Retail Market Procedure NI 15

Data Processing Interval

31/08/2016

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1. Introduction

1.1 Scope

This document is the Retail Market Procedure for the Data processing of Interval Data in Northern Ireland.

The processes involved are described in two sections:

- **Obtain Data**
  - o Describes the process of collecting Interval data.

- **Process Data**
  - o Describes the process of validating and distributing the validated data to Suppliers and for DUoS Billing and Data Aggregation.

- **Reconciliation of Register Reads with Interval Data**
  - o Describes processes for reconciling Interval data against register reads.

The Procedure applies to the following Interval metered data.
- Import at sites connected to either the distribution or transmission networks.
- Export from generators that are either participating or non-participating in the Single Electricity Market, connected to the distribution network.

The Procedure covers:
- Collection and Validation of Interval Data
- Estimation and Substitution for missing or invalid Interval Data
- Distribution of Interval Data to Suppliers
- Reporting of Export Data to Generators
- Data Requests

The Procedure excludes Interval metered export data for transmission connected dispatchable or controllable generators that are participants in the Single Electricity Market. Export for participant generators will either be:
- In the case of non-dispatchable participants connected to the distribution network, collected by NIE Networks (or an agent of NIE Networks) and provided to the Single Market Operator as described in the SEM-MDP Meter Data Format documentation in accordance with the timeline given in the SEM-MDP Interface Description. Where data is unavailable within the timescales described in the SEM-MDP Interface Description for indicative and initial generation, estimated data will be provided.
- In all other cases, collected by SONI and provided to the Single Market Operator.

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In most cases the Data Collector is NIE Networks. In the following cases the Data Collector may be a third party but will provide the import and export as appropriate to NIE Networks:
- Import at participant generators connected to the transmission network, where the Data Collector is SONI
- Import at dispatchable participant generators connected to the distribution network, where the Data Collector is SONI
- Import and export for non-participant generators connected to the transmission network, where the Data Collector is SONI
- Import and export for dispatchable non-participants connected to the distribution network, where the Data Collector is SONI.

Where the data collector is SONI, raw data will be provided to NIE Networks and then brought to the commercial boundary by the application of loss factors.

1.2   History of Changes

Version	Source of Change	Description of Change
0.1		Initial Draft
0.2	P Merkens	Updated
0.91	P Merkens	Updated following NIE Review and issued for SIG Workshop
0.92	P Merkens	Updated following SIG Workshop References to Generator CSV files and Settlement AP13 removed
0.93	J-E Smith	Final Draft Issued for Supplier Review prior to SIG Approval
1.0	A Ferguson	Baseline SIG Approval
2.0	J-E Smith	Baseline CDA Board Approved • Updated for DR1110/CRID163
2.1	J-E Smith	Baseline CDA Board Approved • Updated for DR1118/CRID167
	A Ferguson	Updated to reflect MP NI 39 Glossary of Terms
3.0	NIE Networks	Updated to incorporate change of name from NIE to NIE Networks

1.3   Document References

Document Reference	Document Name
MP NI 16	Data Aggregation
MG NI 34	DUoS, Transaction and PSO Billing
MP NI 39	NI Market Procedures - Glossary of Terms

