

Market Rules

Chapter 2

Participation - Appendices

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Appendix 2.2 – Technical Requirements: Voice Communication, Monitoring and Control, Workstations and Re-Classification of Facilities

1.1 Voice Communications

1.1.1 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, subject to section 1.1.11, provide and maintain the following voice communication facilities for purposes of communicating with the *IESO*:

1.1.1.1 one *high priority path facility* and one *normal priority path facility* at the *dispatch centre, control center and authority centre* for each of its *generation facilities* provided that either:

- a. the *IESO* has determined that a *high priority path facility* and a *normal priority path facility* are required to enable the *IESO* to maintain *reliable* operation of the *IESO-controlled grid*; or
- b. one of the applicable *generation facilities* is a *major generation facility*; or
- c. the aggregate rated size of applicable *generation facilities* is 100 MVA or greater; or
- d. any one of the applicable *generation facilities* is a *certified black start facility*;

1.1.1.2 subject to section 1.1.1.1, one *normal priority path facility* at the *dispatch centre, control center and authority center* for each of its *generation facilities* provided that the aggregate rated size of applicable *generation facilities* is less than 100 MVA;

1.1.1.3 one *high priority path facility* and one *normal priority path facility* for each of its *major generation facilities* that are *attended* generation stations;

1.1.1.4 one commercially available telephone for each of:

- a. its *major generation facilities, significant generation facilities* and *minor generation facilities* that are *unattended*; and
 - b. its *self-scheduling generation facilities* with name-plate ratings of less than 10 MW,
the telephone number of which shall be provided by the *generator* to the *IESO*;
 - 1.1.1.5 one *high priority path facility* and one *normal priority path facility* for each of its *major generation facilities, significant generation facilities* and *minor generation facilities* that is a *certified black start facility*; and
 - 1.1.1.6 one *normal priority path facility* for each of its *significant generation facilities* and *minor generation facilities* that is attended and is not a *certified black start facility*.
- 1.1.2 Each *embedded generator* that is not a *market participant* or whose *embedded generation facility* is not a *registered facility* shall, subject to section 1.1.11, provide and maintain the voice communication facilities referred to in sections 1.1.1.1 to 1.1.1.6, as may be applicable, in respect of each of its *embedded generation facilities* that:
- 1.1.2.1 includes a *generation unit* rated at 20 MVA or higher or that comprises *generation units* the ratings of which in the aggregate equals or exceeds 20 MVA; and
 - 1.1.2.2 has been designated by the *IESO* for the purposes of this section 1.1.2 as requiring such voice communication facilities in order to enable the *IESO* to maintain the *reliability* of the *IESO-controlled grid*.
- 1.1.3 Each *distributor* whose distribution system is *connected* to the *IESO-controlled grid* and that has control of any step-down transformer secondary breakers or low voltage feeder breakers for its loads shall, subject to section 1.1.11, provide and maintain the following voice communication facilities for purposes of communicating with the *IESO*:
- 1.1.3.1 one *high priority path facility* and one *normal priority path facility* at each location that controls such breakers if the *connection facilities* connecting such distributor's *distribution system* to the *IESO-controlled grid* have ratings that in aggregate equal or exceed 200 MVA; and

- 1.1.3.2 one *normal priority path facility* at each location that controls such breakers if the *connection facilities connecting* such distributor's *distribution system* to the *IESO-controlled grid* have ratings that in aggregate are less than 200 MVA.
- 1.1.4 Each *transmitter* whose *transmission system* or part thereof forms part of or is *connected* to the *IESO-controlled grid* shall, subject to section 1.1.11, provide and maintain the following voice communication facilities for purposes of communicating with the *IESO*:
- 1.1.4.1 one *high priority path facility* and one *normal priority path facility* at the dispatch or control center for each such *transmission system*;
- 1.1.4.2 one *high priority path facility* and one *normal priority path facility* at the *authority center* for each such *transmission system*;
- 1.1.4.3 one *high priority path facility* and one *normal priority path facility* for each *attended* transformer station forming part of such *transmission system*; and
- 1.1.4.4 one commercially available telephone for each *unattended* transformer station forming part of such *transmission system*, the telephone number of which shall be provided by the *transmitter* to the *IESO*.
- 1.1.5 Each *connected wholesale customer* that has control of any step-down transformer secondary breakers or low voltage feeder breakers for its loads shall, subject to section 1.1.11, provide and maintain the following voice communication facilities for purposes of communicating with the *IESO*:
- 1.1.5.1 one *high priority path facility* and one *normal priority path facility* at each location that controls such breakers for each of its *load facilities* that is *connected* to the *IESO-controlled grid* and that includes a *load facility* rated at 200 MVA or higher or that comprises *load facilities* the ratings of which in the aggregate equals or exceeds 200 MVA; and
- 1.1.5.2 one *normal priority path facility* at each location that controls such breakers for each of its *load facilities* that is *connected* to the *IESO-controlled grid* and that is rated at less than 200 MVA.
- 1.1.6 Each embedded load consumer whose embedded *load facility*:
- 1.1.6.1 includes a *load facility* that is rated at 20 MVA or higher or is comprised of *load facilities* the ratings of which in the aggregate equals or exceeds 20 MVA; and

