



Nodal Program Update

Jason Iacobucci

Nodal Program Manager

Special Nodal Program Committee
18 January 2010

Today's Agenda

- **Program Status**
- **Defects Reporting & Program Risks**
- **Market Readiness**
- **Traceability**
- **Financials**
- **Appendix**

317 Days to Go-Live

0 Items Impacting Go-Live Date

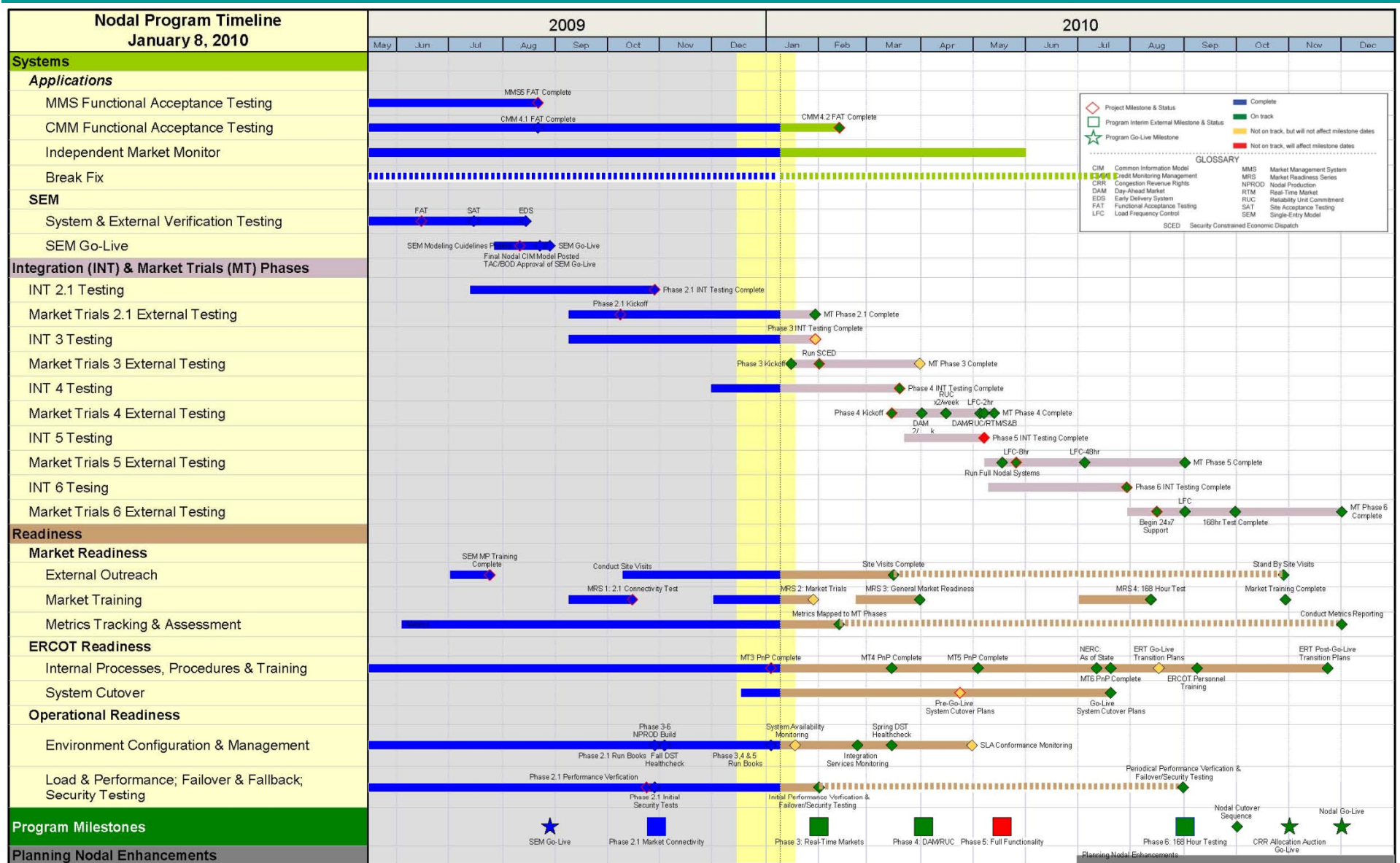
- **Market Trials 2.1: Market Connectivity**
 - On Schedule
 - 59 of 281 QSEs Qualified for MMS transaction submittal
 - 65 % of Generation Qualified
- **Market Trials 3.0: Congestion Revenue Rights (CRR)**
 - Started Jan 4th
 - 23 of 83 CRRAH Qualified to date
 - Light traffic to the site
 - ERCOT to post CRR Network Model in Jan.
 - First Monthly Auction in February
- **Market Trials 3.0: Real Time Markets / Outage Scheduler**
 - Starting Feb 1st
 - On Schedule
 - LMP analysis to continue through February
 - Outage Scheduler Qualifications will continue through March 30th
 - March 1st starts six month LMP

317 Days to Go-Live

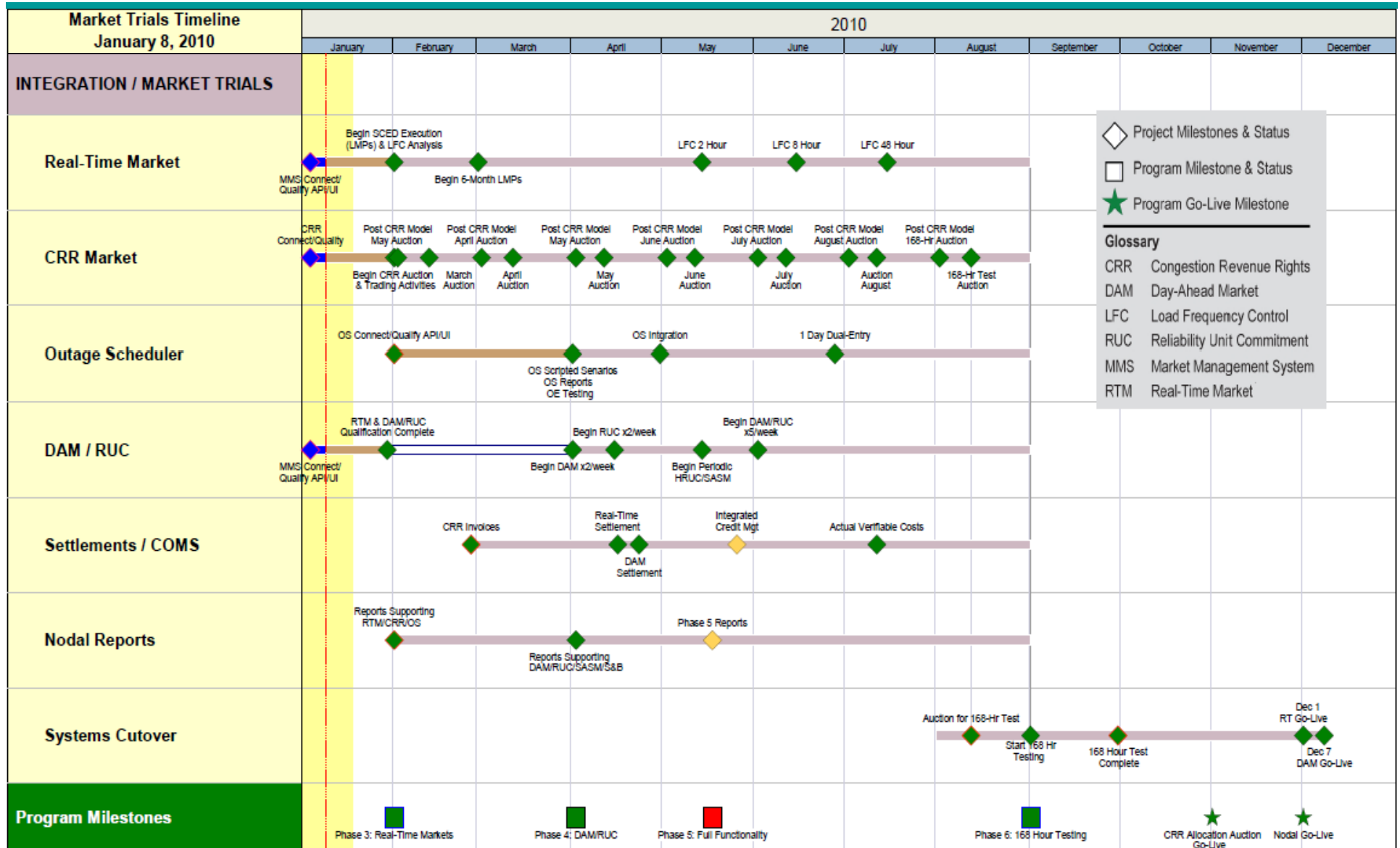
0 Items Impacting Go-Live Date

- **Market Trials 4.0: DAM/RUC**
 - Starting Apr 1st
 - On Schedule
 - Submission Qualifications underway in January
- **Market Trials 5.0: Full Functionality**
 - Starting May 15th
 - 2 Week Slippage
 - Mitigation plan in place to pull back on track
 - » More weekend and overtime work
 - » Better integration, and release management
- **Market Readiness**
 - 21 of 35 outreach sessions completed
 - Executive Briefing scheduled for Jan 28th

