



California Independent
System Operator Corporation

Market Redesign and Technology Upgrade Budget & Schedule Report

Board of Governors Meeting
Executive Sponsor: Charles A. King, PE
January 24-25, 2007

MRTU Executive Summary

MRTU Schedule	
Current Period	Trend
	
<p>Tracking Delay: 0 weeks Critical Path Items: System Development, Integration Testing <i>*Based on approved 1/31/08 Go-Live date</i></p>	

MRTU Budget	
Current Period	Trend
	
<p>Approved MRTU budget: \$189.223 M* <i>*Based on approved budget on 12/06</i></p>	

- Majority of System Development activities are complete, with the exception of FERC-Related changes and some SIBR/IFM/MQS components. Schedule is tracking to revised 1/31/08 Go-Live for 2/1/08 Trade Date
- Integration Testing executing Release 2/3 Functional Integration Testing (FIT) schedule, tracking to a 5/7/07 Market Simulation Phase 3 date.
- PTR re-evaluating schedule for delivering internal reports
- Market Simulation Phase 1 complete. Phase 2 on schedule to begin on week of 1/22 including Inter-SC Trades functionality.
- MRTU accomplishments include: SaMC delivered its first set of Charge Codes for testing and completed system development for Release 3; Legacy completed Design and Build of multiple applications and made progress with Site Acceptance Tests (SAT) for Release 3; MQS passed all SAT test cases and began Acceptance Integration Tests (AIT) for Release 3; Technical Architecture/Infrastructure completed E2E test environments

- Completed Impact Assessment of FERC ruling on MRTU.
- Detailed budget analysis for current MRTU scope and FERC changes completed and presented to Steering Committee
- Board approved revised MRTU Schedule of 1/31/08 Go-Live for 2/1/08 Trade Date and Budget of \$189.223M on 12/19/06
- Release Plan updated based on new approved schedule
- CAISO working with key vendors to re-negotiate remaining work and costs
- MRTU continues to work with business units to address upward budget pressures

	 Delay, but will not impact 1/31/08 Go-live date.
	 Delay, will impact 1/31/08 Go-live date. Use of contingency funds.

	Variance less than +2 %		Situation has improved since last reporting period.
	Variance between +2 % and +6 %		No change since last reporting period.
	Variance over +6 %		Situation has deteriorated since last reporting period.

MRTU Executive Summary

Over the past month, MRTU continued to make progress with system development, testing, readiness, and other delivery milestones across different projects.

The month's primary System Development, and Functional and Site Acceptance Testing accomplishments include: Full Network Model and State Estimator (FNM/SE) completed onsite testing of DB1 Regression, and continued model development updates and SAT. Integrated Forward Markets (IFM) supported Application Integration Testing (AIT) and Functional Integration Testing (FIT) for Web services; Settlements and Market Clearing (SaMC) successfully merged Release 3 and 4A charge codes and began testing of that combined release. Market Quality Systems (MQS) passed all SAT test cases and began AIT for its v1.0 release. In addition, the CRR Dry Run ran Tier 1 and 2 of monthly allocation and published allocation results, triggered 4 of 5 Broadcast Services in Site Acceptance Tests (SAT), and closed and ran Yearly Auction Bid.

Concurrently, the Program Management Office (PMO) completed a detailed impact analysis on the FERC Order response. As a result, a revised budget and schedule were presented and approved by the Board. The revised MRTU is tracking towards a 1/31/08 implementation, for 2/1/08 Trade Date, and a \$189.223M budget. The PMO is working with project teams to re-baseline workplans that include detailed tasks for FERC changes.

MRTU development, testing, and integration efforts continue to approach many milestone completions. The PMO continues to analyze budget lever and cost pressures for the entire program.

MRTU Program Progress as of January 24, 2007

Program Area	Design	Build	Test	Integration Test	End-End Test	Market Simulation	Deployment
Phase 1A							
Phase 1B							
Market Systems							
Real-Time Market							
Integrated Forward Mkt							
Hour-Ahead Processor							
Residual Unit Com.							
Scheduling							
Policy Must-Haves							
FERC Changes – Market Systems							
Settlements							
Base Product							
Charge Types							
Congestion Revenue Rights							
FERC Changes – Settlements/CRRs							
Legacy							
Automated Dispatch System (ADS)							
Reference Level Calculator (RLC)							
Scheduling and Logging System (SLIC)							
Compliance Automation Production System (CAPS)							
Existing Transmission Contract Coordination (ETCC)							
Operational Meter Analysis and Reporting (OMAR)							
Open Access Same-Time Information System (OASIS)							
Reliability-Must-Run Application Validation Engine (RAVE)							
Other Applications							
Market Quality System							
PTR							
Portal							
MFRD							
FERC Changes – Legacy/Other Applications							

