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## Market Rule Amendment Proposal

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### PART 1 – MARKET RULE INFORMATION

Identification No.:	MR-00247-R00		
Subject:	Special Protection Systems		
Title:	Amendments to Ensure Proper Operation and Compensation for Special Protection Systems		
Nature of Proposal:	<input checked="" type="checkbox"/> Alteration	<input type="checkbox"/> Deletion	<input type="checkbox"/> Addition
Chapter:	5	Appendix:	
Sections:	8		
Sub-sections proposed for amending:	8.2.4; 8.2.6; 8.3.1.6; 8.4 (new)		

### PART 2 – PROPOSAL HISTORY

Version	Reason for Issuing	Version Date
1.0	Technical Panel Review	April 28, 2004
2.0	Posted for Stakeholder Review and Comment	May 4, 2004
3.0	Technical Panel Review	July 27, 2004
4.0	Technical Panel Review	August 3, 2005
5.0	Technical Panel Review	September 6, 2005
6.0	Technical Panel Review	September 30, 2005
7.0	Posted for Stakeholder Review and Comment	October 6, 2005
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 *IESO-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 *IESO-administered markets*.

#### Summary

Amendments to the market rules regarding Special Protection Systems (SPSs) are proposed to address operational and compensation issues raised by market participants. These amendments would:

- Require the IESO to consult with and, where practicable, gain the agreement of the market participant whose facility is part of an SPS regarding changes to the criteria for arming and activation of that SPS;
- Establish permissions, obligations and conditions regarding SPS arming and activation notification and/or status annunciation to a market participant whose facility is part of an SPS;
- Require a market participant whose facility is part of an SPS to inform the IESO if the facility is unavailable for SPS arming;
- (a) Allow a market participant whose facility is part of an SPS to request that the IESO disarm an SPS that has been armed and where subsequent activation of the SPS would endanger the safety of any person, damage equipment or violate any applicable law and (b) require the IESO to disarm the SPS, as soon as practicable, when so requested; and
- Allow a market participant whose dispatchable load or non-quick start dispatchable generation facility is part of an SPS to claim and receive compensation if that facility is tripped off as the result of the SPS activation.

These amendments would allow market participants to better manage the risks associated with their facilities being part of an SPS while maintaining the reliable operation of the IESO-controlled grid.

It is also proposed to change all “IMO” references to “IESO” in keeping with the organization name change resulting from the passage of Bill 100.

#### Background

Special Protection Systems (SPSs) are designed and intended to:

- Increase the capability of power transfers across the IESO-controlled grid while providing normal security levels; or
- Provide additional security for the IESO-controlled grid beyond that required for normal criteria

### PART 3 – EXPLANATION FOR PROPOSED AMENDMENT

contingencies.

The Northeast Power Coordinating Council (NPCC) specifies the criteria for the design and operation of Special Protection Systems.<sup>1</sup>

SPSs have been installed historically on the IESO-controlled grid to automatically initiate one or more of the following control actions:

- Generation rejection
- Generation runback
- Load rejection
- Shunt capacitor switching
- Shunt reactor switching
- Cross-tripping

SPSs have been installed in Ontario and used on the IESO-controlled grid because they:

- Enable load and generation connections when timely construction of conventional transmission capability is not possible;
- Accommodate expected but short-lived system conditions – e.g. planned outages that do not warrant the costs of conventional transmission solutions; and
- Minimize costs for generators and all power consumers in the market. (i.e. An SPS is a low-cost alternative to investment in conventional transmission.)

SPSs increase the pre-contingency power transfer capability of the IESO-controlled grid by improving post-contingency IESO-controlled grid performance. By enhancing transmission capability, SPSs increase the efficiency of the IESO-administered markets because they reduce congestion and the resultant congestion management settlement credit (CMSC) payments to both generators and loads under the current uniform pricing regime.

While the utilization of Special Protection Systems is desirable as a means of achieving required levels of security and/or market efficiencies, there are risks associated with reliance on these systems. The failure of an SPS to operate when required can lead to a System Disturbance. Further there are potential risks and costs associated with SPS operations (whether intentional or inadvertent), in terms of potential equipment damage, increased maintenance costs and degradation of customer supply reliability.

Market participants have identified issues regarding the operation of existing SPSs and lack of compensation associated with existing SPSs. The specific concerns are outlined below:

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<sup>1</sup> The criteria for design and operating of SPSs are specified in NPCC Document A-2, Basic Criteria for Design and Operation of Interconnected Power Systems.

