



Market Rule Amendment Submission

This form is used to request an amendment to, or clarification of, the *Market Rules*. Please complete the first four parts of this form and submit the completed form by email or fax to the following:

Email Address: Rule.Amendments@ieso.ca

Fax No.: (416) 506-2847 Attention: Market Rules Group

Subject: Market Rule Amendment Submission

All information submitted in this process will be used by the *IESO* solely in support of its obligations under the *Electricity Act, 1998*, the *Ontario Energy Board Act, 1998*, the *Market Rules* and associated policies, standards and procedures and its licence. All submitted information will be assigned the *confidentiality classification* of “Public” upon receipt. You should be aware that the *IESO* will *publish this amendment submission* if the *Technical Panel* determines it warrants consideration and may invite public comment.

Terms and acronyms used in this Form that are italicized have the meanings ascribed thereto in Chapter 11 of the *Market Rules*.

PART 1 – SUBMITTER’S INFORMATION

Please enter contact information in full.	
Name: <u>IESO Staff</u>	
(if applicable) <i>Market Participant / Metering Service Provider</i> No. ¹ : <u>N/A</u>	<i>Market Participant Class</i> : <u>N/A</u>
Telephone: <u>905 855-6464</u>	Fax: _____
E-mail Address: Rule.Amendments@ieso.ca	

PART 2 – MARKET RULE AMENDMENT SUBMISSION INFORMATION

Subject: <u>Revenue Metering</u>	
Title: <u>Toronto Hydro-Electric System Ltd High Voltage Revenue Metering Proposal</u>	
Nature of Request (please indicate with x)	
<input checked="" type="checkbox"/> Alteration	<input type="checkbox"/> Deletion
<input type="checkbox"/> Addition	<input type="checkbox"/> Clarification
Chapter: <u>6</u>	Appendix: _____ Sections: <u>Various</u>
Sub-sections proposed for amending/clarifying: _____	

¹ This number is a maximum of 12 characters and does not include any spaces or underscore.

PART 3 – DESCRIPTION OF THE ISSUE

Provide a brief description of the issue and reason for the proposed amendment. If possible, provide a qualitative and quantitative assessment of the impacts of the issue on you and the *IESO-administered markets*. Include the Chapter and Section number of the relevant *market rules*.

Toronto Hydro-Electric System Limited (THESL) has approached the IESO with a request for market rule amendments that would allow THESL to install high voltage revenue meters rather than upgrade existing (low voltage) metering installations to meet the full market rule requirements. THESL has been developing this proposal for a number of years, in consultation with the IESO, Hydro One Networks and the Revenue Metering Standing Committee. THESL has identified that acceptance of this proposal would result in substantial costs savings to THESL and their end-use customers. Background information on the THESL proposal can be found on the IESO public web site at the following locations:

http://www.ieso.ca/imowebpub/200711/rm_pres-20071004-IESO_Presentation.pdf

http://www.ieso.ca/imoweb/pubs/tp2007/tp207-5_Presentation_THESL_HV_Revenue_Metering.pdf

Background - Existing Revenue Metering Framework

In order to appreciate the consequences of the THESL proposal, one needs to have an appreciation of the existing revenue metering framework within the IESO-administered markets. A number of market rule definitions are key to understanding the existing framework:

“connection point means a point of connection between the *IESO-controlled grid* and a *generation facility* or *load facility*, or the point at which a neighbouring *transmission system* is connected to the *IESO-controlled grid*;

defined meter point means:

- (a) in respect of a *facility connected* to the *IESO-controlled grid* by a *connection facility* that is a radial line designated by the *IESO* for such purpose, the point at a voltage above 50 kV at which the designated radial line is *connected* to (i) the high voltage bus of the *facility*, or (ii) the *facility*, if there is no such high voltage bus;
- (b) in respect of a *facility connected* to the *IESO-controlled grid* by a *connection facility* other than one referred to in (a), the point at a voltage above 50 kV at which the *connection facility* is *connected* to the *IESO-controlled grid*; and
- (c) in respect of an *embedded market participant*, the point at which the *embedded market participant’s facility* is connected to the distribution system within which it is *embedded*;

delivery point means a uniquely identified reference point determined in accordance with section 2.4A.1 of Chapter 9 and used for *settlement* purposes in the *real-time markets*, other than in respect of transactions involving the transmission of *energy* or *ancillary services* into or out of the *IESO-controlled grid* from a neighbouring *transmission system*;

meter point means, in respect of a *load facility* and of a *generation facility* with respect to which the current transformers are located on the output side of the *generation facility*, the physical location of the current transformers used to measure power flow and, in respect of a *generation facility* with respect to which the current transformers are located on the grounded side of the *generation facility*, the physical location of the voltage transformers;

metering installation means any apparatus, including but not limited to an *RWM*, used to measure electrical quantities and includes the communication system by which *metering data* is transferred to

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the relevant telecommunications network through which *metering data* is transferred to the communication interface of the *metering database*;

registered wholesale meter or *RWM* means a *meter* that meets the criteria specified in Chapter 6 and that is registered with the *IESO*. References to a *registered wholesale meter* or *RWM* within Chapter 9 also include *meters* in *metering installations* whose registration has expired but the *IESO* determines that the continued use of the *metering installation* is necessary for the efficient operation of the *IESO-administered markets*;¹

For directly connected facilities, the IESO-administered markets revenue metering provisions are based on the following relationships:

- For a given facility, the defined meter point and delivery point are located at the connection point.
- Each connection point for a facility has a unique metering installation (Ch 6 sec 2.1.1)
- Meter point (the location of the RWM current transformers) should be located at the defined meter point and if the meter point is not located at the defined meter point, site-specific loss adjustments are required to reflect the losses between the meter point and the defined meter point (Ch 6 sec 4.2.)
- Where the RWM is used for determination of transmission charges, the transmitter needs to approve the meter point documentation (Ch 6 sec 6.1.2A)

Chapter 6 of the market rules specifies the wholesale revenue metering standards. There are two standards: a full Chapter 6 standard, and an alternative metering installation standard (AMIS). Section 4.4 of Chapter 6 allows for registration of legacy metering installations under the AMIS. The expiry of registration under AMIS is triggered by either the expiry date of the revenue meter seals or by a substantial upgrade of the metering installation or the facility. Upon the expiry of the alternative standard registration, the market participant is required to upgrade the installation to meet the full Chapter 6 standard.

Background – THESL Situation and Proposal

THESL has a total of 106 existing revenue metering installations. Of these, 71 are in the downtown transmission corridor and form part of this proposal. Considering these 71 installations, 27 have been partially upgraded to be compliant with the full Chapter 6 standard.

The connection facilities associated with these 71 installations are owned by THESL or Hydro One Networks. The transmission lines and facilities upstream of the 71 installations are part of the IESO-controlled grid. The end-use consumers connected to these 71 installations are, with one exception, THESL retail customers². The cost of completing all the required upgrading of the existing metering installations to the full Chapter 6 standard is estimated at \$40-\$45 million.

As an alternative to upgrading all the 71 existing revenue metering installations, THESL proposes to install fourteen (14) metering installations upstream of the existing installations, at the two main transformer stations (Sheppard and Manby) that feed the downtown Toronto area. The arrangement would be as follows:

¹ Extracts from Chapter 11 of the market rules.

² At present there is one embedded wholesale market participant (an industrial consumer) within the downtown transmission corridor.

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- Sheppard TS – six metering installations, 1 energy delivery point, 2 transmission delivery points.
- Manby TS (North) – four metering installations, 1 energy delivery point, 2 transmission delivery points
- Manby TS (South) – four metering installations, 1 energy delivery point, 2 transmission delivery points

The proposed metering installations would be compliant with the full Chapter 6 standard and would become the energy delivery points for the settlement purposes. The defined metering points and the connection points associated with the existing 71 metering installations would not change, as the boundary of the IESO-controlled grid is not changing.