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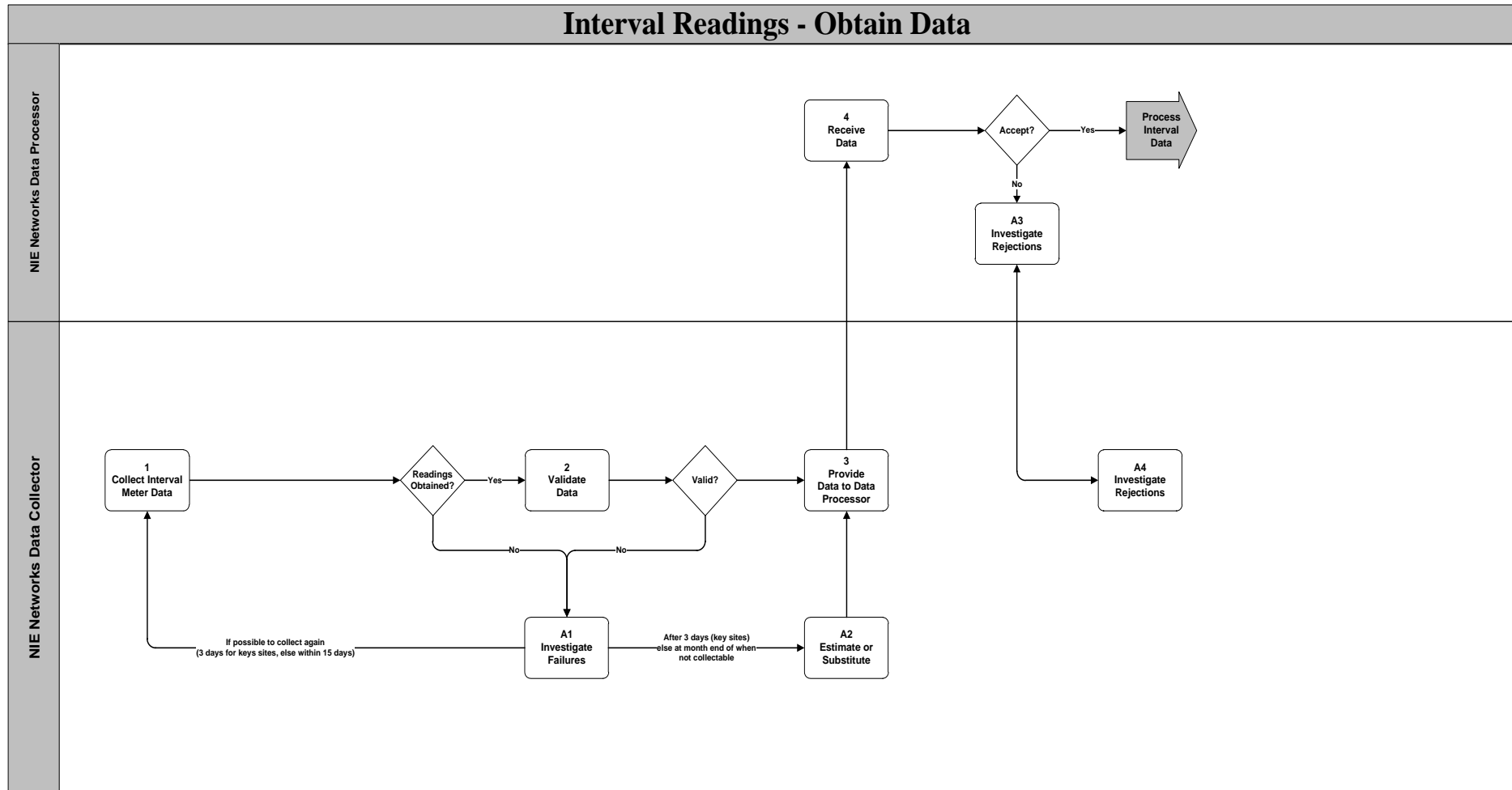| MP NI 15a	Validation, Estimation and Substitution Rules for Interval Data
	Metering Code Procedure (AP4)
	Metering Code Procedure (AP6)

2.   Procedure Description

2.1   Obtain Data

2.1.1   Process Flow Diagram

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2.1.2   Process Description

Step	Role	Action	Interface
1, 2, A1	**Data Collector**	The Data Collector will collect and validate HH data for each Meter Point and, once accepted as valid, make this data available to the Data Processor. The Data Collector will investigate sites where no readings are obtained and shall, if necessary, visit the site to obtain readings. Except for key Generators as noted below, site visits will be conducted within fifteen working days if problems cannot be resolved by other means. The Data Collector will investigate invalid and incomplete data and will either obtain actual data or provide estimated or substitute data. Missing or invalid data may be replaced by data derived from prime register reads. See section 2.1.3 for a high level summary of the validation, estimation and substitution rules. When a complete set of valid data for a day is available (including any estimated or substitute data) for a Meter Point the Data Collector will provide that data to the Data Processor. For key Generators (i.e. participants and contracted non-participants), the Data Collector shall, within the timeframe required for initial data aggregation in respect of a calendar day, provide to the Data Processor actual data obtained through a remote polling, site visit, self-collection or other means. Initial data aggregation in respect of a calendar day takes place by 17h00 on the fourth weekday following the calendar day. Where none of these methods obtains an actual reading the Data Collector will use all available mechanisms, including consideration of cumulative register values, to provide estimated or substitute interval data for that which is invalid or missing and provide the complete data to the Data Processor. Where actual or improved estimate or substitute data is subsequently obtained this will be provided to the Data Processor.	
A2	**Data Collector**	For sites other than key Generators, if, at the end of the month, a full set of valid data remains unavailable the Data Collector shall, within three business days of the end of the month, provide estimated or substitute data for that which is invalid or missing and provide the complete data to the Data Processor. Where actual or improved estimate or substitute data is subsequently obtained this will be provided to the Data Processor.	