### **PART 3 – EXPLANATION FOR PROPOSED AMENDMENT**

- While the vast majority of SPSs in Ontario have been in-service for many years and the criteria for arming and activation for each is known and understood by the affected market participants, changes to the criteria for arming and activation of SPSs should be discussed with and agreed to by the affected market participants. A market participant is better able to assess and manage the risks associated with a facility that forms part of an SPS when the market participant is aware of the conditions under which the SPSs would be armed and activated.
- The operators of facilities that form part of an SPS need to be aware of the status of the SPS on an ongoing basis so they can assess risk to their facilities. Currently, market participants whose facilities form part of an SPS do not receive appropriate information and notification as to when the SPS is armed and activated.
- The market rules allow a market participant to reject dispatch instructions if compliance with those instructions would endanger the safety of any person, damage equipment, or violate any applicable law. The market rules should also permit market participants to reject an SPS arming for the same reasons.
- When an SPS is activated, a generation unit that forms part of that SPS may be runback or shutdown. Under the current market rules, non-quick start facilities (e.g. fossil or nuclear generation facilities) are not eligible for constrained-off CMSC payments under these conditions. A fossil or nuclear generation facility that is forced to shut down or runback its generation as a result of an SPS activation is losing revenues it would otherwise have received while the rest of the market has benefited from the enhanced transmission system transfer capability prior to and after the SPS activation.
- Some generators assert that under the current uniform pricing market design which includes CMSC payments, generators do not have a financial incentive to use SPSs to maximize output. A nodal pricing scheme would provide generators with that incentive.

#### **Discussion**

##### **1. Process for Changing the Criteria for Arming and Activation of SPSs**

The first proposed amendment is to introduce an obligation on the IESO to discuss proposed changes to the criteria for arming and activation of SPSs, and, where practicable, gain the agreement of the market participants whose facilities are part of the SPS (refer to section 8.2.4). The IESO would be required to discuss these changes with affected market participants prior to changing the criteria. If agreement of the market participants cannot be reached, the IESO would retain the authority to change the criteria if such changes are required to maintain reliable operation of the IESO-controlled grid. This IESO authority and action may be necessary in situations where there are many market participants that have facilities that are part of an SPS. Gaining multi-party agreement on the changes to the criteria for the use of SPSs may be very difficult and, at times, impossible. It should be noted that a market participant would be able to use the dispute resolution process if the participant disagrees with the IESO decision to change the criteria without participant agreement.

##### **2. Notification and Status Annunciation of SPS Arming and Activation**

The second proposed amendment is to specify requirements for notification and status annunciation of SPS arming and activation. If a market participant's facility forms part of an SPS, that market participant:

### PART 3 – EXPLANATION FOR PROPOSED AMENDMENT

- May request notification and/or status annunciation of arming and activation (new section 8.4.3), and
- Must inform the IESO if the facility is unavailable for arming (new section 8.4.4).

The market participant, the SPS owner/operator and the IESO would be required to determine the appropriate status annunciation and notification based on the following considerations:

- the market participant's licensing/legal requirements related to the operation of its facility,
- practicality,
- cost-effectiveness,
- impact on the intended use of the SPS, and
- comparison to the status annunciation and notification provided to other market participants whose facilities form part of an SPS.

If agreement on status annunciation and notification cannot be reached, the issue would be resolved using the dispute resolution provisions of the market rules. Requiring the use of the dispute resolution process when agreement cannot be reached provides a strong incentive for all parties to reach agreement.

A market participant whose facility forms part of an SPS would be required to inform the IESO, using the existing outage management system, if the facility is unavailable for arming. This ongoing notification is intended to be the mechanism by which a market participant can manage the risk and impact of SPS arming and activation on its facility. If the market participant has not informed the IESO that its facility is unavailable for SPS arming, the IESO shall assume that the facility is available for SPS arming and take action accordingly. It is not proposed to allow a market participant the right to refuse a request to arm an SPS. Such a refusal could place the IESO in the position where it would have to take immediate alternative action to maintain reliable operation of the IESO-controlled grid, action that could be more disruptive to the market.

#### **3. Request for Disarming of an Armed SPS**

The third proposed amendment (new section 8.4.5) allows a market participant whose facility forms part of an SPS to request that the IESO disarm an armed SPS where subsequent activation of the SPS would:

- endanger the safety of any person,
- damage equipment, or
- violate any applicable law.

These conditions are the same as the conditions under which a market participant is permitted to refuse to comply with dispatch instructions. The IESO would be required to disarm the SPS as soon as practicable after such a request. The practicality of disarming the SPS would depend on the IESO being able to take measures to maintain reliable operation of the IESO-controlled grid with the SPS disarmed.

