

**ELECTRICITY INDUSTRY PARTICIPATION CODE  
METERING EQUIPMENT PROVIDER AUDIT REPORT**

For



Prepared by: Steve Woods – Veritek Limited

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## EXECUTIVE SUMMARY

Mercury NZ Limited (Metrix) intends to deliver AMI HHR services to reconciliation participants in addition to the existing AMI NHH services.

Clause 16A.11 of Part 16 requires that if a reconciliation participant intends to make a “material” change to a system or process, the change must be subject to an audit prior to the change taking place. This audit was therefore performed at the request of Metrix so that it can be supplied to the Electricity Authority to satisfy the requirements of Clause 16A.11

This report refers to “Metrix” because all functions are performed under that name.

Compliance is confirmed for all relevant parts of the Code.

Metrix will provide an estimation function, which is confirmed as compliant. The estimation requirements of Part 15 are outside the scope of this audit because they are the responsibility of Retailers, which means the contents of this section will need to be included in Retailers’ next Reconciliation Participant audit reports if these services are used.

## AUDIT SUMMARY

### NON-COMPLIANCES

Subject	Section	Clause	Non Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
			Nil				

### RECOMMENDATIONS

Subject	Section	Recommendation	Description
		Nil	

### ISSUES

Subject	Section	Recommendation	Description
		Nil	

## 1. ADMINISTRATIVE

### 1.1. Exemptions from Obligations to Comply With Code (Section 11)

#### Code reference

*Section 11 of Electricity Industry Act 2010.*

#### Code related audit information

*Section 11 of the Electricity Industry Act provides for the Electricity Authority to exempt any participant from compliance with all or any of the clauses.*

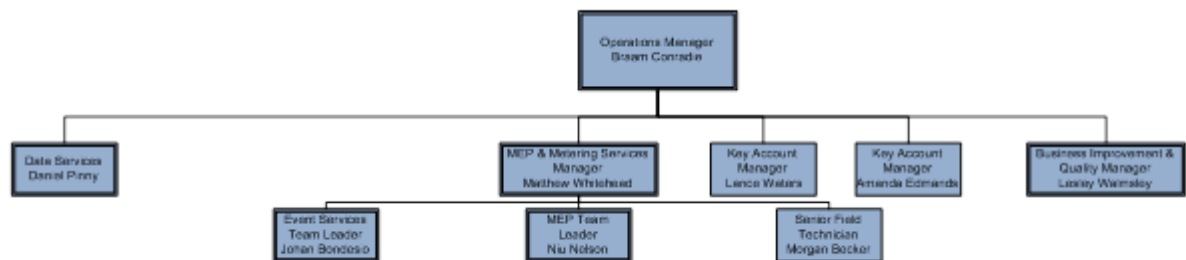
#### Audit observation

I checked the Electricity Authority website and I confirm there are no exemptions in place relevant to the scope of this audit.

#### Audit commentary

- I checked the Electricity Authority website and I confirm there are no exemptions in place relevant to the scope of this audit.

### 2.1. Structure of Organisation



## 2.2. Persons involved in this audit

Auditor: Steve Woods

**Veritek Limited**

**Electricity Authority Approved Auditor**

Metrix personnel assisting in this audit were.

Name	Title
Lesley Walmsley	Business Improvement & Quality Manager
Daniel Pinny	Data Services Manager
Rebecca Harrison	Business Subject Matter Expert
Rushiv Singh	Data Services Analyst
Niu Nelson	MEP Team Leader

## 2.3. Use of Agents (Clause 10.3)

### Code reference

*Clause 10.3*

### Code related audit information

*A participant who uses a contractor*

- *remains responsible for the contractors fulfillment of the participants Code obligations*
- *cannot assert that it is not responsible or liable for the obligation due to the action of a contractor*
- *must ensure that the contractor has at least the specified level of skill, expertise, experience, or qualification that the participant would be required to have if it were performing the obligation itself.*

### Audit observation

Metrix does not engage any agents in relation to the AMI function.

### Audit commentary

Metrix does not engage any agents in relation to the AMI function.

## 2.4. Hardware and Software

Metrix MEP data is held in SAP, which is subject to backup arrangements in accordance with standard industry protocols.

AMI data collection occurs using four different head ends and the data is stored and managed in a Meter Data Management System, which is described further in Section 11. These systems are also subject to backup arrangements in accordance with standard industry protocols.

## 2.5. Breaches or Breach Allegations

There are no breach allegations relevant to the scope of this audit.

## 2.6. ICP Data

Metering Category	Number of ICPs
1	394,787
2	2,643
3	9
4	1
5	0

## 2.7. Authorisation Received

A letter of authorization was not required or requested.

## 2.8. Scope of Audit

Metrix intends to deliver AMI HHR services to reconciliation participants in addition to the existing AMI NHH services.

Clause 16A.11 of Part 16 requires that if a reconciliation participant intends to make a “material” change to a system or process, the change must be subject to an audit prior to the change taking place. This audit was therefore performed at the request of Metrix so that it can be supplied to the Electricity Authority to satisfy the requirements of Clause 16A.11

This audit was conducted in accordance with the Guideline for Metering Equipment Provider Audits V2.2, which was published by the Electricity Authority.

## 2.9. Summary of previous audit

The previous audit results are not relevant to this material change audit.



### 3. OPERATIONAL INFRASTRUCTURE

#### 3.1. MEP responsibility for services access interface (Clause 10.9(2))

##### Code reference

*Clause 10.9(2)*

##### Code related audit information

*The MEP is responsible for providing and maintaining the services access interface.*

##### Audit observation

This process will not change as a result of the HHR data project.

##### Audit commentary

This process will not change as a result of the HHR data project.

##### Audit outcome

Not applicable

#### 3.2. Dispute Resolution (Clause 10.50(1) to (3))

##### Code reference

*Clause 10.50(1) to (3)*

##### Code related audit information

*Participants must in good faith use its best endeavours to resolve any disputes related to Part 10 of the Code.*

*Disputes that are unable to be resolved may be referred to the Authority for determination.*

*Complaints that are not resolved by the parties or the Authority may be referred to the Rulings Panel by the Authority or participant.*

##### Audit observation

This process will not change as a result of the HHR data project.

##### Audit commentary

This process will not change as a result of the HHR data project.

##### Audit outcome

Not applicable

#### 3.3. MEP Identifier (Clause 7(1) of Schedule 10.6)

##### Code reference

*Clause 7(1) of Schedule 10.6*

##### Code related audit information

*The MEP must ensure it has a unique participant identifier and must use this participant identifier (if required) to correctly identify its information.*

##### Audit observation

This process will not change as a result of the HHR data project.

#### Audit commentary

This process will not change as a result of the HHR data project.

#### Audit outcome

Not applicable

### 3.4. Communication Equipment Compatibility (Clause 40 Schedule 10.7)

#### Code reference

*Clause 40 Schedule 10.7*

#### Code related audit information

*The MEP must ensure that the use of its communication equipment complies with the compatibility and connection requirements of any communication network operator the MEP has equipment connected to.*

#### Audit observation

Metrix is the MEP for AMI metering installations where communication equipment is present. There are also some HHR metering installations with modems. I checked that the ATHs have processes in place to check the relevant type test certificates to ensure compliance with this clause.

#### Audit commentary

Metrix ensures all communication equipment is appropriately certified with the relevant telecommunications standards. This is recorded in type test certificates and other approval documents. A copy of the type test schedule was provided, which contains a list of all components used and the type test report reference.

#### Audit outcome

Compliant

### 3.5. Participants to Provide Accurate Information (Clause 11.2 and Clause 10.6)

#### Code reference

*Clause 11.2 and Clause 10.6*

#### Code related audit information

*The MEP must take all practicable steps to ensure that information that the MEP is required to provide to any person under Parts 10 and 11 is complete and accurate, not misleading or deceptive and not likely to mislead or deceive.*

*If the MEP becomes aware that in providing information under Parts 10 and 11, the MEP has not complied with that obligation, the MEP must, as soon as practicable, provide such further information as is necessary to ensure that the MEP does comply.*

#### Audit observation

I considered whether any of the systems or processes resulted in non-compliance with this clause.

