lines to indicate the significance of Psuedo modeling and multi-section lines on the SE flows.
EMO9(D) Validate Zonal and Nodal Security Analysis Results	9/8/2010	ERCOT	N/A	N/A	N/A	N/A	N/A	90% of active constraints in Zonal RTCA are also detected in Nodal RTCA	To be determined

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	QSERSs	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.
CO2 Verify Dispute Process	7/14/2010	QSERSs, QSEs	Generation Ratio Share, Even Weighting	N/A	N/A	N/A	N/A	>=1 dispute submitted per MP. # of unprocessed disputes by 168 = 0	To be determined
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 MT4 and MT5 are developed and the MT4 procedures exercised as scheduled in MT4.
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

Participant Readiness Touch Points

2010

	July	August	September	October
Meetings	<ul style="list-style-type: none"> • NATF 7/8 	<ul style="list-style-type: none"> • NATF 8/19 	<ul style="list-style-type: none"> • NATF 9/14 	<ul style="list-style-type: none"> • NATF 10/5
Training	<ul style="list-style-type: none"> • Nodal 101 • Transmission 101 • Generation 101, 201 • Basic Training Program • NOIE QSE Operations • Settlements 301 	<ul style="list-style-type: none"> • Nodal 101 • Transmission 101 • Generation 101, 201 • Basic Training Program • NOIE QSE Operations • Settlements 301 	<ul style="list-style-type: none"> • Nodal 101 • Transmission 101 • Generation 101, 201 • NOIE QSE Operations • Settlements 301 • MMS & MIS GUI (Online only) 	<ul style="list-style-type: none"> • TBD
Outreach	<ul style="list-style-type: none"> • <i>MRS #5 168 Hour Test (Tentative)</i> • Dispute & Reports Metrics • Standby site visits 	<ul style="list-style-type: none"> • Standby site visits 	<ul style="list-style-type: none"> • Standby site visits 	<ul style="list-style-type: none"> • TBD
Market trials	<ul style="list-style-type: none"> • Weekly Trials calls • 48 hr system-wide LFC test • Verifiable costs loaded into N-Prod 	<ul style="list-style-type: none"> • Weekly Trials calls • Prepare for 168 hr test 	<ul style="list-style-type: none"> • Weekly Trials calls • Execute 168 hr test 	<ul style="list-style-type: none"> • Preparation for Nodal Go-Live