

## Market Rule Amendment Proposal Form

### Part 1 - Market Rule Information

Identification No.:	MR-00481-R06
Subject:	Market Renewal Program - Final Alignment
Title:	Chapter 0.6 and Appendices – Wholesale Metering
Nature of Proposal:	<input type="checkbox"/> Alteration <input type="checkbox"/> Deletion <input checked="" type="checkbox"/> Addition
Chapter:	0.6
Appendix:	Appendix 6.1 – 6.5
Sections:	All
Sub-sections proposed for amending:	Various
Current Market Rules Baseline:	

### Part 2 - Proposal History

Version	Reason for Issuing	Version Date
1.0	Draft for Stakeholder Review	June 7, 2024
2.0	Draft for Technical Panel Review	July 2, 2024
3.0	Publish for Stakeholder Review and Comment	July 17, 2024
<u>4.0</u>	<u>Submitted for Technical Panel Vote</u>	<u>September 3, 2024</u>

Approved Amendment Publication Date:

Approved Amendment Effective Date:

### Part 3 - Explanation for Proposed Amendment

Provide a brief description that includes some or all of the following points:

- The reason for the proposed amendment and the impact on the *IESO-administered markets* if the amendment is not made.
- Alternative solutions considered.
- The proposed amendment, how the amendment addresses the above reason and impact of the proposed amendment on the *IESO-administered markets*.

### Summary

The IESO proposes to amend the market rules to support the implementation of the Market Renewal Program (MRP), via the Final Alignment (FA) Batch.

The FA Batch consolidates all Technical Panel provisionally recommended/IESO Board provisionally approved market rule amendments, with three types of further modifications:

1. Updates or corrections to earlier batches resulting from the ongoing implementation and engagement processes;
2. Transitional market rules required to facilitate the mechanics of transitioning from the old market to the renewed market; and
3. Administrative “conforming change” – to reflect any updates or corrections, e.g. update to references and defined terms.

This proposal is based on input from various stakeholder engagement initiatives for the Market Renewal Program.

Further information on MRP can be found on the IESO’s [Market Renewal webpage](#).

### Background

Previous drafts of MRP market rule amendments have been provisionally approved by the IESO Board. The Final Alignment batch consolidates these provisionally approved amendments, with amendments where required, into a single batch that will follow the formal process for market rule amendments, including a formal vote by Technical Panel to recommend the market rules for IESO Board consideration, and formal approval by the IESO Board.

Given the scope of changes being proposed by MRP, each market rule chapter is impacted. The Final Alignment batch is structured such that there is a proposal for each chapter, with separate proposals for appendices 7 and 9.

The implementation of MRP will require two parallel sets of market rules to exist concurrently; the legacy market rules and the renewed market rules. The renewed market rules, which these proposals will create, will be labelled with unique chapter numbers to delineate them from the legacy market rules. A new section A, and in some chapters a section B, details the transitional nature of the two sets of market rules. As the renewed market rules are new chapters, there are no changes tracked. For a tracked changes view compared against the current market rules baseline, please refer to the MRP [Final Alignment](#) page.

### Discussion

The accompanying ["Summary of Changes - Final Alignment \(Readers Guide\)"](#) provides a summary of the market rule amendments to the market rules.

## Part 4 - Proposed Amendment

# Introduction

- A.1.1 This Chapter is part of the *renewed market rules*, which pertain to:
- A.1.1.1 the period prior to a *market transition* insofar as the provisions are relevant and applicable to the rights and obligations of the *IESO* and *market participants* relating to preparation for operation in the *IESO administered markets* following commencement of *market transition*; and
  - A.1.1.2 the period following commencement of *market transition* in respect of all the rights and obligations of the *IESO* and *market participants*.
- A.1.2 All references herein to chapters or provisions of the *market rules* will be interpreted as, and deemed to be references to chapters and provisions of the *renewed market rules*.
- A.1.3 Upon commencement of the *market transition*, the *legacy market rules* will be immediately revoked and only the *renewed market rules* will remain in force.
- A.1.4 For certainty, the revocation of the *legacy market rules* upon commencement of *market transition* does not:
- A.1.4.1 affect the previous operation of any *market rule* or *market manual* in effect before prior to the *market transition*;
  - A.1.4.2 affect any right, privilege, obligation or liability that came into existence under the *market rules* or *market manuals* in effect prior to the *market transition*;
  - A.1.4.3 affect any breach, non-compliance, offense or violation committed under or relating to the *market rules* or *market manuals* in effect prior to the *market transition*, or any sanction or penalty incurred in connection with such breach, non-compliance, offense or violation; or
  - A.1.4.4 affect an investigation, proceeding or remedy in respect of 7.1:
    - (a) a right, privilege, obligation or liability described in subsection A.1.4.2 7.1 or
    - (b) a sanction or penalty described in subsection A.1.4.3.

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

# 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 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 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 *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 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 MR Ch.9 s.2.2.

### **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 MR Ch.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 MR Ch.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 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 *resource* in a *segregated mode of operation* unless the *metering installation* for the associated *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 *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.
- 4.2.2 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 *defined meter point* associated with the *embedded facility*, in accordance with section 4.2.6; and
- 4.2.5.2 the loss adjustments required to reflect losses between the *defined meter point* associated with the *connected facility* and the *defined meter point* associated with the *embedded 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 MR Ch.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 this Chapter 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;

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*.

- 4.5.3 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 services 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 section 5.2.3,

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:
    - a. 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*;
    - b. 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 MR Ch.3 in respect of any breach of the *market rules* that formed the grounds for revocation of the *metering service provider's* registration.

## 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 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 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 MR Ch.3 s.5 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 MR Ch.9 s.2.2.3, 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 MR Ch.9 s.2.2.3, 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 efforts 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 *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(s)* associated with the *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.
- 10.1.4 *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 MR Ch.3 s.5 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 *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*.

## 10.4 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 MR Ch.3 s.2.

## 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 a *metering service provider* is made available to the *IESO* for each *dispatch interval*, 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 resource*, production shall be estimated at zero;

11.1.4A.2 in the case of a *metering installation* for a *load resource*, 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 resource* 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 resource*, 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 *electricity storage resource* 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* reads other than zero in respect of a time during which the *generation resource* associated with the *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  $\pm 5$  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 MR Ch.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.

# **Chapter 6**

# **Wholesale**

# **Metering -**

# **Appendices**

# Appendix 6.1 – Metering Obligations

## 1.1 Introduction

- 1.1.1 This Appendix sets forth certain obligations of *metered market participants* and *metering service providers* in respect of *metering*.

