

EnergyIP R7.2: Transitioning to Register Reading Equality

Over the last few months LDCs and the SME have been testing their systems to ensure we are R7.2 ready. During the workshops in July and in the drop-in sessions held this fall, there were discussions about additional functionality that will be deployed soon after the initial deployment of R7.2 that will take us to an “end state” for the MDM/R. This “end state” will include a number of outstanding functions required by the MDM/R Universal Solution agreed by Measurement Canada during September 2010.

This “end state” will include functionality where billed TOU, Periodic and Hourly energy usage based on interval data will be equal to the difference of the billing period start and end register readings. As we look forward to the next six months when initially the MDM/R will provide register readings to be used for billing and later will provide the necessary equality check and adjustment functionality required by the MDM/R Universal Solution, you have a number of billing Measurement Profile outcomes to consider when designing your systems.

This “end state” will also involve modification of the Register Read Calculator to distinguish when valid or estimated interval data has been used in calculating a register reading. This calculator modification will support provision of ‘CAL’ and ‘EST’ quality indicators for register readings delivered by the XML file-based Billing Service Standard Interface Reply.

Finally, the Trilliant CMEP Meter Read Interface will be modified to allow LDCs to submit estimated register readings. A quality indicator will be assigned to register readings that have been estimated externally to the MDM/R. This modification will support provision of an ‘EXT’ quality indicator for register readings delivered by the XML file-based Billing Service Standard Interface Reply.

The eMeter high level design document [Measurement Canada MDM/R Universal Solution Outstanding Functions](#) addresses the following three questions:

- Which billing Measurement Profile should I use when?
- How can I submit estimated register reading data to the MDM/R?
- What are the future register reading quality indicators?

Which billing Measurement Profile should I use when?

The “end state” Calculative Reads Equality Adjustment functionality is described in Sections 2.1, 3.1, and 4.1 of the eMeter *Measurement Canada MDM/R Universal Solution Outstanding Functions* high level design. This document is available on the [SME Design and Standards](#) web page in the MDM/R Design grouping.

To support the provision of register readings and Calculative Read billing determinants *EnergyIP R7.2* will be deployed with three sets of billing Measurement Profiles. You need to determine the Measurement Profile set you will use during the transition to the MDM/R “end state” based on the status of your system and business process development and the data you can accommodate in your system in the Billing Quantity Replies you receive from the MDM/R. You also will want to ensure your system is prepared for the future “end state” of the MDM/R at the same time.

- The **Measurements** that define the billing determinants for each billing type (TOU, Periodic, Hourly, Register Readings, etc.) are defined in Table 2.5.7 in the *MDM/R Technical Interface Specifications* Version 3.4 and also included as Appendix A of the eMeter high level design document. This table defines existing billing Measurements and also defines the additional Measurements required for the transitional and end states of *EnergyIP R7.2*. The Measurements needed to enable the new Calculative Reads Equality Adjustment functionality are highlighted in yellow in this table.

- The **Measurement Profile set** you will use depends on your system's ability to process the Billing Quantity Reply when R7.2 is deployed, and as you transition to the "end state" of R7.2:
 - **Basic Set:** Those LDCs whose systems are not capable of processing register readings or whose business processes are not yet ready to support the MDM/R Business Rules for processing billing requests/responses involving register readings (please refer to the *MDM/R Technical Interface Specifications* Version 3.4, sections 2.4.3 and 2.5.3) may choose to remain with the Basic Measurement Profile set defined in the *MDM/R Technical Interface Specifications* Table 2.5.8. You can choose to remain on this Basic Set for some transition period whether you are ready to use the new XML file-based Billing Service Standard Interface or need to continue to use the MDM/R Custom Billing Quantity Interface (BQI).

When you choose the Basic Measurement Profile set, register readings will not be available even if you are using the new XML file-based Billing Service Standard Interface Request/Reply.

- **Transitional – RR Set:** Those LDCs whose systems and business processes can accommodate the receipt of register readings within the Billing Quantity Reply file will choose to use the RR Measurement Profile set defined in the *MDM/R Technical Interface Specifications* Table 2.5.9.

