

Long-Term Solution Options for Counter-Intuitive Prices During Emergencies

Due to the counter-intuitive price event of April 7, 2005, IESO management directed staff to implement a solution to address the problem. A short-term solution was developed and is detailed below.

The Market Pricing Working Group forum is being used to discuss the long-term solution to this issue. At its last meeting several possibilities were discussed. For the next meeting on August 5, the IESO will provide its preferred long-term solution for MPWG comment.

Short-Term Solution

Market rule amendments have been implemented to provide a short-term solution. When certain emergency control actions (ECA) that reduce actual demand are employed, the market schedule demand will be adjusted to offset the expected demand reduction due to the ECA. The specific emergency control actions are voltage reductions of 3% and 5%, load reductions associated with the Emergency Demand Reduction Program (where the quantity of load reduced is known) and rotational or block load shedding. Other emergency control actions taken that may reduce demand such as public appeals will not result in a market schedule demand adjustment since the quantity of load reduction is not known and some of the actual reduction may be due to price response. Also, when emergency energy is purchased by the IESO, this purchase will no longer result in a reduction in demand in the market schedule. For further information on this market rule amendment, MR-00296-R00, please refer to the following: http://www.ieso.ca/imoweb/pubs/mr/MR_00296-R00_BA.pdf

There is also another rule amendment that allows the IESO to administer prices after an emergency event if a demand reducing emergency control action taken was not able to be offset in the market schedule demand. This is a temporary rule amendment and has a sunset date of October 1, 2005, unless extended by a decision of the IESO Board. For further information on this market rule amendment, MR-00298-R00, please refer to the following: http://www.ieso.ca/imoweb/pubs/mr/MR_00298-R00_BA.pdf

It is expected that the IT systems changes required to implement MR_00296 will be completed such that the market schedule demand can be adjusted for all of the specified emergency control actions. If this is the case, then prices will never need to be administered under MR_00298.

The short-term solution was discussed at several meetings of the IESO's Technical Panel and Market Pricing Working Group. There was generally unanimous agreement that an

administrative process to change prices after the fact is not an acceptable solution. This concern led to the IESO Board applying a sunset clause to the administrative price portion of the rule amendments for the short-term solution. Some stakeholders are not comfortable with the fact that counter-intuitive prices are still possible with this solution, as the differences between the constrained and unconstrained schedules can be significant, resulting in “low” market prices during emergency conditions. Also, some stakeholders believe that most ECAs have a value that is lower than MMCP, and this lower value should be able to set the market price.

Long-Term Solution Options

Five options for a long-term solution to counter-intuitive prices during emergencies are described here:

1. Administered price solution. Specific price levels are assigned to each emergency control action or group of emergency control actions. These price levels could be a fixed price or a price floor or ceiling. Price would be administered automatically in real-time whenever emergency control actions are employed. The short-term solution could be left in place.
2. Modify the short-term solution by adding energy supply offers into the unconstrained schedule when emergency control actions are employed. These energy offers would have a specific price for each emergency control action. These offers would only be available to the unconstrained schedule, and only for the time period that the emergency control action is employed.
3. No change. The short-term solution is sufficient without alteration.
4. Combination of options one and two above. As described in the 2nd option above, energy offers for each emergency control action would be added to the unconstrained schedule when emergency control actions are employed. However, when system conditions deteriorate to a certain predefined level, the price would be automatically administered to a predefined price level (or floor) such that the energy price is guaranteed to reflect the severity of the emergency situation.
5. Another possible combination solution would be to combine the first and third options. Same as #4 above, but without adding energy offers for ECAs.

Option Summary

Issue/Concern	1. Admin	2. Non- Admin	3. No Change	4. & 5. Combo
Guarantees appropriate price signal for emergency conditions.	Yes	No	No	Yes for significant events
Local area emergency issue must be addressed – How big does the local area have to be to use admin price?	Yes	No	No	Yes
Consistent with unconstrained pricing fundamentals	No	Yes	Yes	No for significant events
Appropriate price levels for some or all ECAs must be determined.	Yes	Yes	No	Yes
Impact on price during ECA vs. “no change”	Up or down	Down	-	Up or down
Additional cost and/or effort required to design and implement	Yes	Yes	No	Yes

Recommendation

IESO staff recommends that option #3 be chosen – no change. The short-term solution of adding demand back into the market schedule whenever demand reducing ECAs are employed is a robust solution that is consistent with our unconstrained pricing model.

There is no need to address the issue associated with local area emergencies, because with this solution any demand reducing ECA taken will have its demand reducing effects offset in the market schedule, regardless of the reason for taking that action. There is also no need to address the difficult question of what price to assign to each ECA. The resulting prices are market driven, consistent with the unconstrained pricing model where price is determined on the basis of meeting the market demand with the available market resources.

Also, it is expected (and hoped) that the incidents of ECA activation will be few and far between and therefore the significant design and implementation effort that would be required for any of the other proposed long-term solutions would not be prudent.

Solutions that involve administrative prices are complicated by the issue of local area emergencies. It can be safely assumed that in almost all emergency situations, there would be some area(s) of the province that is not affected. The question that must be answered is “How much of the province has to be involved in the emergency condition to use the

administrative prices?” This issue would need to be addressed for any of options 1, 4 or 5. It becomes a debate over the locational price issue, and this may be best left until a time when locational pricing is a possibility in the Ontario market. The solution recommended here will almost certainly have to be revisited at that time anyway since it will not work if the price and dispatch are both calculated by the same algorithm.

Option #2, which would add supply offers to the unconstrained schedule when ECAs are employed, does not conflict with the unconstrained pricing model and would work with local area emergencies. However, adding supply offers will in general put downward pressure on price and could result in counter-intuitive price drops during emergencies. Any drop in price due to an ECA supply offer would have a floor value of the ECA offer price, but this would still be counter-intuitive. The reason for this solution being suggested was to allow a stepped progression to higher prices during emergencies, and reduce the possibility of price quickly reaching MMCP. It should be noted however that the ability of price to reflect system conditions remains a function of the differences between constrained and unconstrained schedules and this usually results in more supply in the unconstrained and lower prices. Also, the proposed changes to Control Action Operating Reserve (CAOR) which would see the amount of CAOR offers increased from the current 400 MW to 800 MW, effectively achieves the same objective. Since the Ontario market co-optimizes energy and operating reserve and CAOR is reserve offers, increasing the CAOR quantity will provide an increased buffer before shortage prices occur and achieve a similar result to that offered by option #2. If this buffer was deemed to be insufficient, then further increases to CAOR could be considered.

Another facet of the counter-intuitive price issue that has not been addressed so far is that of communication during emergencies. It has been consistently noted by stakeholders that the IESO needs to improve its communication to the market (and all others that are paying the market price) when emergency situations are occurring. The IESO is working to make improvements in this area, but this will not be specifically addressed in this recommendation. One of the most effective means of communicating market information is through price, and the changes put in place for the short-term solution and planned for CAOR do represent a significant improvement to the price signal.