Final Alignment Supplementary: Incremental Amendments

Incremental Amendments from Provisionally Approved baseline	
Title:	Chapter 0.5 – Power System Reliability
Current Market Rules Baseline:	
This document shows only excerpts from sections that have been revised since the Technical Panel provisionally recommended/IESO Board provisionally approved version with tracked changes. For the full version of this and other chapters, refer to the market rule amendment proposal documents (MR-00481-R00-R12).	

Introduction

A.1.1 This Chapter is part of the *renewed market rules,* which pertain to:

A.1.1.1 the period prior to a *market transition* insofar as the provisions are relevant and applicable to the rights and obligations of the *IESO* and *market participants* relating to preparation for operation in the *IESO administered markets* following commencement of *market transition;* and

A.1.1.2 the period following commencement of *market transition* in respect of all the rights and obligations of the *IESO* and *market participants.*

A.1.2 All references herein to chapters or provisions of the *market rules* will be interpreted as, and deemed to be references to chapters and provisions of the *renewed market rules.*

A.1.3 Upon commencement of the *market transition*, the *legacy market rules* will be immediately revoked and only the *renewed market rules* will remain in force.

A.1.4 For certainty, the revocation of the *legacy market rules* upon commencement of *market transition* does not:

A.1.4.1 affect the previous operation of any *market rule* or *market manual* in effect before the *market transition*;

A.1.4.2 affect any right, privilege, obligation or liability that came into existence under the *market rules* or *market manuals* in effect prior to the *market transition*;

A.1.4.3 affect any breach, non-compliance, offense or violation committed under or relating to the *market rules* or *market manuals* in effect prior to the *market transition*, or any sanction or penalty incurred in connection with such breach, non-compliance, offense or violation

A.1.4.4 affect an investigation, proceeding or remedy in respect of,

(a) a right, privilege, obligation or liability described in subsection A.1.4.2, or

(b) a sanction or penalty described in subsection A.1.4.3.

A.1.5. An investigation, proceeding or remedy described in subsection A.1.4.3 may be commenced, continued or enforced, and any sanction or penalty may be imposed, as if the *legacy market rules* had not been revoked.

Exceptions

B.1.1 Notwithstanding section A.1.1, the *legacy market rules* shall apply to any request for *one-day advance approval* of a *planned outage* submitted pursuant to section 6.4.1E prior to the commencement of the *market transition*, including where the requested *planned outage* would occur following the commencement of the *market transition*.

1. Purposes, Interpretation and General Principles

1.1 Purposes of Chapter 5 and Interpretation

1.1.1 Pursuant to section 6 of the *Electricity Act, 1998*, one of the objects of the *IESO* is to maintain the *reliability* of the *IESO-controlled grid*. This Chapter of the *market rules* sets forth:

1.1.1.1 rules governing maintenance of the *reliability* of the *IESO-controlled grid*;

1.1.1.2 conditions under which the *IESO* shall have authority to intervene in the *IESO-administered markets* and issue directions to *market participants* so as to maintain the *reliability* of the *IESO-controlled grid* and of electricity service;

1.1.1.3 procedures to be used by the *IESO*, including the issuance of directions, in the event of an *emergency,* an *emergency operating state* or a *high-risk operating state;*

1.1.1.4 minimum requirements for communication and information exchange between the *IESO* and *market participants* relating to the *reliability* of the *IESO-controlled grid*; and

1.1.1.5 the *IESO's* reporting requirements associated with its responsibilities for maintaining the *reliability* of the *IESO-controlled grid*.

1.1.2 ~~For the purposes of this Chapter, "maintaining" *reliability* shall include re-establishing or restoring *reliability* and "maintain" and "maintenance" shall be interpreted accordingly.~~[Intentionally left blank]

1.2 General Principles

1.2.4 ~~Section~~ MR Ch.1 s.7.5 ~~of Chapter 1~~ does not apply to this Chapter and any action or event that is required to occur on or by a stipulated time or day under this Chapter, or under a direction, instruction or order of the *IESO* issued pursuant to this Chapter, shall occur on or by that time, whether or not a business hour, or on or by that day, whether or not a *business day*, unless otherwise specified in this Chapter.

2. IESO-Controlled Grid and Operating States

2.1 Scope of IESO-Controlled Grid

2.1.2 Subject to the licence of the *IESO* or of the applicable *transmitter* or *distributor*, if the *IESO* and a *transmitter* or *distributor* are unable to reach agreement on the inclusion of *facilities* within the *IESO-controlled grid*, the matter shall be resolved using the dispute resolution procedures in the applicable *operating agreement* or, in the absence of same, the procedures set forth in ~~Section 2 of Chapter 3~~MR Ch.3 s.2.

2.3 Emergency Operating State

2.3.1 The *IESO-controlled grid* shall be considered as being in an *emergency operating state* when observance of *security limits* under a *normal operating state* will either:

2.3.1.1 require *curtailment*; or

2.3.1.2 restrict transactions on *interconnected systems* during an *emergency* on the *IESO-controlled grid* or on a ~~neighbouring~~ *neighbouring electricity system*.

2.3.3A Without limiting the generality of section 2.3.3 and notwithstanding any other provision of the *market rules*, the *IESO* may, when the *IESO-controlled grid* is in an *emergency operating state*, acquire *emergency energy* in accordance with all applicable *reliability standards* and any applicable *interconnection agreement* in order to maintain the *reliability* of the *IESO-controlled grid.* The *IESO* shall not exercise this power where *market participants* have *offered* to provide sufficient quantities of *energy*, eligible for *dispatch* or scheduling, to enable the *IESO* to maintain the *reliability* of the *IESO-controlled grid*. The costs associated with the acquisition of such *emergency energy* paid by the *IESO* pursuant to the applicable *interconnection agreement* shall be recovered in accordance with ~~section 4.8 of Chapter 9~~MR Ch.9 s.4.14.12.

2.3.4 Further provisions relating to system and *market operations* during *emergency* conditions are set forth in ~~Chapter~~ MR Ch.7.

2.5 Conservative Operating State

2.5.1 The *IESO-controlled grid* shall be considered to be in a *conservative operating state* when the impact of a ~~*contingency* event~~ *contingency event* on the *IESO-controlled grid* could be more severe than under a *normal operating state*. Under a *conservative operating state* the *IESO-controlled grid* will be operated within equipment and *security limits* established for a *normal operating state*. The *IESO-controlled grid* will be in a heightened state of readiness due to anticipated, or actual, stresses on the grid itself, or due to the *IESO's* loss of ability to effectively monitor the *IESO-controlled grid*. Conditions that may require a *conservative operating state* are listed in the applicable *market manual*.

3. Obligations and Responsibilities

3.1 Objectives

3.1.1 This section 3 sets forth the responsibilities, obligations and authorities of the *IESO* and each *market participant* in order to maintain the *reliability* of the *IESO-controlled grid*.

3.2 Obligations of the IESO

3.2.1 The *IESO* shall direct the operations of the *IESO-controlled grid* pursuant to the provisions of all applicable *operating agreements* and shall maintain the *reliability* of the *IESO-controlled grid*. The *IESO's* responsibilities in this regard shall include, but are not limited to, the monitoring of, and the issuing of orders, directions or *dispatch instructions* ~~instructions~~ to *facilities* and any associated *resources* ~~*dispatch* generation, *electricity storage facilities, dispatchable loads,* distribution transmission *facilities* on the *IESO-controlled grid*.~~ .

3.2A Technical Feasibility Exceptions

3.2A.1 The *IESO* may:

3.2A.1.1 [Intentionally left blank – section deleted]

3.2A.1.2 approve a *TFE application*, in whole or in part, subject to and including any terms and conditions the *IESO* determines appropriate or disapprove a *TFE application*, in whole or in part with such approval or disapproval being a *reviewable decision*;

3.2A.1.3 upon the request of a *market participant* amend or transfer a ~~*TFE*~~*technical feasibility exception*, in whole or in part, subject to and including any terms and conditions the *IESO* determines appropriate; or

3.2A.1.4 terminate or amend an approved ~~*TFE*~~*technical feasibility exception*, in whole or in part, subject to any terms and conditions the *IESO* determines appropriate. Such termination or amendment is a *reviewable decision*.

3.2A.2 A *TFE applicant* may, in accordance with the applicable *market manual*, request the *IESO* approve, amend, transfer, or terminate one or more *TFEs* by filing with the *IESO* a *TFE application* for each required ~~*TFE*~~*technical feasibility exception*, and shall, in accordance with the applicable *market manual* submit to the *IESO* an initial deposit. A *TFE applicant* may withdraw a *TFE application* at any time.

3.2A.3 Upon request by the *IESO*, a *TFE applicant* shall provide to the *IESO*:

3.2A.3.1 [Intentionally left blank – section deleted]

3.2A.3.2 any supporting documentation; and

3.2A.3.3 an executed agreement pursuant to which the *TFE applicant* agrees to pay to the *IESO* an amount equal to all of the reasonable costs incurred by the *IESO* in processing the *TFE application* and maintaining an approved ~~*TFE*~~*technical feasibility exception* until such time as the ~~*TFE*~~*technical feasibility exception* is no longer in effect.

3.2A.6 The *IESO* may utilize an independent third party to review a *TFE application* and any changes to an approved ~~*TFE*~~*technical feasibility exception* submitted by a *TFE applicant*.

3.2A.7 The *IESO* may consult with *NERC* or *NPCC* in its assessment of a *TFE application* and any changes to an approved ~~*TFE.*~~*technical feasibility exception.*

3.2A.8 A failure by a *market participant* or the *IESO* to meet any of the terms and conditions of an approved ~~*TFE*~~*technical feasibility exception* shall be a breach of the *market rules* and the *IESO* may terminate the approved ~~*TFE*~~*technical feasibility exception* and require the *TFE applicant* to become compliant with the applicable *NERC reliability standard*.