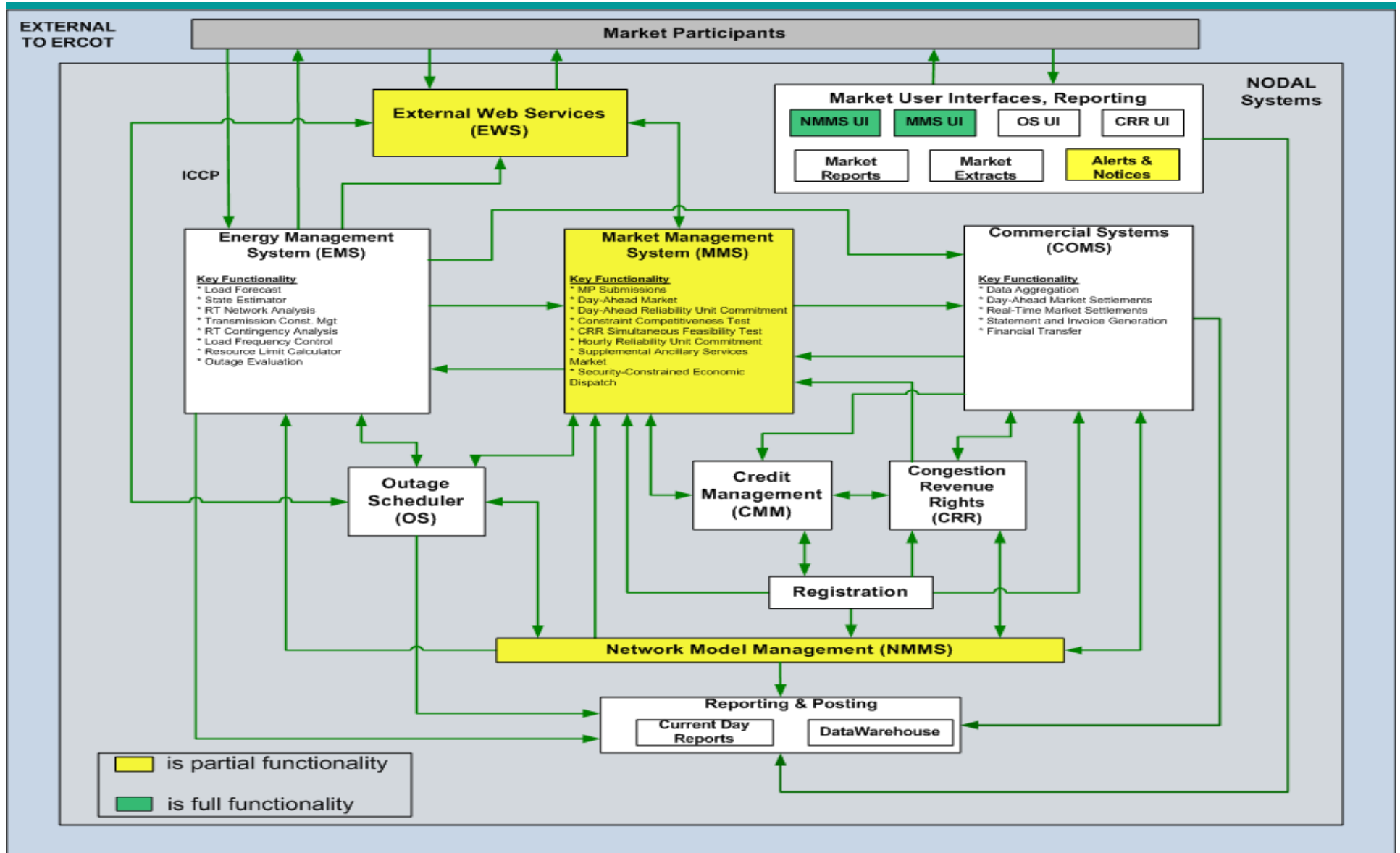
Integrated Nodal Timeline



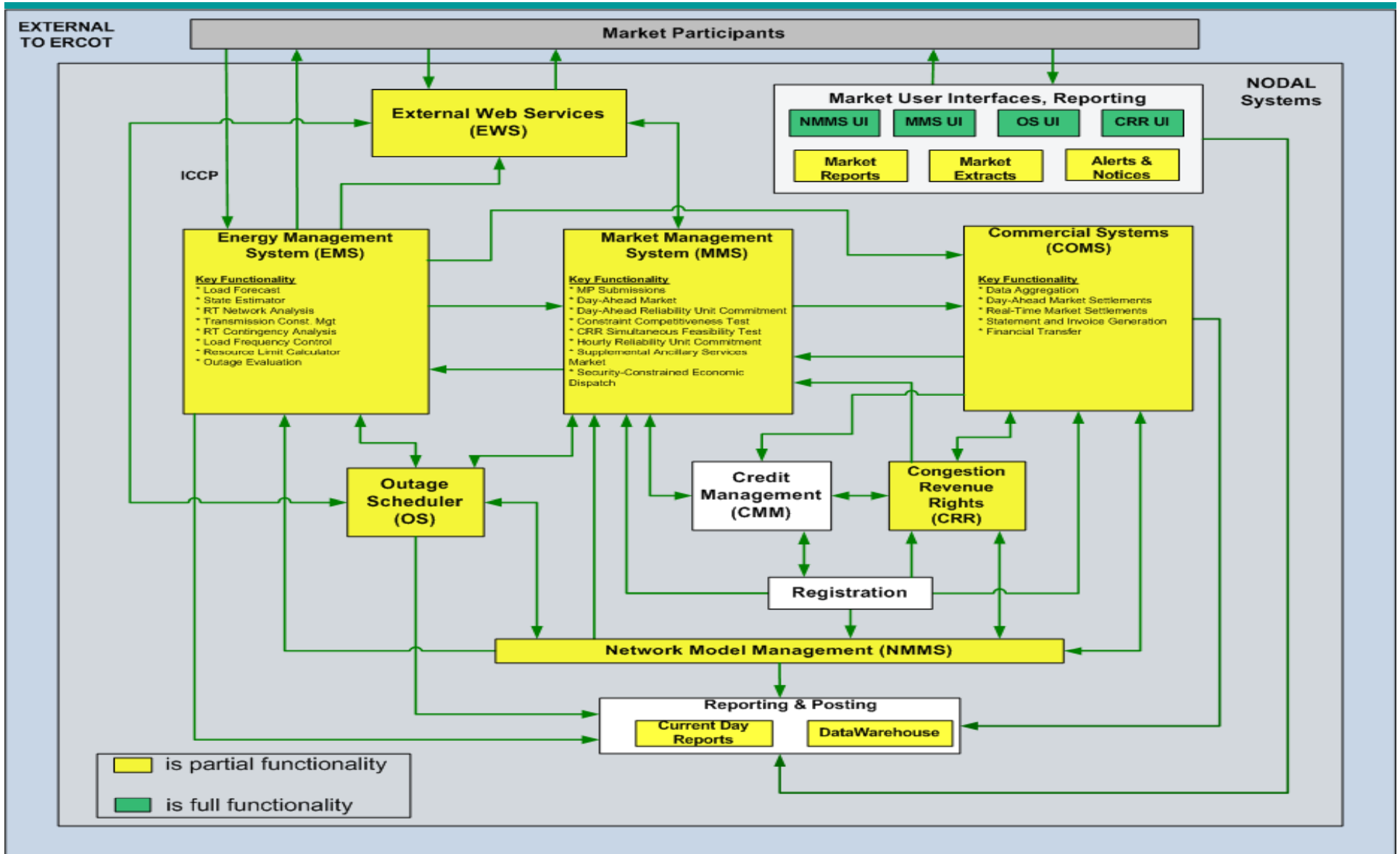
2010 Market Trials Timeline



Nodal Systems Blueprint - Today



Nodal Systems Blueprint - Market Trials - Phase 3 - Feb. 1st



Next Delivery Milestones – Phase 3

- **Real Time Market (RTM)**

- Jan 4, 2010 – Jan 29, 2010: Mandatory Connectivity Qualification

- ERCOT reopened the mandatory qualification window for the month of Jan.
- QSEs and QSEs w/ Resources will be asked to complete a transaction checklist and notify ERCOT when complete
- ERCOT will then confirm the submittals
 - Light participation from the QSEs

- Jan 8, 2010: Start of the weekly QSE Qualification Calls

- Weekly Friday market calls started Jan 8, 2010

- Jan 21, 2010: Start of the weekly Outage Scheduling Calls

- January 28, 2010: Phase 3 Kickoff / Executive Briefings

- Nodal Account Executives have access to CEO and CTO for roundtable question and answer session

- Feb 1, 2010 – Feb 28, 2010: SCED Execution with Price, Base Point and continued LFC analysis

- QSEs with resources will start submitting COPs, Three Part Supply Offers and Output Schedules (with optional INC/DEC) to support SCED solutions
- ERCOT will be exercising price validation using price validation software as well as continuing market outreach on telemetry quality

- March 1, 2010 – Sept 1, 2010: 6 Month LMP

- Target for the beginning of six month Locational Marginal Pricing (LMP) analysis

Next Delivery Milestones – Phase 3

- **CRR Market Trials**

- Jan 4, 2010 – Jan 29, 2010: Mandatory Connectivity Qualification for all registered CRR Account Holders (CRRAH)
 - CRRAHs will be asked to complete a transaction checklist and notify ERCOT when complete
 - ERCOT will then confirm the submittals
- Jan 8, 2010: Start of the weekly CRR Market Calls
 - Weekly Friday calls for CRRAH Nodal PMs and their teams started on Jan 8.
- January 28, 2010: Phase 3 Kickoff / Executive Briefings
- Feb 1, 2010 – Feb 28, 2010: Begin Auction and Trading Activities
 - Starting in Feb, 2010, registered CRRAH will have the ability to:
 - Download and review the CRR Model for the following month
 - Participate in Monthly Auction for the following month (e.g. Feb for the March Auction)
 - Execute bi-lateral trades
 - Review Auction Invoices
 - Submit PCRR (pre-assigned) nominations (NOIE)
 - ERCOT will:
 - Execute business processes in support of the CRR Auction and invoicing
 - Post the CRR Mode for the following Month
 - Review and post Auction results / Auction Invoices
 - Run PCRR Allocations (NOIE)