## 1.2 Obligations of Metered Market Participants

- 1.2.1 Each *metered market participant* shall:
- 1.2.1.1 ensure that its contracts relating to each *metering installation* in respect of which it is the *metered market participant* contain such terms and conditions related to the *metering installation* as may be required for compliance with the *market rules*;
  - 1.2.1.2 ensure that every *meter* and *instrument transformer* used in a *metering installation* in respect of which it is the *metered market participant* that may be used for *settlement* purposes has been approved for use by Measurement Canada and has been obtained from a manufacturer that:
    - a. has obtained approval of type from Measurement Canada, which approval shall, in the case of a *meter*, be evidenced by the time-limited seal placed on the *meter* by a person that is an accredited meter verifier within the meaning of the *Electricity and Gas Inspection Act* (Canada); and
    - b. agrees to provide, upon request, the approval number to the *metered market participant's metering service provider* and to the *IESO*;
  - 1.2.1.3 ensure that each *meter* forming part of a *metering installation* in respect of which it is the *metered market participant* that may be used for *settlement* purposes has been shop tested, verified and/or re-verified for accuracy in accordance with the requirements set forth in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter sealed and/or re-sealed in accordance with all applicable *federal metering requirements* by a person that is an accredited meter verifier within the meaning of the *Electricity and Gas Inspection Act* (Canada);
  - 1.2.1.4 ensure that sealed *meters* are provided to its *metering service provider* by a person that is an accredited meter verifier within the meaning of the *Electricity and Gas Inspection Act* (Canada) in

accordance with the schedule agreed between the *metered market participant* and such person;

- 1.2.1.5 ensure that records required by *federal metering requirements* or requested by its *metering service provider* are provided to its *metering service provider* by any accredited meter verifier providing any of the services referred to in sections 1.2.1.2 to 1.2.1.4 in respect of the *metering installation*;
- 1.2.1.6 ensure that any person that provides any of the services referred to in sections 1.2.1.2 to 1.2.1.5 agrees to:
  - a. provide it with copies of any test results or certificates within 30 days of being requested to do so; and
  - b. carry out any additional testing required for the resolution of a *metering*-related disputes within 30 days of being requested to do so; and
- 1.2.1.7 ensure that, an adjustment is made to a *metering installation* to enable it to generate *metering data* that reads zero while the *generation resource(s)* associated with the *facility* to which such *metering installation* relates is operating in a *segregated mode of operation*.

## 1.3 Metering Service Providers

- 1.3.1 The following activities shall be performed by *metering service providers* in accordance with the requirements of this Chapter and with any policy or standard established by the *IESO* pursuant to this Chapter:
  - 1.3.1.1 the provision, installation, commissioning, maintenance, repair, replacement, inspection and testing of *metering installations*;
  - 1.3.1.2 the registration of *metering installations* with the *IESO* and the preparation of all *meter point* documentation and other documentation, other than the written confirmation referred to in section 1.3A.1 of Appendix 6.5, required to be submitted in support of the application for registration; and
  - 1.3.1.3 the resolution of trouble calls relating to *metering installations* and *metering data* in accordance with sections 1.3.2.14 and 1.3.2.15 of this Appendix.
- 1.3.2 Each *metering service provider* shall, in respect of each *metering installation* in respect of which it is the *metering service provider*:

- 1.3.2.1 conduct routine testing and maintenance of the *metering installation* in accordance with Appendix 6.3;
- 1.3.2.2 prepare the *meter point* documentation referred to in Appendix 6.5 in accordance with that Appendix, ensure that such *meter point* documentation and all other documentation referred to in section 1.3.1.2 of this Appendix is maintained up to date and provide the *IESO* with any updates to such *meter point* documentation and other documentation, and make such *meter point* documentation available to the *metered market participant* for the *metering installation* upon request;
- 1.3.2.3 conduct an annual review of all documentation pertaining to the *metering installation* and *meter point* documentation provided to the *IESO* in accordance with Appendix 6.5 and within two *business days* of becoming aware of an error, notify the *IESO* of such errors pertaining to the *metering installation* or within such *meter point* documentation;
- 1.3.2.4 provide technical assistance at the site of the *metering installation* with respect to access to *metering data* by persons authorized by this Chapter to have such access;
- 1.3.2.5 provide such support for investigations, audits, tests and the resolution of disputes relating to the *metering installation*, including the provision of complete and accurate documentation, as may be requested by the *IESO*;
- 1.3.2.6 replace equipment sealed by a person that is an accredited meter verifier within the meaning of the *Electricity and Gas Inspection Act* (Canada) before the expiry of the seal period;
- 1.3.2.7 ensure, by means of the placement of sufficient seals on test links, fuses and the *meter* box or otherwise in accordance with any policy or standard established by the *IESO* pursuant to this Chapter, that access to the *metering installation* by a person not authorized by this Chapter to have such access can be detected;
- 1.3.2.8 advise the *IESO* of any error messages or equipment failures detected and repair or replace any failed equipment in accordance with section 11 of this Chapter;
- 1.3.2.9 provide *meter* readings to the *IESO* as may be required under this Chapter, under any policy or standard established by the *IESO* pursuant to this Chapter or as may be requested by the *IESO*;

- 1.3.2.10 maintain such records of all inspections, tests, audits and activities that may affect the collection, security or accuracy of *metering data* contained in, and of any changes made to, the *metering installation* and provide such records to the *IESO* as may be requested by the *IESO* or required pursuant to this Chapter or any policy or standard established by the *IESO* pursuant to this Chapter;
- 1.3.2.11 maintain all records required to be maintained by owners of *metering installation* pursuant to *federal metering requirements*, whether or not the *metering service provider* is the owner of the *metering installation*;
- 1.3.2.12 assist with end-to-end testing of the *metering installation* as may be required under this Chapter or any policy or standard established by the *IESO* pursuant to this Chapter;
- 1.3.2.13 submit to the *IESO* the information required by this Chapter and any policy or standard established by the *IESO* pursuant to this Chapter to be submitted for storage in the *metering registry* or the *metering database* using the software designated by the *IESO*, and in such data format as may be approved by the *IESO*, for such purpose;
- 1.3.2.14 establish, maintain and operate a trouble call service and acknowledge receipt of each trouble call issued by the *IESO* by 3:00 pm on the next *business day* following the date of issuance of the trouble call;
- 1.3.2.15 promptly respond to all trouble calls issued by the *IESO*;
- 1.3.2.16 attend to the repair or replacement of a *metering installation* within the time prescribed in section 11 of this Chapter;
- 1.3.2.17 maintain and implement effective procedures to ensure that *metering data* is not compromised during the maintenance, repair, replacement, inspection or testing of the *metering installation* or during the retrieval or storage of *metering data* or the transfer of the *metering data* to the communication interface with the *metering database*;
- 1.3.2.18 ensure that information submitted to the *IESO* in support of a request for an adjustment to *metering data* is correct, accurate and auditable;
- 1.3.2.19 ensure that all portable testing equipment is fit for its intended purpose and calibrated with devices traceable to federal measurement standards so as to create an audit trail for calibration;

