

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

For

**INTELLIHUB NZ LTD (IHUB)**

Prepared by: Steve Woods, Veritek Limited

Date audit commenced: 28 April 2021

Date audit report completed: 16 June 2021

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## TABLE OF CONTENTS

Executive summary .....	5
Audit summary .....	6
Non-compliances .....	6
Recommendations .....	6
Issues 6	
1. Administrative .....	7
1.1. Exemptions from Obligations to Comply with Code (Section 11) .....	7
1.2. Structure of Organisation .....	7
1.3. Persons involved in this audit .....	8
1.4. Use of Agents (Clause 10.3) .....	8
1.5. Hardware and Software .....	9
1.6. Breaches or Breach Allegations .....	9
1.7. ICP Data .....	9
1.8. Authorisation Received .....	10
1.9. Scope of Audit .....	10
1.10. Summary of previous audit .....	11
Non-compliances .....	11
Recommendations .....	11
2. Operational Infrastructure .....	12
2.1. MEP responsibility for services access interface (Clause 10.9(2)) .....	12
2.2. Dispute Resolution (Clause 10.50(1) to (3)) .....	12
2.3. MEP Identifier (Clause 7(1) of Schedule 10.6) .....	13
2.4. Communication Equipment Compatibility (Clause 40 Schedule 10.7) .....	13
2.5. Participants to Provide Accurate Information (Clause 11.2 and Clause 10.6) .....	13
3. Process for a Change of MEP .....	15
3.1. Payment of Costs to Losing MEP (Clause 10.22) .....	15
3.2. Registry Notification of Metering Records (Clause 2 of Schedule 11.4) .....	15
3.3. Provision of Metering Records to Gaining MEP (Clause 5 of Schedule 10.6) .....	16
3.4. Termination of MEP Responsibility (Clause 10.23) .....	16
4. Installation and Modification of Metering Installations .....	18
4.1. Design Reports for Metering Installations (Clause 2 of Schedule 10.7) .....	18
4.2. Contracting with ATH (Clause 9 of Schedule 10.6) .....	18
4.3. Metering Installation Design & Accuracy (Clause 4(1) of Schedule 10.7) .....	19
4.4. Net metering and Subtractive Metering (Clause 10.13A and 4(2)(a) of Schedule 10.7) .....	19
4.5. HHR Metering (Clause 4(2)(b) of Schedule 10.7) .....	20
4.6. NSP Metering (Clause 4(3) of Schedule 10.7) .....	20
4.7. Responsibility for Metering Installations (Clause 10.26(10)) .....	20
4.8. Suitability of Metering Installations (Clause 4(4) of Schedule 10.7) .....	21
4.9. Installation & Modification of Metering Installations (Clauses 10.34(2), (2A) 2(D) and (3)) .....	21
4.10. Changes to Registry Records (Clause 3 of Schedule 11.4) .....	22
4.11. Metering Infrastructure (Clause 10.39(1)) .....	22
4.12. Responsibility for Metering at ICP (Clause 10.23A) .....	23