3.2A.9 Subject to section 3.2A.4, all ~~*TFEs*~~*technical feasibility exceptions* which remain in effect are subject to periodic review, in accordance with the applicable *market manual*, to verify continuing justification for the ~~*TFE*~~*technical feasibility exception*.

3.2A.10 The *IESO* may submit *invoices* to the *TFE applicant* for costs and expenses incurred by the *IESO* in processing the *TFE application* and maintaining the approved ~~*TFE*~~*technical feasibility exception* until such time as the ~~*TFE*~~*technical feasibility exception* is no longer in effect, less in each case, the amount of any deposit paid

pursuant to section 3.2A.2 not previously applied against the *IESO's* costs and expenses. The submission of *invoices* to the *TFE applicant* is a *reviewable decision*.

3.2A.11 A *TFE applicant* shall, within thirty days of the date of an *invoice* referred to in section 3.2A.5.3 or 3.2A.10, pay to the *IESO* the amount owing.

3.2B Bulk Electric System Exceptions

3.2B.1 A *BES exception applicant* may, in accordance with the applicable *market manual*, request the *IESO* approve, amend, transfer, or terminate one or more ~~*BES*~~*bulk electric system exceptions* by filing with the *IESO* a *BES exception request* for each required ~~*BES*~~*bulk electric system exception*, and shall, in accordance with the applicable *market manual* submit to the *IESO* an initial deposit. A *BES exception applicant* may withdraw a *BES exception request* at any time.

3.2B.7 After receiving a recommendation from the *IESO* on a *BES exception request*, the *IESO Board* or a panel of the *IESO Board* as determined by the Chair of the *IESO Board* may:

3.2B.7.1 [Intentionally left blank]

3.2B.7.2 approve or disapprove a *BES exception request*, in whole or in part, subject to and including any terms and conditions the *IESO* determines appropriate or disapprove a *BES exception request*, in whole or in part, with such approval or disapproval being a *reviewable decision*;

3.2B.7.3 upon the request of a *market participant* or a *connection applicant* amend or transfer a ~~*BES*~~*bulk electric system exception*, in whole or in part, subject to and including any terms and conditions the *IESO* determines appropriate; or

3.2B.7.4 terminate or amend an approved ~~*BES*~~*bulk electric system exception*, in whole or in part, subject to any terms and conditions the *IESO* determines appropriate. Such termination or amendment is a *reviewable decision*.

3.2B.8 A failure by a *market participant* or the *IESO* to meet any of the terms and conditions of an approved ~~*BES*~~*bulk electric system exception* shall be a breach of the *market rules* and the *IESO Board* or a panel of the *IESO Board* as determined by the Chair of the *IESO Board* may terminate the approved ~~*BES*~~*bulk electric system exception* and require the *BES exception applicant* to become compliant with the applicable *NERC reliability standards.*

3.2B.9 All ~~*BES*~~*bulk electric system exceptions* are subject to periodic review, in accordance with the applicable *market manu*al, to verify continuing justification for the ~~*BES*~~*bulk electric system exception* and may be referred to the *IESO Board* or a panel of the

IESO Board as determined by the Chair of the *IESO Board* in accordance with section 3.2B.7.

3.3 Reliability-Related Information

3.3.1 The *IESO* shall *publish* a list of the categories of *reliability*-related information that it shall provide to *market participants*, the time periods within which such information will be provided, and the manner in which such information will be provided. Such information shall include, but not be limited to, information designed to:

3.3.1.1 enable *market participants* to initiate procedures to manage the potential risk of any action taken by the *IESO* to maintain the *reliability* of the *IESO-controlled grid*;

3.3.1.2 assist *market participants* in meeting their obligations under this Chapter; and

3.3.1.3 notify *market participants* of any operating changes or decisions that may have an impact on their operations, *facilities* or equipment.

3.3.2 The *IESO* shall ~~publish~~ *publish* a catalogue of the *reliability*-related information that the *IESO* shall require from *market participants*, including the information referred to in section 14.1.3, the time periods within which such information will be provided and the manner in which such information will be provided. At the same time, the *IESO* shall *publish* initial monitoring indices that the *IESO* shall use in evaluating the information so provided.

3.3.3 *Market participants* shall provide the *IESO* with the information referred to in section 3.3.2 within the time and in the manner required.

3.3.4 Subject to the confidentiality provisions of ~~Chapters~~ MR Ch.3 and MR Ch.4, the *IESO* shall, if requested to do so by a *market participant*, provide to that *market participant reliability*-related information not contained in the list referred to in section 3.3.1, provided that the *IESO* shall be under no obligation to provide any information that, in the *IESO's* opinion, would provide the requesting *market participant* with an undue advantage in the *IESO-administered markets*. In order to prevent any such undue advantage, the *IESO* may provide *market participants* with notice of the request prior to providing such information and may make the information requested by a *market participant* simultaneously available to all *market participants*.

3.5 Obligations of Wholesale Customers

3.5.1 Each *connected wholesale customer* shall operate and maintain its *facilities* and equipment in a manner that is consistent with the *reliable* operation of the *IESO-controlled grid* and shall assist the *IESO* in the discharge of its responsibilities relating to *reliability*. Such obligation shall include, but not be limited to, the following:

3.5.1.2 promptly informing the *IESO* of any change or anticipated change in the status of any *facility* or equipment that it operates and is associated with the *resource* that is under the *dispatch* control of the *IESO* as described in these *market rules* or of any other change or anticipated change in its *facilities* or equipment that could have a material effect on the *IESO-controlled grid* or the operation of the *IESO-administered markets;*

3.6 Obligations of Generators (Embedded and Non-embedded)

3.6.1 Each *generator* that participates in the *IESO-administered markets* or that causes or permits electricity to be conveyed into, through or out of the *IESO-controlled grid* shall operate and maintain its *generation facilities* and equipment in a manner that is consistent with the *reliable* operation of the *IESO-controlled grid* and shall assist the *IESO* in the discharge of its responsibilities related to *reliability*. Such obligation shall include, but not be limited to, the following:

3.6.1.3 promptly informing the *IESO* of any change or anticipated change in the status of any *generation facility* or related equipment that it operates and is associated with the *resource* that is under the *dispatch* control of the *IESO* as described in these *market rules* or of any other change or anticipated change in its *generation facilities* or equipment that could have a material effect on the *IESO-controlled grid* or the operation of the *IESO-administered markets.* Such change shall include, but not be limited to, any change in status that could affect the maximum output of a *generation unit*, the minimum load of a *generation unit*, the ability of a *generation unit* to operate with *automatic voltage regulation*, or the availability of a *generation unit* to provide *ancillary services* (unless no application has been made to provide *ancillary services* to the *IESO-administered markets* in respect of a given *generation unit);*

3.6.1.4 promptly informing the *IESO* if any of the *generation facilities* that it operates are unable for any reason to operate in accordance with the schedules determined pursuant to ~~Chapter~~ MR Ch.7;

3.6.1.5 providing the *IESO* with current information showing the maximum unit capabilities of each of its *generation units* to facilitate *dispatch* in an *emergency operating state*. Such maximum unit capabilities shall consist of the maximum physical-rating of the *generation unit* and shall not be limited to the unit capabilities contained in the *offers* submitted for the *resource* associated with such *generation unit* pursuant to ~~Chapter~~ MR Ch.7; and

3.6.1.6 promptly complying with the *IESO's* directions, including directions to disconnect equipment from the *IESO-controlled grid* for *reliability* purposes, unless the *generator* reasonably believes that following the *IESO's* direction poses a real and substantial risk of endangering the safety of any person, damaging equipment, or violating any *applicable law*. In all cases where the *generator* does not intend to follow the *IESO's* directions for any such reasons, it shall promptly notify the *IESO* of this fact and shall nonetheless comply with the *IESO's* directions to the fullest extent possible without causing the harms described above~~; and~~.

~~3.6.1.7 [Intentionally left blank]~~

3.8 Obligations of Electricity Storage Participants (Embedded and Non-embedded)

3.8.1 Each *electricity storage participant* that participates in the *IESO-administered markets* or that causes or permits electricity to be conveyed into, through or out of the *IESO-controlled grid* shall operate and maintain its *electricity storage facilities* and equipment in a manner that is consistent with the *reliable* operation of the *IESO-controlled grid* and shall assist the *IESO* in the discharge of its responsibilities related to *reliability*. Such obligations shall include, but not be limited to, the following:

3.8.1.3 promptly informing the *IESO* of any change or anticipated change in the status of any *electricity storage facility* or related equipment that it operates and is associated with the *resource* that is under the *dispatch* control of the *IESO* as described in these *market rules* or of any other change or anticipated change in its *electricity storage facilities* or equipment that could have a material effect on the *IESO-controlled grid* or the operation of the *IESO-administered markets.* Such change shall include, but not be limited to, any change in status that could affect its range of injections and withdrawals of *energy*, *state of charge*, the ability of an *electricity storage unit* to operate with *automatic voltage regulation*, or the availability of an *electricity storage unit* to provide *ancillary services*

(unless no application has been made to provide *ancillary services* to the *IESO-administered markets* in respect of a given *electricity storage unit);*

3.8.1.4 promptly informing the *IESO* if any of the *electricity storage facilities* that it operates are unable for any reason to operate in accordance with the schedules determined pursuant to ~~Chapter~~ MR Ch.7;

3.8.1.5 providing the *IESO* with current information showing the maximum unit capabilities to inject electricity, for each of its *electricity storage units* to facilitate dispatch in an *emergency operating state.* Such maximum unit capabilities shall consist of the maximum amount in MWs that can be injected at that point in time, and for how long, and shall not be limited to the unit capabilities contained in the *offers* submitted for the *resource* associated with such *electricity storage unit* pursuant to ~~Chapter~~ MR Ch.7;

3.8.1.6 promptly complying with the *IESO's* directions, including directions to disconnect equipment from the *IESO-controlled grid* for *reliability* purposes, unless the *electricity storage participant* reasonably believes that following the *IESO's* direction poses a real and substantial risk of endangering the safety of any person, damaging equipment, or violating any *applicable law*. In all cases where the *electricity storage participant* does not intend to follow the *IESO's* directions for any such reasons, it shall promptly notify the *IESO* of this fact and shall nonetheless comply with the *IESO's* directions to the fullest extent possible without causing the harms described above; and

3.8.1.7 providing the *IESO* with current information showing the maximum unit capabilities to withdraw energy, for each of its *electricity storage units* to facilitate dispatch in an *emergency operating state*. Such maximum unit capabilities shall consist of the maximum amount in MWs that can be withdrawn at that point in time, and for how long, and shall not be limited to the unit capabilities contained in the *bids* submitted for the *resource* associated with such *electricity storage unit* pursuant to ~~Chapter~~ MR Ch.7;

4. System Reliability

4.2 Standards for Ancillary Services

4.2.1 The *IESO* shall operate the *IESO-administered markets* and contract for *ancillary services*, including by means or within the scope of an *operating agreement* or another agreement of similar nature, to ensure that sufficient *ancillary services* are available to ensure the *reliability* of the *IESO-controlled grid*. *Ancillary services* shall be procured by the *IESO* in accordance with this Chapter and ~~Chapter~~ MR Ch.7.

