



# Bulletin

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## Policy on multirate register metering

### 1.0 Scope

This bulletin applies to electricity and gas meters intended for use in multirate register metering applications.

### 2.0 Purpose

The purpose of this bulletin is to provide interpretation and clarification on the requirements which shall apply to meters which incorporate multirate register metering functions.

### 3.0 Background

#### 3.1 General

In recent years, the deregulation of electricity and gas markets in several provinces has created significant change for industry and consumers concerning the sale of electricity and gas. These changes are also affecting the way electricity and gas is measured and influencing meter design with respect to how measurement will be regulated in the future. The introduction of deregulation and advancements in electronic, computer, and communications technology have raised significant interest in the promotion and use of multirate register metering (e.g. time-of-use applications including interval and load profile functions, temperature-activated registers, etc.) and telemetering devices for the transmittal of measurement information to a remote location.

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As a result of these marketplace driven changes and the potential impact which they may have on an electricity or gas utility's means of establishing the basis of the charge for electricity or gas and the information available to consumers, Measurement Canada (MC) undertook an extensive review of the legislation's application and the Agency's responsibilities regarding:

- a) the regulation of multirate register functions;
- b) the regulation of telemetering;
- c) requirements for the location of the display of measurement data; and
- d) the establishment and apportionment of legal units of measurement outside of an approved electricity and gas meter, including:
  - i) the use of interval metering functions when used as a multirate application; and
  - ii) the use of load profile metering function when used to establish a quantity for time-related electricity demand.

In May 2003, MC launched a public consultation with the Canadian electricity and gas industry and consumers to consider the Agency's position and future regulatory direction with regard to these topics. The consultation and development of the resultant policy proposals was completed in February 2004. This bulletin communicates the policies which will address the regulation of multirate register functions as identified.

### 3.2 Considerations

The policies presented for multirate register metering in this document were developed in consideration of the following factors:

- a) Our review concluded that MC's responsibilities can be limited to ensuring accurate registration of legal units of measurement. Consequently, the conditions (e.g. time, temperature, etc.) which could be used to trigger a meter to switch the accumulation of energy or volume to a separate multirate register(s) can be deemed to fall outside of MC's area of responsibility. To illustrate this point, in the days where meter readers went door to door to obtain meter readings by hand, utilities would do this work at frequencies which were not mandated by MC. If desired, utilities could have applied a form of time-of-use rate based on a weekly consumption cycle and MC would not have regulated this practice. The fact that automated devices (i.e. AMR telemetering devices) could now be used for the same purpose would not give MC any more reason to intervene.
- b) Where switching conditions cause an error in the establishment of a legal unit of measurement in the individual multirate register and where such registers are used in the establishment of a legal unit of measurement (for example, in the case of time-related demand measurement), then approval and verification requirements will apply.
- c) Jurisdiction for regulating the setting and application of billing rate conditions is deemed to rest with the Provinces or other designated municipal or local regulatory agencies.

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- d) The use of multirate registers enables contractors to apply different costs to specific portions of the energy consumption. The allocation of a specific measured quantity for the purposes of multirate billing application does not change the legal unit of measurement of the energy measured or the amount purported to have been supplied by the contractor. The only change occurring is with regards to price applied to a specific portion of energy consumption.

#### 4.0 Terminology

##### Interval metering

Is an application which uses a time-stamping method to apportion the registered consumption data to specific time periods. The consumption data is typically provided in the form of pulses which represent a specific quantity (e.g. 1 pulse = 0.5 kWh). The meter continuously monitors the consumption, and generates and/or records pulses proportional to the metered consumption. At preprogrammed and predetermined intervals (e.g. 15 minutes), the device either emits a time pulse or marks the consumption data stream.

##### Load profile metering

Is an application which uses a series of consumption data for each interval over a particular time period. The load profile may be considered either as average load (kW) or total consumption (kWh) for each interval, and may be used in a time-related electricity demand application.

##### Multirate register metering

Means a metering application which records the measured values of electricity or gas into different registers or "bins" (electronic or mechanical) based on various conditions such as time, temperature, etc.

##### Real time pricing

Means the sale of electricity or gas based on rates which can be changed at any given time. The real time metering function is a type of "time-of-use" function where the consumption data is recorded over a very short time period. In real-time metering, every time period of every day is treated as a separate billing period.

##### Time-of-use (TOU)

Means the sale of electricity or gas based on rates established for certain times and seasons. A TOU function records the consumption at certain times of the day over the length of the billing or meter-reading period. The TOU function has a pre-selected number of rate bins or registers (e.g. Peak, Shoulder, and Off-peak) which accumulate interval consumption data during predetermined and preprogrammed times. In this example, each of the three rate bins would have daily consumption data accumulated with no specific clock time stamp, except for the corresponding date which is recorded.

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## **5.0 Policy on multirate register metering**

### **5.1 Accuracy of legal units of measurement**

MC will evaluate the accuracy of the legal units of measurement used in determining the amount of electricity or gas purported to have been supplied to a purchaser by a contractor.

### **5.2 Multirate registers**

Each individual multirate register intended for use in revenue metering shall be approved, verified and sealed in accordance with the *Electricity and Gas Inspection Act, Regulations*, and applicable MC specifications.

### **5.3 Multirate register switching conditions**

MC will not evaluate or approve the accuracy of the conditions (e.g. time, temperature, radio frequency, etc.) that cause a meter to switch registers in a multirate register meter, provided that the switching condition(s) do not cause an error in the establishment of a legal unit of measurement in the individual multirate register.

### **5.4 Notice of approval**

A notice of approval established for a meter with multirate registers shall state that the rate switching function on the meter is not subject to MC specifications, and indicate any conditions or limitations applicable to the meter's multirate registers.

### **5.5 Security of metrological functions and parameters**

The security (sealing) of metrological functions and parameters of an approved and verified multirate register meter shall not be compromised by switching conditions or programming modifications (i.e. changes made to time-of-use schedules).

### **5.6 Interval or load profile metering functions**

Subject to clause 5.3, interval or load profile metering functions used in multirate applications shall not be subject to approval or verification. (Note: Interval or load profile functions used in the establishment of the legal unit of measurement for time-related electricity demand are subject to regulation under the *Electricity and Gas Inspection Act*).

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## 5.7 Multirate and TOU registration from interval metering data

**5.7.1** Where an ancillary device or process is utilized to apportion a measured value of electricity or gas which is derived from a meter which has a single cumulative register, the total registered consumption used for billing must be based on the cumulative value provided by the meter register (i.e. current reading minus previous reading). It is this value which shall form the basis of the charge for supplied electricity or gas pursuant to the *Electricity and Gas Inspection Act*.

**5.7.2** Meter reading information recorded (pursuant to section 11 (2) (m) of the *Electricity and Gas Inspection Regulations*) shall be provided to the purchaser so that the total delivered amount of electricity or gas (which appears on a purchaser's billing invoice) is capable of being reconciled with the total consumption registered by the meter.

**5.7.3** In all cases, where interval measurement values are presented for the purposes of rate application or allocation, the summation of these values shall equal the cumulative value as established from the meter readings. It is the registrations/readings from the approved and verified meter which serve to establish the supplied consumption amounts, and not the interval data which is used only to segregate consumption for rate application purposes.

## 6.0 Revision

The purpose of this revision is to:

- Add section 5.7, in order to clarify that only data from an approved and verified meter may be used for the purpose of establishing the basis for a charge for consumption of electricity or gas.
- Amend the wording of other sections in the document, to provide some needed clarifications.
- Renumber the subsections in section 5.0.