#### Audit commentary

There were no examples of inaccurate, misleading or deceptive information. Of particular note is that all register reads are timestamped accurately, which was an issue raised in the previous audit.

#### Audit outcome

Compliant

## 4. PROCESS FOR A CHANGE OF MEP

### 4.1. Payment of Costs to Losing MEP (Clause 10.22)

#### Code reference

*Clause 10.22*

#### Code related audit information

*The MEP for a metering installation may change only if the responsible participant enters into an arrangement with another person to become the MEP for the metering installation, and if certain notification requirements are met (in relation to the registry and the reconciliation manager).*

*The gaining MEP must pay the losing MEP a proportion of the costs within 20 business days of assuming responsibility.*

*The costs are those directly and solely attributable to the certification and calibration tests of the metering installation or its components from the date of switch until the end of the current certification period.*

#### Audit observation

This area will not change as a result of the HHR data project.

#### Audit commentary

This area will not change as a result of the HHR data project.

#### Audit outcome

Not applicable

### 4.2. Registry Notification of Metering Records (Clause 2 of Schedule 11.4)

#### Code reference

*Clause 2 of Schedule 11.4*

#### Code related audit information

*The gaining MEP must advise the registry of the registry metering records for the metering installation within 15 days of becoming the MEP for the metering installation.*

#### Audit observation

This process will not change as a result of the HHR data project.

#### Audit commentary

This process will not change as a result of the HHR data project.

#### Audit outcome

Not applicable

#### 4.3. Provision of Metering Records to Gaining MEP (Clause 5 of Schedule 10.6)

##### Code reference

*Clause 5 of Schedule 10.6*

##### Code related audit information

*During an MEP switch, a gaining MEP may request access to the losing MEP's metering records.*

*On receipt of a request from the gaining MEP, the losing MEP has 10 business days to provide the gaining MEP with the metering records or the facilities to enable the gaining MEP to access the metering records.*

*The losing MEP must ensure that the metering records are only received by the gaining MEP or its contractor, the security of the metering records is maintained, and only the specific metering records required for the purposes of the gaining MEP exercising its rights and performing its obligations are provided.*

##### Audit observation

This process will not change as a result of the HHR data project.

##### Audit commentary

This process will not change as a result of the HHR data project.

##### Audit outcome

Not applicable

#### 4.4. Termination of MEP Responsibility (Clause 10.23)

##### Code reference

*Clause 10.23*

##### Code related audit information

*Even if the MEP ceases to be responsible for an installation, the MEP must either comply with its continuing obligations; or before its continuing obligations terminate, enter into an arrangement with a participant to assume those obligations.*

*The MEP is responsible if it:*

- *is identified in the registry as the primary metering contact or*
- *is the participant who owns the meter for the POC or to the grid or*
- *has accepted responsibility under clause 1(1)(a)(ii) of schedule 11.4 or*
- *has contracted with a participant responsible for providing the metering installation.*

*MEPs obligations come into effect on the date recorded in the registry as being the date on which the metering installation equipment is installed or, for an NSP the effective date set out in the NSP table on the Authority's website.*

*An MEPs obligations terminate only when;*

- *the ICP changes under clause 10.22(1)(a);*
- *the NSP changes under clause 10.22(1)(b), in which case the MEPs obligations terminate from the date on which the gaining MEP assumes responsibility;*
- *the metering installation is no longer required for the purposes of Part 15; or*
- *the load associated with an ICP is converted to be used solely for unmetered load.*

##### Audit observation

This process will not change as a result of the HHR data project.

**Audit commentary**

This process will not change as a result of the HHR data project.

**Audit outcome**

Not applicable

## 5. INSTALLATION AND MODIFICATION OF METERING INSTALLATIONS

### 5.1. Design Reports for Metering Installations (Clause 2 of Schedule 10.7)

#### Code reference

*Clause 2 of Schedule 10.7*

#### Code related audit information

*The MEP must obtain a design report for each proposed new metering installation or a modification to an existing metering installation, before it installs the new metering installation or before the modification commences.*

*Clause 2(2) and (3)—The design report must be prepared by a person with the appropriate level of skills, expertise, experience and qualifications and must include a schematic drawing, details of the configuration scheme that programmable metering components are to include, confirmation that the configuration scheme has been approved by an approved test laboratory, maximum interrogation cycle, any compensation factor arrangements, method of certification required, and name and signature of the person who prepared the report and the date it was signed.*

*Clause 2(4)—The MEP must provide the design report to the certifying ATH before the ATH installs or modifies the metering installation (or a metering component in the metering installation).*

#### Audit observation

This process will not change as a result of the HHR data project.

#### Audit commentary

This process will not change as a result of the HHR data project.

#### Audit outcome

Not applicable

### 5.2. Contracting with ATH (Clause 9 of Schedule 10.6)

#### Code reference

*Clause 9 of Schedule 10.6*

#### Code related audit information

*The MEP must, when contracting with an ATH in relation to the certification of a metering installation, ensure that the ATH has the appropriate scope of approval for the required certification activities.*

#### Audit observation

This process will not change as a result of the HHR data project.

#### Audit commentary

This process will not change as a result of the HHR data project.

#### Audit outcome

Not applicable

### 5.3. Metering Installation Design & Accuracy (Clause 4(1) of Schedule 10.7)

#### Code reference

*Clause 4(1) of Schedule 10.7*

#### Code related audit information

*The MEP must ensure:*

- *that the sum of the measured error and uncertainty does not exceed the maximum permitted error set out in Table 1 of Schedule 10.1 for the category of the metering installation*
- *the design of the metering installation (including data storage device and interrogation system) will ensure the sum of the measured error and the smallest possible increment of the energy value of the raw meter data does not exceed the maximum permitted error set out in Table 1 of Schedule 10.1 for the category of installation*
- *the metering installation complies with the design report and the requirements of Part 10.*

#### Audit observation

This process will not change as a result of the HHR data project.

#### Audit commentary

This process will not change as a result of the HHR data project.

#### Audit outcome

Not applicable

### 5.4. Subtractive Metering (Clause 4(2)(a) of Schedule 10.7)

#### Code reference

*Clause 4(2)(a) of Schedule 10.7*

#### Code related audit information

*For metering installations for ICPs that are not also NSPs, the MEP must ensure that the metering installation does not use subtraction to determine submission information used for the purposes of Part 15.*

#### Audit observation

I asked Metrix to confirm whether subtraction was used for any metering installations where they were the MEP.

#### Audit commentary

Metrix does not have any metering installations where subtractive metering is used.

#### Audit outcome

Not applicable



#### 5.5. HHR Metering (Clause 4(2)(b) of Schedule 10.7)

##### Code reference

*Clause 4(2)(b) of Schedule 10.7*

##### Code related audit information

*For metering installations for ICPs that are not also NSPs, the MEP must ensure that all category 3 or higher metering installations must be half-hour metering installations.*

##### Audit observation

This process will not change as a result of the HHR data project.

##### Audit commentary

This process will not change as a result of the HHR data project.

##### Audit outcome

Not applicable

#### 5.6. NSP Metering (Clause 4(3) of Schedule 10.7)

##### Code reference

*Clause 4(3) of Schedule 10.7*

##### Code related audit information

*The MEP must ensure that the metering installation for each NSP that is not connected to the grid does not use subtraction to determine submission information used for the purposes of Part 15 and is a half-hour metering installation.*

##### Audit observation

Metrix is not responsible for any NSP metering.

##### Audit commentary

Metrix is not responsible for any NSP metering.

##### Audit outcome

Not applicable

#### 5.7. Responsibility for Metering Installations (Clause 10.26(10))

##### Code reference

*Clause 10.26(10)*

##### Code related audit information

*The MEP must ensure that each point of connection to the grid for which there is a metering installation that it is responsible for has a half hour metering installation.*

##### Audit observation

Metrix is not responsible for any grid metering.

##### Audit commentary

Metrix is not responsible for any grid metering.