4.13.	Measuring Transformer Burden and Compensation Requirements (Clause 31(4) and (5) of Schedule 10.7) .....	24
4.14.	Changes to Software ROM or Firmware (Clause 39(1) and 39(2) of Schedule 10.7) .....	25
4.15.	Temporary Electrical Connection (Clause 10.28(6)).....	25
5.	Metering Records.....	26
5.1.	Accurate and Complete Records (Clause 4(1)(a) and (b) of Schedule 10.6, and Table 1, Schedule 11.4) .....	26
5.2.	Inspection Reports (Clause 4(2) of Schedule 10.6) .....	26
5.3.	Retention of Metering Records (Clause 4(3) of Schedule 10.6) .....	27
5.4.	Provision of Records to ATH (Clause 6 Schedule 10.6).....	27
6.	Maintenance of Registry Information.....	28
6.1.	MEP Response to Switch Notification (Clause 1(1) of Schedule 11.4) .....	28
6.2.	Provision of Registry Information (Clause 7 (1) (1A), (2) and (3) of Schedule 11.4) .....	28
6.3.	Correction of Errors in Registry (Clause 6 of Schedule 11.4) .....	29
6.4.	Cancellation of Certification (Clause 20 of Schedule 10.7) .....	29
6.5.	Registry Metering Records (Clause 11.8A).....	30
7.	Certification of Metering Installations .....	31
7.1.	Certification and Maintenance (Clause 10.38 (a), clause 1 and clause 15 of Schedule 10.7) .....	31
7.2.	Certification Tests (Clause 10.38(b) and clause 9 of Schedule 10.6).....	31
7.3.	Active and Reactive Capability (Clause 10.37(1) and 10.37(2)(a)) .....	32
7.4.	Local Service Metering (Clause 10.37(2)(b)) .....	32
7.5.	Measuring Transformer Burden (Clause 30(1) and 31(2) of Schedule 10.7) .....	33
7.6.	Certification as a Lower Category (Clauses 6(1)(b) and (d), and 6(2)(b) of Schedule 10.7).....	34
7.7.	Insufficient Load for Certification Tests (Clauses 14(3) and (4) of Schedule 10.7) .....	34
7.8.	Insufficient Load for Certification – Cancellation of Certification (Clause 14(6) of Schedule 10.7) .....	35
7.9.	Alternative Certification Requirements (Clauses 32(2), (3) and (4) of Schedule 10.7) ...	35
7.10.	Timekeeping Requirements (Clause 23 of Schedule 10.7).....	36
7.11.	Control Device Bridged Out (Clause 35 of Schedule 10.7) .....	36
7.12.	Control Device Reliability Requirements (Clause 34(5) of Schedule 10.7).....	37
7.13.	Statistical Sampling (Clauses 16(1) and (5) of Schedule 10.7).....	37
7.14.	Compensation Factors (Clause 24(3) of Schedule 10.7).....	37
7.15.	Metering Installations Incorporating a Meter (Clause 26(1) of Schedule 10.7).....	38
7.16.	Metering Installations Incorporating a Measuring Transformer (Clause 28(1) of Schedule 10.7) .....	39
7.17.	Metering Installations Incorporating a Data Storage Device (Clause 36(1) of Schedule 10.7) .....	39
7.18.	Notification of ATH Approval (Clause 7 (3) Schedule 10.3).....	39
7.19.	Interim Certification (Clause 18 of Schedule 10.7).....	40
8.	Inspection of metering installations .....	41
8.1.	Category 1 Inspections (Clause 45 of Schedule 10.7).....	41
8.2.	Category 2 to 5 Inspections (Clause 46(1) of Schedule 10.7).....	42
8.3.	Inspection Reports (Clause 44(5) of Schedule 10.7) .....	42
8.4.	Broken or removed seals (Clause 48(1G), (4) and (5) of Schedule 10.7) .....	43
9.	Process for Handling Faulty Metering Installations .....	44
9.1.	Investigation of Faulty Metering Installations (Clause 10.43(4) and (5)).....	44

9.2. Testing of Faulty Metering Installations (Clause 10.44).....	44
9.3. Statement of Situation (Clause10.46(2)).....	45
9.4. Timeframe for correct defects and inaccuracies (Clause10.46A) .....	45
10. Access to and Provision of Raw meter Data and Metering Installations.....	46
10.1. Access to Raw Meter Data (Clause 1 of Schedule 10.6).....	46
10.2. Restrictions on Use of Raw Meter Data (Clause 2 of Schedule 10.6).....	46
10.3. Access to Metering Installations (Clause 3(1), (3) and (4) of Schedule 10.6).....	47
10.4. Urgent Access to Metering Installations (Clause 3(5) of Schedule 10.6) .....	47
10.5. Electronic Interrogation of Metering Installations (Clause 8 of Schedule 10.6) .....	48
10.6. Security of Metering Data (Clause 10.15(2)) .....	49
10.7. Time Errors for Metering Installations (Clause 8(4) of Schedule 10.6) .....	49
10.8. Event Logs (Clause 8(7) of Schedule 10.6).....	50
10.9. Comparison of HHR Data with Register Data (Clause 8(9) of Schedule 10.6) .....	51
10.10. Correction of Raw Meter Data (Clause 10.48(2),(3)).....	51
10.11. Raw meter data and compensation factors (Clause 8(10) of Schedule 10.6) .....	52
10.12. Investigation of AMI interrogation failures (Clause 8(11), 8(12) and 8(13) of Schedule 10.6)	
52	
Conclusion .....	53
Participant response .....	54

## EXECUTIVE SUMMARY

**IntelliHUB NZ Ltd (IHUB)** is a Metering Equipment Provider (MEP). Intellihub intends to implement a new head end called PolicyNet, which is provided by Aetheros (a US based vendor). This head end is one part of the Aetheros IoT platform that includes a new communications module/modem designed by Intellihub called Intelli-ConX. This head end and modem will be utilised with the Landis+Gyr meters currently deployed by Intellihub.

