ISSUE 30: FORECAST OF REAL TIME PRICE

Date Raised

Initially raised by the Market Surveillance Panel (MSP) in its second report on March 24, 2003.

Description

The Market Surveillance Panel (MSP) repeatedly observes in its Market Monitoring Reports that pre-dispatch prices are consistently higher than the real time prices (HOEP) and are a poor predictor of HOEP. In its first report, the MSP posited that the pre-dispatch prices represented some indication of real time HOEP. The MSP argued that improvements in the ability of pre-dispatch prices to forecast HOEP would improve the ability of market participants to plan their actions and hence improve overall market efficiency, including production efficiency, and real time scheduling efficiency.

The MSP has identified several factors contributing to the differences between the pre-dispatch and real-time prices, including demand forecast error and failed inter-tie transactions. In its report on March 24 2003, the MSP offered a potential approach to redesign the pre-dispatch price computation process so that pre-dispatch prices would become a better predictor of HOEP. The approach includes assigning a probability to each factor that affects the pre-dispatch sequence, such as forecast demand error, failed transaction, forced outages, etc., and then developing a distribution of resulting market price forecast using a Monte Carlo technique.

Background

The Market Rules do not require the IESO to provide a forecast of real-time price (neither interval prices nor the HOEP). The only requirement is for the IESO to calculate pre-dispatch schedules, publish the pre-dispatch prices, and update the pre-dispatch schedules and prices for dispatch hours following any material change in conditions or projections, for the next dispatch day (Market Rules Chapter 7 Section 5). The purpose for the IESO to determine the pre-dispatch schedule and prices is "to provide itself and market participants with advance information and projections necessary to plan the physical operation of the electricity system" (C 7 S 5.1.1).

There are several reasons why the IESO's pre-dispatch prices are not a forecast of real time price. The pre-dispatch prices provide a projection of the real-time price using as inputs a single forecast value for demand (the peak demand in the hour) and the offers and bids as submitted just before the pre-dispatch sequence. The MSP has noted that pre-dispatch prices are "an estimate of the real time price assuming the current trend for demand (as forecasted) and the availability of offers and bids. The pre-dispatch calculation does not allow for the possibility of demand forecast error. Nor does it allow for the fact that even with no error in the demand forecast for the hour, the actual demand in some or most of the five-minute intervals differs from any single valued forecast for the hour. The pre-dispatch price calculations also ignore the

possibility that some offers/bids may be made unavailable as a result of outages or derates, that some imports or exports may fail to be dispatched due to seams issues on the interconnects, or that dispatchable generators and self-scheduling generators may not respond perfectly to dispatch" (the MSP Report on March 24, 2003, page 65). The MSP then concludes that "the pre-dispatch prices as they are currently designed are generally unreliable signals of the HOEP".

The MSP has proposed an approach that utilizes the pre-dispatch sequences to provide a forecast of the HOEP. The approach involves re-runs of the unconstrained sequence to construct a distribution of forecast pre-dispatch price using Monte Carlo simulations to replace the single projected pre-dispatch price.

Why a Pricing Issue

This is a pricing issue as it pertains to whether the market clearing price is or can be forecast by or for market participants. Any difficulty in doing so may arise from the manner or complexity of the determination of the market clearing price. Addressing the issue may involve modification to the manner in which the market clearing price is determined.

Impacts of Issue

Market Impact

The existence of a proper forecast of real time price can improve market efficiency and transparency. Lack of such a forecast or relying on the pre-dispatch price as the forecast of real time price leaves market participants with less meaningful market signals from which to plan their operations. Each market participant must bid or offer into the market based on their own judgement and expectation. Consequently, the market outcome may be inefficient. For example, an electricity consumer may unnecessarily have curtailed its consumption when the actual electricity price turns out to be much lower than its expectation.

Participant Impact

TBD

IESO Processes and Procedures Impact

The IESO could voluntarily provide the distribution of the forecast of real time price, together with the pre-dispatch price as it is done today as per the requirement of the Market Rules. This would not require any change in Market Rules. However, providing extra information or a formal forecast of the real-time market clearing price may require additional applications/software. Implementation of the approach suggested by the MSP could be both time consuming and expensive due to its complexity.

Related Issues

- 001: Pre-Dispatch Price Bandwidths
- 006: Effects of Emergency Control Actions on Market Clearing Prices
- 009: Use of Peak demand Load Forecast in Pre-dispatch
- 010: "Over-forecasting", especially in Hours 22 through 24

- 012: Under-commitment of Available Generation
- 013: Impact of Out of Market Resources on the Market
- 014: Hour(s)-Ahead Price Signal Uncertainty
- 015: Restriction on Changes to Dispatch Data between 4 and 2 hours ahead of Dispatch Hour
- 024: Reducing Frequency of Failed Inter-tie Transactions

Selected References

Market Rules, Chapter 7.
http://www.theIESO.com/IESOweb//pubs/marketSurv/ms_mspReport_2002oct07.pdf
http://www.theIESO.com/IESOweb//pubs/marketSurv/ms_mspReport_20030331.pdf