- 1.3.2.20 establish procedures for the transfer of *metering data* to the *metering database* when the *metering data* cannot be made available to the *IESO* by means of remote access;
  - 1.3.2.21 maintain spare stock sufficient to repair or replace failed *metering installations* within the time limits specified in section 11 of this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter;
  - 1.3.2.22 obtain the prior approval of the *IESO* prior to carrying out procedures or effecting any changes to the equipment, parameters or settings of a *metering installation* that may affect the collection, security or accuracy of any *metering data* stored in the *metering installation*;
  - 1.3.2.23 ensure that each *metering installation* is sealed with uniquely numbered seals and maintain a register of such numbers;
  - 1.3.2.24 implement appropriate recovery processes to enable the recovery of any lost or destroyed records that are required to be kept pursuant to this Chapter and any policy or standard established by the *IESO* pursuant to this Chapter;
  - 1.3.2.25 attend any post-registration familiarization and competency updating or upgrading sessions as may be required by the *IESO*;
  - 1.3.2.26 handle *meters* in accordance with the requirements of the accredited meter verifier, within the meaning of the *Electricity and Gas Inspection Act* (Canada), that sealed the *meters*; and
  - 1.3.2.27 ensure that the *metering installation* is suitable for the range of operating conditions to which it will be exposed and that all equipment within the *metering installation* operates within the limits established for such equipment in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter.
- 1.3.3 Each *metering service provider* shall ensure that all members of its personnel that may be entering or may have cause to enter a *facility* owned by a person other than the *metering service provider* for the performance of the *metering service provider's* obligations pursuant to:
- 1.3.3.1 this Chapter 6;
  - 1.3.3.2 any policy or standard established by the *IESO* pursuant to this Chapter 6; or
  - 1.3.3.3 the agreement referred to in MR Ch.6 s. 5.1.3.2,

are familiar with and adhere to the safety requirements and practices of the owner of such *facility*.



# Appendix 6.2 – Alternative Metering Installation Standards

## 1.1 Introduction

1.1.1 This appendix applies to *metering installations*:

- in service on April 17, 2000; or
- that are the subject of an application for registration filed prior to the *market commencement date* and in respect of which the major components were ordered or procured on or before May 17, 2000.

1.1.2 This Appendix sets forth:

- 1.1.2.1 the alternative standards and accompanying conditions that must be met in respect of a *metering installation* registered under MR Ch.6 s.4.4.3;
- 1.1.2.2 the information that must be submitted by a *metering service provider* in support of an application referred to in MR Ch.6 s.4.4.2;
- 1.1.2.3 the circumstances in which the *IESO* may revoke the registration granted pursuant to MR Ch.6 s.4.4.3; and
- 1.1.2.4 the time at which registration granted by the *IESO* under MR Ch.6 s.4.4.3 expires. Where the time at which registration expires is specified to be the earliest expiry date of the seal period of any *meter* within the *metering installation*, that date shall be the earliest expiry date of the seal period of any *meter* within the *metering installation* as of the *market commencement date*.

## 1.1A Metering Installation Not Comprised of Two Meters

1.1A.1 Each *metering installation* for which registration is being sought under MR Ch.6 s.4.4.2 that does not comply with the dual *meter* requirement referred to in MR Ch.6 s.4.1.1.2 shall meet the following conditions:

- 1.1A.1.1 the *meter* within the *metering installation* is one in respect of which Measurement Canada has granted approval of type;

- 1.1A.1.2 a person that is an accredited meter verifier within the meaning of the *Electricity and Gas Inspection Act* (Canada) has verified and sealed the *meter* within the *metering installation*;
  - 1.1A.1.3 the seal period for the *meter*, including the seal period for the *data logger* if sealed separately from the remainder of the *meter*, within the *metering installation* has not expired;
  - 1.1A.1.4 the *metering installation* shall be capable of collating *metering data* into *dispatch intervals*; and
  - 1.1A.1.5 [Intentionally left blank – section deleted]
  - 1.1A.1.6 the *meter* contained in the *metering installation* shall be capable of time synchronization by the *IESO* to eastern standard time.
- 1.1A.2 Registration of a *metering installation* that meets the conditions set out in section 1.1A.1 shall expire on the earliest expiry date of the seal period of the *meter* within the *metering installation*, including the expiry date of the seal period of the *data logger* if sealed separately from the remainder of the *meter*. Registration of a *metering installation* shall not expire in instances where there are multiple *metering installations* served by a single *data logger* whose seal expires.

## 1.2 Compliance with Blondel's Theorem

- 1.2.1 Each *metering installation* for which registration is being sought under MR Ch.6 s.4.4.2 that does not comply with Blondel's theorem shall:
  - 1.2.1.1 comply with rulings issued by Measurement Canada on two and one-half element *metering*; and
  - 1.2.1.2 have a magnitude of maximum error satisfactory to the *IESO*.
- 1.2.2 The *metering service provider* shall provide to the *IESO* the magnitude of maximum error for both active power and reactive power for a *metering installation* that does not comply with Blondel's theorem.
- 1.2.3 Where the magnitude of maximum error referred to in section 1.2.2 is less than or equal to 0.2%, no correction factor shall be applicable.
- 1.2.4 Where the magnitude of maximum error referred to in section 1.2.2 exceeds 0.2%, the *IESO* shall apply to the *metering data* a fixed correction factor based on the actual maximum error figure submitted by the *metering service provider*, subject to the following:

- 1.2.4.1 *energy flows* in respect of injections shall not be increased; and
- 1.2.4.2 *energy flows* in respect of withdrawals shall not be decreased.
- 1.2.5 Where the magnitude of maximum error referred to in section 1.2.2 exceeds 3.0%, registration relating thereto shall expire.

### **1.3 [Intentionally left blank – section deleted]**

## **1.4 Accuracy**

- 1.4.1 Each *metering installation* for which registration is being sought under MR Ch.6 s4.4.2 that does not comply with the accuracy requirements set forth in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter shall meet the following conditions:
  - 1.4.1.1 the *meters* within the *metering installation* are ones in respect of which Measurement Canada has granted approval of type;
  - 1.4.1.2 a person that is an accredited meter verifier within the meaning of the *Electricity and Gas Inspection Act* (Canada) has verified and sealed the *meters* within the *metering installation*; and
  - 1.4.1.3 the seal period for the *meters* within the *metering installation* have not expired.
- 1.4.2 Registration of a *metering installation* that meets the conditions set out in section 1.4.1 shall expire on the earliest expiry date of the seal period of any *meter* within the *metering installation*.