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 Intellihub so that it can be supplied to the Electricity Authority to satisfy the requirements of Clause 16A.11. The relevant functions checked were as follows:

- metering Infrastructure,
- changes to software ROM or firmware,
- security of metering data,
- electronic interrogation of metering installations,
- time errors, and
- event logs

I checked the overall plan, implementation plan, test plan, test results and the go live plan to determine compliance.

Ripple reprogramming functionality has not yet been fully tested. The latest vendor release (including bug fixes) is in the process of being tested. Meter bulk reprogramming functionality final testing will be conducted once a new batch of production ready devices is delivered. It is not expected this functionality will be required for pilot deployment.

Infrastructure and application monitoring has been implemented and the handover to the “Business as Usual” monitoring teams is in progress. The standby and disaster recovery build is still in progress and it is expected these two items will be complete prior to ramping up.

This audit found compliance will continue to be achieved for the areas checked. I recommend the next audit date of 08/08/21 remains.

## AUDIT SUMMARY

### NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
						Future Risk Rating	0

### RECOMMENDATIONS

Subject	Section	Clause	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.

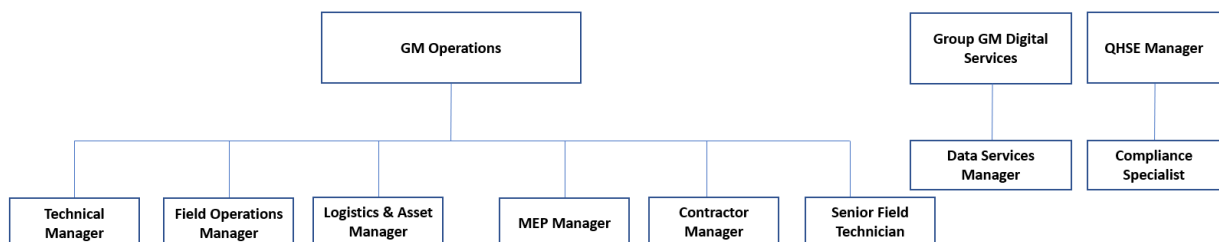
#### Audit commentary

I checked the Electricity Authority website and I confirm there are no exemptions in place.

### 1.2. Structure of Organisation

IntelliHUB's organisation structure is shown below.

#### Team Members involved in MEP Audit



### 1.3. Persons involved in this audit

Auditor: Steve Woods

**Veritek Limited**

**Electricity Authority Approved Auditor**

IntelliHUB personnel assisting in this audit were:

Name	Title
Niu Nelson	MEP Manager
Rialet Erasmus	Delivery Lead

### 1.4. 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 contractor's 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

I checked whether there were any agents or contractors involved in the performance of functions within the scope of the audit.

