MARKET DESIGN SAFETY NET

A Proposed Process for Mitigating and Repairing Flaws in the ISO's Market Design

EXECUTIVE SUMMARY

This proposal for a Safety Net is primarily a proposed *process:* it formalizes (and compresses somewhat) what took place between last July's price spikes and this month's FERC filing. The proposed process includes an observation program, a provision for fast action by ISO Management to impose or lower price caps if a market crisis is observed, immediate Governing-Board ratification of that action, a diagnostic step in which market-design failures are identified, and a market redesign step in which the diagnosis is acted upon. It is expected that upon implementation of the resulting market redesign, price caps would return to their pre-crisis levels.

ISSUE STATEMENT

ISO Management has proposed an Ancillary Service market redesign package which, in combination with modification of the form of RMR contracts, will permit it to recommend increases in its caps on prices for Energy and Ancillary Service capacity. ISO Management has included, as part of this Redesign Program, a proposal to develop a "Safety Net," to mitigate harm from any remaining flaws in the market design This memo addresses the design of tools to allow the ISO to identify and respond appropriately should such problems arise.

In response to the market conditions of July 1998, the ISO set a "damage control" cap on ancillary-service capacity prices. There followed a period of fact-finding by the ISO MSC and the PX MMC, who identified a lack of workable competition which was related, at least in part, to several flaws in the design of the ISO's markets. In its October 27 ruling, FERC confirmed the ISO's authority to set a price cap, stating that "some form of price constraint is needed until the market design flaws are corrected," and ordered the ISO to prepare a market redesign package that would permit the caps on A/S capacity prices to be raised. This Safety Net proposal is a key element of that proposed package. The Safety Net proposal represents a formalization of the response of the ISO to evidence of serious failures in the ISO's markets. The proposal incorporates several features of the ISO response to the July 1998 price spikes, including:

- initial observation of significant evidence of serious market dysfunction;
- rapid response of ISO Management, imposing or lowering price caps to limit damage;
- diagnosis of specific causes of market failure;
- review and, if necessary, modification of price cap;

- identification and implementation of remedies based on diagnosis; and
- raising of price caps.

The Safety Net is proposed as a procedure for taking emergency action, followed by review and remedy, not a specific formula or formulae. ISO Management proposes specific oversight by the ISO Governing Board, along with consultation with the ISO's stakeholders and the Market Surveillance Committee.

OBSERVATION

ISO Management's proposed plan for observation of the market to identify crises has two main elements: first is the regular observation of prices for patterns indicative of market failure; second is a monitoring plan to detect supply insufficiency.

The price observation program would be based on the understanding that, under conditions of workable competition, market-clearing prices for a good or service will reflect the marginal cost of providing the good. Several consequences of that relationship support the Safety Net observation program:

- As demand expands and contracts during the course of a day, the cost required to meet that demand increases and decreases. Relatively smooth changes in prices from hour to hour are therefore expected. On the other hand, large and erratic hour-to-hour changes in Energy or A/S capacity prices indicate poorly functioning markets.

- A/S capacity prices compensate suppliers for the profit opportunities foregone from not selling Energy. In general these prices should be less, per MW, than the price of Energy, since the cost of providing Reserves does not include the fuel and maintenance costs associated with providing the same amount of Energy. Persistent and substantial failure of this condition—repeated large excesses of A/S capacity prices over Day-Ahead, Hour-Ahead, and real-time Energy prices—would be strong indicators of poorly functioning markets. Some such excesses are to be expected: market participants make imperfect predictions of market-clearing Energy prices in their computation of opportunity costs and formulation of A/S capacity bids, and will often overestimate the Energy price, which in some cases may lead to a higher market-clearing price for capacity than for Energy.

- Large and persistent differences in prices under similar load and supply conditions would also be strong evidence against a competitive market outcome, and in favor of a conclusion of potential exercise of market power.

- Future developments of the Market Surveillance system will permit direct observation of estimates of the hour-by-hour marginal cost of producing and delivering Energy in California. Large and, especially, erratic changes in the relationship between this cost and observed Energy prices would be taken as a warning signal of potential market failure.

- Failures of generating capacity to bid Energy or capacity into the appropriate markets at prices that are equal to, or even significantly above, the cost to provide either Energy or A/S capacity would be direct evidence of an exercise of market power and consequent market failure.

The supply-sufficiency observation program is based on the premise that, when there is adequate physical capacity to meet the market's needs, and when that capacity is bid aggressively into appropriate markets, the prices that result are accurate signals to both load and supply, but that when there is insufficient physical capacity, high scarcity prices are expected and appropriate to signal the need for additional investments in generating and transmission capacity.