#### Audit outcome

Not applicable

### 5.8. Suitability of Metering Installations (Clause 4(4) of Schedule 10.7)

#### Code reference

*Clause 4(4) of Schedule 10.7*

#### Code related audit information

*The MEP must, for each metering installation for which it is responsible, ensure that it is appropriate having regard to the physical and electrical characteristics of the POC.*

#### Audit observation

This process will not change as a result of the HHR data project.

#### Audit commentary

This process will not change as a result of the HHR data project.

#### Audit outcome

Not applicable

### 5.9. Installation & Modification of Metering Installations (Clauses 10.34(2), (2A) and (3))

#### Code reference

*Clauses 10.34(2), (2A) and (3)*

#### Code related audit information

*If a metering installation is proposed to be installed or modified at a POC, other than a POC to the grid, the MEP must consult with and use its best endeavours, to agree with the distributor and the trader for that POC, before the design is finalised, on the metering installations:*

- *required functionality*
- *terms of use*
- *required interface format*
- *integration of the ripple receiver and the meter*
- *functionality for controllable load.*

*Each participant involved in the consultations must use its best endeavours to reach agreement and act reasonably and in good faith.*

#### Audit observation

I considered whether the provision of HHR data from existing metering infrastructure constitutes a change in design.

#### Audit commentary

The provision of HHR data from existing metering infrastructure does not constitute a change in design because the HHR data is already being collected and managed, the only change is that the existing metering installations will have HHR certification for the existing HHR functionality.

#### Audit outcome

Not applicable

## 5.10. Changes to Registry Records (Clause 3 of Schedule 11.4)

### Code reference

*Clause 3 of Schedule 11.4*

### Code related audit information

*The MEP must advise the registry of the registry metering records or any change to the registry metering records for a metering installation for which it is responsible, no later than 10 business days following:*

- a) the electrical connection of an ICP that is not also an NSP*
- b) any subsequent change in any matter covered by the metering records.*

### Audit observation

I checked whether registry records would need to change as part of the project.

### Audit commentary

Registry records will be updated because the HHR certification field will be populated. The registry will be populated with a “bulk upload”. A file has been generated and checked, which will be used for this purpose.

A process has been developed to deal with “in flight” jobs to ensure the resulting registry information is correct.

### Audit outcome

Compliant

## 5.11. Metering Infrastructure (Clause 10.39(1))

### Code reference

*Clause 10.39(1)*

### Code related audit information

*The MEP must ensure that for each metering installation:*

- an appropriately designed metering infrastructure is in place*
- each metering component is compatible with, and will not interfere with any other component in the installation*
- collectively, all metering components integrate to provide a functioning system*
- each metering installation is correctly and accurately integrated within the associated metering infrastructure.*

### Audit observation

Metrix has AMI data collection systems and these are considered “metering infrastructure”. I checked that the systems operate as intended and are compatible with all metering components interrogated, by examining the success rate of data collection along with the number of events generated.

### Audit commentary

There were no obvious issues with the operation of the AMI systems. All components operate as intended in an integrated manner.

### Audit outcome

Compliant

## 5.12. Responsibility for Metering at ICP (Clause 11.18B(3))

### Code reference

*Clause 11.18B(3)*

### Code related audit information

*If an ICP is to be decommissioned, the MEP who is responsible for each metering installation for the ICP must:*

- *advise the trader no later than three business days prior to decommissioning that the trader must, as part of the decommissioning, carry out a final interrogation; or*
- *if the MEP is responsible for the interrogation of the metering installation, arrange for a final interrogation to take place.*

### Audit observation

This area will not change as a result of the HHR data project.

### Audit commentary

This area will not change as a result of the HHR data project.

### Audit outcome

Not applicable

## 5.13. Measuring Transformer Burden and Compensation Requirements (Clause 31(4) and (5) of Schedule 10.7)

### Code reference

*Clause 31(4) and (5) of Schedule 10.7*

### Code related audit information

*The MEP must, before approving the addition of, or change to, the burden or compensation factor of a measuring transformer in a metering installation, consult with the ATH who certified the metering installation.*

*If the MEP approves the addition of, or change to, the burden or compensation factor, it must ensure the metering installation is recertified by an ATH before the addition or change becomes effective.*

### Audit observation

This area will not change as a result of the HHR data project.

### Audit commentary

This area will not change as a result of the HHR data project.

### Audit outcome

Not applicable

#### 5.14. Changes to Software ROM or Firmware (Clause 39(1) and 39(2) of Schedule 10.7)

##### Code reference

*Clause 39(1) and 39(2) of Schedule 10.7*

##### Code related audit information

*The MEP must, if it proposes to change the software, ROM or firmware of a data storage device installed in a metering installation, ensure that, before the change is carried out, an approved test laboratory:*

- *tests and confirms that the integrity of the measurement and logging of the data storage device would be unaffected*
- *documents the methodology and conditions necessary to implement the change*
- *advises the ATH that certified the metering installation of any change that might affect the accuracy of the data storage device.*

*The MEP must, when implementing a change to the software, ROM or firmware of a data storage device installed in a metering installation:*

- *carry out the change in accordance with the methodology and conditions identified by the approved test laboratory under clause 39(1)(b)*
- *keep a list of the data storage devices that were changed*
- *update the metering records for each installation affected with the details of the change and the methodology used.*

##### Audit observation

This area will not change as a result of the HHR data project.

##### Audit commentary

This area will not change as a result of the HHR data project.

##### Audit outcome

Not applicable

#### 5.15. Temporary Energization (Clause 10.28(6))

##### Code reference

*Clause 10.28(6)*

##### Code related audit information

*An MEP must not request the temporary energisation of a new POC unless authorised to do so by the reconciliation participant responsible for that POC and has an arrangement with that reconciliation participant to provide metering services.*

##### Audit observation

This area will not change as a result of the HHR data project.

##### Audit commentary

This area will not change as a result of the HHR data project.

##### Audit outcome

Not applicable

## 6. METERING RECORDS

### 6.1. Accurate and Complete Records (Clause 4(1)(a) and (b) of Schedule 10.6, and Table 1, Schedule 11.4)

#### Code reference

*Clause 4(1)(a) and (b) of Schedule 10.6, and Table 1, Schedule 11.4*

#### Code related audit information

*The MEP must, for each metering installation for which it is responsible, keep accurate and complete records of the attributes set out in Table 1 of Schedule 11.4. These include:*

- a) the certification expiry date of each metering component in the metering installation*
- b) all equipment used in relation to the metering installation, including serial numbers and details of the equipment's manufacturer*
- c) the manufacturer's or (if different) most recent test certificate for each metering component in the metering installation*
- d) the metering installation category and any metering installations certified at a lower category*
- e) all certification reports and calibration reports showing dates tested, tests carried out, and test results for all metering components in the metering installation*
- f) the contractor who installed each metering component in the metering installation*
- g) the certification sticker, or equivalent details, for each metering component that is certified under Schedule 10.8 in the metering installation:*
- h) any variations or use of the 'alternate certification' process*
- i) seal identification information*
- j) any applicable compensation factors*
- k) the owner of each metering component within the metering installation*
- l) any applications installed within each metering component*
- m) the signed inspection report confirming that the metering installation complies with the requirements of Part 10.*

#### Audit observation

I checked whether any certification records would change as a result of the project.

#### Audit commentary

Certification records will change because the relevant metering installations will be certified as HHR. A Code change has been approved to allow the retrospective change of existing certification records from NHH to HHR. ATHs and Metrix will hold copies of the schedules showing which ICPs had a change to HHR and on what date.

#### Audit outcome

Compliant

### 6.2. Inspection Reports (Clause 4(2) of Schedule 10.6)

#### Code reference

*Clause 4(2) of Schedule 10.6*

#### Code related audit information

*The MEP must, within 10 business days of receiving a request from a participant for a signed inspection report prepared under clause 44 of Schedule 10.7, make a copy of the report available to the participant.*

#### Audit observation

This area will not change as a result of the HHR data project.

