



Market Rule Amendment Proposal

PART 1 – MARKET RULE INFORMATION

Identification No.:	MR-00296-R00		
Subject:	Market Pricing		
Title:	Emergency Control Actions and Counter-Intuitive Prices – Inputs to Dispatch Scheduling and Pricing Process		
Nature of Proposal:	<input checked="" type="checkbox"/> Alteration	<input type="checkbox"/> Deletion	<input type="checkbox"/> Addition
Chapter:	7	Appendix:	7.5
Sections:	3.2		
Sub-sections proposed for amending:	3.2.1, 3.2.1.12 (new)		

PART 2 – PROPOSAL HISTORY

Version	Reason for Issuing	Version Date
1.0	Submitted for Technical Panel Review	2 June 2005
2.0	Publish for Stakeholder Review and Comment	8 June 2005
3.0	Recommended by Technical Panel; Submitted for IESO Board Approval	14 June 2005
4.0	Approved by IESO Board	16 June 2005
Approved Amendment Publication Date:	17 June 2005	
Approved Amendment Effective Date:	12 August 2005	

PART 3 – EXPLANATION FOR PROPOSED AMENDMENT

Provide a brief description of the following:

- The reason for the proposed amendment and the impact on the *IESO-administered markets* if the amendment is not made.
- Alternative solutions considered.
- The proposed amendment, how the amendment addresses the above reason and impact of the proposed amendment on the *IESO-administered markets*.

Summary

It is proposed to amend the market rules to address counter-intuitive market pricing that can occur when the IESO implements emergency control actions to maintain reliability of the IESO-controlled grid. These emergency control actions include voltage reductions, emergency energy purchases, and non-dispatchable load cuts. The counter-intuitive pricing occurs when the emergency control action affects demand in the market pricing sequences, resulting in pricing outcomes and signals that do not reflect actual market conditions.

The specific proposed amendments are:

- Enable the IESO to increase or decrease market demand in the market schedule to offset the effect that an emergency control actions has on market demand. This proposed amendment is intentionally “enabling” rather than specific to accommodate potentially different implementation requirements for different emergency control actions; and
- Specify that emergency energy purchases not be represented as a change in non-dispatchable load in the market schedule.

These amendments represent an initial but flexible step in addressing counter-intuitive pricing situations in the IESO-administered markets. This proposed solution does not completely address the stated need by market participants for real-time price signals that are more representative of market and system conditions when the IESO undertakes emergency control actions. However, it is a solution that can be implemented quickly and which may reduce or eliminate some counter-intuitive pricing that can occur and will be available for use by the IESO in the summer of 2005. It is proposed to address the impact of emergency energy purchases on market demand in the market schedule because the IESO uses this emergency control action more often than others.

Background

On April 7, 2005, conditions arose that necessitated the IESO to implement, as per approved procedures, a number of emergency control actions to maintain the reliable operation of the IESO-controlled grid. These emergency control actions included both voltage reductions and the purchase of emergency energy from neighbouring jurisdictions. As a consequence of these actions and their representation in the uniform market clearing price calculations, the wholesale market clearing price fell. The resulting prices were counter-intuitive to the stressed conditions being experienced on the system.

Since market commencement, excluding the August 2003 blackout and corresponding recovery:

- the IESO has purchased emergency energy on 22 occasions including April 7, 2005; and
- the IESO has initiated voltage reductions twice including April 7, 2005.

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Under the current market rules and treatment, voltage reductions and emergency energy purchases result in a reduction in demand in the IESO-administered markets. A voltage reduction, by its very nature, reduces demand. Emergency energy purchases are input by the IESO as a reduction in demand in the constrained sequences so that the dispatch scheduling algorithm can dispatch other supply resources to meet the balance of the demand. The demand reduction in the constrained sequence is carried through to the unconstrained market pricing sequences. These demand reductions, whether resulting from a voltage reduction or an emergency energy purchase, have the effect of also lowering market prices.

The IESO initiates emergency control actions at times of system stress, which are typically times of tight supply-demand balance and high market prices. Intuitively, one would expect such circumstances to result in high market prices. Such prices send an appropriate and necessary signal to the market for suppliers to come to market and for load to reduce demand and as such these appropriate price responses would assist the IESO in maintaining the reliable operation of the IESO-controlled grid. The reductions in the uniform market clearing price resulting from an emergency energy purchase or voltage reduction sends a counter-intuitive price signal to the market at these times of system stress. This counter-intuitive price signal has the ultimate effect of undermining both the efficiency of the market and the confidence that market participants have in the market.

Changes in the IESO administered markets have been made by the IESO since market opening to reduce the frequency of such conditions. These changes include the introduction of control action operating reserve in the market and the creation of the spare generation on-line program. In addition supply within Ontario has increased. These measures serve to reduce the chance that emergency control actions will be required to maintain the reliable operation of the IESO-controlled grid. However, these measures do not eliminate the underlying aspects of market price determination that lead to counter-intuitive price outcomes. Emergency control actions may be needed at anytime and thus there is a priority need to address the counter-intuitive pricing that can be created by the use of these actions.