Erratic and inexplicable behavior of A/S and Energy prices would be a symptom of a failure of the ISO's markets. The underlying cause of a failure of a magnitude sufficient to trigger Safety Net procedures is a condition where sufficient supply does not appear to meet load's demands. Among the reasons for such a failure are the intentional choices of market participants, including inadequate offers of underlying physical resources (including generating and transmission capacity; and artificial constraints due to a flawed market design or obsolete institutions.

ISO Management does not believe that a Safety Net action is appropriate in all cases in which very high prices might be observed. In particular, in the case of an absolute shortage of physical supply, high prices provide a strong signal to the market to resolve the supply inadequacy. Similarly, in some cases, high prices encourage institutional innovations, such as the development of programs of economic load curtailment and other methods of identifying load's price elasticity of demand. ISO Management's observation of supply adequacy is therefore oriented towards behavior either under the control of the ISO in its role as a market designer, or under the direct and intentional control of market participants.

The key elements of the ISO's observation of supply conditions include:

Absolute sufficiency of generating and other physical resources. If there is not enough generating (and transmission) capacity available to serve California's loads, then high scarcity prices are necessary in order to provide appropriate signals for investments in new capacity.

- Overall physical sufficiency, but absolute or marginal bid insufficiency. If there is either insufficient capacity bid into a market, or if some suppliers can, by reducing their supply, create such a condition for absolute bid insufficiency, then there is the potential for at least some generators to set a market-clearing price at a very high level.

SAFETY NET ACTION

The Safety Net action would involve the announcement of lower caps on the bids accepted to provide Ancillary Service capacity and/or Energy (including supplemental-Energy bids). These caps might apply to individual hours and markets.

However, if a cap is required because of conditions in a single market (such as for one Ancillary Service), it is possible that caps will be needed in additional A/S markets. In addition, for a cap to be effective in Ancillary Service capacity markets, it may be necessary to impose caps on Energy prices. In taking action, ISO Management will take into account the effects of interactions between the various A/S capacity and Energy markets.

ISO Management cannot specify the values of bid insufficiency, prevalence or frequency of pivotal bidders, or frequencies or levels of various price conditions that will be necessary to justify Safety Net action. The Safety Net procedures would be invoked by ISO Management following observation of serious evidence of major market failure indicating a need for immediate mitigation to prevent serious harm to the market. It is not Management's objective, however, to use the Safety

Net procedures to mitigate the temporary and minor exercise of market power, or to interfere with necessary scarcity-price signals.

It is anticipated that this intervention will take the form of a reduction of the price cap, perhaps to $250/MW for capacity, $250/MWh for Energy, or to some other appropriate level or levels. In initiating a Safety Net action, ISO Management will report its observations, analysis, and findings of serious harm to the ISO Governing Board and to FERC. Specific information on both price patterns and supply sufficiency will be included in this report; if there are other circumstances that explain why such information does not support the reduction of caps, these will be spelled out in the report.

ISO Management will call a special meeting of its Governing Board within four days of the announcement of the Safety Net action. At that time, ISO Management's action must be ratified by the Board to continue.

DIAGNOSIS, REVIEW OF INTERVENTION, PLAN REDESIGN PROCESS

Within 30 days of the announcement of the Safety Net intervention, ISO Management will formally report to the Board, and file with FERC, its diagnosis of the problems that led to the intervention. This report would identify conditions contributing to the crisis and identify those conditions subject to direct ISO action. Specific attention will be paid to conditions restricting the supply of Energy and ancillary services to the California markets, conditions leading to high and inelastic demand for Energy and/or ancillary services, and conditions contributing to a lack of transparent and efficient markets for Energy and ancillary services. It would also include any additional plans to address the problems, including target dates for tariff filings and software development and implementation. As a part of its diagnostic report, ISO Management will communicate its recommendation as to ongoing levels of the Safety-Net price cap.

ISO Management will request a preliminary Report, to be filed with FERC, of the Market Surveillance Committee, reviewing Management's diagnosis and intervention, and making such independent analyses and recommendations as the MSC deems appropriate.

MARKET REDESIGN AND IMPLEMENTATION

Within 120 days of the announcement of the Safety Net intervention, ISO Management, with Board approval, will submit a follow-up Report to FERC, identifying the Market Redesign actions taken and their relationship to the ISO's diagnosis of the market failure, and containing a timetable, linked to these actions and to other objective market conditions as appropriate, for the termination of the Safety Net intervention.