

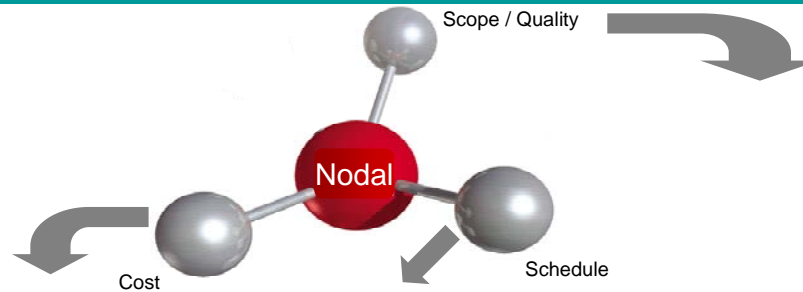


Texas Nodal Market Implementation
ERCOT Board of Directors Meeting
Nodal Status Review
March 20, 2007

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The Nodal Program is now Amber -



	Cost	Schedule	Scope / Quality
	Amber	Amber	Amber
Summary	<p>The program has completed the latest cost review cycle with current overall projected estimate at complete tracking within 1% of budget.</p> <p>A significant proportion of contingency has been earmarked specifically for EMS and MMS.</p>	<p>Detailed critical path workshop reviews indicate a “go-live” date of 12/1/08. This was achieved by concurrent tasks, proper sequencing, & a program rather than an individual project. Perspective. However, a few outstanding issues of vendor delivery, and market trials reduce the confidence factor from Green to Amber</p>	<p>Not all nodal systems are currently at the same configuration level. Corrective measures, change implementation is in process.</p>
Legend			
Red	Estimate at Complete = >\$263m	Go-live = >30 days+	Program is not wholly aligned to protocols
Amber	Estimate at Complete = \$248 - \$263m	Go-live = <30 days+	Program is aligned to previous version of protocols
Green	Estimate at Complete = <\$248m	Go-live = 12/1/08	Program is aligned with current protocols

Shortages of EMS staffing is now resolved

ERCOT has taken the measures necessary to alleviate the most pressing staffing issue on Nodal:

- The EMMS Development team has received five full time FTEs and one half time FTE.
- These staff are 100% dedicated to the Nodal EMS project.
- Response to critical production issues may require involvement of some of this assigned staff.

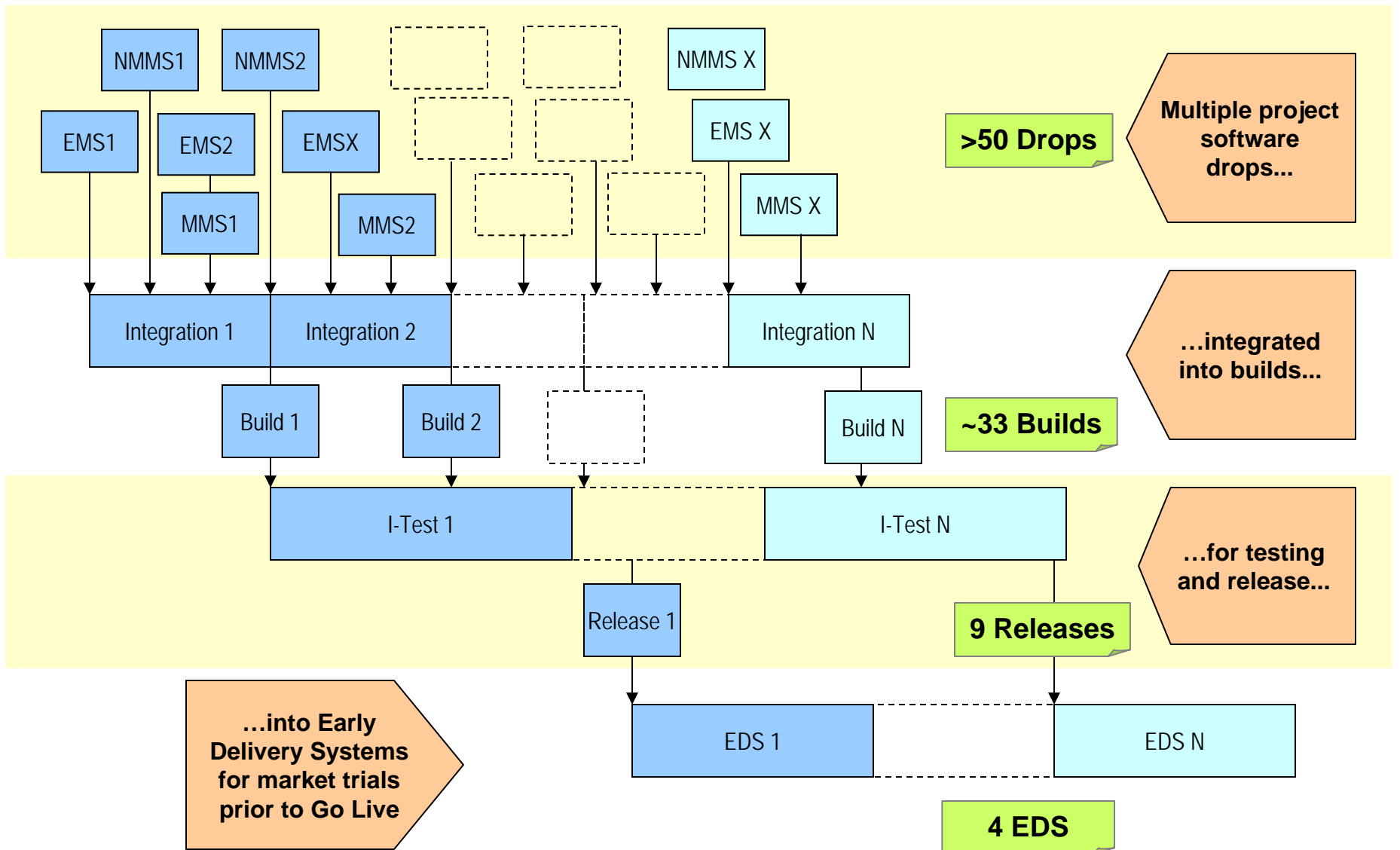
The transition needs to balance support of existing operations:

