Proposal to Remove CAOR from Predispatch

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1. Background

Control Action Operating Reserve (CAOR) was introduced into the market in July 2003. The purpose of CAOR is to assign a monetary value to an out of market control action which was $0 (i.e. voltage reductions and the ability to forego the acquisition of operating reserve (OR)). With this monetary value assigned, the market sees less counterintuitive pricing during times of scarcity.

CAOR is priced as follows:
– In Predispatch & Real Time: (RICHVIEW-230.G_3VR)
    30R: 400 MW at $30.00, 10N: 400 MW at $30.10
– In RealTime: (RICHVIEW-230.G_5VR)
    10N: 200MW at $75.00 and 200MW at $100.00 (this 400MW was added in November 2005 to help further reduce counter intuitive pricing).

In March 2007, NYISO stopped accepting Ontario exports which the IESO made recallable. As of June 16, 2008, MISO also began rejecting exports which the IESO makes recallable.

During the ON-NY 90 minute check-out, the IESO confirms the amount of 10-minute CAOR scheduled and makes the equivalent amount of MW of exports recallable. Based on best efforts economic merit order this will include New York transactions, which New York denies. After the ON-NY 90 minute check-out, the Dispatch Scheduling and Optimizing tool (DSO) is scheduling more CAOR in the place of the curtailed exports (CAOR is economically scheduled because of its price). The IESO then performs a 30 minute check-out with New York as well as with all other neighbouring jurisdictions. The same curtailments are then occurring at the 30 minute check-out (looking at January and February 2008, this happened 59% of the time).

Market participants have expressed their concern and disappointment in several stakeholder forums with the frequency that their exports are being curtailed. Although these curtailments are happening, on a best efforts basis, economically, the traders feel that they are happening too often, causing them lost profits. Although removing the CAOR may in fact lead to fewer of these exports being scheduled in the first place initial trader reaction suggests that removing the predispatch (PD) CAOR would be favourably received.

2. CAOR Analysis

From January 1, 2008 to June 18, 2008, CAOR was scheduled in predispatch 22% of the hours with an average hourly amount of 200MW. Since CAOR is backed by exports, 200MW of exports are curtailed to ensure there is energy to cover the CAOR scheduled. On average, this requires the curtailment of ~5 of 24 export transactions per hour, approximately 20%, are being curtailed for CAOR. The majority of these transactions were with New York, as during this evaluation period MISO was accepting recallable transactions.

3. Operational and Reliability Concerns

Operational Concerns

With the increasing amount of CAOR being scheduled and backed by exports, the IESO is seeing increasing operational issues. Each hour, they have to curtail 5 transactions, on average, for the 30 minute check-out for the next hour and the 90 minute checkout for the following hour. The following is the additional procedural elements that the IESO must follow in order to make a transaction recallable curtail:

1. At T-30 (and T-90 for the following hour), the IESO looks to see how much CAOR is scheduled
2. The IESO then runs a query that completes an economic assessment to determine which exports should be made recallable (for economics)
3. The IESO then evaluates which exports to cut. Depending on limits and other factors, this may not be exactly as the tool determined. Furthermore, there may be other failures (TLRi, MrNH, Other) at the 30 minute check-out that will reduce the amount of CAOR required that will need to be taken in to account when determining failures
4. The IESO then calls the neighbouring jurisdictions for check-out (only New York for the T-90 check-out) and notifies them of the exports that the IESO will need to make recallable. If the transaction is flowing through MISO to PJM, the IESO must call both MISO and PJM to make the transaction recallable
5. New York and MISO will both cut the export as they do not accept recallable transactions
6. The IESO then must manually assign a TLRe code to these transactions

Prior to March 2007, the IESO was not curtailing any exports for CAOR, as neighbouring jurisdictions were accepting recallable transactions. With the increasing number of curtailed exports since March 2007, the IESO is exposed to more manual operations and thus more chance of errors, such as curtailment tagging errors. If the IESO incorrectly tags a curtailment, they may have to administer prices, again creating added workload and eroding market confidence.

Reliability Concerns

In addition to the operational issues with failed transactions, these transactions also pose reliability risks. Reliability concerns resulting from failed export transactions can be categorized as transfer limits and surplus generation.

Transfer limits
When large quantities of exports are cut, the IESO may need to take other actions to maintain flows within interchange limits (for example, failing imports, internal redispatch not signalled in predispatch).