**Audit commentary**

This area will not change as a result of the HHR data project.

**Audit outcome**

Not applicable

**6.3. Retention of Metering Records (Clause 4(3) of Schedule 10.6)**

**Code reference**

*Clause 4(3) of Schedule 10.6*

**Code related audit information**

*The MEP must keep metering installation records for 48 months after any metering component is removed, or any metering installation is decommissioned.*

**Audit observation**

This area will not change as a result of the HHR data project.

**Audit commentary**

This area will not change as a result of the HHR data project.

**Audit outcome**

Not applicable

**6.4. Provision of Records to ATH (Clause 6 Schedule 10.6)**

**Code reference**

*Clause 6 Schedule 10.6*

**Code related audit information**

*If the MEP contracts with an ATH to recertify a metering installation and the ATH did not previously certify the metering installation, the MEP must provide the ATH with a copy of all relevant metering records not later than 10 business days after the contract comes into effect.*

**Audit observation**

This area will not change as a result of the HHR data project.

**Audit commentary**

This area will not change as a result of the HHR data project.

**Audit outcome**

Not applicable

## 7. MAINTENANCE OF REGISTRY INFORMATION

### 7.1. MEP Response to Switch Notification (Clause 1(1) of Schedule 11.4)

#### Code reference

*Clause 1(1) of Schedule 11.4*

#### Code related audit information

*Within 10 business days of being advised by the registry that it is the gaining MEP for the metering installation for the ICP, the MEP must enter into an arrangement with the trader and advise the registry it accepts responsibility for the ICP and of the proposed date on which it will assume responsibility.*

#### Audit observation

This area will not change as a result of the HHR data project.

#### Audit commentary

This area will not change as a result of the HHR data project.

#### Audit outcome

Not applicable

### 7.2. Provision of Registry Information (Clause 7 (1), (2) and (3) of Schedule 11.4)

#### Code reference

*Clause 7 (1), (2) and (3) of Schedule 11.4*

#### Code related audit information

*The MEP must provide the information indicated as being 'required' in Table 1 of clause 7 of Schedule 11.4 to the registry, in the prescribed form for each metering installation for which the MEP is responsible.*

*From 1 April 2015, a MEP is required to ensure that all the registry metering records of its category 1 metering installations are complete, accurate, not misleading or deceptive, and not likely to mislead or deceive.*

*The information the MEP provides to the registry must derive from the metering equipment provider's records or the metering records contained within the current traders system.*

#### Audit observation

I checked whether registry records would need to change as part of the project.

#### Audit commentary

Registry records will be updated because the HHR certification field will be populated. The registry will be populated with a "bulk upload". A file has been generated and checked, which will be used for this purpose.

A process has been developed to deal with "in flight" jobs to ensure the resulting registry information is correct.

I also checked the process for ensuring data is provided to the correct Retailer. Validation against the registry will occur daily to ensure the correct Retailer is recorded. It is expected that backdated registry events by Retailers will result in some adjustments to files to add or subtract records in subsequent versions.

#### Audit outcome



Compliant

### 7.3. Correction of Errors in Registry (Clause 6 of Schedule 11.4)

#### Code reference

*Clause 6 of Schedule 11.4*

#### Code related audit information

*By 0900 hours on the 13th business day of each reconciliation period, the MEP must obtain from the registry:*

- *a list of ICPs for the metering installations the MEP is responsible for*
- *the registry metering records for each ICP on that list.*

*No later than five business days following collection of data from the registry, the MEP must compare the information obtained from the registry with the MEP's own records.*

*Within five business days of becoming aware of any discrepancy between the MEP's records and the information obtained from the registry, the MEP must correct the records that are in error and advise the registry of any necessary changes to the registry metering records.*

#### Audit observation

This area will not change as a result of the HHR data project.

#### Audit commentary

This area will not change as a result of the HHR data project.

#### Audit outcome

Not applicable

### 7.4. Cancellation of Certification (Clause 20 of Schedule 10.7)

#### Code reference

*Clause 20 of Schedule 10.7*

#### Code related audit information

*The certification of a metering installation is automatically cancelled on the date on which one of the following events takes place:*

- a) *the metering installation is modified otherwise than under sub clause 19(3) or 19(6)*
- b) *the metering installation is classed as outside the applicable accuracy tolerances set out in Table 1 of Schedule 10.1, defective or not fit for purpose under this Part or any audit*
- c) *an ATH advises the metering equipment provider responsible for the metering installation of a reference standard or working standard used to certify the metering installation not being compliant with this Part at the time it was used to certify the metering installation, or the failure of a group of meters in the statistical sampling recertification process for the metering installation, or the failure of a certification test for the metering installation*
- d) *the manufacturer of a metering component in the metering installation determines that the metering component does not comply with the standards to which the metering component was tested*
- e) *an inspection of the metering installation, that is required under this Part, is not carried out in accordance with the relevant clauses of this Part*

- f) if the metering installation has been determined to be a lower category under clause 6 and the maximum current conveyed through the metering installation at any time exceeds the current rating of its metering installation category as set out in Table 1 of Schedule 10.1*
- g) the metering installation is certified under clause 14 and sufficient load is available for full certification testing and has not been retested under clause 14(4)*
- h) a control device in the metering installation certification is, and remains for a period of at least 10 business days, bridged out under clause 35(1)*
- i) the metering equipment provider responsible for the metering installation is advised by an ATH under clause 48(6)(b) that a seal has been removed or broken and the accuracy and continued integrity of the metering installation has been affected.*

*A metering equipment provider must, within 10 business days of becoming aware that one of the events above has occurred in relation to a metering installation for which it is responsible, update the metering installation's certification expiry date in the registry.*

#### **Audit observation**

This area will not change as a result of the HHR data project.

#### **Audit commentary**

This area will not change as a result of the HHR data project.

#### **Audit outcome**

Not applicable

### **7.5. Registry Metering Records (Clause 11.8A)**

#### **Code reference**

*Clause 11.8A*

#### **Code related audit information**

*The MEP must provide the registry with the required metering information for each metering installation the MEP is responsible for, and update the registry metering records in accordance with Schedule 11.4.*

#### **Audit observation**

This clause refers to schedule 11.4 which is discussed in Section 6.2, apart from the requirement to provide information in the "prescribed form". I checked for examples of Metrix not using the prescribed form.

#### **Audit commentary**

This clause refers to schedule 11.4 which is discussed in Section 6.2, apart from the requirement to provide information in the "prescribed form". I checked for examples of Metrix not using the prescribed form and did not find any exceptions.

#### **Audit outcome**

Compliant

## 8. CERTIFICATION OF METERING INSTALLATIONS

### 8.1. Certification and Maintenance (Clause 10.38 (a), clause 1 and clause 15 of Schedule 10.7)

#### Code reference

*Clause 10.38 (a), clause 1 and clause 15 of Schedule 10.7*

#### Code related audit information

*The MEP must obtain and maintain certification for all installations and metering components for which it is responsible. The MEP must ensure it:*

- *performs regular maintenance, battery replacement, repair/replacement of components of the metering installations*
- *updates the metering records at the time of the maintenance*
- *has a recertification programme that will ensure that all installations are recertified prior to expiry.*

#### Audit observation

This area will not change as a result of the HHR data project.

#### Audit commentary

This area will not change as a result of the HHR data project.

#### Audit outcome

Not applicable

### 8.2. Certification Tests (Clause 10.38(b) and clause 9 of Schedule 10.6)

#### Code reference

*Clause 10.38(b) and clause 9 of Schedule 10.6*

#### Code related audit information

*For each metering component and metering installation an MEP is responsible for, the MEP must ensure that:*

- *an ATH performs the appropriate certification and recertification tests*
- *the ATH has the appropriate scope of approval to certify and recertify the metering installation.*

#### Audit observation

This area will not change as a result of the HHR data project.

#### Audit commentary

This area will not change as a result of the HHR data project.