4.2.2 The requirements for *ancillary services* shall be determined based on all applicable *reliability standards* and actual and expected conditions on the *IESO-controlled grid.* Requirements for *ancillary services* may be adjusted from time to time by the *IESO* to take into account, among other things, variations in *integrated power system* conditions, real-time *dispatch* constraints, *contingency events*, the prevailing level of system risks or vulnerability, and the results of assessments of the voltage and dynamic stability of the *integrated power system*.

4.2.3 The *IESO* shall, in accordance with the procedures set forth in ~~section 4 of Chapter 3~~MR Ch.3 s.4, periodically review the operation of the *IESO-administered markets* for *ancillary services* to determine whether any revision to the requirements and standards for *ancillary services* is required for *reliability* purposes. As a minimum, the *IESO* shall conduct such reviews to accommodate revisions to applicable criteria established by relevant *standards authorities*.

4.3 Generic Performance Requirements for Ancillary Services

4.3.1 *Ancillary services* may be provided to the *IESO* only by *facilities* or *resources* in accordance with ~~Chapter~~ MR Ch.7. *Ancillary services* may be offered to the *IESO* in its daily and hourly *physical markets* or provided to the *IESO* under *contracted ancillary service* contracts through the *IESO's ancillary services procurement markets* or by means or within the scope of *operating agreements* or another agreement of a similar nature. Prior to entering into a contract with any *ancillary service provider*, the *IESO* shall determine whether the *facilities, resources* and procedures of such *ancillary service provider* meet the applicable requirements for registration in respect of the *ancillary service(s)* to be provided and are otherwise in compliance with the technical requirements of this Chapter. The *IESO* shall not contract for *ancillary services* with an *ancillary services provider* whose *facilities* or *resources* are not in compliance with such requirements.

4.3.2 In order to make the determination referred to in section 4.3.1, the *IESO* may require each *ancillary service provider* to demonstrate through physical tests or other appropriate means specified by the *IESO* that the *facilities*~~.~~ , equipment, or their associated *resources*, as the case may be, that will be used to provide the *ancillary service* meet the performance standards for each *ancillary service* set forth in Appendix 5.1 or in the applicable *market manual*.

~~4.3.3 [Intentionally left blank – section deleted]~~

~~4.3.4 [Intentionally left blank – section deleted]~~

4.4A Assistance to Other Control Areas

4.4A.1 Notwithstanding any other provision of the *market rules*, when a *transmission system* in another *control area* is in a state identical or comparable to an *emergency operating state*, the *IESO* may, in accordance with all applicable *reliability standards* and any applicable *interconnection agreement*, provide *emergency energy* to the *control area* within which such other *transmission system* is located in order to

maintain the *reliability* of such *transmission system.* The *IESO* shall only provide *emergency energy* to another *control area* in circumstances where *energy* could not be obtained by that *control area* using the *offer* and *bid* processes described in ~~Chapter~~ MR Ch.7. The compensation associated with the provision of such *emergency energy* that is received by the *IESO* pursuant to the applicable *interconnection agreement* shall be distributed in accordance with ~~section 4.8 of Chapter 9~~MR Ch.9 s.4.14.13.

4.5 Operating Reserve

4.5.1 *Operating reserve* is capacity that, for any given operating interval or *dispatch interval*, is in excess to that required to meet anticipated requirements for *energy* for that operating interval or *dispatch interval*, and is available to the *integrated power system* for *dispatch* by the *IESO* within a specified time period, such as 10 minutes or 30 minutes. *Operating ~~reserves~~reserve* may be provided by *generation resources, electricity storage resources, dispatchable loads* and *boundary entity resources* to the extent that each meets the applicable requirements to be a *resource* in respect of each category of *operating ~~reserves~~reserve*. Neighbouring *control areas* may also provide *operating reserve* through simultaneous activation of *operating reserve* and regional reserve sharing programs. *Operating reserve* is required to:

4.5.1.1 cover or offset unanticipated increases in load during a *dispatch day* or *dispatch hour*;

4.5.1.2 replace or offset capacity lost due to the *forced outage* of generation, electricity storage or transmission equipment; or

4.5.1.3 cover uncertainty associated with the performance of *generation ~~facilities~~resources*, *electricity storage ~~facilities~~resources* or *dispatchable loads* in responding to the *IESO's dispatch instructions*.

Simultaneous Activation of Reserve

4.5.6 The *IESO* may simultaneously activate with nearby systems its *ten-minute operating reserve* to respond to *contingency events* in accordance with agreements between the *IESO* and such systems. Similarly, such systems may activate their *operating reserve* when requested to meet *contingency events* in the *IESO control area* in accordance with agreements between the *IESO* and such systems. Such simultaneous activation of *operating reserve* is solely for the purpose of maintaining the *reliability* of *~~interconnection~~interconnected systems* and shall not alter the *operating reserve* requirements of the *IESO*.

Regional Reserve Sharing

4.5.~~6B~~6A The *IESO* may participate in regional reserve sharing programs with neighbouring *control areas*. Subject to availability and deliverability of the associated *energy*, the *IESO* may count towards its *ten-minute operating reserve* requirement a contribution

of up to 100 MW from neighbouring *control areas* in accordance with applicable regional reserve sharing programs and applicable *reliability standards.* The *IESO* shall activate *energy* from regional reserve sharing programs in accordance with applicable *reliability standards*.

Ten-Minute Operating Reserve

4.5.7 *Ten-minute operating reserve* is capacity that is available to the *integrated power system* in excess of anticipated requirements for *energy* and that can be made available and used within ten minutes. It includes ~~resources~~ *resources* that are either synchronized or non-synchronized with the *IESO-controlled grid*.

4.5.8 The *IESO* shall maintain sufficient *ten-minute operating reserve* to meet the requirements of all applicable *reliability standards.* This shall be at least equal to the largest first contingency loss sustainable on the *IESO-controlled grid*.

4.5.9 *Ten-minute operating reserve* shall be synchronized with the *IESO-controlled grid* to the extent required by all applicable *reliability standards*.

4.5.10 If, for any reason, there is a deficiency of *ten-minute operating reserve*, the *IESO* shall replace such *operating reserve* in accordance with the applicable *reliability standards* referenced in the *market manuals*.

4.5.11 The *IESO* shall, in accordance with ~~Chapter~~ MR Ch.7, *publish* daily its estimates of the quantity of *ten-minute operating reserve* that is required for each hour of the following day.

4.5.12 A *boundary entity resource* that is used as *ten-minute operating reserve* shall be treated as *operating reserve* that is non-synchronized with the *IESO-controlled grid*.

4.5.13 The reduction in load that can be effected by curtailing pumping hydroelectric *generation facilities* is eligible to be treated as *operating reserve* that is synchronized with the *IESO-controlled grid*.

~~4.5.13A [Intentionally left blank – section deleted]~~

~~4.5.13B~~4.5.14 The reduction in load that can be effected by curtailing withdrawals from *electricity storage facilities* is eligible to be treated as *operating reserve* that is synchronized with the *IESO-controlled grid*.

~~4.5.14 [Intentionally left blank]~~

4.6 Reactive Support and Voltage Control

4.6.1 *Reactive support service* ~~*and*~~ and *voltage control service* is the control and maintenance of prescribed voltages on the *IESO-controlled grid*. The devices that supply reactive power to the *integrated power system* include but are not limited to, capacitors, static VAR compensators, reactors, synchronous *generation facilities*, and synchronous condensers.

4.6.1A The *IESO* shall direct the operation of the *IESO-controlled grid* to meet all applicable *reliability standards* with respect to the *dispatch* of *resources* associated with the provision of reactive power ~~resources~~.

4.6.2 The *IESO* shall ensure that sufficient ~~resources are~~*reactive support service* and *voltage control service* is available throughout the *IESO-controlled grid* to meet all applicable *reliability standards* for *reactive support service* ~~*and*~~ and *voltage control service*. Voltage levels shall be maintained within acceptable levels within the *IESO-controlled grid*. As part of its assessment of system *adequacy* under the *market rules*, the *IESO* shall on a continual basis assess whether sufficient ~~*reactive* resources are~~ *reactive support service* and *voltage control service* is available to the *IESO*.

4.6.3 The *IESO* shall direct providers of *reactive support service* ~~*and*~~ and *voltage control service* to take any actions necessary to maintain stable voltage levels in accordance with *reliability standards* and to prevent the collapse of voltages on the *IESO-controlled grid*.