Surplus Generation
Surplus generation occurs predominately during the shoulder periods of the year when hydroelectric facilities are operating at full capacity in order to pass the spring water. Although dispatchable, these resources are typically restricted to full output during these periods. At this time of the year, the Ontario demand is usually low, meaning that we see large amounts export transactions that are supported by CAOR in pre-dispatch. When these transactions are scheduled by the IESO and made recallable because of CAOR, and in turn curtailed by the neighbouring area, the resulting amount of the curtailment will require a reduction in internal resources.

The last minute nature of these curtailments does not allow adequate planning and results in immediate actions that can be more severe than those that could be employed with more foresight. As mentioned earlier, the available resources are restricted thus relying on non-traditional dispatchable resources such as nuclear facilities to be dispatched. Dispatching these facilities has inherent risks of them becoming unavailable for future dispatching. The unavailability of these resources can pose a reliability risk.

4. Removing CAOR from Predispatch

Price is not directly affected as a result of removing CAOR from predispatch, however due to the treatment of intertie transactions in real time (the IESO moves them to the bottom/top of the offer/bid stack as opposed to predispatch where intertie transactions are within the offer stack based on price), the following indirect price impacts may be seen[1]:

- More imports – resulting in a price reducing pressure
- More internal generation – resulting in a price increasing pressure
- Less Exports – resulting in a price decreasing pressure

Removing CAOR from predispatch will have an impact as described above but considering all 3 options are possible, the real-time pricing impacts are uncertain (as the result can be upward or downward pressure on price).

[1] Assumes current practices remain (i.e. Peak vs Average Demand Forecasting)

In addition, the pricing of CAOR in real-time is being reviewed at the Market Pricing Working Group (MPWG).

A simulation was run for HE 9 to HE 20 on June 2, 2008 investigating the price impacts of removing CAOR from predispatch. The simulated results are shown in the chart below.

	CAOR Scheduled in Predispatch		Export Curtailment in Predispatch Due to CAOR						
HE	C	U	C	U	PD Actual Price With CAOR in PD	PD Actual Price Without CAOR in PD	Actual HOEP with CAOR in PD and RT	HOEP without CAOR in PD in RT	HOEP without CAOR in PD or RT
9	35	0	3	3	59.81	59.81	55.44	55.44	55.44
10	263	155	96	96	83.41	83.41	71.38	69.68	75.98
11	392	400	237	237	99.52	100	82.72	72.19	85.11
12	393	194	209	228	95	100	70.02	73.26	74.33
13	400	197	207	232	91.94	99.95	75.91	81.25	95.47
14	400	293	232	232	94.2	100	92.76	90.83	104.89
15	400	400	61	61	110	114.2	123.58	80.37	122.74
16	400	379	100	100	129.2	175	69.6	66.86	66.76
17	400	119	129	129	114.7	123	87.32	93.2	93.71
18	317	0	0	0	85	85	75.41	75.41	77.89
19	400	0	386	386	66.99	66.99	48.22	63.73	63.73
20	102	0	102	102	53.01	53.01	42.98	43.43	43.43
Average	**325**	**178**	**147**	**151**	**90.23**	**96.70**	**74.61**	**72.97**	**79.96**

It can be seen that, on average, price went down from $74.61 to $72.97 when CAOR was removed from predispatch. However, looking at each hour, price sometimes goes down and sometimes goes up, as described earlier. This simulation does not account for behavioural changes due to price movement.

As mentioned, the pricing of CAOR in real-time will be discussed at the MPWG.

Priority Exports

Priority exports are exports priced at $2000. The Dispatch Scheduling and Optimization tool (DSO) will always schedule these exports, even in a DSO shortfall of 10 minute non-spin OR and 30 minute OR. If these exports need to be made recallable, the control room must do so manually.

The Interjurisdictional Trading Committee (IJT) will need to determine what to do with priority exports if CAOR is removed from predispatch. The following are the two options available:

1. Priority exports used for linked wheels only. This would ensure that the linked wheels flow. If there is a shortfall, all scheduled exports would be made recallable and therefore curtailed.

2. Eliminate priority exports altogether. Linked wheels and exports would compete with each when the tool is looking to make transactions recallable (i.e. linked wheels may be cut before exports or visa versa).

5. Recommendation

In order to manage the operational impacts and potential reliability concerns associated with export failures it is recommended that CAOR be removed from the predispatch schedule. It is further recommended that until such time that the MPWG can complete its review of CAOR in real-time, the existing real-time treatment remain.

Removing CAOR from predispatch is not a significant change in the tools. The process would be to change the Daily Energy Limit (DEL) to zero for CAOR in predispatch, as is currently done for the second 400MW of CAOR.