

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

For



## ADVANCED METERING SERVICES

Prepared by: Brett Piskulic – Veritek Limited

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Audit report due date: 23-Aug-19

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## TABLE OF CONTENTS

Executive summary .....	5
Audit summary .....	6
Non-compliances .....	6
Recommendations .....	9
Issues	9
1. Administrative .....	10
1.1. Exemptions from Obligations to Comply with Code (Section 11) .....	10
1.2. Structure of Organisation .....	10
1.3. Persons involved in this audit .....	12
1.4. Use of Agents (Clause 10.3) .....	13
1.5. Hardware and Software .....	14
1.6. Breaches or Breach Allegations .....	14
1.7. ICP Data .....	14
1.8. Authorisation Received .....	14
1.9. Scope of Audit .....	15
1.10. Summary of previous audit .....	16
Non-compliances .....	16
Recommendations .....	18
2. Operational Infrastructure .....	19
2.1. MEP responsibility for services access interface (Clause 10.9(2)) .....	19
2.2. Dispute Resolution (Clause 10.50(1) to (3)) .....	19
2.3. MEP Identifier (Clause 7(1) of Schedule 10.6) .....	20
2.4. Communication Equipment Compatibility (Clause 40 Schedule 10.7) .....	21
2.5. Participants to Provide Accurate Information (Clause 11.2 and Clause 10.6) .....	21
3. Process for a Change of MEP .....	23
3.1. Payment of Costs to Losing MEP (Clause 10.22) .....	23
3.2. Registry Notification of Metering Records (Clause 2 of Schedule 11.4) .....	24
3.3. Provision of Metering Records to Gaining MEP (Clause 5 of Schedule 10.6) .....	26
3.4. Termination of MEP Responsibility (Clause 10.23) .....	27
4. Installation and Modification of Metering Installations .....	29
4.1. Design Reports for Metering Installations (Clause 2 of Schedule 10.7) .....	29
4.2. Contracting with ATH (Clause 9 of Schedule 10.6) .....	30
4.3. Metering Installation Design & Accuracy (Clause 4(1) of Schedule 10.7) .....	30
4.4. Subtractive Metering (Clause 4(2)(a) of Schedule 10.7) .....	33
4.5. HHR Metering (Clause 4(2)(b) of Schedule 10.7) .....	35
4.6. NSP Metering (Clause 4(3) of Schedule 10.7) .....	35
4.7. Responsibility for Metering Installations (Clause 10.26(10)) .....	36
4.8. Suitability of Metering Installations (Clause 4(4) of Schedule 10.7) .....	36
4.9. Installation & Modification of Metering Installations (Clauses 10.34(2), (2A) and (3)) ..	37
4.10. Changes to Registry Records (Clause 3 of Schedule 11.4) .....	38
4.11. Metering Infrastructure (Clause 10.39(1)) .....	40
4.12. Responsibility for Metering at ICP (Clause 10.23A) .....	41
4.13. Measuring Transformer Burden and Compensation Requirements (Clause 31(4) and (5) of Schedule 10.7) .....	42

