

Market Rules

Chapter 6

Wholesale Metering



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Table of Contents

1.	Introduction.....	1
1.1	Application and Interpretation	1
1.2	Purpose.....	1
2.	Requirements for Metering Installations	2
3.	Metered Market Participants	3
3.1	General Obligations	3
3.2	Transitional Arrangements	6
4.	Metering Installation.....	7
4.1	Metering Installation Standards.....	7
4.1A	Metering Installations for Segregated Mode of Operation	9
4.2	Defined Meter Point and Error Correction Factors	9
4.3	Use of Metering Data and Metering Data Collection	11
4.4	Alternative Metering Installation Standards.....	12
4.5	Alternative Metering Installation Standards for Embedded Generation Facilities	14
4.6	Metering Installation Standards for Embedded Generation Facilities Under 2 MVA or Injecting Less than 17 GWh Per Annum.....	15
5.	Metering Service Providers.....	16
5.1	Registration.....	16
5.2	Activities and Standards for Metering Service Providers.....	20
5.3	Revocation of Registration of Metering Service Providers	20
6.	Registration of Metering Installations and Metering Registry	24
6.1	Registration of Metering Installations	24
6.2	Metering Registry	26
7.	Testing and Auditing of Metering Installations	26
7.1	Testing and Auditing	26
7.2	Tests and Audits of Metering Data.....	28
7.3	Costs of Tests and Audits	29
7.4	Safety Requirements and Practices During Audits	31
8.	Ownership of and Rights of Access to Data	32

9.	Security of Metering Installations and Data	34
9.1	Security of Metering Equipment	34
9.2	Security Controls	35
9.3	Changes to Metering Equipment, Parameters and Settings	36
9.4	Changes to Metering Data	37
10.	Processing of Metering Data for Settlement Purposes	38
10.1	Metering Database	38
10.2	Remote Acquisition of Data	39
10.3	Periodic Energy Metering	39
10.4	Errors Relating to Metering Installations and Metering Data	40
11.	Performance of Metering Installation	42
11.2	Meter Time	45
12.	Evolving Technologies and Processes and Development of the Market	46
13.	Responsibilities of the IESO	46

1. Introduction

1.1 Application and Interpretation

1.1.1 This Chapter applies to the following:

- 1.1.1.1 the *IESO*;
- 1.1.1.2 *market participants*; and
- 1.1.1.3 *metering service providers*.

1.1.2 Nothing in this Chapter shall affect the obligation of any *market participant*, *metered market participant* or *metering service provider* to comply with all applicable *federal metering requirements* provided that, where this Chapter or a policy or standard established by the *IESO* pursuant to this Chapter prescribes a higher standard than that prescribed by *federal metering requirements*, the relevant *market participant*, *metered market participant* or *metering service provider* shall, for purposes of this Chapter, comply with such higher standard.

1.1.3 This Chapter does not apply to an *intertie metering point*.

1.1.4 This Chapter does not apply to a *metering installation* that is not used or required by these *market rules* to be used for *settlement* purposes in the *IESO-administered markets*.

1.2 Purpose

1.2.1 The purpose of this Chapter is to set out the rights and obligations of *market participants*, *metered market participants* and the *IESO*, and the rights, obligations and qualifications of *metering service providers* associated with the measurement of *energy*; the registration, provision, installation, commissioning, maintenance, repair, replacement, inspection, testing and audit of *metering installations*; and the provision, security and accuracy of *metering data* relating to the *day-ahead market*, *real-time ~~markets-~~ market* or the *procurement markets*.

- 1.2.2 Nothing in this Chapter shall preclude a *metered market participant* from applying, or from permitting a *metering service provider* to apply, evolving technologies and processes relating to *metering* as they become available provided that such application is effected in accordance with section 12.1.1.

2. Requirements for Metering Installations

- 2.1.1 Subject to section 2.1.5, the *IESO* shall not permit a person to participate in the *day-ahead market*, *real-time ~~markets-market~~* or the *procurement markets* or to cause or permit electricity to be conveyed into, through or out of the *IESO-controlled grid* in respect of a *connection point*, other than an *interconnection*, or in respect of an *embedded connection point* unless the *IESO* is satisfied that:

2.1.1.1 the *connection point* or *embedded connection point* has an associated *metering installation* that, subject to section 4.4, complies with the requirements of this Chapter and of any policy or standard established by the *IESO* pursuant to this Chapter. A single *metering installation* may be associated with more than one *connection point* or *embedded connection point*;

2.1.1.2 if the person is or will be the *metered market participant* for the *metering installation* referred to in section 2.1.1.1:

- a. the person has entered into an agreement under section 3.1.2.2(a) in relation to the *metering installation* or is a ~~registered~~ *metering service provider*; and
- b. if the person is also an *embedded market participant*, has advised the relevant *distributor* or *transmitter* of the entering into of the agreement referred to in section 2.1.1.2(a); and

2.1.1.3 either

- a. such *metering installation* has been and continues to be registered with the *IESO* in accordance with the procedures referred to in section 6.1.2., or
- b. such *metering installation* has been registered with the *IESO* in accordance with the procedures referred to in section 6.1.2 and the registration has expired provided that the *IESO* determines that the

continued use of the *metering installation* is necessary for the efficient operation of the *IESO-administered markets*.

- 2.1.2 The *IESO* shall refuse to permit a person to participate in the *day-ahead market*, *real-time markets-market* or the *procurement markets* or to cause or permit electricity to be conveyed into, through or out of the *IESO-controlled grid* in respect of any *connection point*, other than an *interconnection*, or an *embedded connection point* if the conditions set forth in section 2.1.1 are not satisfied. Such refusal is a *reviewable decision*.
- 2.1.3 [Intentionally left blank – section deleted]
- 2.1.4 This Chapter applies in respect of a *metering installation* that measures the consumption of *energy* in accordance with section 2.1A.1 of Chapter 9.

Temporary Withdrawal of Electricity without a Registered Wholesale Meter

- 2.1.5 The *IESO* may permit a *market participant* to withdraw electricity temporarily from the *IESO-controlled grid* at a *connection point* without a *metering installation* being registered with the *IESO* for that *connection point* under the conditions specified in the applicable *market manual*.

3. Metered Market Participants

3.1 General Obligations

- 3.1.1 Each *metered market participant* shall:
- 3.1.1.1 ensure that, subject to section 4.4, each *metering installation* in respect of which it is the *metered market participant* complies with the requirements set forth in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter;
 - 3.1.1.2 comply with the obligations imposed on *metered market participants* in Appendix 6.1 and in any policy or standard established by the *IESO* pursuant to this Chapter; and
 - 3.1.1.3 coordinate electronic access, by persons other than the *IESO*, to each *metering installation* in respect of which it is the *metered market participant* so as to prevent such persons from accessing the *metering installation* at a time or in a manner that may adversely affect the ability of the *IESO* to access the *metering data* in that *metering*

installation in accordance with the notice given pursuant to section 8.1.7.

3.1.2 Each *metered market participant* shall:

3.1.2.1 if registered as a *metering service provider*:

- a. subject to section 4.4, register, provide, install, commission, maintain, repair, replace, inspect and test each *metering installation* in respect of which it is the *metered market participant* in accordance with the provisions of this Chapter and of any policy or standard established by the *IESO* pursuant to this Chapter;
- b. comply with all of the obligations imposed on *metering service providers* in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter;
- c. provide to the *IESO* the information referred to in sections 1.2 and 1.3 of Appendix 6.5 and update such information as required to maintain such information current; and
- d. where the *metering installation* is associated with more than one *connection point, defined meter point* or *facility*, on a timely basis review and update the information referred to in sections 1.2 and 1.3 of Appendix 6.5 and provide it to the *IESO*:
 - i. annually; and
 - ii. when material changes are made to the *IESO-controlled grid* downstream of the *metering installation* including the application by another *metered market participant* to register a different *metering installation* downstream of the *metering installation*; or

3.1.2.2 if not registered as a *metering service provider*:

- a. enter into an agreement with a *metering service provider* for the registration, provision, installation, commissioning, maintenance, repair, replacement, inspection and testing by that *metering service provider* of each *metering installation* in respect of which it is the *metered market participant*;
- b. ensure that its *metering service provider* provides the *IESO* with the information referred to in sections 1.2 and 1.3 of Appendix 6.5 and updates such information as required to maintain that information current;

- c. where the *metering installation* is associated with more than one *connection point, defined meter point* or *facility*, on a timely basis ensure that its *metering service provider* reviews and updates the information referred to in sections 1.2 and 1.3 of Appendix 6.5 and provide it to the *IESO*:
- i. annually; and
 - ii. when material changes are made to the *IESO-controlled grid* downstream of the *metering installation* including the application by another *metered market participant* to register a different *metering installation* downstream of the *metering installation*; and
- d. be liable to the imposition of financial penalties and other sanctions, in accordance with Chapter 3, in respect of the failure by each *metering service provider* that acts as a *metering service provider* for a *metering installation* in respect of which it is the *metered market participant* to comply with the obligations imposed on *metering service providers* in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter.
- 3.1.3 Nothing in section 3.1.2 shall prevent a *metered market participant* from entering into an agreement with one *metering service provider* for the provision, installation and commissioning of a *metering installation* and entering into a separate agreement with another *metering service provider* under which that other *metering service provider* assumes responsibility for all subsequent maintenance, repair, replacement, inspection and testing of that *metering installation*.
- 3.1.4 Each *metered market participant* shall bear all costs and expenses associated with:
- 3.1.4.1 the registration, provision, installation, commissioning, maintenance, repair, replacement and inspection of each *metering installation* for which it is the *metered market participant*;
 - 3.1.4.2 the routine testing, as described in section 7.1.1, of each *metering installation* in respect of which it is the *metered market participant*;
 - 3.1.4.3 the testing, other than the routine testing referred to in section 3.1.4.2, and audit of each *metering installation* in respect of which it is the *metered market participant* where such costs and expenses are

required to be borne by the *metered market participant* pursuant to section 7.3.1;

3.1.4.4 the security and accuracy of all *metering data* recorded in each *metering installation* for which it is the *metered market participant* and the transfer of such *metering data* to the communication interface of the *metering database*; and

3.1.4.5 gaining its own access to the *metering registry*, the *metering database* and the *metering data* recorded in each *metering installation* for which it is the *metered market participant*.

3.1.5 Nothing in section 3.1.4 shall prevent a *metered market participant* from entering into an agreement with a person pursuant to which agreement such person agrees to indemnify the *metered market participant* in respect of some or all of the costs and expenses referred to in section 3.1.4.

