Development of Proposed New Section 502.10 of the ISO Rules, *Revenue Metering Technical Requirements* ("Section 502.10")

December 2019

Fire Safety:
AESO Building Evacuation Procedures

Calgary Place

Slow alarm:
- Stand by
- Listen to announcements

Fast alarm:
- Evacuate to muster point

Muster point:
- Courtyard at 5th Ave Place

BP Centre

Slow alarm:
- Stand by
- Listen to announcements

Fast alarm:
- Evacuate to muster point

Muster point *South*:
- Courtyard at 5th Ave Place

Muster point *West:*
- Courtyard by Chinese Cultural Center

SCC

When alarm sounds:
- Proceed to Guard House
- Wait for further instruction *(From your fire captain or fire department)*

Access to Wi-Fi

User Name: A-Guest

Password: @Great$YYC

Consultation Session Agenda
December 11, 2019

Time	Agenda Item
9:00-9:15	Consultation Session Overview and Introductions ISO Rule Development Process Overview
9:15-12:00	Review Each Subsection of Proposed New Section 502.10 and Provide Opportunity for Stakeholder Discussion and Feedback
12:00-12:30	Lunch
12:30-2:45	Review Each Subsection of Proposed New Section 502.10 and Definitions; and Provide Opportunity for Stakeholder Discussion and Feedback (continued)
2:45-3:00	Additional Discussion, Next Steps and Wrap Up

Consultation Session Overview and Introductions

Consultation Session Overview & Expectations

- Objectives:
  - Review the draft text of proposed new Section 502.10
  - Discuss alternatives, where applicable
- All stakeholders:
  - This is your session to ask questions and provide feedback so please actively participate
  - Introduce yourself by stating your name and company
  - One speaker at a time
  - Your positions are not binding, but provide your input in good faith so we can work together to address the issues
- In-person attendees:
  - Raise your hand to speak and use the microphone
- Webinar attendees:
  - Please submit questions or comments using the question button

Consultation Session Overview
Meeting Minutes

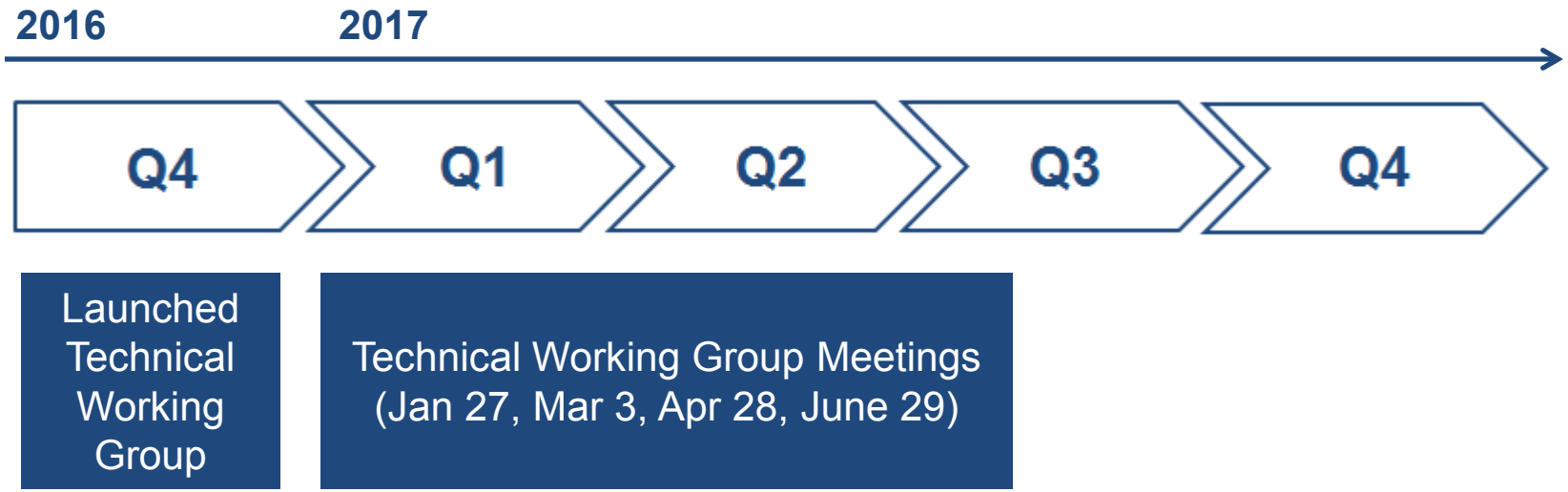
- Session is recorded and will be used to assist in preparation of meeting minutes
  - Recording will be deleted after minutes are finalized
- Meeting minutes will be circulated for review and ultimately posted to AESO.CA
  - Company names will be incorporated where applicable
- Personal information is collected in accordance with section 33(c) of the *Freedom of Information and Protection of Privacy Act*
  - Questions or concerns can be directed to the Director, Information and Governance Services at 403-539-2528

