

Memorandum

To: ISO Board of Governors
From: Petar Ristanovic, Vice President, Technology
Date: September 1, 2010
Re: **Briefing on 2010-2011 Market Initiatives Release Plan**

This memorandum does not require Board action.

EXECUTIVE SUMMARY

The California Independent System Operator Corporation successfully deployed the *proxy demand resource* product as scheduled on August 10, 2010 and is ready to begin accepting registrations. This is a significant event in enabling the participation of demand response in the ISO markets. Management looks forward to reporting progress of this participation as it grows in the coming months.

Other market initiative releases continue to make progress, including *multi-stage generator modeling* in fall 2010. Management continues to assess whether or not *multi-stage generator modeling* will be ready for production deployment on October 1, 2010, with readiness checkpoints on September 2 and September 16. In the event that the software will not be ready, Management is working with market participants on an agreeable contingency plan.

The market simulation for *convergence bidding* will start on October 4, 2010 as planned in preparation of deployment in early 2011. Management continues to assess and plan for a new slate of market initiatives, including the renewable integration market and product review starting this quarter.

THE RELEASE PLAN

Fall 2010 release

Multi-stage generator modeling incorporates software functionality for units with multiple configurations, such as combined cycle generating plants or resources with real-time forbidden operating regions.

- Market simulation began one week late on July 12, 2010, and has been extended by three weeks to end on September 16 to allow all market scenarios and settlements statements to be fully validated by ISO and market participants;
- Software issues resulting in dispatch and pricing anomalies are being quickly resolved and have stabilized since late August, but have caused schedule compression putting the implementation date at risk;
- Changes in transition costs addressing potential issues with market power mitigation has been incorporated into the systems and are pending decision by the Federal Energy Regulatory Commission;
- All software changes are designed and implemented in a backwards compatible mode, providing flexibility with deployment options in the event that the implementation date is not achievable; and
- Management intends to deploy *multi-stage generator modeling* on October 1, 2010; however a mitigation plan will allow market participants to opt out prior to October 1 and re-register for production deployment on November 15.

Winter 2010 release

Several market enhancements are scheduled to be deployed by year's end to improve market quality and performance.

Initial conditions proposes a methodology to minimize cycling of generating units in the day-ahead market. The integrated forward market currently optimizes unit commitments over a 24 hour time horizon. This functionality would offer some ability for generating units that become economical optimal to remain on-line through the over-night hours and to be available for the next day's on-peak energy hours. Under the current design, such generating units may be de-committed in the late hours of the 24-hour time horizon. This enhancement will be implemented on December 7, 2010, and will pave the way for the multi-day residual unit commitment enhancement as the ISO's long-term solution to this cycling problem across day boundaries.

Scarcity pricing is rescheduled to be implemented on December 14, 2010, following FERC's June 29, 2010 order conditionally accepting the ISO's scarcity proposal. FERC suspended the implementation of scarcity pricing to further consider the ISO's proposal for scarcity premiums in the ancillary service sub-regions. Management submitted a compliance filing to address the FERC order and is pursuing the relevant software changes to support the order.

Phase 2 of the standard capacity product proposal contemplates enhancements required by FERC to the existing standard capacity product. This was presented to the Board and approved in May. Actions that have taken place include:

- ISO staff addressed several variances with the current implementation of the standard capacity product which were released on August 10, 2010;
- Management reports progress on the software design and development of the Phase 2 requirements; and

- Deployment will be effective on January 1, 2011 to align with annual resource adequacy contracting practices.

Implementation of *congestion revenue rights enhancements and credit policy* approved by the Board in March and May is underway with deployment planned in November 2010. These enhancements are primarily process driven with minimal system enhancements.

Early 2011 release

Convergence bidding allows market participants to submit purely financial bids at particular pricing nodes in the day-ahead market. Convergence bids cleared in the day-ahead market at day-ahead prices are liquidated in the hour-ahead or real-time market at the applicable hour-ahead or real-time prices. The market participant thus earns or is charged the difference between the day-ahead price and the applicable hour-ahead or real-time price at the location of the cleared bid. *Convergence bidding* will enable market participants to hedge exposure to real-time price volatility and will provide other market efficiency benefits through increasing liquidity in the markets as well as price convergence between day-ahead and real-time prices. The current status of this initiative is as follows:

- ISO staff reports continued progress on the development and testing of software changes required to support convergence bidding;
- Monthly progress reports on the implementation of *convergence bidding* are being submitted to FERC;
- Business practice manual draft updates, including the settlements configuration files, will be published in September 2010;
- Market simulation is scheduled to begin on October 4, 2010 with the bidding interface available for external testing on September 20, 2010; and
- Staff is currently executing a project plan to deploy convergence bidding on February 1, 2011.

Related to *convergence bidding*, is the first phase of the *credit tracking system* which is in final stages of testing for implementation on September 10, 2010. The baseline credit system provides support for existing credit functions and prepares the ISO for the next phase which will include integration with virtual bids in the day-ahead market.