1.1.6.2 has been designated by the *IESO* for the purposes of this section 1.1.6 as requiring voice communication facilities in order to enable the *IESO* to maintain the *reliability* of the *IESO-controlled grid*,

shall provide and maintain one *normal priority path facility* for each such *embedded load facility* for the purposes of communicating with the *IESO*.

1.1.6A [Intentionally left blank – section deleted]

1.1.7 Each *high priority path facility* referred to in this section 1.1 shall provide unimpeded voice communications between the *IESO* and the *facility* to which the *high priority path facility* relates and shall:

1.1.7.1 meet the applicable specifications and other requirements set forth in the *participant technical reference manual*;

1.1.7.2 have receiving apparatus that is independent of any *normal priority path facility*;

1.1.7.3 have a communication channel that is and operates in a manner that is geographically and technologically distinct from any *normal priority path facility*;

1.1.7.4 permit the *IESO* to connect and communicate immediately, without the possibility of encountering a busy signal;

1.1.7.5 if an *attended facility*, at all times while the *facility* is attended be answered by live voice by a person in attendance at the *facility*;

1.1.7.6 [Intentionally left blank]

1.1.7.7 be secure from the effects of interruptions in power supply for a period of at least eight hours; and

1.1.7.8 [Intentionally left blank]

1.1.7.9 [Intentionally left blank]

1.1.7.10 not involve any manual intermediate switching.

1.1.8 Each *normal priority path facility* referred to in this section 1.1 shall comply with each of the following elements as may, except with respect to section 1.1.8.5, be commercially available:

- 1.1.8.1 meet the applicable specifications and other requirements set forth in the *participant technical reference manual*;
 - 1.1.8.2 have receiving apparatus that is independent of any *high priority path facility*;
 - 1.1.8.3 have a communication channel that is and operates in a manner that is geographically and technologically distinct from any *high priority path facility*;
 - 1.1.8.4 be part of a public service telephone network;
 - 1.1.8.5 if an *attended facility*, at all times while the facility is attended, be answered by live voice by a person in attendance at the *facility*;
 - 1.1.8.6 permit and implement caller identification and call waiting;
 - 1.1.8.7 have a separate telephone number dedicated exclusively to receiving voice communications from the *IESO*;
 - 1.1.8.8 be secure against interception of communications by unauthorized third parties; and
 - 1.1.8.9 be secure against disclosure of communications to unauthorized third parties.
- 1.1.9 Each person that is required by this section 1.1 to provide and maintain voice communication facilities and that applies for authorization as a *market participant* in respect of a *facility* to which such voice communication facilities relate shall:
- 1.1.9.1 identify, during the authorization or registration processes, the voice communication facilities that it shall provide and maintain in accordance with this section 1.1, the owner of such voice communication facilities and the telephone number or access code, as the case may be, for such voice communication facilities;
 - 1.1.9.2 notify the *IESO* of any change in the telephone number or access code, as the case may be, for the voice communication facilities referred to in section 1.1.9.1, or in the equipment forming part of such voice communication facilities, no less than four days prior to the change being effected; and
 - 1.1.9.3 if it will cease to be the owner of the voice communication facilities referred to in section 1.1.9.1, notify the *IESO* of the succeeding owner

of such facilities no less than four days prior to the date on which the change of ownership is effected.

- 1.1.10 Each person that is required by this section 1.1 to provide and maintain voice communication facilities and that does not apply for authorization as a *market participant* in respect of the *facility* to which such voice communication facilities relate shall:
- 1.1.10.1 notify the *IESO* of the voice communication facilities that it shall provide and maintain in accordance with this section 1.1, of the owner of such voice communication facilities and of the telephone number or access code, as the case may be, for such voice communication facilities;
 - 1.1.10.2 notify the *IESO* of any change in the telephone number or access code, as the case may be, for the voice communication facilities referred to in section 1.1.10.1, or in the equipment forming part of such voice communication facilities, no less than four days prior to the change being effected; and
 - 1.1.10.3 if it will cease to be the owner of the voice communication facilities referred to in section 1.1.10.1, notify the *IESO* of the succeeding owner of such facilities no less than four days prior to the date on which the change of ownership is effected.
- 1.1.11 The *IESO* shall provide to a person required by this section 1.1 to maintain a *high priority voice communication facility*, the communication channel for such *high priority voice communication facility* if the *IESO* determines that such communication channel cannot be made available to the person without substantial cost.
- 1.1.12 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, subject to section 1.1.11, provide and maintain the following voice communication facilities for purposes of communicating with the *IESO*:
- 1.1.12.1 one high priority path facility and one normal priority path facility at the dispatch centre, control center and authority centre for each of its electricity storage facilities provided that either:
 - a. the *IESO* has determined that a *high priority path facility* and a *normal priority path facility* are required to enable the *IESO* to maintain *reliable* operation of the *IESO-controlled grid*; or