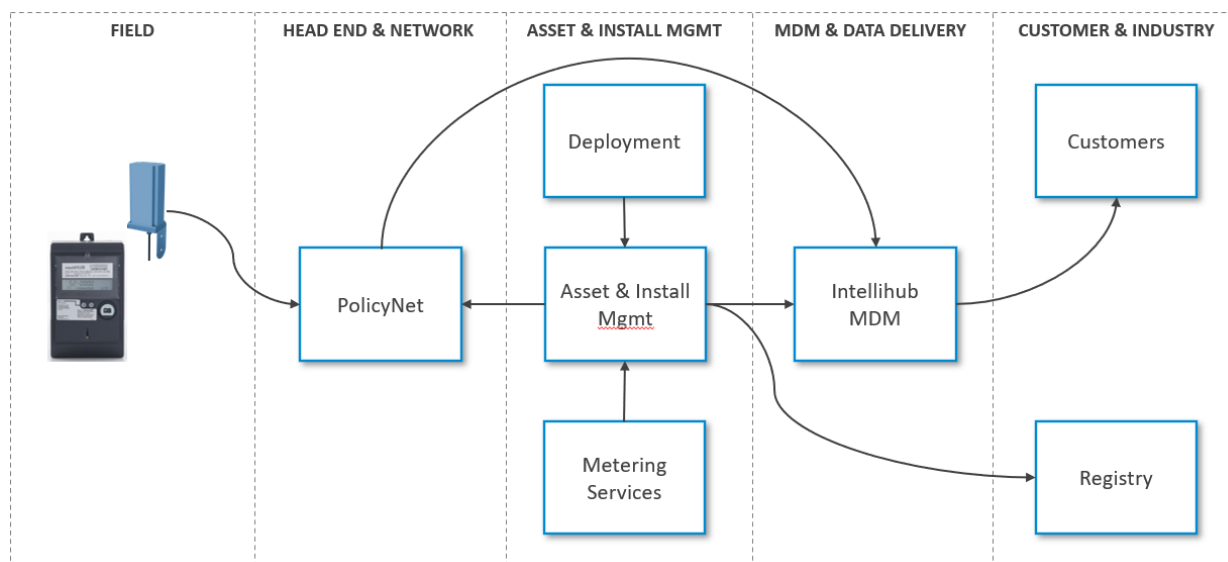
#### Audit commentary

IntelliHUB intends to implement the PolicyNet head end. Contractors will not be involved in the ongoing operation of the system.



## 1.5. Hardware and Software

An overview of the system is shown in the diagram below. The PolicyNet head end and associated Intelli-ConX module are within the scope of this audit.



IntelliHUB provided a “Data Backup and Retention” work instruction, which is reviewed annually. The document contains the following summary of backup arrangements:

On each Database VM (SQL and Oracle) backups are saved to a separate locally attached disk. Copies of the Database Backup files are then replicated to an Azure Cloud Storage account every hour. This Storage account is Geo-Replicated and has four copies.

The current Backup schedule is as follows:

- Full database monthly backup (kept for 13 months, then a yearly copy taken)
- Full database weekly backup (kept for 5 weeks)
- Incremental backup is taken on a daily basis (kept for 8 days)
- Hourly Database log backup (kept for 2 days)

To verify the validity of the backup processes a sample of VM and DB backups are to ‘test restored’ at least quarterly.

## 1.6. Breaches or Breach Allegations

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

## 1.7. ICP Data

The table below shows active ICPs at 25/06/20.

Metering Category	Number of ICP 2020s	Number of ICPs 2019
1	56,429	14,647
2	12	10
3	0	0

4	0	0
5	0	0
9	1	0

#### 1.8. Authorisation Received

A letter of authorisation was not required or requested.

#### 1.9. Scope of Audit

Intellihub intends to implement a new head end called PolicyNet, which is provided by Aetheros (a US based vendor). This head end is one part of the Aetheros IoT platform that includes a new communications module/modem designed by Intellihub called the Intelli-ConX. This head end and modem will be utilised with the Landis+Gyr meters currently deployed by Intellihub.

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 Intellihub so that it can be supplied to the Electricity Authority to satisfy the requirements of Clause 16A.11. The relevant functions checked were as follows:

- metering Infrastructure,
- changes to software ROM or firmware,
- security of metering data,
- electronic interrogation of metering installations,
- time errors, and
- event logs

#### 1.10. Summary of previous audit

The previous audit was conducted by Rebecca Elliot of Veritek in August 2020. There was only one issue that could be relevant to this audit, regarding the maximum interrogation cycle. The process for managing this is conducted within the MDM and not within the head end, therefore the material change will not impact on this.

#### NON-COMPLIANCES

Subject	Section	Clause	Non- Compliance	Status
Max interrogation cycle	10.5	8(2)(a) of Schedule 10.6	Maximum interrogation cycle exceeded for 96 ICPs.	N/A

#### RECOMMENDATIONS

Subject	Section	Clause	Description	Status
			Nil	

## 2. OPERATIONAL INFRASTRUCTURE

### 2.1. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit outcome

Not applicable

### 2.2. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit outcome

Not applicable

## 2.3. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

### Audit outcome

Not applicable

## 2.4. 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

I checked that the ATHs have a process to check the relevant type test certificates to ensure compliance with this clause.

### Audit commentary

IntelliHUB ensures all communication equipment is appropriately certified with the relevant telecommunications standards. This is recorded in type test certificates and other approval documents.

### Audit outcome

Compliant

## 2.5. 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 checked the following two relevant areas:

1. Confirmation to that remote reconnection and disconnection occurs as expected and that reporting is available to confirm success.
2. A comparison between test meter data and actual meter data in the MDM to confirm the results match.