- A period of transition for some of these staff is necessary to minimize disruption to existing workload, including Zonal enhancements required for Nodal
- The impact on Zonal initiatives has been factored in (some initiatives will be delayed 30 – 60 days, backfills are being sought for some of these staff)

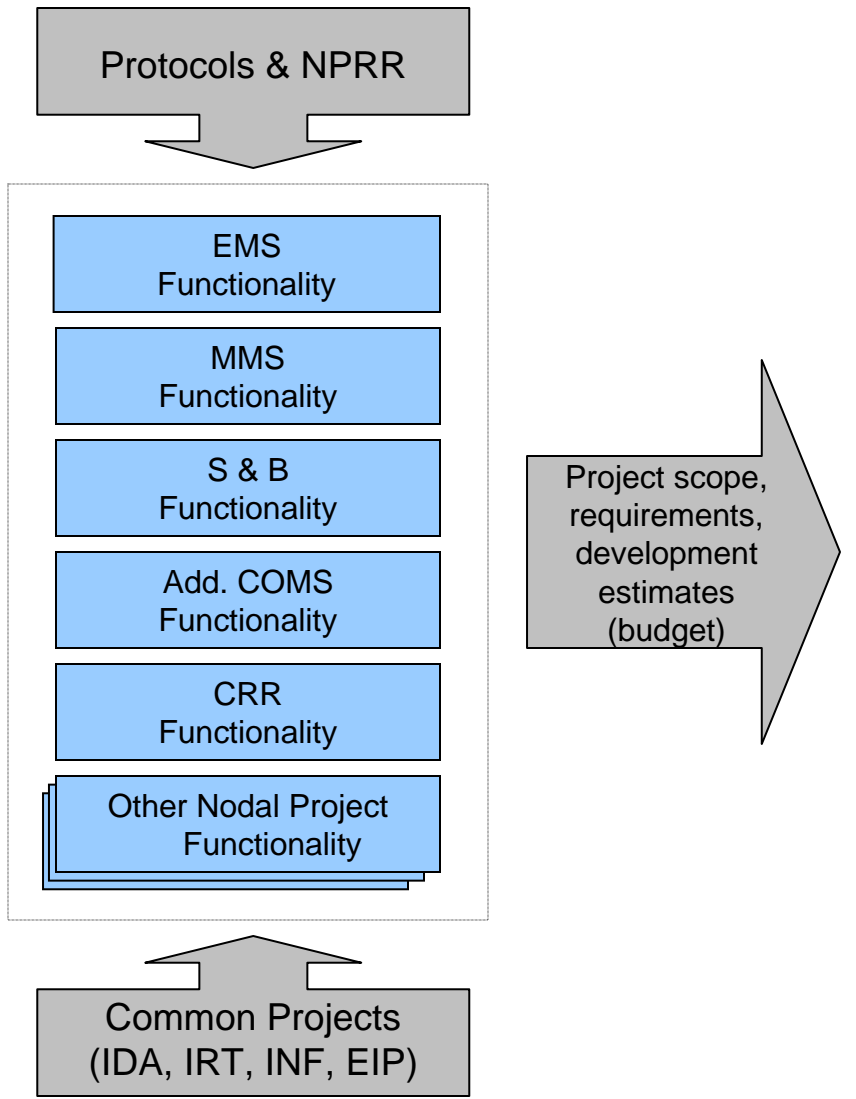
Additional measures taken:

- An advertisement campaign has been launched for EMMS resources – both contract and full time positions are being considered
- Recruitment efforts in EMS markets outside of both ISO and Texas area

Critical path – overview of complexity



Initial emphasis – individual project mobilization & requirements

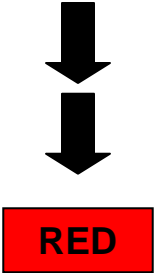


Independent Project Focus

Schedule Confidence

Critical Path Confidence

Critical Path Status

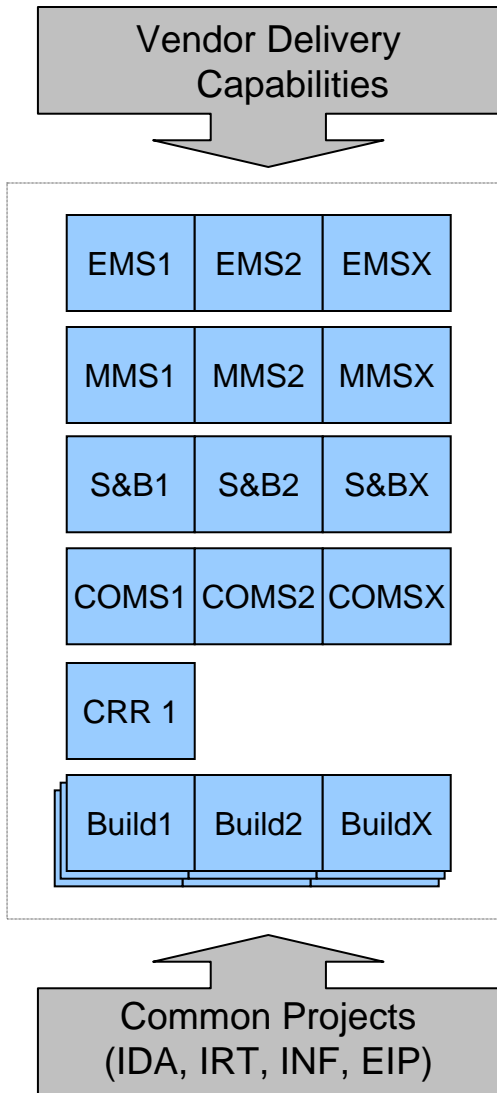


Program Activities

- Define Requirements
- Conceptual Design
- Functional Scope
- Protocol Interpretation and Mapping
- Vendor(s) Identification and Delivery Estimates
- Internal Development Team(s) Delivery Estimates

Legend – Confidence Level		
	Low	
		Increasing
		No Change

Last Few Months – Vendor Mobilization and Application Focus



Project software drops, feasible delivery dates, vendor SOWs

Project Delivery Focus

Schedule Confidence



Critical Path Confidence



Critical Path Status



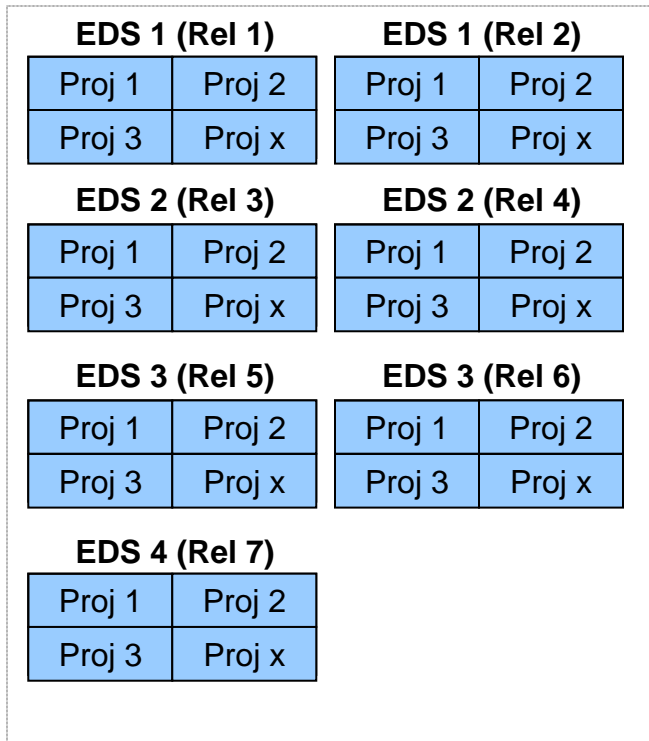
Program Activities

- Req. Finalization & Conceptual Design
- Define Common Terminology & Delivery Milestones
- Define Common Goals Across Projects
- Identify Project Interdependencies
- Organize into Releases
- Define Assumptions
- Unconstrained End Date