4.14.	Changes to Software ROM or Firmware (Clause 39(1) and 39(2) of Schedule 10.7) .....	42
4.15.	Temporary Energisation (Clause 10.28(6)) .....	43
5.	Metering Records.....	45
5.1.	Accurate and Complete Records (Clause 4(1)(a) and (b) of Schedule 10.6, and Table 1, Schedule 11.4) .....	45
5.2.	Inspection Reports (Clause 4(2) of Schedule 10.6) .....	47
5.3.	Retention of Metering Records (Clause 4(3) of Schedule 10.6) .....	47
5.4.	Provision of Records to ATH (Clause 6 Schedule 10.6).....	48
6.	Maintenance of Registry Information.....	49
6.1.	MEP Response to Switch Notification (Clause 1(1) of Schedule 11.4) .....	49
6.2.	Provision of Registry Information (Clause 7 (1), (2) and (3) of Schedule 11.4) .....	51
6.3.	Correction of Errors in Registry (Clause 6 of Schedule 11.4) .....	54
6.4.	Cancellation of Certification (Clause 20 of Schedule 10.7) .....	56
6.5.	Registry Metering Records (Clause 11.8A) .....	65
7.	Certification of Metering Installations .....	66
7.1.	Certification and Maintenance (Clause 10.38 (a), clause 1 and clause 15 of Schedule 10.7) .....	66
7.2.	Certification Tests (Clause 10.38(b) and clause 9 of Schedule 10.6).....	69
7.3.	Active and Reactive Capability (Clause 10.37(1) and 10.37(2)(a)) .....	69
7.4.	Local Service Metering (Clause 10.37(2)(b)) .....	70
7.5.	Measuring Transformer Burden (Clause 30(1) and 31(2) of Schedule 10.7) .....	71
7.6.	Certification as a Lower Category (Clauses 6(1)(b) and (d), and 6(2)(b) of Schedule 10.7).....	71
7.7.	Insufficient Load for Certification Tests (Clauses 14(3) and (4) of Schedule 10.7) .....	72
7.8.	Insufficient Load for Certification – Cancellation of Certification (Clause 14(6) of Schedule 10.7) .....	73
7.9.	Alternative Certification Requirements (Clauses 32(2), (3) and (4) of Schedule 10.7) ...	74
7.10.	Timekeeping Requirements (Clause 23 of Schedule 10.7).....	74
7.11.	Control Device Bridged Out (Clause 35 of Schedule 10.7) .....	75
7.12.	Control Device Reliability Requirements (Clause 34(5) of Schedule 10.7).....	76
7.13.	Statistical Sampling (Clauses 16(1) and (5) of Schedule 10.7).....	76
7.14.	Compensation Factors (Clause 24(3) of Schedule 10.7).....	77
7.15.	Metering Installations Incorporating a Meter (Clause 26(1) of Schedule 10.7).....	78
7.16.	Metering Installations Incorporating a Measuring Transformer (Clause 28(1) of Schedule 10.7) .....	79
7.17.	Metering Installations Incorporating a Data Storage Device (Clause 36(1) of Schedule 10.7) .....	80
7.18.	Notification of ATH Approval (Clause 7 (3) Schedule 10.3).....	80
7.19.	Interim Certification (Clause 18 of Schedule 10.7).....	81
8.	Inspection of metering installations .....	83
8.1.	Category 1 Inspections (Clause 45 of Schedule 10.7).....	83
8.2.	Category 2 to 5 Inspections (Clause 46(1) of Schedule 10.7).....	85
8.3.	Inspection Reports (Clause 44(5) of Schedule 10.7) .....	87
8.4.	Broken or removed seals (Clause 48(4) and (5) of Schedule 10.7) .....	88
9.	Process for Handling Faulty Metering Installations .....	90
9.1.	Investigation of Faulty Metering Installations (Clause 10.43(4) and (5)).....	90
9.2.	Testing of Faulty Metering Installations (Clause 10.44).....	91
9.3.	Statement of Situation (Clause 10.46(2)) .....	92

10.	Access to and Provision of Raw meter Data and Metering Installations.....	94
10.1.	Access to Raw Meter Data (Clause 1 of Schedule 10.6).....	94
10.2.	Restrictions on Use of Raw Meter Data (Clause 2 of Schedule 10.6).....	95
10.3.	Access to Metering Installations (Clause 3(1), (3) and (4) of Schedule 10.6).....	95
10.4.	Urgent Access to Metering Installations (Clause 3(5) of Schedule 10.6) .....	96
10.5.	Electronic Interrogation of Metering Installations (Clause 8 of Schedule 10.6) .....	97
10.6.	Security of Metering Data (Clause 10.15(2)) .....	100
10.7.	Time Errors for Metering Installations (Clause 8(4) of Schedule 10.6) .....	100
10.8.	Event Logs (Clause 8(7) of Schedule 10.6).....	103
10.9.	Comparison of HHR Data with Register Data (Clause 8(9) of Schedule 10.6) .....	104
10.10.	Correction of Raw Meter Data (Clause 10.48(2),(3)) .....	105
	Conclusion .....	107
	Participant response .....	108

## EXECUTIVE SUMMARY

**AMS** is a Metering Equipment Provider (MEP) and is required to undergo an audit by 23 August 2019, in accordance with clause 1(1)(b) of schedule 10.5.