Nodal Program Dashboard

	Delivery Area	Project	Milestone Description	Project Milestone Link	Current Finish	This Weeks Status
■	Program Milestone	PMO/DA	PHASE 2.1 - MARKET CONNECTIVITY	Phase 2.1 Market Connectivity	10/28/09	Complete
◆	Integration Testing	INT	Phase 2.1 Integration Testing	ITPHASE-2.1 (EWS, MMS, Ufs)	10/28/09	Complete
◆	Market Trials	MT	Phase 2.1 Kick-off Meeting	Phase 2.1 Kick-Off Meeting	10/8/09	Complete
◆	Market Training	ERT	MRS 1: 2.1 Connectivity Test	MRS 1: 2.1 Connectivity Test	10/15/09	Complete
◆	Env. & Config Management	INF/ORT	Phase 2.1 NPROD Build	NProd Build	9/25/09	Complete
◆	Env. & Config Management	INF/ORT	Phase 2.1 Run Books, Monitoring	MT 2.1 Run Books	10/28/09	Complete
◆	L&P; Failover & Fallback; Security	INF/ORT	Phase 2.1 Security Testing (rd 1)	Phase 2.1 Initial Security Tests Complete	10/28/09	Complete
◆	L&P; Failover & Fallback; Security	INF/ORT	Phase 2.1 Performance Testing	Phase 2.1 Performance Verification Complete	10/23/09	Complete
■	Program Milestone	PMO/DA	PHASE 3 - Real-Time Markets	Phase 3: Real-Time Markets	2/1/10	Green
◆	Integration Testing	INT	Phase 3 - INT Testing Complete	MTPHASE-3 (RTM, SCED, CRR)	1/29/10	Yellow
◆	Market Trials	MT	Phase 3 Kick-off Meeting	Phase 3.0 Kickoff	1/15/10	Green
◆	Market Training	ERT	MRS 2: Market Trials	MRS 2: Market Trails	1/28/10	Yellow
◆	Internal Process, Procedures, Training	ERT	MT3 PnP Complete	ERCOT Process and Procedures Drafted for MT3 Testing	1/4/10	Complete
◆	Env. & Config Management	INF/ORT	Phase 3-6 NPROD Build	Phase 3-6 NPROD Build Complete	10/28/09	Complete
◆	Env. & Config Management	INF/ORT	Phase 3,4,&5 Run Books	Phase 3,4 & 5 Run Books Complete	1/4/10	Complete
◆	Env. & Config Management	INF/ORT	System Availability Monitoring	System Availability Monitoring Complete	1/18/10	Yellow
◆	L&P; Failover & Fallback; Security	INF/ORT	Performance Verification	Phase 3 Performance Verification Complete	1/29/10	Yellow
◆	L&P; Failover & Fallback; Security	INF/ORT	Phase 3 Security Testing	Phase 3 Security Testing Complete	1/29/10	Yellow
■	Program Milestone	PMO/DA	PHASE 4 - DAM/RUC	Phase 4: DAM/RUC	4/1/10	Green
◆	Integration Testing	INT	Phase 4 - INT Testing Complete	MTPHASE-4 (DAM/RUC)	3/19/10	Green
◆	Market Trials	MT	Phase 4 Kick-off Meeting	Phase 4.0 Kickoff	3/15/10	Green
◆	External Outreach	ERT	Conduct Site Visits	Conduct Site Visits (Start)	10/9/09	Complete
◆	External Outreach	ERT	Site Visits Complete	Site Visits Complete	3/16/10	Green
◆	Market Training	ERT	MRS 3: General Market Readiness	MRS3: General Market Readiness	3/31/10	Green
◆	Metrics Tracking & Assessment	ERT	Metrics Mapped to MT Phase	Metrics Mapped to MT Phases	2/12/10	Green
◆	Internal Process, Procedures, Training	ERT	MT4 PnP Complete	All MT4 L-1 to L-4 Updated Process and Procedures	3/15/10	Green
◆	Env. & Config Management	INF/ORT	Initial Failover Testing	Initial Failover Testing Complete	1/29/10	Yellow
◆	Env. & Config Management	INF/ORT	Final Failover Testing	Final Failover Testing Complete	3/31/10	Yellow
◆	Env. & Config Management	INF/ORT	Integration Services Monitoring	Integration Services Monitoring Complete	2/22/10	Green
◆	L&P; Failover & Fallback; Security	INF/ORT	Final Security Testing	Final Security Testing Complete	3/12/10	Yellow
◆	L&P; Failover & Fallback; Security	INF/ORT	Phase 4 Performance Verification	Phase 4 Performance Verification Complete	3/19/10	Green
■	Program Milestone	PMO/DA	PHASE 5 - Full Functionality	Phase 5: Full Functionality	5/18/10	Red
◆	Integration Testing	INT	Phase 5 - Integration Testing Complete	MTPHASE-5 (FULL INTEGRATION)	5/7/10	Yellow
◆	Internal Process, Procedures, Training	ERT	MT5 PnP Complete	All MT5 L-1 to L-4 Updated Process and Procedures	5/4/10	Green
◆	Env. & Config Management	INF/ORT	Fall DST Testing	Fall DST Testing	11/3/09	Complete
◆	Env. & Config Management	INF/ORT	Spring DST Testing	Spring DST Testing	3/15/10	Green
◆	Env. & Config Management	INF/ORT	SLA Conformance Monitoring	SLA Conformance Monitoring Complete	4/30/10	Yellow
◆	L&P; Failover & Fallback; Security	INF/ORT	Phase 5 Performance Verification	Phase 5 Performance Verification Complete	5/7/10	Green
■	Program Milestone	PMO/DA	PHASE 6 - 168 Hour Testing	Phase 6:168 Hour Testing	9/1/10	Green



Program Milestone Schedule Mitigation

Phase 4: DAM / RUC

Integration Testing Schedule has been mitigated

Cause:

- **Environment Issues (Power Outage, Storage Issues)**
- **Planning delays due to Phase 2.1 and Phase 3 delivery focus**

Mitigation Impact:

- **Factors that led to mitigation**
 - Scheduled overtime to occur during the holidays
 - Overtime on the weekends
 - Streamlined release management
 - Higher quality development releases
 - Improved integration and development turnaround

Phase 5: Full Functionality

Integration Testing Schedule has slipped 2 weeks: No Impact on Go-Live

- **Schedule impact from Phase 4 slippage**
- **Phase 5 Planning delays and a large reporting scope**
- **Comprehensive Test Case development with Business**
- **Continue to leverage weekend overtime for Phase 5 test execution**
- **Prioritize and phase in the delivery of reports during Market Trials**
- **Prioritize Testing to ensure the critical functionality and reports are completed first**
- **Prioritize must have End-to-End scenarios**
- **Continue to efficiently schedule testing and release management windows**

Nodal Program Risks & Issues

Risk/Issue	Impacted Milestone	Target	Category	Probability	Severity	Status
Integration Testing - Risk <i>Continued risk around technology delivery of business systems integration due to complexity and continuing maturing of application and data dependencies.</i>	Program	May 2010	Scope / Schedule / Budget	Low	Med	<ul style="list-style-type: none"> Phase 3 On track; planning complete, execution in progress. Execution of work plan, with specific focus on January Market Trials functionality, under way. Later phase schedules have slipped due to environment issues and focus on Phase 2.1, Phase 3 delivery. Post Phase 3 Market Trials delivery mitigated by two weeks.
Market Interaction Operating Level Agreements (OLAs) <i>Need to determine operating level agreements associated with market interactions to assist ERCOT in establishing operational thresholds. ERCOT is responsible for ensuring any market thresholds required before Go-Live are defined, managed through the appropriate stakeholder processes and communicated in a timely fashion. Examples are Network Model Load Frequency; DAM Sizing; CRR sizing</i>	Program	April/ May 2010	Scope / Budget	High	Low	<ul style="list-style-type: none"> On track. Phase 2.1 OLAs established and communicated to the market during Oct. 8 Market Readiness Seminar. Phase 3 complete. Phase 4 and 5 OLA definitions in process.

Nodal Program Risks & Issues

Risk/Issue	Impacted Milestone	Target	Category	Probability	Severity	Status
<p>Reconciling Protocols, Systems and Market Expectations <i>Experience by other ISOs in deploying nodal markets has shown that expectations of the market participants are often missed, despite best efforts at defining tariffs or protocol requirements. ERCOT needs to assume such a risk exists for this nodal implementation as well.</i></p>	Phase 3	Feb 2010 (Change control submitted)	Scope / Schedule / Budget	Med	Low	<ul style="list-style-type: none"> • Work underway to trace protocols, requirements and business processes alignment analyses are in progress. • SMEs added to the team in May.
<p>Credit Management – Business & Technical Exposure <i>Credit Management rules and exposure calculations will change significantly with the implementation of the Nodal Program. During the requirements and design phase of the program stakeholder concerns have been expressed that may result in requested system changes as the program moves into Market Testing of Credit Management.</i></p>	Phase 5	July 2010	Scope / Schedule / Budget	High	Med	<ul style="list-style-type: none"> • ERCOT business and Nodal Program reviewing Credit concerns and next steps.

Status Update : Independent Market Monitor

- The IMM effort is on schedule according to the project plan
- After completion of proof of concept; determined to move the project design, build, and test aspects internal rather than externally with ABB

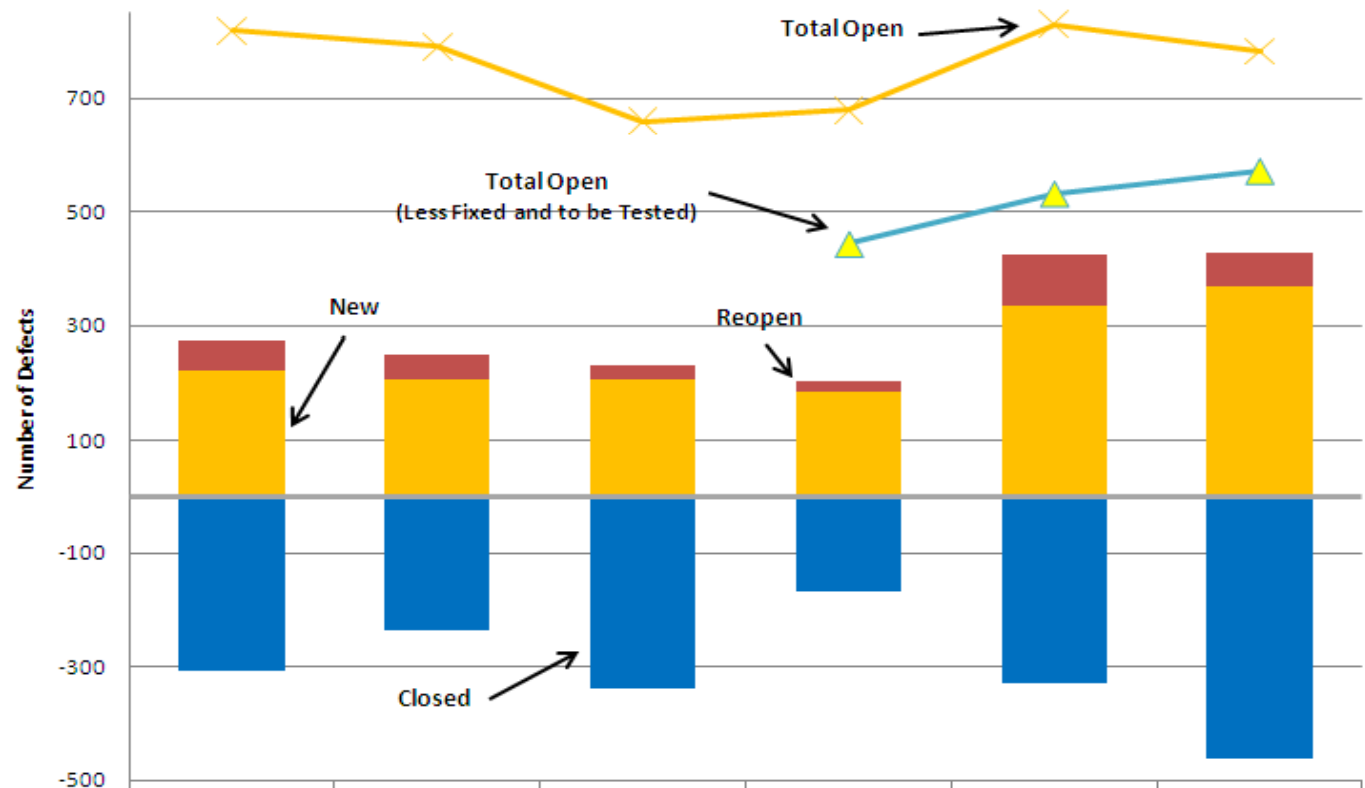
Major Project Milestones

• Requirements Document:	Completed:	09/01/09
• Hardware received:	Completed:	09/01/09
• Proof of Concept for SCED:	Completed:	11/20/09
• Conceptual System Design Document:	In Progress:	01/28/10
• Install and Configure Hardware:	Not Started:	03/17/10
• Build and Unit Test:	Not Started:	05/13/10
• Release to I-Test:	Not Started:	05/14/10
• Finalize User Guide:	Not Started:	05/30/10