#### Audit outcome

Not applicable

### 8.3. Active and Reactive Capability (Clause 10.37(1) and 10.37(2)(a))

#### Code reference

*Clause 10.37(1) and 10.37(2)(a)*

#### Code related audit information

*For any category 2 or higher half-hour metering installation that is certified after 29 August 2013, the MEP must ensure that the installation has active and reactive measuring and recording capability.*

*Consumption only installations that is a category 3 metering installation or above must measure and separately record:*

- a) import active energy*
- b) import reactive energy*
- c) export reactive energy.*

*Consumption only installations that are a category 2 metering installation must measure and separately record import active energy.*

*All other installations must measure and separately record:*

- a) import active energy*
- b) export active energy*
- c) import reactive energy*
- d) export reactive energy.*

*All grid connected POCs with metering installations which are certified after 29 August 2013 should measure and separately record:*

- a) import active energy*
- b) export active energy*
- c) import reactive energy*
- d) export reactive energy*

#### Audit observation

This area will not change as a result of the HHR data project.

#### Audit commentary

This area will not change as a result of the HHR data project.

#### Audit outcome

Not applicable

### 8.4. Local Service Metering (Clause 10.37(2)(b))

#### Code reference

*Clause 10.37(2)(b)*

#### Code related audit information

*The accuracy of each local service metering installation in grid substations must be within the tolerances set out in Table 1 of Schedule 10.1.*

#### Audit observation

This clause relates to Transpower as an MEP.

#### Audit commentary

This clause relates to Transpower as an MEP.

#### Audit outcome

Not applicable

### 8.5. Measuring Transformer Burden (Clause 30(1) and 31(2) of Schedule 10.7)

#### Code reference

*Clause 30(1) and 31(2) of Schedule 10.7*

#### Code related audit information

*The MEP must not permit a measuring transformer to be connected to equipment used for a purpose other than metering, unless it is not practical for the equipment to have a separate measuring transformer.*

*The MEP must ensure that a change to, or addition of, a measuring transformer burden or a compensation factor related to a measuring transformer is carried out only by:*

- a) the ATH who most recently certified the metering installation*
- b) for a POC to the grid, by a suitably qualified person approved by both the MEP and the ATH who most recently certified the metering installation.*

#### Audit observation

This area will not change as a result of the HHR data project.

#### Audit commentary

This area will not change as a result of the HHR data project.

#### Audit outcome

Not applicable

### 8.6. Certification as a Lower Category (Clauses 6(1)(b) and (d), and 6(2)(b) of Schedule 10.7)

#### Code reference

*Clauses 6(1)(b) and (d), and 6(2)(b) of Schedule 10.7*

#### Code related audit information

*A category 2 or higher metering installation may be certified by an ATH at a lower category than would be indicated solely on the primary rating of the current if the MEP, based on historical metering data, reasonably believes that:*

- the maximum current will at all times during the intended certification period be lower than the current setting of the protection device for the category for which the metering installation is certified, or is required to be certified by the Code; or*
- the metering installation will use less than 0.5 GWh in any 12 month period.*

*If a metering installation is categorised under clause 6(1)(b), the ATH may, if it considers appropriate, and, at the MEP's request, determine the metering installation's category according to the metering installation's expected maximum current.*

*If a meter is certified in this manner:*

- the MEP must, each month, obtain a report from the participant interrogating the metering installation, which details the maximum current from raw meter data from the metering*

*installation by either calculation from the kVA by trading period, if available, or from a maximum current indicator if fitted in the metering installation conveyed through the point of connection for the prior month; and*

- *if the MEP does not receive a report, or the report demonstrates that the maximum current conveyed through the POC was higher than permitted for the metering installation category it is certified for, then the certification for the metering installation is automatically cancelled.*

#### **Audit observation**

This area will not change as a result of the HHR data project.

#### **Audit commentary**

This area will not change as a result of the HHR data project.

#### **Audit outcome**

Not applicable

### **8.7. Insufficient Load for Certification Tests (Clauses 14(3) and (4) of Schedule 10.7)**

#### **Code reference**

*Clauses 14(3) and (4) of Schedule 10.7*

#### **Code related audit information**

*If there is insufficient electricity conveyed through a POC to allow the ATH to complete a prevailing load test for a metering installation that is being certified as a half hour meter and the ATH certifies the metering installation the MEP must:*

- *obtain and monitor raw meter data from the metering installation at least once each calendar month to determine if load during the month is sufficient for a prevailing load test to be completed;*
- *if there is sufficient load, arrange for an ATH to complete the tests (within 20 business days).*

#### **Audit observation**

This area will not change as a result of the HHR data project.

#### **Audit commentary**

This area will not change as a result of the HHR data project.

#### **Audit outcome**

Not applicable

### **8.8. Insufficient Load for Certification – Cancellation of Certification (Clause 14(6) of Schedule 10.7)**

#### **Code reference**

*Clause 14(6) of Schedule 10.7*

#### **Code related audit information**

*If the tests conducted under clause 14(4) of Schedule 10.7 demonstrate that the metering installation is not within the relevant maximum permitted error:*

- *the metering installation certification is automatically revoked;*
- *the certifying ATH must advise the MEP of the cancellation within 1 business day;*

- *the MEP must follow the procedure for handling faulty metering installations (clause 10.43 - 10.48).*

#### **Audit observation**

This area will not change as a result of the HHR data project.

#### **Audit commentary**

This area will not change as a result of the HHR data project.

#### **Audit outcome**

Not applicable

### **8.9. Alternative Certification Requirements (Clauses 32(2), (3) and (4) of Schedule 10.7)**

#### **Code reference**

*Clauses 32(2), (3) and (4) of Schedule 10.7*

#### **Code related audit information**

*If an ATH cannot comply with the requirements to certify a metering installation due to measuring transformer access issues, and therefore certifies the metering installation in accordance with clause 32(1) of Schedule 10.7, the MEP must:*

- *advise the market administrator, by no later than 10 business days after the date of certification of the metering installation, of the details in clause 32(2)(a) of Schedule 10.7*
- *respond, within 5 business days, to any requests from the market administrator for additional information*
- *ensure that all of the details are recorded in the metering installation certification report*
- *take all steps to ensure that the metering installation is certified before the certification expiry date.*

*If the market administrator determines the ATH could have obtained access the metering installation is deemed to be defective and the MEP must follow the process of handling faults metering installations in clauses 10.43 to 10.48.*

#### **Audit observation**

This area will not change as a result of the HHR data project.

#### **Audit commentary**

This area will not change as a result of the HHR data project.

#### **Audit outcome**

Not applicable

## 8.10. Timekeeping Requirements (Clause 23 of Schedule 10.7)

### Code reference

*Clause 23 of Schedule 10.7*

### Code related audit information

*If a time keeping device that is not remotely monitored and corrected controls the switching of a meter register in a metering installation, the MEP must ensure that the time keeping device:*

- a) has a time keeping error of not greater than an average of 2 seconds per day over a period of 12 months*
- b) is monitored and corrected at least once every 12 months.*

### Audit observation

I asked Metrix whether there were any metering installations with timeclocks.

### Audit commentary

Metrix confirmed there are no metering installations with timeclocks.

### Audit outcome

Not applicable

## 8.11. Control Device Bridged Out (Clause 35 of Schedule 10.7)

### Code reference

*Clause 35 of Schedule 10.7*

### Code related audit information

*The participant must, within 10 business days of bridging out a control device or becoming aware of a control device being bridged out, notify the following parties:*

- the relevant reconciliation participant*
- the relevant metering equipment provider.*

*If the control device is used for reconciliation, the metering installation is considered defective in accordance with 10.43.*

### Audit observation

This area will not change as a result of the HHR data project.

### Audit commentary

This area will not change as a result of the HHR data project.

### Audit outcome

Not applicable



#### 8.12. Control Device Reliability Requirements (Clause 34(5) of Schedule 10.7)

##### Code reference

*Clause 34(5) of Schedule 10.7*

##### Code related audit information

*If the MEP is advised by an ATH that the likelihood of a control device not receiving signals would affect the accuracy or completeness of the information for the purposes of Part 15, the MEP must, within three business days inform the following parties of the ATH's determination (including all relevant details):*

- a) the reconciliation participant for the POC for the metering installation*
- b) the control signal provider.*

##### Audit observation

This area will not change as a result of the HHR data project.