3.2 Transitional Arrangements

3.2.1 Notwithstanding any other provision of this Chapter, a person that owns a *metering installation* that is in service on the date of coming into force of this section 3.2 or that is brought into service between the date of coming into force of this section 3.2 and the *market commencement date* shall, unless an election is made by such person pursuant to section 3.2.2, apply for registration as a *metering service provider* and shall act as the *metering service provider* in respect of such *metering installation* from the *market commencement date* until the earliest expiry date of any seal period of any *meter* forming part of such *metering installation*. Once such seal period expires, the *metered market participant* for the *metering installation* shall make such alternative arrangements as may be necessary to comply with the provisions of this Chapter and of any policy or standard established by the *IESO* pursuant to this Chapter.

3.2.2 A person that owns a *metering installation* that is in service on the date of coming into force of this section 3.2 may elect to enter into an agreement with a *metering service provider* pursuant to which that *metering service provider* acts as the *metering service provider* in respect of such *metering installation*.

3.2.3 Notwithstanding section 3.1.2.2(c), a *metering service provider* designated as such pursuant to section 3.2.1 or 3.2.2, shall, in addition or in lieu of any liability that may be imposed on a *metered market participant* pursuant to section 3.1.2.2(c), be liable to the imposition of financial penalties and other sanctions, in accordance with the enforcement provisions of Chapter 3, in respect of a failure by the *metering service provider* to comply with the obligations imposed on

metering service providers in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter, and for such purposes, *metering service providers* shall be deemed as *market participants*. Such *metering service providers* shall only be subject to such liability in respect of *metering installations* for which they are designated as *metering service providers* pursuant to section 3.2.1 or 3.2.2 and only until the earliest expiry date of any seal period of any *meter* forming part of the *metering installation*.

4. Metering Installation

4.1 Metering Installation Standards

- 4.1.1 Subject to sections 4.1.2, 4.4, and 4.6, each *metering installation* shall:
- 4.1.1.1 contain *meters* that are of a type that are described on the list of conforming *meters* established by the *IESO*;
 - 4.1.1.2 be comprised of two *meters*, at least one of which shall be a *revenue meter* that meets or exceeds the 0.2% accuracy class of ANSI standard C12.20;
 - 4.1.1.3 have *instrument transformers* whose current transformers and voltage transformers meet or exceed the 0.3% accuracy class of ANSI standard C57.13;
 - 4.1.1.4 meet the accuracy requirements set forth in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter;
 - 4.1.1.5 meet the security requirements set forth in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter;
 - 4.1.1.6 subject to section 10.3.2, be capable of collating *metering data* into *dispatch intervals*;
 - 4.1.1.7 be capable of separately registering and recording flows in each direction where bi-directional active *energy* flows may occur;
 - 4.1.1.8 be capable of allowing remote access to the *metering data* contained in the *metering installation* in the manner set forth in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter;

- 4.1.1.9 be capable of storing *metering data* for at least 35 days; and
- 4.1.1.10 comply with all other requirements set forth in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter.
- 4.1.2 A *metering installation* may exceed the level of accuracy and other requirements set forth in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter.
- 4.1.3 No *metering installation* shall be placed into service unless:
- 4.1.3.1 it has been commissioned in accordance with this Chapter and with any policy or standard established by the *IESO* pursuant to this Chapter;
- 4.1.3.2 the communication equipment forming part of the *metering installation* has successfully passed an end-to-end test; and
- 4.1.3.3 it has been registered with the *IESO* in accordance with the procedures described in section 6.1.2.
- 4.1.4 The *IESO* shall, upon request by a *metered market participant* or a *metering service provider*, review conceptual drawings for a *metering installation* proposed to be installed by the *metered market participant* or the *metering service provider*.
- 4.1.5 A *metered market participant* or a *market participant*, with the agreement of the relevant *metered market participant*, may arrange for a *metering installation* to contain features in addition to those specified in section 4.1.1 and in the requirements, policies or standards referred to in that section.
- 4.1.6 Subject to section 4.1.7, where a *metering installation* is intended to be used for a purpose in addition to the collection, recording and storage of *metering data* and the transfer of *metering data* to the *IESO*, the *metered market participant* for the *metering installation* shall:
- 4.1.6.1 ensure that such use shall not interfere with the ability of the *metering installation* to perform or function in accordance with section 4.1.1 and the requirements, policies and standards referred to in that section;
- 4.1.6.2 obtain the prior approval of the *IESO* for such use and shall co-ordinate with any person that uses the *metering installation* for such other purposes to ensure that such use does not interfere with the ability of the *metering installation* to perform or function in

accordance with section 4.1.1 and with the requirements, policies and standards referred to in that section; and

4.1.6.3 ensure that such use complies with all applicable *federal metering requirements*.

4.1.7 Each *metered market participant* shall ensure that any *instrument transformer* forming part of a *metering installation* in respect of which it is the *metered market participant* is not used for a purpose other than the measurement of *energy* for *settlement* purposes unless:

4.1.7.1 the *instrument transformer* is part of a *main/alternate metering installation*;

4.1.7.2 the *instrument transformer* is not connected to the *revenue meter* that has been designated by the *metered market participant* as the *main revenue meter* as reflected in the registration information pertaining to the *main/alternate metering installation*; and

4.1.7.3 the *instrument transformer* is operated within the rated burden limits for the accuracy class referred to in section 4.1.1.4.

or

4.1.7.4 the *metering installation* is registered under section 4.6 and the *IESO* has approved the placing of additional loads on the *instrument transformer* under section 4.6.6.

4.1A Metering Installations for Segregated Mode of Operation

4.1A.1 Subject to section 4.4, no *metered market participant* may operate a *registered facility resource* in a *segregated mode of operation* unless the *metering installation* for that *registered facility* generates *metering data* that reads zero, or is capable of such adjustment as may be required to ensure that such *metering data* reads zero, when the *registered facility resource* is operating in a *segregated mode of operation*.

4.2 Defined Meter Point and Error Correction Factors

4.2.1 Subject to section 4.4, each *metered market participant* shall ensure, in respect of each *metering installation* for which it is the *metered market participant*, that:

4.2.1.1 subject to sections 4.2.2 and 4.2.2A, the *meter point* is located at the *defined meter point* for the *facility* to which the *metering installation* relates and otherwise complies with all requirements for *meter points* set forth in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter.

4.2.1.2 [Intentionally left blank – section deleted]

4.2.2 The *IESO* shall permit a *metering installation* to be registered in respect of a *facility* notwithstanding that the *meter point* is not located at the *defined meter point* provided that all transfers of *energy* at any points of supply or consumption for the *facility* to which the *metering installation* relates are separately *metered* in a manner satisfactory to the *IESO*.

Metering Installation Associated with More than One Defined Meter Point and/or Facility

4.2.2A The *IESO* shall permit a *metering installation* to be associated with more than one *facility* notwithstanding that the *meter point* is not located at the *defined meter points* for the *facilities*, provided that all transfers of *energy* at any points of supply or consumption for the *facilities* to which the *metering installation* are associated, are determined in a manner satisfactory to the *IESO*.

Where a *metered market participant* intends that such a *metering installation* is to be used for determining *settlement amounts* instead of one or more pre-existing downstream *metering installations*, the *IESO* shall not permit the use of the upstream *metering installation* for determining *settlement amounts* unless the *metered market participant* demonstrates, to the satisfaction of the *IESO* in accordance with the applicable *market manual*, the accuracy of the *energy* transfer measurements of the upstream *metering installation* relative to the downstream *metering installations*.

4.2.2B When developing the conditions of satisfaction referred to in section 4.2.2A, the *IESO* shall be guided by the principle that all *market participants* are to be held financially whole by the use of the upstream *metering installation*.

4.2.3 The *IESO* shall, in respect of *metering data* recorded in the *metering database* that was obtained from a *metering installation* whose *meter point* is not located at the *defined meter point* for a *facility* to which the *metering installation* relates, adjust the *metering data* on the basis of the site-specific loss adjustments referred to in section 4.2.4 or 4.2.5.1 and, where applicable, on the basis of the loss adjustments provided pursuant to section 4.2.5.2.

- 4.2.4 Where the *defined meter point* in respect of a *facility* is a *connection point* and the *meter point* of the *metering installation* for that *facility* is located other than at the *defined meter point*, the *metering service provider* for the relevant *metering installation* shall provide to the *IESO*, at the time of registration of the *metering installation*, in accordance with section 4.2.6, the parameters for site specific loss adjustments required to reflect losses between the *meter point* and the *defined meter point*.
- 4.2.5 Where the *defined meter point* in respect of a *facility* is an *embedded connection point* and the *meter point* is not located at the *defined meter point*, the *metering service provider* for the relevant *metering installation* shall provide to the *IESO*, at the time of registration of the *metering installation*:
- 4.2.5.1 the parameters for site specific loss adjustments to reflect losses between the *meter point* and the *embedded connection point*, in accordance with section 4.2.6; and
- 4.2.5.2 the loss adjustments required to reflect losses between the *defined meter point* for the *primary RWM* associated with the *facility* and the *defined meter point* for the *embedded RWM* associated with the *facility*, obtained where applicable from the relevant *transmitter* or *distributor*, as the case may be depending on the owner of the *facilities* to which the *facility* to which the *meter point* relates is connected.
- 4.2.6 The parameters for site specific loss adjustments referred to in sections 4.2.4 and 4.2.5.1 shall comply with the requirements of any site specific loss adjustment policy or standard established by the *IESO* and shall be updated by each *metering service provider* as may be required by the *IESO*.
- 4.2.7 Each *metering service provider* shall provide to the *IESO* measurement error correction factors for each *metering installation* in respect of which it acts as a *metering service provider* in accordance with this Chapter and with any policy or standard established by the *IESO* pursuant to this Chapter.