Legend – Confidence Level		
	Low	
	Increasing	No Change

Current State – Cross Project Design and Integration Alignment

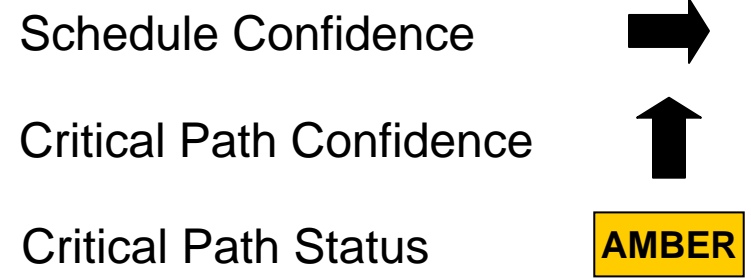
Nodal Protocols
Transition Plan Guidance



Integration builds, EDS release scope, integrated schedules & trade-offs

Common Projects
(IDA, IRT, INF, EIP)

Program Delivery Focus



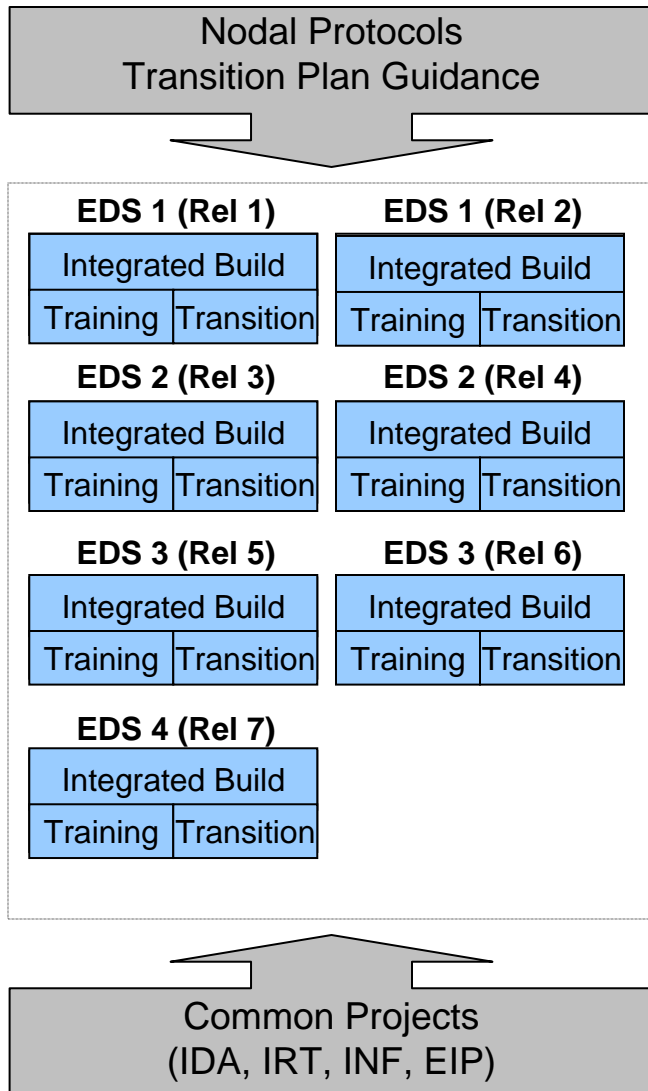
Program Activities

- Conceptual & Detailed Design
- Cross Project Alignment
- EDS Deliveries Identified
- Key Design Issues Identified
- Key Program Risks
- Identify Project Interdependencies
- Identify Releases
- Organize Pieces

Legend – Confidence Level		
	Low	
		Increasing
		No Change



Future State – Program and Business Delivery Alignment



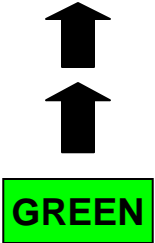
Committed control milestones, finalized vendor SOWs, Business Transition

Business Capability Focus

Schedule Confidence

Critical Path Confidence

Critical Path Status



Program Activities

- NPRR Backlog Cleanup
- Rigorous Scope Change Control
- Design Issues Resolved
- Confirm EDS strategy with TPTF, including potential exceptions to Transition Plan
- Build delivery confidence (early drops)
- Rigorous critical path and dependency management
- Go-Live risk review