AMS has four MEP codes and two distinct operations. AMCI is the code for the Commercial and Industrial (C&I) operation and NGCM is the code for the mass market operation. The other two codes NGCS and STRM have no ICPs in the registry except 0000545280NRE79 which is an unmetered load ICP, therefore these codes are only mentioned in relevant sections.

The quantity of non-compliances has decreased from 20 during the last audit to 17 in this audit, with the future risk rating decreasing from 59 to 50. Some additional matters were found, as follows:

- subtraction is being used in a metering installation; and
- there were late responses to MN requests in seven cases.

Improvements have been made in the following areas since the last audit:

- the sum-check validation process now allows negative errors to be reported;
- the process for monitoring of installations certified at a lower category has been conducted each month as required by the code;
- the process for recertification of bridged meters has improved;
- the timeliness of registry updates has improved; and
- the total quantity of installations with expired certification has reduced.

The date of the next audit is determined by the Electricity Authority and is dependent on the level of compliance during this audit. The table below provides some guidance on this matter and although it recommends an audit frequency of three months, my recommendation is that the Authority considers a longer frequency of at least six months to allow sufficient time to resolve the issues, many of which require system changes or field visits.

## AUDIT SUMMARY

### NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Provision of accurate information	2.5	11.2 and 10.6	Registry not always updated as soon as practicable.	Moderate	Medium	4	Identified
Payment of costs to losing MEP	3.1	10.22	Payment not made to the losing MEP within 20 business days.	None	Low	5	Disputed
Registry updates	3.2	2 of Schedule 11.4	Some registry updates later than 15 business days.	Strong	Low	1	Identified
Metering Installation Design & Accuracy	4.3	4(1) of Schedule 10.7	Error and uncertainty calculations not conducted correctly for 2 Category 2 metering installations certified by Wells.  Uncertainty higher than 0.3% for 1 Cat 4 installation certified by Delta.	Moderate	Low	2	Identified
Subtractive Metering	4.4	4(2)(a) of Schedule 10.7	Subtraction is used in a metering installation.	Moderate	Low	2	Investigating
Changes to registry records	4.10	3 of Schedule 11.4	Some records updated on the registry later than 10 business days.	Moderate	Low	2	Investigating
Response to switch request	6.1	Clause 1(1) of Schedule 11.4	Seven late MN files.	Strong	Low	1	Identified
Provision of Registry Information	6.2	Clause 7 (1), (2) and (3) of Schedule 11.4	Some registry records incomplete or incorrect.	Moderate	Medium	4	Identified
Correction of Errors in Registry	6.3	Clause 6 of Schedule 11.4	Discrepancies not resolved within 5 business days.	Moderate	Medium	4	Identified
Cancellation of certification	6.4	6 of Schedule 11.4	Certification cancelled, and registry not updated for: <ul style="list-style-type: none"> <li>AMCI - 2 installations with</li> </ul>	Weak	Medium	6	Disputed

			inspections completed early; <ul style="list-style-type: none"> <li>• AMCI - 8 installations with inspections completed late;</li> <li>• AMCI - 45 installations with inspection not conducted;</li> <li>• NGCM - 11 three phase installations with only one phase metered;</li> <li>• NGCM - 1 Category 2 installation with overdue inspection;</li> <li>• NGCM - 36 installations where meters were bridged;</li> <li>• NGCM - 8 installations with low burden;</li> <li>• AMCI - 12 installations with low burden;</li> <li>• NGCM - 127 installations certified as a lower category but monitoring report wasn't produced for July and August 2018;</li> <li>• NGCM - 2 Cat 2 installations with inoperable test facilities;</li> <li>• NGCM - Uncertainty higher than 0.6% for 5 installations certified by Wells; and</li> <li>• AMCI - Uncertainty higher than 0.3% for a Cat 4 installation certified by Delta.</li> </ul>				
Certification of metering installations	7.1	10.38 (a), clause 1 & clause 15 of	Certification expired for 36,046 NGCM ICPs.	Moderate	Medium	4	Identified

