Market Rule Amendment Proposal

PART 1 – *MARKET RULE* INFORMATION

Identification No.: MR-00232-R00
Subject: **System Operations and Physical Markets**
Title: Allow Unrestricted Revisions to Dispatch Data up to 2 Hours Ahead of Dispatch Hour
Nature of proposal (please indicate with X): _X_ **Alteration**___ **Deletion** ___ **Addition**
Chapter: 7   **Appendix:**
Sections: 3.3
Sub-sections proposed for amending: 3.3.3; 3.3.4; 3.3.6

PART 2 – PROPOSAL HISTORY

Version	Reason for Issuing	Version Date
1.0	Technical Panel review	6 May 2003
2.0	Recommended by Technical Panel (TP 125) and submitted for IMO Board Approval	20 May 2003

Approved Amendment *Publication* Date:

Approved Amendment Effective Date:

PART 3 – EXPLANATION FOR PROPOSED AMENDMENT

Provide a brief description of the following:

- The reason for the proposed amendment and the impact on the *IMO-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 IMO-administered markets.

Summary

This amendment would allow market participants to make unrestricted revisions to dispatch data up to 2 hours ahead of the dispatch hour, except for the following types of revisions:

- addition or deletion of price-quantity pair(s) within existing submitted dispatch data;

- submission of new dispatch data;

- removal of existing dispatch data.

Unrestricted revisions of the above types would be permitted up to 2 hours and 15 minutes ahead of the dispatch hour. The current market rules permit unrestricted revisions to dispatch data up to 4 hours ahead of the dispatch hour. The proposed changes are expected to improve market efficiency by allowing market participants to respond to changing conditions closer to real-time. This improved efficiency would be manifested through the improved convergence between pre-dispatch and real-time prices and the reduced rate of failed intertie transactions.

Background

In mid-November 2002, the IMO initiated a trial that allowed market participants to make unrestricted revisions to dispatch data up to 2 hours ahead of the applicable dispatch hour. The trial was initiated as part of the work of the IMO team established to investigate and address the following three market pricing issues:

- Pre-dispatch price is not a reliable indicator of real-time HOEP;

- Frequently, at times of market shortage, market prices drop in a counter-intuitive manner; and

- Size, content and variability of hourly uplift charges.

One of the identified significant contributing factors to the market pricing issues is the sensitivity of the market to market or system changes that occur between the pre-dispatch and real-time timeframes. These changes could include events such as failed intertie transactions, forced outages or deratings of dispatchable resources, and the discrepancy between the forecast of self-scheduling generation and actual production. Market participants, when permitted to make only limited changes to dispatch data after 4 hours before the dispatch hour, are only able to react in a limited manner to any market or system changes occurring in the period between 4 hours ahead of the dispatch hour and the dispatch hour.

The trial was established to determine whether, if the market were allowed additional time to revise dispatch data with no restrictions, the market could and would respond to changes in the market that occur after 4 hours before the dispatch hour. During the trial a number of parameters were monitored and compared to conditions prior to the trial in order to determine the success of the trial. These

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parameters were:

- Difference between the pre-dispatch and real-time prices; and

- Failure rate of intertie transactions.

In addition to this quantitative assessment, the IMO also assessed the impacts of the trial on the reliable operation of the IMO-controlled grid. Qualitative feedback from market participants was also solicited on an ad hoc basis as to their experience during the trial. The trial would be considered a success if, at a minimum, there was (i) no change in the parameters noted above, (ii) no negative impacts on the reliable operation of the IMO-controlled grid, and (iii) no negative impact on market participants. In other words, the trial would be judged a success if the market and the system were no worse off than before the trial.

Results of the Trial and Proposal

The results and experience of the trial have been generally positive, from both the market participants' and the IMO's perspectives. The quantitative results of the trial are attached (refer to Tables 1, 2 and 3 attached).

Table 1 compares the convergence of pre-dispatch prices before and during the trial. The results show that during the trial, pre-dispatch prices from 2 to 8 hours ahead of real-time showed a greater convergence to the hour-ahead pre-dispatch price than before the trial. Both the mean difference and the standards deviation are smaller during the trial than before the trial.

Table 2 compares the convergence of pre-dispatch prices and the real-time HOEP before and during the trial. The results show that during the trial, the differences between the pre-dispatch prices and the real-time HOEP were smaller than before the trial. Both the mean difference and the standards deviation are smaller during the trial than before the trial. The maximum differences were typically smaller during the trial than before the trial.

