

Memorandum

To: ISO Board of Governors
From: Petar Ristanovic, Vice President of Technology
Date: May 11, 2011
Re: **Briefing on Market Initiatives Release Plan**

This memorandum does not require Board action.

EXECUTIVE SUMMARY

Management provides a briefing on the Market Initiatives Release Plan at each board meeting to keep the Board of Governors and the public current with the implementation status of approved policy initiatives. This briefing offers updates on recent project deployments and upcoming software releases. The release plan typically spans a two year timeframe with two major releases each year and monthly releases of smaller market design changes. Staff intends to manage initiative projects efficiently, optimizing cost and value with stakeholder input on joint impacts.

Management continues to monitor the markets following the recent deployments of *Multi-Stage Generator Modeling* and *Convergence Bidding*, which are performing as designed. Staff plans to enhance both initiatives based on operational needs and stakeholder input.

Marking the two year anniversary of the new market design, staff deployed the spring 2011 Release on April 1, 2011, including the new *Capacity Procurement Mechanism* and phase one of the *Changes in Commitment Costs*. Staff also implemented changes in seasonal ratings and market parameters, such as the bid cap, on this date.

Following the spring 2011 Release, staff will deploy a monthly release in May to facilitate the *Open Ties* correction and the *Flexible Ramping* constraint. Both of these features address operational issues and are critical to be released prior to the summer months.

The fall 2011 release is also taking shape with design and development of the *Reliability Demand Response Product* and *72 Hour Residual Unit Commitment*. Additionally, staff will respond to FERC Order 741 for *Credit Reform in Organized Energy Markets*.

Looking ahead to the three year anniversary of the new market design, five mandated market initiatives remain to be addressed. Management may seek deferral in some cases where the market design needs to more holistically consider stakeholder input and otherwise will create

implementation plans to build these functionalities as policy efforts for these market initiatives determine the scope. Also, Management plans for the *Regulation Energy Management* initiative to allow for non-generation resource, such as storage, to provide regulation service and other functionality to support the integration of renewable resources to be ready in this timeframe.

THE RELEASE PLAN

Production update

As a follow up on prior initiatives, management is monitoring and enhancing *Multi-Stage Generator Modeling* and *Convergence Bidding*.

Multi-Stage Generator Modeling

Staff activated additional *Multi-State Generator Modeling* resources on March 22, 2011 bringing the total to 15 *Multi-State Generator Modeling* resources to the market. Management is evaluating further enhancements to *Multi-State Generator Modeling* and discussed this topic with market participants during an onsite meeting on March 14, 2011. While *Multi-State Generator Modeling* is functioning as designed, further enhancements are necessary to convert more of the multi-stage resources to *Multi-State Generator Modeling* modeling. Management will provide release plans for these enhancements as they are available.

Convergence Bidding

Two months of market data demonstrates the realization of convergence bidding project objectives to increase market liquidity and to provide generator participants with a way to hedge the risk of outages that occur in real-time. It will take more time to assess the effectiveness of reducing differences between day-ahead and real-time prices and the impact of real-time price spikes is a significant concern for some market participants. Two notable post go-live issues are being addressed:

- 1) The Day-Ahead Market Summary report was not accurate and was removed from public view. Management anticipates restoring this report by May 2, 2011.
- 2) Intertie points modeling as market scheduling limits were not held to the correct limits by the dual intertie constraint functionality and nine intertie locations have been suspended from virtual bidding. Management expects to resolve this by May 31, 2011.

Spring 2011 release

Capacity Procurement Mechanism

The *Capacity Procurement Mechanism* replaces the existing tariff to backstop resource adequacy procurement. The *Capacity Procurement Mechanism* would procure supply capacity that is not already designated as resource adequacy capacity and that will, upon accepting a *Capacity Procurement Mechanism* designation, have obligations to be available to the ISO for scheduling

and dispatch comparable to the obligations on resource adequacy capacity. Management reports successful deployment on April 1, 2011.