4.6.4 ~~[Intentionally left blank]~~

~~4.6.5 [Intentionally left blank]~~

~~4.6.6 [Intentionally left blank]~~

~~4.6.7 [Intentionally left blank]~~

~~4.6.8 [Intentionally left blank]~~

~~4.6.9~~ The *IESO* shall obtain reactive power ~~resources~~capability to maintain *reactive support service* and *voltage control service* in accordance with all applicable *reliability standards*. *Reactive support service* and *voltage control service* shall be made available by *market participants* from, but not limited to, the following:

4.6.~~9~~4.1 reactive ~~resources~~power produced from within the standard power factor range of a *generation facility* as described in ~~Chapter~~ MR Ch.4, which shall be *dispatchable* by the *IESO*;

4.6.~~9~~4.2 equipment owned by *market participants* (capacitors, SVCs, synchronous condensers and reactors) that is made available to the *IESO* pursuant to the *market rules* and any *operating agreement* between the *IESO* and a *market participant*; and

4.6.~~9~~4.3 reactive ~~resources~~power produced outside the standard power factor range of a *generation facility* as required in ~~Chapter 4 of the *market rules*~~MR Ch.4 (synchronous condensers or hydroelectric units in condense mode) as acquired by the *IESO* through *contracted ancillary services* contracts.

4.8 Reliability Must-Run Resources

4.8.1 The *IESO* may need to call on specific *resources*, excluding *non-dispatchable loads* or *price responsive loads*, to maintain the *reliability* of the *IESO-controlled grid* whenever sufficient *resources* for the provision of *physical services*, other than *contracted ancillary services*, are not otherwise offered in the *IESO-administered markets*. Such applicable *resources* are referred to as *reliability must-run resources* and shall be procured either through *reliability must-run contracts* in accordance with this section 4.8 and ~~sections~~ MR Ch.7 ss.9.6 and 9.~~7 of Chapter~~ 7 or by means of the process for directing the submission of *dispatch data* referred to in ~~sections~~ MR Ch.7 ss.3.3.10 to 3.3.17~~ of Chapter 7~~.

4.8.2 The *IESO* shall identify all *reliability must-run resources* in respect of which it wishes to conclude *reliability must-run contracts* and may enter into *reliability must-run contracts* with the *registered market participant* or prospective *registered market participant* for such *reliability must-run resources*. Where the *IESO* identifies such a *reliability must-run resource*, the *registered market participant* or prospective *registered market participant* for such *reliability must-run resource* shall, subject to ~~section~~ MR Ch.7 s.9.6.4~~ of chapter 7~~, contract with the *IESO* to supply *physical services,* other than *contracted ancillary services,* to the *IESO-controlled grid* for *reliability* purposes in accordance with ~~sections~~MR Ch.7 ss. 9.6 and 9.7~~ of Chapter 7~~. Each such *reliability must-run contract* shall provide the *IESO* with the ability to call on the *reliability must-run resources* covered by the *reliability must-run contract* in accordance with ~~section 9 of Chapter 7~~MR Ch.7 s.9 and shall comply with ~~Chapter~~ MR Ch.7.

4.8.3 [Intentionally left blank]

4.8.4 The provisions of this section 4.8 and of any *reliability must-run contracts* shall be consistent with the provisions of the ~~*license*~~*licence* of the *IESO* that incorporate the terms of any directive issued by the *Minister* to the *Ontario Energy Board* pursuant to subsection 28(1) of the *Ontario Energy Board Act, 1998* or that incorporate terms imposed by the *Ontario Energy Board* in furtherance of the exercise of its powers under subsection 70(5) of the *Ontario Energy Board Act, 1998*. In the event of any inconsistency between such terms and the provisions of this section 4.8 or of any *reliability must-run contracts*, such terms shall govern.

~~4.8A [Intentionally left blank – section deleted]~~

~~4.8A.1 [Intentionally left blank – section deleted]~~

~~4.8A.2 [Intentionally left blank – section deleted]~~

4.9 Auditing and Testing of Ancillary Services

4.9.1 The *IESO* shall test *facilities* and any associated *resources* that will or do provide *ancillary services* to the *IESO-controlled grid.* The *IESO* shall use such tests to determine whether to register each *facility* as one or more *resources* for the

provision of *ancillary services* and to ensure that each applicable *facility* or *resource* continues to meet the requirements for registration to provide the relevant *ancillary services.*

4.9.2 Tests of the *facilities* ~~or~~and *resources* of *ancillary service providers* or of prospective *ancillary service providers* referred to in section 4.9.1 shall include, but not be limited to, testing in the manner set forth in this section 4.9.2, to determine whether the *ancillary service provider* can supply the *ancillary services* which it wishes to supply or has contracted or been registered to supply:

4.9.3 The costs incurred by the *IESO* in conducting and evaluating any tests pursuant to section 4.9.1 or 4.9.2 shall be recovered by the *IESO* as part of the costs to the *IESO* of contracting for the applicable *ancillary service* in accordance with ~~section~~ MR Ch.9 s.4.2 ~~of Chapter 9~~.

4.10 Consequences of Failure to Pass a Test

4.10.2 Without prejudice to the application of section 4.10.1, an *ancillary service provider* whose *facility* or *resource* fails a test performed pursuant to section 4.9.1 or 4.9.2:

4.10.2.3 in the case of any other *ancillary service provider*, shall be subject to financial penalties in accordance with ~~section~~ MR Ch.3 s.6.6 ~~of Chapter 3~~ and to such other sanctions as may be provided for in these *market rules*.

5. System Security

5.1 Objectives and General Obligations

5.1.2.8 represent Ontario in the context of the work of *standards authorities* with respect to the *reliable* operation of the *IESO-controlled grid* and the *interconnected systems*, and the operation of the *IESO-administered markets*, other than with respect to the physical ~~facility~~ *facility* and equipment requirements for *reliability* of the *IESO-controlled grid* which shall be the responsibility of the relevant *transmitters*, *distributors* and *generators* as applicable;

5.3 The Use of Tie-Lines and Associated Facilities

5.3.2 With respect to the use of *tielines*:

5.3.2.1 the *IESO* shall ~~endeavour~~use reasonable efforts to conduct studies on a coordinated basis with adjacent *control areas* so that normal and emergency transfer limits on all *tielines* are established or reaffirmed at least annually;

5.3.2.2 the *IESO* shall ~~endeavour~~use reasonable efforts to cooperate with other *control area operators* to determine and reaffirm total *transmission transfer capability* with other *control areas* at least annually;

5.3.3 Each *market participant* shall comply with all relevant *reliability standards* relating to the *reliability* of *interconnections* and:

5.3.3.1 each *registered market participant* submitting an *energy offer* or an *energy bid* in respect of a *boundary entity resource* shall comply with the scheduling and notification procedures for the source or sink *control area*, as applicable, and any intervening *control areas* and with all other applicable procedural and information requirements established by relevant *standards authorities* and other relevant entities for registering transactions and/or arranging transmission access;

5.3.3.2 each *registered market participant* submitting an ~~offer~~ *offer* to provide *operating reserve* in respect of a *boundary entity resource* shall comply with all applicable procedural and information requirements established by relevant *standards authorities* and other relevant entities for registering transactions and/or arranging transmission access; and

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5.3.4 Where:

5.3.4.1 the quantity of a *physical service* delivered to or withdrawn from the *IESO-controlled grid* by a *registered market participant* is reduced relative to that *registered market participant's* most recent valid *bid* or *offer*; and

5.3.4.2 such reduction is initiated pursuant to *reliability standards* by an entity, other than the *IESO*, having authority under such *reliability standards*;

the *registered market participant* shall not be entitled to compensation for any financial loss suffered as a result of such action.

Where such reduction was initiated by the *IESO*, the *registered market participant* shall be entitled to compensation, which shall be calculated and paid in accordance with ~~section~~ MR Ch.9 ss.3.4 and 3.5 ~~of Chapter 9~~.

5.4 Reliability Policy for Area Supply

5.4.1 In coordination with *transmitters*, the *IESO* may develop and apply specific *security* criteria in areas of the *IESO-controlled grid* where the consequences of *contingency events* are localized and do not have a significant adverse impact on the *reliability* of the *IESO-controlled grid* ("*local areas*").

5.4.2 The following criteria shall be used to assess the *security* of a *local area*, as determined at ~~the delivery point demarcating~~ the boundary between the *local area* and the remainder of the *IESO-controlled grid*, on the one hand, and individual and collective *connection points* of the *IESO-controlled grid*, on the other:

5.8 Operation Under an Emergency Operating State

5.8.1 Once an *emergency operating state* has been declared by the *IESO*, the *IESO* may take such action as it determines appropriate including, but not limited to:

~~5.8.1.1 [Intentionally left blank]~~

~~5.8.1.2 [Intentionally left blank]~~

~~5.8.1.3 [Intentionally left blank]~~

5.8.1.1~~.4~~ coordinating with other *security coordinators*;

5.8.1.~~5~~2 issuing directions to *market participants* to reduce *demand* through voltage reductions and interruptions in accordance with section 10.3;

5.8.1.~~6~~3 operate to those *security limits* appropriate for an *emergency operating state* to allow for increased power transfers; and

5.8.1.~~7~~4 acquiring *emergency energy* in accordance with section 2.3.3A;

5.9 Operation Under a High-Risk Operating State

5.9.1 Once a *high-risk operating state* has been declared by the *IESO*, the *IESO* may take such action as it determines appropriate including, but not limited to:

~~5.9.1.1 [Intentionally left blank]~~

~~5.9.1.2 [Intentionally left blank]~~

~~5.9.1.3 [Intentionally left blank]~~

5.9.1.~~4~~.1 ~~—~~operating to *security limits* appropriate for a *high-risk operating state*;

5.9.1.~~5~~2 coordinating with neighbouring *security coordinators*;

5.9.1.~~6~~3 issuing directions to *market participants* to reduce *demand* through voltage reductions or interruptions in accordance with section 10.3; and

5.9.1.~~7~~4 temporarily and selectively increase the level of *security* on the *IESO-controlled grid*.