Introductions

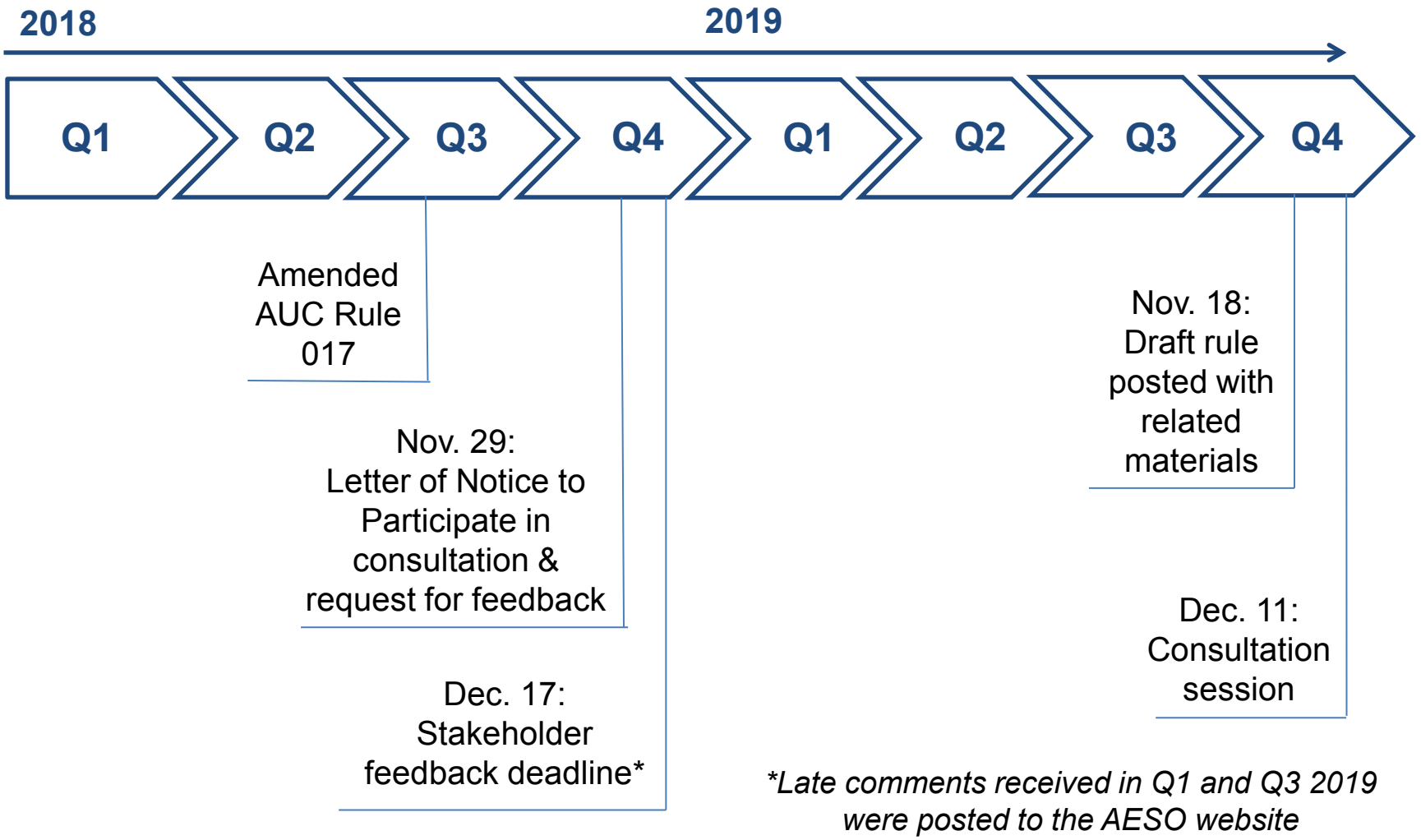
Proposed New Section 502.10
ISO Rule Development Process

