

ISO Rules

Part 500 Facilities

Division 502 Technical Requirements

Section 502.10 Revenue Metering System

Technical and Operating Requirements



Applicability

- 1 Section 502.10 applies to:
 - (a) the **legal owner** of a **revenue meter**;
 - (b) the **legal owner** of a **transmission facility**; and
 - (c) the **ISO**.

Requirements

Successor to Prior Requirements

- 2(1) This Section 502.10 succeeds and replaces the *AESO Measurement System Standard*, which came into effect as of September 18, 2007.
- 2(2) The *AESO Measurement System Standard* referred to in subsection 2(1), together with any other prior standards or drafts of standards on the subject matter, will no longer be in force and effect as of the effective date of this Section 502.10.

Functional Specification

- 3(1) The **ISO** must approve of a functional specification containing further details, work requirements and specifications for the design, construction and operation of a **revenue meter** for a facility that will allow for the appropriate financial settlement per the **ISO rules** and the **ISO tariff**, as applicable.
- 3(2) The functional specification referred to in subsection 3(1) must be generally consistent with the provisions of this Section 502.10 but may contain material variances the **ISO** approves of based upon its discrete analysis of any 1 or more of the technical, economic, safety, operational, and reliability requirements of the **interconnected electric system** related to the specific facility.

Substations that Connect to an Electric Distribution System

- 4 The **legal owner** of a **transmission facility** must install a **revenue metering system** at each **point of delivery** connected to a bus in a substation, if:
 - (a) the substation is connected to an **electric distribution system**;
 - (b) the bus is located between the **transmission system** and the **electric distribution system**;
and
 - (c) the **legal owner** installs or replaces a complete switchgear lineup connected to the bus.

Measurement Point Definition Record

- 5(1) The **legal owner** of a **revenue meter** must, where such **legal owner** requires a new **measurement point definition record** or an amendment to an existing **measurement point definition record**, submit a complete application form to the **ISO**, prior to energizing the new or altered **revenue metering system**.
- 5(2) The **ISO** must issue a **measurement point definition record** for a **measurement point** to the **legal owner** of the **revenue meter**, or to a **person** designated by the **legal owner** of the **revenue meter**, if the information in the application form submitted in accordance with subsection 5(1):
 - (a) is complete;

ISO Rules

Part 500 Facilities

Division 502 Technical Requirements

Section 502.10 Revenue Metering System

Technical and Operating Requirements



- (b) allows for the proper measurement of **metered energy**, **metered demand**, and calculation of **apparent power** in accordance with **ISO rules** and the **ISO tariff**, as applicable; and
- (c) avoids a metering configuration that results in a deductive totalizing calculation for the **measurement point**.

(3) The **legal owner** of a **revenue meter** must install and operate a **revenue meter** in accordance with the **measurement point definition record** the **ISO** issues in accordance with subsection 5(2).

Revenue Meter Accuracy Class

6(1) The **legal owner** of a **revenue meter** must ensure that the **revenue meter** has an accuracy class rating that is less than or equal to 0.2% for Watthour measurement if:

- (a) the capacity of the **metering point** of the **revenue meter** is greater than or equal to 1.0 MVA; and
- (b) the **revenue meter** is not the subject of a dispensation under the *Electricity and Gas Inspection Act*, RSC 1985 c E-4, as amended.

(2) The **legal owner** of a **revenue meter** must ensure that the **revenue meter** has an accuracy class rating that is less than or equal to 0.5% for Varhour measurement if:

- (a) the capacity of the **metering point** of the **revenue meter** is greater than or equal to 1.0 MVA; and
- (b) the **revenue meter** is not the subject of a dispensation under the *Electricity and Gas Inspection Act*, RSC 1985 c E-4, as amended.

Measurement Transformer

7(1) The **legal owner** of a **revenue meter** must ensure that the measurement transformer has an accuracy class rating less than or equal to 0.3% if:

- (a) the capacity of the **metering point** of the **revenue meter** is greater than or equal to 1.0 MVA; and
- (b) the measurement transformer is not the subject of a dispensation under the *Electricity and Gas Inspection Act*, RSC 1985 c E-4, as amended.