- b. one of the applicable *electricity storage facilities* is a *major electricity storage facility*; or
 - c. the aggregate of the *electricity storage facility sizes* of the applicable *electricity storage facilities* is 100 MVA or greater.
 - 1.1.12.2 subject to section 1.1.12.1, one normal priority path facility at the dispatch centre, control centre and authority center for each of its *electricity storage facilities* provided that the aggregate of the *electricity storage facility size ratings* of the applicable *electricity storage facilities* is less than 100 MVA;
 - 1.1.12.3 one high priority path facility and one normal priority path facility for each of its *major electricity storage facilities* that are attended electricity storage stations;
 - 1.1.12.4 one commercially available telephone for each of:
 - a. its *major electricity storage facilities, significant electricity storage facilities* and *minor electricity storage facilities* that are *unattended*; and
 - b. its *self-scheduling electricity storage facilities* with an *electricity storage facility size* of less than 10 MW,the telephone number of which shall be provided by the *electricity storage participant* to the *IESO*;
 - 1.1.12.5 one normal priority path facility for each of its *significant electricity storage facilities* and *minor electricity storage facilities* that is attended.
- 1.1.13 Each *embedded electricity storage participant* that is not a *market participant* or whose *embedded electricity storage facility* is not a *registered facility* shall, subject to section 1.1.11, provide and maintain the voice communication facilities referred to in sections 1.1.12.1 to 1.1.12.6, as may be applicable, in respect of each of its *embedded electricity storage facilities* that:
 - 1.1.13.1 includes an *electricity storage unit* with a rated *electricity storage unit size* of 20 MVA or higher or that comprises multiple *electricity storage units*, the aggregated *electricity storage unit size ratings* of which equals or exceeds 20 MVA; and
 - 1.1.13.2 has been designated by the *IESO* for the purposes of this section 1.1.13 as requiring such voice communication facilities in order to enable the *IESO* to maintain the reliability of the *IESO-controlled grid*.

1.2 Technical Requirements for Monitoring and Control

- 1.2.1 Each *generator* shall, for the purposes of submitting to the energy management system referred to in section 12 of Chapter 5 the monitoring and control information required to be provided by a *generator* to the *IESO* pursuant to the provisions of Chapters 4 and 5:
- 1.2.1.1 provide, maintain and connect to each of its applicable *generation facilities* monitoring and control devices that meet the specifications and other requirements set forth in the *participant technical reference manual*; and
 - 1.2.1.2 provide and maintain, in accordance with the *participant technical reference manual*, a location and supporting facilities enabling the installation of a communication terminal point between the monitoring and control devices for each of its applicable *generation facilities* and the real-time communication network channel or channels provided by the *IESO*.
- 1.2.2 Each *connected wholesale customer* shall, for the purposes of submitting to the energy management system referred to in section 12 of Chapter 5 the monitoring and control information required to be provided by a *connected wholesale customer* to the *IESO* pursuant to the provisions of Chapters 4 and 5:
- 1.2.2.1 provide, maintain and connect to:
 - a. where directed by the *IESO* if *transmitter* data is not adequate, each of its *non-dispatchable load facilities* that includes a *non-dispatchable load* rated at 20 MVA or higher or that comprises *non-dispatchable loads* the ratings of which in the aggregate equals or exceeds 20 MVA; and
 - b. each of its *dispatchable load facilities*,monitoring and control devices that meet the specifications and other requirements set forth in the *participant technical reference manual*; and
 - 1.2.2.2 provide and maintain, in accordance with the *participant technical reference manual*, a location and supporting facilities enabling the installation of a communication terminal point between the monitoring and control devices for each of its *dispatchable load facilities* and *non-dispatchable load facilities* referred to in section 1.2.2.1 and the real-time communication network channel or channels provided by the *IESO*.