4.3 Use of Metering Data and Metering Data Collection

- 4.3.1 *Metering data* shall be used by the *IESO* for *settlement* purposes following completion of the validation and, where applicable, substitution and estimation processes, in the manner set forth in Chapter 9.
- 4.3.2 Each *metering installation* shall:

- 4.3.2.1 have a communication link to the relevant telecommunication network, and, where required, isolation equipment approved under applicable telecommunications laws and regulations; and
- 4.3.2.2 be capable of remote communication by electronic means from the site of the *metering installation* to the communication interface of the *metering database*.
- 4.3.3 Each *metered market participant* shall ensure that all *metering data* contained in each *metering installation* for which it is the *metered market participant* is made available and transferred to the communication interface of the *metering database* in accordance with the requirements set forth in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter. The *IESO* may use *data collection systems* operated by meter data management agencies for the purpose of the transfer of *metering data* to the *metering database*.
- 4.3.4 Each *metered market participant* shall ensure that all *metering data* in each *metering installation* for which it is the *metered market participant* is transferred to the communication interface of the *metering database* in a manner that preserves the security from access and the accuracy of such *metering data* as described in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter.
- 4.3.5 The *IESO* shall ensure that all *metering data* that has been transferred to the communication interface of the *metering database* is transferred from such communication interface to the *metering database* in a manner that preserves the security of access and the accuracy of such *metering data* as described in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter.
- 4.3.6 No *metered market participant* shall use a protocol or data format in respect of the transfer of *metering data* from a *metering installation* to a *data collection system* unless that protocol or data format has been approved by the *IESO*.
- 4.3.7 Each *metered market participant* shall ensure that *metering data* recorded in a *metering installation* in respect of which it is the *metered market participant* that is transferred to the communication interface of the *metering database* is in a data format that is compatible with the data format used by the *IESO* for the retrieval of *metering data* from such communication interface.

4.4 Alternative Metering Installation Standards

Obligations of Metered Market Participants

- 4.4.1 A *metered market participant* with a *metering installation* registered under section 4.4.3, shall ensure that the *metering installation* meets the requirements set forth in the alternative standards specified in Appendix 6.2.

Registration Under the Alternative Metering Installation Standard

- 4.4.2 A *metering service provider* applying to register a *metering installation* under the alternative standards specified in Appendix 6.2 shall submit to the *IESO*:
- 4.4.2.1 an application for registration specifying the alternative *metering installation* standard(s) for which registration is sought;
 - 4.4.2.2 applicable supporting information as specified in Appendix 6.2; and
 - 4.4.2.3 information otherwise required by Chapter 6 or the applicable *market manual*.
- 4.4.3 The *IESO* shall register the *metering installation* provided that, in the opinion of the *IESO*, the *metering service provider* meets the requirements of section 4.4.2. Where the *IESO* is not satisfied that the requirements of section 4.4.2 have been met, it shall refuse to register the *metering installation*. The *IESO* shall so notify the applicant, together with the reasons for refusal. Such a refusal is a *reviewable decision*.

Expiry and Revocation of Registration

- 4.4.4 Registration granted under section 4.4.3, in respect of a particular alternative standard, shall expire on the earlier of:
- 4.4.4.1 the date specified in Appendix 6.2 for that alternative standard; and
 - 4.4.4.2 the date on which registration is revoked by the *IESO* under section 4.4.6.
- 4.4.5 Subject to section 4.4.8, prior to the expiry of registration of a *metering installation* under the alternative standard, the *metered market participant* for that *metering installation* shall ensure that the *metering installation* is brought into full compliance with the applicable requirements set forth in this Chapter and in any policy or standard established by the *IESO* under this Chapter.
- 4.4.6 The *IESO* may revoke registration granted under section 4.4.3 in the circumstances described in Appendix 6.2.

- 4.4.7 If the *IESO* revokes the registration for a *metering installation* under section 4.4.6, the *metered market participant* for that *metering installation* shall ensure that the *metering installation* is brought into full compliance with the applicable requirements of this Chapter within the time specified in Appendix 6.2 and shall so notify the *IESO*.

Retaining Registration Under the Alternative Standard

- 4.4.8 Prior to the expiry of registration of a *metering installation* under the alternative standards specified in sections 1.2, 1.6, 1.7, 1.8, 1.9, 1.11, 1.12, and 1.13 of Appendix 6.2, the *metered market participant* may apply to the *IESO* to retain registration under those sections. The *IESO* shall grant the *metered market participant* the right to retain registration if, in the opinion of the *IESO*, the changes required for the *metering installation* meet the criteria specified in the applicable *market manual*. The *IESO* shall recover the cost of processing the application from the *metered market participant* in accordance with the applicable *market manual*.

Estimation of Metering Data for Settlement Purposes

- 4.4.9 Where a *metered market participant* fails to comply with section 4.4.5 or 4.4.7, the *IESO* shall take such action with respect to the estimation of *metering data* for *settlement* purposes as specified in section 1.14 of Appendix 6.2.

4.5 Alternative Metering Installation Standards for Embedded Generation Facilities

- 4.5.1 A *transmission customer* that has an *embedded generation facility* that:
- 4.5.1.1 registers that *generation facility* for the purpose of determining transmission charges;
 - 4.5.1.2 is rated less than 20 MW; and
 - 4.5.1.3 meets the applicable Ontario Uniform Transmission Rate Schedule requirements with respect to the transmission *delivery point* through which the *generation facility* is connected to the *transmission system* and attracts Line or Transformation Connection Service charges;
 - 4.5.1.4 [Intentionally left blank – section deleted]

shall either comply with the *metering installation* standards specified elsewhere in this Chapter 6 or with the alternative *metering installation* standards specified in this section 4.5 for that *embedded generation facility*.

4.5.2 A *transmission customer* that chooses to meet the alternative *metering installation* standards of this section 4.5 for an *embedded generation facility* shall, in accordance with the applicable *market manual*, have their *metering service provider*:

4.5.2.1 register with the *IESO* a *metering point* for that *embedded generation facility*.

4.5.2.2 [Intentionally left blank – section deleted]

4.5.3 Within three months of the calendar year end, the *transmission customer* shall, for each *embedded generation facility* for which a *metering point* has been registered under the alternative *metering installation standards* of this section 4.5, in the manner specified in the applicable *market manual*:

4.5.3.1 determine the annual adjustment dollar value for the applicable *transmission services charges* based on the impact of the actual output of the *embedded generation facility*;

4.5.3.2 obtain agreement of the *transmitter* as to this adjustment amount; and

4.5.3.3 submit this information to the *IESO*.

4.5.4 In the event that the *IESO* does not receive the information specified in section 4.5.3 within the time specified in section 4.5.3, the *IESO* shall use the *maximum continuous rating* for the *embedded generation facility*, provided to the *IESO* at the time of the *meter point* registration referred to in section 4.5.2.

4.5.5 The *IESO* shall adjust the applicable *transmission service charge settlement amounts* by any such amount, submitted in accordance with section 4.5.3 or by the amount determined under section 4.5.4, for the *transmission customer* and the *transmitter*. The *IESO* shall make this adjustment on the applicable *settlement statement* for the last day of the month in which the adjustment information is received or the last day of the month in which the *IESO* determines the adjustment amount, whichever is applicable.

4.6 Metering Installation Standards for Embedded Generation Facilities Under 2 MVA or Injecting Less than 17 GWh Per Annum

4.6.1 A *market participant* that has a registered *minor generation facility* embedded within a *distribution system* and which either injects less than 17 gigaWatt-hours per annum or has a nameplate rating less than 2 MVA shall be eligible to register

with the *IESO* a *metering installation* for that *generation facility* comprised of a standalone *meter*.

- 4.6.2 The standalone *meter* shall be either a main *meter* or an alternate *meter* from the *IESO's* conforming *meter* list.
- 4.6.3 The *metering service provider* for the *metering installation* registered under section 4.6.1 shall not be required to submit an emergency *instrument transformer* restoration plan otherwise required under section 1.3.2.17 of Appendix 6.5.
- 4.6.4 If there is a failure of an *instrument transformer* at a *metering installation* registered in accordance with this section, the *IESO* shall estimate the *metering data* from the *metering installation* for *settlement* purposes in accordance with section 11.1.4A of Chapter 6 for the duration of the failure.
- 4.6.5 The *metered market participant* for a *meter* registered in accordance with this section shall not be required to meet the testing requirements specified in section 1.2 of Appendix 6.3.
- 4.6.6 The *metered market participant* for a *metering installation* registered in accordance with this section shall, subject to *IESO* approval, be permitted to place additional loads on its *instrument transformer*.
- 4.6.7 Within three months from the date of notification by the *IESO*, a *metered market participant* shall make a *metering installation* fully compliant with the *metering installation* standards specified elsewhere in Chapter 6 if the *energy* threshold recorded by the standalone *meter* exceeds 17 gigaWatt-hours per annum.

5. Metering Service Providers

5.1 Registration

- 5.1.1 No person may perform the activities required by this Chapter or by any policy or standard established by the *IESO* pursuant to this Chapter to be performed by a *metering service provider* unless that person has been registered by the *IESO* as a *metering service provider*.
- 5.1.2 No person shall be registered by the *IESO* as a *metering service provider* unless the person demonstrates to the satisfaction of the *IESO* that the person has the qualifications described in Appendix 6.4.

- 5.1.3 Any person including, but not limited to, a *market participant* or a *metered market participant*, that wishes to be registered by the *IESO* as a *metering service provider* shall file with the *IESO*:
- 5.1.3.1 a completed application for registration as a *metering service provider* in such form as shall be established by the *IESO*;
 - 5.1.3.2 an executed agreement, in such form as shall be established by the *IESO*, pursuant to which the person agrees, among other matters, to be bound by and comply with the provisions of the *market rules* applicable to *metering service providers*; and
 - 5.1.3.3 the application fee established from time to time by the *IESO*, and approved by the *OEB*, to defray the costs of processing the application, conducting the systems and procedures tests and audits referred to in section 5.1.6 and conducting the review referred to in section 5.1.13.
- 5.1.4 The *IESO* shall, within ten *business days* of receiving an application for registration as a *metering service provider* or within such longer period of time as may be agreed between the *IESO* and the applicant, notify the applicant of any further information or clarification that is required in support of its application if, in the *IESO*'s opinion, the application is:
- 5.1.4.1 incomplete; or
 - 5.1.4.2 contains information with respect to which the *IESO* requires clarification.
- 5.1.5 If the further information or clarification which is requested by the *IESO* pursuant to section 5.1.4 is not provided to the *IESO*'s satisfaction within fifteen *business days* of the request or within such longer period of time as may be agreed between the *IESO* and the applicant, the applicant shall be deemed to have withdrawn its application for registration as a *metering service provider*.
- 5.1.6 The *IESO* may, if the applicant does not have ISO 9000 certification, conduct such audits or tests of the applicant's systems and procedures as the *IESO* determines appropriate.
- 5.1.7 The *IESO* shall, within twenty *business days* of:

- 5.1.7.1 receipt of the application for registration as a *metering service provider*;
- 5.1.7.2 receipt of the further information or clarification requested under section 5.1.4; or
- 5.1.7.3 the conduct of any audits or tests referred to in section 5.1.6,

whichever is the later, or within such longer period of time as may be agreed between the *IESO* and the applicant, notify the applicant that the *IESO* intends to register the person as a *metering service provider* upon completion of the review referred to in section 5.1.13, on such terms and conditions as the *IESO* considers appropriate, if the applicant has demonstrated to the *IESO*'s satisfaction that it has the qualifications set forth in Appendix 6.4. If the applicant has ISO 9000 certification, the *IESO* shall, together with the notice of intention to register the applicant, refund that portion of the application fee referred to in section 5.1.3.3 that is attributable to the costs of conducting the systems and procedures tests and audits referred to in section 5.1.6.

