

Attachment 1 to Appendix D  
Memorandum to ISO Board  
Intermittent Resources Consensus Proposal  
And Tariff Revision Filing

September 14, 2001



# Memorandum

**To:** ISO Governing Board  
**From:** Randy Abernathy, Vice President – Market Services  
Eric Leuze, Director of Compliance  
**cc:** ISO Officers, ISO Board Assistants  
**Date:** September 14, 2001  
**Re:** *Intermittent Resources Consensus Proposal and Tariff Revision Filing*

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***THIS MEMORANDUM REQUIRES BOARD ACTION.***

**EXECUTIVE SUMMARY**

At its July 2001 meeting, the Board adopted the "Resolution Promoting Intermittent Renewable Resource Development" and the associated "Preliminary Principles for Intermittent Resources" ("Principles"). The Board directed ISO Management to work with representatives of the Wind Industry, the Independent Energy Producers, the California Department of Water Resources and the Governor's Office to reach a consensus proposal on strategies for scheduling intermittent resources into the ISO Markets. The State's objective is to encourage investment in new wind, solar and other environmentally friendly generation resources. The wind industry representatives desire new rules for scheduling intermittent resources that will mitigate the financial impact of imbalance energy costs when they are "off schedule." This change is essential for wind projects to secure debt financing for new wind and solar generation projects. The ISO's operational needs and the necessity to minimize the magnitude of cost shifting to other market participants were essential drivers in the design of a workable solution.

An Intermittent Resource Working Group ("Working Group") was formed and met weekly to develop a consensus proposal. A list of participants and additional attendees is attached. The consensus proposal (1) Minimizes ISO market costs arising from the unique risks that the ISO may not be able to reliably dispatch intermittent resources, (2) Provides a transmission and ISO market structure through which intermittent resources can secure financing, and (3) Accommodates intermittent resources in a manner that does not degrade ISO system reliability.

To these ends, the consensus proposal, attached hereto, reflects the Working Group's collaborative improvements and modifications to the Principles approved by the Board in the July meeting. The consensus proposal represents compromises from all parties in the Working Group, even while realizing fulfillment of the stated objectives. New Intermittent Resources will sign ISO agreements, install ISO meters, provide telemetry of data, pay a forecast fee and schedule consistent with a state-of-the-art forecast of Energy generation. The consensus proposal allows intermittent resources to participate in the ISO markets in a manner that foster contribution of such resources' full value to California's energy portfolio. The consensus proposal also creates a Forecast Work Group to constantly monitor the performance of Intermittent Resources and determine the impacts of additional wind capacity on the California ISO system.

Accordingly, inasmuch as the consensus proposal embodies the concepts and significant detail of a final fully operative program for incorporation of intermittent resources as Market Participants, Management offers the following motion:

**Moved,**

***that the Board adopt the "Consensus Proposal of the Intermittent Resources Working Group" and authorize Management, in its judgement, to pursue, with the Working Group, the development and endorsement of a pro forma Intermittent Resource Generator Agreement, and other such agreements and specific details as Management deems appropriate, including a formal Federal Energy Regulatory Commission Section 205 Tariff revision filing which is reflective of, and consistent with, the Consensus Proposal.***

## **ISSUE STATEMENT**

Wind generators, and other intermittent resources, are relatively unable to quickly alter their generation output in response to ISO Dispatch instructions. The "as-available" energy from intermittent resources is difficult to forecast accurately for more than one to two hours in the future. The sophistication and accuracy of Day-ahead forecasting techniques and tools for such resources continue to improve dramatically but need further development work before they can be used to create firm generation schedules.

Intermittent resources, especially those drawing upon renewable energy sources such as wind, are an essential element of California's energy supply portfolio. Incremental energy from these resources are now price competitive and can displace energy generated by non-renewable resources, such as thermal generation. While development of significant new intermittent energy resources in California is feasible, assured access to fixed price contracts remains a prerequisite for acquisition of project financing for many such projects.

Prior to incorporating intermittent resources energy projects into ISO markets and providing the equivalent of participating generator status to such facilities, the ISO must be assured of improved short-term forecasts of available wind generation. Output from intermittent resources can change by several hundred megawatts over an hour or two. The ISO can manage such variability only through scheduling such resources based upon real-time sophisticated forecasts of generation that can be relied upon and deemed as delivered in the hour ahead schedules. The consensus proposal incorporates the ISO's requirement of forecasts which result in schedules of assured delivery of energy in specific operating hours. It also meets the needs of intermittent resource project owners for credible agreements that provide access to the ISO controlled transmission grid and potential revenue certainty that will help them secure project financing.

## **CONSENSUS PROPOSAL**

Key elements of the consensus proposal include:

- 1) A Forecasting Project to ensure high-quality forecasts for Day Ahead and Hour Ahead Scheduling and a near real-time forecast to facilitate ISO system operations.
- 2) A monthly settlement period to net positive and negative deviations across all intervals within each calendar month.
- 3) A Forecasting Work Group to monitor performance of intermittent resources, impact on the ISO system and costs.

Several operational, software and settlement changes to the ISO systems are needed to accommodate the Forecasting Project and monthly settlement of deviations. The ISO is developing cost estimates for implementation of the consensus proposal and quantification of any likely cost-shifting impacts on other Market Participants.

## **ANALYSIS**

The Consensus Proposal must meet the following objectives:

- 1) Minimalization of ISO market costs arising from the difficulty of dispatching intermittent resources;
- 2) Incorporation of safeguards and incentives to minimize potential cost-shifting to other Market Participants;
- 3) Provision of a transmission and market access framework through which intermittent resources can secure project financing; and
- 4) Accommodation of intermittent resources without degradation of ISO system reliability.

The Consensus Proposal, reflecting contributions and compromises from all parties in the Working Group, meets the above-listed objectives. Specifically, the Consensus Proposal provides, through reliance on forecasts as schedules and monthly settlements of net deviations, assurance to the ISO that it will avoid costs related to the relative lack of control of intermittent resource output. A Forecast Work Group will monitor and assess the accuracy of forecasts and operation of the intermittent resources programs to identify and limit any potential cost shifting. Access to the ISO controlled transmission grid will facilitate access to markets through forward scheduling and favorable contracts which in turn will help entice project financing and allow California to expand its renewable resource portfolio. Lastly, the ISO will benefit from the addition of another resource type into the ISO markets and onto the ISO controlled grid with minimal risk to reliable operations.

## **MANAGEMENT RECOMMENDATION**

The Consensus Proposal was developed at the Board's request and because the ISO shares a commitment with Californians to support development of a diverse power generation portfolio in the State. To that end, Management has worked closely with representatives of the wind industry and with the State to develop a program to incorporate new generation from intermittent resources into the transmission infrastructure and electricity markets in California. The benefits are economic, practical and environmentally sustainable. Therefore, Management recommends the Board adopt the Consensus Proposal and approve a subsequent filing of Tariff revisions to implement the Consensus Proposal.

Attachment: Consensus Proposal