## **1.5 Functional Requirements**

- 1.5.1 Each *metering installation* for which registration is being sought under MR Ch.6 s.4.4.2 that does not comply with the functional requirements set forth in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter shall meet the following conditions:
  - 1.5.1.1 the *meters* within the *metering installation* are ones in respect of which Measurement Canada has granted approval of type;
  - 1.5.1.2 a person that is an accredited meter verifier within the meaning of the *Electricity and Gas Inspection Act* (Canada) has verified and sealed the *meters* within the *metering installation*;

- 1.5.1.3 the seal periods for the *meters* within the *metering installation* have not expired;
  - 1.5.1.4 the *metering installation* shall be capable of collating *metering data* into *dispatch intervals*; and
  - 1.5.1.5 [Intentionally left blank – section deleted]
  - 1.5.1.6 the *meters* contained in the *metering installation* shall be capable of time synchronization by the *IESO* to eastern standard time.
- 1.5.2 The *IESO* may, by notice to the *metered market participant*, revoke registration of a *metering installation* granted under MR Ch.6 s.4.4.3 that met conditions set out in section 1.5.1 if the *metering installation* fails to comply with the requirements of any of sections 1.5.1.4 to 1.5.1.6, in which case the *metered market participant* shall ensure that the *meters* within the *metering installation* are replaced with *meters* that comply with the functional requirements set forth in this Chapter 6 and in any policy or standard established by the *IESO* pursuant to this Chapter 6 within 2 *business days* of the date of notice of such revocation.
- 1.5.3 Registration of a *metering installation* that meets the conditions set out in section 1.5.1 shall expire on the earliest expiry date of the seal period of any *meter* within the *metering installation*.

## **1.6 Instrument Transformers – Power Switching**

- 1.6.1 Each *metering installation* for which registration is being sought under MR Ch.6 s.4.4.2 that does not comply with the power system switching requirements for *instrument transformers* set forth in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter shall meet the following conditions:
- 1.6.1.1 all switching devices that may affect the accuracy of any *metering data* recorded in the *metering installation* shall be identified to the *IESO*;
  - 1.6.1.2 an alternate source of *metering data* is provided;
  - 1.6.1.3 correction factors have been provided to and approved by the *IESO* in accordance with this Chapter and any policy or standard established by the *IESO* pursuant to this Chapter; and
  - 1.6.1.4 loss adjustment factors have been provided to and approved by the *IESO* in accordance with this Chapter and any policy or standard established by the *IESO* pursuant to this Chapter.

- 1.6.2 *Metering data* from a *metering installation* in respect of which registration has been granted under MR Ch.6 s.4.4.3 that met the conditions set out in section 1.6.1 shall be the subject of adjustment by the correction and loss adjustment factors referred to in sections 1.6.1.3 and 1.6.1.4 in the manner described in the wholesale revenue metering standard established by the *IESO* pursuant to this Chapter.
- 1.6.3 The *IESO* may, by notice to the *metered market participant*, revoke registration of a *metering installation* granted under MR Ch.6 s.4.4.3 that met the conditions set out in section 1.6.1 if the conditions set forth in any one of sections 1.6.1.1 to 1.6.1.4 are not met or if the *metered market participant* fails to:
- 1.6.3.1 notify the *IESO*, in the manner set forth in the wholesale revenue metering standard established by the *IESO* pursuant to this Chapter, of the duration of any power switching operation relating to the *metering installation* no later than 24 hours after the operation has taken place; or
  - 1.6.3.2 install additional or corrected *metering installations* in circumstances where power switching operations affect the *metering data* in the existing *metering installation* more than twice in any twelve-month period,
- in which case the *metered market participant* shall ensure that each *instrument transformer* within the *metering installation* is replaced with an *instrument transformer* that complies with the power switching requirements set forth in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter within 8 weeks of the date of notice of such revocation.
- 1.6.4 If the *IESO* does not grant the *metered market participant* the right to retain registration under section 4.4.8 of Chapter 6, the registration of a *metering installation* that meets the conditions set out in section 1.6.1 shall expire on the date that the *metering installation* or the *facility* to which such *metering installation* relates undergoes upgrading or refurbishment that is, in the *IESO's* opinion, substantial.

## **1.7 Instrument Transformers – Accuracy Requirements**

- 1.7.1 Subject to section 1.7.1A, each *metering installation* for which registration is being sought under MR Ch.6 s.4.4.2 that does not comply with the 0.3% accuracy requirements of ANSI standard C57.13, as evidenced by factory test cards complete with serial numbers, for *instrument transformers* set forth in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter shall meet the following conditions:

- 1.7.1.1 the *instrument transformer* shall be of a type approved for use by Measurement Canada;
- 1.7.1.2 the *instrument transformer* shall:
  - a. [Intentionally left blank]
  - b. be tested on-site for accuracy in the manner described in, and meet the accuracy test point requirements of this Chapter and of any policy or standard established by the *IESO* pursuant to this Chapter with correction factors approved by the *IESO* in the manner described in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter; or
  - c. be demonstrated, to the satisfaction of the *IESO*, by means of the provision to the *IESO* of copies of the manufacturer's records, to be identical to an *instrument transformer* that has been tested on-site for accuracy, provided that installation or other documents have been provided to the *IESO* demonstrating that the applied burden for the *instrument transformer* is either identical to that of the tested *instrument transformer* or within the correction factors applied to that *instrument transformer*; and
- 1.7.1.3 the *instrument transformer* complies with the security requirements set forth in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter.
- 1.7.1A Notwithstanding section 1.7.1.2, the *IESO* shall accept the following as proof of accuracy of *instrument transformers*:
  - 1.7.1A.1 *instrument transformer* nameplate data, where the nameplate contains the required ANSI accuracy information and is affixed to the *instrument transformer*; and
  - 1.7.1A.2 Measurement Canada-type approval information, where such approval contains the required ANSI accuracy information.
- 1.7.2 *Metering data* from a *metering installation* for which registration has been granted under MR Ch.6 s.4.4.3 that met the conditions set out in section 1.7.1 shall be the subject of adjustment by the correction factors referred to in section 1.7.1.2(b) in the manner described in the wholesale revenue metering standard established by the *IESO* pursuant to this Chapter.
- 1.7.3 The *IESO* may, by notice to the *metered market participant*, revoke registration of a *metering installation* granted under MR Ch.6 s.4.4.3 that met the conditions set out in section 1.7.1 if the conditions set forth in any one of sections 1.7.1.1 to 1.7.1.3 are not met, in which case the *metered market participant* shall ensure

that each *instrument transformer* within the *metering installation* is replaced with an *instrument transformer* that complies with the accuracy requirements set forth in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter within 8 weeks of the date of notice of such revocation.