6. Outage Coordination

6.1 Introduction

6.1.1 The objectives of this section 6 are to enable the *IESO* to review and assess the impact of *outage* schedules on the fulfillment by the *IESO* of its *reliability*-related responsibilities under the *Electricity Act, 1998*, its ~~*license*~~*licence*, and the *market rules*, to require *market participants* to obtain the approval of the *IESO* in respect of *planned outage* schedules and to permit the *IESO* to reject, revoke *advance approval* of and recall *outages* that may have an impact on the *reliability* of the *IESO-controlled grid* or a material impact on the operation of the *IESO-administered markets*.

6.2 Outage Planning

~~6.2.2A – 6.2.2 [Intentionally left blank – sections deleted]~~

Requests for Advance Approval

6.2.~~2K~~2A A *market participant* may request *quarterly advance approval*, *weekly advance approval*, *three-day advance approval* or *one-day advance approval* for a *planned outage* of equipment or *facility* in accordance with this section 6 and the applicable *market manual*.

IESO Obligation to Consider Planned Outages for Advance Approval

6.2.~~2L~~2B The *IESO* shall consider all *planned outages* submitted under section 6.2.~~2K~~2A for *advance approval* in accordance with this section 6 and the processes specified in the applicable *market manual*.

Transmitter Generator and Electricity Storage Participant Obligation to Provide Planned Outage Information for 18-Month Assessments

6.2.4 To support the 18-month assessments referred to in section 7.3.1.2, and subject to section 6.2.5, for those *facilities* and equipment on the list developed in accordance with section 6.1.3, *transmitters*, *generators* and *electricity storage participants* shall, as frequently as may be necessary to maintain the accuracy of the information provided, report to the *IESO* the *outage* plans for transmission *facilities* forming part of the *IESO-controlled grid* and for *generation facilities*, or *electricity storage facilities* respectively, as follows:

6.2.4.1 for *outages* starting ~~3~~three months or more in the future, those with a scheduled duration of ~~5~~five days or more; and

6.2.4.2 for *outages* starting less than ~~3~~three months in the future, those with a scheduled duration of ~~4~~four hours or more.

Replacement Energy to Support Planned Outages

6.3.7 The *generator* or *electricity storage participant* shall provide the following information to the *IESO* when in accordance with section 6.3.6 it either submits a *planned outage* request or requests the extension to or resubmission of an *outage*:

6.3.7.1 Subject to the approval of the *IESO*, the *intertie zone* ~~or zones~~*(s)* through which the replacement *energy* is intended to be scheduled; and,

6.3.7.2 The *registered market participant* associated with a *boundary entity resource* that shall submit the *offers* and, pursuant to ~~section~~ MR Ch.7 s.7.5.8A ~~of Chapter 7~~, schedule the replacement *energy* if *dispatched* by the *IESO.*

6.3.10 If the *registered market participant* associated with a *boundary entity resource* referred to in section 6.3.7.2 fails to submit *offers* for the replacement *energy,* that have been arranged by the *generator* or *electricity storage participant*, the *generator* or *electricity storage participant* shall be subject to the financial penalties calculated in accordance with the provisions of ~~section~~ MR Ch.3 s.6.6.8 ~~of Chapter 3~~.

6.4 Submission of Outage Schedules and IESO Approval of Outage Schedules

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6.4.1E If requesting *one-day advance approval* ~~*of a*~~ of a *planned outage* the *market participant* shall submit the *planned outage* with the *IESO* no later than 10:00 EST on the second *business day* prior to the start date of the *planned outage*.

6.4.4A The *IESO* may refuse to provide *advance approval* to a *transmitter's planned outage* if:

6.4.4A.1 the *transmitter's planned outage* is to a *connection facility* that would prevent the delivery of electricity to the *IESO-controlled grid* from a *generation unit* or *electricity storage unit* that has committed capacity to an external *control area* in accordance with ~~section~~ MR Ch.7 s.20.2 ~~of Chapter 7~~;

6.4.4A.2 the *IESO* is advised by the *market participant* that has committed its capacity to an external *control area* in accordance with ~~section~~ MR Ch.7 s.20.2 ~~of Chapter 7~~, that the external *control area operator* has determined that a *transmitter's planned outage* would result in an unacceptable risk of an adequacy shortfall to the *external control area,* as may be specified in the applicable *capacity export agreement*; and

6.4.4A.3 the *market participant* that has committed its capacity to an external *control area* in accordance with ~~section~~ MR Ch.7 s.20.2 ~~of Chapter 7~~ has demonstrated to the *IESO* that it has made best efforts to reschedule the *planned outage* with the *transmitter*, as prescribed in the applicable *market manual*.

Revoke Advance Approvals

6.4.9 The *IESO* may, where necessary to maintain the *reliability* of the *IESO-controlled grid*, or as provided in section 6.4.9.3, revoke an *advance approval* of a *planned outage*. Without limiting the generality of the foregoing, the *IESO* may revoke an *advance approval* if:

6.4.9.1 the *IESO* determines that a *conservative operating state,* an *emergency operating state* or a *high-risk operating state* is occurring or is reasonably likely to occur at the time at which the *planned outage* would otherwise take place;

6.4.9.2 necessary to avoid recalling a *planned outage* pursuant to section 6.4.11; or

6.4.9.3 the *transmitter's planned outage* is to a *connection facility* that would prevent the delivery to the *IESO-controlled grid* of electricity from a *generation unit* or *electricity storage unit* that has committed capacity to an external *control area* in accordance with ~~section~~ MR Ch.7 s.20.2 ~~of~~

~~Chapter 7~~; and

6.4.9.3.1 the *IESO* is advised by the *market participant* that has committed its capacity to an external *control area* in accordance with ~~section~~MR Ch.7 s. 20.2~~ of Chapter 7~~, that the external *control area operator* has determined that a *transmitter's planned outage* would result in an unacceptable risk of an adequacy shortfall to the *external control area,* as may be specified in the applicable *capacity export agreement*; and

6.4.9.3.2 the *market participant* that has committed its capacity to an external *control area* in accordance with ~~section~~ MR Ch.7 s.20.2~~ of Chapter 7~~ has demonstrated to the *IESO* that it has made best efforts to reschedule the *planned outage* with the *transmitter*, as prescribed in the applicable *market manual*.

A *planned outage* that receives *advance approval* under section 6.4.4 but does not receive final approval pursuant to section 6.4.3.3 shall be considered to have had its *advance approval* revoked.

6.4.10 Where the *IESO* revokes *advance approval* of a *planned outage* pursuant to section 6.4.9, the *market participant* may elect either to resubmit or to cancel the *outage*. When the *market participant* elects to resubmit the *outage*, the *IESO* shall work with the relevant *market participant* to re-schedule the *planned outage* to a date and time at which the *planned outage* will not or is not reasonably likely to have an adverse impact on the ~~reliable~~ *reliable* operation of the *IESO-controlled grid* and not pose an unacceptable risk to the adequacy of an external *control area* to which capacity has been committed. In re-scheduling the *planned outage*, the *IESO* shall where reasonably practicable take into account the date and time preferences of the *market participant*. A *planned outage* that is re-scheduled under this section must be resubmitted in accordance with the submission requirements in sections 6.4.1B, 6.4.1C, 6.4.1D and 6.4.1E. To maintain the priority date of the approved *planned outage* prior to the revocation of the *advance approval*, the *planned outage* must be resubmitted in accordance with section 6.4.16.

Determining Outage Priority

6.4.13 The *IESO* shall assign a priority date to each *outage* submission received by the *IESO*. Where the *IESO* is required or permitted by this section 6 to approve, reject, revoke *advance approval* of or recall one or more *planned outages*, such *planned outages* shall:

6.4.13.1 be given advance or final approval in order of priority determined on the basis of sections 6.4.~~14A~~14 to 6.4.20; and

6.4.13.2 be rejected, be resubmitted, have *advance approval* revoked or be recalled in reverse order of priority determined on the basis of sections 6.4.~~14A~~14 to 6.4.20.

~~6.4.13A [Intentionally left blank – section deleted]~~

~~6.4.14 [Intentionally left blank – section deleted]~~

6.4.14~~A~~ Where an *outage* is granted *advance approval* in accordance with sections 6.4.4.4B, 6.4.4.4C, 6.4.4.5 and 6.4.4.5A:

6.4.14~~A~~.1 *outages* granted *quarterly advance approval* take priority over *outages* granted *weekly advance approval*, *three-day advance approval* or *one-day advance approval*; and

6.4.14~~A~~.2 *outages* granted *weekly advance approval* take priority over *outages* granted *three-day advance approval* or *one-day advance approval*; and

6.4.14~~A~~.3 *outages* granted *three-day advance approval* take priority over *outages* granted *one-day advance approval*; and

6.4.14~~A~~.4 within *quarterly advance approval*, *weekly advance approval*, *three-day advance approval* and *one-day advance approval*, an *outage* with an earlier priority date takes priority over other *outages* granted the same level of *advance approval*.

~~6.4.15A [Intentionally left blank – section deleted]~~

6.4.16 Where:

6.4.16.1 the *IESO* revokes *advance approval* of a *planned outage* prior to the commencement thereof; and

6.4.16.2 the *market participant* subsequently re-submits the *planned outage* with the *IESO*, in accordance with sections 6.4.1B, 6.4.1C, 6.4.1D and 6.4.1E, within five *business days* of the revocation;

~~6.4.16.3 [Intentionally left blank – section deleted]~~

6.4.17 Where:

6.4.17.1 the ~~IESO~~ *IESO* rejects *advance approval* of a *planned outage* in accordance with section 6.4.4.4C, 6.4.4.5 or 6.4.4.5A;

6.4.17.2 the *market participant* resubmits the *planned outage* to the *IESO,* in accordance with sections 6.4.1B, 6.4.1C, 6.4.1D and 6.4.1E, within five *business days* of the rejection; and

6.4.17.3 this was the first time the *planned outage* had been rejected,

the priority date of the *planned outage* prior to the rejection will be deemed to be the priority date of the re-submitted *planned outage* for purposes of determining the priority to be given to the *planned outage*.