- 1.2.3 Each *transmitter* shall, for the purposes of submitting to the energy management system referred to in section 12 of Chapter 5 the monitoring and control information required to be provided by a *transmitter* to the *IESO* pursuant to the provisions of Chapters 4 and 5:
- 1.2.3.1 provide, maintain and connect to each of its applicable transmission assets monitoring and control devices that meet the specifications and other requirements set forth in the *participant technical reference manual*; and
 - 1.2.3.2 provide and maintain, in accordance with the *participant technical reference manual*, a location and supporting facilities enabling the installation of a communication terminal point between the monitoring and control devices for each of its applicable transmission assets and the real-time communication network channel or channels provided by the *IESO*.
- 1.2.4 Each *distributor* shall, for the purposes of submitting to the energy management system referred to in section 12 of Chapter 5 the monitoring and control information required to be provided by a *distributor* to the *IESO* pursuant to the provisions of Chapters 4 and 5:
- 1.2.4.1 provide, maintain and connect to each of its applicable distribution assets monitoring and control devices that meet the specifications and other requirements set forth in the *participant technical reference manual*; and
 - 1.2.4.2 provide and maintain, in accordance with the *participant technical reference manual*, a location and supporting facilities enabling the installation of a communication terminal point between the monitoring and control devices for each of its applicable distribution assets and the real-time communication network channel or channels provided by the *IESO*.
- 1.2.5 Each *embedded load consumer* shall, for the purposes of submitting to the energy management system referred to in section 12 of Chapter 5 the monitoring and control information required to be provided by the *embedded load customer* to the *IESO* pursuant to the provisions of Chapters 4 and 5:
- 1.2.5.1 provide, maintain and connect to:
 - a. where directed by the *IESO* if *transmitter* or *distributor* data is not adequate, each of its applicable *non-dispatchable load facilities* that include a *non-dispatchable load* rated at 20 MVA or higher or

that comprises *non-dispatchable loads* the ratings of which in the aggregate equals or exceeds 20 MVA; and

b. each of its applicable *dispatchable load facilities*

monitoring and control devices that meet the specifications and other requirements set forth in the *participant technical reference manual*; and

1.2.5.2 provide and maintain, in accordance with the *participant technical reference manual*, a location and supporting facilities enabling the installation of a communication terminal point between the monitoring and control devices for each of its *embedded load facilities* referred to in section 1.2.5.1 and the real-time communication network channel or channels provided by the *IESO*.

1.2.6 Each person referred to in this section 1.2 shall provide access to its equipment, installation space and a reliable power source that meet the specifications and other requirements of the *participant technical reference manual*.

1.2.7 Each *electricity storage participant* shall, for the purposes of submitting to the energy management system referred to in section 12 of Chapter 5 the monitoring and control information required to be provided by an *electricity storage participant* to the *IESO* pursuant to the provisions of Chapters 4 and 5:

1.2.7.1 provide, maintain and connect to each of its applicable *electricity storage facilities* monitoring and control devices that meet the specifications and other requirements set forth in the *participant technical reference manual*; and

1.2.7.2 provide and maintain, in accordance with the *participant technical reference manual*, a location and supporting *facilities* enabling the installation of a communication terminal point between the monitoring and control devices for each of its applicable *electricity storage facilities* and the real-time communication network channel or channels provided by the *IESO*.

1.3 Dispatch Workstations

1.3.1 Each *market participant* other than a *boundary entity*, or a *capacity auction participant* with a *capacity obligation* through an *hourly demand response* resource shall, for the purposes of:

1.3.1.1 the provision to the *IESO* of real-time information required by the *IESO* to direct the operations of the *IESO-controlled grid*;

- 1.3.1.2 if the person is or will be subject to dispatch by the *IESO*, the receipt of *dispatch instructions*; and
- 1.3.1.3 the exchange with the *IESO* of other information required to be submitted or received pursuant to Chapter 7 or Chapter 8, other than the submission, receipt of confirmation of and validation of *dispatch data*, *TR bids* or *TR offers* in the *TR market* and *physical bilateral contract data*,

provide, install and maintain a *dispatch workstation* that meets the specifications and other requirements set forth in the *participant technical reference manual* and that is configured to support communication with the real-time communication network channel or channels provided by the *IESO* in the manner described in the *participant technical reference manual*.

- 1.3.2 The *dispatch workstation* referred to in section 1.3.1 shall be located at:
 - 1.3.2.1 the facility to which the *dispatch workstation* relates; or
 - 1.3.2.2 the authority center for the facility to which the *dispatch workstation* relates so as to permit a response to *dispatch instructions* within the time prescribed by the *participant technical reference manual*.
- 1.3.3 Each *market participant* that is required by this section 1.3 to provide, install and maintain a *dispatch workstation* shall:
 - 1.3.3.1 prior to commencing participation in the *IESO-administered markets*, notify the *IESO* of the premises at which its *dispatch workstation* will be located; and
 - 1.3.3.2 notify the *IESO* of any change in the location of its *dispatch workstation* no less than four days prior to the date on which the change will be effected.