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

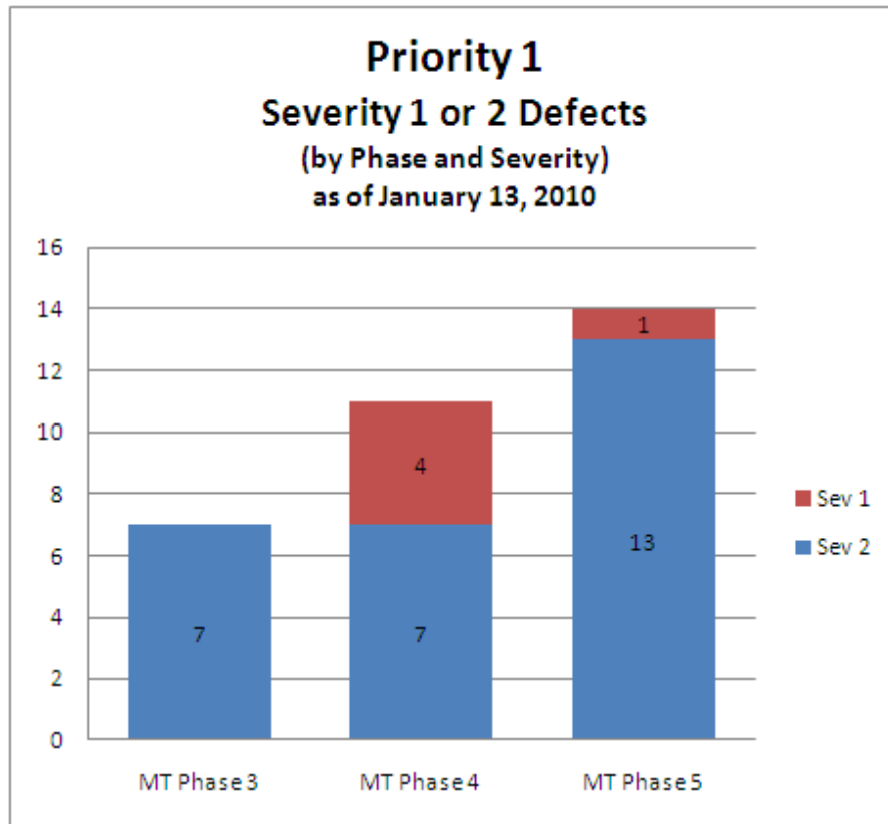
- Defect counts increased as expected due to planned software migrations into Nodal iTest and extensive integration testing efforts.

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



	July	August	September	October	November	December
Closed	-307	-235	-339	-167	-328	-464
Reopened	52	44	24	18	91	61
New	223	207	207	187	333	367
Total Open	819	791	659	679	830	783
Total Open - (Fixed & to be Tested)				443	532	572

Nodal Defect Reporting



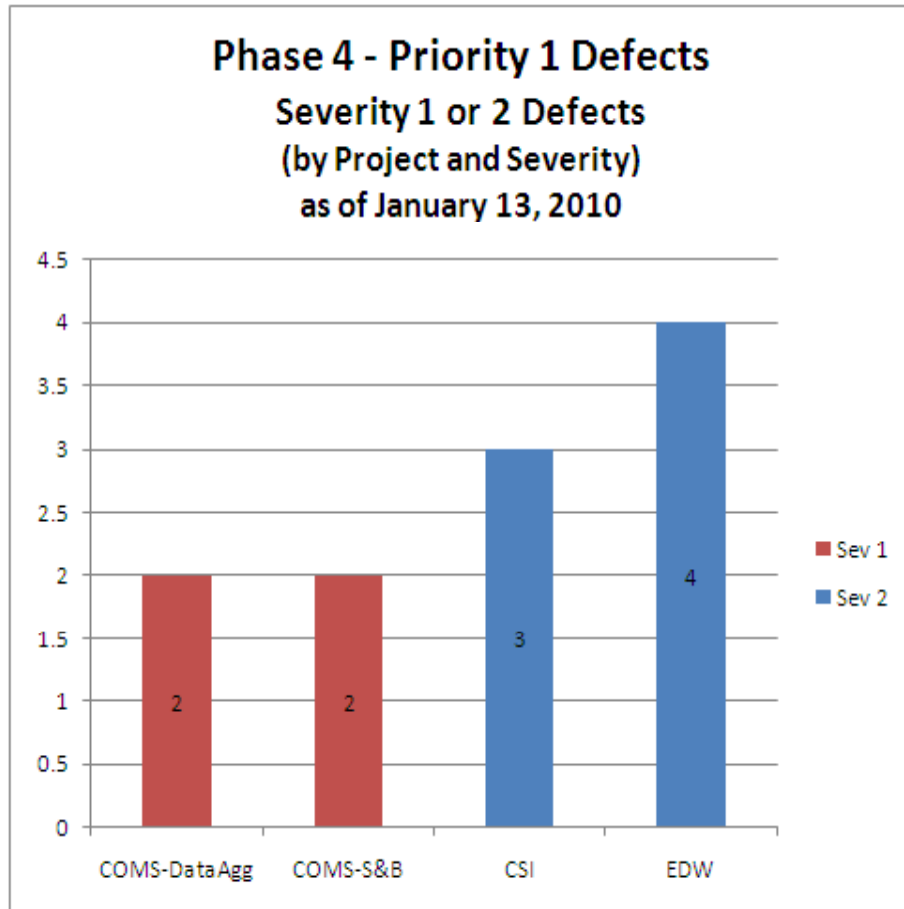
Severity 1 – High Level Description

Phase 3:
None

Phase 4:
Configuration Error (1) – Fixed
Data Error (3) – Fixed, Test, New

Phase 5:
Integration Processing (1) - Open

Nodal Defect Reporting



Severity 1 – High Level Description

Market Trials Phase 3:

None

Market Trials Phase 4 by Project:

COMS-Data Agg:

Configuration Error (1) – Fixed

Data Error (1) – Fixed

COMS – S&B:

Data Error (2) – Test, New

Earned Value for the Nodal Program

Nodal Program

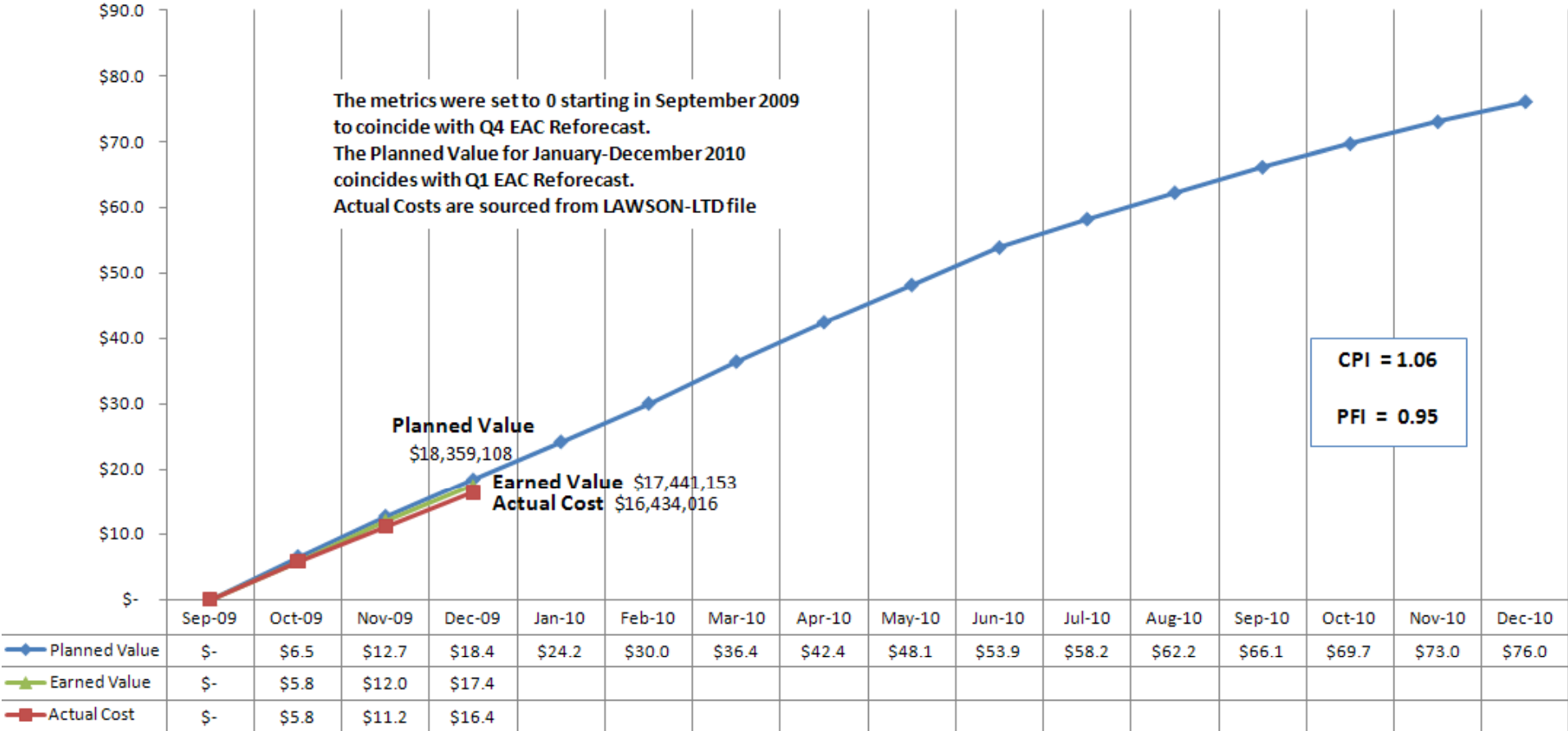


Chart only uses the values associated with the Internal Labor Costs, External Resource Costs, Administrative & Employee Expenses, Vendor and Backfill