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Step	Role	Action	Interface
3,4	**NIE Networks Data Processor**	NIE Networks Data Processor will receive and process Interval data from the Data Collector.	Interval Data from MV90
A3, A4	**NIE Networks Data Processor**	Where the Data Processor cannot match data to the currently recorded meter and outstation configuration then an investigation will be conducted to determine if the configuration has been changed or is recorded in error. If this is the case and the readings can be matched to the new configuration then the readings are accepted. Where this is not the case the data will be rejected and a site visit conducted to further investigate the issue. Where new data is received for Intervals where data was previously received then; • The data will be accepted and used as a replacement for the previous data and will be processed in accordance with section 2.2 in the same manner as the previous data. • Where valid data is obtained for a date for which DUoS Billing has occurred then DUoS Billing adjustments will be made.	Interval Data from MV90

2.1.3   Validation, Estimation and Substitution

Data will be validated, estimated and substituted in accordance with the rules documented in MP NI 15a Validation, Estimation and Substitution Rules for Interval Data. These rules are summarised below.

The Data Collector shall undertake the validations and checks listed below on an ongoing basis and will investigate all exceptions:
• Data is collected from expected device id
• Number of channels is as expected
• Device time is as expected
• Number of time intervals collected is as expected
• Difference between total of Interval Data and advances determined from cumulative energy registers does not exceed an agreed tolerance
• For selected sites depending on the pattern of demand, the number of zero readings does not exceed a stated tolerance
• Alarm conditions

The Data Collector shall undertake the checks listed below on an ongoing basis and will estimate data where exceptions occur:
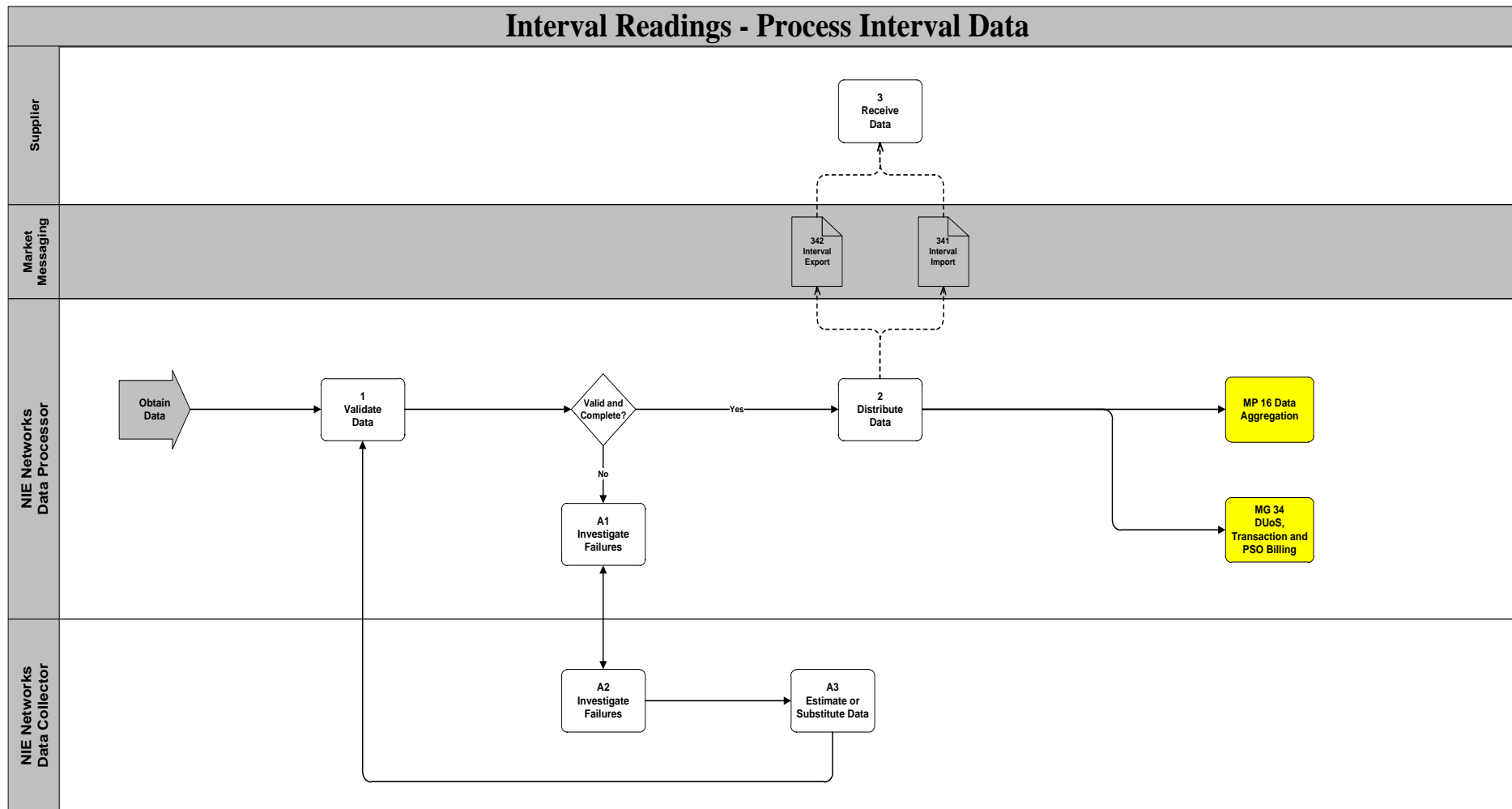• Pulse overflows