### **Audit commentary**

PolicyNet has capability to perform remote disconnection and reconnection, using the service switch built into the meter. Test results were provided showing the meter display matching the status in the user interface for a reconnection and a disconnection.

The testing process included the connection of a meter with a Intelli-ConX modem at an installation containing an existing meter connected to the Command Centre head end.

The results for May 10<sup>th</sup>, 2021, confirmed that the kWh per interval in the MDM for both meters matched to within acceptable tolerances.

### **Audit outcome**

Compliant

### 3. PROCESS FOR A CHANGE OF MEP

#### 3.1. 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 requirements are met in relation to updating the registry and advising the reconciliation manager.*

*The losing MEP must notify the gaining MEP of the proportion of the costs within 40 business days of the gaining MEP assuming responsibility. The gaining MEP must pay the losing MEP within 20 business days of receiving notification from the losing MEP.*

*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.*

*The gaining MEP is not required to pay costs if the losing MEP has agreed in writing that the gaming MEP is not required to pay costs, or the losing MEP has failed to provide notice within 40 business days.*

##### Audit observation

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit outcome

Not applicable

#### 3.2. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit outcome

Not applicable

### 3.3. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit outcome

Not applicable

### 3.4. 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 MEP's 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**

There will be no changes to this area as a result of the PolicyNet head-end implementation.

**Audit commentary**

There will be no changes to this area as a result of the PolicyNet head-end implementation.

**Audit outcome**

Not applicable

## 4. INSTALLATION AND MODIFICATION OF METERING INSTALLATIONS

### 4.1. 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 for each services access interface, 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit outcome

Not applicable

### 4.2. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit outcome

Not applicable

#### 4.3. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit outcome

Not applicable

#### 4.4. Net metering and Subtractive Metering (Clause 10.13A and 4(2)(a) of Schedule 10.7)

##### Code reference

*Clause 10.13A and Clause 4(2)(a) of Schedule 10.7*

##### Code related audit information

*MEPs must ensure that the metering installation records imported electricity separately from exported electricity. For category 1 and 2 installations the MEP must ensure the metering installation records imported and exported electricity separately for each phase.*

*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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit outcome

Not applicable

#### 4.5. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit outcome

Not applicable

#### 4.6. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit outcome

Not applicable

#### 4.7. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit outcome

Not applicable

### 4.8. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit outcome

Not applicable

### 4.9. Installation & Modification of Metering Installations (Clauses 10.34(2), (2A) 2(D) 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 installation's:*

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

*This includes where the MEP is proposing to replace a metering component or metering installations with the same or similar design and functionality, but excludes where the MEP has already consulted on the design with the distributor and trader.*

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

#### Audit observation

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit outcome

Not applicable

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

##### Code reference

*Clause 3 of Schedule 11.4*

##### Code related audit information

*If the MEP has an arrangement with the trader the MEP must advise the registry manager of the registry metering records, or any change to the registry metering records, for each metering installation for which it is responsible at the ICP, no later than 10 business days following:*

- a) the electrical connection of the metering installation at the ICP*
- b) any subsequent change to the metering installation's metering records*

*If the MEP is update the registry in accordance with 8(11)(b) of Schedule 10.6, 10 business days after the most recent unsuccessful interrogation.*

*If update the registry in accordance with clause 8(13) of Schedule 10.6, 3 business days following the expiry of the time period or date from which the MEP determines it cannot restore communications.*

##### Audit observation

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit outcome

Not applicable

#### 4.11. 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

The AMI metering and data collection system is considered "metering infrastructure". I checked that the Intelli-ConX modem was compatible.

##### Audit commentary

The modem has the "Regulatory Compliance Mark (RCM)", as shown below.



#### Audit outcome

Compliant

#### 4.12. Responsibility for Metering at ICP (Clause 10.23A)

##### Code reference

Clause 10.23A

##### Code related audit information

*If a metering installation at an ICP is to be decommissioned, but the ICP is not being decommissioned, the metering equipment provider that is responsible for decommissioning the metering installation must—*

*(a) if the metering equipment provider is responsible for interrogating the metering installation—*

- (i) arrange for a final interrogation to take place before the metering installation is decommissioned; and*
- (ii) provide the raw meter data from the interrogation to the trader that is recorded in the registry as being responsible for the ICP; or*

*(b) if another participant is responsible for interrogating the metering installation, advise the other participant not less than three business days before the decommissioning—*

- (i) of the date and time of the decommissioning; and*
- (ii) that the participant must carry out a final interrogation.*