Change in Commitment Costs Phase I

Change in Commitment Costs Phase I enhances start-up and minimum load costs to address initial market design limitations. Staff made system changes to enable the scheduling coordinators of generation resources to elect the proxy cost or registered cost option for start-up or minimum load independently. The first phase was released on April 1, 2011.

May 2011 monthly releases

Open Ties

The *Open Ties* project supports the tariff in prohibiting the submission of bids or self-schedules at interties that have zero rated operational transfer capability in both the import and export direction. The software changes are complete and testing is underway. Staff plans to automate the open ties correction with the May monthly release.

Flexible Ramping

The ISO plans further enhancement to allow flexible ramping in the real-time market for implementation prior to the summer which will introduce explicit system ramping up and down capacity constraints in the market optimization module. Management described how this will be implemented as a constraint in a technical bulletin posted for stakeholder review. The software design is complete and development is underway. Staff is targeting deployment in late May following a market simulation in the first week of May.

Fall 2011 release

The fall 2011 release, targeted for October 1, 2011, is a major release with significant new functionality in scope to address policy changes that have already completed or will soon complete the stakeholder process. Management revisited the previously longer list of initiatives in this timeframe based on stakeholder input to slow down the pace of new initiatives and to allow for additional time for the policy and implementation phases.

Reliability Demand Response Product

Demand response continues to be a strategic priority and management is building the longer term release plan, including the approach for participating load and support for non-generation resources. The implementation of the *Reliability Demand Response Product* is underway, including contracting the business requirements with appropriate vendors.

72 Hour Residual Unit Commitment

The *72-hour Residual Unit Commitment* is intended to improve economic efficiency and reliability by extending the unit commitment process to 72 hours, rather than the current process of 24 hours. Management reports that the software design is complete and that rules for copying bids are defined.

Change in Commitment Costs Phase 2

Management will further improve and automate *Changes in Commitment Costs* in the fall 2011 release. Although there are no policy changes in this release, market participants will be involved in the testing and deployment of these changes.

Credit Reform in Organized Energy Markets

On October 21, 2010, the FERC issued “Order 741 – Final Rule Regarding Credit Reforms in Organized Wholesale Electric Markets”. In this ruling FERC requires each ISO and RTO to submit a compliance filing including tariff revisions to improve the management of risk and the subsequent use of credit in the organized wholesale electric markets or to demonstrate that its existing tariff already satisfies these regulations. Among these requirements are:

1. Shorten both the billing period and the period for payment to no more than seven days each,
2. Eliminate unsecured credit in all firm transmission rights or equivalent markets, including the California ISO’s congestion revenue rights markets.

Staff has started to implement process and system changes to ensure compliance with these two FERC mandates by October 1, 2011. In conjunction with these changes, management is proposing additional improvements to the settlements timeline which will further accelerate payments and credits due to recalculations. Management prefers to combine these efforts to gain the efficiencies of software design, development and testing. The stakeholder process for the additional settlements timelines changes is underway with intent to bring a draft final proposal to the Board in May.

December 2011 Monthly Release

Grid Management Charge Rate Structure Change

Management is also assessing the change in the grid management charge rate structure which will be achieved by year end. Staff is drafting the business requirements and will work with the software vendor to determine the effort and cost of system changes for congestion revenue rights rates. Additionally, staff will ensure that business processes and procedures will be updated to reflect the new rate structure.

Generation of Bids for Non-Resources Specific Resource Adequacy

Suppliers of Resource Adequacy capacity have the obligation to bid that capacity into the ISO market. The ISO therefore has tariff authority to insert generated bids for resource adequacy resources that fail to bid into the market. There are gaps in this process, however, when it comes to the case of system or import resources that are not resource-specific but do have resource adequacy contracts (non-resource specific resource adequacy resources). Through this project, the ISO will implement the established policy with non-resource specific resource adequacy to allow the proper enforcement of the resource adequacy capacities for those non-resource specific resource adequacy resources.