NOTE: Amounts in Millions





Market Readiness

Vikki Gates

Readiness & Transformation

Special Nodal Program Committee

18 January 2010

Participant Readiness Touch Points

2010

	January	February	March	April
Meetings	<ul style="list-style-type: none"> • NATF 1/5 	<ul style="list-style-type: none"> • NATF 2/2 	<ul style="list-style-type: none"> • NATF 3/2 	<ul style="list-style-type: none"> • NATF 4/6
Training	<ul style="list-style-type: none"> • Nodal 101 • LSE 201 • Generation 101, 201 • CRR –Online ◆ Settlement Workshop • NMMS 	<ul style="list-style-type: none"> • Nodal 101 • LSE 201 • Basic Training • Generation 101, 201 • CRR – instructor-led ◆ Settlement Workshop • Operations Seminar 	<ul style="list-style-type: none"> • Nodal 101 • LSE 201 • Basic Training • Generation 101, 201 • CRR – instructor-led ◆ Settlement Workshop • Operations Seminar 	<ul style="list-style-type: none"> • Nodal 101 • Trans 101 • Generation 101, 201 • CRR – instructor-led • NMMS • Economics of LMP
Outreach	<ul style="list-style-type: none"> • 7 site visits • MP 6 –Telemetry & MP 14 –RARF launched ◆ 1/28 MRS #2 	<ul style="list-style-type: none"> • 5 site visits • Additional Phase 3 metrics • Standby site visits mitigation approach 	<ul style="list-style-type: none"> • 4 site visits • Scheduled Site Visits conclude • MRS #3 	<ul style="list-style-type: none"> • Standby site visits • Phase 4 metrics launch
Market trials	<ul style="list-style-type: none"> • Start weekly calls ■ Mandatory QSE/CRRRAH re-qualification begins • Phase 3 Handbooks <ul style="list-style-type: none"> • COMS • Outage Scheduler • CRR • RTM/LFC 	<ul style="list-style-type: none"> • Weekly calls • Phase 3 Market Trials initiates • QSE OS qualification • Phase 4 Handbooks <ul style="list-style-type: none"> • DAM/RUC • MIS • Credit 	<ul style="list-style-type: none"> • Weekly calls • Phase 3 Execution • Phase 4 Handbooks <ul style="list-style-type: none"> • Updates to prior handbooks • LFC individual QSE tests 	<ul style="list-style-type: none"> • Weekly calls • Phase 4 Market Trials initiates

Market Participant Site Visits

Confirmed Completed

21 Outreach Site Visits have been completed

Entity	Date	Entity	Date
<input checked="" type="checkbox"/> LOWER COLORADO RIVER AUTHORITY	9-Oct	<input checked="" type="checkbox"/> NRG TEXAS POWER	15-Dec
<input checked="" type="checkbox"/> CALPINE CORP	14-Oct	<input checked="" type="checkbox"/> DIRECT ENERGY LP	5-Jan
<input checked="" type="checkbox"/> AUSTIN ENERGY	20-Oct	<input checked="" type="checkbox"/> CPS ENERGY	6-Jan
<input checked="" type="checkbox"/> CITY OF GARLAND	21-Oct	<input checked="" type="checkbox"/> BTU (Bryan Texas Utilities) SERVICES	13-Jan
<input checked="" type="checkbox"/> GDF SUEZ ENERGY MARKETING	29-Oct	<input type="checkbox"/> TOPAZ POWER MANAGEMENT	19-Jan
<input checked="" type="checkbox"/> ANP FUNDING	3-Nov	<input type="checkbox"/> OCCIDENTAL	20-Jan
<input checked="" type="checkbox"/> LUMINANT ENERGY	5-Nov	<input type="checkbox"/> SHELL ENERGY	21-Jan
<input checked="" type="checkbox"/> INVENERGY WIND DEVELOPMENT	10-Nov	<input type="checkbox"/> TENASKA POWER SERVICES	26-Jan
<input checked="" type="checkbox"/> EXELON	11-Nov	<input type="checkbox"/> OPTIM ENERGY	27-Jan
<input checked="" type="checkbox"/> AMERICAN ELECTRIC POWER SERVICE	12-Nov	<input type="checkbox"/> APX	3-Feb
<input checked="" type="checkbox"/> CONSTELLATION ENERGY	17-Nov	<input type="checkbox"/> NEXTERA ENERGY	11-Feb
<input checked="" type="checkbox"/> PSEG ENERGY RESOURCES	18-Nov	<input type="checkbox"/> WIND PANEL (Houston)	16-Feb
<input checked="" type="checkbox"/> J ARON	19-Nov	<input type="checkbox"/> RETAIL PANEL (Houston)	17-Feb
<input checked="" type="checkbox"/> FULCRUM POWER	2-Dec	<input type="checkbox"/> TRI-EAGLE ENERGY	18-Feb
<input checked="" type="checkbox"/> EAGLE ENERGY PARTNERS I LP	3-Dec	<input type="checkbox"/> XTEND ENERGY LP	2-Mar
<input checked="" type="checkbox"/> STEC	9-Dec	<input type="checkbox"/> EC AND R QSE	9-Mar
<input checked="" type="checkbox"/> BP ENERGY COMPANY	10-Dec	<input type="checkbox"/> BRAZOS ELECTRIC	10-Mar

Metrics Update – Market Participants (as of 1/15/2010)

Metric Name *	Current Score (as of 1/15/2010)	Applies to	Weight	Green %	Red %	Yellow %	Not Scored %	Primary Criteria	Notes
MP3 Market Submissions	Green	QSERS	Generation Ratio Share	60%	0%	0%	40%	Successful submission of RT and DAM transactions	27 out of 46 QSERS Qualified. No AMBER and RED scores until after 1/29 when qualification window closes
Connectivity Qualification	Green	QSEs	Even weighting	38%	0%	0%	62%		33 out of 87 QSEs qualified
MP6 QSER and TSP Compliance with the Nodal Protocols	Green	QSERS	Generation Ratio Share	59%	0%	0%	41%	100% expected State Estimator telemetry submitted.	30 out of 46 QSERS completed. For the 16 QSEs in review, most issues have been resolved, leaving an estimated 86 SE points to be resolved out of 3565 required points (97% of SE points provided)
Section 3.10.7.5 Telemetry Criteria	First scores - 2/10/2010	TSPs	Load Ratio Share						
MP11 Resource Registration	Green	REs	Registered MW Capacity Ratio Share	98%	2%	0%	0%	RARF validated, Decision Making Authority form submitted, and GENMAP validated	
MP14-C TSP Model Validation	TBD #	TSPs	Load Ratio Share					Network Model data validated by TSP	
MP15-A Real-time Market Daily Participation	First scores - 2/10/2010	QSERS	Generation Ratio Share					Weekly average of daily SCED submissions	
MP15-B CRR Connectivity Qualification	Green	CRRAHs	Even weighting	29%	0%	0%	71%	Successful submission CRR transactions	22 out of 77 CRRAHs qualified. No AMBER and RED scores until after 1/29 when qualification window closes
MP20 MP ability to submit Outages - Connectivity Test	First scores - 2/10/2010	QSERS	Generation Ratio Share					Successful submission of OS transactions	
	TBD	TSPs	Load Ratio Share						

* MP metrics through Phase 3 of Market Trials. The schedule for Phase 4 and Phase 5 will be released at the February 2nd NATF meeting.

Schedule for MP14-C to be discussed at Jan. 19 NDSWG meeting.



Metrics Update - ERCOT (as of 1/15/2010)

Metric Name *	Current Score (as of 1/13/2010)	Applies to	Weight	Green %	Red %	Yellow %	Not Scored %	Primary Criteria	Notes
E1 ERCOT Staff Completes Training	Green	ERCOT	Even weighting by department	100%	0%	0%	0%	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 Texas Nodal Procedures	Green	ERCOT	Even weighting by procedure	100%	0%	0%	0%	Procedures developed 1 month prior an exercised in the appropriate Market Trials Phase	29 out of 29 procedures for Market Trials Phase 3 are developed. No procedures in scope for Market Trials 2.1



Traceability

Betty Day
Program Control & Review

Special Nodal Program Committee
18 January 2010

Protocol Traceability Effort Update

Tier 1 Sections					
	PTE Traced Items	Research Items	In Progress: Business Procedures	In Progress: Reports/ Extracts	PTE Alignment Items
Section 3 – Management Activities for the ERCOT system (Dec NATF)	928	166	550	193	67
Section 4 – Day Ahead Operations (Nov NATF)	635	10	65	75	3
Section 5 – Transmission Security Analysis and RUC (Nov NATF)	166	17	53	15	10
Section 6 – Adjustment Period and Real-Time Operations (Jan NATF)	926	50	485	52	TBD
Section 7 – Congestion Revenue Rights (Oct NATF)	445	26	58	27	1
Section 8 – Performance Monitoring (Jan NATF)	226	84	206	44	TBD
Section 9 – Settlement & Billing (Nov NATF)	408	0	128	55	2
Section 16.11 – Financial Security for Counter Parties (Dec NATF)	198	2	33	25	3
Section 17 – Market Monitoring & Data Collection (Dec NATF)	25	7	21	1	6
Total	3957	362	1599	487	92

Protocol Traceability Results Update

- **Status as of December 23rd 2009:**
 - **Reported to NATF on Sections 3, 4, 5, 7, 9, 16.11, 17**
 - **92 Alignment items identified to date**
 - **Proposed action on Alignment items:**
 - **10 – revise business procedure**
 - **17 – NPRR**
 - **4 – handbook**
 - **4 – revise business requirement**
 - **1 – draft a service level agreement**
 - **56 – still under discussion internally for recommended resolution**
 - **Sections 6 and 8 will be presented to NATF on January 29th**