6.5 Information

6.5.1 Each *transmitter,* each *generator* and each *electricity storage participant* shall provide to the *IESO* such *outage* information as may be requested by the *IESO* to enable the *IESO* to review and schedule *outages*.

6.5.2 Subject to the confidentiality provisions of ~~Chapter~~ MR Ch.3, the *IESO* shall *publish* the *planned outage* information provided to it pursuant to section 6.5.1.

6.5.3 Notwithstanding any other provision of these *market rules*, *planned outage* information that is provided to the *IESO* by *market participants* pursuant to this Chapter may be exchanged between the *IESO* and other *security coordinators, control area operators*, and *interconnected transmitters* who are signatories to the *NERC confidentiality agreement* or who are otherwise legally bound to withhold the information from any person competing with the *market participant* that provided the information.

~~6.5.4 [Intentionally left blank – section deleted]~~

6.5.~~5.4~~ The *IESO* shall *publish generator outage* information aggregated by fuel type based on information provided to it by *market participants* and may also *publish* the *outage* information for *electricity storage participants*.

6.6 Tests

6.6.6 This section 6.6 also applies to tests conducted pursuant to ~~section 5 of Chapter 4~~MR Ch.4 s.5.

6.7 Compensation

Revoke Advance Approvals or Recalls

6.7.2 *Generators*, *electricity storage participants, distributors* or *wholesale consumers* whose *outages* have *advance approval* revoked or have *outages* recalled by the *IESO* shall, subject to the exceptions defined in sections 6.7.3A and 6.7.3B, be entitled to compensation for out-of-pocket expenses associated with such revocation or recall only if:

6.7.2.1 the *outage* was originally provided *advance approval* by the *IESO* pursuant to 6.4.4 and was submitted in accordance with sections 6.4.1B, 6.4.1C, 6.4.1D and 6.4.1E;

6.7.2.2 the *outage* was recalled or had *advance approval* revoked by reason of a material error in the *IESO's* demand forecast, a failure of *generation facilities* within the *IESO control area,* a failure of *facilities* forming part of the *IESO-controlled grid* or a failure of *interconnection facilities*; and

6.7.2.3 ~~[Intentionally left blank – section deleted]~~

~~6.7.2.4~~ the out-of-pocket expenses exceed $1000.00.

6.7.4 The out-of-pocket expenses claimed by *generators*, *electricity storage participants, distributors* or *wholesale consumers* pursuant to section 6.7.2 shall be subject to verification and audit by the *IESO* and shall, where paid, be recovered by the *IESO* in accordance with ~~section 4.8 of Chapter 9~~MR Ch.9 s.4.14.12.

6.7.5 A *generator*, *electricity storage participant, distributor* or *wholesale consumer* shall not be entitled to compensation for any costs, expenses, losses or damage associated with an *outage* which has been rejected by the *IESO* provided that, in exceptional circumstances and where a *generator*, *electricity storage participant, distributor* or *wholesale consumer* has suffered substantial financial harm as a direct result of such rejection, the *generator*, *electricity storage participant, distributor* or *wholesale consumer* may request that an *arbitrator* be appointed pursuant to ~~section 2 of Chapter 3~~MR Ch.3 s.2 to determine whether and the amount of any compensation which the *generator*, *electricity storage participant, distributor* or *wholesale consumer* shall be entitled to recover as a result of the rejection of the *outage* by the *IESO.* In the case of *generators* or *electricity storage participants*, no such compensation shall be recoverable under this section 6.7.5 unless the *generator* or *electricity storage participant* demonstrates that the amount claimed cannot be recovered through *market prices*.

~~6.7.6 [Intentionally left blank – section deleted]~~

~~6.7.7~~6.7.6 Each act of revocation or recall by the *IESO* shall be treated separately for compensation purposes.

7. Forecasts and Assessments

7.1 Forecasts Prepared by the IESO

7.1.1 The *IESO* shall produce and *publish* the following ongoing *demand* forecasts for Ontario or parts thereof:

~~7.1.1.1~~ ~~[Intentionally left blank – section deleted]~~

7.1.1.~~2~~1 on a daily basis, a forecast of *demand* for each of the 34 days following the current day, by hour; and

~~7.1.1.3~~ ~~[Intentionally left blank – section deleted]~~

~~7.1.1.4~~2 on a quarterly basis, a forecast of *demand* for the next 18 months, by week.

~~7.1.1.5 [Intentionally left blank – section deleted]~~

7.1.2 The forecasts referred to in section 7.1.1 shall be prepared by the *IESO* in such form as may be specified in the applicable *market manual,* shall be used in conducting the assessments referred to in section 7.3, and shall, in the case of the forecast referred to in section 7.1.1.~~4~~2, be included in the reports referred to in section 7.3.1.2.

7.1.3 The *IESO* shall *publish* the method to be used to perform the forecasts described in section 7.1.1.

~~7.1.4 [Intentionally left blank – section deleted]~~

~~7.1.5 [Intentionally left blank – section deleted]~~

7.1.~~6~~4 If required by the *IESO* for the purpose of enabling the *IESO* to produce the forecasts referred to in section 7.1.1, each *distributor, connected wholesale customer, electricity storage participant* or other load-serving entity shall provide to the *IESO* the load forecasts described in the applicable *market manual* in such form, at such time and having such resolution as may be specified in such *market manual*.

7.2 Basis for IESO Forecasts

7.2.1 The *IESO* shall develop forecasts of peak *demand* and *energy demand*, by area, that may be based in part on forecasts provided pursuant to section 7.1.~~6~~4 if required.

7.3A Liability

7.3A.1 Notwithstanding ~~section~~ MR Ch.1 s.13.1.2 ~~of Chapter 1~~, no *market participant* shall be entitled to compensation from the *IESO* for any costs, loss or damage sustained by the *market participant* as a result of any difference between:

7.4 Purpose of Assessments

7.4.1 [Intentionally left blank – section deleted]

~~7.4.1.1 [Intentionally left blank – section deleted]~~

~~7.4.1.2 [Intentionally left blank – section deleted]~~

~~7.4.1.3 [Intentionally left blank – section deleted]~~

~~7.4.1.4 [Intentionally left blank – section deleted]~~

7.6 The Reporting of Reliability Assessments

7.6.1 The reports referred to in section 7.3.1 shall be prepared by the *IESO* in such form and shall contain such information as may be specified in the applicable *market manual.*

~~7.6.2 [Intentionally left blank – section deleted]~~

7.7 Updated and Related Reports

~~7.7.1 [Intentionally left blank – section deleted]~~

~~7.7.2 [Intentionally left blank – section deleted]~~

~~7.7.3 [Intentionally left blank – section deleted]~~

~~7.7.4 [Intentionally left blank – section deleted]~~

Interim Updates

7.7.~~5~~1 The *IESO* may *publish* additional updated versions of any of the assessment reports referred to in section 7.3.1 in the event of changes that, in the *IESO*'s opinion, are significant and should be communicated to *market participants*.

Related Reports

7.7.~~6~~2 From the material and assessments in the assessment reports referred to in section 7.3.1, the *IESO* may produce additional related reports as required by relevant *standards authorities*, the *IESO Board*, the *OEB*, and the Government of Ontario.

Advisory Notices

7.7.~~7~~3 The *IESO* may *publish* notifications in the event of changes that occur between scheduled *publication* times of the assessment reports referred to in section 7.3.1.4, in accordance with the applicable *market manual*. Where applicable, the corresponding information shall be included by the *IESO* in a subsequent *publication* of a scheduled report under section 7.3.1.4.

7.8 [Intentionally left blank – section deleted]

~~7.8.1 [Intentionally left blank – section deleted]~~

~~7.8.2 [Intentionally left blank – section deleted]~~

7.9 Provision of Information to Transmitters

~~7.9.1 [Intentionally left blank – section deleted]~~

~~7.9.2~~7.9.1 Notwithstanding any other provision of these *market rules*, the *IESO* may, if necessary to enable *transmitters* to prepare plans for the expansion or modification of the *IESO-controlled grid*, provide to relevant *transmitters* information provided by *market participants* pursuant to this Chapter regarding their forecasts and plans. Any such information which is *confidential information* shall be provided to *transmitters* on a confidential basis and the receiving *transmitter* shall use all reasonable endeavours to protect such *confidential information* and shall use such *confidential information* solely for the purpose of preparing plans for the expansion or modification of the *IESO-controlled grid*.

7.9.~~3~~2 Where the *IESO* intends to disclose to a *transmitter confidential information* pertaining to a *market participant* pursuant to section 7.9.~~2~~1, the *IESO* shall provide the *market participant* with advance notice of such intention and shall provide the *market participant* with a reasonable opportunity to make representation as to why the *confidential information* should not be disclosed.

7.10 IESO Actions

Actions Independent of IESO Recommendations

7.10.4 Nothing in this section 7.10 is intended to limit the ability of any *market participant* to file for approval a proposal to invest in *facilities* on the *integrated power system* that are not the subject of specific recommendations made by the *IESO*. A *market participant* interested in sponsoring a new or modified *connection* to the *IESO-*

controlled grid may submit a *request for connection assessment* in accordance with ~~section~~ MR Ch.4 s.6.1.6 ~~of Chapter 4~~.

8. Remedial Action Schemes ~~(RAS)~~

8.1 Objectives

8.1.1 *Remedial ~~Action Schemes~~action schemes* ("*RAS*") have been installed in a number of locations on the *IESO-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.

For further certainty, any of the control actions listed above may be applied by the *IESO* to *electricity storage facilities* if and as applicable.

8.1.2 The *IESO* shall direct the arming of *RASs* installed on the *IESO-controlled grid* as necessary to:

8.1.2.1 increase the capability of power transfers on the *IESO-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 *RASs* shall be installed and utilized on the basis of agreements between and/or among the parties involved.