- Excluded intervals

Data will be estimated or substituted either by:
- Reference to a Check Meter, if fitted
- Interpolation for cases where data is missing or invalid for a period of less than or equal to two hours
- Reference to similar days for cases where data is missing or invalid for a period of more than two hours

2.2 Process Data

2.2.1 Process Flow Diagram

Interval Readings - Process Interval Data

Supplier	3 Receive Data
Market Messaging	342 Interval Export / 341 Interval Import
NIE Networks Data Processor	Obtain Data → 1 Validate Data → Valid and Complete? —Yes→ 2 Distribute Data → MP 16 Data Aggregation / MG 34 DUoS, Transaction and PSO Billing. No → A1 Investigate Failures
NIE Networks Data Collector	A2 Investigate Failures → A3 Estimate or Substitute Data

2.2.2   Process Description

Step	Role	Action	Interface
A1	**NIE Networks Data Processor**	If, two business days after the end of the calendar month, there is no data or an incomplete set of data for a Meter Point, the Data Processor will: • Request an investigation into whether metering has been removed or whether there are other reasons (such as loss of power) for the retrieval of partial data. • Report the missing data to the Data Collector.	
A2,A3	**Data Collector**	The Data Collector will, if it is confirmed that energy was flowing during the missing periods, collect the missing data or provide estimated or substitute data as described in MP NI 15a Validation, Estimation and Substitution Rules for Interval Data if actual data cannot be obtained.	
1	**NIE Networks Data Processor**	NIE Networks Data Processor will validate that: • Import or export has not occurred on a de-energised site. An investigation will be made prior to the data being distributed and used. • Data obtained does not exceed the MIC by more than a given tolerance. An investigation will be made following distribution of the data and, if the reading is not considered to reflect actual demand, new readings will be estimated or substituted according to the agreed rules and distributed.	
2	**NIE Networks Data Processor**	Interval data for a specific Meter Point will be distributed for a specific calendar day on the first week-day by which a complete set of Meter Point data for the calendar day has been received and validated: • For Meter Points that import (including export sites), import data will be sent to the Registered Supplier using the *Interval Meter Daily Data (Import)* market message. • For Meter Points recording export data from Generators that are Non-Participating in the Single Electricity Market and are connected to the distribution network, export data will be sent to the Supplier nominating the generation using the *Interval Meter Daily Data (Export)* market message. • For Participating Generation Units connected to the distribution network where the recipient is a party to the market messaging software and agreements import and export data will be sent to the registered Generator using the *Interval Meter Daily Data (Import)* and *Interval Meter Daily Data (Export)* market messages. Data may also be sent to the nominated Supplier. The data sent for each Meter Point will be:	341 to Supplier 342 to Supplier 341 / 342 to Generator or nominated Supplier

