Memorandum

To: ISO Board of Governors

From: Petar Ristanovic, Vice President of Technology

Date: December 8, 2011

Re: **Market Initiatives Release Plan**

This memorandum does not require Board action.

EXECUTIVE SUMMARY

Management is pleased to report the imminent completion of all major market initiatives planned for deployment in 2011. The following new market enhancements are on track for production deployment prior to year end: *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.*

Management plans two major releases in 2012. 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*, the remainder of the *Multi-Stage Generator Modeling Enhancements,* and the activation of the *Reliability Demand Response Product.*

The fall 2012 release 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 is assessing the impact of pending regulation related to *Pay for Performance Regulation* and *Greenhouse Gas Regulation* which may be mandated in this timeframe. Management will also 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.

Looking ahead to 2013, Management will start implementation of the market design changes proposed through the first phase of the *Renewable Integration Market and Product Review*. Management will add new market initiatives to the release plan as policy is defined.

THE RELEASE PLAN

December 2011 monthly release

Grid Management Charge Rate Structure Change
Management is 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 provided market participants with sample settlements statements in November. Staff plans to 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 the December 2011 monthly release. 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 for a January 1, 2012 effective date. Management completed a market simulation in November and started the deployment to allow for the first resource adequacy business cycle to process on December 1, 2011.

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 completed the software development and testing to make the necessary changes to support the compensation component. Market participants were able to see the functionality through a market simulation in November. Management anticipates deploying the revised *Flexible Ramping Nomogram* in December, pending authorization from FERC.

When the ISO Board of Governors approved the flexible ramping constraint interim compensation methodology, Management committed to begin a stakeholder initiative to evaluate the creation of a flexible ramping product that will allow the ISO to procure sufficient ramping capability via economic bids. Through this initiative, the ISO will evaluate allocating costs to generation and load in accordance with cost causation principles. This initiative is currently underway.

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. Management plans to include the first enhancement in the December 2011 monthly release and the remaining enhancements in the spring of 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 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. Management reports that the first phase development is progressing as planned.

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.

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 iand the ISO filed a response on September 21. FERC has since requested additional information regarding the tariff filing. The ISO must respond to this second deficiency letter no later than December 18, 2011. It is possible the FERC order could require software revisions, which may in turn impact the schedule up to and including the April 1, 2012 implementation.

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. Implementation planning is underway with likelihood that deployment will be in the fall of 2012 in conjunction with a market results redesign effort.

Pay for Performance Regulation
FERC Order 755 requires the ISO to modify the compensation mechanism for regulation to include a performance payment with an accuracy adjustment in addition to existing capacity payment. FERC requires tariff language for the design to be filed in April 2012 and implementation by October 2012. Staff presented an initial implementation impact assessment to market participants on December 7, 2011 and is conducting project planning.

Greenhouse Gas Regulation
Management is planning to start a stakeholder process early next year to address the new regulations that go into effect in 2013 related to greenhouse gas policy. The stakeholder process would address changes required to include greenhouse gas costs. These changes would need to be implemented on January 1, 2013.

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 and 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 fall 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

additional software changes are required. Management has tentatively set the revised deployment date as fall 2012.

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.

Renewable Integration Market and Product Review
The *renewable integration market and product review phase 1* has identified twoareas of implementation: 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.

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.