- 5.1.8 If the *IESO* is not satisfied that the applicant has demonstrated that it has the qualifications set forth in Appendix 6.4, the *IESO* shall, within twenty *business days* of receipt of the application for registration as a *metering service provider*, of receipt of the further information or clarification requested under section 5.1.4 or of any audits or tests referred to in section 5.1.6, whichever is the later, or within such longer period of time as may be agreed between the *IESO* and the applicant, notify the applicant that the *IESO* intends to deny its application for registration as a *metering service provider*. Such notice shall identify the deficiency in the applicant's qualifications that formed the grounds for the issuance of the notice.
- 5.1.9 An applicant to whom a notice is issued in accordance with section 5.1.8 shall have 20 *business days* from the date of receipt of such notice, or such longer period of time as may be agreed between the *IESO* and the applicant, in which to rectify the deficiency in its qualifications identified in such notice and to notify the *IESO* of such rectification.
- 5.1.10 Where the *IESO* is satisfied that, with the rectification described in section 5.1.9, the applicant has demonstrated that it meets the qualifications set forth in Appendix 6.4, the *IESO* shall notify the applicant that the *IESO* intends to register the person as a *metering service provider* upon completion of the review referred to in section 5.1.13, on such terms and conditions as the *IESO* considers appropriate.

- 5.1.11 Where:
- 5.1.11.1 an applicant to whom a notice is issued in accordance with section 5.1.8 fails to rectify the deficiency in its qualifications within the time specified in that section; or
 - 5.1.11.2 the rectification described in section 5.1.9 is not such as to satisfy the *IESO* that the applicant meets the qualifications set forth in Appendix 6.6,
- the *IESO* shall:
- 5.1.11.3 notify the applicant in writing that its application for registration as a *metering service provider* has been denied;
 - 5.1.11.4 if the *IESO* has not conducted the systems and procedures tests and audits referred to in section 5.1.6, return to the applicant that portion of the application fee referred to in section 5.1.3.3 that is attributable to the costs of conducting such tests and audits; and
 - 5.1.11.5 return to the applicant that portion of the application fee referred to in section 5.1.3.3 that is attributable to the costs of conducting the review described in section 5.1.13.
- 5.1.12 Denial by the *IESO* of an application for registration as a *metering service provider* is a *reviewable decision*.
- 5.1.13 The *IESO* shall review with each applicant referred to in sections 5.1.7 and 5.1.10:
- 5.1.13.1 the procedures for the registration of *metering installations* described in this Chapter and in the procedures established by the *IESO* pursuant to section 6.1.2 of this Chapter; and
 - 5.1.13.2 the performance standards for *metering service providers* set forth in the applicable *market manual*.
- 5.1.14 The *IESO* shall, within five *business days* of completion of the review referred to in section 5.1.13, register the person as a *metering service provider*, on such terms and conditions as the *IESO* considers appropriate, and shall notify the applicant accordingly.

- 5.1.15 Each applicant for registration as a *metering service provider* and each *metering service provider* shall forthwith notify the *IESO* of any circumstances that result or are likely to result in a change in the information provided in the person's application for registration as a *metering service provider* or any updates thereto.
- 5.1.16 The *IESO* shall establish, maintain, update and *publish*:
- 5.1.16.1 a list of all persons that have been registered as *metering service providers*; and
- 5.1.16.2 a list of each *metering service provider* whose registration as a *metering service provider* has been revoked pursuant to section 5.3.

5.2 Activities and Standards for Metering Service Providers

- 5.2.1 The activities described in section 1.3 of Appendix 6.1 shall be performed by a *metering service provider*.
- 5.2.2 Each *metering service provider* shall comply with all of the obligations imposed on *metering service providers* in Appendix 6.1 and in any policy or standard established by the *IESO* pursuant to this Chapter.
- 5.2.3 Each *metering service provider* shall meet all performance standards as set forth in the applicable *market manual*.
- 5.2.4 Where the provision of written meter-related materials or of post-registration familiarization and competency updating or upgrading to a *metering service provider* imposes a significant expense on the *IESO*, such documentation, assistance or training may be provided upon payment by the *metering service provider* of a reasonable fee.

5.3 Revocation of Registration of Metering Service Providers

- 5.3.1 The *IESO* may revoke the registration of a *metering service provider* where the *metering service provider*:
- 5.3.1.1 has been found to be in breach of the *market rules* applicable to *metering service providers* on a persistent basis;

- 5.3.1.2 fails to meet the performance standards set forth in the applicable *market manual* on a consistent basis;
- 5.3.1.3 has been found to be in breach of a material provision of the agreement referred to in section 5.1.3.2; or
- 5.3.1.4 ceases to satisfy any material qualification for registration as a *metering service provider* or any material requirement imposed upon it as a condition of registration as a *metering service provider*.
- 5.3.2 Where the *IESO* intends to revoke the registration of a *metering service provider*, the *IESO* shall give notice to the *metering service provider* and to all *metered market participants* for whom the *metering service provider* is, to the *IESO*'s knowledge, acting as *metering service provider*. The notice shall specify:
- 5.3.2.1 the grounds upon which the *metering service provider*'s registration is proposed to be revoked and details of any evidence on which the *IESO* is relying in support of its intention to revoke such registration;
- 5.3.2.2 that the *metering service provider* may within 10 *business days* make written representations as to why its registration should not be revoked; and
- 5.3.2.3 the right of the *metering service provider* to request a hearing before the *IESO Board* or a committee of the *IESO Board* established for such purpose to show cause why its registration should not be revoked.
- 5.3.3 Following expiry of the time noted in section 5.3.2.2, and after consideration of any representations made by the *metering service provider* pursuant to that section, the *IESO* may:
- 5.3.3.1 subject to section 5.3.4, revoke the *metering service provider*'s registration; or
- 5.3.3.2 make such order as the *IESO* determines appropriate, including but not limited to an order:
- directing the *metering service provider* to do, within a specified period, such things as may be necessary to comply with the *market rules* applicable to *metering service providers*;
 - directing the *metering service provider* to cease, within a specified period, the act, activity or practice constituting a breach of the

market rules or a breach of a material provision of the agreement referred to in section 5.1.3.2; and

- c. imposing additional or more stringent terms and conditions in respect of the continued registration of the *metering service provider*.

- 5.3.4 Where the *metering service provider* has requested a hearing pursuant to section 5.3.2.3, the *IESO Board* or a committee of the *IESO Board* established for such purpose shall conduct a hearing providing the *metering service provider* with a reasonable opportunity to show cause as to why its registration should not be revoked by the *IESO*. In such case, the *IESO* shall not revoke the *metering service provider's* registration under section 5.3.3.1 until such hearing has been held.
- 5.3.5 All rights of a *metered service provider* to perform the activities of a *metering service provider* under this Chapter shall be terminated upon revocation of the *metering service provider's* registration.
- 5.3.6 The *IESO* shall, immediately upon revoking the registration of a *metering service provider*, notify each *metered market participant* for whom the *metering service provider* was, to the *IESO's* knowledge, acting as *metering service provider* at the time of revocation, of the revocation of the *metering service provider's* registration.
- 5.3.7 A *metering service provider* whose registration has been revoked by the *IESO* remains subject to and liable for all of its liabilities and financial obligations as a *metering service provider* which were incurred or arose under the *market rules* prior to the date on which it's registration is revoked regardless of the date on which any claim relating thereto may be made.
- 5.3.8 A *metering service provider* whose registration has been revoked and that wishes to be re-registered a *metering service provider* shall be required to re-apply for registration in accordance with section 5.1. The *IESO* may impose such terms and conditions on the registration of the *metering service provider* as the *IESO* determines appropriate in the circumstances, whether or not such terms and conditions are otherwise applicable to other *metering service providers*.
- 5.3.9 A decision by the *IESO* to revoke the registration of a *metering service provider* is a *reviewable decision* and shall be without prejudice to the right of the *IESO* to impose upon the *metered market participant* for whom the *metering service provider* is acting as *metering service provider* sanctions or financial penalties in accordance with Chapter 3 in respect of any breach of the *market rules* that formed the grounds for revocation of the *metering service provider's* registration.

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6. Registration of Metering Installations and Metering Registry

6.1 Registration of Metering Installations

- 6.1.1 Subject to section 6.1.1A, no person shall use a *metering installation* for the measurement of *energy* for *settlement* purposes relating to the *day-ahead market*, *real-time markets-market* or the *procurement markets* unless the *metering installation* has been registered by the *IESO* in accordance with this section 6.1 and that registration has not expired.
- 6.1.1.A A person may only use a *metering installation* for the measurement of *energy* for *settlement* purposes relating to the *day-ahead market*, *real-time markets-market* or the *procurement markets* if the *metering installation* has been registered by the *IESO* in accordance with this section 6.1 and the registration has expired provided that the *IESO* determines that the continued use of the *metering installation* is necessary for the efficient operation of the *IESO-administered markets*.
- 6.1.2 The *IESO* shall establish in the applicable *market manual* the procedures to be followed by *metering service providers* for the registration of *metering installations*. Such procedures shall include, but not be limited to, an identification of:
- 6.1.2.1 the information and documentation required to be submitted by a *metering service provider* in support of the registration of a *metering installation* including, but not limited to, the information described in sections 1.2, 1.3 and, where applicable, 1.3A of Appendix 6.5; and
 - 6.1.2.2 the tests required to be conducted in respect of a *metering installation* prior to registration.
- 6.1.2A Each *metered market participant* for a *metering installation* that will be used for the purpose of the calculation and collection by the *IESO* of charges for *transmission service* shall, request the *metering service provider* for that *metering installation* to submit the *meter point* documentation for that *metering installation* and any updates thereto, to the *transmitter* identified by the *metered market participant* for the purpose of soliciting the written confirmation of that *transmitter's* approval referred to in section 1.3A of Appendix 6.5.
- 6.1.2B Each *metering service provider* to whom a request has been made pursuant to section 6.1.2A shall as soon as practicable submit the relevant *meter point*

documentation or update referred to in that section to each *transmitter* identified in such request.