Table 3 compares the rate of failures of intertie transactions before and during the trial. The failure rate of both imports and exports was lower during the trial than before.

Although the quantitative results are positive, many other factors were at play before and during the trial that would have contributed to the improvements in price convergence and failure rate of intertie transaction. These factors would include changes to the intertie transaction scheduling protocols, differences in demand levels etc. The improvements observed cannot be attributed solely to the trial.

A qualitative assessment of the trial indicated that market participants were in favour of the increased flexibility afforded them. The IMO also determined that there were no adverse impacts on the reliable operation of the IMO-controlled grid.

The only negative finding in the trial was that the IMO was unable to accept some specific revisions made close to the 2-hour time limit. These specific revision types included:

- the submission of new dispatch data; or

- the removal of existing dispatch data; or

- the addition/removal of price-quantity pairs within exiting dispatch data.

Due to limitations of the existing market software, the IMO has to manually approve these types of revisions. In some circumstances there was insufficient time for the IMO to approve, and therefore

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accept and incorporate, all such revisions made close to the 2-hour time limit. These revisions need to be accepted before 2 hours ahead of the dispatch hour in order that they be included in the 2-hour-ahead pre-dispatch sequence and the intertie transaction scheduling protocols with neighbouring markets. Until the IMO can implement the necessary market software changes, unrestricted revisions to dispatch data of the 3 types noted above should only be permitted up to 2 hours and 15 minutes before the dispatch hour. This would ensure that the IMO would have sufficient time to accept/approve the revisions and that the revisions are factored into the 2-hour-ahead pre-dispatch scheduling sequence and interchange transaction protocols.

So as to provide certainty as to when and how the 2 hour and 15 minute time limit will be removed, the rules should specify that this time limit will only be in effect until the IMO develops the necessary software changes and notifies market participants to that effect. Such a market rule would eliminate the need for a further rule amendment once the IMO does develop the necessary software capability.

PART 4 – PROPOSED AMENDMENT

3.3   Dispatch Data Submissions

3.3.1   Subject to section 3.3.9, a *registered market participant* that submits or is required to submit *dispatch data* for the initial *pre-dispatch schedule,* shall submit initial *dispatch data* for each *dispatch hour* of the *dispatch day* after 06:00 EST but before 11:00 EST of each *pre-dispatch day.* Such initial *dispatch data* may thereafter be revised as permitted by this section 3.3.

3.3.2   The *IMO* shall use the initial *dispatch data* submitted by *registered market participants* to determine and *publish* the initial *pre-dispatch schedule* in accordance with section 5.

3.3.3   Subject to section 3.3.4, aA *registered market participant* may submit revised *dispatch data* with respect to any *dispatch hour* without restriction until 4 2 hours prior to the beginning of that *dispatch hour*.

3.3.4   Until such time that the *IMO* has the software capability to permit automated acceptance of revisions to *dispatch data* of the following nature without restriction up to 2 hours ahead of the *dispatch hour*, aA *registered market participant* may submit new or revised *dispatch data* of the following nature with respect to any *dispatch hour* without restriction until 2 hours and 15 minutes prior to that *dispatch hour*:

   3.3.4.1   addition or deletion of *price-quantity pair(s)* within submitted *dispatch data*;

   3.3.4.2   submission of new *dispatch data*;

3.3.4.3   removal of submitted *dispatch data.*

~~provided that no price, quantity or ramp quantity and ramp up/down values may, without authorisation from the *IMO*, be changed by more than the greater of (i) 10 percent of the value that was current 4 hours prior to the *dispatch hour* and (ii) such absolute amount as may be determined by the *IMO*. Without limiting the generality of section 3.2.2 of Chapter 3, the *IMO* may refer to the *market surveillance panel* any larger revision of *dispatch data* submitted within 4 hours of the *dispatch hour* to which such *dispatch data* apply.~~ This section ceases to have effect when the *IMO* has the software capability specified in this section and notifies *market participants* to that effect.

3.3.5   Except as permitted by sections 3.3.8, 3.3.9.2 and 3.3.11, no *registered market participant* may, without the approval of the *IMO*, submit revised *dispatch data* with respect to any *dispatch hour* within the times specified in sections 3.3.3 and 3.3.4 ~~2 hours of that *dispatch hour*~~.