Legend – Confidence Level		
	Low	
		Increasing
		No Change

Progress Highlights

- **Market Operations Sandbox delivered 1/31/07**
 - 2 QSEs successfully connected

Connectivity demonstrated

- **ERCOT learning Management System launched to Market Participants 2/15/07**

Learning Management System launched

- **Requirements approved by TPTF**
 - Approvals for MMS, Outage Scheduler requirements complete

All critical design requirements approved

- **CSDs approved by TPTF**
 - Approvals for MMS, CRR, MIS and most COMS CSDs approved ahead of schedule

All critical design requirements approved

- **EDS 1 application (vanilla (basic) EMS) currently in I-Test**

All critical design requirements approved

- **Market Readiness metrics being finalized and approved by TPTF**

Developing a metric driven “dashboard”

Progress this Month (Detail)

■ Program Management Office (PMO)

- Conducted Critical Path 'deep-dive' meeting to identify the Nodal critical path and increase cross-project understanding
- Delivered phase I of the Nodal balanced scorecard

■ Integration Design Authority (IDA) Package

- Assignment of IDA's issues continued.
- Preliminary review of EMS RPP CSD.
- Review and response to TPTF comments for EMS requirements.

■ Commercial Systems Package (COMS)

- Completed iteration 1 Functional Decomposition of detailed design; started on iteration 2.
- Completed 130/180 use cases, waiting IDA approval
- DAM/DRUC overlaps settlement impact from MMS team.
- Finished the initial cut of the full Integration Artifacts website.
- Uploaded all the Common Integration patterns that will be used as reusable components
- Finished initial cut of generation of documentation from XSD/schemas

■ Network Model Management System/Network Model Package (NMMS)

- Working with TDSPs weekly on Critical Measurement/New Telemetry analysis: Now 50% complete with 484 Completed out of the 973 identified Critical Measurements. Worked with RCEC at Taylor this week and visited TXU.
- Reviewed Nexant final deliverables for SE Standards and procedures: approved
- Software fix was implemented this week for measurement weights.

■ Energy Management System Package (EMS)

- Completed 1st Week of Change Impact Analysis for TPTF (Presentation Available).
- Confirmed & Committed Phased Delivery Dates for EMS Phase 2.

■ Market Management System/SCED Package (MMS)

- Completed Execution of MMS (ABB) Phase 2 SOW.

■ Congestion Revenue Rights Package (CRR)

- BOD budget approval.
- Zonal replacement for Stacy Barry on-boarded; transition complete.
- Updated PCRR – generator list.
- Completed Detailed Design Documents.
- PSA executed with Nexant.
- Continued work on SOW & associated agreements.

■ Enterprise Integration Package (EIP)

- 88 initial Interface Designs have been completed. 9 remain to be completed prior to March 31, 2007
- Initial Integration Design Patterns established and currently under review by the team.
- Continued work on information flow groups, estimates and planning.
- Met with INT to clarify testing domains/environments and review EIP requirements.
- Drafted a White Paper entitled "Securing Web Services at ERCOT" for review by ERCOT management.

■ Enterprise Data Warehouse Package (EDW)

- Completed rewrite of Protocol Section 17 Requirements, will be submitted to TPTF 3/22/2007.
- Completed requirements documents for first deliverables scheduled for EDS 2
- EMS replication
- State Estimator Statistics Reporting
- SCADA/ICCP Reporting
- Completed architecture design for EDS 2 prototyping functionality.
- Reforecast entire project (EAC) based upon real estimates of individual work products.
- Produced resource forecast plan with the EIS Delivery team for resourcing Nodal effort for Q3 '07 – Q4 '08.

■ Market Participant Engagement & Readiness Package (MER)

- Launched a Learning Management System (LMS)
- Reviewed courses w/ Training Subgroup (Transition to Nodal markets, LSE 201)
- Completed internal review of 5 day QSE Basic Training course
- Secured additional contract training delivery personnel.
- Market Information System (MIS): Proof of Concept with LDAP
- MIS: Presentation of 3 Design Styles for the portal

■ Integrated Readiness & Transition Package (IRT)

- Training: Completed 90% of Curriculum Reviews
- Desk Procedure development started
- Market Trials: EDS 1 Plan presented to TPTF , EDS 2 & 3 scheduled for March '07
- Sandbox: 5 QSEs have successfully connected.
- Sandbox: On track for 3/23 release of boomerang and three-part offer POC
- Readiness Advisor: Metrics Inventory - Version 8 reviewed with TPTF.
- Readiness Advisor: Verification Plan - Version 6 under internal review.

