Economy Report - 2018

Canada

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SECTION 1 – Organisation and structure for metrology

The main Federal statues governing legal metrology are the:

Weights and Measures Act (R.S.C 1985);
Electricity and Gas Inspection Act (R.S.C 1985); and the
Consumer Packaging and Labelling Act (R.S.C.1985).

The government bodies responsible for the application of these acts (all part of the Department of Innovation, Science and Economic Development Canada) update and publish regulations which have legal force. These regulations are entitled the:

Weights and Measures Regulations (1974);
Electricity and Gas Inspection Regulations (1986); and
Consumer Packaging and Labelling Regulations (1985).

Measurement Canada, an agency of the federal department of Innovation, Science and Economic Development Canada, has exclusive national responsibility and authority for legal metrology activities in Canada.

The agency is composed of several Directorates, including Engineering, Innovative Services, and Program Development. The Program Development Directorate is comprised of two Divisions, the Weighing and Measuring Division and the Utility Metering Division. The Program Development Directorate is responsible for the development of requirements and programs (this includes making legislative or regulatory amendments, developing specifications and establishing approaches for marketplace monitoring) to minimize inaccurate measurement and inequity in the trade of goods and services provided on the basis of measurement. It also establishes metrological policies and procedures for the approval, verification, re-verification, installation and use of measuring devices and establishes enforcement policies and marketplace monitoring programs.

The Engineering and Laboratory Services Directorate, besides assisting in the development of specifications and procedures, is responsible for the examination and approval of prototype weighing and measuring machines and prototype electricity and gas meters and metering devices used in trade. The directorate also has the responsibility to calibrate and certify measurement local standards used by government and authorized service providers.

The Innovative Services Directorate is responsible for the development, implementation and review of alternative service delivery mechanisms. This includes the development of mutual recognition agreements with the United States (National Conference on Weights and Measures - NCWM) for the approval of certain prototype devices. The directorate is also responsible for industry accreditation and registration programs that delegate specified mandated inspection activities to private sector organizations (commonly known as authorized service providers) which meet Measurement Canada's requirements.

Measurement Canada fulfils its mandate through a field inspection program carried out by inspection staff located in its three regions and 10 districts, certification of test equipment used by industry and government inspection personnel, verifying the accuracy and appropriate usage of weighing and measuring devices used in trade, verifying the net quantity of commodities sold on the basis of measure, resolving trade measurement complaints from consumers, inspection and verification of meter performance prior to use, periodically re-verifying meter performance, and performing on site verification of complex measuring systems. The regions are also responsible for administering the accreditation and registration programs, including close monitoring of authorized

service providers. Measurement Canada also investigates and arbitrates measurement disputes between the buyers and sellers of electricity and gas.

USE OF ALTERNATIVE SERVICE DELIVERY MECHANISMS

Alternative Service Delivery Mechanisms are used for many inspection and certification activities traditionally performed by Measurement Canada.

Accreditation and Registration Programs for Device Inspections

Measurement Canada has two programs that permit other organizations to inspect and certify measuring devices under the authority of the *Weights and Measures Act* or the *Electricity and Gas Inspection Act*.

The Accreditation Program was launched in 1986 for Electricity and Gas organizations and was expanded in 1995 to include Weights and Measures organizations. An accredited organization must document, establish and maintain a quality management system which meets the requirements of Measurement Canada's accreditation standard, S-A-01 - Criteria for the Accreditation of Organizations to Perform Inspections Pursuant to the *Electricity and Gas Inspection Act* and the *Weights and Measures Act*. These requirements are modelled after the ISO 9001 standard. In addition, technicians in Weights and Measures accredited organizations must pass mandatory theoretical and practical evaluations.

Organizations accredited by Measurement Canada are not limited in terms of which trade sectors they can offer their inspection services in. An accredited organization can certify any device under the scope of its accreditation regardless of the sector that the device is used in. To ensure compliance, the quality management system established by an accredited organization is subject to an annual surveillance and product audit by Measurement Canada.

