

FERC Technical Conference – Review of Wholesale Electricity Markets

July 1, 2008

Joint Comments of Keith Casey¹ and Frank Wolak²

Good afternoon Chairman Kelliher and fellow Commissioners,

We very much appreciate this opportunity to share our perspective on the state of wholesale electricity markets. Both of us have closely monitored the performance of the California wholesale markets since the inception of electric restructuring in California in 1997. We have seen “the Good, the Bad, and the Ugly” of market competition – or lack thereof. We both have also been intimately involved in new market design initiatives in California – most notably the Market Redesign and Technology Upgrade or MRTU. Dr. Wolak also has a wealth of international experience in studying wholesale electricity market performance and design issues across the globe.

Our comments will focus primarily on the current state of the California market and Mr. Mansour (CEO, California ISO) will follow with comments on the key challenges going forward and the important ways that the markets will need to evolve to address these challenges. We do, however, highlight several key areas for market improvements that we think are particularly critical.

In terms of the current state of California’s wholesale markets, perhaps the best way to sum it up is that “the patient is stable but not getting better as fast as he could”. Since the energy crisis, the markets have been remarkably stable and competitive but suffer from a number of deficiencies. Most notably, California does not currently have a centralized day-ahead energy market nor does it have nodal pricing. Consequently, grid congestion is largely managed by out of merit order dispatches in real-time – all of which leads to a lack of price transparency, socialized congestion costs, and inefficiencies. MRTU will largely fix these problems. Another major deficiency is the lack of meaningful participation by final demand in the wholesale market. MRTU will provide a much better market design for facilitating active participation by final demand but as we discuss later, improving demand response will require efforts on a number of fronts, primarily at the state level.

Despite these deficiencies, the California market has come a long way since the crisis. Some of the more important improvements are:

High levels of forward energy contracting - Unlike during the crisis, today California LSEs are largely hedged from spot market volatility through short to long-term fixed-price forward energy contracts.

Resource Adequacy Program – Implemented in June 2006, the RA framework provides a formal mechanism for ensuring California Load Serving Entities have procured sufficient capacity (year-ahead and month-ahead) to meet their anticipated peak monthly loads.

Competitive market prices – One of the major indices we use to gauge overall market competitiveness is a 12-month Market Competitive Index (MCI), which represents a 12-month

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rolling average of estimated price-cost mark-ups. Since June 2001, this index has been consistently within competitive ranges.

Infrastructure improvements – Approximately 15,000 MW of new generation capacity has been added to the CAISO control area since 2001, enabling the retirement of 5,500 MW of older less efficient generation. Additionally, the CAISO has increased transmission capabilities on the grid by approximately 5,000 MW through new facilities, upgrades to existing facilities, and improved operational procedures.

Increased reliability of the generation fleet – Annual forced outage rates in 2007 declined to below 3% - the lowest since 1999. This improvement reflects the impact that supply obligations under forward energy contracts have on increasing incentives for better maintenance practices. Increased coordination in summer preparedness with generator owners and the CAISO has also helped to reduce generator forced outages.

Reduced reliability management costs – Various transmission upgrades and the introduction of a Resource Adequacy framework have reduced the real-time cost of managing local congestion by 75% since 2004.

Significant decline in fuel-cost adjusted average wholesale energy costs – When normalizing for changes in natural gas prices, average wholesale energy costs have declined steadily since the energy crisis – reflecting an increased utilization of more efficient generation.

While these achievements are significant, California wholesale markets have a long ways to go to deliver the benefits originally contemplated under electric restructuring. Two important parallel initiatives that will move us closer and provide a foundation for a new California market structure are MRTU and efforts to develop a Long-Term Resource Adequacy Framework.

As previously noted, MRTU will deliver two important market improvements over today's design:

Locational Marginal Pricing – Will produce transparent pricing and effective congestion management that will provide clarity to the market on where the congestion points are on the network and facilitate efficient market responses to these signals (new investment, demand response). Importantly, an LMP market design reduces the socialization of congestion costs and uplift payments that occurs under today's zonal market³. The LMP market will also provide greater clarity to grid planners in assessing the cost of congestion and potential market benefits from upgrades to alleviate the congestion.

Centralized Day-Ahead Energy Market – Having a centralized day-ahead energy market that optimizes resource utilization based on submitted bids will provide greater efficiency over today's strictly bilateral market. It will also provide greater price transparency that will facilitate various demand response programs.

The initial MRTU design will provide a solid foundation for future enhancements that will provide greater market efficiency benefits (e.g., convergence bidding, scarcity pricing). We realize that some market participants are apprehensive about embarking on a new market structure. While many of these participants understand the deficiencies of the current design and appreciate how MRTU can in theory correct them, there is a bit of "the devil we know is better than the devil we

³ This benefit will be somewhat diminished under MRTU by the default pricing rules of settling load based on average prices over a relatively large geographic region.

don't know". They also have concerns that if market problems arise under MRTU, the CAISO and this Commission may be slow to react leaving them exposed to significant financial harm. We would like to take this opportunity to assure the Commission that we (the MMU) as well as the CAISO will be vigilantly monitoring the performance of MRTU, particularly in the initial go-live months. If problems do arise, we will act quickly in identifying the root cause and developing and implementing an appropriate solution.

Should an issue arise under MRTU that has significant detrimental impacts to the market and requires FERC action to resolve, the CAISO will seek expedited action from the Commission. We hope the Commission and its staff will also be vigilant in following MRTU performance during its first year of operation and that you will stand ready to act quickly on any expedited requests.

In parallel to the MRTU implementation is an ongoing effort to develop a long-term Resource Adequacy framework. The CAISO has been working closely with the CPUC and stakeholders to develop this framework, which coupled with MRTU, will define the future of California's market structure. The options being considered by the California Public Utilities Commission range from moderate enhancements to the current RA program to a 4-5 year-ahead centralized capacity market. As you might imagine, opinions on the specific design are highly diverse. However, one element that we think everyone can agree on is that the final design needs to facilitate adequate investment in new infrastructure and accommodate load migration.

In a separate statement, Mr. Mansour (CAISO CEO) describes some of the challenges facing the CAISO over the next several years and his vision of how wholesale markets will need to evolve to address these changes. We certainly agree with his assessment of the challenges and would like to offer what we consider to be the three most critical areas for future market development.

1. **Innovation of market products and resources to meet the operational challenges posed by renewable energy** – Increased use of renewable energy will create a need for new market products and technologies that can compensate for the intermittent nature of renewable power. Various forms of storage technologies, active participation by final demand, and highly dispatchable generation will be required to reliably operate the future "green" grid. Market planners should examine whether ISOs/RTOs need new market products or market rules to facilitate investment and innovation in these technologies.
2. **Development of real price responsive demand response** – Active participation of loads in the CAISO's energy and ancillary services markets (24 X 7). This requires the California Public Utilities Commission to set a default retail price that passes some or all of the hourly price signal to the wholesale price. This will soon be technically feasible because the three large load-serving entities in California will have hourly meters for all of their residential customers.
3. **Better coordination of long-term transmission and environmental planning with market investments** – A transmission planning process that provides opportunities for consideration of market-based alternatives (demand response, new generation). This process will need to be highly integrated with the final long-term resource adequacy framework so that efficient trade-offs can be made between generation, demand and transmission. The CAISO current methodology for assessing the economic benefits of transmission expansions provides a solid framework for sorting out such trade-offs but will need to be further developed to better account for the state's environmental goals.

This concludes our comments and we look forward to answering any questions you may have.