Requirements to Test Artifact Tracing

- Status as of January 4th 2009:**

Requirements to Test Artifacts			
Project	# of Requirements	# and Type of Traced Test Artifacts	Comments
Energy Management System (EMS)	192	427 Test Cases/Scripts	Complete as of July 2009 - numbers pending final analysis
Market Management System (MMS)	231	1328 Test Cases/Scripts	Complete as of Oct. 2009 - numbers pending final analysis
Outage Scheduler (OS)	21	34 Test Cases	Complete as of Jan. 2009 – final analysis in review
Commercial Systems (COMS)	2407	9114 Test Cases/Scripts	Under analysis – pending team review of Registration & Disputes artifacts
Congestion Revenue Rights (CRR)	50	32 Test Cases	Complete as of Nov. 2009
Credit Monitoring Management (CMM)	507	1886 Test Scripts	Complete as of Dec. 2009 - final analysis in review
Network Model Management System (NMMS)	152	210 Test Cases	Complete as of Dec. 2009 - final analysis in review
Market Information Systems (MIS)	347	1120 Test Scripts	Complete as of Dec. 2009 - final analysis in review
Reports and Extracts (EDW, CDR)	148	4313 Test Scripts	Complete as of Dec. 2009 - final analysis in review
**number of requirements or test artifacts are subject to change with completion of artifact tracing			

Next Steps

- **Questions about a research item or alignment item should be forwarded via e-mail to NodalMarketTransition@ercot.com. Subject line “Protocol Traceability Question”**
- **Planned dates for Web Ex review**
 - January 29th – sections 6 & 8



Monthly Financial Review

Don Jefferis

Special Nodal Program Committee

18 January 2010

Financial Review – December 2009 Performance

Nodal Program

Approved Forecast to Actual Comparison

Month of December 2009

Line	Cost Summary	Forecast	Actual	Forecast Variance	Forecast Cumulative Variance <i>(Pending Contingency Mgmt Disposition)</i>
1	Internal Labor Costs	\$2.1	\$2.2	(0.1)	(\$0.2)
2	Backfill Labor Costs	0.1	0.1	0.0	0.0
3	External Resource Costs	3.5	2.9	0.6	2.1
4	Software & Software Maintenance	0.4	0.9	(0.5)	0.4
5	Hardware & Hardware Maintenance	0.3	0.4	(0.1)	0.0
6	Other	0.0	0.0	0.0	0.0
7	Sub-total Direct Project Costs	\$6.4	\$6.5	(\$0.1)	\$2.3
8	Board Discretionary Fund	\$0.0	\$0.0	\$0.0	\$0.0
9	Allocations	\$0.3	\$0.3	0.0	\$0.1
10	Finance Charges	1.0	1.4	(0.4)	(0.4)
11	Sub-total Indirect Project Costs	\$1.3	\$1.7	(\$0.4)	(\$0.3)
12					
13	Total	\$7.7	\$8.2	(\$0.5)	\$2.0

Amounts in millions

Favorable / (Unfavorable)

Note 1: Actual amounts in 2009 are preliminary and unaudited



Financial Review - LTD Performance through December 2009

Nodal Program

Approved Forecast to Actual Comparison

Life-to-Date through December 2009

Line	Cost Summary	Forecast	Actual	Variance	Forecast Remaining
1	Internal Labor Costs	\$56.0	\$56.2	(\$0.2)	\$27.3
2	Backfill Labor Costs	5.4	5.4	0.0	1.9
3	External Resource Costs	256.8	254.6	2.2	27.9
4	Software & Software Maintenance	26.3	25.9	0.4	3.5
5	Hardware & Hardware Maintenance	50.8	50.8	0.0	4.2
6	Other	2.0	2.0	0.0	11.5
6a	Sales Tax Refund	0.0	(7.3)	7.3	0.0
7	Sub-total Direct Project Costs	\$397.3	\$387.6	\$9.7	\$76.3
8	Board Discretionary Fund	\$0.0	\$0.0	\$0.0	\$105.5
9	Allocations	\$20.0	\$19.9	\$0.1	\$3.0
10	Finance Charges	25.5	25.9	(0.4)	25.6
11	Sub-total Indirect Project Costs	\$45.5	\$45.8	(\$0.3)	\$28.6
12					
13	Total	\$442.8	\$433.4	\$9.4	\$210.4

Amounts in millions

Favorable / (Unfavorable)

Note 1: Forecast consists of actuals through December 2009 and re-forecast January 2010 forward

Note 2: Actual amounts in 2009 are preliminary and unaudited



Board Discretionary Fund Summary

- **The Board Approved Budget is \$643.8M**
- **Direct Program Costs: October 2009 through December 2009 underspend of \$2.3M excluding sales tax refund**
 - \$1.3 million added to Board Discretionary Fund
 - \$1.0 million reprogrammed to forward months
- **Indirect Program Costs: October 2009 through December 2009 overspend of \$0.3M**
- **Estimate to Completion Reforecast resulted in**
 - \$11.7 million of Financing Charge reduction
 - \$0.7 million Facilities & Support Allocation Costs reduction
 - Direct Program Costs remained flat after considering new risk items
- **In addition further increase to Board Discretionary Fund of \$7.3 million related to nonrecurring Sales Tax Refund**
- **Board Discretionary Fund increased by \$20.7M to \$105.5M**

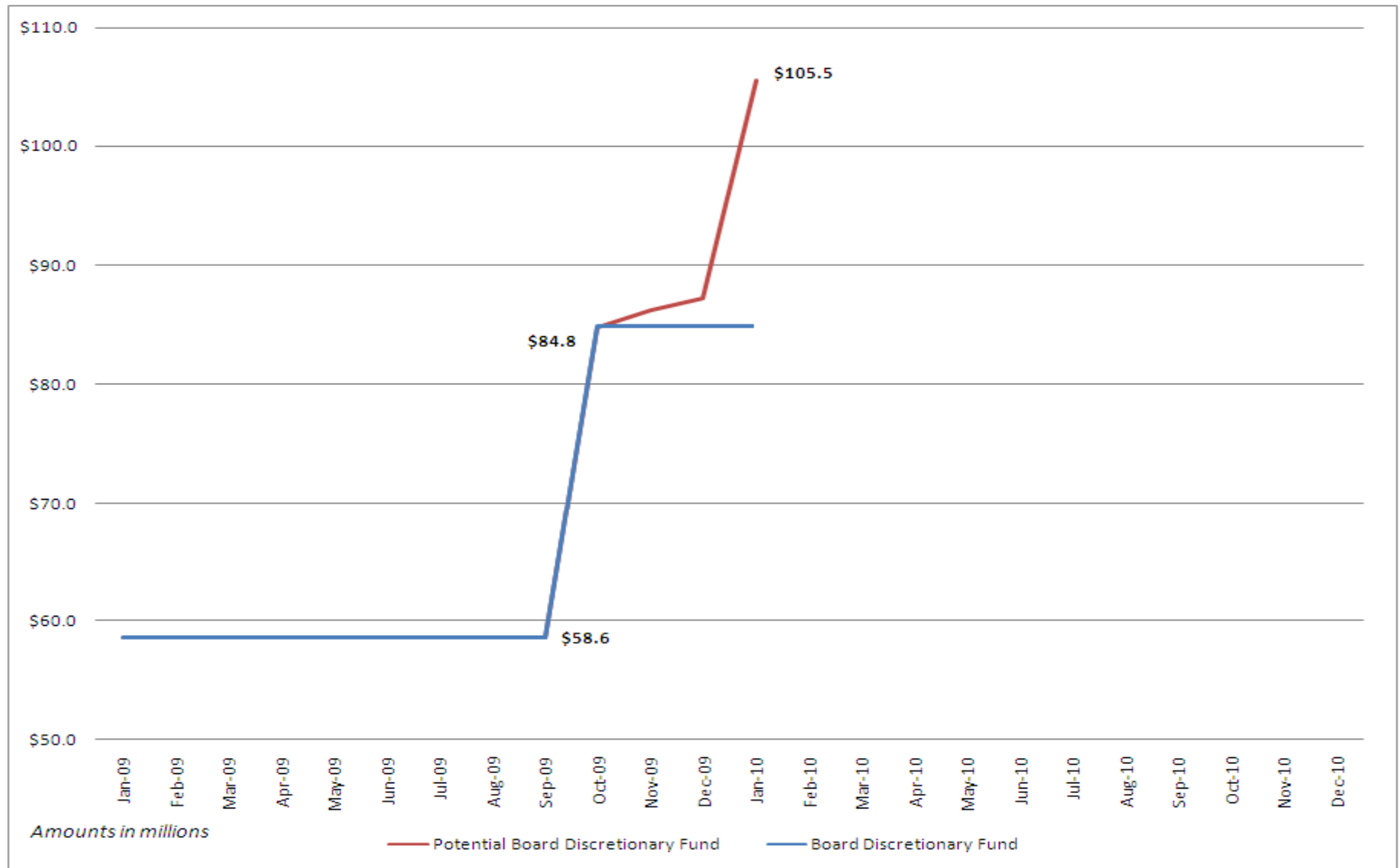
Q4 2009 EAC Update	Amounts in millions
Board Discretionary Fund, 10/01/09	\$84.8
Net Direct Program Costs (see next slide)	1.3
Q4 2009 Indirect Program Costs Overspend	(0.3)
Plus Allocations / Finance Cost Reduction	12.4
Sales Tax Refund	7.3
Updated Board Discretionary Fund, 01/01/10	\$105.5