##### Audit commentary

This area will not change as a result of the HHR data project.

##### Audit outcome

Not applicable

#### 8.13. Statistical Sampling (Clauses 16(1) and (5) of Schedule 10.7)

##### Code reference

*Clauses 16(1) and (5) of Schedule 10.7*

##### Code related audit information

*The MEP may arrange for an ATH to recertify a group of category 1 metering installations for which the MEP is responsible using a statistical sampling process.*

*The MEP must update the registry in accordance with Part 11 on the advice of an ATH as to whether the group meets the recertification requirements.*

##### Audit observation

This area will not change as a result of the HHR data project.

##### Audit commentary

This area will not change as a result of the HHR data project.

##### Audit outcome

Not applicable

#### 8.14. Compensation Factors (Clause 24(3) of Schedule 10.7)

##### Code reference

*Clause 24(3) of Schedule 10.7*

##### Code related audit information

*If a compensation factor must be applied to a metering installation that is an NSP, the MEP must advise the reconciliation participant responsible for the metering installation of the compensation factor within 10 days of certification of the installation.*

*In all other cases the MEP must advise the registry of the compensation factor.*

**Audit observation**

This area will not change as a result of the HHR data project.

**Audit commentary**

This area will not change as a result of the HHR data project.

**Audit outcome**

Not applicable

**8.15. Metering Installations Incorporating a Meter (Clause 26(1) of Schedule 10.7)**

**Code reference**

*Clause 26(1) of Schedule 10.7*

**Code related audit information**

*The MEP must ensure that each meter in a metering installation it is responsible for is certified.*

**Audit observation**

Meters in the relevant metering installations are certified.

**Audit commentary**

Meters in the relevant metering installations are certified.

**Audit outcome**

Compliant

**8.16. Metering Installations Incorporating a Measuring Transformer (Clause 28(1) of Schedule 10.7)**

**Code reference**

*Clause 28(1) of Schedule 10.7*

**Code related audit information**

*The MEP must ensure that each measuring transformer in a metering installation it is responsible for is certified.*

**Audit observation**

This area will not change as a result of the HHR data project.

**Audit commentary**

This area will not change as a result of the HHR data project.

**Audit outcome**

Not applicable

#### 8.17. Metering Installations Incorporating a Data Storage Device (Clause 36(1) of Schedule 10.7)

##### Code reference

*Clause 36(1) of Schedule 10.7*

##### Code related audit information

*The MEP must ensure that each data storage device in a metering installation it is responsible for is certified.*

##### Audit observation

Data storage devices in the relevant metering installations are certified.

##### Audit commentary

Data storage devices in the relevant metering installations are certified.

##### Audit outcome

Compliant

#### 8.18. Notification of ATH Approval (Clause 7 (3) Schedule 10.3)

##### Code reference

*Clause 7 (3) Schedule 10.3*

##### Code related audit information

*If the MEP is notified by the Authority that an ATH's approval has expired, been cancelled or been revised, the MEP must treat all metering installations certified by the ATH during the period where the ATH was not approved to perform the activities as being defective and follow the procedures set out in 10.43 to 10.48.*

##### Audit observation

This area will not change as a result of the HHR data project.

##### Audit commentary

This area will not change as a result of the HHR data project.

##### Audit outcome

Not applicable

#### 8.19. Interim Certification (Clause 18 of Schedule 10.7)

##### Code reference

*Clause 18 of Schedule 10.7*

##### Code related audit information

*The MEP must ensure that each interim certified metering installation on 28 August 2013 is certified by no later than 1 April 2015.*

##### Audit observation

This area will not change as a result of the HHR data project.

##### Audit commentary

This area will not change as a result of the HHR data project.

**Audit outcome**

Not applicable

## 9. INSPECTION OF METERING INSTALLATIONS

### 9.1. Category 1 Inspections (Clause 45 of Schedule 10.7)

#### Code reference

*Clause 45 of Schedule 10.7*

#### Code related audit information

*The MEP must ensure that category 1 metering installations (other than interim certified metering installations):*

- *have been inspected by an ATH within 120 months from the date of the metering installation's most recent certification or*
- *for each 12 month period, commencing 1 January and ending 31 December, a sample of the category 1 metering installations selected under clause 45(2) of Schedule 10.7 has been inspected by an ATH.*

*Before a sample inspection process can be carried out, the MEP must submit a documented process for selecting the sample to the Electricity Authority, at least two months prior to first date on which the inspections are to be carried out, for approval (and promptly provide any other information the Authority may request).*

*The MEP must not inspect a sample unless the Authority has approved the documented process.*

*The MEP must, for each inspection conducted under clause 45(1)(b), keep records detailing:*

- *any defects identified that have affected the accuracy or integrity of the raw meter data recorded by the metering installation*
- *any discrepancies identified under clause 44(5)(b)*
- *relevant characteristics, sufficient to enable reporting of correlations or relationships between inaccuracy and characteristics*
- *the procedure used, and the lists generated, to select the sample under clause 45(2).*

*The MEP must, if it believes a metering installation that has been inspected is or could be inaccurate, defective or not fit for purpose:*

- *comply with clause 10.43*
- *arrange for an ATH to recertify the metering installation if the metering is found to be inaccurate under Table 1 of Schedule 10.1, or defective or not fit for purpose.*

*The MEP must by 1 April in each year, provide the Authority with a report that states whether the MEP has, for the previous 1 January to 31 December period, arranged for an ATH to inspect each category 1 metering installation for which it is responsible under clause 45(1)(a) or 45(1)(b).*

*This report must include the matters specified in clauses 45(8)(a) and (b).*

*If the MEP is advised by the Authority that the tests do not meet the requirements under clause 45(9) of Schedule 10.7, the MEP must select the additional sample under that clause, carry out the required inspections, and report to the Authority, within 40 business days of being advised by the Authority.*

#### Audit observation

This area will not change as a result of the HHR data project.

#### Audit commentary

This area will not change as a result of the HHR data project.

#### Audit outcome

Not applicable

## 9.2. Category 2 to 5 Inspections (Clause 46(1) of Schedule 10.7)

### Code reference

*Clause 46(1) of Schedule 10.7*

### Code related audit information

*The MEP must ensure that each category 2 or higher metering installation is inspected by an ATH at least once within the applicable period. The applicable period begins from the date of the metering installation's most recent certification and extends to:*

- *120 months for Category 2*
- *60 months for Category 3*
- *30 months for Category 4*
- *18 months for Category 5.*

### Audit observation

This area will not change as a result of the HHR data project.

### Audit commentary

This area will not change as a result of the HHR data project.

### Audit outcome

Not applicable

## 9.3. Inspection Reports (Clause 44(5) of Schedule 10.7)

### Code reference

*Clause 44(5) of Schedule 10.7*

### Code related audit information

*The MEP must, within 20 business days of receiving an inspection report from an ATH:*

- *undertake a comparison of the information received with its own records*
- *investigate and correct any discrepancies*
- *update the metering records in the registry.*

### Audit observation

This area will not change as a result of the HHR data project.

### Audit commentary

This area will not change as a result of the HHR data project.

### Audit outcome

Not applicable

#### 9.4. Broken or removed seals (Clause 48(4) and (5) of Schedule 10.7)

##### Code reference

*Clause 48(4) and (5) of Schedule 10.7*

##### Code related audit information

*If the MEP is advised of a broken or removed seal it must use reasonable endeavours to determine*

- a) who removed or broke the seal*
- b) the reason for the removal or breakage*

*and arrange for an ATH to carry out an inspection of the removal or breakage and determine any work required to remedy the removal or breakage.*

*The MEP must make the above arrangements within*

- a) three business days, if the metering installation is category 3 or higher*
- b) 10 business days if the metering installation is category 2*
- c) 20 business days if the metering installation is category 1.*

##### Audit observation

This area will not change as a result of the HHR data project.

##### Audit commentary

This area will not change as a result of the HHR data project.