		Schedule 10.7	Certification expired for 72 AMCI ICPs.				
Compensation factors	7.14	24(3) of Schedule 10.7	Incorrect compensation factors of 1 for 4 AMCI ICPs.	Moderate	Low	2	Identified
Interim certification	7.19	18 of Schedule 10.7	33,977 ICPs with expired interim certification.	Moderate	Medium	4	Identified
Inspections	8.2	46(1) of Schedule 10.7	Inspections not conducted within the required window for: <ul style="list-style-type: none"> <li>• 10 AMCI installations with inspections completed early;</li> <li>• 8 AMCI installations with inspections completed late; and</li> <li>• 57 AMCI installations with inspection not conducted.</li> </ul>	Moderate	Medium	4	Identified
Statement of situation	9.3	10.46(2)	Statement of situation not provided to the Authority within 3 business days for one ICP.	Moderate	Low	2	Identified
Max interrogation cycle	10.5	8(2) of schedule 10.6	2,821 metering installations not read within the maximum interrogation cycle.	Moderate	Low	2	Identified
Time errors	10.7	Clause 8(4) of Schedule 10.6	1,586 examples of clock errors outside the allowable thresholds in the most recent reports.	Strong	Low	1	Identified
Future Risk Rating						50	
Indicative Audit Frequency						3 months	

Future risk rating	1-2	3-6	7-9	10-19	20-24	25+
Indicative audit frequency	36 months	24 months	18 months	12 months	6 months	3 months



## RECOMMENDATIONS

Subject	Section	Recommendation	Description
Accurate records	5.1	Regarding Clause 4(1)(a) and (b) of Schedule 10.6	<p>Require ATHs to include the following information clearly on the first page of certification records:</p> <ol style="list-style-type: none"> <li>1. ICP;</li> <li>2. Metering installation certification date;</li> <li>3. Metering installation certification expiry date;</li> <li>4. Electrical connection date (if known and if the ATH is also the agent);</li> <li>5. Metering Category; and</li> <li>6. Certification type (selected component, comparative, fully calibrated, alternative, low load, lower category).</li> </ol>

## 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 two exemptions in place (278 and 282).

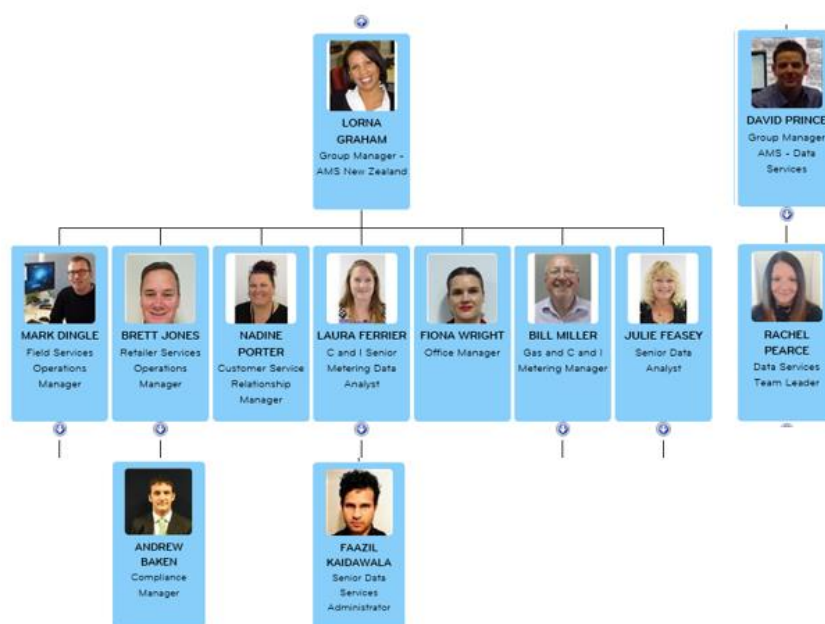
#### Audit commentary

Exemption 278 relates to clause 4(2)(a) of Schedule 10.7 of the Electricity Industry Participation Code 2010 ("Code") not to use subtraction to determine submission information used for the purposes of Part 15 (reconciliation) for ICP 0008803342WEFC3. This exemption expires on 31 December 2020, or when Contact is no longer the trader, or when AMS is no longer the MEP, or when replacement of the existing 11kV line that feeds ICP 0008803342WEFC3 with a corresponding low voltage (LV) line occurs.

