

# Memorandum

**To:** ISO Board of Governors  
**From:** Petar Ristanovic, Vice President of Technology  
**Date:** October 20, 2011  
**Re:** **Briefing on Market Initiatives Release Plan**

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***This memorandum does not require Board action.***

## EXECUTIVE SUMMARY

Management reports the successful deployment of the fall 2011 release with implementation of the *Credit Reform in Organized Energy Markets*, including other settlements process timeline changes. Staff also deployed changes associated with *Reliability Demand Response Product*, the *Dynamic Transfers* interim solution and *Grouping Constraints*. Additionally, staff will remove convergence bidding at inertie locations by the end of November.

The year will end with several new market enhancements based on prior Board approvals: *Grid Management Charge Rate Structure Change*, *Generation of Bids for Non-Resource Specific Resource Adequacy*, *Flexible Ramping Nomogram*, and the first phase of *Multi-Stage Generator Modeling Enhancements*.

In February 2012, Management will address two additional market enhancements, including the *Enhanced Operating Reserve Management* addressing non-contingent reserves, and the *72 Hour Residual Unit Commitment* which is deferred from this year due to higher priorities.

The spring 2012 release provides the initial software changes associated with the *Regulation Energy Management* initiative to allow non-generator resources to provide regulation service to support the integration of renewable resources. In the same timeframe, *Enhancements in Local Market Power Mitigation* will satisfy the mandate to make improvements to the current market design. The spring 2012 release also includes changes in *Default Operations and Maintenance Adder Values* and the remainder of the *Multi-Stage Generator Modeling Enhancements*, which Management will present to the Board for approval in October.

Looking ahead to the fall of 2012, Management will complete the non-generator resource model by supporting non-regulation energy management and the final phase of releasing market data to enhance transparency of market results. Management will also address the market design changes proposed through the first phase of the *Renewable Integration Market and Product Review*.

## **THE RELEASE PLAN**

### ***Fall 2011 release***

The fall 2011 release is being deployed into operations in a controlled manner and based on approval from the Federal Energy Regulatory Commission. On October 1, the ISO completed the installation of software changes to fully comply with the FERC order to comply with credit reform changes in organized markets. The ISO took advantage of this opportunity to further improve the settlement process by enhancing the timeline to allow for more timely recalculations. Staff installed the following additional enhancements into production.

#### *Grouping Constraints*

Management is pursuing an enhancement in grouping constraints that will reduce exceptional dispatch or manual dispatch blocking by recognizing sequencing constraints and other parameters across resources. Management will completely install the software changes by October 10.

#### *Dynamic Transfers – interim solution*

This feature is to allow the ISO to use the most recent available telemetry reporting of the resource's output as its expected deliverability and real-time dispatch for the next dispatch interval. The new feature will echo back the most recent telemetry as the external instruction (Dispatch Operating Target) to allow the resource to get the dispatch instruction closer to its variable output unless there is some constraints such as congestion or over-generation that would prevent the persistent dispatch at the most recent telemetry. This feature will improve the intermittent resource modeling. FERC approved the tariff changes to support this interim solution with an effective date of November 1, 2011. Management will deploy software changes into production by this date.

#### *Reliability Demand Response Product*

The reliability demand response product is a wholesale demand response product that enables compatibility with, and integration of, existing retail emergency-triggered demand response programs into the ISO market and operations, including newly configured demand response resources that have a reliability trigger and desire to be dispatched only under particular system conditions.

On August 26, FERC requested additional information on the reliability demand response product tariff amendment in docket ER11-3616-001 and the ISO filed a response on September 21. The ISO will begin accepting reliability demand response resource registration documents after FERC issues its order on this proceeding. The ISO anticipates FERC will issue an order on or about November 20. This delay will not affect the April 1, 2012 full functionality implementation; however, it is possible that the FERC order may require reliability demand response resource changes that impact the schedule. If so, the ISO will hold further discussions with market participants and communicate that information via market notice.

### **December 2011 monthly release**

#### *Grid Management Charge Rate Structure Change*

Management is also implementing the change in the grid management charge rate structure which will be achieved by year end. Staff developed the system changes, business processes and procedures to reflect the new rate structure and will provide market participants with sample settlements statements in early November and deploy the changes in the December 2011 monthly release. This rate structure changes will be effective on January 1, 2012.