Spring 2011 release

Following the early 2011 release, Management intends to respond to stakeholder request for only two major releases per year with spring and fall deployment timeframes. The spring 2011 release will be sized appropriately to meet additional concerns that the ISO and market participants will need a stabilization period following the many changes that have occurred since the start of new market design. The following smaller efforts will be supported in the spring 2011 release:

- *Interim capacity procurement mechanism and exceptional dispatch pricing* changes to replace existing structures that will expire on March 31, 2011;

- *Participating load pilots* will be supported as requested by market participants.
- Initial implementation of *changes in commitment cost* and *dynamic transfers* will be considered and applied in this timeframe with the full implementation to follow in the fall of 2011.
- *72 hour residual unit commitment* extends the time horizon for unit commitment beyond one trade date, which provides efficiency and reliability in scheduling resources across trading day boundaries. ISO staff will use a prototype of this functionality in the September 2010 timeframe to evaluate impact to market performance and results prior to committing to an implementation plan. The ISO anticipates bringing this to the Board in November.

Fall 2011 release

The fall 2011 release will be a major release with significant new functionality being added to address policy changes that have already completed or will soon complete the stakeholder process, including:

- *Aggregated pumps and pump storage* further enhance the ability of the software to model aggregate pump/pump storage resources to better accommodate their physical characteristics and allow them to bid more efficiently into the market;
- *Ancillary services for non-generation resources* further enhances the ability of non-generation resources to be bid and optimized in the market;
- Additional implementation of resource adequacy features, including: *bids for resource adequacy imports and subset of hours resource adequacy* and the *replacement requirement for resource adequacy resources for planned outages*, as well as the third phase of the *standard capacity product*;
- *Dynamic transfers* will respond to requests to the ISO for dynamic scheduling of import services which have increased dramatically in the past year;
- *Reliability demand response product* will meet the needs for newly configured demand response resources that have a reliability trigger and desire to be dispatched only under particular system conditions;
- *Changes to commitment costs* including bidding and mitigation for start up and minimum load costs;
- *Data release phase 3* will further address market transparency concerns;
- *Outage management system* will provide an improved platform for managing generation outages.
- *Flexible ramping* will introduce explicit system ramping up and down capacity constraints in the market optimization module. These new constraints will ensure that the market solution leaves some un-loaded available MW capacity on the scheduled internal ramp limited resources to be dispatched as energy in the 5-minute market to cope with the variability caused by intermittent resources, changing system conditions, and various numerical and forecasting model errors; and

- *Startup/shutdown MW profiles* to enhance the accounting of energy during the startup and shutdown of resources.

LOOKING FORWARD

As we look ahead to the spring of 2012, many additional market initiatives are planned for the three year milestone following the start of the new market design. Most significantly, the ISO will start to implement the results renewable integration market and product review. Management will also address the new functionality mandated by FERC to be completed in this timeframe. Management is committed to maintaining high quality and timely releases to satisfy these objectives, working with market participants to achieve the greatest value for investments made in evolving our systems, processes, and people to meet this challenge.

Attachment 1 Updated Release Plan

Market Initiatives Release Plan			Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12	May-12																				
Fall / Winter 2010	Implementation	Multi-Stage Generation Modeling																										Market Sim - MAP Stage																	
	Implementation	Initial Conditions																											Market Sim - Stage																
	Implementation	Scarcity Pricing																											Start Stakeholder Process																
	Implementation	Standard Capacity Product Phase 2																											End Stakeholder Process																
	Implementation	CRR Enhancements / Credit Policy																											Deployment Date																
Early 2011	Implementation	Convergence Bidding / Credit Tracking System																																							Effective Date, if different				
Spring 2011	Policy	Updating ICPM and Exceptional Dispatch and Bid Mitigation																																											
	Planning	72 Hour Residual Unit Commitment (pending prototype analysis)																																											
	Planning	Participating Load Pilot (placeholder)																																											
Fall 2011	Planning	Aggregated Pumps and Pump Storage																																											
	Planning	AS for Non-Generation Resource																																											
	Policy	Bids for RA Imports and Subset of Hours RA																																											
	Policy	Standard Capacity Product Phase 3																																											
	Policy	Dynamic Transfers - Full Functionality (Interim release to be determined)																																											
	Planning	Changes in Commitment Costs - SUC/MLC (Interim release TBD)																																											
	Policy	Reliability Demand Response Product																																											
	Policy	Data Release Phase 3																																											
Implementation	Outage Management System																																												
Spring 2012	Policy	Renewable Integration Market & Product Review (Phase 1&2)																																											
	Policy	Year Three Mandated Items (listed below)																																											
	Policy	Load Granularity Refinements																																											
	Policy	Refinements in LMPM Process																																											
	Policy	Export of AS																																											
	Policy	Bid Cost Recovery for Unit over Multiple Days																																											
	Policy	Two Tier Real-Time Uplift																																											
	Policy	Non Mandated Items (listed below)																																											
	Policy	Simultaneous RUC and IFM																																											
	Policy	Multi Day Unit Commitment																																											
	Policy	AS Substitution																																											
	Policy	Multi Hour Block Bidding in RUC																																											