THESL acknowledges that the following two adjustment factors will be required to make the high voltage metering equivalent to the existing metering:

- Transmission line losses between the three proposed energy delivery points and the defined meter points to ensure that the energy consumption and transmission line losses are equivalent; and
- Load diversity of the existing connection points to ensure that the transmission demand charges are determined equivalently.

Over the past two years, THESL has developed a mathematical model that would calculate the above adjustments accurately, based on an IESO methodology and using information supplied by Hydro One Networks.

THESL has estimated the cost of installing the 14 high voltage revenue metering installations to be \$15 million.

Approximately 10% of the energy consumed in Ontario would be measured under this proposal.

Comparison of THESL Proposal to Existing Market Rule requirements

The THESL proposal would not be allowed under the existing market rules because the existing revenue metering framework did not contemplate high voltage revenue metering for multiple defined meter points and connection points. For example:

1. Section 2.1 of Chapter 6 (see attached) implies that there is a specific revenue meter installation for each connection point. The THESL proposal would have one revenue metering installation for many connection points.
2. Section 4.2 of Chapter 6 (see attached) implies a unique metering installation for a single facility and single defined meter point. The THESL proposal would have a single metering installation for many facilities and defined meter points.

PART 4 – PROPOSAL (BY SUBMITTER)

Provide your proposed amendment. If possible, provide suggested wording of proposed amendment.

The market rules should be amended to allow a single metering installation for more than one facility, connection point and defined meter point. Sections 2.1 and 4.2 of Chapter 6 would need to be amended.

PART 5 – FOR IESO USE ONLY

Technical Panel Decision on Rule Amendment Submission: Warrants Consideration

MR Number: MR-00342

Date Submitted to *Technical Panel*: 13 Dec 07

Accepted by *Technical Panel* as: (please indicate with x)

Date:

General Urgent Minor

18 Dec 07

Criteria for Acceptance:

1. It identifies ways to reduce participant costs. THESL has identified that this proposal would reduce their costs by approximately \$30 million. These costs are ultimately borne by THESL end-use consumers.
2. It identifies means to better enable the market to satisfy the following market design principle of efficiency: the market should support allocative and productive economic efficiency, encouraging generation and delivery of electricity that meets the needs of customers at least cost³. This proposal, if implemented would reduce the cost of delivery of electricity to THESL end-use customers by approximately \$30 million.

Priority: High

Criteria for Assigning Priority:

1. Pervasiveness of the problem, specifically the extent of the adverse impact on the affected participants. THES would incur \$30 million in extra costs without the requested market rule amendments. These additional costs would be incurred immediately as the existing metering installations need to be upgraded starting immediately.
2. Alternative solutions: THES has worked with the IESO and Hydro One Networks over the past two years on this proposal. There is general acceptance that the solution is acceptable and will address the issue of upgrading THES revenue metering.

Not Accepted (please indicate with x):

Clarification/Interpretation Required (please indicate with x):

Technical Panel Minutes Reference: IESOTP 210-1

³ Extract from Guiding Principles of Market Design approved by IMO Board in 1999.

PART 5 – FOR IESO USE ONLY

Technical Panel Comments:

1. The changes suggest under this rule amendment could result in inaccurate transmission demand charges which adversely impact THESL customers and other Ontario transmission customers. These inaccuracies could arise if the load diversity adjustment calculation proposed by THESL becomes, over time, less accurate relative to the actual demand profiles at the connection points downstream of the proposed high voltage revenue metering.

Development of the suggested rule amendments is not appropriate without addressing the long-term accuracy of the load diversity adjustment calculation. There are options for addressing the issue e.g. application by THESL (and Hydro One Networks) to the Ontario Energy Board to approve the load diversity adjustment calculation.

2. Consideration should also be given as to the appropriate settlement of market participants embedded within the THESL service territory when the participant's revenue metering fails.