Exemption 282 was in place during the audit period. AMS was exempt from the requirement of clause 45(2)(c) and 45(2)(d) of schedule 10.7 to identify and select the minimum number of installations set out in table 8 of schedule 10.1 of the Code. The exemption expired on 1 January 2019.

### 1.2. Structure of Organisation

NGCM and AMCI structure diagrams,  
AMS



## Gas and C&I



### 1.3. Persons involved in this audit

Auditor: Brett Piskulic

**Veritek Limited**

**Electricity Authority Approved Auditor**

AMS personnel assisting in this audit were:

Name	Title
Andrew Baken	Compliance Manager
Rachel Pearce	Data Services Team Leader
Julie Feasey	C & I Metering Data Analyst
Andrea Grant	Senior Data Analyst
Louis Potgieter	C & I Metering Ops Coordinator
Aidan Sweetman	C & I Metering Operations Manager

## 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

#### NGCM

NGCM engages ATHs to conduct certification activities. These parties are not considered agents for this activity.

ATHs are also engaged to store records in accordance with clauses 4(1)(v)&(viii) of schedule 10.6. I checked that records were available from the relevant ATHs.

The ATHs engaged are as follows:

- Wells
- Delta
- Vircom-EMS
- Indeserve

#### AMCI

AMCI engages ATHs to conduct certification activities. These parties are not considered agents for this activity.

### Audit commentary

#### NGCM

The agreements between NGCM and ATHs clearly specify that the ATHs are acting as an agent for these activities and they are required to produce records within five business days. The provision and accuracy of records is discussed further in **section 5.1**.

#### AMCI

AMCI engages ATHs to conduct certification activities. These parties are not considered agents for this activity.

### 1.5. Hardware and Software

NGCM MEP data is held in JDE and Salesforce. AMCI data is held in ServiceMax. All systems are subject to backup arrangements in accordance with standard industry protocols.

### 1.6. Breaches or Breach Allegations

AMS confirmed there are no breach allegations related to the scope of this audit.

### 1.7. ICP Data

#### NGCM

Metering Category	Number of ICPs 2019	Number of ICPs 2018	Number of ICPs 2017
1	1,119,048	1,102,244	1,019,761
2	12,578	11,868	10,145
3	0	0	0
4	0	0	0
5	0	0	0
9	22	8	5

#### AMCI

Metering Category	Number of ICPs 2019	Number of ICPs 2018	Number of ICPs 2017
1	1,511	1,603	1,709
2	5,737	5,730	5,676
3	3,611	3,579	3,543
4	1,474	1,447	1,377
5	177	172	174
9	26	18	13

ICP 0000545280NRE79 is in the registry with STRM as the MEP, but it is an unmetered load ICP and does not have metering installed.

