

### ISSUE 13: Control Action Operating Reserve (CAOR)

During the Market Pricing Working Group (MPWG) meeting on October 29<sup>th</sup>, 2008, the IESO presented options to address issues identified with Control Action Operating Reserve (CAOR). This proposed work plan describes the various types of analyses to be conducted to determine the price, efficiency and stakeholder impacts of each option and the timeline for completing these analyses.

#### Option 1: NYISO model

CAOR prices are established such that there is high probability that all market OR offers would be scheduled before CAOR.

Pricing Option	Expected Action	Target Date of Completion
Simulate shortage pricing	<ul style="list-style-type: none"> <li>Using historic data for select days in 2008, run simulations whereby the daily demand profile is gradually increased to the point where the market is within 100 MW of shortage in OR.</li> <li>Establish CAOR prices (OR) with reference to the near shortage prices created through these simulations.</li> </ul>	Q1 2009*
Ontario OR supply curve	<ul style="list-style-type: none"> <li>Evaluate historic OR offers available in the supply stack to set CAOR prices.</li> <li>Use historic OR offers to determine prices for which 95% of OR offers are priced below.</li> <li>Set CAOR price at or above this 95% value, this should result in CAOR potentially interfering with only 5% of OR offers.</li> </ul>	Q1 2009*
NYISO prices	<ul style="list-style-type: none"> <li>Use NYISO demand curves prices to set CAOR prices.</li> </ul>	Q2 2009*
DR (Demand Response) programs	<ul style="list-style-type: none"> <li>Set CAOR prices based on prices paid for demand reductions (DR) under reliability based DR programs.</li> <li>Evaluate EDRP (Emergency Demand Response Program) and DR activation prices.</li> </ul>	Q2 2009*

\* These timelines may change depending on expertise availability.

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Based on CAOR prices determined using all of the techniques described above, range of CAOR prices would be developed. Once we have the range of CAOR prices, a representative value(s) would be selected for the following assessment:

Expected Action	Target Date of Completion
<ul style="list-style-type: none"><li>Run simulations to determine market impacts including energy and OR price impacts. The simulations would be run using data from one week for each of the 12 months in 2008. The week for each month would be selected based on the criteria used for previous simulations conducted<sup>1</sup>.</li><li>Conduct analysis to ascertain impacts on stakeholders relative to status quo<sup>2</sup>.</li></ul>	Q2 2009*

### Option 2: Restructuring CAOR:

400 MW of CAOR in pre-dispatch (PD) as 30-minute OR; in real-time, first 400 MW tranche as 30-minute OR and second 400 MW tranche as 10-minute OR.

Expected Action	Target Date of Completion
<ul style="list-style-type: none"><li>Run simulations using data from one week for each of the 12 months in 2008. The data selection (selection of week in each month) could be based on the criteria used for other simulations conducted.</li></ul>	Q2 2009*
<ul style="list-style-type: none"><li>Run simulations to analyse price impacts on the market.</li><li>Conduct analysis to ascertain impacts on stakeholders relative to status quo.</li></ul>	Q2 2009*

### Status Quo:

No CAOR in pre-dispatch, 800 MW of CAOR in real-time at existing prices. A detailed study would be conducted to determine if the implementation of current design has led to any unintended consequences.

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<sup>1</sup> The data selection criteria for Issue # 9: Peak vs. Average simulations could be used.

([http://www.ieso.ca/imoweb/pubs/consult/mep2/MP\\_WG-20080207-Peak-vs-Average-PreDispatch-Demand-Forecastt.pdf](http://www.ieso.ca/imoweb/pubs/consult/mep2/MP_WG-20080207-Peak-vs-Average-PreDispatch-Demand-Forecastt.pdf))

<sup>2</sup> Due to operational and reliability concerns, CAOR was removed from pre-dispatch in September 2008

(<http://www.ieso.ca/imowebpub/200808/IJT-20080821-Item3.pdf>). Therefore, the current CAOR structure (status quo) is considered as the base case.

\* These timelines may change depending on expertise availability.

<b>Expected Action</b>	<b>Target Date of Completion</b>
<ul style="list-style-type: none"> <li>• Compare hour ahead pre-dispatch and real-time prices before and after the elimination of CAOR from PD to determine if there has been a change in the convergence/divergence of the two prices.</li> <li>• Study impact on export transactions failures.</li> <li>• Perform statistical and econometric analysis to assess price impacts on the market. Also, to determine any changes in behaviour of CAOR scheduling.</li> <li>• As the base case, run simulations for one week from each month in 2008, with no CAOR in pre-dispatch, including those months before September<sup>3</sup> when CAOR was actually offered in PD. These results would then be compared with simulation results from other options.</li> </ul>	Q1 2009*

Value of Control Action:

To determine the true social value of the latent reserves available in the form of control actions.

<b>Expected Action</b>	<b>Target Date of Completion</b>
<ul style="list-style-type: none"> <li>• Review literature on reliability and scarcity pricing.</li> <li>• Quantify social value of control actions: Emergency Energy purchase, Voltage Reduction, export curtailment etc.</li> <li>• Based on findings, it may require simulations for analysing price impacts.</li> </ul>	Q2 2009*

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<sup>3</sup> CAOR was removed from pre-dispatch on September 5<sup>th</sup>, 2008.

\* These timelines may change depending on expertise availability.