8.2 Responsibilities of the IESO

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

8.2.2 The *IESO* shall determine the need for utilizing an *RAS* for *security* reasons.

8.2.2A The *IESO* shall direct the arming of all *RASs* installed on the *IESO-controlled grid* in accordance with applicable *reliability standards* and applicable agreements including those negotiated under section 8.4.~~3~~2.

8.2.3 The *IESO* shall direct the arming of an *RAS* 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 *IESO-controlled grid*.

8.2.4 The *IESO* shall establish and *publish* criteria for arming and activation of *RASs* in sufficient detail and precision to allow a *market participant* whose *facility* forms part of an *RAS* to understand the conditions under which that *RAS* 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 *RAS* to the intended changes. In the event that agreement cannot be reached, the *IESO* may change the criteria for the *RAS* if necessary to maintain *reliable* operation of the *IESO-controlled grid*.

8.2.5 The *IESO* shall from time to time review or cause to be reviewed the performance of *RASs*.

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 on the next *preliminary settlement statement* in which the ~~application for~~ *IESO* can reasonably incorporate the compensation ~~was received~~.

8.4 Responsibilities of Market Participants Whose Facilities Form Part of an RAS

8.4.1 A *market participant* with a *facility* associated with a *non-quick start resource* ~~and~~ that is part of an *RAS* may~~, in the time and manner specified in the applicable *market manual*,~~ apply to the *IESO* for compensation, if:

8.4.1.1 that *facility* is tripped offline as a result of the activation of the *RAS*;

8.4.1.2 the *non-quick start resource* associated with such *facility* does not receive a real-time make whole payment *settlement amount* pursuant to MR Ch.9 s.3.5 in relation to such *energy* for the same *metering interval*;

8.4.1.3 the *non-quick start resource* associated with such *facility* does not receive a *day-ahead market* balancing credit pursuant to MR Ch.9 s.3.3 in relation to such *energy* for the same *metering interval*;

8.4.1.4 the *day-ahead market locational marginal price* is less than the *real-time market locational marginal price* at the *delivery point* for the *non-quick start resource* associated with such *facility*; and

8.4.1.5 the ~~*resource's*~~ actual quantity of *energy* ~~it~~the *non-quick start resource* associated with such *facility* injects into the *IESO-controlled grid* is less than its *day-ahead schedule*.

The amount of compensation that may be claimed is the difference between the applicable *real-time market locational marginal price* and the applicable *day-ahead market locational marginal price* at the *delivery point* for the *non-quick-start resource* multiplied by the difference between the *non-quick-start resource's day-ahead schedule* and the actual quantity of *energy* it injects into the *IESO-controlled grid*.

~~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~~2 *Market participants* whose *facilities* form part of an existing *RAS* or may form part of a new *RAS* may request notification and/or status annunciation of *RAS* arming, disarming and activation and may enter into agreements with the *RAS* equipment owner/operator and the *IESO* to determine the appropriate status annunciation and notification. The *market participant*, *RAS* 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~~2.1 licensing/legal requirements of the *market participant* related to the operation of its *facility* that is part of the *RAS*;

8.4.~~3~~2.2 practicality of status annunciation and/or notification;

8.4.~~3~~2.3 cost-effectiveness of status annunciation and/or notification;

8.4.~~3~~2.4 the status annunciation and/or notification does not adversely impact the intended use of the *RAS*; and

8.4.~~3~~2.5 comparison to the notification and annunciation of *RAS* arming and activation provided to other *market participants* whose *facilities* form part of an *RAS.*

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

8.4.~~4~~3 *Market participants* whose *facilities* form part of an *RAS* shall notify the *IESO* in accordance with the applicable *market manual* or applicable agreements including those negotiated under section 8.4.~~3~~2 if the *facility* is unavailable for *RAS* arming.

8.4.~~5~~4 If an *RAS* has been armed and the *market participant* whose *facility* forms part of the *RAS* reasonably believes that a subsequent activation of that *RAS* would endanger the safety of any person, damage equipment or violate any *applicable law*, the *market participant* whose *facility* is part of that *RAS* may take action in accordance with applicable agreements including those negotiated under section 8.4.~~3~~2 or may request that the *IESO* disarm the *RAS*. 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 *RAS*.

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10. Demand Control

10.2 Demand Control Initiated by a Market Participant

10.2.1 *Market participants* shall notify the *IESO* of any action initiated by them to control *demand* in accordance with this section 10.2.

10.2.2 Each *market participant* that can intentionally and directly cut withdrawals by a *dispatchable load* or by a ~~dispatchable~~ *dispatchable electricity storage resource* shall provide the following information to the *IESO*:

10.2.2.1 the proposed date, time, and duration of the cuts by *connection point* on the *IESO-controlled grid*, by hour;

10.2.2.2 the proposed MW reduction of *demand* by *connection point* on the *IESO-controlled grid*, by hour; and

10.2.2.3 the details of the actual decrease in the withdrawals by a *dispatchable load* or the withdrawals by a ~~dispatchable~~ *dispatchable electricity storage resource* that was achieved.

10.2.3 Each *transmitter* and *distributor* that intends to initiate a voltage reduction shall:

10.2.3.1 by 10:00 EPT each day, notify the *IESO* of all such planned voltage reductions and consequent reduction in load for the following day;

10.2.3.2 immediately notify the *IESO* of a voltage reduction that is planned after 10:00 EPT for the following day;

10.2.3.3 the proposed date, time, and duration of the voltage reduction by ~~connection point~~ *connection point* on the *IESO-controlled grid*, by hour;

10.2.3.4 the proposed MW reduction by *connection point* on the *IESO-controlled grid*, by hour; and

10.2.3.5 details of the actual voltage reduction achieved, in MWs.

10.2.4 Each *distributor* or *transmitter* that intends to initiate a ~~disconnection~~ *disconnection* in load (including, but not limited to, interruptible loads and demand management activities) shall:

10.2.4.1 by 10:00 EPT each day, notify the *IESO* of all such planned ~~disconnections~~ *disconnections* in load and consequent reduction in loads for the following day;

10.2.4.2 immediately notify the *IESO* of a ~~disconnection~~ *disconnection* in load that is planned after 10:00 EPT for the following day;

10.2.4.3 the proposed date, time, and duration of the ~~disconnection~~ *disconnection* in load by *connection point* on the *IESO-controlled grid*, by hour;

10.2.4.4 the proposed reduction, in MWs, of loads by *connection point* on the *IESO-controlled grid*, by hour; and

10.2.4.5 details of the actual reduction in loads achieved, in MWs.

10.4 Under-Frequency Load Shedding

10.4.3 Each *transmitter* shall undertake the following actions immediately and independently as pre-authorized by the *IESO* pursuant to the Operating Agreement between the *transmitter* and the *IESO*:

10.4.3.1 when frequency is between 58.5 and 59.0 Hz, take immediate independent action to shed 25% of controlled load. The block of load to be shed shall not include load connected to under-frequency load-shedding relays; or

10.4.3.2 when frequency is below 58.5 Hz, take immediate independent action to shed affected load until the frequency is restored to 59.0 Hz or, in the case of known *electrical island* ~~island~~ situations, to 60 Hz.

10.4.6 Each *distributor* and *connected wholesale customer*, in conjunction with the relevant *transmitter*, shall make arrangements to enable the ~~disconnection~~ *disconnection* of automatic under-frequency *demand* of at least 30% of its total peak customer *demand*.

11. Emergency Preparedness and System Restoration

11.2 Emergency Preparedness Plans and Ontario Electricity Emergency Plan

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~~11.2.6 [Intentionally left blank]~~

11.3 Ontario Power System Restoration Plan and Restoration Participant Attachments

11.3.3 The *Ontario power system restoration plan* shall include, but not be limited to:

11.3.3.1 plans for managing major disturbances on the *IESO-controlled grid* that blackout all or a portion of the *IESO-controlled grid*;

11.3.3.2 plans for the testing and verification of *emergency* preparedness facilities and procedures; and

11.3.3.3 descriptions of the roles of the ~~IESO~~ *IESO* and various ~~restoration participants~~ *restoration participants* in the *Ontario power system restoration plan*.

11.4 Review and Audit

11.4.1 The *IESO* shall review each *emergency preparedness plan* and each *restoration participant attachment* submitted to it, in accordance with sections 11.2.3 and 11.4.3, and shall prepare and provide to the relevant *market participant* or *restoration participant* a ~~record of review~~ *record of review* indicating the changes, if any, required to be made and the date by which the revised *emergency preparedness plan* or *restoration participant attachment* must be submitted with the *IESO*.

~~11.4.5 [Intentionally left blank – section deleted]~~

11.4.5~~6~~ The *IESO* shall review its *emergency preparedness plan,* the *Ontario electricity emergency plan* and the *Ontario power system restoration plan* at least annually, or as required. When directed by the *Minister*, the *IESO* shall have an independent audit conducted of these plans. The independent audit may be conducted by, without limitation, the *IESO's* internal auditors or before a peer review team having diverse membership or industry *emergency preparedness* expertise. The cost of such an audit shall be borne by the *IESO*.

~~11.4.7 [Intentionally left blank – section deleted]~~

11.6 Emergency Facilities

11.6.2 The *IESO-administered markets* shall continue to operate during an evacuation of the *IESO*'s principal control centre unless conditions exist that would warrant a suspension of market operations as described in ~~Chapter~~ MR Ch.7.