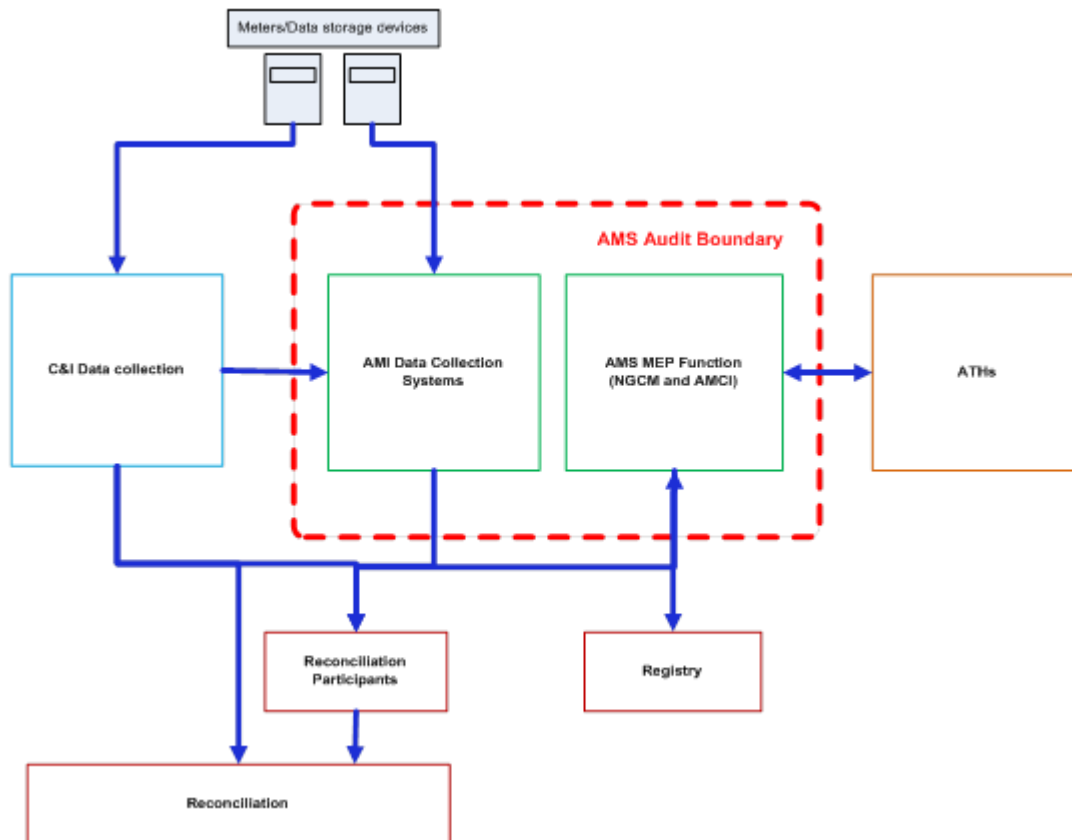
### 1.8. Authorisation Received

A letter of authorisation was not required or requested.

## 1.9. Scope of Audit

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

The boundaries of this audit are shown below for greater clarity.



## 1.10. Summary of previous audit

The previous audit was conducted in November 2018 by Steve Woods of Veritek Limited. The table below shows that most of the issues still remain.

### NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Status
Provision of accurate information	2.5	11.2 and 10.6	Registry not always updated as soon as practicable. Sum-check process does not identify “negative” errors as a failure.	Still existing Cleared
Payment of costs to losing MEP	3.1	10.22	Payment not made to the losing MEP within 20 business days.	Still existing
Registry updates	3.2	2 of Schedule 11.4	Some registry updates later than 15 business days.	Still existing
Metering Installation Design & Accuracy	4.3	4(1) of Schedule 10.7	Error and uncertainty calculations not conducted correctly for one Category 2 metering installation. ICP 0000012022EA0B0 has an error greater than 2.5%.	Still existing
Changes to registry records	4.10	3 of Schedule 11.4	Some records updated on the registry later than 10 business days.	Still existing
Meter reading for decommissioned ICPs	4.12	11.18B(3)	Trader not advised to carry out final meter read for decommissioned ICPs.	Cleared
Provision of Registry Information	6.2	Clause 7 (1), (2) and (3) of Schedule 11.4	Some registry records incomplete or incorrect.	Still existing
Correction of Errors in Registry	6.3	Clause 6 of Schedule 11.4	Discrepancies not resolved within 5 business days.	Still existing
Cancellation of certification	6.4	6 of Schedule 11.4	Certification cancelled, and registry not updated for: <ul style="list-style-type: none"> <li>• NGCM - 2,290 Category 1 ICPs with inspections not conducted;</li> <li>• AMCI – 333 Category 1 ICPs with inspections not conducted;</li> <li>• AMCI - 3 installations with inspections completed early;</li> <li>• AMCI - 2 installations with inspections completed late;</li> <li>• NGCM - 5 three phase installations with only one phase metered;</li> <li>• NGCM - 8 Category 2 installations with overdue inspections;</li> <li>• NGCM - 65 installations where meters were bridged;</li> <li>• AMCI - 1 installation with an error greater than that allowed;</li> <li>• NGCM – 6 installations with low burden;</li> </ul>	Still existing