#### **4. Compensation for Non-Quick Start Facilities Tripped Offline by SPS Activation**

The fourth proposed amendment is to allow a market participant whose non-quick start dispatchable

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generation facility forms part of an SPS to claim compensation if that facility is tripped offline as a result of activation of the SPS. The compensation will be the dollar equivalent of two hours of constrained-off CMSC payments based on the following assumptions:

- the facility would have continued to be connected to the IESO-controlled grid for two hours after the activation or the actual period for the facility to reconnect and achieve the dispatch level prior to activation, whichever is less;
- the market schedule for the facility set by the IESO is equal to the energy level from the market schedule in the dispatch interval before activation of the SPS; and
- the facility was constrained to zero MW for two hours.

The amount of compensation that could be claimed would be an amount equivalent of up to two hours of constrained off CMSC payments. Market participants would be eligible for compensation for non-quick start dispatchable generation facilities tripped offline by SPS activation only as long as constrained off CMSC payments continue in the IESO-administered markets (sections 8.4.1, 8.4.2 and 8.2.6).

Under the present Uniform Pricing Market Design, a generator who cannot get its lower cost generation to market due to transmission congestion is compensated for its lost profits as a constrained-off congestion management settlement credit (CMSC) payment. A generator with an SPS system and other generators in the local area have enhanced transmission capability that allow generators to get their output to market and recover their implied profit from the market rather than by way of a CMSC payment. In either case, the generator is held whole but with the SPS system in place the market is made more efficient as lower cost power is able to get to market and in turn CMSC payments are reduced.

The proposed compensation is meant to recognize the market benefits of the SPS and the risks borne by a market participant whose facility is part of the SPS and to partially offset the absence of financial drivers that arise from the existing constrained off CMSC payments. The compensation is not intended to reimburse the facility for its lost market revenue or costs incurred as a result of the SPS activation. This compensation would apply to non-quick start dispatchable generation facilities that are either part of new or legacy SPS systems. Only dispatchable resources would be eligible for this compensation to ensure that the compensation would be transparent to the marketplace, since it would be based on the bids and offers of the facility. Dispatchable quick start facilities and dispatchable loads are not eligible for this type of compensation because these facilities are already eligible for CMSC payments when tripped offline as a result of SPS activation since these facilities can be back online within a short period of time. Under the current market rules, a non-quick start dispatchable generation facility is not entitled to CMSC payments when the facility's breaker has opened as a result of an SPS activation because these facilities cannot come back online quickly enough.

#### **5. Bill 100 Consequential Amendments**

The fifth proposed amendment is to replace, in chapters 3, 5, and 9, all references to the IMO with the IESO to reflect the name change required under Bill 100.

## PART 4 – PROPOSED AMENDMENT

## 8. Special Protection Systems (SPS)

### 8.1 Objectives

8.1.1 *Special protection systems (“SPS”)* have been installed in a number of locations on the IMOIESO-controlled grid which automatically initiate one or more of the following control actions:

- 8.1.1.1 load rejection;
- 8.1.1.2 generation rejection;
- 8.1.1.3 generation runback;
- 8.1.1.4 shunt capacitor switching;
- 8.1.1.5 shunt reactor switching; and
- 8.1.1.6 cross-tripping.

8.1.2 The IMOIESO shall ~~use direct the arming of the~~ SPSs installed on the IMOIESO-controlled grid as necessary to:

- 8.1.2.1 increase the capability of power transfers on the IMOIESO-controlled grid; or
- 8.1.2.2 provide additional *security* beyond that required to manage *contingency events* in a *normal operating state*.

8.1.3 New SPSs shall be installed and utilized on the basis of agreements between and/or among the parties involved.

### 8.2 Responsibilities of the IMOIESO

8.2.1 The IMOIESO shall classify all SPSs and obtain approval for their use in accordance with all applicable *reliability standards*.

8.2.2 The IMOIESO shall determine the need for utilizing an SPS for *security* reasons.

8.2.2A The IMOIESO shall direct the ~~operation-arming~~ of all SPSs installed on the IMOIESO-controlled grid in accordance with applicable *reliability standards*.