12. Communications

12.1 Communication Methods

12.1.1 Communication between the *IESO* and:

12.1.1.1 *market participants*;

12.1.1.2 *embedded generators* required by ~~Appendix~~ MR Ch.2 App.2 ~~of Chapter~~ .2 to provide or install and maintain voice communication facilities, facilities relating to monitoring and control or both;

12.1.1.3 *embedded load consumers* required by ~~Appendix 2.2 of Chapter 2 to~~MR Ch.2 App.2.2 to provide or install and maintain voice communication facilities, facilities relating to monitoring and control or both; and

12.1.1.4 *embedded electricity storage participants* required by ~~Appendix 2.2 of Chapter 2 to~~MR Ch.2 App.2.2to provide or install and maintain voice communication facilities, facilities relating to monitoring and control, or both;

shall take place through a combination of methods as identified in ~~Appendix~~ MR Ch.2 App.2 ~~of Chapter~~ .2 and as directed by the *IESO* pursuant to section 12.2.3.2.

12.1.3 The *IESO* shall provide real-time communication network channels to the persons referred to in sections 12.1.1.1 to 12.1.1.3 as follows:

12.1.3.1 one communication channel and, where available and justified for *reliable* operation of the *IESO-controlled grid* and efficient operation of the *IESO-administered markets*, a redundant physically diverse communication channel, for:

a. each *facility* to which the high performance information monitoring standard applies in accordance with ~~Appendices~~ MR Ch.4 App.4.19 to 4.23 ~~of Chapter 4~~, and

b. each *facility* that is providing monitoring information for two or more *facilities*;

12.1.3.2 one communication channel for each *facility* to which the medium performance information monitoring standard applies in accordance with ~~Appendices~~MR Ch.4 Apps.4.19 to 4.23 ~~of Chapter 4~~.

~~12.1.3.3 [Intentionally left blank]~~

~~12.1.3.4 [Intentionally left blank]~~

~~12.1.3.5 [Intentionally left blank]~~

12.2 Voice Communication

12.2.3 Each *market participant*, *embedded generator*, *embedded electricity storage participant* and *embedded load consumer* shall provide and maintain:

12.2.3.1 the applicable voice communication facilities required by ~~Appendix 2.2 of Chapter 2 and~~MR Ch.2 App. 2.2 and that meet the requirements of that Appendix; and

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12.2.5 Each person referred to in section 12.2.3 shall respond to an outage of or defect in the voice communication facilities referred to in section 12.2.3:

12.2.5.1 immediately, in the case of an outage of or defect in a *high priority path facility*; and

~~a. [Intentionally left blank]~~

~~b. [Intentionally left blank]~~

~~c. [Intentionally left blank]~~

~~d. [Intentionally left blank]~~

~~e. [Intentionally left blank]~~

~~f. [Intentionally left blank]~~

~~g. [Intentionally left blank]~~

12.2.5.2 no later than the next day following the day on which the outage or defect is discovered, in the case of an outage of or defect in a *normal priority path facility.*

~~a. [Intentionally left blank]~~

~~b. [Intentionally left blank]~~

~~c. [Intentionally left blank]~~

~~d. [Intentionally left blank]~~

~~e. [Intentionally left blank]~~

~~f. [Intentionally left blank]~~

12.2.9 The *IESO* shall:

12.2.9.1 maintain, at each of its principal control ~~center~~centre and back-up control ~~center~~centre, *high priority path facilities* and *normal priority path facilities* that meet the requirements of ~~sections~~ MR Ch.2 App.2.2 ss.1.1.7 and 1.1.8 ~~of Appendix 2.2 of Chapter 2~~, respectively, for the purpose of voice communication with the persons referred to in section 12.2.3 and with neighbouring *security coordinators*; and

12.2.9.2 ensure that its voice communication facilities include facilities that permit telephone conference calls between six parties.

12.3 Electronic Data

12.3.1 Energy management system ~~(EMS)~~ information shall be exchanged between the communication system of the *IESO* and the communication system of each *market participant* in order to support real-time functions such as:

12.3.1.1 the monitoring of the *IESO-controlled grid*;

12.3.1.2 the control and analysis of *generation facilities* and *electricity storage facilities*;

12.3.1.3 an analysis of the *security* of the *IESO-controlled grid*;

12.3.1.4 the scheduling of *generation facilities* and *electricity storage facilities*;

12.3.1.5 the monitoring of compliance with *dispatch instructions*; and

12.3.1.6 ~~[Intentionally left blank]~~

~~12.3.1.7~~ reports.

12.3.2 The *IESO* and *market participants* shall exchange ~~EMS~~energy management system information between their respective communication systems via dedicated data circuits.

12.3.3 For the exchange of schedules referred to in ~~Chapter~~ MR Ch.7 and of *outage* and planning data between *market participants* and the *IESO*, a computer path distinct from the ~~EMS~~energy management system path shall be used. Communications shall occur over separate data links using a different protocol than that used for ~~EMS~~energy management system information. Real-time *dispatch instructions* for *generation facilities, electricity storage facilities,* transmission *facilities* and load shall be communicated electronically through the ~~EMS~~energy management system path and shall be integrated with the ~~EMS~~energy management system messaging system for logging purposes.

14. Information and Reporting Requirements

14.1.3 The *IESO* shall establish a catalogue of reporting requirements listing the *reliability*-related information to be exchanged between the *IESO* and *market participants.* Such reporting requirements shall include, but not be limited to, the following:

14.1.3.2 each *market participant* shall report to the *IESO* any change in equipment and *facilities* to that which has been provided pursuant to ~~Chapter~~ MR Ch.4;

14.1.3.4 each *market participant* shall provide to the *IESO* a report describing any modification proposed to be made to protection on a primary relay. The report shall be delivered to the *IESO* within one week of the date on which the *IESO* approves such modification pursuant to ~~section 6 of Chapter 4~~MR Ch.4 s.6, or, where the modification is effected on an unplanned, emergency basis, within one week of the date of modification;

Appendix 5.1 – Performance Standards for Ancillary Services

1.1 Regulation

1.1.1 A *market participant* whose *resource* is providing *regulation* shall submit to the energy management system referred to in section 12 of Chapter 5 the monitoring and control information required to be provided pursuant to ~~Chapter~~ MR Ch.4.

1.1.2 The telemetering between the energy management system referred to in section 12 of Chapter 5 and a *resource* providing *regulation* shall indicate:

1.1.2.1 whether the *resource* is synchronized to the *IESO-controlled grid,* associated with a *facility* connected to a *distribution system,* or associated with a *facility* connected to another *market participant's facility*;

1.1.2.2 whether the *resource* is providing *regulation* or not; and

1.1.2.3 the net injection or withdrawal of the *resource*.

1.1.6 A *facility* associated with a *resource* providing *regulation* must be capable of receiving control signals sent from the *IESO* at the rate of at least one signal every two seconds. If the *regulation* control signals are received by a *control centre*, the *control centre* must forward these signals to the *facility* associated with the *resource* providing *regulation* within two seconds of having received the signal from the *IESO*.

1.1.7 All *facilities* associated with *resources* providing *regulation* must meet, at a minimum, the performance requirements for off-nominal frequency, speed/frequency regulation and voltage ride through specified in ~~Appendix~~ MR Ch.4 App.4.2. For greater certainty, the foregoing obligation applies to all such *facilities* providing *regulation*, regardless of size, technology or connection location.

1.2 Operating Reserve

Ten-Minute Operating Reserve

1.2.3 When activated by the *IESO*, *ten-minute operating reserve* shall be available for ~~dispatch~~ *dispatch* for at least one hour.

1.3 Reactive Support and Voltage Control – Generation Facilities and Electricity Storage Facilities

1.3.1 All *facilities* associated with a *generation unit* or an *electricity storage unit* that provides *reactive support service* and *voltage control service* must be capable of meeting the requirements specified in ~~Chapter~~ MR Ch.4.

1.3.2 Subject to section 1.3.6, *automatic voltage ~~regulators~~ regulation* shall be in service and in automatic mode as indicated in ~~Chapter~~ MR Ch.4 unless the *generation unit* or *electricity storage unit* is specifically directed by the *IESO* to operate the ~~*AVR*~~*automatic voltage regulation* in manual mode.

1.3.3 Subject to section 1.3.4, *generation units* or *electricity storage units* providing *reactive support service* and *voltage control service* shall be operated to within the standard power factor range described in ~~Appendix~~ MR Ch.4 App.4.2 ~~of Chapter 4~~.

1.3.6 Each *ancillary service provider* shall:

1.3.6.1 notify the *IESO* immediately upon the *forced outage* of the ~~*AVR*~~ *automatic voltage regulation* at its *generation unit* or *electricity storage unit* being forced out of service; or

1.3.6.2 for *planned outages,* prior to the ~~*AVR*~~*automatic voltage regulation* being removed from its *generation unit* or *electricity storage unit* for maintenance, follow the procedures outlined in section 6 of Chapter 5.

1.4 Reactive Support and Voltage Control – Facilities that are neither Generation nor Electricity Storage

1.4.1 Except for *forced outages* and *planned outages* coordinated with the *IESO* pursuant to these *market rules*, each *transmitter* shall keep its transmission assets in service at all times unless released from service by the *IESO* or directed by the *IESO* to be removed from service pursuant to this section 1.4.

1.4.2 The *IESO* may direct a *transmitter* to remove transmission assets from service to the extent necessary to maintain *reactive support service* and *voltage control service*.

1.5 Black Start

1.5.6 A *generator* operating a *certified black start facility* shall make efforts consistent with *good utility practice* to comply with a direction from the *IESO* to deliver power without assistance from the electrical system unless:

1.5.6.1 the *certified black start facility* is on an *outage*, which *outage* is not a removal of the *certified black start facility* from service caused by the de-energization of the electrical network to which the *certified black start facility* is connected, or

1.5.6.2 where to do so would endanger the safety of any person, damage equipment, or violate any *applicable law*, ~~regulation,~~ or operating limit.

1.5.10 A *certified black start facility* will be tested and/or assessed for its ability to produce the range of reactive power ~~resources~~ required by the *IESO-controlled grid* as described in ~~Chapters~~ MR Ch.4, 5 and 7.

1.5.11 A *certified black start facility* must participate in the training activities and restoration drills referred to in sections 11.3.7.1 and 11.3.7.2 of Chapter 5, respectively.