*(2) To avoid doubt, if a metering installation at an ICP is to be decommissioned because the ICP is being decommissioned—*

*(a) the metering equipment provider is not responsible for arranging a final interrogation of the metering installation; and*

*(b) the trader that is recorded in the registry as being responsible for the ICP must arrange for a final interrogation of the metering installation under clause 11.18(3).*

#### **Audit observation**

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### **Audit commentary**

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### **Audit outcome**

Not applicable

### **4.13. 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**

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### **Audit commentary**

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### **Audit outcome**

Not applicable



#### 4.14. 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

Software, ROM or firmware changes are likely to occur in the future and the Landis + Gyr test laboratory is likely to provide the new versions and the instructions to implement.

##### Audit commentary

Meter firmware management has not yet been delivered but development is in progress. Appropriate testing will be conducted once the firmware management capability is delivered.

##### Audit outcome

Compliant

#### 4.15. Temporary Electrical Connection (Clause 10.28(6))

##### Code reference

*Clause 10.28(6)*

##### Code related audit information

*An MEP must not request the temporary electrical connection 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit outcome

Not applicable

## 5. METERING RECORDS

### 5.1. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit outcome

Not applicable

### 5.2. 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

IntelliHUB will not need to conduct inspections for several years.

#### Audit commentary

IntelliHUB will not need to conduct inspections for several years.

**Audit outcome**

Not applicable

**5.3. 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**

There will be no changes to this area as a result of the PolicyNet head-end implementation.

**Audit commentary**

There will be no changes to this area as a result of the PolicyNet head-end implementation.

**Audit outcome**

Not applicable

**5.4. 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**

There will be no changes to this area as a result of the PolicyNet head-end implementation.

**Audit commentary**

There will be no changes to this area as a result of the PolicyNet head-end implementation.

**Audit outcome**

Not applicable

## 6. MAINTENANCE OF REGISTRY INFORMATION

### 6.1. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit outcome

Not applicable

### 6.2. Provision of Registry Information (Clause 7 (1) (1A), (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 trader's system.*

#### Audit observation

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit outcome

Not applicable

### 6.3. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit outcome

Not applicable

### 6.4. 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), 19(3A) or 19(3C)*
- 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:*
  - a. *the MEP has not received the report under 6(2A)(a) or 6(2A)(b); or*
  - b. *the report demonstrates the maximum current is higher than permitted; or*

- c. *the report demonstrates the electricity conveyed exceeds the amount permitted*
- 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.*
- j) *the installation is an HHR AMI installation certified after 29 August 2013 and*
  - a. *the metering installation is not interrogated within the maximum interrogation cycle; or*
  - b. *the HHR and NHH register comparison is not performed; or*
  - c. *the HHR and NHH register comparison for the same period finds a difference of greater than 1 kWh and the issue is not remediated within 3 business days*

*A metering equipment provider must (unless the installation has been recertified within the 10 business days) 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.*

*If any of the events in Clause 20(1)(j) of Schedule 10.7 have occurred, update the AMI flag in the registry to 'N'.*

#### **Audit observation**

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### **Audit commentary**

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### **Audit outcome**

Not applicable

### **6.5. 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**

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### **Audit commentary**

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### **Audit outcome**

Not applicable

## 7. CERTIFICATION OF METERING INSTALLATIONS

### 7.1. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit outcome

Not applicable

### 7.2. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit outcome

Not applicable

### 7.3. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit outcome

Not applicable

### 7.4. 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

**7.5. 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**

There will be no changes to this area as a result of the PolicyNet head-end implementation.

**Audit commentary**

There will be no changes to this area as a result of the PolicyNet head-end implementation.

**Audit outcome**

Not applicable

## 7.6. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

### Audit outcome

Not applicable

## 7.7. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit outcome

Not applicable

### 7.8. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit outcome

Not applicable

### 7.9. 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**

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### **Audit commentary**

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### **Audit outcome**

Not applicable

### **7.10. 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**

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### **Audit commentary**

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### **Audit outcome**

Not applicable

### **7.11. 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**

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit outcome

Not applicable

### 7.12. 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 3 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit outcome

Not applicable

### 7.13. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit outcome

Not applicable

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

#### Code reference

*Clause 24(3) of Schedule 10.7*

**Code related audit information**

*If an external 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 update the compensation factor recorded in the registry in accordance with Part 11.*

**Audit observation**

There will be no changes to this area as a result of the PolicyNet head-end implementation.

