

# Retail Market Procedure NI 15a

## Validation, Estimation and Substitution Rules for Interval Data

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**Table of Contents**

- 1. Introduction..... 3
- 1.1 History of Changes..... 3
- 1.2 Document References ..... 3
- 2. Validation of Meter Details ..... 4
  - 2.1 Meter ID / Serial Number ..... 4
  - 2.2 Meter Register and Pulse Multipliers ..... 4
  - 2.3 Meter Data Date and Time ..... 4
- 3. Validation of Interval Metering Data ..... 4
  - 3.1 Meter ID ..... 4
  - 3.2 Meter Channel Details ..... 4
  - 3.3 Meter Time..... 5
  - 3.4 Pulse Overflow..... 5
  - 3.5 Excluded Intervals..... 5
  - 3.6 Number of Intervals..... 5
  - 3.7 Cumulative Total Consumption Comparison ..... 5
  - 3.8 Alarms ..... 5
  - 3.9 Zero Interval Tolerance ..... 6
- 4. Data Estimation and Substitution..... 6
  - 4.1 Check Meter ..... 6
  - 4.2 Up to Two Hour Gap in Data..... 6
  - 4.3 Over Two Hour gap in Data ..... 7

# Retail Market Procedure NI 15a – Validation, Estimation and Substitution Rules for Interval Data

## 1. Introduction

This document covers the rules to be followed for both data validation and data estimation for Meter Points with remotely read Interval metering.

### 1.1 History of Changes

Version	Source of Change	Description of Change
2.0	CDA	Initial Baseline Issue 15 October 2004
2.1	A Ferguson	Re-issue for Enduring Solution Updated to reflect MP NI 39 Glossary of Terms
3.0	NIE Networks	Updated to incorporate change of name from NIE to NIE Networks

### 1.2 Document References

Document	
NI Market Procedures - Glossary of Terms	MP NI 39 - NI Market Procedures - Glossary of Terms

# **Retail Market Procedure NI 15a – Validation, Estimation and Substitution Rules for Interval Data**

## **2. Validation of Meter Details**

Prior to Interval data being accepted and approved for billing purposes the meter details are validated. This occurs for new meter installations, meter changes, meters that have been re-programmed or for existing meters moving to Interval profiling.

### **2.1 Meter ID / Serial Number**

The meter serial number registered to the metering installation is verified against the meter id retrieved during polling to ensure the correct meter has been polled.

### **2.2 Meter Register and Pulse Multipliers**

The meter register reading multiplier and the pulse multiplier are verified to ensure data accuracy.

### **2.3 Meter Data Date and Time**

The date and time held by the meter and stamped on the data collected is checked to ensure its accuracy.

## **3. Validation of Interval Metering Data**

After polling each meter the Interval data retrieved from the meter is validated by MV90 and the following checks are performed.

### **3.1 Meter ID**

Each time a meter is polled the electronic serial number of that meter is compared with the device id stored within MV90. If they do not match then no data is retrieved and the failure is reported by MV90 for investigation.

### **3.2 Meter Channel Details**

Each time a meter is polled the number of channels of data expected is compared against the number actually received. If they do not agree then no data is retrieved and the failure is reported by MV90 for investigation.

## **Retail Market Procedure NI 15a – Validation, Estimation and Substitution Rules for Interval Data**

### **3.3 Meter Time**

Each time a meter is polled its time is checked to ensure it falls within two minutes of the actual time. If the time is out by more than two minutes then the data is retrieved and the time difference is investigated. The meter will be programmed with the correct time.

### **3.4 Pulse Overflow**

Each channel status for each Interval is checked for pulse overflows. If a pulse overflow is reported the data is marked for estimation and the cause is investigated and resolved.

### **3.5 Excluded Intervals**

Each channel status for each Interval is checked for any Interval data that may be excluded. If excluded Intervals are reported then those Intervals are marked for estimation and the cause is investigated.

### **3.6 Number of Intervals**

Each time a meter is polled the number of expected half-hour time Intervals between the start and stop times of the load profile data is calculated and compared with the actual number of time Intervals found in the load profile data file. Any difference in the number of time Intervals is investigated and resolved.

### **3.7 Cumulative Total Consumption Comparison**

When a meter is polled and it provides an electronic cumulative reading of the prime register equivalent to the total consumption of the meter, then the difference between successive cumulative readings is compared with the total of the meter period data for the same period of time.

Specifically:

- The sum of pulses \* pulse multiplier for all the recording Intervals collected is compared with the meter advance \* meter multiplier for the time Interval.
- If the difference between these values is greater than the meter register multiplier then a secondary check is performed.
- If the difference between actual reading and the calculated reading is more than 2% then the problem is investigated and resolved.

### **3.8 Alarms**

When a meter is polled and significant meter alarms are flagged in the data file e.g. Long / short Intervals etc. each alarm is investigated.

## **Retail Market Procedure NI 15a – Validation, Estimation and Substitution Rules for Interval Data**

### **3.9 Zero Interval Tolerance**

If a meter point's Interval data profile does not normally register any zero consumption on the kW import channel then the total number of zero data Intervals retrieved for the kW channel will be counted. If it exceeds 20 Intervals then the data is flagged for investigation.

## **4. Data Estimation and Substitution**

Data estimation is required in situations where meter data is incomplete, has been irretrievably lost or cannot be obtained within the timeframes required. Data substitution is required where the data obtained is erroneous. Data will be estimated / substituted when required using one of the following methods in the order specified below:

### **4.1 Check Meter**

Where a check meter is installed and functional, data requiring estimation / substitution will be taken directly from the check meter.

### **4.2 Up to Two Hour Gap in Data**

If the gap in data is 2 hours or less, point - to - point linear interpolation will be used to estimate / substitute the data. Intervals containing a power outage are not used as end points for interpolation:

1. If the data gap occurs in the middle of the data, the first point is the last valid Interval before the gap and the second point is the first valid Interval after the gap.
2. If the gap occurs at the beginning of the span the last Interval from the historical data is used as the first point if the historical data is available and valid. Otherwise the second point (the first valid Interval after the section) is used as the first point – this will cause the load to be estimated as a flat load.
3. If the gap occurs at the end of the span the first point (the last valid Interval before the section) is used as the second point – this will cause the load to be estimated as a flat load.

## **Retail Market Procedure NI 15a – Validation, Estimation and Substitution Rules for Interval Data**

### **4.3 Over Two Hour gap in Data**

If the gap in data is greater than 2 hours then the Interval data is constructed using the average load shape based on the three most recent “similar” periods with valid data (i.e. data that has not been estimated). A “similar” period means the same time period of week and can be chosen from the previous 90 days. If the period needing estimation is a holiday, then the “similar days” should be holidays rather than the same day of week.

If adequate data is not available to perform this, then one of the methods outlined below will be employed in the order given.

1. Where actual meter readings are available an adjustment factor shall be calculated and applied to the data to ensure that the total estimated consumption is equal to the total actual consumption.
2. If only two “similar” periods are available within 90 days, the average of these two is calculated. Similarly, if only one “similar” period is available the data for this period is used for estimation.
3. If no “similar” periods are available in the previous 90 days, the three “like” periods that are closest chronologically prior to the period requiring estimation are used. A “like” period means a weekday or weekend / holiday.
4. If no “similar” periods are available and three “like” periods are not available then the average of the two “like” periods that are closest chronologically prior to the period requiring estimation is used.
5. If no “similar” periods are available and two “like” periods are not available then the data for the “like” period that is closest chronologically prior to the period requiring estimation is used.
6. If there is no historical data that can be used, the data should be estimated manually and all assumptions documented fully.