- 6.1.3 The *IESO* shall refuse to register a *metering installation*:
- 6.1.3.1 where the *metering installation* does not comply with the requirements set forth in this Chapter or in any policy or standard established by the *IESO* pursuant to this Chapter; or
- 6.1.3.2 where the *metering installation* will be used for the calculation and collection of charges for *transmission service*, the relevant portion of the *meter point* documentation submitted in support of the application to register the *metering installation* is not accompanied by such confirmation of each applicable *transmitter* referred to in section 1.3A of Appendix 6.5.
- 6.1.4 Where the *IESO* refuses to register a *metering installation* pursuant to section 6.1.3, the *IESO* shall so notify the *metering service provider*, together with reasons for the refusal.
- 6.1.5 Refusal by the *IESO* to register a *metering installation* is a *reviewable decision*.
- 6.1.6 Each *metering service provider* shall, at the request of the *metered market participant* for a *metering installation*, provide that *metered market participant* with copies of all information, including but not limited to *meter point* documentation and data, submitted by the *metering service provider* in support of the application to register the *metering installation*, and of all updates to such information submitted to the *IESO* by the *metering service provider*.
- 6.1.7 Each *metering service provider* shall, at the request of a *transmitter* that has given confirmation of its approval of a portion of the applicable *meter point* documentation or any update thereto referred to in section 1.3A of Appendix 6.5, as may be applicable, provide that *transmitter* with copies of such *meter point* documentation submitted by the *metering service provider* in support of the application to register the *metering installation* and of all updates thereto submitted to the *IESO* by the *metering service provider*.
- 6.1.8 No *metering service provider* to whom a request has been made pursuant to section 6.1.2A has been made shall submit to the *IESO* any updates to any *meter point* documentation for a *metering installation* that will be used for the purpose of the calculation and collection by the *IESO* of charges for *transmission service* unless such updates are accompanied by the confirmation of the approval of each applicable *transmitter* referred to in section 1.3A of Appendix 6.5.

6.2 Metering Registry

- 6.2.1 The *IESO* shall establish and maintain a *metering registry* containing the information specified in Appendix 6.5 in respect of each *metering installation* that provides *metering data* used by the *IESO* for *settlement* purposes.
- 6.2.2 The *IESO* shall record in the *metering registry* the results of all tests provided to it pursuant to section 7.1.2, the results of any tests conducted pursuant to section 7.2.5 and any changes confirmed to it pursuant to section 9.3.1.3.
- 6.2.3 The data recorded in the *metering registry* in respect of a registered *metering installation* shall be available to:
- 6.2.3.1 the *metered market participant* for that *metering installation* and an authorized agent of such *metered market participant*;
 - 6.2.3.2 the metering service provider for that *metering installation*;
 - 6.2.3.3 any *market participant* whose *settlement statement* is determined on the basis of the *metering data* recorded in that *metering installation* and an authorized agent of such *market participant*; and
 - 6.2.3.4 any *transmitter* or *distributor* to whose system a *facility* in respect of the *metering installation* relates is connected.
- 6.2.4 Data recorded in the *metering registry* is *confidential information* and the *IESO* shall ensure that such data is not accessible by or disclosed by the *IESO* to any person other than the *IESO* and the persons referred to in sections 6.2.3.1 to 6.2.3.4 or as otherwise permitted by section 5 of Chapter 3 or any policy of the *IESO* established pursuant to that section.

7. Testing and Auditing of Metering Installations

7.1 Testing and Auditing

- 7.1.1 Each *metered market participant* shall ensure that each *metering installation* in respect of which it is the *metered market participant* is inspected and tested by its *metering service provider* in accordance with the requirements set forth in Appendix 6.3.

- 7.1.2 Each *metered market participant* shall ensure that its *metering service provider* provides to the *IESO* the results of each test referred to in section 7.1.1.
- 7.1.3 The *IESO* shall review the results of all tests provided to it pursuant to section 7.1.2.
- 7.1.4 Where, following the review referred to in section 7.1.3, the *IESO* determines that an audit of a *metering installation* is required to assess the compliance of the *metering installation* with the requirements of this Chapter and of any policy or standard established by the *IESO* pursuant to this Chapter, the *IESO* shall arrange for the audit of the *metering installation*. The *metered market participant* for the *metering installation* shall ensure that the *IESO's* auditor is provided with unrestricted access to such *metering installation* for the purpose of such audit provided that the *IESO* has given the *metered market participant* notice of the audit no less than 5 *business days* in advance. *Metered market participant* shall carry out any additional testing the *IESO's* auditor may require within 30 days of being requested to do so, or within such other time as the *metered market participant* and the *IESO's* auditor may agree. Notice of the audit shall specify:
- 7.1.4.1 the name of the person that will be conducting the audit; and
 - 7.1.4.2 the date of the audit and the time at which the audit is expected to commence and conclude.
- 7.1.5 The *IESO* may carry out periodic, random and unannounced audits of a *metering installation* for the purpose of ascertaining whether the *metering installation* complies with the requirements set forth in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter. The *metered market participant* for the *metering installation* shall ensure that the *IESO's* auditor is provided with unrestricted access to the *metering installation* for the purpose of such audit.
- 7.1.6 The *IESO* shall, as soon as practicable, make the results of any audit conducted pursuant to section 7.1.4 or 7.1.5 available to the *metered market participant* for the *metering installation* to which the audit relates.
- 7.1.7 Each *metered market participant* shall, as soon as practicable, make the results of all tests conducted pursuant to section 7.1.1 and of all audits conducted pursuant to sections 7.1.4 and 7.1.5 available to the *distributor* or *transmitter* to whose system the *facility* to which the *metering installation* relates is connected.

7.2 Tests and Audits of Metering Data

- 7.2.1 A *market participant* may request the *IESO* to conduct an audit to determine the consistency between the *metering data* recorded in the *metering database* and the *metering data* recorded in the *metering installation* whose *meter point* is used to determine that *market participant's settlement statement*.
- 7.2.2 The *IESO* shall give the *metered market participant* in respect of the *metering installation* that will be the subject of an audit pursuant to section 7.2.1 notice of the audit no less than 5 *business days* in advance. Notice of the audit shall specify:
- 7.2.2.1 the name of the person that will be conducting the audit; and
 - 7.2.2.2 the date of the audit and the time at which the audit is expected to commence and conclude.
- 7.2.3 The *IESO* shall conduct the audit referred to in section 7.2.1 and the *metered market participant* for the *metering installation* referred to in section 7.2.1 shall, provided that notice has been given in accordance with section 7.2.2, ensure that the *IESO's* auditor is provided with unrestricted access to the *metering installation* for the purpose of such audit.
- 7.2.4 The *IESO* shall, as soon as practicable, make the results of an audit conducted pursuant to section 7.2.1 available to the *market participant* that requested the audit and, if such *market participant* is not the *metered market participant* for the *metering installation*, to such *metered market participant*.
- 7.2.5 Provided that the *metering service provider* for a *metering installation* has provided to the *IESO* the necessary *meter* register dial readings pursuant to section 1.2.4 of Appendix 6.3 or such dial readings are available in the manner described in section 7.2.6, the *IESO* shall, no less than:
- 7.2.5.1 twice in each successive twelve-month period following the date of registration of a *metering installation* that is not a *main/alternate metering installation* and that is associated with a *facility* that has a minimum rated transformer or circuit capacity of less than 10 MW; or
 - 7.2.5.2 four times in each successive twelve-month period following the date of registration of a *metering installation* that is not a *main/alternate metering installation* and that is associated with a *facility* that has a minimum rated transformer or circuit capacity of 10 MW or more,
- compare the *metering data* recorded in such *metering installation* over a given period of time with the *metering data* recorded in the *metering database* from that

metering installation for the same period. The *IESO* shall, as soon as practicable, make the results of the comparison effected pursuant to this section available to the *metered market participant* for the *metering installation*.

- 7.2.6 The procedure referred to in section 7.2.5 may be executed during the transfer of the *metering data* to the *metering database* if the *meter* within the *metering installation* is capable of transmitting the necessary *meter* register dial readings.
- 7.2.7 An error detected as a result of the procedure referred to in section 7.2.5 that exceeds one multiplier, calculated as the current transformer ratio times the voltage transformer ratio times the *meter* register multiplier, shall be recorded by the *IESO* as an *outage* or defect, and the *IESO* shall so notify the *metered market participant* and issue a trouble call to the *metering service provider* in accordance with section 11.1.3.1.
- 7.2.8 If an audit conducted pursuant to section 7.2.1 or a comparison performed pursuant to section 7.2.5 reveals a discrepancy between the *metering data* recorded in a *metering installation* and the *metering data* recorded in the *metering database*, the *metering data* in the *metering installation* shall govern for *settlement* purposes.

7.3 Costs of Tests and Audits

- 7.3.1 The costs and expenses associated with the inspection and testing of a *metering installation* referred to in section 7.1.1 shall be paid by the *metered market participant* responsible for that *metering installation*, and the costs and expenses of review of such tests referred to in section 7.1.3 shall be paid by the *IESO*.
- 7.3.2 The costs and expenses associated with the audit of a *metering installation* referred to in section 7.1.4, the periodic, random and unannounced audits referred to in section 7.1.5, the security audits referred to in section 9.1.3, or the *connection station service* audit referred to in Chapter 9 section 2.1A.3, shall be paid as follows:
- 7.3.2.1 the *IESO* shall pay all of its costs as described in the applicable *market manual*; and
 - 7.3.2.2 the *metered market participant* responsible for that *metering installation* shall pay all costs incurred by any of the *metered market participant*, *metering service provider*, and *facility owner* as described in the applicable *market manual*.

Where the *metering installation* is shown by the test or audit not to comply with the requirements set forth in this Chapter or in any policy or standard established by the *IESO* pursuant to this Chapter, thereby requiring for any reason a re-test or additional inspection or re-audit or any additional work by the *IESO*, the *metered market participant* responsible for that *metering installation* shall bear the costs of that re-test, inspection, audit and remedial work, including but not limited to any and all costs incurred by the *IESO*.

- 7.3.3 The costs and expenses associated with the *metering data* audit referred to in section 7.2.1 shall be paid as follows:
- 7.3.3.1 the *IESO* shall pay all of its costs for the purposes of the *metering data* audit as described in the applicable *market manual*; and
 - 7.3.3.2 the *market participant* who requested the *IESO* to conduct the audit shall pay all costs incurred by the *metered market participant*, *metering service provider* and *facility owner* as described in the applicable *market manual*.