Proposed New Section 502.10
Stakeholder Consultation – Pre-AUC Rule 017

- AESO determined that a new rule was needed to replace the *AESO Measurement System Standard*
- Formed a technical working group made up of industry technical experts to assess the minimum technical requirements and data submissions

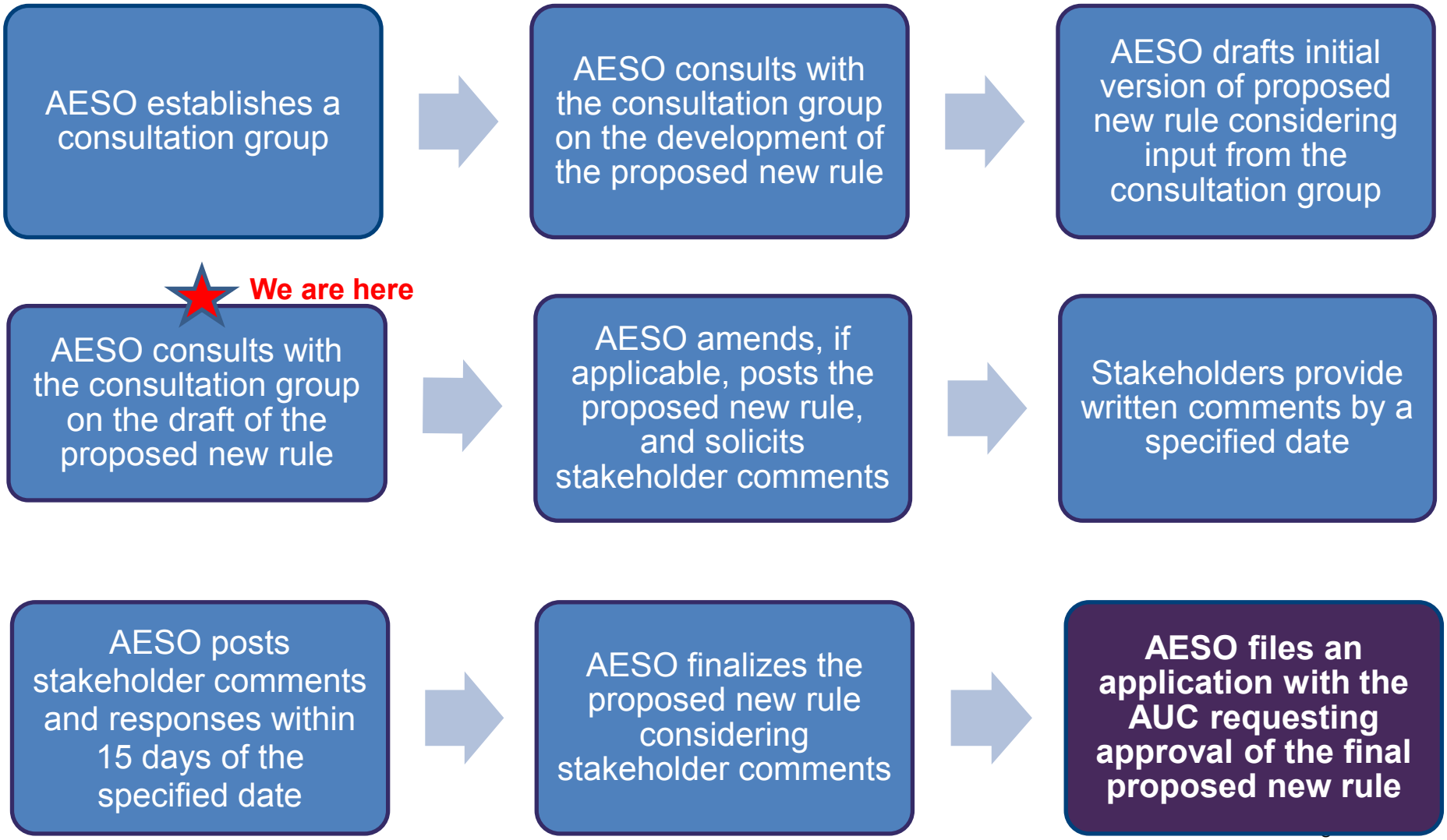


Proposed New Section 502.10 – Stakeholder Consultation Pursuant to AUC Rule 017



**Late comments received in Q1 and Q3 2019 were posted to the AESO website*

Current ISO Rule Development Process Overview



Overview of December 2019 Stakeholder Sessions

At this December 11 stakeholder session, we will:

- For each requirement, the following will be discussed:
  - Description of the requirement
  - Alternatives considered, where applicable
  - Rationale for determining AESO's preferred alternative
- Review the draft proposed definitions

Where alternatives were considered, all have been presented, and the AESO's preferred alternative is ***bolded***

Questions or Comments

Proposed New Section 502.10

Establishing Revenue Metering Requirements Guiding Principles

The requirements of the proposed Section 502.10 will:

- Set the minimum revenue metering equipment and process requirements that support and promote the safe and reliable operation of the Alberta interconnected electric system and fair, economic and openly competitive market for electricity
- Be consistent with, but not duplicative of, other AESO Authoritative Documents and applicable legislation and regulations, including AUC Rule 021, *Electric and Gas Inspection Act* and regulations, Measurement Canada requirements and the Alberta Electrical Utility Code
- Maintain current practice from the *Measurement System Standard*, where appropriate
- Be authoritative and measurable
- Avoid overly prescriptive methodologies to the extent practicable
- Consider stakeholder feedback, including cost considerations

Applicability
s.1

Alternatives

1. Rule applies to all specific participants related to the ownership, testing and operation of a revenue meter
2. **Rule applies to the "legal owner of a revenue meter"**

Rationale for Selecting Alternative 2

- The legal requirements and compliance to the rule should fall on the legal owner, which aligns to the applicability of other Part 500 ISO Rules for Facilities