Direct Program Costs: Reprogramming and Costs Reduction

Program Risk & Changes	Major Activities/Adjustments	CTO Fund	Board Fund
	Existing CTO Contingency at October 1, 2009 (\$2.3M)	\$2.3	
Approved Change Management Items Charged to CTO Contingency	<ul style="list-style-type: none"> • NCR 5 Query Bid Notifications (\$313K) • NCR 12 Oracle Grid Control (\$77K) • NCR 13 INF Performance Upgrades and inventory replacement (\$237K) • NCR 18 True Copy License (\$157K) • NCR 23 Planning Model Go-Live (\$252K) • NCR 28 CMM Credit Risk Work Flow training (\$5K) 	(.8)	
	Close out unutilized Q4 2009 EAC Risk Items	(1.5)	\$1.5
Reforecast Labor Costs Reduction	<ul style="list-style-type: none"> • Validation of named resource loading exposed duplicate efforts across the program for EDS and INT (\$2.7M) • Consolidate Nodal Projects resulting in labor efficiencies (\$1.0M) • Validated break-fix assumptions to support Integration Testing (\$2.4M) • Average Hourly Internal Labor Rate difference between September 2009 and January 2010 reforecast (-\$0.5M) 		5.6
Reforecast Non-Labor Cost Reduction	<ul style="list-style-type: none"> • IMM Re-scoping & de-scoping DC tie-in (\$3.0M) • Oracle License and Maintenance (-\$0.8M) • Nexant savings for break-fix assumptions to support Integration Testing (\$0.3M) 		2.7
Q4 2009 Actual Spend Under Budget Spend	October – December '09 budget to actual variance for direct program costs		2.3
Risk items for Inclusion in CTO Contingency	<ul style="list-style-type: none"> • External Labor Support for Delivery Assurance and Market Experts for Operational Support & Guidelines (\$2.4M) • Board directive for Organization Study (\$0.5M) 	2.9	(2.9)
	• Infrastructure hardware upgrades and application patching (\$2.0M)	2.0	(2.0)
	• TIBCO Licenses and Maintenance Fees (\$1.9M)	1.9	(1.9)
	• Current in-flight change requests within the NCR pipeline (\$1.6M)	1.6	(1.6)
	• Market Collateralization for Credit system changes and NPRRs (\$1.0M)	1.0	(1.0)
	• Business Process Monitoring scoping and requirements gathering based on other ISO implementations, Internal and External Labor support for problem analysis, monitoring configurations, tools and utilities (\$1.0M)	1.0	(1.0)
	• Network Modeling changes for loading and publishing to support NPRR (\$0.2M)	0.2	(0.2)
	• IMM Development Resources from ABB (\$0.2M)	0.2	(0.2)
	Total Board Discretionary Fund Giveback		\$1.3
<i>Amounts in Millions</i>	CTO Contingency at January 1, 2010	\$10.8	

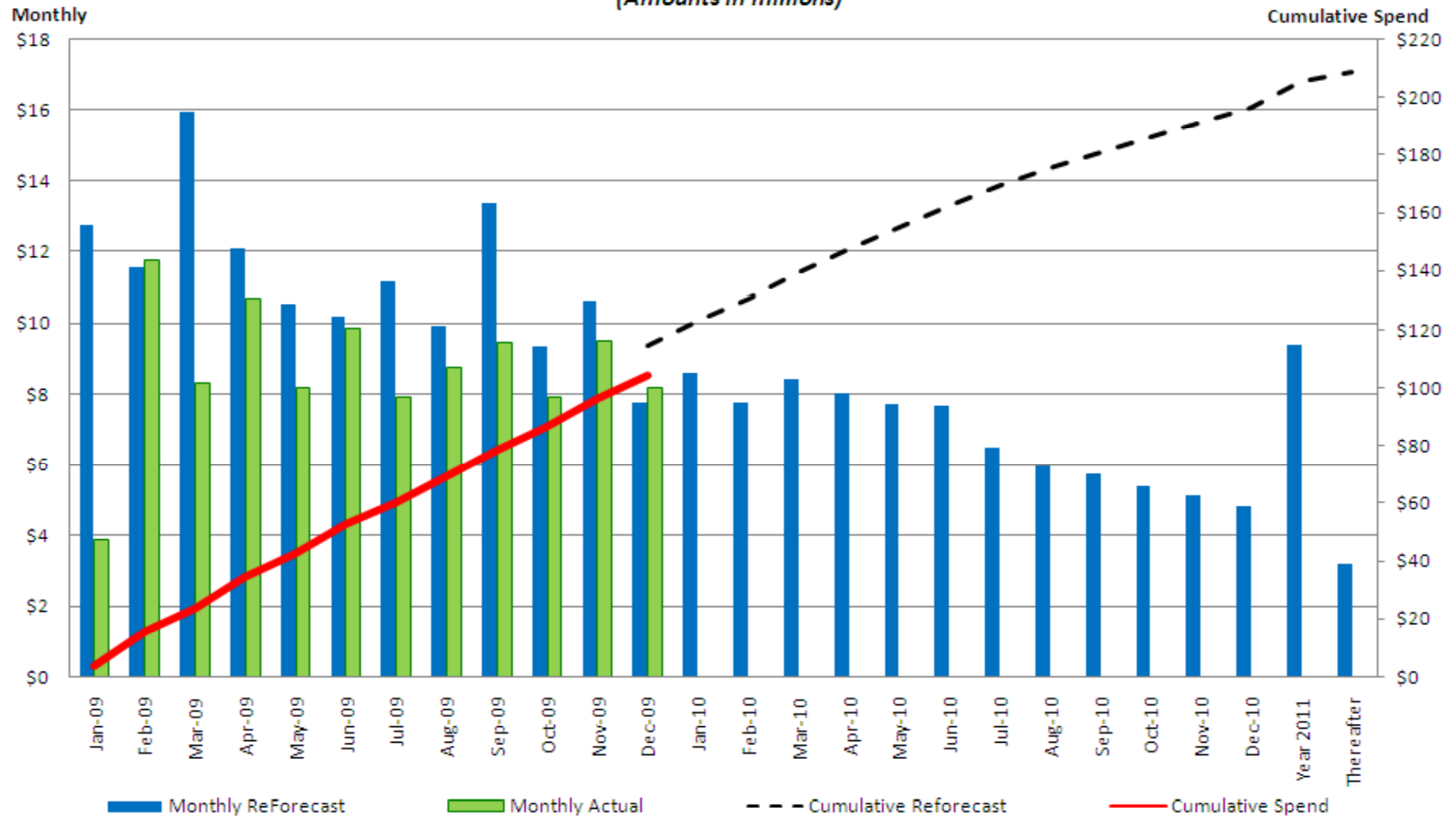


Board Discretionary Fund



Program Cost Management – 2009 and 2010 Forecast

Monthly Budget, Forecast and Actual Analysis (Amounts in millions)

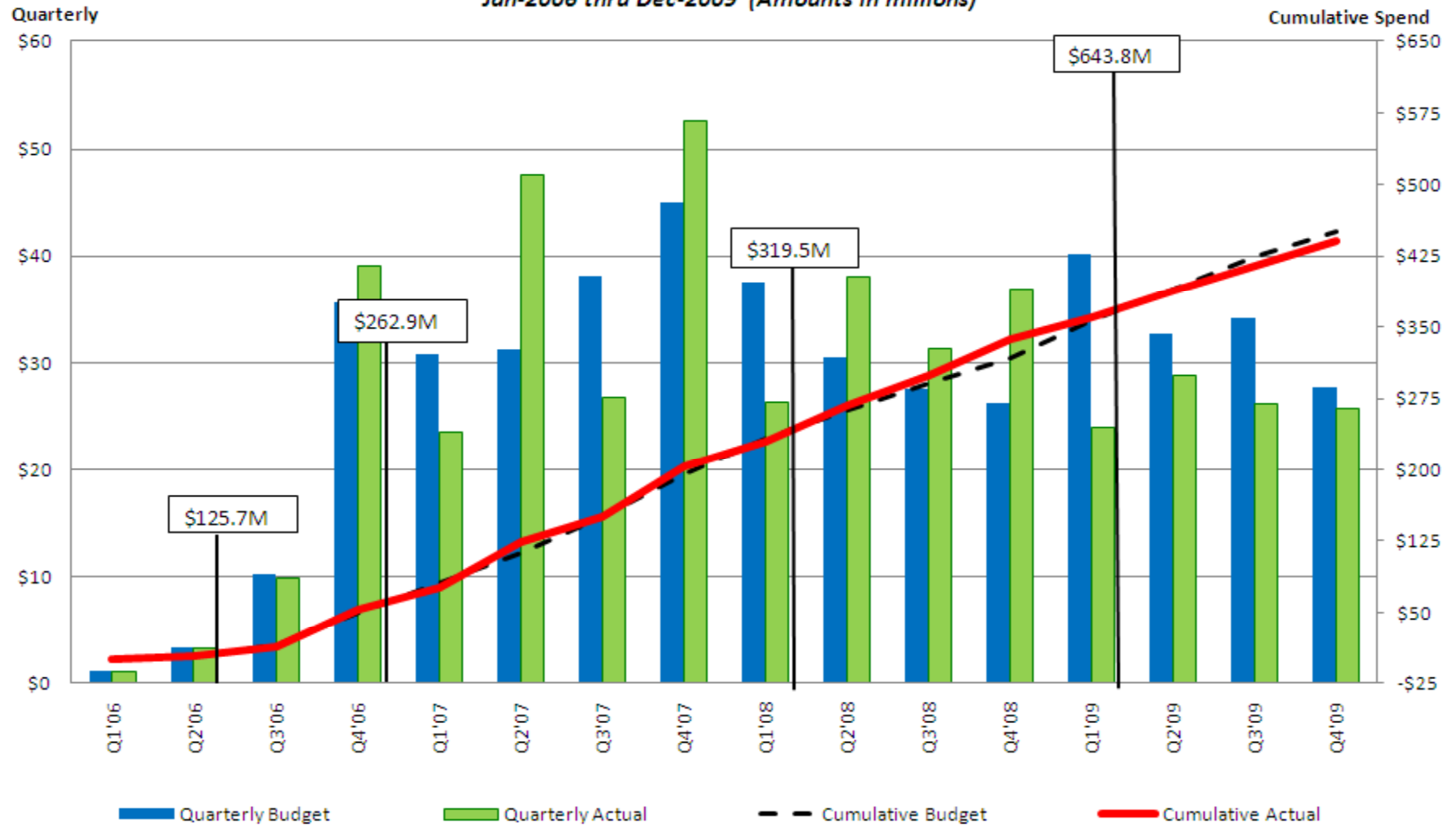


Note: Year 2011 and thereafter are finance charges

Program Cost Management – 2006 to 2009 Quarterly

Quarterly Budget, Forecast and Actual Analysis

Jan-2006 thru Dec-2009 (Amounts in millions)



Questions ?