			<ul style="list-style-type: none"> <li>• AMCI – 9 installations with low burden;</li> <li>• NGCM – 132 installations certified as a lower category but monitoring report wasn't produced for July and August 2018;</li> <li>• NGCM – ICP 0005170923RN2E6 with an error over 30%; and</li> <li>• NGCM - Uncertainty higher than 0.6% for 5 installations certified by Wells.</li> </ul>	
Certification of metering installations	7.1	10.38 (a), clause 1 & clause 15 of Schedule 10.7	<p>Certification expired for 43,294 NGCM ICPs.</p> <p>Certification expired for 13 AMCI ICPs.</p>	Still existing
Certification as a lower category	7.6	6(1)(b) and (d), and 6(2)(b) of Schedule 10.7	Monitoring not conducted and reported for 132 ICPs certified as a lower category during July and August 2018.	Cleared
Statistical sampling	7.13	16(5) of Schedule 10.7	Registry not updated following statistical sampling certification.	Cleared
Compensation factors	7.14	24(3) of Schedule 10.7	<p>One incorrect compensation factor for NGCM.</p> <p>Incorrect compensation factors of 1 for AMCI.</p>	Still existing
Interim certification	7.19	18 of Schedule 10.7	41,848 ICPs with expired interim certification.	Still existing
Category 1 inspections	8.1	45 of Schedule 10.7	Insufficient Category 1 sample inspections conducted.	Cleared
Inspections	8.2	46(1) of Schedule 10.7	<p>Inspections not conducted within the required window for:</p> <ul style="list-style-type: none"> <li>• 8 NGCM installations where inspections were not conducted;</li> <li>• 2 AMCI installations with inspections completed early; and</li> <li>• 1 AMCI installation with inspection not conducted.</li> </ul>	Still existing
Investigation of Faulty Metering Installations	9.1	10.43(4) and (5)	Faulty meters not reported to traders within 20 business days for 8 NGCM ICPs.	Cleared
Testing of faulty metering installations	9.2	10.44	Statement of situation not arranged for NGCM ICPs.	Cleared
Statement of situation	9.3	10.46(2)	Statement of situation not provided to the Authority within 3 business days for one ICP.	Still existing

Max interrogation cycle	10.5	8(2) of schedule 10.6	2,375 metering installations not read within the maximum interrogation cycle.	Still existing
Time errors	10.7	Clause 8(4) of Schedule 10.6	266 examples of clock errors outside the allowable thresholds in the most recent reports.	Still existing

## RECOMMENDATIONS

Subject	Section	Recommendation	Description
		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

##### NGCM

The Code places responsibility for maintaining the services access interface on the MEP and places responsibility for determining and recording it with ATHs. I checked the certification records for all relevant ATHs.

##### AMCI

The Code places responsibility for maintaining the services access interface on the MEP and places responsibility for determining and recording it with ATHs. I checked the certification records for all relevant ATHs.

#### Audit commentary

##### NGCM

NGCM has an AMI system and for many installations the services access interface will be “remote”. For non-AMI installations (including C&I installations) the services access interface is “local”. I checked 64 certification records and found the services access interface was recorded by all ATHs.

##### AMCI

AMCI conducts HHR data collection as an agent to reconciliation participants, not as an MEP. Therefore, the services access interface is “local” in all cases. The design reports include the services access interface location and AMCI considers the design report forms part of the certification record once certification is complete. This approach achieves compliance with the requirements of the Code because the location of the services access interface is documented. I checked 25 certification records and found the services access interface was recorded by all ATHs.

#### Audit outcome

Compliant

### 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

##### NGCM

I checked whether any disputes had been dealt with during the audit period.

##### AMCI

I checked whether any disputes had been dealt with during the audit period.

#### Audit commentary

##### NGCM

NGCM has not been required to resolve any disputes in accordance with this clause.

##### AMCI

AMCI has not been required to resolve any disputes in accordance with this clause.

#### Audit outcome

Compliant

### 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

##### NGCM

I checked the registry data to ensure the correct MEP identifier was used.

##### AMCI

I checked the registry data to ensure the correct MEP identifier was used.

