

Memorandum

To: ISO Board of Governors
From: Petar Ristanovic, Vice President of Technology
Date: December 7, 2010
Re: **Briefing on Market Initiatives Release Plan**

This memorandum does not require Board action.

EXECUTIVE SUMMARY

The year is ending favorably with several major project completions. As of this writing, Management is pleased to report that the ISO is on track to deploy *multi-stage generator modeling* on December 7, 2010. This functionality incorporates software functionality for units with multiple configurations, such as combined cycle generating plants or resources with real-time forbidden operating regions. Having this advanced modeling available for these units puts the ISO in a great position to effectively and efficiency operate the market. With further momentum, the ISO also intends to deploy the *initial conditions* providing ISO operators with additional information for the establishment of initial conditions of generation resources to minimize cycling through schedules set in the day-ahead market on December 7, 2010.

Recently, Management also took action to address price divergence between the hour-ahead scheduling process and real-time dispatches by deploying an hourly inertia ramping feature. The ISO plans a further enhancement to allow flexible ramping in the real-time market for implementation early next year which will introduce explicit system ramping up and down capacity constraints in the market optimization module. These changes together with planned improvements in day-ahead and real-time load forecast, anticipated for December this year and February next year have potential to significantly mitigate price divergence between the hour-ahead scheduling process and real-time dispatches.

In accordance with FERC mandate, *scarcity pricing* changes are on track for deployment on December 14, 2010. Staff is preparing *phase 2 of the standard capacity product* for deployment on December 21, 2010 to support an effective date of January 1, 2011. Finally, the *CRR enhancements and credit policy* were successfully deployed on November 3 and December 1 to support the annual CRR auction and subsequent monthly auctions. With all 2010 market initiatives coming to fruition, the implementation focus will shift to 2011 and beyond.

The market simulation for *convergence bidding* continues with day-ahead and real-time market runs which are now being processed from a settlements perspective. The results of testing to date confirm a deployment date of February 1, 2011. Management continues to assess and plan for a new slate of market initiatives, including the renewable integration market and product review.

THE RELEASE PLAN

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:

- FERC provided approval of convergence bidding on October 18, 2010, accepting the design and allowing for pro forma agreements to be effective immediately;
- As of late November, twenty-seven convergence bidding entity contracts have been executed and 15 additional contracts are pending;
- The California Public Utilities Commission published a proposed decision approving IOU participation for convergence bidding;
- Market simulation continues with the introduction of the day-ahead and real-time markets on November 15, 2010 and the first settlements processing during the week of November 29;
- Business practice manuals have been updated reflecting the current FERC order; and
- Staff is executing a project plan to deploy convergence bidding on February 1, 2011.

Spring 2011 release

Following the early 2011 release, Management intends to respond to stakeholder requests 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. 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 in March 31, 2011;
- Initial implementation of *changes in commitment cost* and *dynamic transfers* will be 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 evaluated a prototype of this functionality in September 2010 to evaluate

impact to market performance and based on the results of this analysis is committing to implementation in the spring 2011 timeframe.

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 pumping and pump storage resources for bidding 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; and
- *Outage management system* will provide an improved platform for managing generation outages.

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. Most significantly, the ISO will start to implement the results of the 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.

12/7/2010	Market Initiatives Release Plan		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	Implementation	Updating ICPM and Exceptional Dispatch and Bid Mitigation			▲					★															
	Implementation	72 Hour Residual Unit Commitment (pending prototype analysis)								★															
	Implementation	Changes in Commitment Costs - SUC/MLC Phase 1								★															
	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							▲											★					
	Planning	Dynamic Transfers - Full Functionality (Interim release to be determined)																							
	Planning	Changes in Commitment Costs - SUC/MLC Phase 2																							
	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																							