1.4 Participant Workstations

- 1.4.1 Subject to section 1.6, each *market participant* shall, for the purposes of conducting secure communications or transactions with the *IESO* using *IESO*-supplied or approved software, provide, install and maintain a *participant workstation* that meets the specifications, definitions and other requirements set forth in the *participant technical reference manual*.
- 1.4.2 Each *participant workstation* required to be installed and maintained pursuant to section 1.4.1 shall:

- 1.4.2.1 where the *market participant* is exchanging the information referred to in section 1.4.1 by means of the internet, be configured to support internet communication in the manner described in the *participant technical reference manual* and, if a *TR participant*, to support communication with the communication protocol referred to in Appendix 8.2 of Chapter 8; and
- 1.4.2.2 where the *market participant* is exchanging the information referred to in section 1.4.1 by means of the private network dedicated communication links, be configured to support communication between the *participant workstation* and the *IESO* in the manner described in the *participant technical reference manual* and, if a *TR participant*, to support communication with the communication protocol referred to in Appendix 8.2 of Chapter 8.

1.5 Re-classification of Facilities

- 1.5.1 The *IESO* may, for the purposes of this Appendix 2.2 and of section 12 of Chapter 5:
 - 1.5.1.1 re-classify a *small generation facility* as a *minor generation facility*, a *significant generation facility* or a *major generation facility*;
 - 1.5.1.2 re-classify a *minor generation facility* as a *significant generation facility* or a *major generation facility*;
 - 1.5.1.3 re-classify a *significant generation facility* as a *major generation facility*;
 - 1.5.1.4 re-classify a *minor dispatchable load facility* as a *significant dispatchable load facility* or a *major dispatchable load facility*; and
 - 1.5.1.5 re-classify a *significant dispatchable load facility* as a *major dispatchable load facility*,

where the *IESO* determines that such re-classification is required to enable the *IESO* to maintain the *reliability* of the *IESO-controlled grid*.

- 1.5.1A The *IESO* may, for the purposes of this Appendix 2.2 and of section 12 of Chapter 5:
 - 1.5.1A.1 re-classify a *small electricity storage facility* as a *minor electricity storage facility*, a *significant electricity storage facility* or a *major electricity storage facility*;

1.5.1A.2 re-classify a *minor electricity storage facility* as a *significant electricity storage facility* or a *major electricity storage facility*;

1.5.1A.3 re-classify a *significant electricity storage facility* as a *major electricity storage facility*;

where the *IESO* determines that such re-classification is required to enable the *IESO* to maintain the *reliability* of the *IESO-controlled grid*.

1.5.2 The *IESO* may, for the purposes of this Appendix 2.2 and of section 12 of Chapter 5:

1.5.2.1 re-classify a *major generation facility* as a *significant generation facility*, a *minor generation facility* or a *small generation facility*;

1.5.2.2 re-classify a *significant generation facility* as a *minor generation facility* or a *small generation facility*;

1.5.2.3 re-classify a *minor generation facility* as a *small generation facility*;

1.5.2.4 re-classify a *major dispatchable load facility* as a *significant dispatchable load facility* or a *minor dispatchable load facility*; and

1.5.2.5 re-classify a *significant dispatchable load facility* as a *minor dispatchable load facility*,

where the *IESO* determines that such re-classification will not adversely affect the ability of the *IESO* to maintain *reliability* of the *IESO-controlled grid*.

1.5.2A The *IESO* may, for the purposes of this Appendix 2.2 and of section 12 of Chapter 5:

1.5.2A.1 re-classify a *major electricity storage facility* as a *significant electricity storage facility*, a *minor electricity storage facility* or a *small electricity storage facility*;

1.5.2A.2 re-classify a *significant electricity storage facility* as a *minor electricity storage facility* or a *small electricity storage facility*;

1.5.2A.3 re-classify a *minor electricity storage facility* as a *small electricity storage facility*;

where the *IESO* determines that such re-classification will not adversely affect the ability of the *IESO* to maintain *reliability* of the *IESO-controlled grid*.

- 1.5.3 A person whose *facility* has been re-classified pursuant to section 1.5.1, 1.5.1A, 1.5.2 or 1.5.2A shall ensure that its *facilities* and equipment meet the requirements set forth in this Appendix 2.2 and in section 12 of Chapter 5 applicable to the class of *facility* in which its *facility* has been re-classified.