- 8.2.3 The *IMOIESO* shall ~~dispatch~~ direct the arming of an *SPS* to mitigate the adverse effects of specific extreme *contingency events* and to mitigate congestion provided that there are no overriding concerns related to the *security* of the *IMOIESO*-controlled grid.
- 8.2.4 The *IMOIESO* shall establish and ~~publish~~ ~~dispatch~~ criteria for arming and activation of *SPSs* in sufficient detail and precision to allow a market participant whose facility forms part of an *SPS* to understand the conditions under which that *SPS* would be armed and activated. Prior to establishing changes to such criteria, the *IESO* shall consult with, and, where practicable, gain the agreement of, the market participant whose facility is part of the *SPS* to the intended changes. In the event that agreement cannot be reached, the *IESO* may change the criteria for the *SPS* if necessary to maintain reliable operation of the *IESO*-controlled grid.
- 8.2.5 The *IMOIESO* shall from time to time review or cause to be reviewed the performance of *SPSs*.
- 8.2.6 In the event that a market participant applies to the *IESO* for compensation under section 8.4.1, the *IESO* shall, upon verification that the amount being claimed is correct, pay such compensation by crediting the market participant's preliminary settlement statement for the last day of the month in which the application for compensation was received.

### 8.3 Responsibilities of SPS Equipment Owners

- 8.3.1 Owners of *SPS* equipment shall:
- 8.3.1.1 maintain *SPS* equipment in accordance with all applicable *reliability standards*;
  - 8.3.1.2 test and report operating statistics associated with an *SPS* to the *IMOIESO* on an annual basis;
  - 8.3.1.3 report the performance of an *SPS* when requested to do so by the *IMOIESO*;
  - 8.3.1.4 evaluate and notify the *IMOIESO* of any request from affected *market participants* for permanent exemptions from *connection* to the *SPS*;
  - 8.3.1.5 provide written notice to the *IMOIESO* of any proposal to install a new, or modify an existing, *SPS*, which notice shall be provided with sufficient lead time and in sufficient detail for the *IMOIESO* to review and seek, if necessary, approval from the relevant standards authorities for such new or modified *SPS*; and
  - 8.3.1.6 specify to the *IESO* and market participants whose facilities form part of an *SPS* the means used to arm the *SPS*.



## 8.4 Responsibilities of Market Participants Whose Facilities Form Part of an SPS

8.4.1 A market participant with a dispatchable generation facility that is not a quick start facility and that is part of an SPS may, in the time and manner specified in the applicable market manual, apply to the IESO for compensation, if that facility is tripped offline as a result of the activation of the SPS. The amount of compensation that may be claimed shall be determined in accordance with the applicable market manual and shall be the equivalent of up to the first two hours of constrained off congestion management settlement credit payments that would otherwise be calculated if the facility had been constrained down to zero and its circuit breaker had remained closed.

8.4.2 Section 8.4.1 shall apply only as long as section 3.5 of Chapter 9 is in effect.

8.4.3 Market participants whose facilities form part of an SPS may request notification and/or status annunciation of SPS arming and activation and may enter into discussions with the SPS equipment owner/operator and the IESO to determine the appropriate status annunciation and notification. The market participant, SPS equipment owner/operator and the IESO shall use the following criteria in determining and implementing the appropriate status annunciation and/or notification:

8.4.3.1 licensing/legal requirements of the market participant related to the operation of its facility that is part of the SPS;

8.4.3.2 practicality of status annunciation and/or notification;

8.4.3.3 cost-effectiveness of status annunciation and/or notification;

8.4.3.4 the status annunciation and/or notification does not adversely impact the intended use of the SPS; and

8.4.3.5 comparison to the notification and annunciation of SPS arming and activation provided to other market participants whose facilities form part of an SPS.

In the event that they cannot agree on the status annunciation and notification requirements and implementation, the SPS owner/operator, the IESO and the market participant shall use the dispute resolution provisions in section 2 of Chapter 3 to resolve the issue.

8.4.4 Market participants whose facilities form part of an SPS shall notify the IESO in accordance with the applicable market manual if the facility is unavailable for SPS arming.

8.4.5 If an SPS has been armed and the market participant whose facility forms part of the SPS reasonably believes that a subsequent activation of that SPS would endanger the safety of any person, damage equipment or violate any applicable law, the market participant whose facility is part of that SPS may request that the IESO disarm the SPS. Upon such a request, the IESO shall, as soon as the IESO can take action to maintain reliable operation of the IESO-controlled grid, disarm the SPS.