- The AESO deals with a singular party for the purpose of rule compliance, but the legal owner is still permitted to contract for services
- The AESO originally proposed Alternative 1 in 2017, but reconsidered this approach to:
  - Ensure that the rule clearly applies to the entity that owns the revenue meter used for the purpose of financial settlement with the ISO; and
  - Preserve flexibility

Successor to Prior Requirements s. 2(1) & 2(2)

Description & Alternatives

- Boilerplate language used in technical ISO rules to retire older standards
- Two alternatives for grandfathering:
  1. **No grandfathering**
  2. Grandfather existing revenue meters under the existing AESO *Measurement System Standard*

Rationale for Selecting Alternative 1

- The AESO did not identify a need to grandfather existing revenue meters
- Requirements from the *Measurement System Standard* were either:
  - Carried over to Section 502.10 as is, or made less stringent; or
  - Removed as they overlapped with existing requirements in other regulatory documents

Functional Specification
ss. 3(1) & 3(2)

Description

- Boilerplate language used in technical ISO rules that relate to the project functional specification
- If Section 103.14, *Waivers and Variances* is approved by the Commission prior to filing Section 502.10, s. 3(2) will be removed from 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.
>
> ~~**(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 one (1) or more of the technical, economic, safety, operational and reliability requirements of the interconnected electric system related to the specific facility.~~

Rationale

- The AESO uses the project functional specification to dictate project-specific technical requirements on a project-by-project basis

Questions or Comments

Measurement Point Definition Record ss. 4(1) & 4(2)

Description & Alternatives

- Discussed at the January 27, 2017 technical workgroup meeting
- These provisions outline the process for applying to the AESO for a new or amended measurement point definition record (MPDR)
- Three Alternatives on timing:
  1. **30 days prior to the first day of the month planned to energize**
  2. 100 days before energization
  3. Cover through the AESO Connection Process energization package requirements

