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IESO SENIOR MANAGEMENT UPDATE

To: Stakeholder Advisory Committee

Date: May 5, 2006

Subject: Dispatch Issues (SE–9)

Information Item IESO Board Decision Date: June 2006 (Where applicable)

As a component of the summer 2006 reliability plans, the IESO was charged with finding solutions to the market's dispatch issues. Dispatch issues have been identified as an ongoing efficiency and reliability issue associated with the introduction of the competitive markets and specifically the 5-minute dispatch regime. The IESO has engaged stakeholders (primarily dispatchable facilities) in the dispatch issues working group (DIWG) forum in an effort to develop and implement dispatch solutions focused at addressing key operational issues associated with 5-minute dispatch. The following initiatives are being developed by the DIWG for deployment by June 2006.

Compliance Aggregation & Replacement Offers

With compliance aggregation the dispatch algorithm (DSO) and operational tools continue to work as they do today. That is the DSO would economically evaluate offers and determine secure dispatch at a facility level. The compliance aggregation however would allow authorized "aggregates" to share the individual dispatch instructions amongst the authorized facilities when system conditions permit. If as an example two units were individually dispatched to 50 and 30 MW respectively, compliance aggregation would allow the owner to generate the full 80 MW from one unit and still be considered compliant with the combined dispatch. If required the generator will comply with "unit specific dispatch" when the IESO considers it necessary to maintain reliability. Some examples requiring unit specific dispatch may include load rejection and/or generation rejection arming, outages, configuration changes and security limit violations. A compliance deadband for the aggregate will be enforced as follows:

- the greater of: one half of the largest single generation unit in the compliance aggregate system or 15 MW and,
- cannot exceed the aggregate total of each of the generation units' individual deadband amount of 15 MW.

In conjunction with compliance aggregation the IESO has introduced, for multi-unit station aggregates, a "replacement offer program" to help manage unit contingency events. Replacement offers would allow a unit operator to run a replacement unit when the unit that attracts the dispatch instruction is forced out of service.

Several pilots have been run with two market participants (Ontario Power Generation and Brookfield) and four compliance aggregates (two cascade river systems and two multi-unit hydroelectric stations). The pilots have proven successful; however for full implementation the IESO systems will need a number of enhancements/changes. These include changes to the market rules and settlement systems to accommodate CMSC and changes to the IESO control room monitoring tools. It is however expected that these changes will be complete by summer 2006.

In addition, the IESO is exploring a pilot test program for compliance aggregation with a large (over 300 MW) dispatchable fossil facility. A cogeneration facility had been invited to participate in the pilot, but was unable to accommodate the test. The target is to complete this fossil test in May.

Compliance Deadband Increase

The IESO has agreed that the previous deadband of 10 MW was perhaps too restrictive under certain conditions. A 15 MW deadband would allow additional flexibility for generators to use to overcome existing dispatch concerns. Some of the issues that can be addressed by the use of a 15 MW deadband include:

- Hydraulic unit efficiency operation, regulatory limitations, cascade river management, etc;
- Thermal coal unit reversals, excessive movement and mill point management.
- Thermal gas co-generation units, in addition to the benefits above, can use the deadband to operate the related but separately offered/operated units in a more efficient coordinated fashion.

After successful completion of the IESO pilot the DIWG recommended that the deadband be officially changed by an amendment to the compliance interpretation bulletin (IMO_MKRI_0001). This amendment has been posted for comments from stakeholders. The changes to the bulletin will be effective May 8, 2006.

Multi-Interval Optimization (Optimization Window)

Another aspect of the DSO that has been investigated at the DIWG is the influence of the eleven interval look-ahead of the multi-interval optimization (MIO) sequence. Sometimes there can be dispatch volatility in the early intervals of an hour, when the MIO sequence is capturing the ramping in of inter-tie schedules in its look-ahead, but the transactions have not been checked out yet. This occurs because MIO will begin to move slow ramping units to respect their physical ability to meet the expected change in inter-tie schedule. If the inter-tie transactions subsequently fail the checkout, the DSO will then reverse these early moves.

Two tests have been carried out to date to investigate this behaviour. A set of three one-day tests with various numbers of look-ahead intervals provided inconclusive data due to the short test period. A longer one-month test of a five-interval look-ahead completed March 19, 2006.

The results of the test were reviewed with the DIWG in April. There were several suggestions for further analysis before the working group could reach a conclusion on the merit of changing the MIO look-a-head. This will be further discussed at the next meeting in June.

Load Forecast Smoothing

The IESO is investigating the impact of load smoothing improvements to IESO tools over the last two years. The last improvement made, provides some flexibility in allowing actual past load values and future load predictions to influence the setting of target demand for the DSO. Data presented to the working group indicated that there was a significant amount of load smoothing as a result of the implementation of these tool enhancements, with negligible loss of accuracy. The working group encouraged the IESO to continue to simulate various combinations of load smoothing parameters to see if further improvements could be realized without significantly impacting accuracy.