Existing Market Rules – Chapter 6

2. Requirements for Metering Installations

- 2.1.1 Subject to section 2.1.3, the *IESO* shall not permit a person to participate in the *real-time markets* 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 a *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;
 - 2.1.1.2 if the person is or will be the *metered market participant* for the *metering installation* referred to in section 2.1.1.1:
 - a. the person has entered into an agreement under section 3.1.2.2(a) in relation to the *metering installation* or is a registered *metering service provider*; and
 - b. if the person is also an *embedded market participant*, has advised the relevant *distributor* or *transmitter* of the entering into of the agreement referred to in section 2.1.1.2(a); and
 - 2.1.1.3 either
 - a. such *metering installation* has been and continues to be registered with the *IESO* in accordance with the procedures referred to in section 6.1.2., or
 - b. such *metering installation* has been registered with the *IESO* in accordance with the procedures referred to in section 6.1.2 and the registration has expired provided that the *IESO* determines that the continued use of the *metering installation* is necessary for the efficient operation of the *IESO-administered markets*.
- 2.1.2 Subject to section 2.1.3, the *IESO* shall refuse to permit a person to participate in the *real-time markets* 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 Section 2.1.1 and 2.1.2 shall not apply in respect of a person, other than a person that is or will be the *metered market participant* for a *metering installation*, that demonstrates to the satisfaction of the *IESO* that it will for *settlement* purposes have allocated to it *metering data* by means of *physical allocation data* submitted by a *metered market participant* in accordance with section 2.4 of Chapter 9.
- 2.1.4 This Chapter applies in respect of a *metering installation* that measures the consumption of *energy* in accordance with section 2.1A.1 of Chapter 9.

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 section 4.2.2, 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; and
 - 4.2.1.2 any instrument *transformers* required for a *check meter* within a *main/check metering installation* are located in a position which achieves a mathematical correlation with the *metering data* from the *revenue meter*.
- 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*.
- 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 the *facility* to which the *metering installation* relates, adjust the *metering data* on the basis of the site-specific loss adjustments referred to in section 4.2.4 or 4.2.5.1 and, where applicable, on the basis of the loss adjustments provided pursuant to section 4.2.5.2.
- 4.2.4 Where the *defined meter point* in respect of a *facility* is a *connection point* and the *meter point* of the *metering installation* for that *facility* is located other than at the *defined meter point*, the *metering service provider* for the relevant *metering installation* shall provide to the *IESO*, at the time of registration of the *metering installation*, in accordance with section 4.2.6, the parameters for site specific loss adjustments required to reflect losses between the *meter point* and the *defined meter point*.
- 4.2.5 Where the *defined meter point* in respect of a *facility* is an *embedded connection point* and the *meter point* is not located at the *defined meter point*, the *metering service provider* for the relevant *metering installation* shall provide to the *IESO*, at the time of registration of the *metering installation*:
- 4.2.5.1 the parameters for site specific loss adjustments to reflect losses between the *meter point* and the *embedded connection point*, in accordance with section 4.2.6; and
 - 4.2.5.2 the loss adjustments required to reflect losses between the *defined meter point* for the *primary RWM* associated with the *facility* and the

defined meter point for the *embedded RWM* associated with the *facility*, obtained where applicable from the relevant *transmitter* or *distributor*, as the case may be depending on the owner of the *facilities* to which the *facility* to which the *meter point* relates is connected.

- 4.2.6 The parameters for site specific loss adjustments referred to in sections 4.2.4 and 4.2.5.1 shall comply with the requirements of any site specific loss adjustment policy or standard established by the *IESO* and shall be updated by each *metering service provider* as may be required by the *IESO*.
- 4.2.7 Each *metering service provider* shall provide to the *IESO* measurement error correction factors for each *metering installation* in respect of which it acts as a *metering service provider* in accordance with this Chapter and with any policy or standard established by the *IESO* pursuant to this Chapter.