**Audit commentary**

There will be no changes to this area as a result of the PolicyNet head-end implementation.

**Audit outcome**

Not applicable

**7.15. 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**

There will be no changes to this area as a result of the PolicyNet head-end implementation.

**Audit commentary**

There will be no changes to this area as a result of the PolicyNet head-end implementation.

**Audit outcome**

Not applicable

#### 7.16. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit outcome

Not applicable

#### 7.17. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit outcome

Not applicable

#### 7.18. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

**Audit outcome**

Not applicable

**7.19. 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**

There will be no changes to this area as a result of the PolicyNet head-end implementation.

**Audit commentary**

There will be no changes to this area as a result of the PolicyNet head-end implementation.

**Audit outcome**

Not applicable



## 8. INSPECTION OF METERING INSTALLATIONS

### 8.1. 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 126 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, ensure an ATH has completed inspections of a sample of the category 1 metering installations selected under clause 45(2) of Schedule 10.7.*

*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 2 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit outcome

Not applicable

## 8.2. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

### Audit outcome

Not applicable

## 8.3. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

### Audit outcome

Not applicable

#### 8.4. Broken or removed seals (Clause 48(1G), (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) 3 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.*

*If the MEP is advised under 48(1B)(c) or (48(1F)(d) the MEP must update the relevant meter register content code for the relevant meter channel.*

##### Audit observation

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit outcome

Not applicable

## 9. PROCESS FOR HANDLING FAULTY METERING INSTALLATIONS

### 9.1. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit outcome

Not applicable

### 9.2. 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 5 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit outcome

Not applicable

### 9.3. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit outcome

Not applicable

### 9.4. Timeframe for correct defects and inaccuracies (Clause10.46A)

#### Code reference

Clause10.46A

#### Code related audit information

*When the metering equipment provider is advised under 10.43 or becomes aware a metering installation it is responsible for is inaccurate, defective or not fit for purpose the metering equipment provider must undertake remedial actions to address the issue.*

*The metering equipment provider must use its best endeavours to complete the remedial action within 10 business days of the date it is required to provide a report to participants under 10.43(4)(c).*

#### Audit observation

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit outcome

Not applicable

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

### 10.1. 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 if implementation of the PolicyNet head-end would impact the ability to provide access to raw meter data.

#### Audit commentary

There is no change to the way retailers will interact with Intellihub regarding data. Intellihub may be requested for information under this clause and will provide it as required.

#### Audit outcome

Compliant

### 10.2. 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 if implementation of the PolicyNet head-end would impact the ability to provide access to raw meter data.

#### Audit commentary

There is no change to the way retailers will interact with Intellihub regarding data. Intellihub may be requested for information under this clause and will provide it as required.

## Audit outcome

Compliant

### 10.3. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit outcome

Not applicable

### 10.4. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

#### Audit outcome

Not applicable

## 10.5. 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.*

*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 an events that may affect the integrity or operation of the metering installation, such as malfunctioning or tampering.*

*The MEP must investigate and remediate any events and advise the reconciliation participant.*

*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

Intellihub conducts AMI data collection as an MEP, because data can only be accessed from their back office.

I conducted a walkthrough of the process and I checked test results to determine if implementation of the PolicyNet head-end would impact the ability to meet the requirements of this clause.

### Audit commentary

The following findings are relevant to compliance with these clauses.

- The maximum interrogation cycle management will not change because this is managed in the MDM.
- I checked the "Intelli-ConX Time Sync Test Results" document, which confirmed the clock setting is 20 seconds (because only Category 1 meters will be interrogated by the head-end initially). The test results confirmed that time drift between 20 and 120 seconds is automatically corrected and



time drift over 120 seconds is not automatically corrected but appears on a report called “Clock Drift Report” and can be adjusted manually. All corrections appear on the “Clock Adjustment Report”. Test results confirmed all relevant scenarios passed.

- The event log management was checked by reviewing the “PolicyNet Events Mapping with Event category” document, which listed all possible events. I also checked the “Intelli-ConX Test Results” document, which contained test results for five different events, confirming they are collected and reported.
- Data will be kept for at least 48 months, there is no change to this policy.
- Data is transmitted securely by SFTP and is only accessible to authorised persons with appropriate passwords.
- The interrogation log contains all relevant details as required by the Code.
- Remote reconnection/disconnection test results confirmed this functionality, including reporting of status, is operating as expected.

