

Market Rules

Chapter 6

Wholesale Metering - Appendices

Library Record No.	MDP_RUL_0002_06A
Document Name	Market Rules for the Ontario Electricity Market
Issue	Issue 10.0
Reason for Issue	Baseline 20.0
Effective Date	September 10, 2008

Document Change History

Issue/Draft	Reason for Issue	Date
Issue 1.0	Baseline 8.0	September 25, 2002
Issue 2.0	Baseline 8.1	December 5, 2002
Issue 3.0	Baseline 9.0	March 5, 2003
Issue 4.0	Baseline 9.1	June 4, 2003
Issue 5.0	Baseline 10.0	September 10, 2003
Issue 6.0	Baseline 10.1	December 10, 2003
Issue 7.0	Baseline 12.1	December 8, 2004
Issue 8.0	Baseline 14.0	September 14, 2005
Issue 9.0	Baseline 17.0	March 7, 2007
Issue 10.0	Baseline 20.0	September 10, 2008

Related Documents

Library Record No.	Document Title	Version
MDP_RUL_0002	Market Rules for the Ontario Electricity Market	31.0

Document Control

Authorities

Prepared by
Market Evolution

Reviewed by
Technical Panel
Legal Affairs
IESO Change Management

Approved by
IESO Board

Distribution List

Name	Organization

Table of Contents

Appendix 6.1 – Metering Obligations	1
1.1 Introduction	1
1.2 Obligations of Metered Market Participants	1
1.3 Metering Service Providers	2
Appendix 6.2 – Alternative Metering Installation Standards	7
1.1 Introduction	7
1.1A Metering Installation Not Comprised of Two Meters	7
1.2 Compliance with Blondel’s Theorem	8
1.3 [Intentionally left blank – section deleted].....	9
1.4 Accuracy	9
1.5 Functional Requirements	10
1.6 Instrument Transformers – Power Switching	11
1.7 Instrument Transformers – Accuracy Requirements	12
1.8 Instrument Transformers – Secondary Cabling.....	14
1.9 Parallel Current Transformer Secondaries.....	15
1.10 Meter Installation Enclosures	17
1.11 Instrument Transformers – Primary Connection Point	18
1.12 Instrument Transformer – Primary Cable	19
1.13 Instrument Transformers – Burdens.....	20
1.14 Estimation Pending Rectification.....	20
Appendix 6.3 – Inspecting and Testing Requirements	23
1.1 Routine Testing	23
1.2 On-Site Reconciliation and Meter Register Dial Readings	23
1.3 Spot Check of Meter Operation.....	24
1.4 Instrument Transformer Checks.....	24
1.5 Frequency of Routine Testing	25
1.6 Non-Routine Tests	26



Appendix 6.4 – Metering Service Provider Qualifications.....27
 1.1 Qualifications 27

Appendix 6.5 – Metering Registry and Meter Point Documentation..... 29
 1.1 Introduction 29
 1.2 Metering Registry Information 29
 1.3 Meter Point Documentation..... 30
 1.3A Transmitter Confirmation of Meter Point Documentation 32
 1.4 Other 32

Appendix 6.6 33

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, when a *registered facility* to which a *metering installation* in respect of which it is the *metered market participant* relates is operating in a *segregated mode of operation*, the *metering installation* generates *metering data* that reads zero for the period of time during which such *registered facility* operated in a *segregated mode of operation*.

1.3 Metering Service Providers

- 1.3.1 The following activities shall be performed by registered *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*;
 - 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 section 5.1.3.2 of this Chapter 6,
- 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 Chapter 6, section 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 Chapter 6, section 4.4.2;
- 1.1.2.3 the circumstances in which the *IESO* may revoke the registration granted pursuant to Chapter 6, section 4.4.3; and
- 1.1.2.4 the time at which registration granted by the *IESO* under Chapter 6, section 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 Chapter 6, section 4.4.2 that does not comply with the dual *meter* requirement referred to in section 4.1.1.2 of Chapter 6 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, subject to section 1.1A.1.5, be capable of collating *metering data* into *dispatch intervals*;
 - 1.1A.1.5 the *metering installation* shall, if used in respect of a *non-dispatchable load facility*, a *self-scheduling generation facility* with a name-plate rating of less than 10 MW, a *transitional scheduling generator* or an *intermittent generator*, be capable of collating *metering data* into 5 or 15 minute intervals; and
 - 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.1.7 [Intentionally left blank]
- 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 Chapter 6, section 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.
- 1.2.5.1 [Intentionally left blank]
- 1.2.5.2 [Intentionally left blank]

