

ISSUE 6: EFFECTS OF EMERGENCY CONTROL ACTIONS ON MARKET CLEARING PRICES

Date Raised

Fall, 2002.

Description

The Market Surveillance Panel and several market participants have raised a concern with the manner in which prices are determined during times that it has been necessary for the IMO to rely on emergency purchases to ensure system reliability. The manner in which emergency purchases are implemented in the market can create what has been termed “counter-intuitive” price outcomes. Specifically, prices may suddenly fall even when market demand is increasing and when the IMO is issuing NERC Energy Emergency Alerts. The treatment of emergency energy is a pricing issue because it sends a distorted signal of the relative shortage conditions in the market.

Background

As per Chapter 5, Section 2.3.3A of the Market Rules, the IMO may purchase emergency energy from other jurisdictions in order to meet the minimum industry requirements for Operating Reserve and energy. The purchase of emergency energy is one of a number of control actions that the IMO can take during the state of emergency operating conditions. However, it is one of the more apparent actions to market participants and the one which can have the effect of depressing prices during the very periods that prices might otherwise be expected to rise or at the very least remain unchanged.

When emergency energy is purchased it impacts the market outcomes through market demand. The amount of the emergency energy purchased is subtracted from the market demand. The impact on the market outcomes is sudden and can be significant. The effect, all else held constant is to lower the market clearing price.¹ It should be noted that the IMO buys emergency energy to ensure that it can meet its obligations for energy and OR in the constrained schedule. However, the emergency purchase is linked to both the unconstrained and constrained schedules. With a unconstrained schedule that is “better off” than a constrained schedule this emergency purchase can lead to a sharp reduction in the price which is well below the incremental cost of either the generation

¹ When the IMO sells emergency energy to a surrounding control area, the opposite occurs, market prices increase.

ISSUE 6: EFFECTS OF EMERGENCY CONTROL ACTIONS ON MARKET CLEARING PRICES

needed to supply the actual load or the actual price of the emergency energy purchased.

The following example illustrates how emergency energy can impact the market. The market demand in one interval may be 24,000 MW and the market price may be \$300.00. In the next interval, the actual market demand may increase by 100 MW to 24,100 MW. Without emergency energy, the market would not have sufficient resources to meet both the market demand and to satisfy the operating reserve requirements. The market price would increase to as much as \$2000. Suppose instead however, that the 500 MW of emergency energy was purchased in the interval. The amount of the emergency energy purchase would be subtracted from the market demand. The market would run assuming a market demand of 23,600 MW (24,100-500). The market price would now clear below the \$300 of the previous interval.

Why is this a Pricing issue?

The treatment of emergency energy is a pricing issue because the manner in which it is introduced into the market can result in prices falling while shortage conditions are worsening. The distorted signal can impact the decisions of market participants to operate efficiently (i.e., loads capable of responding do not respond as the price does not reflect the true shortage cost of their consumption, imports/exports or slow starting generators do not respond in subsequent hours by offering supply into the market). It may also prevent the signal needed to allow these participants to solve the shortage conditions, which in turn can perpetuate the length of the emergency state. Finally, the affect of lowering the price at times of severe shortage also reduces the investment signals for peaking generators.

Impacts of Issue

This issue impacts the guiding principles of efficiency and transparency.

Related Issues

- 013: Impact of Out of Market Resources on the Market
- 014: Hour(s)-Ahead Price Signal Uncertainty
- 027: Timing Differences Between Unconstrained and Constrained Real-time Sequences

ISSUE 6: EFFECTS OF EMERGENCY CONTROL ACTIONS ON MARKET CLEARING PRICES

Selected References

IMO Market Rules. Chapter 5: System Operations and Physical Markets

<http://www.theimo.com/imoweb/manuals/marketdocs.asp>

The Market Surveillance Monitoring Report On The IMO-Administered Electricity Markets for the Period November 2003 to April 2004

http://www.theimo.com/imoweb/pubs/marketSurv/ms_mspReport-20040614.pdf

MARKET PRICING ISSUES Discussion Paper prepared by the Market Pricing Issues Team May 28th, 2003

http://www.theimo.com/imoweb/pubs/consult/mktOps/mo_paper_PricingIssues_20030528.pdf