Preliminary application specific Testing conducted

Legend	
Phase not started	
Phase in progress	
Phase complete	

Supporting Activities

Program Area	Planning	Development	Execution
Internal Readiness			
External Readiness			
Training			
Business Processes (Phase 1)			
BPMs			

Accomplishments & Milestones

Integration (Interfaces)

- Completed Design and Build of Release 4B, as well as OASIS 4B

Testing

- Many systems completed Acceptance Integration Tests (AIT)
- Created Load & Performance Test Metrics and Scenarios

Congestion Revenue Rights

- Successfully triggered 4 of 5 Broadcast Services in Site Acceptance Tests (SAT)
- Closed and ran Yearly Auction Bid, posted results

SaMC

- Delivered merged set of Charge Codes for Release 3 and 4A to testing
- Completed Release 4A Build and began testing

Program Management Office (PMO)

- Completed budget mitigation analysis
- Drafted Configuration Management Plan
- Received Board approval on impact of FERC Order

Full Network Model and State Estimator

- Completed onsite testing of DB1 Regression
- Onsite SAT testing

Integrated Forward Markets

- Supported AIT and Functional Integration Testing (FIT) for Web services

Market Quality Systems

- Passed all SAT test cases and formal v1.0 exit complete, began Acceptance Integration Tests (AIT)

Planned Activities

Integration (Interfaces)

- Complete Release 3 impact assessment, Release 4B Design activities, finalize requirements for MDS (Orchestration)
- Obtain sign-offs for all designs of approved interfaces

Testing

- Deliver 48 releases 4 interfaces and begin AIT

Integrated Forward Markets/Real-Time Nodal

- Continue support of Integration Tests and Market Simulation for Web services

Congestion Revenue Rights

- Run Tier 2 Monthly Allocation Market for August and April
- Continue SAT for latest Build

SaMC

- Charge Code Testing
- Continue Market Clearing Testing
- Complete any outstanding design and unit test templates

Applications

- Continue Functional and Site Acceptance Tests
- Complete Interoperability testing of web services

Legacy

- Continue AIT, FIT, and SAT execution

Market Simulation

- Commence Business Structure Simulation (Phase 3) planning

MRTU High-Level Milestone Description

The following are descriptions for some of the milestones indicated on the MRTU High-Level Timeline;

- Functional Requirements Completion – represents the date by which MRTU functional requirements documentation will be completed to allow system development design activities, with the exception of three MRTU projects, including: SaMC, SIBR, and IFM/RTN.
- CRR Dry-Run Filing – represents the date that CAISO will file the report for the Dry-Run results for Annual and Monthly auctions and allocations.
- MS3 Interface Documents – represents the date the CAISO will release the Technical Interface documents to Market Participants for Market Simulation Phase 3. These documents specify the interface details required for participants to access CAISO Systems and participate in the simulation.
- MS4 Interface Documents – represents the date the CAISO will release the Technical Interface documents to Market Participants for Market Simulation Phase 4. These documents specify the interface details required for participants to access CAISO Systems and participate in the simulation.

Program Key Metrics

Re-Baselining to new Schedule and Budget

- Actual hours burned by MRTU projects are below the planned rate. A significant portion of the discrepancy can be explained by Testing remaining understaffed until systems come online and earned value is consistent with burned hours
- Current earned value is tracking below planned earned value due to various delays. PMO is working with the project teams to re-baseline the delivery schedules per the new 1/31/08 Go-Live date, which will address this issue

MRTU Budget Re-Baseline Analysis

Project	Re-baselined Project Costs June 2006**	Re-baselined Project Costs Dec. 2006**	Budget Increase from June 2006 to Dec 2006
Market Redesign	\$ 56,519	\$ 64,807	\$ 8,288
1 Automatic Mitigation Procedures/Phase 1A	773	773	(0)
2 Real Time Markets/Phase 1B	16,297	16,297	0
3 Integrated Forward Markets/Real -Time Market (IFM/RTM)	29,205	33,372	4,168
4 Congestion Revenue Rights (CRR)	4,014	4,516	501
4A Market Quality System (MQS)	2,643	6,261	3,618
11A Hardware & Software Purchases	3,588	3,588	0
Technology Upgrade	\$ 68,954	\$ 74,179	\$ 5,225
5 Scheduling Infrastructure Business Rules (SIBR)	12,086	13,323	1,238
6 Settlements and Market Clearing (SaMC)	17,391	18,030	638
6 Master File (MFRD)	2,279	2,300	21
9 Post Transactional Repository (PTR)	2,177	2,461	284
10 Legacy Systems	7,638	7,785	147
10A State Estimator/Full Network Model	1,024	1,345	322
11 Technology Infrastructure/ Portal	2,065	2,065	0
11B Hardware & Software Purchases	6,923	6,923	0
12A System Integration	17,372	17,989	617
12B Technology Architecture	0	1,957	1,957
Common Projects	\$ 36,215	\$ 41,214	\$ 5,000
13 Training/Readiness Projects	10,021	9,709	(311)
14A Project Management	14,248	17,666	3,418
14B Testing	11,946	13,840	1,893
Ongoing Scope Adjustments	\$ 3,357	\$ 1,523	\$ (1,834)
Pending MRTU Scope Changes	3,357	1,523	(1,834)
Contingency	\$ 5,000	\$ 7,500	\$ 2,500
FERC Contingency	0	2,500	2,500
15 Program Contingency	5,000	5,000	0
Total MRTU Project	\$ 170,045	\$ 189,223	\$ 19,178