■ Infrastructure Package (INF)

- EDS1/2 Environment: All systems delivered for testing.
- EA Lab: VMWare license issue resolved.

■ Integrated Testing Package (INT)

- Project: Hired Nodal FTE Supervisor (Grady Sanders)
- COMS: Began test data discussion; Started review of Reg and CMM Test Cases; began POC for import of Test Case Excel matrix.
- EMS/MMS/CRR: Created Test Plan – reviewed w/ business and INT.
- Data/E2E/Info: Automated database definition testing methodology developed; Presented ETL test data options to COMS; Test Plan and preparation of testing for 3-part offer and boomerang for Sandbox.
- NMMS: Received first Use Case in approved format from business – created 45 beta version Test Cases; Proposed schedule for business delivery of remaining Use Cases.
- Tools: Built COMS/NMMS issue tracking; Designed external testing configuration; Refined metrics utility.

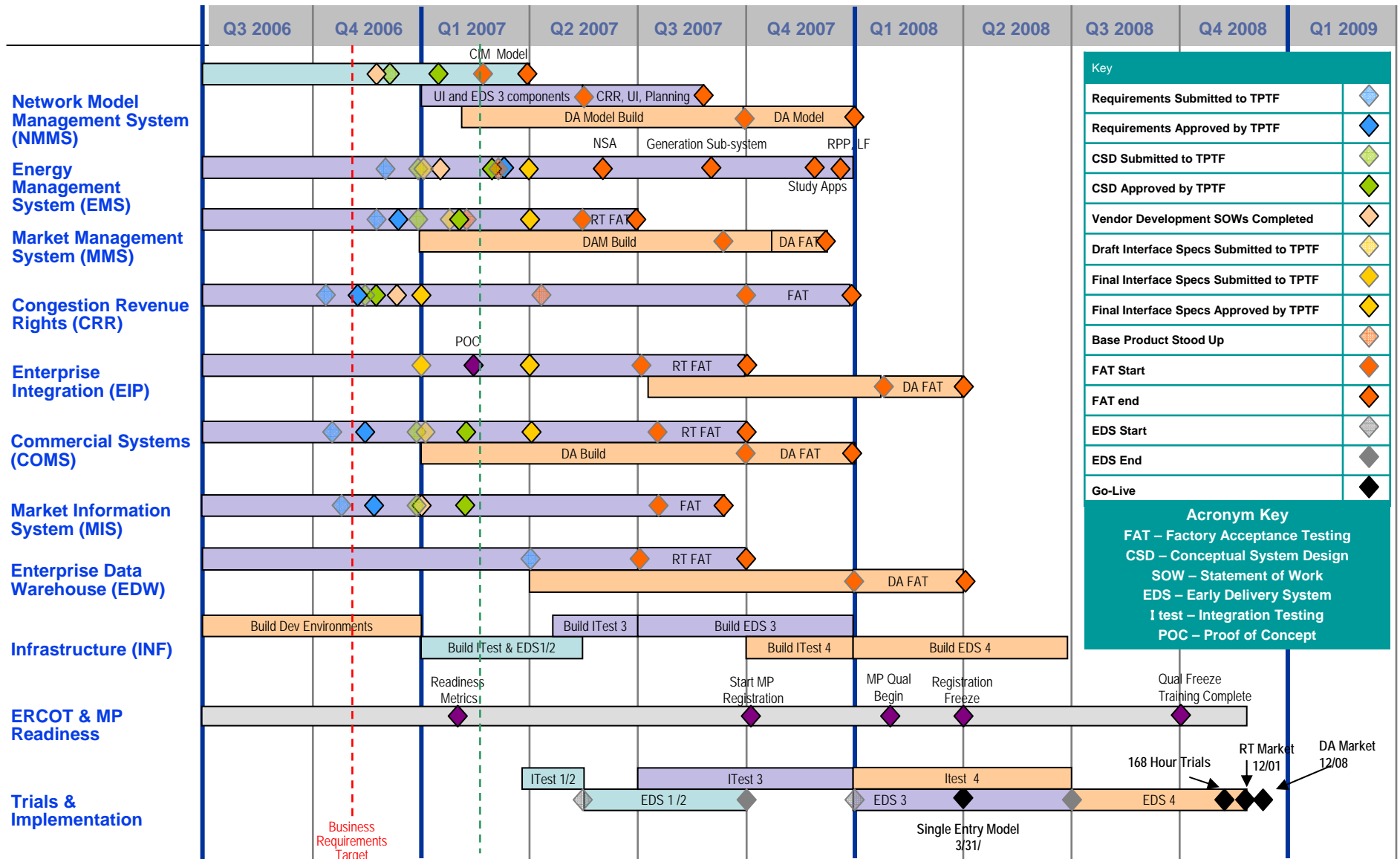


The short-term milestones, except Requirements, are on track

<i>Control Milestone</i>	<i>Baseline</i>	<i>Actual/F'cast</i>	<i>Comment</i>
Requirements approval	10/31/2006	2/23/2007	EMS requirements have been approved by the TPTF. (EDW due in March)
Key CSD submission	12/31/2006	12/31/2006	Planned CSDs issued on schedule
Key CSD approval	2/28/2007	2/28/2007	CRR, MIS and most COMS CSDs approved ahead of schedule
Vendor SOW BOD approval	12/10/2006	1/16/2006	CRR vendor approved in January
Interface specs – draft	12/31/2006	12/31/2006	Deliverable issued to TPTF on schedule
Market Operations Sandbox	1/31/2007	1/31/2007	Initial sandbox delivered on schedule
Interface specs – final	3/31/2007	3/31/2007	Cross-program working group focused on achieving key MP milestone

Time line update

Blue diamonds right of Business requirements line denote schedule slippage



Key	
Requirements Submitted to TPTF	Blue diamond
Requirements Approved by TPTF	Blue diamond with border
CSD Submitted to TPTF	Green diamond
CSD Approved by TPTF	Green diamond with border
Vendor Development SOWs Completed	Orange diamond
Draft Interface Specs Submitted to TPTF	Yellow diamond
Final Interface Specs Submitted to TPTF	Yellow diamond with border
Final Interface Specs Approved by TPTF	Yellow diamond with border