##### Audit outcome

Not applicable

## 10. PROCESS FOR HANDLING FAULTY METERING INSTALLATIONS

### 10.1. Investigation of Faulty Metering Installations (Clause 10.43(4) and (5))

#### Code reference

*Clause 10.43(4) and (5)*

#### Code related audit information

*If the MEP is advised or becomes aware that a metering installation may be inaccurate, defective, or not fit for purpose, it must investigate and report on the situation to all affected participants as soon as reasonably practicable after becoming aware of the information, but no later than;*

- a) 20 business days for Category 1,*
- b) 10 business days for Category 2 and*
- c) 5 business days for Category 3 or higher.*

#### Audit observation

This area will not change as a result of the HHR data project.

#### Audit commentary

This area will not change as a result of the HHR data project.

#### Audit outcome

Not applicable

### 10.2. Testing of Faulty Metering Installations (Clause 10.44)

#### Code reference

*Clause 10.44*

#### Code related audit information

*If a report prepared under clause 10.43(4)(c) demonstrates that a metering installation is inaccurate, defective, or not fit for purpose, the MEP must arrange for an ATH to test the metering installation and provide a 'statement of situation'.*

*If the MEP is advised by a participant under clause 10.44(2)(a) that the participant disagrees with the report that demonstrates that the metering installation is accurate, not defective and fit for purpose, the MEP must arrange for an ATH to:*

- a) test the metering installation*
- b) provide the MEP with a statement of situation within five business days of:*
- c) becoming aware that the metering installation may be inaccurate, defective or not fit for purpose; or*
- d) reaching an agreement with the participant.*

*The MEP is responsible for ensuring the ATH carries out testing as soon as practicable and provides a statement of situation.*

#### Audit observation

This area will not change as a result of the HHR data project.

#### Audit commentary

This area will not change as a result of the HHR data project.

#### Audit outcome



Not applicable

### 10.3. Statement of Situation (Clause10.46(2))

#### Code reference

*Clause10.46(2)*

#### Code related audit information

*Within three business days of receiving the statement from the ATH, the MEP must provide copies of the statement to:*

- *the relevant affected participants*
- *the market administrator (for all category 3 and above metering installations and any category 1 and category 2 metering installations) on request.*

#### Audit observation

This area will not change as a result of the HHR data project.

#### Audit commentary

This area will not change as a result of the HHR data project.

#### Audit outcome

Not applicable

## 11. ACCESS TO AND PROVISION OF RAW METER DATA AND METERING INSTALLATIONS

### 11.1. Access to Raw Meter Data (Clause 1 of Schedule 10.6)

#### Code reference

*Clause 1 of Schedule 10.6*

#### Code related audit information

*The MEP must give authorised parties access to raw meter data within 10 business days of receiving the authorised party making a request.*

*The MEP must only give access to raw meter data to a trader or person, if that trader or person has entered into a contract to collect, obtain, and use the raw meter data with the end customer.*

*The MEP must provide the following when giving a party access to information:*

- a) the raw meter data; or*
- b) the means (codes, keys etc.) to enable the party to access the raw meter data.*

*The MEP must, when providing raw meter data or access to an authorised person use appropriate procedures to ensure that:*

- the raw meter data is received only by that authorised person or a contractor to the person*
- the security of the raw meter data and the metering installation is maintained*
- access to the raw meter data is limited to only the specific raw meter data under clause 1(7)(c) of Schedule 10.6.*

#### Audit observation

I checked whether any parties had requested access to raw meter data.

#### Audit commentary

Metrix provides raw meter data to reconciliation participants in accordance with their agreements.

#### Audit outcome

Compliant

### 11.2. Restrictions on Use of Raw Meter Data (Clause 2 of Schedule 10.6)

#### Code reference

*Clause 2 of Schedule 10.6*

#### Code related audit information

*The MEP must not give an authorised person access to raw meter data if to do so would breach clause 2(1) of Schedule 10.6.*

#### Audit observation

I checked whether any parties had requested access to raw meter data.

#### Audit commentary

Metrix provides raw meter data to reconciliation participants in accordance with their agreements.

#### Audit outcome

Compliant

### 11.3. Access to Metering Installations (Clause 3(1), (3) and (4) of Schedule 10.6)

#### Code reference

*Clause 3(1), (3) and (4) of Schedule 10.6*

#### Code related audit information

*The MEP must within 10 business days of receiving a request from one of the following parties, arrange physical access to each component in a metering installation:*

- *a relevant reconciliation participant with whom it has an arrangement (other than a trader)*
- *the Authority*
- *an ATH*
- *an auditor*
- *a gaining MEP.*

*This access must include all necessary means to enable the party to access the metering components*

*When providing access the MEP must ensure that the security of the metering installation is maintained and physical access is limited to only the access required for the purposes of the Code, regulations in connection with the party's administration, audit and testing functions.*

#### Audit observation

I checked whether any parties had requested access to metering installations.

#### Audit commentary

No requests have been received but Metrix advised access could be granted in accordance with this clause if necessary.

#### Audit outcome

Compliant

### 11.4. Urgent Access to Metering Installations (Clause 3(5) of Schedule 10.6)

#### Code reference

*Clause 3(5) of Schedule 10.6*

#### Code related audit information

*If the party requires urgent physical access to a metering installation, the MEP must use its best endeavours to arrange physical access.*

#### Audit observation

I checked whether any parties had requested access to metering installations.

#### Audit commentary

No requests have been received, but Metrix advised access could be granted in accordance with this clause if necessary.

#### Audit outcome

Compliant

## 11.5. Electronic Interrogation of Metering Installations (Clause 8 of Schedule 10.6)

### Code reference

*Clause 8 of Schedule 10.6*

### Code related audit information

*When raw meter data can only be obtained from an MEP's back office, the MEP must*

- *ensure that the interrogation cycle does not exceed the maximum interrogation cycle shown in the registry*
- *interrogate the metering installation at least once within each maximum interrogation cycle.*

*When raw meter data can only be obtained from an MEP's back office, the MEP must ensure that the internal clock is accurate, to within  $\pm 5$  seconds of:*

- *New Zealand standard time; or*
- *New Zealand daylight time.*

*When raw meter data can only be obtained from an MEP's back office, the MEP must record in the interrogation and processing system logs, the time, the date, and the extent of any change in the internal clock setting in the metering installation.*

*When raw meter data can only be obtained from an MEP's back office, the MEP must ensure that a data storage device in a metering installation does not exceed the maximum time error set out in Table 1 of clause 8(5) of Schedule 10.6.*

*The MEP must compare the time on the internal clock of the data storage device with the time on the interrogation and processing system clock, calculate and correct (if required by this provision) any time error, and advise the affected reconciliation participant.*

*When raw meter data can only be obtained from an MEP's back office, the MEP must, when interrogating a metering installation, download the event log, check the event log for evidence of malfunctioning or tampering, and if this is detected, carry out the appropriate requirements of Part 10.*

*The MEP must ensure that all raw meter data that can only be obtained from the MEPs back office, that is downloaded as part of an interrogation, and that is used for submitting information for the purpose of Part 15 is archived:*

- *for no less than 48 months after the interrogation date*
- *in a form that cannot be modified without creating an audit trail*
- *in a form that is secure and prevents access by any unauthorised person*

*in a form that is accessible to authorised personnel.*

### Audit observation

#### Interrogation cycle

Metrix provided process documentation regarding the management of non-communicating meters, to ensure they are all read within the maximum interrogation cycle.

#### Clock synchronisation

Clock synchronization is discussed in Section 11.7

#### Event logs

Event logs are discussed in Section 11.8

#### Security of raw meter data

I checked the security and storage of data by looking at examples of data more than 48 months old and by checking security protocols.

#### Audit commentary

The process for the management of non-communicating meters includes the following steps.

- Non-communicating meters (i.e. those consistently not providing data) will be separately tracked.
- After 5 consecutive business days of no reads, a site visit will be raised to investigate.
- If the investigation has not completed and/or the issue is not resolved within 30 days, the AMI Comm Flag will be updated to No.