3.3.6   Where pursuant to section ~~3.3.4 or~~ 3.3.5, the authorization of the *IMO* is required for the submission of revised *dispatch data*, the *IMO* shall, unless the change in quantity poses risks in relation to the *reliability* or *security* of the *electricity system*, authorize the submission of revised *dispatch data* where:

3.3.6.1   [Intentionally left blank]

3.3.6.2   the revision relates solely to the quantity element of the *dispatch data*; and

3.3.6.3   the *registered market participant* indicates, at the time of the submission of the revised *dispatch data*, that the revision is required in order to reflect a proposed change in the operational status of the *registered facility* designed solely to prevent the *registered facility* from operating in a manner that would violate any *applicable law*, endanger the safety of any person or damage property or the environment.

PART 5 – IMO BOARD COMMENTS

Table 1

Convergence of Pre-Dispatch Prices Before and During Trial

Variable	Period Before Trial Started May 1 – Nov 15		Period During Trial Nov 16 – Mar 31	
	Mean[1]	Standard Deviation[2]	Mean[1]	Standard Deviation[2]
2-Hour Ahead Pre-Dispatch Price *minus* Hour-Ahead Pre-Dispatch Price	8.15	65.23	4.40	18.73
3-Hour Ahead Pre-Dispatch Price *minus* Hour-Ahead Pre-Dispatch Price	11.16	74.64	9.62	33.08
4-Hour Ahead Pre-Dispatch Price *minus* Hour-Ahead Pre-Dispatch Price	12.71	78.14	13.04	45.95
5-Hour Ahead Pre-Dispatch Price *minus* Hour-Ahead Pre-Dispatch Price	18.90	95.83	16.51	66.66
6-Hour Ahead Pre-Dispatch Price *minus* Hour-Ahead Pre-Dispatch Price	21.22	103.08	19.44	75.05
7-Hour Ahead Pre-Dispatch Price *minus* Hour-Ahead Pre-Dispatch Price	24.07	112.64	21.10	64.98
8-Hour Ahead Pre-Dispatch Price *minus* Hour-Ahead Pre-Dispatch Price	27.07	126.21	24.46	83.58

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[1] Mean Difference is the arithmetic average of the absolute differences between the prices for all the hours in the sample period.

[2] Standard deviation of the absolute differences between the prices for all the hours in the sample period.

Table 2

Convergence of Pre-Dispatch and Real-Time Prices Before and During Trial

Variable	Period Before Trial Started May 1 – Nov 15			Period During Trial Nov 16 – Mar 31		
	Mean[1]	Maximum[3]	Standard Deviation[2]	Mean[1]	Maximum	Standard Deviation[2]
1 Hour-Ahead Pre-Dispatch *minus* Real-Time -HOEP	35.52	1,949.23	169.22	27.22	1,723.02	68.37
2 Hour-Ahead Pre-Dispatch *minus* Real-Time -HOEP	33.95	1,918.13	161.62	27.05	1,723.02	68.03
3 Hour-Ahead Pre-Dispatch *minus* Real-Time -HOEP	35.38	1,918.13	168.23	28.76	1,813.02	76.46
4 Hour-Ahead Pre-Dispatch *minus* Real-Time -HOEP	35.64	1,915.29	166.81	30.55	1,923.02	84.23
5 Hour-Ahead Pre-Dispatch *minus* Real-Time -HOEP	38.84	1,932.29	172.06	32.76	1,923.02	99.13
6 Hour-Ahead Pre-Dispatch *minus* Real-Time -HOEP	39.93	1,929.38	174.24	34.54	1,923.02	106.83
7 Hour-Ahead Pre-Dispatch *minus* Real-Time -HOEP	41.48	1,929.04	179.68	35.90	1,937.19	101.92
8 Hour-Ahead Pre-Dispatch *minus* Real-Time -HOEP	43.01	1,932.17	186.32	38.61	1,937.19	118.87

Table 3

Range of Intertie Transaction Failure Rates Before and During Trial

Intertie Transaction	Monthly Failure Rate[4] (%) Before Trial	Monthly Failure Rate (%) During Trial
Imports into Ontario	1.9 - 6.1	1.8 – 3.2
Exports from Ontario	10.7 – 63.1	6.1 – 8.1

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[3] Maximum is the largest absolute difference between the prices witnessed in an hour in the sample period.

[4] Total MWh of intertie transactions that failed during a month expressed a percentage of the total MWh of intertie transactions scheduled for each hour of the month