Since resource capacity is planned on an annual basis, management is targeting deployment of the necessary process and system changes in December 2011. To date, the impact assessment is

showing more effort than what was originally envisioned, potentially due to the addition of a policy changes in the ability to be able to manage the hourly resource adequacy capacities for the internal resource adequacy generators. Management is looking for simplification to limit the functionalities only to enforce the bidding requirement based on hourly resource adequacy and facilitate hourly resource adequacy display for operations this year.

Spring 2012 release

Regulation Energy Management

Regulation energy management is a proposed market enhancement to the rules the ISO uses for procuring regulation services. This enhancement will allow new types of storage resources, such as batteries and flywheels, to provide regulation service. Implementing regulation energy management will lead to increased participation in the ancillary service market by energy storage and demand response resources and will support the integration of additional renewable resources. *Regulation Energy Management* also allows new storage technologies to provide regulation energy over a continued sustained period. While the benefits are clear, the implementation challenges are still to be resolved. Questions, such as how to test these resources in a market simulation environment, will need to be addressed by staff. The target deployment is the spring 2012 release.

Enhancements in Local Market Power Mitigation

Management plans to simplify and improve the design for local market power mitigation in accordance with FERC mandate to address issues with the current design. Staff is currently conducting the stakeholder process with intent to present a draft final proposal to the Board in June 2011.

The spring 2012 release timeframe will mark three years after new market deployment and a four mandated market functions will need to be assessed in parallel with the evolving market and product needs related to renewable integration. Given feedback from market participants during the renewable integration market and product review stakeholder process to address these issues more holistically, management may seek to defer one or more of these items. These items include:

- 1) *Export of ancillary services* explores how to build the reservation of transmission capacity into the market optimization so that market participants who might have an obligation to supply ancillary service energy in real-time to neighboring control areas can serve this obligation.
- 2) *Bid cost recovery for units over multiple days* resolves instances in which a resource's run time crosses over from one operating day into the next.
- 3) *Two tier real-time uplift* responds to stakeholder concerns regarding the single tier approach and they have requested a two tier charge similar to day-ahead bid cost recovery where the first tier would allocate costs based on cost causation principles.

- 4) *Scheduling and Logging for ISO of California to Scheduling Infrastructure Business Rules* interface will address the current situation where the bidding interface extends bids and generate bids without taking outage information that was submitted in the outage interface into account. This will results bids created over and above a unit's entire operating range even in those circumstances where the scheduling coordinator has submitted an outage derate.

The renewable integration market and product review has identified two areas of implementation: enhancements to the Participating Intermittent Resource Program and changes in the bid floor cap. The impact assessment of these two efforts is in progress. Staff will monitor these impacts as the stakeholder process continues leading to decision at the June Board meeting.

Fall 2012 release

Data Release Phase 3

Data Release Phase 3 is the final phase of an initiative established in 2009 to address the request of market participants to review ISO data release and accessibility policy following the implementation of the new market design. The objective is to release data which will enable market participants to better understand market results and participate more effectively in the ISO market. Phase 3 will address additional market data which will further improve overall market efficiency. It is planned for decision at the May Board meeting. Implementation planning is underway with likelihood that deployment will be in the fall of 2012 in conjunction with a market results redesign effort.

Spring 2013 release

Other market initiatives, such as *Dynamic Transfers*, are being added to the release plan, populating the spring 2013 release timeline for full functionality. *Dynamic Transfers* policy explores the issues central to the potential expansion of ISO dynamic transfer scheduling policy. Staff is completing the business requirements for the *Dynamic Transfers* market design. Discussion with the vendor helped to shape the policy and led to the posting of a preliminary formulation of the software function for transmission reservation. It is planned for decision at the May Board meeting.

LOOKING FORWARD

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.