Appendix

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

Program Issue: Market Interaction Operating Level Agreements

◇ Potential Milestone Impact: Phase 3 RTM, Phase 4 DAM/RUC, Phase 5 Full, Go-Live

ISSUE: Market Interaction OLA		Need to determine service level agreements associated with market interactions to assist ERCOT in establishing operational thresholds. ERCOT is responsible for ensuring any market thresholds required before Go-Live are defined, managed through the appropriate stakeholder processes and communicated in a timely fashion.		
Life Cycle State				
Plan	Manage			
Mitigation Plans		Who	Target Date	Current Status
1. ORT to define OLA with business and the market for each phase.		ORT, Market Trials	January	Phase 2.1 OLAs established and communicated to the market during Oct. 8 Market Readiness Seminar. Phase 3 complete. Phase 4 and 5 OLA definitions in process.
2. PMO working with ORT to ensure consistent communications and work planning is in place to deliver the appropriate OLA and market throttling recommendations for each market release.		PMO, ORT, Market Trials	January, April, May, August	Continuous communication will be delivered to the internal and external stakeholders in support of each market delivery.

Program Risk: Integration Testing

◇ Potential Milestone Impact: Market Trials

Risk: Integration Testing		Continued risk around technology delivery of business systems integration due to complexity and continuing maturing of application and data dependencies.		
Risk Life Cycle State				
Define	Plan	Manage	Watch	
Mitigation Plans		Who	Target Date	Current Status
<ul style="list-style-type: none"> Planned Integration Test phases and associated functional and technology components. Created effort-based testing delivery work plan to prioritize and align deliverables to key external milestones. Instituted daily PMO meetings to manage and mitigate day-to-day risks to scope and schedule deliverables. 		PMO	Ongoing	Nodal Program Release Scope and Schedule defined to ensure delivery. Program Status Report and Dashboard in place to track progress.

Program Issue: Network Model Load Frequency

◇ Potential Milestone Impact: Overall Program

ISSUE: Network Model Load Frequency		<i>Model updates for Nodal will require more attention and coordination by both MPs and ERCOT to ensure alignment. ERCOT has determined that a bi-monthly Nodal database load represents the most manageable solution for updating the real-time environment when Nodal begins in December 2010.</i>		
Life Cycle State				
Plan	Manage			
Mitigation Plans		Who	Target Date	Current Status
1. Define and document Initial Model Load Process.		ERT	Complete	Initial Process Documented, to be updated based on feedback from Testing and Operations teams.
2. Validate and improve the Model Load Process over the next several months based on a Zonal Bi-Weekly load timeframe.		INT, INF	January - March	Initial loads completed, targeting mid January Model load to align with Zonal schedule.

Program Risk: Reconciling Protocols, Systems, and Market Expectations

◇ Potential Milestone Impact: Market Trials

Risk: Reconciling Protocols, Systems and Market Expectations				Experience with deploying nodal markets by other ISOs has shown that expectations of the market participants are often missed, despite best efforts at defining tariffs or protocol requirements. ERCOT needs to assume such a risk exists for this nodal implementation as well.		
Risk Life Cycle State						
Define	Plan	Manage	Watch			
Mitigation Plans				Who	Target Date	Current Status
1. Assess maturity and readiness of software in the initial nodal release, focusing on new/tailored capability for Texas Nodal.				B. Day K. Farley	1/31/10	1/12/10 – SME continue work with business teams. Number of items for research taking longer than estimated. NATF web ex in mid-Jan to review full trace reports with Market Participants for remaining Tier 1 sections.
2. Add team members to the nodal program with Texas market experience to ensure readiness for Market Trials. SMEs to discussion alignment issues with ERCOT business owners. SMEs to report the results of the assessment to the ERCOT business owners for resolution.				B. Day K. Farley	Ongoing	1/12/10 – Work is underway to trace protocols, requirements and business processes alignment analyses are in progress.
3. Keep the oversight groups apprised of progress.				M. Cleary	Ongoing	1/12/10 – status reports provided to program, NATF, TAC, Special Nodal Committee monthly.

External Audit Status Summary

Audit	Audit Points Identified	Audit Points in Execution	Date to Complete Last Point
Utilicast Report 8	6	1 in progress; 5 complete	2011
Utilicast Report 10 (Cleary)	17	5 in progress; 12 complete	6/1/10**
Opportune Report 1	10	10 in progress	1/31/10

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

Audit Points to Address from Utilicast Report 8

ID	Description	Action Plan	Responsible Director	Responsible Manager	Target Date
UT108-05	There should be immediate investment in new data center capacity to allow for expansion of IT infrastructure to support the Nodal Program.	Additional data center space planned as part of the Met Center disposition project (PR-80001). Those data centers should be online in mid-2011. Plans are under development to provide capacity prior to those new data centers becoming available.	R. Morgan	Jeff Floyd	Bastrop DC in production Feb 2011. TCC3 in production May 2011.

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:</p> <ol style="list-style-type: none"> 1. MT Phase 3 – SCED, OS Submissions, CRR Auctions due 12/15/09 2. MT Phase 4 & 4.1 - DAM, RUC, OS, CRR Invoices, Settlements and Billing due 2/15/10 3. MT Phase 5 & 6 – Remaining production procedures due 3/15/10 4. Phase 6 – Integrated final code due 6/1/10 	V. Gates	J. Adams	06/01/10

Audit Points to Address from Utilicast Report 10-2

ID	Short Description	Recommendation	Action Plan Status	Resp. Dir.	Resp. Mgr.	Target Date
UTI – 10 – 06D	End-to-End Business Readiness Activities	Prior to End-to-End testing, complete a final review of the Protocols to compare against current system capabilities. Such reviews are underway on many of the project teams.	SME's are working with business owners on research and alignment items. Full trace reports will be provided to NATF starting late Oct.	B. Day	K. Farley	02/28/10

Audit Points to Address from Opportune Report 1

ID	Short Description	Recommendation	Action Plan Status	Resp. Dir.	Resp. Mgr.	Target Date
OPT 01-01	Central Storage Location for Documentation	Maintain timesheet support, project status reports and other key documents in a central location with access restrictions and backup capabilities.	Vendor Manager (VM) and Project Manager (PM) are working with the Financial Management Office (FMO) to create a centralized repository on the FMO SharePoint site with restricted access.	J. Iacobucci	J. Fruit J. Robinson	1/31/10
OPT 01-02	Reconciliation of Invoices to Timesheets and AP Disbursements	Maintain a documented reconciliation of hours submitted on timesheets, hours invoiced and hours paid. Maintain the reconciliation real-time as invoices and timesheets are received	All ABB invoices are being generated off the ERCOT issued weekly timesheet. The PM verifies the invoice against the tracking spreadsheet and sends confirmation with the invoiced hours.	J. Iacobucci	J. Fruit J. Robinson	1/31/10
OPT 01-02	Consolidation of All Timesheet Entries for Analysis	Maintain weekly spreadsheets for all hours, time reports and status reports. Conduct weekly and periodic checks to review all ABB issued timesheets	All hours, time reports and status are being maintained weekly by the VM and PM. A central repository will be created to store weekly reports and review all ABB issued timesheets.	J. Iacobucci	J. Fruit J. Robinson	1/31/10

Audit Points to Address from Opportune Report 1

ID	Short Description	Recommendation	Action Plan Status	Resp. Dir.	Resp. Mgr.	Target Date
OPT 01-04	Standard Work Descriptions	When possible, require standard work descriptions for certain phases, deliverables and tasks and obtain buy-in agreement from ABB.	All entries are controlled for standard work descriptions by the PM during the time collection process and are being maintained in an Access database. The contract has been updated to reflect the new categories.	J. Iacobucci	J. Fruit J. Robinson	1/31/10
OPT 01-05	Invoicing Controls	Install a control that will provide greater assurance that the invoiced hours are accurately supported by the original time entered by employees and approved by their supervisors.	<p>The following steps will be or have been implemented:</p> <ol style="list-style-type: none"> 1. The ABB staff working for ERCOT will submit (via emails) their ERCOT-billable time, with date, hours and description, to the PM each Friday. 2. The PM transfers the data to a reporting spreadsheet. 3. The PM provides the reporting spreadsheet to the VM on the following Thursday. 4. The VM compares the spreadsheet to the timekeeping system entries. 5. The VM and PM reconcile any discrepancies. 6. ABB Invoices ERCOT for the final agreed upon hours. 7. The VM validates the invoice back to the original reporting spreadsheets for the PM. 	J. Iacobucci	J. Fruit J. Robinson	1/31/10

Audit Points to Address from Opportune Report 1

ID	Short Description	Recommendation	Action Plan Status	Resp. Dir.	Resp. Mgr.	Target Date
OPT 01-06	Duplicate Billing of Hours	A search of duplicate payments found a total of 43 hours duplicated. Recommendation to request a refund from ABB for the over billing amount.	ABB agrees to this finding and the PM will request a correction.	J. Iacobucci	J. Fruit J. Robinson	1/31/10
OPT 01-07	Blank Work Descriptions	Prior to November 2007, there were a number of instances where work descriptions were not provided in the invoice support documentation (timesheets/timecards). The PM needs to remain alert to proper short text descriptions being provided.	All entries are being controlled for standard work descriptions by the PM during the time collection process.	J. Iacobucci	J. Fruit J. Robinson	1/31/10
OPT 01-08	Recap of Invoices and Cumulative Hours by SOW	Maintain the recap of invoices and cumulative hours by SOW on a current basis.	A spreadsheet will be maintained that tracks all monthly invoices as well as the date the actual hard copy invoice is received by the PM and the date of payment.	J. Iacobucci	J. Fruit J. Robinson	1/31/10

Audit Points to Address from Opportune Report 1

ID	Short Description	Recommendation	Action Plan Status	Resp. Dir.	Resp. Mgr.	Target Date
OPT 01-09	Receipt of Payment Milestones Unclear	The parties need to emphasize the need for clearly describing payment milestones on invoices, both in preparation of invoices by ABB, and in reviewing/approving invoices by ERCOT.	All invoices will have a cover sheet attached that the VM will document what deliverable was achieved with the invoice, along with the e-mail confirmation from the PM that the invoice matches the hours contained within the hour tracking spreadsheet being maintained.	J. Iacobucci	J. Fruit J. Robinson	1/31/10
OPT 01-10	Signed Contractor Ethics Agreement Forms Were Incomplete	Furnish ABB with copies of the Contractor Ethics Agreement and related policies. Require all ABB employees and contractors to execute the Contractor Ethics Agreement signature page indicating that they have read and understood all of the relevant policies.	Copies of the Contract Ethics Agreement will be made available for distribution to all ABB resources who are working on the ERCOT project/program. The PM will then provided a targeted timeframe in which the agreement should be reviewed and agreed. Other ERCOT policies will be observed based on the need of the ABB employee/contractor.	J. Iacobucci	J. Fruit J. Robinson	1/31/10