The Registration Program was launched for Weights and Measures organizations in April 2004. This program also authorizes organizations to inspect and certify measuring instruments under the authority of the *Weights and Measures Act*. Initially, stakeholders in the downstream petroleum sector, including vulnerable parties, asked for the development and implementation of such a program. The Registration Program has since been expanded to include other sectors of the economy. The Registration Program is offered only following a consensus of the stakeholders of a given trade sector. The program scope is limited to the inspection of measurement equipment used in the trade sectors identified in the Registration Terms and Conditions. These Terms and Conditions also stipulate the requirements to be met by organizations seeking registration.

Organizations registered by Measurement Canada must have their technicians attend and successfully complete the mandatory Measurement Canada theoretical training. All potential recognized technicians must successfully pass theoretical and practical evaluations by Measurement Canada prior to becoming recognized. In addition, as there is no requirement for the implementation of a quality management system in the Registration Program, there is more frequent Measurement Canada monitoring of recognized technicians working for registered organizations than there is for recognized technicians working for accredited organizations.

Both the Accreditation and Registration Programs are open to organizations in Canada, the United States, and Mexico.

Delegation of Authorities Program for Measuring Apparatus and Test Equipment Calibration

In May 2003, Measurement Canada launched a program permitting the calibration by other organizations of certain measuring apparatus and test equipment utilized under the *Electricity and Gas Inspection Act*. The present scope of this program applies to the calibration and recertification of electricity meter calibration consoles and the calibration and certification of pressure, temperature and dimensional standards used in the natural gas sector. Program requirements are established in C-D-01 - Conditions for the Delegation of Authority for the Calibration and Certification of Measuring Apparatus and Test Equipment Pursuant to the *Electricity and Gas Inspection Act*.

Recognition of ISO 17025 Laboratories

Measurement Canada offers two additional alternative service delivery mechanisms:

- **Standards calibrations**: Document RC-01—Conditions and Administrative Requirements for the Recognition Program of Calibration Results from CLAS Laboratories sets out the conditions and requirements to be met by ISO 17025 CLAS laboratories to have their calibration results for mass and temperature standards recognized by Measurement Canada in order to be certified pursuant to the *Weights and Measures Act*. A CLAS laboratory is one that is certified by the National Research Council's Institute for National Measurement Standards (NRC-INMS) Calibration Laboratory Assessment Service (CLAS) and accredited by the Standards Council of Canada (SCC)
- **Device approvals**: Document RT-01—Conditions and Administrative Requirements for the Recognition of Test Results from ISO 17025 Accredited Test Facilities, which permits the recognition of test results from ISO 17025 accredited test facilities, for the testing of previously approved electricity meters which have been modified and are being re-submitted for approval purposes.

SECTION 2 – Key activities of 2017/18

Implementation of Legislative and Regulatory Amendments - Mandatory Inspections and Compliance and Enforcement

Amendments to the *Weights and Measures Act* and regulations came into effect on August 1, 2014, establishing mandatory inspections in eight sectors of the marketplace: retail petroleum, retail food, dairy, downstream petroleum, fishing, forestry, grain and field crops, and mining. Since the coming into force of these provisions the number of inspections in the marketplace has increased almost fourfold to approximately 160,000 inspections per year.

Measurement Canada's priority has been to implement the mandatory inspection frequencies and ensure that measuring device owners are educated regarding their new legal obligation to have their devices regularly inspected. This priority will do more to contribute to a fair, efficient and competitive marketplace by causing measurement issues to be detected and corrected.

Deployment of Administrative Monetary Penalties

As a result of amendments to the *Weights and Measures Act* and Regulations and the *Electricity and Gas Inspection Act* and Regulations, Measurement Canada was able to bring into force the use of administrative monetary penalties (AMPs) that are imposed when business owners and/or corporations are in violation of certain provisions of the Acts and Regulations.