1.6 Terms and Conditions

- 1.6.1 Where a *market participant* conducts secure communications or transactions with the *IESO* in accordance with section 1.4, sections 1.6.2 to 1.6.5 shall apply.
- 1.6.2 Each *market participant* shall be solely responsible to ensure the authenticity, integrity and non-repudiation of communications or transactions, as described in the *participant technical reference manual*.
- 1.6.3 Each *market participant* agrees to:
- 1.6.3.1 be bound by an authenticated communication or transaction to the same extent, and with the same effect of law, as if the authenticated communication or transaction had existed in a manually signed or otherwise authenticated form;
 - 1.6.3.2 acknowledge that the *IESO* will act in reliance on an authenticated communication or transaction, even where the authenticated communication or transaction contains an error;
 - 1.6.3.3 accept the time-stamp in the validation response or the time stamp of the communication or transaction recorded by the *IESO* as the authoritative record. In the case of a discrepancy, the time stamp of the communication or transaction recorded by the *IESO* shall prevail; and
 - 1.6.3.4 immediately notify the *IESO* if the *market participant* suspects any unauthorized, or inappropriate access to or activity on the *IESO's* systems or information.
- 1.6.4 The *IESO* may, without notice, temporarily suspend a *market participant's* ability to conduct secure communications or transactions if the *IESO* reasonably suspects unauthorized or inappropriate access to or activity on the *IESO's* systems or information. These suspensions will be for a period of time necessary to permit the thorough investigation of such suspended activity.
- 1.6.5 The *IESO* shall not be liable for any unauthorized activity and the damages or consequences that may result from the use of secure communications or

transactions, unless such violation was solely and directly as a result of the actions of the *IESO*.

Appendix 2.3 – Prudential Support

1. Additional Provisions Regarding Prudential Support

1.1 Determination of Prudential Support Obligations

Prior to participating in the *real-time markets*, the *IESO* shall deliver to each *market participant* a schedule, in the form set forth in the applicable *market manual*, setting out the determination by the *IESO* of that *market participant's prudential support obligations*, which shall be completed by the *IESO* on the basis of the determinations referred to in Section 5 of Chapter 2. Such schedule shall be effective until amended and replaced in accordance with this Appendix.

1.2 Provision of Prudential Support

Prior to participating in the *real-time markets*, each *market participant* shall deliver to the *IESO*:

- 1.2.1 a schedule, in the form set forth in the applicable *market manuals* completed by the *market participant* setting out the *prudential support* with which the *market participant* has elected to satisfy its *prudential support obligation* as set forth in the schedule delivered to it by the *IESO* referred to in section 1.1; and
- 1.2.2 the *prudential support* as set out in that schedule.

In the event that the sum of all *prudential support* provided by the *market participant* to the *IESO* is a greater amount than required by the *market rules*, the *IESO* shall, upon written request by the *market participant*, return (or direct the custodian to return) to the *market participant* an amount equal to the difference between the value of all *prudential support* then held by or on behalf of the *IESO* and the *prudential support obligation* of the *market participant* at that time. The *IESO* shall return such amount within five *business days* of the receipt of the request for the return of the amount from the *market participant*. In the event the *market participant* has posted one or more different types of *prudential support*, the *IESO* shall return the type of *prudential support* as directed by the *market participant*. Upon the return by the *IESO* to the *market participant* of the amount of any *prudential support*, any security interest or lien granted on such *prudential*

support will be released immediately and, to the extent possible, without any further action by either party.

1.3 Reduction of Prudential Support Obligation for Credit Rating

Where the *market participant's prudential support obligation* reflects a reduction by reason of the *market participant's* credit rating from a major bond rating agency identified in the list of such agencies published by the *IESO*, the *market participant* covenants and agrees to advise the *IESO* in writing immediately upon the *market participant* becoming aware of either a change in or loss of the then current credit rating or the decision of the bond rating agency to place the *market participant* on “credit watch status” or equivalent. Where, as a result of either any such change or loss in the then current rating or the placing of the *market participant* on “credit watch status”, the *market participant* is no longer entitled under the *market rules* to the same reduction by way of credit rating, the *IESO* shall deliver to the *market participant* an amended schedule setting out the *market participant's* revised *prudential support obligation*.

1.4 Prudential Support by way of a Third Party Guarantee

Prudential support in the form of a guarantee provided by a third party pursuant to section 5.7.2.2 or 5.7.2.4 of Chapter 2 shall provide for payment by the guarantor to the *IESO* on demand up to the amount stated in the guarantee. The only conditions on the ability of the *IESO* to draw on the guarantee shall be the delivery of copies of an unpaid invoice previously issued to the *market participant* and a certificate of an officer of the *IESO* that a specified amount is owing by the *market participant* to the *IESO* and that, in accordance with the provisions of the *market rules*, the *IESO* is entitled to payment of that specified amount as of the date of delivery of the certificate. Where the *market participant's prudential support* includes a guarantee provided by a third party that has a credit rating from a major bond rating agency identified in the list of such agencies published by the *IESO*, the *market participant* covenants and agrees to advise the *IESO* in writing immediately upon the *market participant* becoming aware of a change in or loss of the then current credit rating issued to the guarantor. Where as a result of the loss of such credit rating, the *market participant* is no longer entitled to meet its *prudential support obligation* in whole or in part through the provision of such a guarantee, the market participant must provide alternative *prudential support* within the time frame mandated in section 5.2 of Chapter 2.