Base Product Stood Up	Orange diamond with border
FAT Start	Orange diamond
FAT end	Orange diamond
EDS Start	Grey diamond
EDS End	Grey diamond
Go-Live	Black diamond




Acronym Key	
FAT	Factory Acceptance Testing
CSD	Conceptual System Design
SOW	Statement of Work
EDS	Early Delivery System
I test	Integration Testing
POC	Proof of Concept



The overall schedule and critical path are the major concerns

	IDA	NMMS	INF	MMS	EMS	CRR	COMS	EDW	MIS	MER	INT	EIP	IRT	Commentary
Scope & baseline	=	↓	=	=	=	=	↓	↑	=	=	=	=	=	<ul style="list-style-type: none"> Working to close NPRR backlog. Plan presented to TPTF. Technical Change control Board started.
Resourcing	=	↑	=	↓	↓	↓	↑	=	=	=	=	=	=	<ul style="list-style-type: none"> Looking to ramp up committed resources from zonal for nodal projects and transition preparation.
Costs	=	=	=	↑	↑	=	=	↓	↓	=	=	↑	=	<ul style="list-style-type: none"> Tracking to budget with some variances. Closing variances with finance.
Timescales	↓	=	=	↓	↓	↑	=	↑	=	=	=	=	=	<ul style="list-style-type: none"> Working on remaining EDW requirement and EMS CSD approvals with TPTF. CSDs scheduled for submission 2/23/07
Critical dependencies	=	=	=	↓	↓	↑	↓	↑	=	=	↑	=	=	<ul style="list-style-type: none"> Finalizing integrated project schedules to confirm feasibility of build sequence and timescales for downstream projects (Integration, I test, and market trials)
Vendors	=	=	=	=	↓	=	↓	=	=	=	=	=	=	<ul style="list-style-type: none"> Project team assessing capabilities of key vendors to deliver on time and under Nodal protocols.
Stakeholders	=	=	=	=	=	↓	=	↑	↓	=	=	=	↑	<ul style="list-style-type: none"> CRR vendor relations improving, and confidence in delivery improved

Acronym	Project Name	Acronym	Project Name
IDA	Integration & Design Authority	EDW	Enterprise Data Warehouse
NMMS	Network Model Management System	MIS	Market Engagement & Readiness – Market Information System
INF	Infrastructure	MER	Market & Engagement & Readiness – Training
MMS	Market Management System	INT	Integration Testing
EMS	Energy Management System	EIP	Enterprise Integration
CRR	Congestion Revenue Rights	IRT	Integrated ERCOT Readiness & Transition
COMS	Commercial Systems		