* Columns and rows may not total due to rounding.

** Budgets include: Consultant Labor, Vendor Costs, Travel & Meals Expenses, Training, Hardware, Software, Maintenance, Employee Backfill costs



MRTU Financials

California Independent System Operator Corporation

California Independent System Operator
 Summary of Expected Completion Costs vs. December, 2006 Budget
 12/31/2006 (with 12/15/06 Actuals)
 (In Thousands) *

Project	Re-baselined Project Costs Dec. 2006	Actual Costs Through 2005 (a)**	Paid Invoices To Date 12/15/06 (b)	Estimated Costs to Complete (c)	Cost of Project at Completion (d)	Increase (Decrease) from Baseline (e)=(c+d)-a
Market Redesign						
	\$ 64,807	\$ 40,235	\$ 48,908	\$ 15,899	\$ 64,807	\$ -
1 Automatic Mitigation Procedures/Phase 1A	773	773	773	(0)	773	0
2 Real Time Markets/Phase 1B	16,297	16,297	16,297	0	16,297	0
3 Integrated Forward Markets/Real -Time Market (IFM/RTM)	33,372	17,010	23,194	10,178	33,372	0
4 Congestion Revenue Rights (CRR)	4,516	3,386	3,795	721	4,516	0
4A Market Quality System (MQS)	6,261	0	1,902	4,359	6,261	0
11A Hardware & Software Purchases	3,588	2,769	2,947	642	3,588	0
Technology Upgrade						
	\$ 74,179	\$ 34,137	\$ 58,225	\$ 15,954	\$ 74,179	\$ -
5 Scheduling Infrastructure Business Rules (SIBR)	13,323	6,326	9,473	3,850	13,323	0
6 Settlements and Market Clearing (SaMC)	18,030	5,313	15,646	2,383	18,030	0
6 Master File (MFRD)	2,300	1,860	2,304	(4)	2,300	0
9 Post Transactional Repository (PTR)	2,461	1,041	2,056	405	2,461	0
10 Legacy Systems	7,785	3,434	6,191	1,593	7,785	0
10A State Estimator/Full Network Model	1,345	157	1,021	325	1,345	0
11 Technology Infrastructure/ Portal	2,065	2,028	2,049	17	2,065	0
11B Hardware & Software Purchases	6,923	4,566	4,909	2,014	6,923	0
12A System Integration/Enterprise Architecture	17,989	9,412	14,452	3,537	17,989	0
12B Technology Architecture	1,957	0	124	1,833	1,957	0
Common Projects						
	\$ 41,214	\$ 9,670	\$ 23,196	\$ 18,019	\$ 41,214	\$ -
13 Training/Readiness Projects	9,709	916	6,114	3,595	9,709	0
14A Project Management	17,666	7,674	11,344	6,321	17,666	0
14B Testing	13,840	1,080	5,737	8,102	13,840	0
Ongoing Scope Adjustments						
	\$ 1,523	\$ -	\$ -	\$ 1,523	\$ 1,523	\$ -
Pending MRTU Scope Changes	1,523	0	0	1,523	1,523	0
Contingency						
	\$ 7,500	\$ -	\$ -	\$ 7,500	\$ 7,500	\$ -
FERC Contingency	2,500	0	0	2,500	2,500	0
15 Program Contingency	5,000	0	0	5,000	5,000	0
Total MRTU Project	\$ 189,223	\$ 84,042	\$ 130,329	\$ 58,894	\$ 189,223	\$ -

* Columns and rows may not total due to rounding.

** Budgets include: Consultant Labor, Vendor Costs, Travel & Meals Expenses, Training, Hardware, Software, Maintenance, Employee Backfill costs