- 1.7.4 If the *IESO* does not grant the *metered market participant* the right to retain registration under MR Ch.6 s.4.4.8 the registration of a *metering installation* that met the conditions set out in section 1.7.1 shall expire on the date that the *metering installation* or the *facility* to which such *metering installation* relates undergoes upgrading or refurbishment that is, in the *IESO's* opinion, substantial.

## **1.8 Instrument Transformers – Secondary Cabling**

- 1.8.1 Each *metering installation* for which registration is being sought under MR Ch.6 s.4.4.2 that does not comply with the secondary cabling requirements for *instrument transformers* set forth in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter shall meet the following conditions:
- 1.8.1.1 each *meter* shall be connected to the *instrument transformer* in the manner described in the *meter point* documentation submitted in support of the application for registration of the *metering installation*;
  - 1.8.1.2 fixtures, including but not limited to AC outlets and voltage test points, that may allow access to the *instrument transformer* secondaries by persons not authorized by this Chapter to have such access shall be removed, if possible, or disabled or made inaccessible by a sealed cover;
  - 1.8.1.3 the secondary cabling otherwise complies with as many of the requirements described in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter as is practicable and any requirements not so complied with have been identified to the *IESO*;
  - 1.8.1.4 where the secondary cabling does not meet all of the requirements described in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter, measurement error correction factors have been provided to and approved by the *IESO* in accordance with this Chapter and with any policy or standard established by the *IESO* pursuant to this Chapter; and
  - 1.8.1.5 where the error introduced by the secondary cabling exceeds 0.02%, correction factors have been provided to and approved by the *IESO*.

- 1.8.2 *Metering data* from a *metering installation* in respect of which registration has been granted under MR Ch.6 s.4.4.3 that meets the conditions set out in section 1.8.1 shall be the subject of adjustment by the correction factors referred to in sections 1.8.1.4 and 1.8.1.5 in the manner described in the wholesale revenue metering standard established by the *IESO* pursuant to this Chapter.
- 1.8.3 The *IESO* may, by notice to the *metered market participant* in respect of the *metering installation* to which the registration relates, revoke registration of a *metering installation* granted under MR Ch.6 s.4.4.3 that meets the conditions set out in section 1.8.1 if the conditions set forth in any one of sections 1.8.1.1 to 1.8.1.5 are not met, in which case the *metered market participant* shall ensure that each *instrument transformer* within the *metering installation* is replaced with an *instrument transformer* that complies with the secondary cabling requirements set forth in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter within 8 weeks of the date of notice of such revocation.
- 1.8.4 If the *IESO* does not grant the *metered market participant* the right to retain registration under MR Ch.6 s.4.4.8 the registration of a *metering installation* that meets the conditions set out in section 1.8.1 shall expire on the date on which the *metering installation* or the *facility* to which such *metering installation* relates undergoes upgrading or refurbishment that is, in the *IESO's* opinion, substantial.

## **1.9 Parallel Current Transformer Secondaries**

- 1.9.1 Each *metering installation* for which registration is being sought under MR Ch.6 s.4.4.2 that does not comply with the prohibition on parallel current transformer secondaries set forth in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter shall meet the following conditions:
- 1.9.1.1 current transformers shall have the same nominal ratio and the same secondary ampere rating;
  - 1.9.1.2 paralleled secondaries shall be connected to the same phase;
  - 1.9.1.3 phasing shall be consistent on both primary and secondary circuits;
  - 1.9.1.4 paralleling of secondaries shall be done at the test links directly connected to the *meter*;
  - 1.9.1.5 each *meter point* shall have its own current test links;
  - 1.9.1.6 paralleled secondaries shall be used to sum currents from no more than two *meter points*;



- 1.9.1.7 a common point shall exist at the primary voltage to which each of the measured flows is connected;
- 1.9.1.8 the primaries of the voltage transformers for the paralleled installation must be connected to the common point referred to in section 1.9.1.7;
- 1.9.1.9 the burden on any current transformer shall not exceed the rated burden;
- 1.9.1.10 the burden shall be kept as low as practicable and shall take into account the effects of common secondary leads and worst-case unbalance as described in section 1.9.1.11;
- 1.9.1.11 worst-case unbalance shall include operation of secondary fusing or single phase primary power;
- 1.9.1.12 the *meter* shall be rated at twice the secondary rating of one current transformer;
- 1.9.1.13 current transformers shall not operate below 10% of the secondary ampere rating under normal or expected operating conditions;
- 1.9.1.14 the primaries of the current transformers shall not be paralleled;
- 1.9.1.15 where a switching device exists between the primary connection point of the current transformers, the *IESO* shall be notified whenever the paralleled current transformers are operated with the switching device open;
- 1.9.1.16 the *metered market participant* shall identify the time, date and duration, and current and voltage readings for both *meter points* before, after, and at regular intervals during any period of disconnection; and
- 1.9.1.17 correction factors shall be provided to and approved by the *IESO* in accordance with this Chapter and with any policy or standard established by the *IESO* pursuant to this Chapter.

1.9.2 *Metering data* from a *metering installation* in respect of which registration has been granted under MR Ch.6 s.4.4.3 that meets the conditions set out in section 1.9.1 shall be the subject of adjustment by the correction factors referred to in section 1.9.1.17 in the manner described in the wholesale revenue metering standard established by the *IESO* pursuant to this Chapter.

- 1.9.3 The *IESO* may, by notice to the *metered market participant* in respect of the *metering installation* to which the registration relates, revoke registration of a *metering installation* granted under MR Ch.6 s.4.4.3 that meets the conditions set out in section 1.9.1 if the conditions set forth in any one of sections 1.9.1.1 to 1.9.1.17 are not met, in which case the *metered market participant* shall ensure that each parallel current transformer secondary within the *metering installation* is removed within 8 weeks of the date of notice of such revocation.
- 1.9.4 If the *IESO* does not grant the *metered market participant* the right to retain registration under MR Ch.6 s.4.4.8 the registration of a *metering installation* that meets the conditions set out in section 1.9.1 shall expire on the date on which work or upgrading that is, in the *IESO's* opinion, substantial is carried out at the *metering installation's meter point*.

## **1.10 Meter Installation Enclosures**

- 1.10.1 Each *metering installation* for which registration is being sought under MR Ch.6 s.4.4.2 that does not comply with the enclosure requirements for *metering installations* set forth in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter shall meet the following conditions:
- 1.10.1.1 the *metering installation* is, in the *IESO's* opinion, secure; and
  - 1.10.1.2 the *metering installation* complies with as many of the enclosure requirements described in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter as is practicable and any requirements not so complied with have been identified to the *IESO*.
- 1.10.2 The *IESO* may, by notice to the *metered market participant*, revoke registration of a *metering installation* granted under MR Ch.6 s.4.4.3 that meets the conditions set out in section 1.10.1 if the conditions set forth in any one of sections 1.10.1.1 or 1.10.1.2 are not met, in which case the *metered market participant* shall ensure that each *metering installation* complies with the enclosure requirements set forth in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter within 2 *business days* of the date of notice of such revocation.
- 1.10.3 Registration of a *metering installation* that meets the conditions set out in section 1.10.1 shall expire on the earliest expiry date of the seal period of any *meter* within the *metering installation*.