It should be noted, however, that actual demand response to high prices can occur at times of system stress and that this response will naturally result in reduced demand and lower prices. In these instances it is market forces that are causing reduced demand and lower prices, not IESO actions.

Discussion

When the IESO undertakes certain emergency control actions that affect demand in the market schedule, the resulting energy market prices may not accurately reflect the prevailing market and system conditions.

For emergency energy purchases the counter-intuitive pricing occurs because the IESO reduces demand in constrained sequences by an amount equivalent to the emergency energy purchase and the dispatch scheduling algorithm automatically carries that demand reduction to market schedules. The effect of the IESO purchasing emergency energy is a decline in market prices. This decline is counter-intuitive given that emergency energy purchases are necessary to maintain reliability.

For other emergency control actions which the IESO has undertaken, such as voltage reductions or load cuts, electrical demand is actually reduced in Ontario thus resulting in a decline in energy market prices. A decline in energy market prices at the same time in which the IESO is undertaking these emergency control actions is again counter-intuitive.

It is proposed to mitigate the effect of the emergency control action on demand in the market schedule

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and the resulting impact on market prices by the following rule changes:

- First, amend section 3.2.1.4 in Appendix 7.5 such that the demand in the market schedule is not reduced when the IESO makes an emergency energy purchase. Market prices would then be determined on the basis of meeting the total market demand, including that served by the emergency energy purchase. An emergency energy purchase would still be reflected as a reduction in demand in the constrained sequences so that other resources are dispatched appropriately to meet the net demand.
- Second, adding a new section 3.2.1.12 in Appendix 7.5 to enable the IESO, where software capabilities permit, to increase or decrease demand in the market schedule when the IESO undertakes an emergency control action which affects market demand. The purpose of the IESO increasing or decreasing market demand is to offset to the extent possible, the effect of the emergency control action on market demand in the market schedule. The emergency control action impact on demand would still be reflected in the constrained sequences. This amendment would allow the IESO and market participants to develop and implement potentially different solutions to counter-intuitive pricing caused by emergency control actions.

This amendment also recognizes, through the phrase “where such impact can be determined with reasonable certainty” that there are emergency control actions which may affect market demand but for which the IESO may not be able to determine accurately the effect. For a voltage reduction, the IESO can only estimate the impact on market demand. A public appeal to reduce demand is an emergency control action but it is not possible to predict with any certainty the public response to an appeal and the resulting drop in market demand. The market rules should provide the IESO with the flexibility to adjust market demand under these different situations.

The expected result of these proposed amendments is that market prices would not drop in a counter-intuitive manner when the IESO implements an emergency control action that would historically have resulted in reduced market demand and market prices.

PART 4 – PROPOSED AMENDMENT

3.2 Inputs to and Form of the Market Scheduling and Pricing Process

3.2.1 The form of and inputs to the market scheduling and pricing process shall differ from the *dispatch* scheduling and pricing process described in section 2 only as follows:

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3.2.1.4 with the exception of emergency energy purchases, any imports or exports between the *IMO control area* and other control areas required by the *IMO* to meet its obligations under requirements established by all relevant standards authorities and which are outside the normal market *bids* and *offers* shall not be represented directly but shall be

represented as an increase or a decrease in *non-dispatchable load*.
Emergency energy purchases shall not be represented as a decrease in non-dispatchable load in the market schedule;

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- 3.2.1.10 in accordance with section 4.13.1 of Appendix 7.5, the *market schedule* may use different trading period length to that of the *real-time schedule*; ~~and~~
- 3.2.1.11 in accordance with section 2.11.2 of Appendix 7.5, the *market schedule* may use a different ramp rate for *operating reserve* to that of the *real-time schedule*; ~~and~~
- 3.2.1.12 during any period when- the IESO undertakes an emergency control action as described in the applicable market manual that affects market demand, the IESO shall, as software capabilities permit, adjust market demand in the market schedule to offset the impact of the emergency control action on the market demand where such impact can be determined with reasonable certainty.

PART 5 – IESO BOARD DECISION RATIONALE

The IESO Board unanimously approved MR-00296-R00 for the following reasons:

- The IESO Board strongly believes that the preferred solution to eliminating counter-intuitive pricing is real-time pricing signals that reflect prevailing market and system conditions. Such signals will elicit appropriate responses from loads and suppliers thereby contributing to reliability, market efficiency and market confidence.
- The IESO Board believes that the changes proposed under MR-00296-R00 will result in real-time pricing signals that reflect prevailing market and system conditions during times when the IESO implements an emergency control action.
- Of emergency control actions that result in counter-intuitive prices, emergency energy purchases have been used most frequently. Therefore, it is expected that MR-00296-R00 will eliminate the majority of counter-intuitive pricing events resulting from emergency control actions.