With regard to the security of raw meter data, I checked some data from 2009 during the previous audit to confirm it was available. All users have login and password to access working data and only certain IT experts can access raw data. There are no business processes that allow data to be edited. Event data is archived along with consumption data. This part of the process is compliant.

Event logs and clock synchronization processes are discussed in Sections 11.7 and 11.8.

#### Audit outcome

Compliant

### 11.6. Security of Metering Data (Clause 10.15(2))

#### Code reference

*Clause 10.15(2)*

#### Code related audit information

*The MEP must take reasonable security measures to prevent loss or unauthorised access, use, modification or disclosure of the metering data.*

#### Audit observation

I checked the security and storage of data by looking at examples of data more than 48 months old.

#### Audit commentary

With regard to the security of raw meter data, I checked some data from 2009 to confirm it was available. All users have login and password to access working data and only certain IT experts can access raw data. There are no business processes that allow data to be edited. Event data is archived along with consumption data.

#### Audit outcome

Compliant

## 11.7. Time Errors for Metering Installations (Clause 8(4) of Schedule 10.6)

### Code reference

*Clause 8(4) of Schedule 10.6*

### Code related audit information

*When raw meter data can only be obtained from the MEPs back office, the MEP must ensure that the data storage device it interrogates does not exceed the maximum time error set out in Table 1 of clause 8(5) of Schedule 10.6.*

### Audit observation

I checked the clock synchronization processes and reporting for all head ends during the previous audit. Whilst this will not change as part of the HHR data project, I have recorded the processes below to provide an assurance that compliance is achieved.

### Audit commentary

Metrix has five different systems. Time synchronisation occurs as follows:

1. Multidrive. The clock setting is five seconds to 30 seconds for Category 1 and five seconds to 10 seconds for Category 2. All errors in these bands are adjusted automatically and those over the maximum setting are adjusted manually. This task is conducted daily. If the manual adjustment fails due to a communications issue then a field visit is booked to fix the issue and synchronise the clock. There is a “repeat offenders” list of installations where the clock has drifted outside the threshold more than 20 times over a five day period. These devices are replaced.
2. Command Centre. The clock setting is 10 seconds, so any error less than 10 seconds is adjusted automatically and those over 10 seconds are adjusted manually. A separate “time synchronisation” report is run on a weekly basis to manage clock errors. Repeat offenders are also monitored and managed.
3. EAMS. This is an RF mesh system, which has “gate keepers” and “collectors”. Gate keepers are synchronised to the server on a daily basis. Every five hours the collectors broadcast a “time” signal to the devices and any errors greater than four seconds are adjusted. The setting is two to 25 seconds. Any large time errors over 25 seconds are managed manually.
4. Silverspring for Counties. The clock setting is 10 seconds to 20 minutes. For errors over 20 minutes a user must manually set the time. This list is run weekly and sent to Silverspring for them to adjust the clock.
5. Silverspring for Metrix. The clock setting is 10 seconds to 20 minutes. For errors over 20 minutes a user must manually set the time. This list is run weekly and sent to Silverspring for them to adjust the clock.

Metrix advises affected reconciliation participants of time error adjustments or any potential effect on raw meter data. Metrix monitors devices with multiple clock errors to ensure the meters are replaced.

### Audit outcome

Compliant

## 11.8. Event Logs (Clause 8(7) of Schedule 10.6)

### Code reference

*Clause 8(7) of Schedule 10.6*

### Code related audit information

*When raw meter data can only be obtained from the MEP's back office, the MEP must, when interrogating a metering installation:*

- a) ensure an interrogation log is generated*
- b) review the event log and:
  - i. take appropriate action*
  - ii. pass the relevant entries to the reconciliation participant.**
- c) ensure the log forms part of an audit trail which includes:
  - i. the date and*
  - ii. time of the interrogation*
  - iii. operator (where available)*
  - iv. unique ID of the data storage device*
  - v. any clock errors outside specified limits*
  - vi. method of interrogation*
  - vii. identifier of the reading device used (if applicable).**

### Audit observation

I checked the interrogation logs and event logs to ensure the items above were managed in a compliant manner.

### Audit commentary

The interrogation logs contain all of the information above. I checked all head ends to confirm this.

Metrix downloads the event log as required by this clause. All critical events are evaluated and appropriate action is taken. Relevant events, including tampering, are sent to reconciliation participants. Metrix provided a table listing all events, which shows "required action". The list appears to be comprehensive and complete.

I examined the process for filtering and managing events and I confirm that this is complete and robust.

### Audit outcome

Compliant

## 11.9. Comparison of HHR Data with Register Data (Clause 8(9) of Schedule 10.6)

### Code reference

*Clause 8(9) of Schedule 10.6*

### Code related audit information

*When raw meter data can only be obtained from the MEP's back office, the MEP must ensure that each electronic interrogation that retrieves half-hour metering information compares the information against the increment of the metering installations accumulating meter registers.*

### Audit observation

The sumcheck process was demonstrated and I checked the output reports and process documentation.

### Audit commentary

The sumcheck process includes the following steps:

- Some EDM1 meters (with serial numbers beginning with "2") require a "time shift" to correct an incorrect timestamp of 30 minutes ahead. For example, the trading period of 23.30 to midnight is recorded as midnight to 00.30. The first trading period (23.30 to midnight) is removed, the remaining periods are "moved" to the correct time and an additional trading period is added at the end to result in a correctly stamped 48 trading period file.
- Validation is then conducted, including:
  - Additional register
  - Missing register
  - Register reads without a midnight timestamp
  - Missing register reads
  - Missing intervals
- Register reads without a midnight timestamp are manually corrected by re-calculating a "midnight" read using the relevant trading periods.
- Sumcheck is then performed and any records outside 1kWh are investigated.
- Daylight saving adjustment is performed if required.

I checked examples of the actions above to ensure compliance is achieved.

### Audit outcome

Compliant

## 11.10. Correction of Raw Meter Data (Clause 10.48(2),(3))

### Code reference

*Clause 10.48(2),(3)*

### Code related audit information

*If the MEP is notified of a question or request for clarification in accordance with clause 10.48(1), the MEP must, within 10 business days:*

- *respond in detail to the questions or requests for clarification*
- *advise the reconciliation participant responsible for providing submission information for the POC of the correction factors to apply and period the factors should apply to.*

### Audit observation

This process will not change as a result of the HHR data project; however Metrix will provide estimation functionality, which I examined.



### Audit commentary

Estimates will be manually derived based on the following decision tree:

#### Missing register read:

- If interval data exists from the last available RR, derive an estimated value by adding the interval totals to the last RR.
- If interval data is not complete and there is a RR before and after, use these RRs and estimate the register read on a straight line basis (this is only applicable where the RR's being used are of a similar type i.e. both business days or both non-business days).
- If interval and/or RR data is incomplete, use historical consumption to derive the RR, taking into account typical consumption for the same day since the previous RR. (eg Tuesday based on Tuesday or Saturday based on Saturday)

#### Missing interval data:

- If RR is available before and after, prorate the difference between the RR's and the available interval data, equally across any missing intervals.
- Use the intervals before and after the gap and estimate missing intervals on a straight line basis.
- Use average historical consumption for a similar period e.g. time period and type of day to estimate the missing interval data.

All estimates are appropriately identified.

The estimation processes are considered compliant. The requirements of Part 15 are outside the scope of this audit because they are the responsibility of Retailers, which means the contents of this section will need to be included in Retailers' next Reconciliation Participant audit reports if these services are used.

Any changes from NHH to HHR will be conducted at midnight to ensure the registry update and reconciliation processes are not adversely affected.

### Audit outcome

Not applicable

## CONCLUSION

Compliance is confirmed for all relevant parts of the Code.

Metrix will provide an estimation function, which is confirmed as compliant. The estimation requirements of Part 15 are outside the scope of this audit because they are the responsibility of Retailers, which means the contents of this section will need to be included in Retailers' next Reconciliation Participant audit reports if these services are used.

## PARTICIPANT RESPONSE