Southern California Edison Company (“SCE”) appreciates the opportunity to provide comments and suggestions regarding the matters discussed at the technical conferences that took place in June 2010. Three technical conferences took place that discussed improving models and software related to wholesale electricity markets and planning:

- June 2-3  Enhanced Unit-Commitment Models
- June 9-10  Enhanced Wide-Area Planning Models
- June 23-24  Enhanced Optimal Power Flow Models

In a Notice dated July 27, 2010, the Federal Energy Regulatory Commission (“Commission” or “FERC”) requested comments and ideas on issues discussed at the Technical Conference.

1. **COMMENTS**

SCE commends the Commission for investigating this issue and for providing an open forum for market participants to constructively discuss the possibility of updating market software. In particular, it is has long been SCE’s view that appropriate discussion was not given to the initial choice of the optimization’s objective function prior to organized RTO/ISO markets.
being designed and implemented. Effectively by default, all the markets today in US including PJM, NYISO, ISO-NE, Midwest-ISO, and CAISO are based on an objective function that minimizes bid cost due to a philosophical holdover from the pre-deregulation regime that assumes: 1) minimizing the production cost is equivalent to maximizing social welfare; and 2) the bid cost is also equivalent to production cost.

In the 2002 California electricity market redesign, SCE’s experts identified the inconsistency of the minimized total bid cost and total payment using the bid cost minimization in the ISO/RTO markets. In order to protect the interest of its consumers, SCE proposed that the payment cost minimization should be used in the ISO/RTO markets, and initiated a research project to further study this issue. Since then, SCE has established a research team consisting of industry and academic experts, and financially sponsored the research project.

The fundamental issue of bid cost minimization with market clearing pricing (“MCP”) is that total payment cost is the product of MCP and MWhs, which is not the minimized bid cost. Bid cost minimization creates inconsistency between the minimized total bid cost and total payment, which results in a higher cost to consumers (see figure below). Two simple examples in one of our published technical papers have clearly demonstrated that the bid cost minimization will yield a higher cost to electricity consumers comparing to the payment cost minimization that SCE proposed.

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In the past eight years, significant results in this research have been achieved in several areas. In summary:\(^3\)

- Can social welfare be maximized in the ISO/RTO markets? The answer is no, and further the social welfare can not even be measured in the ISO/RTO markets, since: 1) the bid cost of energy and/or ancillary service is frequently not equivalent to the marginal production cost of a generation unit, and opportunity cost is used to establish a bid; 2) all ISO/RTO markets in US have implemented or are going to implement the virtual (convergence) bidding in their markets, where a virtual bid is purely financial and has little to do with the production cost of generation resources; and 3) demand bid curves, usually vertical in real time markets, do not reflect consumers willingness to pay for electricity.

- Based on the nature of co-optimizing energy and ancillary service products in the ISO/RTO markets, the bid cost minimization will not allocate generation resource capacity efficiently to minimize the total market payment that the consumers will pay.

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• Small bids (Virtual Bids) with high prices are more likely to be selected under bid cost minimization (as compared to payment cost minimization), inducing the hockey-stick bidding, and causing high MCPs and high consumer payments.
• Given the complexity of the payment cost minimization as proposed, a novel solution methodology has been developed based on augmented Lagrangian Relaxation and Surrogate Optimization. Numerical testing results show that the method is promising and implemental in the ISO/RTO, and will lead to a significant cost savings for consumers.

SCE recommends exploring other options, such as the payment cost minimization methodology that SCE put forth at the technical conference. Payment cost minimization determines LMPs, energy, and ancillary service awards simultaneously and produces a consistent solution with a lower cost to consumers.

II. CONCLUSION

To move the discussion forward, SCE requests that the Commission issue an order requiring each ISO to file a report that confirms whether bid cost minimization is used in its day-ahead market and reports the daily minimized total bid cost and total payment for a year. We further urge that if a significant difference between the minimized total bid cost and total payment for a year.

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4 Hockey stick bidding is “a bidding pattern where the last megawatt bid from a unit is made at an excessively high price relative to other bids attributable to the unit, or where a single unit in a portfolio is bid at an excessively high level compared to the remainder of the seller's portfolio.” Investigation of Terms and Conditions of Public Utility Market-Based Rate Authorizations, 107 FERC ¶ 61,175 at P 116 (2004).
payment cost is discovered, the Commission propose changes to the payment cost minimization as SCE proposed in the ISO/RTO markets to address the difference.

Respectfully submitted,

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Dated:  September 10, 2010
CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing COMMENTS OF SOUTHERN CALIFORNIA EDISON ON THE FEDERAL ENERGY REGULATORY COMMISSION’S NOTICE REQUESTING COMMENTS ON INCREASING MARKET AND PLANNING EFFICIENCY THROUGH IMPROVED SOFTWARE upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated at Rosemead, California, this 10th day of September, 2010.

______________________________________________
Case Analyst
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