**PART 5 – IESO BOARD COMMENTS**

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## Market Rule Amendment Proposal

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### PART 1 – MARKET RULE INFORMATION

Identification No.:	MR-00247-R01		
Subject:	Special Protection Systems		
Title:	Amendments to Ensure Proper Operation and Compensation for Special Protection Systems		
Nature of Proposal:	<input checked="" type="checkbox"/> Alteration	<input type="checkbox"/> Deletion	<input type="checkbox"/> Addition
Chapter:	3	Appendix:	
Sections:	2.2		
Sub-sections proposed for amending:	2.2.2.1		

### PART 2 – PROPOSAL HISTORY – REFER TO MR-00247-R00

Version	Reason for Issuing	Version Date
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 *IESO-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 *IESO-administered markets*.

**Summary**

Refer to MR-00247-R00

**Background**

Refer to MR-00247-R00

**Discussion**

The proposed amendment allows for the dispute resolution process to be used when a market participant, SPS owner/operator, and the IESO cannot agree on notification and status annunciation of SPS arming and activation.

**PART 4 – PROPOSED AMENDMENT**

**2.2 Application**

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2.2.2 The dispute resolution regime provided for in this section 2:

2.2.2.1 shall apply to a dispute between *market participants* referred to in section 2.1A.6A of Chapter 9 and section 8.4.3 of Chapter 5; and

**PART 5 – IESO BOARD COMMENTS**

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## Market Rule Amendment Proposal

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### PART 1 – MARKET RULE INFORMATION

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Subject:	Special Protection Systems		
Title:	Amendments to Ensure Proper Operation and Compensation for Special Protection Systems		
Nature of Proposal:	<input checked="" type="checkbox"/> Alteration	<input type="checkbox"/> Deletion	<input type="checkbox"/> Addition
Chapter:	9	Appendix:	
Sections:	4.8		
Sub-sections proposed for amending:	4.8.1		

### PART 2 – PROPOSAL HISTORY – REFER TO MR-00247-R00

Version	Reason for Issuing	Version Date
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**PART 3 – EXPLANATION FOR PROPOSED AMENDMENT**

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- The proposed amendment, how the amendment addresses the above reason and impact of the proposed amendment on the *IESO-administered markets*.

**Summary**

Refer to MR-00247-R00

**Background**

Refer to MR-00247-R00

**Discussion**

The proposed new section (4.8.1.11) is consequential to the proposed provisions regarding compensation provided to a market participant whose non-quick start facility is tripped off as a result of SPS activation (refer to MR-00247-R00). Due to the expected low frequency of such compensation claims, compensation would be determined by the IESO manually and it is proposed that any compensation would be recovered from the market as a non-hourly settlement amount.

**PART 4 – PROPOSED AMENDMENT****4.8 Additional Non-Hourly Settlement Amounts**

4.8.1 The *IMOIESO* shall, at the end of each *energy market billing period*, recover from *market participants*, on a pro-rata basis across all allocated quantities of *energy* withdrawn at all *RWMs* and *intertie metering points* during all *metering intervals* and *settlement hours* within that *energy market billing period*, the following amounts:

4.8.1.1 any compensation paid in that *energy market billing period* by the *IMOIESO* pursuant to section 5.3.4 of Chapter 4;

4.8.1.2 any compensation paid in that *energy market billing period* by the *IMOIESO* pursuant to section 5.3.4 of Chapter 5;

4.8.1.3 any out-of-pocket expenses paid in that *energy market billing period* by the *IMOIESO* pursuant to section 6.7.4 of Chapter 5;

- 4.8.1.4 any compensation paid in that *energy market billing period* by the ~~IMO~~IESO pursuant to section 8.4A.9 of Chapter 7;
- 4.8.1.5 any costs incurred in that *energy market billing period* by the ~~IMO~~IESO to acquire *emergency energy* pursuant to section 2.3.3A of Chapter 5; and
- 4.8.1.6 any reimbursement paid in that *energy market billing period* by the ~~IMO~~IESO pursuant to section 2.1A.12.2(a);
- 4.8.1.7 any funds borrowed by the ~~IMO~~IESO and any associated interest costs incurred by the ~~IMO~~IESO in the preceding *energy market billing period* pursuant to section 6.14.5.2;
- 4.8.1.8 any compensation paid in that *energy market billing period* by the ~~IMO~~IESO pursuant to section 4.7A;
- 4.8.1.9 any compensation paid in that *energy market billing period* by the ~~IMO~~IESO pursuant to section 4.7B.3; ~~and~~
- 4.8.1.10 any compensation paid in that *energy market billing period* by the ~~IMO~~IESO pursuant to section 4.7C-; ~~and~~
- 4.8.1.11 any compensation paid in that *energy market billing period* by the IESO pursuant to section 8.2.6 of Chapter 5.

**PART 5 – IESO BOARD COMMENTS**

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