Step	Role	Action	Interface
		• Import kWh • Import reactive lag (kVArh), where metered • Import reactive lead (kVArh where metered) • Export kWh, where metered Where for part of day no meters were installed or a Meter Point not energised, zero readings will be provided for Intervals within the calendar day where meters were not installed or the Meter Point was de-energised. Where data is received from multiple outstations the distributed data will be accumulated by Interval for all outstations at the Meter Point. If data for any outstation is estimated or invalid then all data for that Interval will be regarded as estimated or invalid. Where Interval data obtained is measured in kW then the kWh value will be determined from this (e.g. for a 30 minute interval, kWh = kW / 2) The Data Processor will make Meter Point data available for Data Aggregation and DUoS Billing as soon as a complete set of Meter Point data for the calendar day has been received and validated.	

2.2.3   Incorrect, Missing Interval Data

Where Interval data is found to be incorrect then the Data Collector will provide estimated or substitute data as described in MP NI 15a Validation, Estimation and Substitution Rules for Interval Data. Metering Code Procedure AP6 will be followed to communicate and agree revised data with the Supplier prior to provision of the revised data to the Data Processor.

When Interval data sent using a market message is replaced, the reading replacement version number will be incremented.

2.2.4   Data for Generators Not Using Market Messaging

For Generation Units connected to the distribution network that are not a party to the market messaging software and agreements data can be made available through bilateral arrangements with NIE Networks.

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2.3   Reconciliation of Register Reads with Interval Data

2.3.1   Daily Reconciliation of Register Reads with Interval Data

Cumulative total energy registers from meters are read remotely each day and are compared with the electronically recorded Interval energy for the day as part of the ongoing data validation (see section 2.1.2).

2.3.2   Annual Reconciliation of Register Reads with Interval Data

On an annual basis reconciliation will be performed between cumulative total energy advance for the period and the aggregated recorded interval energy for the same period.

Where cumulative total energy registers are not read remotely, then a manual read will be taken at twelve monthly intervals in accordance with Metering Code Procedure AP4 for checking purposes.

The calculations shall be recorded and differences greater than 0.1% shall be highlighted and referred for checking. Where the checks confirm the discrepancy is communicated to the Supplier using form MR3 as described in Metering Code Procedure AP4.

2.3.3   End of Registration Reconciliation of Register Reads with Interval Data

At the end of a Supplier Registration, reconciliation will be performed between cumulative total energy advance for the period since the previous reconciliation and the aggregated recorded interval energy for the same period.

Where cumulative total energy register are not read remotely, then a manual read at the end of a Supplier Registration in accordance with Metering Code Procedure AP4 for checking purposes.

The calculations shall be recorded and differences greater than 0.1% shall be highlighted and referred for checking. Where the checks confirm a discrepancy, this is communicated to the Supplier using form MR3 as described in Metering Code Procedure AP4.

2.3.4   Physical Reconciliation of Register Reads with Interval Data

In addition, on a sample basis approximately 5% of these metering sites, a manual read will be taken every twelve months for checking purposes. The sample will be targeted according to criteria that can include:
- Meter Points with a higher than average proportion of estimated and substituted data
- Meter Points subject to previous Revenue Protection activities
- Meter Points subject to a higher than average number of customer and Supplier queries or disputes
- Meter Points with a higher than average number of exceptions

- Meter Points with a higher than average recorded difference between total of Data and advances determined from cumulative energy registers.

Within twenty-five business days from the date of a manual meter reading a Meter Reconciliation Statement shall be produced. The difference between the latest manual meter register readings and previous meter register readings (at installation or at a date approximately one year prior to the manual reading) shall be calculated and compared with the electronically recorded total energy for the time interval involved.

The calculations shall be recorded and differences greater than 0.1% shall be highlighted and referred for checking. Where the checks confirm a discrepancy, this is communicated to the Supplier using form MR3 as described in Metering Code Procedure AP4.