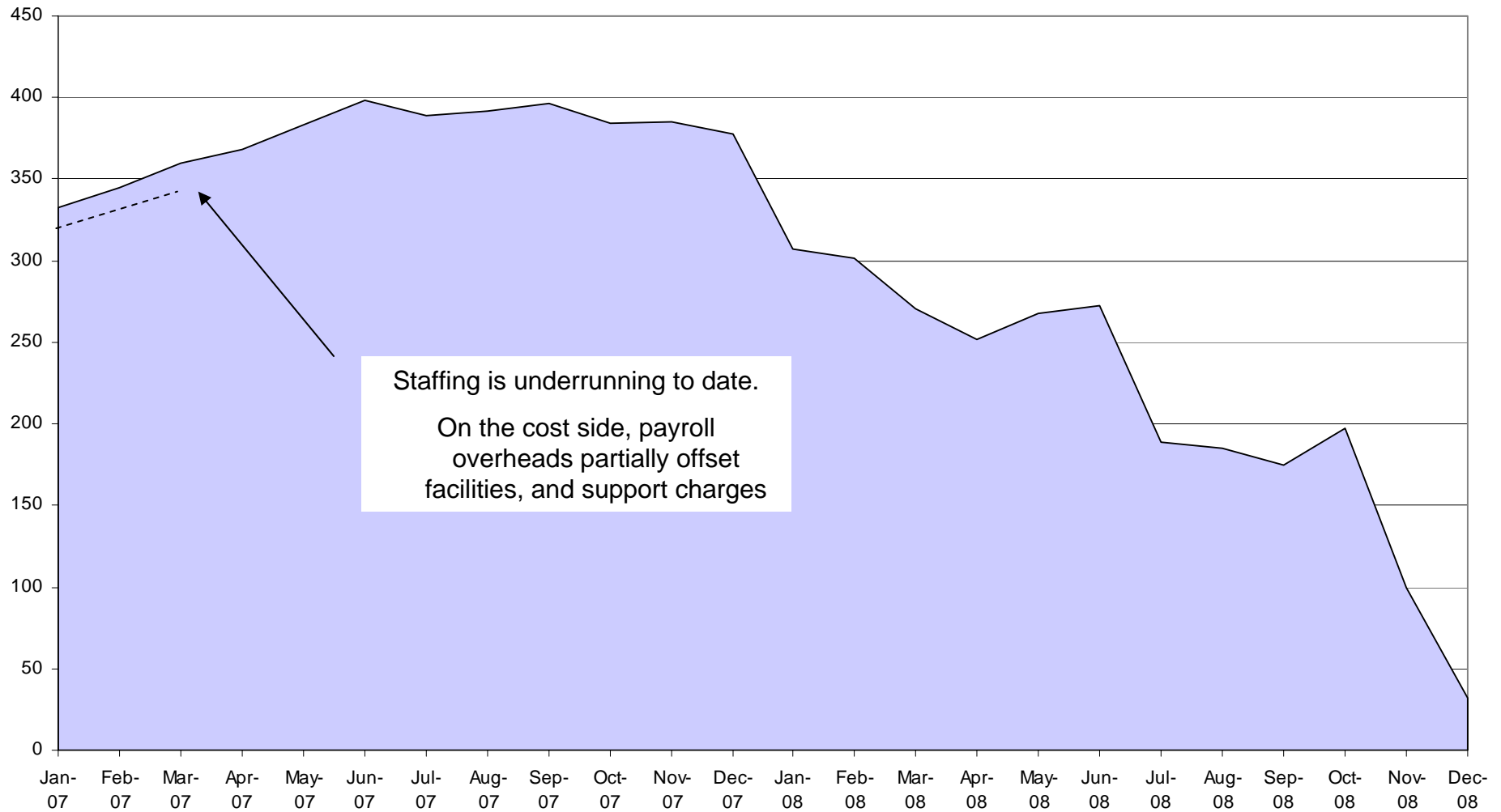
	No major threats
	Known and contained threat – continue to progress and maintain a watching brief
	Major threat (or unknown) – “hair on fire” is the only acceptable response



Texas Nodal Market Implementation
Cost Summary
March 20, 2007



TNMIP Staffing



Preliminary estimate at completion

	Project to Date			Estimate at Completion		
	<u>Budget</u>	<u>Actual</u>	<u>Variance</u>	<u>Budget</u>	<u>Actual</u>	<u>Variance</u>
Internal Labor	\$ 8.6	\$ 7.0	\$ 1.6	\$ 43.1	\$ 40.3	\$ 2.8
External Labor & Software	2.3	2.4	-0.1	84.5	85.8	-1.3
Other	58.7	54	4.7	135.4	137.9	-2.5
Total	\$69.6	\$63.4	\$6.2	\$263.0	\$264.0	-\$1.0

To date, the project to date is under by nearly 10% due to internal labor and contingency

The preliminary estimate, unscrubbed and unapproved is estimated at completion (EAC) is over budget by \$1 million or less than 1%.