Rationale

- Continuation of the process of the *Measurement System Standard*
- The MPDR is required to finalize the system access service contract
- Information required from the legal owner will be in the ID, or prescribed by form

Measurement Point Definition Record
s. 4(3)

Description

- Contains the criteria the AESO applies to issuing an MPDR

Rationale

- The AESO expects the legal owner to provide complete information
- For accurate financial settlement, the AESO requires that measurement points are consistently defined, and that they define the proper measurement of metered energy, metered demand, and metered apparent power (continuation from *Measurement System Standard*)
- New criterion proposed in that the metering configuration proposed must not results in deductive totalizing s. 4(3)(c) to align with Measurement Canada SE-08, s. 9.2

Measurement Point Definition Record
s. 4(4)

Description

- Revenue meters must be installed and operated in accordance with the AESO issued MPDR

Rationale

- Measurement point data must be calculated as defined in the MPDR
- Preserves flexibility for owner to determine how the real metering point is implemented in accordance with other regulatory requirements
- Removed of a number of provisions from *Measurement System Standard* due to:
  - Overlap with other provincial and federal regulations and policies
  - Not measurable by the AESO
  - Best practice vs minimum requirements

** The AESO notes that the version of Section 502.10 posted to the AESO website on November 18, 2019 erroneously labelled subsection 4(3) twice*

Revenue Meter
s. 5(1)

Description

- Discussed at the April 28, 2017 technical workgroup meeting
- Did not carry over provisions from the *Measurement System Standard* related to:
  - Meter security
  - Remote communication equipment
  - Recorders

Rationale

- Requirement provides assurance that the legal owner has obtained the necessary approvals from Measurement Canada
- Physical, installation and security requirements for meters are under *Electricity and Gas Inspection Act* and other authoritative sources, or are industry practice

Revenue Meter
ss. 5(2) & 5(3)

Description

- Discussed at the April 28, 2017 technical workgroup meeting
- Watthour and Varhour accuracy class ratings of 0.2% and 0.5%, respectively, for metering points with capacity equal to or greater than 1.0 MVA is a continuation of Appendix 1 of the *Measurement System Standard*

Rationale

- 0.2% and 0.5% are current industry standard:
  - Number of existing meters
  - Availability of metering shop test benches
  - Sparing
- Accuracy ratings for metering points with MVA less than 1.0, or dispensated meters, to follow Measurement Canada requirements

Measurement Transformers
s. 6(1)

Description

- Discussed at the March 3, 2017 technical workgroup meeting
- Accuracy class ratings of 0.3% for metering points with capacity equal to or greater than 1.0 MVA is a continuation of Appendix 1 of the *Measurement System Standard*

Rationale

- 0.3% is current industry standard:
  - Availability of Measurement Canada type certified current transformers (CTs)
  - Number of existing CTs in 0.3% class

Measurement Transformers
s. 6(2)

Description

- Discussed at the March 3, 2017 technical workgroup meeting
- Mandatory overarching requirements for measurement transformers are under the *Electric and Gas Inspection Act*
- Contains additional ISO requirements for measurement transformers

Rationale

- Use of loss compensation must by specified by the AESO in the MPDR
- Parasitic load must be measured using real metering points
- Dedicated current transformer core would provide system redundancy

Metering Data Services
s. 7(1)

Description

- Discussed at the March 3, 2017 technical workgroup meeting
- Metering data must be retained for 8 years

Rationale

- Data retention of 8 years is aligned with the post-final adjustment mechanism process under AUC Rule 021

Metering Data Services
s. 7(2)

Description

- Metering data must be processed in accordance with the algorithm in the MPDR issued by the AESO

Rationale

- Continuation of existing process
- Measurement data is calculated from metering point data. The algorithm is currently specified in the “Calculations” section of the MPDR
- Non-adherence to the MPDR algorithm can produce significant errors in transaction data

Metering Data Services
s. 7(3)

Description

- Discussed in March 3, 2017 technical workgroup meeting
- Commissioning testing requirements from *Measurement System Standard* were aggregated into single requirement
- Will describe “alternative data sources” in an information document

Rationale

- Validate metering data requires metered energy volume
- Reasonable timeframe prior to large volume of incorrect data
- Non-prescriptive commissioning process