## 1.11 Instrument Transformers – Primary Connection Point

1.11.1 Each *metering installation* for which registration is being sought under MR Ch.6 s.4.4.2 that does not comply with the primary connection point proximity requirements for *instrument transformers* set forth in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter shall meet the following conditions:

1.11.1.1 in the case of a *metering installation* relating to a *load facility*, or an *electricity storage facility*:

- a. the *metering installation* shall minimize the voltage drop between the voltage transformer and the current transformer;
- b. the *metering installation* shall minimize the leakage of current between the voltage transformer and the current transformer; and
- c. where the maximum error introduced by any physical separation of the primaries of the voltage transformer and the current transformer exceeds 0.02% for either active or reactive power flows, a constant correction factor has been provided to and approved by the *IESO* in the manner described in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter; or

1.11.1.2 in the case of a *metering installation* relating to a *generation facility*:

- a. the *metering installation* shall, where a current transformer is located on the grounded of the *generation facility*, minimize the leakage of current between the voltage transformer and the current transformer; and
- b. where the maximum error introduced by leakage current between the location of the current transformer and the location of the corresponding voltage transformer exceeds 0.02% for either active or reactive power flows, a constant correction factor has been provided to and approved by the *IESO* in the manner described in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter.

1.11.2 *Metering data* from a *metering installation* in respect of which registration has been granted under MR Ch.6 s.4.4.3 that meets the conditions set out in section 1.11.1 shall be the subject of adjustment by the correction factors referred to in section 1.11.1.1 or 1.11.1.2, as the case may be, in the manner described in the wholesale revenue metering standard established by the *IESO* pursuant to this Chapter.

- 1.11.3 The *IESO* may, by notice to the *metered market participant* in respect of the *metering installation* to which the registration relates, revoke registration of a *metering installation* granted under MR Ch.6 s.4.4.3 that meets the conditions set out in section 1.11.1 if the conditions set forth in section 1.11.1.1 or 1.11.1.2 are not met, in which case the *metered market participant* shall ensure that each *instrument transformer* within the *metering installation* is replaced with an *instrument transformer* that complies with the primary connection point proximity requirements set forth in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter within 8 weeks of the date of notice of such revocation.
- 1.11.4 If the *IESO* does not grant the *metered market participant* the right to retain registration under MR Ch.6 s.4.4.8 the registration of a *metering installation* that meets the conditions set out in section 1.11.1 shall expire on the date on which the *metering installation* or the *facility* to which such *metering installation* relates undergoes upgrading or refurbishment that is, in the *IESO's* opinion, substantial.

## **1.12 Instrument Transformer – Primary Cable**

- 1.12.1 A *metering service provider* that seeks to register a *metering installation* under MR Ch.6 s.4.4.2 that does not comply with the permissible primary cable error factor requirements for *instrument transformers* set forth in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter shall provide to the *IESO*, for the *IESO's* approval, a constant correction factor.
- 1.12.2 *Metering data* from a *metering installation* in respect of which registration has been granted under MR Ch.6 s.4.4.3 that meets the conditions set out in section 1.12.1 shall be the subject of adjustment by the correction factor referred to in section 1.12.1 in the manner described in the wholesale revenue metering standard established by the *IESO* pursuant to this Chapter.
- 1.12.3 If the *IESO* does not grant the *metered market participant* the right to retain registration under MR Ch.6 s.4.4.8, the registration of a *metering installation* that meets the conditions set out in section 1.12.1 shall expire on the date on which the *metering installation* or the *facility* to which such *metering installation* relates undergoes upgrading or refurbishment that is, in the *IESO's* opinion, substantial.

## **1.13 Instrument Transformers – Burdens**

- 1.13.1 A *metering service provider* that seeks to register a *metering installation* under MR Ch.6 s.4.4.2 that does not comply with the prohibition against errors resulting from calculated burdens for *instrument transformers* set forth in this Chapter and in any policy or standard established by the *IESO* pursuant to this Chapter shall provide to the *IESO*, for the *IESO's* approval, a correction factor.

- 1.13.2 *Metering data* from a *metering installation* in respect of which registration has been granted under MR Ch.6 s.4.4.3 that meets the conditions set out in section 1.13.1 shall be the subject of adjustment by the correction factor referred to in section 1.13.1 in the manner described in the wholesale revenue metering standard established by the *IESO* pursuant to this Chapter.
- 1.13.3 If the *IESO* does not grant the *metered market participant* the right to retain registration under MR Ch.6 s.4.4.8 the registration of a *metering installation* that meets the conditions set out in section 1.13.1 shall expire on the date on which the *metering installation* or the *facility* to which such *metering installation* relates undergoes upgrading or refurbishment that is, in the *IESO's* opinion, substantial.

## **1.14 Estimation Pending Rectification**

- 1.14.1 Where registration has been revoked or expires pursuant to any section of this Appendix, the *IESO* may for *settlement* purposes estimate the *metering data* recorded in the *metering installation* in the manner described in section 1.14.2 with effect:
- 1.14.1.1 [Intentionally left blank]
- 1.14.1.2 in the case of revocation from the date specified in the notice of revocation issued by the *IESO*; or
- 1.14.1.3 in the case of expiry, from the date of expiry,
- to the date on which the *IESO* is satisfied that the corrective action referred to in the relevant section of this Appendix has been taken.
- 1.14.2 For the purposes of section 1.14.1, estimation of *metering data* shall be based on the following:
- 1.14.2.1 in the case of a *metering installation* for a *generation facility*, production shall be estimated at zero;
- 1.14.2.2 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 applicable date referred to in section 1.14.1.2 or 1.14.1.3; or
- 1.14.2.3 in the case of a *metering installation* for an *electricity storage unit*, 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 applicable date referred to in section 1.14.1.2 or 1.14.1.3

## Appendix 6.3 – Inspecting and Testing Requirements

### 1.1 Routine Testing

- 1.1.1 The routine tests referred to in sections 1.2 to 1.4 of this Appendix shall be carried out by a *metering service provider* in accordance with section 1.5 of this Appendix.