(2) The **legal owner** of a **revenue meter** must, unless the **ISO** approves otherwise, ensure that the measurement transformer:

- (a) is located and connected without compensation methods;
- (b) produces a real **metering point**; and
- (c) has a dedicated current transformer core for measurement.

Metering Data

8(1) The **legal owner** of a **revenue meter** must retain metering data from the **revenue metering system**, including a record of final estimates and adjustments, and the method used to perform the estimates or adjustments for a period of at least 8 years.

(2) The **legal owner** of a **revenue meter** must process metering data for each **measurement point** in accordance with the algorithm in the **measurement point definition record** issued in accordance with subsection 5(2).

(3) The **legal owner** of a **revenue meter** must, within 30 **days** of energizing the **revenue meter** for

ISO Rules

Part 500 Facilities

Division 502 Technical Requirements

Section 502.10 Revenue Metering System

Technical and Operating Requirements



the first time, validate the **metering equipment** and the metering data.

- (4) The **legal owner** must maintain validation records until the date of the next in-situ test performed.

Revenue Meter Testing and Reporting

- 9(1) The **legal owner** of a **revenue meter** must perform in-situ testing:

- (a) upon a change of any **metering equipment** associated with the **revenue meter**; and
- (b) as per the testing intervals set out in Table 1:

Table 1 – In-situ Testing Frequency Based on Revenue Meter MW Class

MW Class	Testing Interval
(i) Greater than 20 MW	(A) Every 2 years from the date of commissioning; or (B) For existing revenue meters, every 2 years from the date of the previous in-situ test.
(ii) Greater than or equal to 5 MW and less than or equal to 20 MW	(A) Every 4 years from the date of commissioning; or (B) For existing revenue meters, every 4 years from the date of the previous in-situ test.

- (2) The **legal owner** of a **revenue meter** must calculate the MW class in subsection 9(1)(b) as follows:

- (a) determine the total active energy in MWh at the **measurement point** for the calendar year; and
- (b) divide the total active energy determined in subsection 9(2)(a) by the number of settlement intervals in the same calendar year, including the intervals in which active energy is zero.

- (3) The **legal owner** of a **revenue meter** must provide the results of the in-situ test performed in subsection 9(1) to the **ISO** if the test resulted in an error measurement of +/- 3%.

- (4) Notwithstanding subsections 9(1), 9(2) and 9(3) above, the **legal owner** of a **revenue meter** must, at the request of the **ISO**, complete and report the results of an in-situ test for the **metering equipment** within 30 **days** of receiving the **ISO**'s request or within a mutually agreed time frame.

Measurement Data Corrections

10 The **legal owner** of a **revenue meter** must, if the **legal owner** discovers an error in measurement data, where the net difference in consumption from the measurement data previously submitted to the **ISO** is:

- (a) 100 MWh or greater, for sites other than large micro-generation; or
- (b) 100 kWh or greater for large micro-generation sites,

notify the **ISO** in writing of the reason for the error.

ISO Rules

Part 500 Facilities

Division 502 Technical Requirements

Section 502.10 Revenue Metering System

Technical and Operating Requirements



Restoration

- 11(1)** The **legal owner** of a **revenue meter** must, upon becoming aware of a failure of the **revenue metering system**, restore the **revenue metering system** within **30 days**.
- (2)** The **legal owner** of a **revenue meter** must notify the **ISO** in writing of the failure if the **legal owner** is unable to restore the **revenue metering system** within **30 days** in accordance with subsection 11(1).
- (3)** The **legal owner** of a **revenue meter** must include a plan to restore the **revenue metering system** when notifying the **ISO** in accordance with subsection 11(2).
- (4)** The **legal owner** of a **revenue meter** must notify the **ISO** in writing after completing the restoration of the **revenue metering system** in accordance with the plan referred to in subsection 11(3).

Revision History

Date	Description
2021-xx-xx	Amended applicability section to include legal owner of a transmission a facility. Added a requirement for the functional specifications to include revenue metering that will allow for appropriate financial settlement. Included new subsection 4 to require legal owners of transmission facilities to install revenue metering system to implement adjusted metering practice.
2021-03-18	Initial release