Where the *metering installation* is shown by the *metering data* audit not to comply with the requirements set forth in this Chapter or in any policy or standard established by the *IESO* pursuant to this Chapter, the *metered market participant* responsible for that *metering installation* shall bear the costs incurred for any re-audit or remedial work, including reimbursement of all costs incurred by the *market participant* who requested the *IESO* to conduct the *metering data* audit which demonstrated the non-compliance.

- 7.3.4 The costs and expenses associated with the *metering data* audit referred to in section 7.2.5 shall be paid as follows:
- 7.3.4.1 the *IESO* shall pay all of its costs for the purposes of the *metering data* audit as described in the applicable *market manual*; and
 - 7.3.4.2 the *metered market participant* responsible for that *metering installation* shall pay all costs incurred by any of the *metered market participant*, *metering service provider*, and *facility owner* costs as described in the applicable *market manual*.

Where the *metering installation* is shown by the *metering data* audit not to comply with the requirements set forth in this Chapter or in any policy or standard established by the *IESO* pursuant to this Chapter, thereby requiring for any reason a retest or an additional inspection or re-audit or any additional work by the *IESO*, the *metered market participant* responsible for that *metering installation* shall

bear the costs of any such re-test, inspection, audit and remedial work, including but not limited to any and all *IESO* costs.

- 7.3.5 The costs and expenses associated with the implementation of the safety requirements and practices referred to in section 7.4.1, including but not limited to the costs associated with training the *IESO*'s auditor in respect of such requirements or practices and of accompanying the *IESO*'s auditor during an audit referred to in sections 7.1.4, 7.1.5, 7.2.3 and 9.1.3 and section 2.1A.3 of Chapter 9, shall be borne by the *metered market participant* for the *metering installation* that is undergoing the audit.

7.4 Safety Requirements and Practices During Audits

- 7.4.1 The *IESO* shall use reasonable endeavours to ensure that, in performing an audit referred to in section 7.1.4, 7.1.5 or 7.2.3, the *IESO*'s auditor complies with such reasonable and *bona fide* safety requirements and practices of:

- 7.4.1.1 the owner of the *metering installation*; or
- 7.4.1.2 the owner of the *facility* within which the *metering installation* is located,

or both, as may be applicable, as may be made known to the *IESO*'s auditor.

- 7.4.2 The *metered market participant* for a *metering installation* shall, subject to section 7.4.3, ensure that the *IESO*'s auditor is, at all times while conducting an audit referred to in section 7.1.4, 7.1.5 or 7.2.3, accompanied by a qualified representative of:

- 7.4.2.1 the owner of the *metering installation*; or
- 7.4.2.2 the owner of the *facility* within which the *metering installation* is located,

or both, as may be applicable, responsible for ensuring the safety of the *IESO*'s auditor during the audit.

- 7.4.3 A *metered market participant* for a *metering installation* that is undergoing an audit referred to in section 7.1.4, 7.1.5 or 7.2.3 shall not be required to ensure the accompaniment of the *IESO*'s auditor referred to in section 7.4.2 if the *metered market participant* has, prior to the date of the audit, provided the *IESO*'s auditor with adequate information pertaining to hazards on the site and sufficient technical and safety training so as to ensure that the *IESO*'s auditor may safely

conduct the audit unaccompanied having regard to the *bona fide* safety requirements and practices of:

7.4.3.1 the owner of the *metering installation*; or

7.4.3.2 the owner of the *facility* within which the *metering installation* is located,

or both, as may be applicable, in effect on the date of the audit.

7.4.4 The *IESO* auditor shall have successfully completed safety training in general industry safety practice, such a vehicle parking and electrical safety awareness, from an entity recognized by the *IESO* for such purpose, including but not limited to the Electrical & Utilities Safety Association of Ontario, the former Ontario Hydro and corporations referred to in subsection 48(2) of the *Electricity Act, 1998*.

7.4.5 An *IESO* auditor who will be working on, or testing, the *metering installations* shall have successfully completed, in addition to the training referred to in section 7.4.4, specific training in inspection and testing of *meter installations* from an entity recognized by the *IESO* for such purpose, including but not limited to the Electrical & Utilities Safety Association of Ontario, the former Ontario Hydro and corporations referred to in subsection 48(2) of the *Electricity Act, 1998*.

8. Ownership of and Rights of Access to Data

8.1.1 The *metering data* in a *metering installation* shall be owned by the *metered market participant* for that *metering installation* and the *metered market participant* shall at all times have access to such *metering data*, subject only to sections 8.1.6 and 8.1.7.

8.1.2 Subject to sections 8.1.6 and 8.1.7, a *metered market participant* may at any time extract real-time information, billing data and spin-off data directly from a *metering installation* for which it is the *metered market participant*.

8.1.3 Unless otherwise permitted by this Chapter or by any policy or standard established by the *IESO* pursuant to this Chapter, no *metered market participant* shall in any manner modify a *meter* within a *metering installation* in respect of which it is the *metered market participant*, any *metering data* recorded in the *metering installation* or the clock time of a *meter* within the *metering installation*.

- 8.1.4 Each *metered market participant* shall ensure that no person referred to in sections 8.1.5.1 to 8.1.5.4 modifies a *meter* within a *metering installation* in respect of which it is the *metered market participant*, any *metering data* recorded in the *metering installation* or the clock time of any *meter* within the *metering installation* unless otherwise permitted by this Chapter or by any policy or standard established by the *IESO* pursuant to this Chapter.
- 8.1.5 Each *metered market participant* shall ensure that the persons entitled to have either direct or remote access to *metering data* recorded in a *metering installation* in respect of which it is the *metered market participant* are limited to the following:
- 8.1.5.1 a *market participant* whose *settlement statement* relates to *energy* flowing through that *metering installation* and an authorized agent of such *market participant*;
 - 8.1.5.2 a *metering service provider* that provides services in respect of the *metering installation* under the terms of an agreement with the *metered market participant*, to the extent necessary to permit work authorized under the agreement or otherwise by the *metered market participant*;
 - 8.1.5.3 the *transmitter* or *distributor* to whose system the ~~registered~~ facility in respect of the *metering installation* is connected;
 - 8.1.5.4 an authorized agent of the *metered market participant*; and
 - 8.1.5.5 the *IESO*.
- 8.1.6 Each *metered market participant* shall ensure that electronic access to *metering data* recorded in a *metering installation* in respect of which it is the *metered market participant* shall only be provided where passwords in accordance with section 9.2 have been allocated. Otherwise, access to *metering data* shall be allowed only from the *metering database* and only by the *metered market participant* and the persons described in sections 8.1.5.1 to 8.1.5.5.
- 8.1.7 The *IESO* shall notify the *metered market participant* in respect of a *metering installation* of the time period within which it intends to initiate routine access to *metering data* recorded in that *metering installation*. The *metered market participant* shall ensure that no person other than the *IESO* accesses such *metering data* at a time or in a manner that may adversely affect the ability of the *IESO* to access the *metering data* during such time period.

- 8.1.8 The *IESO* may initiate access to *metering data* recorded in a *metering installation* at a time other than the time referred to in section 8.1.7 where such access is necessary for the performance by the *IESO* of its responsibilities under these *market rules*, and shall make reasonable efforts to notify the *metered market participant* or the *metering service provider* for such *metering installation* of its intention to initiate such access.

9. Security of Metering Installations and Data

9.1 Security of Metering Equipment

- 9.1.1 Each *metered market participant* shall ensure that:
- 9.1.1.1 each *metering installation* in respect of which it is the *metered market participant* is secure from access by persons other than the *IESO*, the person that acts as *metering service provider* in respect of such *metering installation* and, for the purpose of section 4.1A.1, the *metered market participant*;
 - 9.1.1.2 all associated links, circuits and information storage and processing systems are secured by means of seals or other devices approved by the *IESO*;
 - 9.1.1.3 the *meter* box is physically secure, locked and sealed by means of devices approved by the *IESO* so as to enable detection of access by persons other than the *IESO*, the person that acts as *metering service provider* in respect of such *metering installation* and, for the purposes of section 4.1A.1, the *metered market participant*;
 - 9.1.1.4 the data connections to the *meter's* communication ports are secure from access by persons other than persons authorized by it to have access to such data connections; and
 - 9.1.1.5 the *metering installation* meets all of the requirements pertaining to the security of *metering installations* set forth in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter.
- 9.1.2 Subject to any limitations prescribed by *federal metering requirements*, the *IESO* may override any of the security devices fitted to a *metering installation* without

prior notice to the *metered market participant* or the *metering service provider* for such *metering installation*.

- 9.1.3 The *IESO* may audit the security measures applied to each registered *metering installation* from time to time as determined appropriate by the *IESO*.

9.2 Security Controls

- 9.2.1 Each *metered market participant* shall ensure that the *metering data* recorded in each *metering installation* in respect of which it is the *metered market participant* is:

9.2.1.1 protected from direct local or remote electronic access, including during the transfer of such *metering data* to the communication interface of the *metering database*, by persons other than itself and those persons described in sections 8.1.5.1 to 8.1.5.5, by ensuring that its *metering service provider* implements suitable password and other security controls in accordance with the requirements of this section 9.2; and

9.2.1.2 during delivery of the *metering data* to the *IESO* other than by electronic means, protected from access by persons other than itself and those persons described in sections 8.1.5.1 to 8.1.5.5 regardless of the medium, including but not limited to diskette, magnetic tape, electronic cartridge and paper, on or in which such *metering data* is transcribed, transferred or stored for purposes of such delivery.

- 9.2.2 Each *metering service provider* shall, except as otherwise permitted by this section 9.2, keep all records of passwords for electronic access to *metering data* confidential.

- 9.2.3 Subject to section 9.2.4, each *metering service provider* shall provide, in respect of each *metering installation* in respect of which it is the *metering service provider*, 'read-only' passwords to the *IESO*, to the *metered market participant* for the *metering installation*, to any *market participant* whose *settlement statement* is determined on the basis of the *metering installation's meter point*, and to any relevant *transmitter* or *distributor*, as the case may be depending upon the owner of the *facilities* to which the *facility* to which the *metering installation* relates is connected. Each *metering service provider* shall provide the *IESO* with a password allowing 'read plus synchronize time' access to the *meter* in each *metering installation* for which it is the *metering service provider*.
- 9.2.4 Where separate 'read-only' and 'read plus synchronize time' passwords are not available, the *metering service provider* shall provide the password for each *metering installation* only to the *IESO*.
- 9.2.5 Each *metering service provider* shall hold 'read-only', 'read plus synchronize time' and 'read plus write' passwords for each *metering installation* for which it is the *metering service provider*, where available, and shall forward a copy of such passwords to the *IESO*.
- 9.2.6 A *metering service provider* may, and at the request of the *IESO* shall, change one or more of the passwords relating to a *metering installation* in respect of which it is the *metering service provider* and shall provide the changed password to any person to whom the previous password was provided in accordance with section 9.2.3.
- 9.2.7 The *IESO* may reveal the passwords referred to in sections 9.2.3, 9.2.5 and 9.2.6 to a *metering service provider* that has assumed responsibility as a *metering service provider* for a *metering installation* in the event that the passwords cannot be obtained on a timely basis by that *metering service provider* by any other means.