### 1.2 On-Site Reconciliation and Meter Register Dial Readings

- 1.2.1 Subject to MR Ch.6 ss.4.6.5 and 1.2.3, on-site reconciliation shall be conducted to confirm whether the *energy* measured by a *meter* over a given period of time was accurately transmitted to the *meter's data logger* within the *meter*.
- 1.2.2 Each *metering service provider* shall record an error detected as a result of the procedure referred to in section 1.2.1 that exceeds one multiplier, calculated as the current transformer ratio times the voltage transformer ratio times the *meter* register multiplier, as an *outage* or defect and shall report the error as such to the *IESO* in accordance with MR Ch.6 s.11.1.2.
- 1.2.3 On-site reconciliation shall not be required if the *meter's data logger* is built into the *meter* and both the *meter* and the *meter's data logger* are enclosed in a single housing.
- 1.2.4 Where a *meter* within a *metering installation* is not capable of transmitting *meter* register dial readings during the remote acquisition of *metering data* as described in MR Ch.6 s.7.2.6 the *metering service provider* shall provide such readings to the *IESO* so as to enable the *IESO* to perform the comparison described in section 7.2.5 of this Chapter.

### 1.3 Spot Check of Meter Operation

- 1.3.1 The active and reactive demand recorded by a *meter* shall be compared with the active and reactive demand measured by a high-accuracy test set installed in parallel with the *meter* or by such other means as may be acceptable to the *IESO*.
- 1.3.2 Each *metering service provider* shall record an error detected as a result of the procedure referred to in section 1.3.1 that exceeds  $\pm 0.5\%$  on kW and  $\pm 1\%$  on

kVAR as an *outage* or defect and shall report the error as such to the *IESO* in accordance with section 11.1.2 of this Chapter.

- 1.3.3 Each *metering service provider* shall ensure that any *meter* in respect of which an error that exceeds the thresholds referred to in section 1.3.2 is bench tested by a person that is an accredited meter verifier within the meaning of the *Electricity and Gas Inspection Act* (Canada) and shall make the results of such bench test available to the *IESO*, to the *metered market participant* for the *metering installation* of which the *meter* forms part, and to the *distributor* or *transmitter* to whose system the *facility* to which the *metering installation* relates is connected.
- 1.3.4 No *metering service provider* or *metered market participant* shall dispose of a *meter* in respect of which an error that exceeds the thresholds referred to in section 1.3.2 without the prior approval of the *IESO*.

## **1.4 Instrument Transformer Checks**

- 1.4.1 The testing of currents and voltages applied to a *meter*, supported by independent confirmation of primary current and voltage, shall be used to test the correct operation of all *instrument transformers*.
- 1.4.2 The procedure referred to in section 1.4.1 may be conducted by a *metering service provider* by remote means if the *meter* is capable of transmitting the applied currents and voltages and if primary current and voltage can be independently confirmed by remote access.
- 1.4.3 Each *metering service provider* shall conduct the procedure referred to in section 1.4.1 in respect of each *metering installation* for which it acts as a *metering service provider* at the commissioning of any new *metering installation* and for all existing *metering installations* at the earliest of the following:
- a. as per the *instrument transformer's* manufacturer's recommended maintenance schedule;
  - b. when the *IESO* has evidence that the *instrument transformer's* accuracy has been compromised; and
  - c. in any event, no less than once every eighteen months. For greater clarity, the first instrument transformer check after *RSS commencement date* will be earlier of (a) six years after the last instrument transformer check; and (b) the date that is eighteen months after *RSS commencement date*.



## 1.5 Frequency of Routine Testing

- 1.5.1 Each *metering service provider* shall conduct the routine tests referred to in sections 1.2 to 1.3 of this Appendix in respect of each *metering installation* for which it acts as a *metering service provider*, that is not a *main/alternate metering installation* and that is associated with a *facility* that has an average annual maximum monthly load of less than 10 MW as follows:
- 1.5.1.1 once every six months following the date of registration of the *metering installation*, in the case of the procedure referred to in section 1.2.1; and
  - 1.5.1.2 once every twelve months following the date of registration of the *metering installation*, in the case of each of the procedures referred to in sections 1.3.1.
- 1.5.2 Each *metering service provider* shall conduct the routine tests referred to in sections 1.2 to 1.3 of this Appendix in respect of each *metering installation* for which it acts as a *metering service provider*, that is not a *main/alternate metering installation* and that is associated with a *facility* that has an average annual maximum monthly load of 10 MW or more as follows:
- 1.5.2.1 once every 3 months following the date of registration of the *metering installation*, in the case of the procedure referred to in section 1.2.1; and
  - 1.5.2.2 once every six months following the date of registration of the *metering installation*, in the case of each of the procedures referred to in sections 1.3.1.
- 1.5.3 Each *metering service provider* shall conduct the routine tests specified in section 1.3.1, for each *metering installation* that is registered under section 4.6 of Chapter 6 for which it acts as a *metering service provider*, once every eighteen months following the date of registration of the *metering installation*. For greater clarity, the first routine test after *RSS commencement date* will be earlier of (a) three years after the last routine test; and (b) the date that is eighteen months after *RSS commencement date*.
- 1.5.4 Each *metering service provider* shall test the currents and voltages applied to a *meter*, for each *metering installation* that is comprised of an alternate *meter* and that is registered under MR Ch.6 s.4.6 for which it acts as a *metering service provider*, once every 6 months following the date of registration of the *metering installation*. This test may be conducted by remote means if the *meter* is capable of transmitting the applied currents and voltages.

## 1.6 Non-Routine Tests

- 1.6.1 Each *metered market participant* shall ensure that tests to determine *instrument transformer* burden and error correction, and ratiometer, megger, oil analysis, partial discharge and dielectric tests are conducted from time to time as may be determined appropriate by the *metered market participant* or its *metering service provider* or as may be required by the *IESO*.

# Appendix 6.4 – Metering Service Provider Qualifications

## 1.1 Qualifications

- 1.1.1 Each person that wishes to be registered by the *IESO* as a *metering service provider* shall demonstrate to the satisfaction of the *IESO* that it has:
- 1.1.1.1 an adequate number of personnel having the qualifications described in sections 1.1.1.2 to 1.1.1.7 to permit it to perform all of the functions and obligations of a *metering service provider* under this Chapter and any policy or standard established by the *IESO* pursuant to this Chapter and to meet the performance standards set forth in MR Ch.6 s.5.2.3;
  - 1.1.1.2 personnel that has successfully completed a metering training program relating to *metering installations* provided by an entity recognized by the *IESO* for such purpose, including but not limited to the Municipal Electric Association, the former Ontario Hydro and the corporations referred to in subsection 48(2) of the *Electricity Act, 1998*;
  - 1.1.1.3 personnel that has recent training in procedures pertaining to the provision, installation, commissioning, repair, maintenance, replacement, inspection and testing of *metering installations*, in the preparation of *metering*-related documentation, in the calculation of site specific loss adjustments and error correction factors and in the resolution of trouble calls;
  - 1.1.1.4 personnel that has successfully completed electrical safety training provided by 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 the corporations referred to in subsection 48(2) of the *Electricity Act, 1998*;
  - 1.1.1.5 personnel that has demonstrated experience with *federal metering requirements*;
  - 1.1.1.6 personnel that has demonstrated experience with the investigation and reporting of incidences of tampering with *metering installations* and *metering data*;

- 1.1.1.7 personnel that has demonstrated experience with procedures for maintaining the security, validity and integrity of *metering data*, including the collection of static and dynamic *metering data* and the reading of *metering data* prior to and after the repair or replacement of *metering installations*;
- 1.1.1.8 the necessary equipment, materials, systems and procedures to enable it to perform all of the functions and obligations of a *metering service provider* under this Chapter and any policy or standard established by the *IESO* pursuant to this Chapter and to meet the performance standards set forth in MR Ch.6 s.5.2.3; and
- 1.1.1.9 all licences and other authorizations required by *applicable law*, all of which are valid and in good standing.