Revenue Meter Testing and Reporting
s. 8(1)

Alternatives for In-situ Testing

- The AESO is continuing to assess the minimum requirements for in-situ testing. The AESO is seeking specific input from stakeholders on:
  - The methodology for determining MW class;
  - The in-situ test frequency for each MW class; and
  - The requirements and process for test frequency change when the MW class is changed for a meter

Revenue Meter Testing and Reporting s. 8(1) (cont'd)

Alternatives for In-situ Testing Interval

Alternative 1: Existing *Measurement System Standard*

MW Range	Testing Interval
< 1	6 years
1 up to 10	3 years
10 up to 20	2 years
20 up to 50	1 year
50+	6 months

- Discussed at April 28 and June 29, 2017 technical workgroup meetings and all parties agreed to reduced testing frequency

Revenue Meter Testing and Reporting s. 8(1) (cont'd)

Alternative 2: Reduced Testing Frequency

MW Range	Testing Interval
≥ 5 and ≤ 20	4 years
> 20	2 years

Rationale

- Less than 5 MW to follow Measurement Canada requirement (every 6 years)
- Testing intervals designed to be multiples of 2 years to facilitate testing scheduling
- Out of approximately 1000 MPIDs, the AESO received 291 data corrections in a 5-year period. Less than 10 were found from in-situ testing

Revenue Meter Testing and Reporting s. 8(1) (cont'd)

Alternative 3: Rodan Proposal

MW Range	Testing Interval
< 1	As per Measurement Canada
≥ 1 and ≤ 10	4 years
>10 and ≤ 20	3 years
>20 and ≤ 50	2 year
50+	1 year

Revenue Meter Testing and Reporting s. 8(1) (cont'd)

Alternatives for Calculation of MW Class

1. **Average volume of all 8760 hours for each measurement point**
2. Average volume of all non-zero-MW hours

Rationale for Alternative 1

- MW class calculated for each measurement point
- Bi-directional pair of measurement points are calculated separately
- Simplify calculations

Revenue Meter Testing and Reporting s. 8 (cont'd)

Issue for Discussion: Changing MW class Within Test Interval

- Year 1 since in-situ test, measurement point has averaged 19 MW
- Year 2, measurement point has averaged 21 MW
  - Which MW class should apply?

Principles

- Compliance status should be within the meter owner's control (i.e., unforeseen circumstance should not put the owner into non-compliance without an opportunity to schedule in-situ testing)
- Simple and clear metrics for test scheduling and compliance monitoring

Measurement Data Corrections
ss. 9(1) – 9(4)

Description

- Reflects the existing data correction process
- Supports AUC Rule 021 processes:
  - pre-final error corrections
  - post-final adjustment mechanism
- Measurement data includes MPID, time and volume

Rationale

- Legal owner needs to provide a description, rationale, magnitude of the data correction prior to updating data in to CDMS
- AESO can verify the data correction against prior settlement period or alternative data source

Restoration
ss. 10(1) – 10(5)

Description

- Discussed at the June 29, 2017 workgroup meeting
- Continuation of existing requirements in the *Measurement System Standard*
- Definition of **revenue metering system** includes meter, instrument transformers and communication system
- Alternative consider for notification to the AESO:
  1. 5 business days
  2. **30 days**
  3. 30 business days

Rationale

- 30 days would allow an investigation on the extent of the failure and creation of the restoration plan
- Revenue meter reading are impacted 24 hours a day, beyond business hours

Information Document

- General:
  - Regulatory framework for metering
  - Minimum requirements vs best practices
- 3rd Party service provider fulfilling the responsibility of meter owner
- End-to-end revenue measurement system commission process and linkage to other AESO process
- MPDR process:
  - Required info from meter owner including single line diagrams
  - Form and sample MPDR
- Measurement data correction process
- In-situ test reporting form
- Restoration reporting process
- Examples of metering configurations and measurement point calculations

Definitions

Definitions

New Definitions

- “measurement point”
- “measurement point definition record”
- “revenue metering system”

Amended Definitions

- “meter” → “revenue meter”
- “metered demand”
- “metered energy”
- “metering equipment”

Final Questions, Thoughts, Comments

Next Steps

Thank You