1.5 Reduction of Prudential Support Obligation for Payment History

Where the *market participant's prudential support obligation* reflects a reduction by reason of evidence of the *market participant's good payment history* determined in accordance with sections 5.8.4 or 5.8.5 of Chapter 2 and, for any reason, the *market participant* is no longer entitled under the *market rules* to the same amount of reduction by way of good payment history, the *IESO* shall deliver to the *market participant* an amended schedule setting out the *market participant's revised prudential support obligation*.

1.6 Prudential Support by way of Letter of Credit

Where a portion of the *market participant's prudential support* is in the form of a letter of credit pursuant to section 5.7.2.1 of Chapter 2, the following provisions shall apply:

- 1.6.1 the letter of credit shall provide that it is issued subject to either The Uniform Customs and Practice for Documentary Credits, 2007 Revision, ICC Publication No. 600 or The International Standby Practices 1998;
- 1.6.2 the *IESO* shall be named as beneficiary in each letter of credit, each letter of credit shall be irrevocable, partial draws on any letter of credit shall not be prohibited and the letter of credit or the aggregate amount of all letters of credit shall be in the face amount of at least the amount specified in its then current schedule;
- 1.6.3 the only conditions on the ability of the *IESO* to draw on the letter of credit shall be the occurrence of an *event of default* by or in respect of the *market participant* and a certificate of an officer of the *IESO* that the *IESO* is entitled to draw on the letter of credit in accordance with the provisions of the *market rules* in the amount specified in the certificate as at the date of delivery of the certificate;
- 1.6.4 the letter of credit shall either provide for automatic renewal (unless the issuing bank advises the *IESO* at least thirty days prior to the renewal date that the letter of credit will not be renewed) or be for a term of at least one (1) year. In either case it is the responsibility of the *market participant* to maintain the requisite amount of *prudential support*. Where the *IESO* is advised that a letter of credit is not to be renewed or the term of the letter of credit is to expire, the *market participant* shall arrange for and deliver alternative *prudential support* within the time frame mandated by the *market rules* so as to enable the *market participant* to be in compliance with the *market rules*; and

- 1.6.5 by including a letter of credit as part of its *prudential support*, the *market participant* represents and warrants to the *IESO* that the issuance of the letter of credit is not prohibited in any other agreement, including without limitation, a negative pledge given by or in respect of the *market participant*.

1.7 Prudential Support by way of Cash or Treasury Bills

Where any portion of the *market participant's prudential support* is in the form of treasury bills pursuant to section 5.7.2.3 of Chapter 2, the provision of such *prudential support* shall be reflected in a written instrument that is acceptable at the sole discretion of the *IESO* and the following provisions shall apply:

- 1.7.1 any such treasury bills shall be issued by the Government of Canada and for *IESO* purposes shall be valued at their current market value from time to time less two (2%) percent to take into account the potential eroding effects of interest rate increases on the value of such treasury bills;
- 1.7.2 the *IESO* shall retain the services of a custodian which shall retain the treasury bills as agent for the *IESO* and not the *market participant*; and
- 1.7.3 any interest income paid by the treasury bill shall be apportioned to the benefit of the *market participant's prudential support*.

The *IESO* shall have no obligation to pay interest on the cash proceeds from the maturity of a treasury bill, or on any cash deposit held by the *IESO* in accordance with section 5.7.2.5 of Chapter 2.

1.8 Replacement Schedules

The *IESO* and the *market participant* may or, where required to enable the *market participant* to be in compliance with the *market rules*, shall from time to time deliver to one another one or more additional schedules, which schedules shall be in the form approved by the *IESO* from time to time. Where the *IESO* delivers to the *market participant* an additional schedule, each such schedule shall replace the preceding schedule, and shall be effective from the date of its delivery to the *market participant* for all purposes thereafter until such time as a subsequent amended schedule is delivered by the *IESO* to the *market participant*. Where any such amended schedule shows an increase in the *market participant's prudential support obligation* relative to the preceding schedule or requires the provision of alternative *prudential support*, the *market participant* shall deliver such additional or alternative *prudential support* as may be required so as to enable the *market participant* to be in compliance with the *market rules*. Where the *market participant* delivers an amended schedule, modified to reflect additional or

alternative forms of *prudential support*, such amended schedule , provided that it is accompanied by such additional or alternative *prudential support*, shall replace the preceding schedule and shall be binding on the *market participant* for all purposes thereafter until such time as a subsequent amended schedule is delivered to the *IESO* by the *market participant*.