# Appendix 6.5 – Metering Registry and Meter Point Documentation

## 1.1 Introduction

- 1.1.1 This Appendix sets forth certain of the information that is required to be contained in the *metering registry* and describes the *meter point* documentation that each *metered market participant* must provide to the *IESO* in support of an application to register a *metering installation*.

## 1.2 Metering Registry Information

- 1.2.1 The *IESO* shall ensure that the *metering registry* contains the following information respecting each registered *metering installation* and such other information as the *IESO* considers appropriate, including information respecting *metering installations* 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*:
- 1.2.1.1 the *defined meter point* for the *connection point* associated with the *metering installation*;
  - 1.2.1.2 where applicable, the *defined meter point* for the *embedded connection point* associated with the *metering installation*;
  - 1.2.1.3 identification and name of the *metered market participant* for the *metering installation*;
  - 1.2.1.4 identification and name of the *metering service provider* for the *metering installation*;
  - 1.2.1.5 contacts for purposes of communicating with the *metering service provider*; and
  - 1.2.1.6 those portions of the *meter point* documentation referred to in sections 1.3.2.2, 1.3.2.3, 1.3.2.4, 1.3.2.5, 1.3.2.6, 1.3.2.8, 1.3.2.12, 1.3.2.13 and 1.3.2.16.

- 1.2.2 The information referred to in section 1.2.1 relating to each *metering installation* shall be the information as provided to the *IESO* by the *metering service provider* for that *metering installation* in support of its application to register the *metering installation*. Where the *metering service provider* gives notice to the *IESO* of a change in any of the information referred to section 1.2.1, the *IESO* shall update the *metering registry* accordingly.

## 1.3 Meter Point Documentation

- 1.3.1 *Meter point* documentation that:

- 1.3.1.1 complies with the provisions of this section 1.3, of this Chapter and of any policy or standard established by the *IESO* pursuant to this Chapter; and
- 1.3.1.2 that is in such form as may be required by this Chapter or by any policy or standard established by the *IESO* pursuant to this Chapter or as may otherwise be established by the *IESO*,

shall be provided to the *IESO* by the relevant *metering service provider* in support of an application for registration of a *metering installation* and shall be updated by the *metering service provider* such as to maintain the *meter point* documentation current.

- 1.3.2 The *meter point* documentation referred to in section 1.3.1 shall be a package containing the following and such other documentation and information as the *IESO* may require in respect of each *metering installation*:

- 1.3.2.1 a single line drawing showing the electrical location of the *metering installation* and of each *meter* within the *metering installation*;
- 1.3.2.2 a totalization table indicating:
  - a. the *meters* to be summed for a single *market participant* and the sign of summation; and
  - b. information pertaining to each data channel comprising each point of summation in sufficient detail to permit summation, site specific loss adjustments and measurement error correction;
- 1.3.2.3 the unique identifier assigned by the *IESO* to the *metering installation* for purposes of the *metering database*, cross-referenced to the location of the *metering installation*;
- 1.3.2.4 the unit of measurement used to measure *energy* flowing through the *metering installation*;
- 1.3.2.5 the name and operating designation of the transformer station, distribution station and feeder normally supplying the *meter point*;

- 1.3.2.6 the site-specific loss adjustment and measurement error correction factors to be applied, including the sign of the loss adjustment;
- 1.3.2.7 data supporting loss adjustment and measurement error correction factors, including engineering calculations and power flow studies;
- 1.3.2.8 [Intentionally left blank – section deleted]
- 1.3.2.9 a written description of the location of the *meter point* of the *metering installation*;
- 1.3.2.10 the location and address of the *defined meter point* of the *metering installation*;
- 1.3.2.11 the location and address of the *meter point* of the *metering installation*, if the *meter point* is not located at the *defined meter point*;
- 1.3.2.12 the pulse multiplier and *meter* multiplier for the *metering installation*;
- 1.3.2.13 details of the *data logger* of the *meter* within the *metering installation* and of the modem speed;
- 1.3.2.14 the burdens connected to each *instrument transformer* contained within the *metering installation*;
- 1.3.2.15 the *instrument transformer* ratios available and in use;
- 1.3.2.16 the unique internal *meter* identifier, the telephone number, the passwords and the protocol translation program name for the *metering installation*; and
- 1.3.2.17 the emergency restoration plan required in respect of the *outage* or malfunction of or a defect in an *instrument transformer*.

- 1.3.3 The documentation relating to loss adjustment and measurement error correction factors and the documentation relating to *instrument transformer* burdens required by section 1.3.2 to form part of the *meter point* documentation for a *metering installation* shall be stamped by a registered professional engineer.
- 1.3.4 The *metering service provider* for a *metering installation* that measures the consumption of *energy* referred to in MR Ch.9 s.2.2.1.1 or that measures the consumption of *station service* shall provide to the *IESO*, in support of the application to register the *metering installation*, the proportions referred to in MR Ch.9 s.2.2.4.1 or 2.2.4.2(a), as may be applicable, to the extent that such proportions have been agreed in the manner specified in those sections and in such form as may be required by the applicable *market manuals*.

### **1.3A Transmitter Confirmation of Meter Point Documentation**

- 1.3A.1 No *metering service provider* to whom a request has been made pursuant to section 6.1.2A of Chapter 6 shall submit to the *IESO* the *meter point* documentation referred to in section 1.3 in respect of a *metering installation* that will be used for the calculation and collection of charges for *transmission service* unless the relevant portion of the *meter point* documentation is accompanied by the confirmation of the approval of each applicable *transmitter* referred to in MR Ch.10 s. 3.1.3, 5.1.3, 6.1.3 or 6A.1.2.2, as may be applicable.

### **1.4 Other**

- 1.4.1 The *IESO* shall ensure that the *metering registry* contains, in respect of each registered *metering installation* and *metering installations* 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*, the identification number assigned by the *IESO* to the *defined meter point* for that *metering installation*.