Albeit the tool came into force in 2014, the actual use of AMPs was phased in, in order to allow Measurement Canada to build increased awareness amongst business owners about the program and to allow sufficient time to communicate policies and procedures as well as train inspectors.

As part of the phased in approach, a pilot project to promote compliance, through the use of administrative monetary penalties, was established and implemented in early 2016. This pilot project was used to address instances where non approved devices were being used for trade measurement transactions.

Over the past year, Measurement Canada completed the pilot project, updated its enforcement processes and procedures, provided enforcement training to all inspection staff and based on lessons learned from the pilot project, deployed the use of administrative monetary penalties for all programs.

Since 2015, over 1200 violation warnings and 5 AMPs have been issued for violations of different provisions of the *Weights and Measures Act* and a large number of these businesses are now compliant.

Deployment of an Enforcement Database

An enforcement database was created to capture enforcement data and generate reports in order to improve the planning and evaluation of the compliance and enforcement programs. Following the enforcement training, the database was deployed and is now used by weights and measures staff.

Authorized Service Providers for device inspections

Measurement Canada relies heavily on the use of Alternative Service Delivery in order to fulfill its mandate. As of July 31, 2018, there were 247 organizations authorized to perform inspections of mass, volume, electricity and natural gas measuring devices on behalf of Measurement Canada (MC).

The majority of these organizations are located across Canada but 8 are located in the United States and Mexico. All authorized organizations were closely monitored and subject to audits and follow up inspections.

Timber Dimensional Measuring Devices (TDMD)

Measurement Canada (MC) published the Terms and Condition (T&C) for the Evaluation of Timber Dimension Measuring Devices (TDMD) in the early summer of 2014. The first TDMD technology was approved for use in Canada in December 2015. Log scanning technology has the potential to revolutionize the measurement of timber in the forestry industry and improve the measurement accuracy of this increasingly scarce and precious resource. There are currently three additional device manufacturers seeking approval for log scanning devices.

2017 OIML Activities:

Electricity Meters TC 12 – R46

Measurement Canada is in the process of updating existing electricity meter approval specifications, in part to adopt R 46 requirements, but as well to address various other legal metrology issues pertaining to the Canadian electricity marketplace. This includes investigating the impact of harmonic content on measured values.

Harmonic content is becoming increasingly prevalent with the use of consumer electronics and power saving appliances, and this is having an increasingly significant impact on accuracy and equity in electricity trade measurement. Traditionally, meters in Canada (and much of the world) have been assessed at sinusoidal conditions and consequently, differing meter designs and methodologies will all produce the same measurement values. However, in varying and diverse real world conditions, different meters will produce different measurement values.

TC-12 will determine how to best address this issue in a possible revision to R 46. Measurement Canada will lead the international working group developing the recommendations.

Requirements for Software Controlled Measuring Instruments TC 5 – D31

Measurement Canada is reviewing its requirements related to metrological software. OIML TC5/SC2 will begin discussions on possible revisions to D 31 requirements. Canada will participate in this revision process in order to ensure that Canadian requirements are in line with international practices.

Thermal Energy Meters

In 2017, Measurement Canada completed a consultation with stakeholders regarding the regulation of thermal energy meters.

Following this consultation, Measurement Canada developed requirements for the approval of thermal energy meters. These requirements, which are heavily based on the European standard CEN–EN 1434, were posted on Measurement Canada's website in March 2018 in the Terms and Conditions for the Approval of Thermal Energy Meters.

In April 2018, a pilot program for the approval of these meters was launched. Information on the pilot program can be found in Measurement Canada bulletin V-30—Pilot program for the approval of thermal energy meters.

Measurement Canada is currently evaluating meters submitted for approval under the pilot program. Next steps include publishing the schedule detailing when certain requirements will be implemented and enforced, as well as developing initial inspection procedures.