#### **Audit outcome**

Compliant

### **10.6. 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 conducted a walkthrough of the data security processes.

#### **Audit commentary**

Data is transmitted securely by SFTP and is only accessible to authorised persons with appropriate passwords.

I also checked the results of a field trial, where a meter connected to the existing head-end (command centre) was connected in series with a meter connected to PolicyNet. The field trial showed that the results were well within the expected tolerance.

#### **Audit outcome**

Compliant

### **10.7. 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 conducted a walkthrough of the process and I checked test results to determine if implementation of the PolicyNet head-end would impact the ability to meet the requirements of this clause.

#### Audit commentary

I checked the “Intelli-ConX Time Sync Test Results” document, which confirmed the clock setting is 20 seconds (because only Category 1 meters will be interrogated by the head-end initially). The test results confirmed that time drift between 20 and 120 seconds is automatically corrected and time drift over 120 seconds is not automatically corrected but appears on a report called “Clock Drift Report” and can be adjusted manually. All corrections appear on the “Clock Adjustment Report”. Test results confirmed all relevant scenarios passed.

#### Audit outcome

Compliant

### 10.8. 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

The event log management was checked by reviewing the “PolicyNet Events Mapping with Event category” document, which listed all possible events. I also checked the “Intelli-ConX Test Results” document, which contained test results for five different events, confirming they are collected and reported.

#### Audit commentary

The event log management was checked by reviewing the “PolicyNet Events Mapping with Event category” document, which listed all possible events. I also checked the “Intelli-ConX Test Results” document, which contained test results for five different events, confirming they are collected and reported.

Meter firmware management has not yet been delivered but development is in progress. It is not intended that any firmware changes will be made until development is complete.

#### Audit outcome

Compliant

#### 10.9. 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 for the same period.*

##### Audit observation

Sumcheck is conducted in the MDM not in the head-end, therefore it is not relevant to this audit.

##### Audit commentary

Sumcheck is conducted in the MDM not in the head-end, therefore it is not relevant to this audit.

##### Audit outcome

Compliant

#### 10.10. 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

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit outcome

Compliant

#### 10.11.Raw meter data and compensation factors (Clause 8(10) of Schedule 10.6)

##### Code reference

*Clause 8(10) of Schedule 10.6*

##### Code related audit information

*The MEP must not apply the compensation factor recorded in the registry to raw meter data downloaded as part of the interrogation of the metering installation.*

##### Audit observation

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit outcome

Not applicable

#### 10.12.Investigation of AMI interrogation failures (Clause 8(11), 8(12) and 8(13) of Schedule 10.6)

##### Code reference

*Clause 8(11), 8(12) and 8(13) of Schedule 10.6*

##### Code related audit information

*If an interrogation does not download all raw meter data the MEP must investigate the registry why or update the registry to show the meter is no longer AMI.*

*If the MEP choses to investigate the reasons for the failure the MEP has no more than 30 days or 25% of the maximum interrogation cycle, from the date of the last successful interrogation (whichever is shorter).*

*If the MEP does not restore communications within this time or determines they will be unable to meet this timeframe they must update the registry to show the meter is no longer AMI.*

##### Audit observation

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit commentary

There will be no changes to this area as a result of the PolicyNet head-end implementation.

##### Audit outcome

Not applicable

## CONCLUSION

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 Intellihub so that it can be supplied to the Electricity Authority to satisfy the requirements of Clause 16A.11. The relevant functions checked were as follows:

- metering Infrastructure,
- changes to software ROM or firmware,
- security of metering data,
- electronic interrogation of metering installations,
- time errors, and
- event logs

I checked the overall plan, implementation plan, test plan, test results and the go live plan to determine compliance.

Ripple reprogramming functionality has not yet been fully tested. The latest vendor release (including bug fixes) is in the process of being tested. Meter bulk reprogramming functionality final testing will be conducted once a new batch of production ready devices is delivered. It is not expected this functionality will be required for pilot deployment.

Infrastructure and application monitoring has been implemented and the handover to the “Business as Usual” monitoring teams is in progress. The standby and disaster recovery build is still in progress and it is expected these two items will be complete prior to ramping up.

This audit found compliance will continue to be achieved for the areas checked. I recommend the next audit date of 08/08/21 remains.

## PARTICIPANT RESPONSE