1.3 [Intentionally left blank – section deleted]

- 1.3.1 [Intentionally left blank – section deleted]
- 1.3.1.1 [Intentionally left blank – section deleted]
- 1.3.1.2 [Intentionally left blank – section deleted]
- 1.3.2 [Intentionally left blank – section deleted]
- 1.3.3 [Intentionally left blank – section deleted]
- 1.3.4 [Intentionally left blank – section deleted]

1.4 Accuracy

- 1.4.1 Each *metering installation* for which registration is being sought under Chapter 6, section 4.4.2 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 Chapter 6, section 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, subject to section 1.5.1.5, be capable of collating *metering data* into *dispatch intervals*;
 - 1.5.1.5 the *metering installation* shall, if used in respect of a *non-dispatchable load facility*, a *self-scheduling generation facility* with a name-plate rating of less than 10 MW, a *transitional scheduling generator* or an *intermittent generator*, be capable of collating *metering data* into 5 or 15 minute intervals; and
 - 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 Chapter 6, section 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 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.

- 1.5.3 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 Chapter 6, section 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 Chapter 6, section 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 Chapter 6, section 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 Chapter 6, section 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 Chapter 6, section 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 Chapter 6, section 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 section 4.4.8 of Chapter 6, 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 Chapter 6, section 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 Chapter 6, section 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 Chapter 6, section 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 section 4.4.8 of Chapter 6, 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 Chapter 6, section 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 Chapter 6, section 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 Chapter 6, section 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 section 4.4.8 of Chapter 6, 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 Chapter 6, section 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 Chapter 6, section 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 Chapter 6, section 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*:

- 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 Chapter 6, section 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 Chapter 6, section 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 section 4.4.8 of Chapter 6, 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 Chapter 6, section 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 Chapter 6, section 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 section 4.4.8 of Chapter 6, 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 Chapter 6, section 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 Chapter 6, section 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 section 4.4.8 of Chapter 6, 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; or

- 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.

6

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 registered *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 section 4.6.5 of Chapter 6 and section 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 section 11.1.2 of this Chapter.
- 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 section 7.2.6 of this Chapter, 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 in six years.

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 *load 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 3 years following the date of registration of the *metering installation*.
- 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 section 4.6 of Chapter 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 Appendix 6.6;
 - 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 Appendix 6.6; 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:
- the *meters* to be summed for a single *market participant* and the sign of summation; and
 - 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 the existence of redundancy and sources of *check metering data* and the mathematical correlation of *metering data* recorded by the *check meter* to the *metering data* recorded by the *revenue meter*;
- 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*.

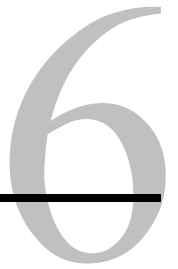
- 1.3.3 The documentation relating to loss adjustment and measurement error correction factors and the documentation relating to *instrument transformer* burdens required by section 1.3.2 to form part of the *meter point* documentation for a *metering installation* shall be stamped by a registered professional engineer.
- 1.3.4 The *metering service provider* for a *metering installation* that measures the consumption of *energy* referred to in section 2.1A.1.1 of Chapter 9 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 section 2.1A.4.1(a) or 2.1A.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 sections 3.1.3, 5.1.3, 6.1.3 or 6A.1.2.2 of Chapter 10, 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*.



Appendix 6.6

[Intentionally left blank]

6