Use of this transitional RR Set together with the new XML file-based Billing Service Standard Interface Reply will provide the register readings required by Measurement Canada for presentment on the consumer's billing invoice as well as the TOU, Periodic, Hourly and Demand billing determinants provided by the Basic Measurement Profile set.

- **End State – RRCR Set:** When the Calculative Read Equality Adjustment functionality is deployed the "end state" RRCR Measurement Profile set will provide Calculative Read billing determinants for TOU, Periodic, and Hourly energy usage in addition to the Periodic, Hourly and Demand billing determinants and register readings provided by the RR Measurement Profile set.

The RRCR Set of Calculative Reads billing determinants provide equality with consumption determined by the billing period start and end register readings and thus these Calculative Read billing determinants together with register readings must be used for consumer invoice presentment to provide full compliance with Measurement Canada's requirements for equality. Calculated Reads can be identified by the prefix 'KWH CR Adj'.

The RRCR Measurement Profile set is defined in Table 2.5.10 in the *MDM/R Technical Interface Specifications* Version 3.4 and also included as Appendix B of the eMeter high level design document. When you are ready to process Calculative Read billing determinants you will choose the RRCR Measurement Profile set.

LDCs will indicate which billing Measurement Profile set they are ready to use when R7.2 is deployed, and again when they transition to the "end state" Calculative Read Measurement Profile set.

How can I submit estimated register reading data to the MDM/R?

With the initial deployment of *EnergyIP* 7.2 the MDM/R only supports processing of interval data estimated externally to the MDM/R by the use of the Trilliant CMEP Meter Read Interface.

Sections 2.2 and 4.2 of the eMeter high level design document describe an enhancement that will allow LDCs to submit estimated register readings to the MDM/R through the Trilliant CMEP Meter Read Interface. Register readings estimated externally to the MDM/R will be transmitted via the Trilliant interface with a CMEP protocol text flag of R 00 01 or R 00 02 that will be recognized and stored as an *EnergyIP* data quality flag. Such externally estimated register readings if subsequently used as the billing period start or end register reading will carry a <validationStatus> = 'EXT' in the XML file-based Billing Service Standard Interface Reply.

Many LDCs are already utilizing the Trilliant CMEP Meter Read Interface for the purpose of resubmission of Meter Read data. If you have not already deployed the Trilliant interface, you will need to register for use of the Trilliant Meter Read Interface to submit estimated register readings. To register update the information on the LDC Organizational Relationships and Authority Delegation Form (SME_FORM_0006).

What are the future Register Reading Quality Indicators?

Currently in testing, *EnergyIP* 7.2 applies a status that indicates if an actual or calculated register reading was used in the billing quantity reply:

- Register readings received via any MDM/R Meter Read Interface have a validation status = 'VAL'.
- Calculated register readings have a validation status = 'EST' regardless of the validation status of the interval data used in the calculation.

With the deployment of the modified Register Read Calculator and modified Trilliant CMEP Meter Read Interface additional quality indicators will be applied to register readings when they are delivered in the XML file-based Billing Service Standard Interface Reply. This is described in Sections 2.3, 3.2 and 4.3 of the eMeter high level design document. These quality indicators will more closely reflect the data used to provide the register readings and will carry a <validationStatus> in the XML Billing Service Standard Interface Reply as indicated below:

- **'VAL' (Valid):** An actual register reading transmitted from the meter to the MDM/R
- **'CAL' (Calculated):** Register reading calculated using an actual register reading and interval data also received from the meter with the validation status of VAL
- **'EST' (Estimated):** Register reading calculated using an actual register reading and interval data where any interval used in the calculation has a validation status of EST
- **'EXT' (Externally Estimated):** Register reading transmitted to the MDM/R with a protocol text quality flag indicating that the register reading was estimated external to the MDM/R

These new register read quality indicators are useful to LDCs for the purpose of displaying a register read quality indicator on your invoices. 'VAL' and 'CAL' register readings are formed from register and interval data collected from the meter and can be considered "actual" register readings. 'EST' and 'EXT' register readings are based on estimated data and should be considered "estimated" register readings.