9.3 Changes to Metering Equipment, Parameters and Settings

- 9.3.1 Each *metered market participant* shall ensure that changes to equipment, parameters or settings within a *metering installation* in respect of which it is the *metered market participant* that may affect the collection, security or accuracy of any *metering data* recorded in that *metering installation* shall be:
- 9.3.1.1 authorised by the *IESO* prior to the change being made;

- 9.3.1.2 implemented by a *metering service provider* who shall obtain an end reading, ensure that the *metering data* recorded in the *metering installation* is transferred to the *metering database* prior to the change and obtain a start reading once the change has been completed; and
- 9.3.1.3 confirmed to the *IESO* within 1 *business day* after the change has been made.
- 9.3.2 Each *metered market participant* shall ensure that the *IESO* is provided with alternative *metering data* acceptable to the *IESO* while changes to equipment, parameters or settings within a *metering installation* in respect of which it is the *metered market participant* are being made.
- 9.3.2A An adjustment required to be made to a *metering installation* to enable it to generate *metering data* that reads zero while the generation resource associated with the facility registered facility to which such *metering installation* relates is operating in a *segregated mode of operation* shall:
- 9.3.2A.1 be deemed not to be a change to equipment, parameters or settings for the purposes of sections 9.3.1 and 9.3.2 and of section 1.3.2.22 of Appendix 6.1; and
- 9.3.2A.2 shall be effected while at all times maintaining the security of the *metering installation* in accordance with the requirements pertaining to the security of *metering installations* set forth in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter.
- 9.3.3 The *IESO* shall, upon request by a *metered market participant* or a *metering service provider*, review conceptual drawings for any change to equipment, parameters or settings within a *metering installation* proposed to be made by the *metering market participant* or the *metering service provider*.

9.4 Changes to Metering Data

- 9.4.1 Each *metered market participant* shall ensure that no alterations to the original *metering data* recorded in a *metering installation* in respect of which it is the *metered market participant* are effected. Each *metered market participant* shall ensure that no on-site testing of a *metering installation* in respect of which it is the *metered market participant* that might cause the *meter* to register false data is performed until such time as the *metering data* has been transferred to the *metering database*.

10. Processing of Metering Data for Settlement Purposes

10.1 Metering Database

- 10.1.1 The *IESO* shall establish and maintain a *metering database* containing *metering data* transferred from each *metering installation* registered with the *IESO* and each *metering installation* whose registration has expired but whose continued use has been determined by the *IESO* to be necessary for the efficient operation of the *IESO-administered markets*.
- 10.1.2 The *IESO* may use the databases of meter data management agencies to form part of the *metering database*.
- 10.1.3 The *metering data* recorded in the *metering database* in respect of a registered *metering installation* shall be accessible by electronic means by:
- 10.1.3.1 the *metered market participant* for that *metering installation* and an authorized agent of such *metered market participant*;
 - 10.1.3.2 the *metering service provider* for that *metering installation*;
 - 10.1.3.3 any *market participant* whose *settlement statement* is determined on the basis of the *metering data* recorded in that *metering installation* and an authorized agent of such *market participant*; and
 - 10.1.3.4 any *transmitter* or *distributor* to whose system a *facility* in respect of which the *metering installation* relates is connected.
- 10.1.3A [Intentionally left blank.]
- 10.1.4 *Metering data* recorded in the *metering database* is *confidential information* and the *IESO* shall ensure that such *metering data* is not accessible by or disclosed by the *IESO* to any person other than the *IESO* and the persons referred to in sections 10.1.3.1 to 10.1.3.4, or as otherwise permitted by section 5 of Chapter 3 or any policy of the *IESO* established pursuant to that section.
- 10.1.5 The *metering database* shall include:
- 10.1.5.1 original *energy* readings, substitutions, estimations and calculated values;

- 10.1.5.2 *energy readings, both loss adjusted and totalized, to their respective delivery points for the purposes of the IESO-administered markets; and*
- 10.1.5.3 *energy readings, both loss adjusted and totalized, to their respective delivery points defined for the purposes of transmission services charges as established by the OEB from time to time pursuant to the Ontario Energy Board Act, 1998.*

10.2 Remote Acquisition of Data

- 10.2.1 The IESO shall initiate the remote acquisition of *metering data* recorded in a *metering installation* and shall store the *metering data* so acquired in the *metering database* for *settlement* purposes.
- 10.2.2 If remote acquisition from a *metering installation* becomes unavailable, the IESO shall arrange, in consultation with the *metered market participant* or the *metering service provider* for that *metering installation*, an alternative means of transferring the relevant *metering data* from the *metering installation* to the communication interface of the *metering database* or to the *metering database*, as the case may be.

10.3 Periodic Energy Metering

- 10.3.1 ~~Subject to section 10.3.2, m~~*Metering data* relating to the amount of active *energy* and, where relevant, reactive *energy* passing through a *metering installation* shall be collated by *dispatch intervals*.
- 10.3.2 ~~[Section deleted – intentionally left blank – section deleted]~~*Metering data may be collated into 5 or 15 minute intervals by a metering installation that was in service on the date of coming into force of this section 10.3.2 and that is used in respect of a non-dispatchable load facility, a price responsive load, a self-scheduling generation resource associated with a self-scheduling generation facility facility with a name-plate rating of less than 10 MW, a transitional scheduling generator or an intermittent generator generation resource.*
- 10.3.2.1 ~~[Intentionally left blank]~~
- 10.3.2.2 ~~[Intentionally left blank]~~

10.4 Errors Relating to Metering Installations and Metering Data

- 10.4.1 If a test, review, inspection or audit, carried out in accordance with section 7, of a *metering installation* or of *metering data* demonstrates errors in excess of those prescribed in this Chapter or in any policy or standard established by the *IESO* pursuant to this Chapter and the *IESO* is not aware of the time at which that error arose, the error shall be deemed to have occurred at a time which is half way between (i) the time of the most recent test, review, inspection or audit which demonstrated that the *metering installation* complied with the relevant measurement standard and (ii) the time when the error was detected.
- 10.4.2 If a *metered market participant* becomes aware of an error in excess of those prescribed in this Chapter or in any policy or standard established by the *IESO* pursuant to this Chapter, the *metered market participant* shall provide notice to the *IESO* of such error within two *business days* of becoming aware of such error and such notice shall include a general description of the error.
- 10.4.3 As soon as reasonably practicable after either receiving a notice from a *metered market participant* in accordance with section 10.4.2, or after the *IESO* otherwise becomes aware of an error in excess of those prescribed in this Chapter or in any policy or standard established by the *IESO* pursuant to this Chapter, the *IESO* shall determine the scope of the issue and the necessary corrections, if any. The *IESO* shall use the information provided in and with a notice issued by the *metered market participant* in accordance with section 10.4.2 and any other information available to the *IESO*, including conducting an audit of the relevant *metering installations* in accordance with section 7, to determine the scope of the issue and the necessary corrections, if any.
- 10.4.4 Following the *IESO*'s determination pursuant to section 10.4.3, the *IESO* shall inform the *metered market participant* of the *IESO*'s determination, provide the *metered market participant* the opportunity to respond within ten *business days*, and, after considering any such response, take one of the following actions:
- 10.4.4.1 if the *IESO* concludes that no error has occurred or such error is within acceptable parameters prescribed in this Chapter or in any policy or standard established by the *IESO* pursuant to this Chapter, it shall take no further action; or
 - 10.4.4.2 subject to section 10.4.7, if the *IESO* concludes that an error has occurred outside of the acceptable parameters prescribed in this Chapter or in

any policy or standard established by the *IESO* pursuant to this Chapter, it shall:

- (a) make appropriate corrections to *metering data* contained in the *metering database* to effect a correction for that error in respect of the period since the error occurred or was deemed to have occurred in accordance with section 10.4.1; and
- (b) if the *IESO* concludes that an adjustment or correction is required to a *final settlement statement* or a *recalculated settlement statement*, shall make the adjustment on one or more of the next scheduled *recalculated settlement statements*.

- 10.4.5 If the *IESO* does not make a determination pursuant to section 10.4.3 before the date for issuing a *settlement statement*, the *IESO* shall issue such *settlement statement* without taking into account the error.
- 10.4.6 Any changes required to be made to a *final settlement statement* or *recalculated settlement statement* as a result of the process described in this section 10.4 shall be included as a debit or credit in the *recalculated settlement statements* issued for each affected *metered market participant* as an *adjustment period allocation*. If, after making all reasonable efforts to do so, the *IESO* cannot recover these amounts from or distribute these amounts to a former *metered market participant*, such amounts shall then be included as a *current period adjustment* to a subsequent *preliminary settlement statement*.
- 10.4.7 Commencing with *settlement amounts* which were invoiced or should have been invoiced on or after *RSS commencement date*, the *IESO* shall not make any correction under section 10.4.4.2 in regards to any *settlement amounts* which were invoiced, or should have been invoiced, more than 23 months before the day on which the *IESO* issues the *settlement statement* referred to in section 10.4.4.2. Notwithstanding the foregoing, where entitlement to a *settlement amount* is prescribed by *applicable law*, the *IESO* shall not make any correction under section 10.4.4.2 in regards to any *settlement amount* beyond the limitation period, if any, provided pursuant to *applicable law*. Additionally, where a *metering service provider* fails to conduct a review, test, or audit, in accordance with section 1.3.2.3 of Appendix 6.1, section 1.4.3 of Appendix 6.3, or section 1.5.3 of Appendix 6.3, as the case may be, the *IESO* shall not take any action under section 10.4.4.2 in regards to any *settlement amount* pertaining to the *metering installation* and/or *meter point* documentation which was not tested, reviewed, or audited that arose prior to the date on which the *metering service provider* failed to conduct the applicable test, review or audit.