1.9 Dispute Resolution

If the *market participant* disagrees with the determination by the *IESO* of any of the amounts of *prudential support obligations* set out on a schedule and such dispute cannot be resolved by the *market participant* and the *IESO*, then the *market participant* shall submit the matter to dispute resolution under section 2 of Chapter 3. Notwithstanding the initiation of the dispute resolution process, the *market participant* shall provide such additional *prudential support* as may be required in order to continue participating in the *real time markets* based on the determination by the *IESO* until the matter has been resolved.

2. Pledge of Prudential Support in the form of Cash or Treasury Bills

2.1 Pledge

Prudential support in the form of cash or treasury bills provided as part of the *market participant's prudential support obligation* in respect of the *market participant's* participation in the *real-time markets* shall be held by or on behalf of the *IESO* (together with all accretions thereto, all income therefrom and proceeds thereof) and the *market participant* shall assign to the *IESO* all of its present and future right, title and interest in and to such cash and treasury bills as general and continuing collateral security and as a pledge to secure:

- 2.1.1 subject to section 13 of Chapter 1, all indebtedness, obligations and liabilities of any kind, now or hereafter existing, direct or indirect, absolute or contingent, joint or several, of the *market participant* to the *IESO* in respect of the *market participant's* participation in the *real-time markets*; and
- 2.1.2 all reasonable costs, charges, expenses and fees (including, without limiting the generality of the foregoing, reasonable legal fees on a solicitor and client basis) incurred by or on behalf of the *IESO*, in the enforcement of its rights under the *market rules* in respect of the participation by the *market participant* in the *real-time markets*.

3. Exercise of Rights and Remedies to Prudential Support

3.1 Exercise of Rights

Upon the occurrence of an *event of default*, the *IESO* shall be entitled to exercise its rights and remedies as set out in the *market rules*, or provided for at law or in equity. Without limiting the generality of the foregoing, such rights and remedies shall, in respect of the *prudential support* provided by the *market participant*, include setting-off and applying any and all *prudential support* held in the form of cash or treasury bills or proceeds of either cash or treasury bills against the indebtedness, obligations and liabilities of the *market participant* to the *IESO* in respect of the participation by the *market participant* in the *real-time markets*. When the *IESO* is reasonably certain that it will be issuing a *first notice of default levy* it shall *publish* the name of the *defaulting market participant*.

3.2 Remedies Cumulative

Each of the remedies available to the *IESO* under the *market rules* or at law or in equity is intended to be a separate remedy and in no way is a limitation on or substitution for any one or more of the other remedies otherwise available to the *IESO*. The rights and remedies expressly specified in the *market rules* or at law or in equity are cumulative and not exclusive. The *IESO* may in its sole discretion exercise any and all rights, powers, remedies and recourses available under the *market rules* or under any document comprising the *prudential support* provided by the *market participant* or any other remedy available to the *IESO* howsoever arising, and whether at law or in equity, and such rights, powers and remedies and recourses may be exercised concurrently or individually without the necessity of any election.

3.3 Application of Prudential Support against Actual Exposure

Except as may be otherwise provided in the *market rules*, all moneys received in respect of the realization of the *prudential support* provided by the *market participant* may, notwithstanding any appropriation by the *market participant* or any other person, be appropriated to such parts of the *market participant's actual exposure or its other obligations*, any interest thereon owing pursuant to the *market rules* or the costs, charges, expenses and fees referred to in section 3.4 and in such order as the *IESO* sees fit, and the *IESO* shall have the right to change any appropriation at any time.

3.4 Payment of Expenses

The *market participant* agrees to pay to the *IESO* forthwith on demand all reasonable costs, charges, expenses and fees (including, without limiting the generality of the foregoing, legal fees on a solicitor and client basis) of or incurred by or on behalf of the *IESO* in the realization, recovery or enforcement of the *prudential support* provided by the *market participant* and enforcement of the rights and remedies of the *IESO* under the *market rules* or at law or in equity in respect of the participation by the *market participant* in the *real-time markets*.

3.5 Deficiency

If the proceeds of the realization of any *prudential support* provided by the *market participant* are insufficient to pay all of the *actual exposure* of the *market participant* or its other obligations to the *IESO*, the *market participant* shall forthwith pay or cause to be paid to the *IESO* any such deficiency. The *IESO* shall provide a calculation of any such deficiency to the *market participant*.