Implementation of policies and specifications relating to standardized electricity energy and demand legal units of measure

1.0 Purpose

This bulletin outlines Measurement Canada’s (MC) schedule for the implementation of the policies and specifications on standardized electricity energy and demand legal units of measure (LUMs) established both within and outside of an approved electricity meter. Also included are implementation timelines and accommodation policies for existing meters and metering installations.

2.0 Scope

This document applies to the following standardized LUMs established both within and outside of an approved electricity meter:

- Standardized electricity energy LUMs: watt hour (Wh), var hour (Varh), volt-ampere hour (VAh); and
- Standardized demand LUMs: watt (W), var (Var), volt-ampere (VA).

3.0 Background

The policies and specifications mentioned herein were recently developed by the Complex Measurement Implementation (CMI) Joint Working Group (JWG) in consideration of, and as a follow-up to, the Recommendations of the VA Joint Working Group and the Recommendations for Establishing Electricity LUM Outside an Approved Meter, issued in 2008.

In 2005, MC established the Volt-Ampere (VA) JWG with a mandate to identify and study the factors that contribute to inequity in the measurement of apparent energy and demand, and to make recommendations that aim to minimize or eliminate the inequities found. At the same time, the LUM JWG was launched by MC to review and consider the issues associated with the establishment of LUMs for time-related electricity demand outside approved electricity meters. As the Electricity and Gas Inspection Regulations do not include provisions for the establishment of LUMs outside an approved device, MC is in the process of establishing specifications to ensure that such derived units, when used for billing, are subject to an appropriate level of oversight.
Recommendations of the VA and LUM JWGs resulted in draft specifications that were provided for public consultation in early 2012. The CMI JWG was subsequently mandated to consider new information and related measurement issues, address certain concerns raised by the industry, and conclude on revisions to the draft specifications. Their work resulted in the establishment of new policies and specifications for standardized electricity energy and demand LUMs listed in 4.6 to 4.8 below.

4.0 References

4.1 Recommendations of the VA Joint Working Group—Report to Measurement Canada for Consideration (June 17, 2008)

4.2 Recommendations for Establishing Electricity LUM Outside an Approved Meter- Final Report (July 25, 2008)

4.3 Measurement Canada Decisions—VA JWG and LUM JWG Recommendations (November 28, 2008)

4.4 Measurement Canada to Further Standardize Electricity Measurement in Canada (July 15, 2010)

4.5 GEN-33—Conditional Permission for using Electricity and Gas Telemetering Devices and Systems in Service without Verification and Sealing

4.6 PS-E-18—Provisional Specification for the Approval of Type of Electricity Meters and Auxiliary Devices: Standardized Measurement of Legal Units of Measure and Devices used in Determining Legal Units of Measure Values Outside a Meter

4.7 PS-E-19—Provisional Specifications for the Verification and the Reverification of Electricity Meters: Standardized Measurement of LUM and Devices used in Determining LUM Values Outside a Meter

4.8 S-E-??—Specification for the Installation and Use of Approved and Verified Electricity Meters Used to Establish Processed Legal Units of Measure

4.9 S-E-06—Specification for the Approval of Type of Electricity Meters and Auxiliary Devices—Amendments to Measurement Canada Specification LMB-EG-07

4.10 S-E-02—Specifications for the Verification and the Reverification of Electricity Meters
5.0 Terminology

Processed legal unit of measure value
A legal unit of measure value that has been derived outside a source meter from legally relevant data or from source legal unit of measure values, incorporating recognized units of measure, data multipliers, and/or installation multipliers (as applicable), through a mathematical algorithm.

Source legal unit of measure
A legal unit of measure for which measurement is approved and verified within a source meter.

Source meter
A meter which has been approved and verified to provide indication of any legal unit of measure values and/or initiate legally relevant data which are enabled and identified on the Notice of Approval for that meter pattern.

6.0 Implementation schedule for standardized electricity energy and demand measurement

6.1 Approval

6.1.1 Applicable approval specifications will be authorized and published in PS-E-18. The specifications will come into effect at a later date (to be determined) pending finalization of all necessary approval test equipment and procedures. Measurement Canada will notify stakeholders of the date that the specifications come into effect and are made available for use. The Agency will only begin to accept approval applications at that time.

6.1.2 Effective January 1, 2020, all polyphase electricity meters evaluated for the approval of electricity energy and demand LUMs shall comply with the approval specifications prescribed in PS-E-18.

6.1.3 Effective January 1, 2021, all single-phase electricity meters evaluated for the approval of electricity energy and demand LUMs shall comply with the approval specifications prescribed in PS-E-18.

6.2 Verification—General

6.2.1 Applicable verification specifications will be authorized and published in PS-E-19. The specifications will come into effect at a later date (to be determined) coincident with the effective date of PS-E-18.