- 10.4.8 If a *metered market participant* disagrees with the *IESO's* determination and action taken in accordance with section 10.4.4 or the *IESO* has not made its determination prior to earlier of either the date referred to in section 10.4.7 or twelve months after the date of the notice referred to in section 10.4.2, the *metered market participant* may pursue their disagreement through the dispute resolution process outlined in section 2 of Chapter 3.

11. Performance of Metering Installation

- 11.1.1 Each *metering service provider* shall ensure that *metering data* from each *metering installation* in respect of which it acts as *metering service provider* is made available to the *IESO* for each *dispatch interval* or, where permitted by section 10.3.2, for each *dispatch hour*, in accordance with the requirements of this Chapter and of any policy or standard established by the *IESO* pursuant to this Chapter and in accordance with the following:
- 11.1.1.1 95 percent or more of the *metering data* shall be available to the *IESO* on the first *business day* following the day on which the *dispatch interval* occurs; and
 - 11.1.1.2 95 percent of the attempts by the *IESO* to initiate access to the *metering data* must be successful on the first attempt.
- 11.1.2 Where either a *metered market participant* or a *metering service provider* becomes aware that a *metering installation* in respect of which it is the *metered market participant* or the *metering service provider* has gone out of service, is defective or malfunctions, it shall notify the *IESO* of the *outage*, defect or malfunction within 1 *business day* of becoming aware of same. In addition, the *metered market participant* shall:
- 11.1.2.1 where the *outage*, defect or malfunction relates to any portion of the *metering installation* other than an *instrument transformer*, ensure that the *metering installation* or the defective portion thereof is replaced or repairs are made to the *metering installation* as soon as practicable and in any event within 2 *business days* of the date of the notice referred to in section 11.1.2 or within such longer period of time as may be agreed by the *IESO*; and
 - 11.1.2.2 where the *outage*, defect or malfunction relates to an *instrument transformer*:

- a. ensure that the *instrument transformer* is replaced as soon as practicable and in any event within 12 weeks of the date of the notice referred to in section 11.1.2 or within such longer period of time as may be agreed by the *IESO*; and
 - b. subject to section 4.6, ensure that the emergency restoration plan referred to in section 1.3.2.17 of Appendix 6.5 is implemented within 2 *business days* of the date of the notice referred to in section 11.1.2 and remains in effect until such time as the *instrument transformer* has been replaced.
- 11.1.3 Where the *IESO* becomes aware, other than by means of the notice referred to in section 11.1.2, that a *metering installation* has gone out of service, is defective or malfunctions, the *IESO* shall:
- 11.1.3.1 promptly notify the *metered market participant* for that *metering installation* of the *outage*, defect or malfunction and issue a trouble call to the *metering service provider* for that *metering installation*;
 - 11.1.3.2 where the *outage*, defect or malfunction relates to any portion of the *metering installation* other than an *instrument transformer*, direct the *metered market participant* to ensure that the *metering installation* or the defective portion thereof is replaced or that repairs are made to the *metering installation* as soon as practicable and in any event within 2 *business days* of the date of the notice referred to in section 11.1.3.1 or within such longer period of time as may be specified by the *IESO*; and
 - 11.1.3.3 where the *outage*, defect or malfunction relates to an *instrument transformer*, direct the *metered market participant* to:
 - a. ensure that the *instrument transformer* is replaced as soon as practicable and in any event within 12 weeks of the date of the notice referred to in section 11.1.3.1 or within such longer period of time as may be specified by the *IESO*; and
 - b. ensure that the emergency restoration plan referred to in section 1.3.2.17 of Appendix 6.5 is implemented within 2 *business days* of the date of the notice referred to in section 11.1.3.1 and remains in effect until the *instrument transformer* has been replaced.
- 11.1.4 Where an *outage* or malfunction of or the defect in a *metering installation* is not rectified in accordance with and within the time period specified in section 11.1.2.1, 11.1.2.2, 11.1.3.2 or 11.1.3.3 and is, in the *IESO*'s opinion, likely to

have a significant impact on one or more *market participants* other than the *metered market participant* for that *metering installation*, the *IESO* shall so notify the *metered market participant* for that *metering installation*. Within one *business day* of receipt of such notice, the *metered market participant* shall notify the *IESO* as to the:

11.1.4.1 [Intentionally left blank]

11.1.4.2 [Intentionally left blank]

11.1.4.3 corrective action taken or arranged by the *metered market participant* to rectify the *outage* or malfunction of or the defect in the *metering installation*.

The *IESO* shall estimate the *metering data* for *settlement* purposes in accordance with section 11.1.4A from the date referred to in section 11.1.5 until the date on which the *outage* or malfunction of or defect in the *metering installation* is rectified.

11.1.4A For the purposes of sections 11.1.4.3 and 11.1.4B.2, estimation of *metering data* shall be based on the following:

11.1.4A.1 in the case of a *metering installation* for a *generation facility*, production shall be estimated at zero;

11.1.4A.2 in the case of a *metering installation* for a load, withdrawal for each hour shall be estimated at 1.80 times the self-cooled rating of the power transformer or, if none exists, the highest hourly level of withdrawal of *energy* recorded for that load during the twelve-month period preceding the date of the notice referred to in section 11.1.2 or 11.1.3.1, as the case may be; or

11.1.4A.3 in the case of a *metering installation* for an *electricity storage facility*, the injections shall be estimated at zero and the withdraws for each hour shall be estimated at 1.80 times the self-cooled rating of the power transformer or, if none exists, the highest hourly level of withdrawal of *energy* recorded for that load during the twelve-month period preceding the date of the notice referred to in section 11.1.2 or 11.1.3.1 as the case may be.

11.1.4B Where a *metered market participant* fails to notify the *IESO* pursuant to section 11.1.4 as to the action that it wishes to take or to have taken, the *IESO* shall:

- 11.1.4B.1 [Intentionally left blank]
- 11.1.4B.2 estimate the *metering data* for *settlement* purposes in accordance with section 11.1.4A from the second *business day* after the date on which notice was given to the *metered market participant* pursuant to section 11.1.4 until the date on which the *outage* or malfunction of or defect in the *metering installation* is rectified.
- 11.1.5 The *IESO* shall not commence to estimate *metering data* pursuant to section 11.1.4.3:
- 11.1.5.1 where the *outage*, defect or malfunction relates to any portion of the *metering installation* other than an *instrument transformer*, until 3 *business days* have elapsed from the date on which the notice was given to the *metered market participant* pursuant to section 11.1.4; and
- 11.1.5.2 where the *outage*, defect or malfunction relates to an *instrument transformer* and the emergency restoration plan referred to in section 1.3.2.17 of Appendix 6.5:
- a. has been implemented within the time required by section 11.1.2.2(b) or 11.1.3.3(b), as the case may be, until the expiry of the period referred to in section 11.1.2.2(a) or 11.1.3.3(a), as the case may be; or
 - b. has not been implemented within the time required by section 11.1.2.2(b) or 11.1.3.3(b), until 3 *business days* have elapsed from the date on which the notice was given to the *metered market participant* pursuant to section 11.1.4, provided that where such emergency restoration plan is thereafter implemented, the *IESO* shall cease the estimation of *metering data* until the expiry of the period referred to in section 11.1.2.2(a) or 11.1.3.3(a), as the case may be.
- 11.1.6 Where the *IESO* becomes aware that *metering data* ~~from a metering installation~~ reads other than zero in respect of a time during which the generation resource associated with the facility ~~registered facility~~ to which such *metering installation* relates was operating in a *segregated mode of operation*, the *IESO* shall for *settlement* purposes deem such *metering data* to have read zero during such time.

11.2 Meter Time

- 11.2.1 Each *metering installation* and the *metering database* shall be referenced to eastern standard time in the Province of Ontario.

- 11.2.2 The *IESO* shall synchronize each *meter* clock to within ± 5 seconds of eastern standard time in the Province of Ontario, or to such greater standard of accuracy as can be reasonably achieved by the *IESO*, at the time of commissioning of a *metering installation* and thereafter whenever it reads a *meter*.

12. Evolving Technologies and Processes and Development of the Market

- 12.1.1 Subject to any restrictions imposed by *federal metering requirements*, a *metered market participant* may use or permit the use of evolving technologies or processes that:
- 12.1.1.1 meet or exceed the performance and functional requirements set forth in this Chapter or in any policy or standard established by the *IESO* pursuant to this Chapter; or
 - 12.1.1.2 facilitate the efficient development of the *IESO-administered markets*, if agreed between the *metered market participant*, the relevant *transmitter* or *distributor*, as the case may be depending on the owner of the *facilities* to which the *facility* in respect of the relevant *metering installation* is connected, and the *IESO*.

13. Responsibilities of the IESO

- 13.1.1 The *IESO* shall:
- 13.1.1.1 establish and administer a process for the registration of *metering service providers*;
 - 13.1.1.2 maintain and operate facilities necessary for *settlement* in accordance with this Chapter and Chapter 9;
 - 13.1.1.3 provide a communication interface for the *metering database* and ensure that *metering data* is transferred from such communication interface to the *metering database* and stored in the *metering database* in a reliable, secure and accurate manner;

- 13.1.1.4 ensure that *metering data* is stored in the *metering database* for 13 months in accessible format and for an additional 6 years in archive;
- 13.1.1.5 establish *metering*-related policies and standards including, but not limited to, policies or standards for *metering installations*; site specific loss adjustments; transfers of *metering data* to the *metering database*; *metering data* security requirements; and the inspection, testing and audit of *metering installations*; the security of *metering installations* and measurement error correction;
- 13.1.1.6 audit *metering installations* in accordance with this Chapter and any policy or standard established by the *IESO* pursuant to this Chapter;
- 13.1.1.7 where necessary, issue trouble calls to *metering service providers*, *metered market participants* or both and monitor the status of each trouble call, the response time and the resolution of the trouble call;
- 13.1.1.8 monitor the performance of *metering service providers* against the performance standards set forth in the applicable *market manual*;
- 13.1.1.9 establish such *metering*-related familiarization and competency updating or upgrading programs for *metering service providers* and *metered market participants* as the *IESO* determines appropriate;
- 13.1.1.10 initiate and perform any end-to-end testing required prior to registration of a *metering installation*;
- 13.1.1.11 periodically monitor the registration status of each *metering service provider* and of each *metering installation*;
- 13.1.1.12 carry out the *metering data* summation process; and
- 13.1.1.13 prevent access to information recorded in the *metering database* or the *metering registry* in respect of each *metering installation* by any person other than the persons entitled to such access in respect of a given *metering installation* pursuant to section 6.2.3 or 10.1.3, respectively.