#### *Generation of Bids for Non-Resource 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. Management is proceeding with a 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 and the remaining scope would be achieved next year. FERC approved the tariff language and the software changes are in progress. Management plans to conduct a market simulation in early November.

### *Flexible Ramping Nomogram*

The implementation of a new flexible ramping nomogram in the market optimization will help ensure sufficient ramping capability is available to meet conditions in the five-minute market interval when conditions have changed from the assumptions made during the prior procurement procedures. Enforcement of the nomogram can produce opportunity costs for resources that resolve the constraint. Staff is working on the software development and testing to make the necessary changes to support the compensation component. Management anticipates deploying the revised *Flexible Ramping Nomogram* in December, following a market simulation with market participants in November.

### *Multi-Stage Generator Modeling Enhancements*

The ISO implemented the multi-stage generation modeling functionality in December 2010 that optimizes the commitment and dispatch of generating units that have multiple operating configurations. Through analysis of commitment, dispatch and market outcomes for multi-stage generation resources, the ISO and stakeholders have identified potential refinements to the procedure. This initiative will lead to the increase practical use of the multi-stage generation model. Contingent on FERC approval, Management plans to include the first set of enhancements in the December 2011 monthly release and the remaining enhancements in the spring of 2012.

## **February 2012 monthly release**

### *Enhanced Operating Reserve Management*

Ancillary services products including operating reserves are procured in day-ahead and real-time markets. The ISO observed that in some instances, a portion of the non-contingent operating reserve capacity can be converted to energy without encroaching on the real-time reliability operating reserve requirements as defined by NERC/WECC reliability standards. The ISO intends to enhance how reserves are managed and dispatched in the real-time dispatch to improve the efficient utilization of this surplus reserve capacity when it is available. This enhancement is expected to reduce the risk of real-time supply or ramp shortages. The target implementation is February 2012.

### *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. It will automate extremely long start process that economically commits the extra long start units for the trade days after the next day. The development of the base functionality is complete and testing is underway; however software issues have been identified. The market simulation schedule has been adjusted to reduce risk by separating this functionality from the higher priority projects in

the December 2011 release. Management has tentatively set the revised deployment date as February 2012.

### ***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.

Staff made significant progress in defining the non-generator resource model for regulation energy management as well as for non-regulation energy management. Working with our vendor, staff completed the review of the software design. Development and testing estimates for system changes are too large to be included in the spring 2012 release. Hence, Management is proposing to phase the implementation with the initial release of regulation energy management in the spring of 2012, and the non-regulation energy management to follow in the fall of 2012.

#### *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 working with the vendor to approve the software design changes. Staff is also planning the test cases and market simulation required to be able to report back to the Board on the impact of these enhancements with and without the dynamic competitive path assessment. Management plans to conduct market simulation in February with deployment in the spring 2012 release.

#### *Default Operations and Maintenance Adder Values*

As part of the *bidding and mitigation of commitment costs* initiative which was presented to the Board in July 2010, the final proposal committed to a review and update of default operations and maintenance cost adder values every three years. Staff presented a survey of these values to market participants with a recommendation for new adder values to be implemented in the spring of 2013, marking three years after the deployment of the market redesign and technology upgrade. The final proposal will be presented to the Board in December.

### **Fall 2012 release**

The *renewable integration market and product review phase 1* has identified three areas of implementation: enhancements to the participating intermittent resource program, changes in the bid floor cap, and changes in bid cost recovery. The impact assessment of these efforts is in progress. Staff will monitor these impacts as the stakeholder process continues leading to decision at the December Board meeting.

### **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. 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 full scope of *dynamic transfers*, are being added to the release plan, populating the spring 2013 release timeline for full functionality. Staff is completing the business requirements for the *dynamic transfers* market design.

## **LOOKING FORWARD**

Given the aggregate cost of implementation of market enhancements within the ISO and across market participants, Management is committed to providing the business case to support making the level of investment required to satisfy the proposed change. It is clear that the ISO's approved budget will pace our ability to implement market functionality and future focus will be on the integration of renewable resources to meet state objectives for a clean energy future.