6.3 Verification—New electricity meters

6.3.1 Subject to the effective date pursuant to clauses 6.1.1 and 6.2.1, new (previously unverified) meters that have been approved pursuant to PS-E-18 and submitted for verification of standardized electricity energy and demand LUMs shall comply with verification specification PS-E-19.
6.3.2 Effective January 1, 2022, all new meters shall comply with verification specification PS-E-19.

6.4 In-service electricity meters

Effective January 1, 2022, in-service electricity meters that were approved pursuant to S-E-06 and verified pursuant to S-E-02 may remain in service until the end of their current and subsequent reverification periods. Such meters may continue to be reverified for compliance with the verification specifications in S-E-02.

6.5 Stored electricity meters

Effective January 1, 2022, stored electricity meters that were approved pursuant to S-E-06 and not yet verified may continue to be used and reverified until the end of their current and subsequent reverification periods. Such meters may continue to be verified or reverified for compliance with the verification specifications in S-E-02.

7.0 Implementation schedule for the establishment of standardized legal units of measure outside of an approved electricity meter

7.1 New source meters and ancillary devices

7.1.1 Approval

7.1.1.1 Effective January 1, 2020, all new polyphase electricity meters and ancillary devices which are intended to be approved as, or in conjunction with, a source meter for the purposes of establishing LUM outside of an approved meter shall comply with the approval specifications prescribed in PS-E-18.

7.1.1.2 Effective January 1, 2021, all new single-phase electricity meters and ancillary devices which are intended to be approved as, or in conjunction with, a source meter for the purposes of establishing LUM outside of an approved meter shall comply with the approval specifications prescribed in PS-E-18.

7.1.2 Verification

Source meters and ancillary devices approved under PS-E-18 shall be verified in accordance with PS-E-19.
7.2 In-service source meters and ancillary devices

7.2.1 Subject to 7.2.2, all electricity meters and ancillary devices approved to the requirements prescribed in LMB-EG-07 and S-E-06, and verified in accordance with the requirements prescribed in S-E-02, that are used as, or in conjunction with, a source meter for the purposes of performing LUM determinations outside of an approved meter may remain in service until the end of their current reverification period. Such meters may continue to be reverified for compliance with the verification specifications prescribed in S-E-02.

7.2.2 Effective January 1, 2018, the meters and devices set forth in subsection 7.2.1 shall be subject to installation and use requirements for meter LUM validation specifications prescribed in sections 7.0, 9.0 and 10.0 of specification S-E-10.

7.3 Stored source meters and ancillary devices

7.3.1 Subject to 7.3.2, stored electricity meters and devices that have been approved to the requirements prescribed in LMB-EG-07 and S-E-06, and verified in accordance with the requirements prescribed in S-E-02, that are capable of being used as, or in conjunction with a source meter, may continue to be reverified for compliance with the verification specifications prescribed in S-E-02. These meters will be allowed to be reverified until the end of their current and subsequent reverification periods.

7.3.2 Effective January 1, 2018, the meters and devices set forth in subsection 7.3.1 shall be subject to installation and use requirements prescribed in sections 7.0, 9.0 and 10.0 of specification S-E-10.

8.0 Implementation schedule for installation and use specifications

8.1 Applicable installation and use specifications will be authorized and published in S-E-??. Effective January 1, 2022, unless otherwise prescribed in this bulletin, all electricity meter installations shall comply with the installation and use requirements prescribed in the aforementioned specification.

8.2 Subject to clause 8.3, effective January 1, 2018, all electricity metering installations containing meters or devices that have not been approved and verified pursuant to the specifications prescribed in PS-E-18 and PS-E-19, and are used in the establishment of processed LUMs outside an approved meter, shall be subject to LUM validation requirements prescribed in sections 7.0, 9.0 and 10.0 of the aforementioned specification.

8.3 Once an installation is entirely composed of source meters and devices which have been approved and verified in accordance with the approval and verification specifications of PS-E-18 and PS-E-19, the installation shall no longer be required to comply with the validation requirements prescribed in the aforementioned specification. Such installations shall be regarded as a form of telemetering system and, as such, will be subject to the policies of bulletin GEN-33.
9.0 Compliance monitoring

Compliance monitoring will be performed in accordance with Measurement Canada's Marketplace Monitoring Program.

10.0 Revisions

10.1 The purpose of this revision is to reflect the recommendations made through the Complex Measurement Implementation project on the approval, verification, and installation and use requirements for standardized electricity energy and demand LUMs. This work was done in consideration of and as a follow-up to the recommendations mentioned in clause 10.2. The timelines for the implementation of these recommendations were originally prescribed in previous versions of this bulletin (the title of the bulletin has been revised accordingly).

10.2 This purpose of revision 1 was to further clarify the distinction between the timelines prescribed for mandatory implementation of installation and use requirements and the mandatory validation requirements established through the Recommendations of the VA Joint Working Group and the Recommendations for Establishing Electricity LUM Outside an Approved Meter.