#### Audit commentary

##### NGCM

NGCM uses the NGCM identifiers for all MEP functions.

##### AMCI

AMCI uses the AMCI code for all MEP functions. There is one STRM ICP, which is unmetered and does not contain a metering installation.

#### Audit outcome

Compliant

## 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

#### NGCM

Relevant documentation was checked to ensure the compatibility of communication equipment.

#### AMCI

Relevant documentation was checked to ensure the compatibility of communication equipment.

### Audit commentary

#### NGCM

NGCM ensures all communication equipment is appropriately certified with the relevant telecommunications standards. This is recorded in type test certificates and other approval documents. Testing is also conducted by their telecommunications provider, Vodafone to ensure compliance.

#### AMCI

AMCI ensures all communication equipment is appropriately certified with the relevant telecommunications standards. This is recorded in type test certificates and other approval documents. Testing is also conducted by Vodafone to ensure compliance.

### 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

#### NGCM

The content of this audit report was reviewed to determine whether all practicable steps had been taken to provide accurate information.

## AMCI

The content of this audit report was reviewed to determine whether all practicable steps had been taken to provide accurate information.

## Audit commentary

### NGCM

As mentioned in **section 6** there are some registry records which are not complete and accurate. NGCM is attempting to correct information as soon as practicable. There are some metering installations with cancelled certification and the registry has not been updated as soon as practicable.

### AMCI

As mentioned in **section 6** there are some registry records which are not complete and accurate.

## Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.5 With: Clause 11.2 and Clause 10.6  From: 01-Oct-18 To: 31-May-19	Registry not always updated as soon as practicable.  Potential impact: Medium  Actual impact: Medium  Audit history: Multiple times  Controls: Moderate  Breach risk rating: 4		
Audit risk rating	Rationale for audit risk rating		
<b>Medium</b>	Controls are recorded as moderate because there is room to improve the timeliness of registry updates.  The impact on other participants could be moderate due to the use of potentially incorrect data, thinking it is correct; therefore, the audit risk rating is medium.		
Actions taken to resolve the issue		Completion date	Remedial action status
AMS runs a reconciliation program to ensure the information between our system and the registry align, we are continually updating the registry but do not always achieve this 'asap'. Whilst we believe we are mostly compliant in this area, we do accept there is room for improvement.  AMCI – Exception cases from the Registry for data inaccuracies are monitored and corrected daily.		Ongoing	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Review reconciliation report to ensure it is capturing all discrepancies including those listed under section 6.		Ongoing	

### 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 notification requirements are met (in relation to the registry and the reconciliation manager).*

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

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

##### Audit observation

###### NGCM

I checked if NGCM had received any claims for costs.

###### AMCI

I checked if AMCI had received any claims for costs.

##### Audit commentary

###### NGCM

NGCM has not sent or received any invoices yet.

###### AMCI

AMCI received a claim from a losing MEP for four ICPs where AMCI was the gaining MEP during one of the previous audit periods. The costs have not been paid; therefore, AMCI remains non-compliant with clause 10.22(2) until payment is made. There has been some discussion about the meaning of this clause; however, the wording in the Code appears to be clear and unambiguous. The wording is as follows:

*The gaining metering equipment provider must, within 20 business days of assuming responsibility for a metering installation, pay the losing metering equipment provider the proportion of the costs described in sub-clause (3).*

There is no doubt AMCI is the gaining MEP and they have assumed responsibility for one or more metering installations; therefore, payment is required to be made to the losing MEP. AMCI has yet to pay; it has been internally escalated to legal team. The Authority provided written clarification that if the gaining MEP (AMCI in this instance) replaces some of the metering components on or after the date on which they accept responsibility for the metering installation. The gaining MEP is required to pay for the certification and calibration testing costs, for any component of the metering installation, including those that the gaining MEP replaces.

There have been no additional claims received in the current audit period.

AMCI have not issued any claims in relation to this clause.

##### Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 3.1</p> <p>With: Clause 10.22</p> <p>From: 01-Feb-17</p> <p>To: 19-Jul-19</p>	<p>Payment not made to the losing MEP within 20 business days.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: Multiple times</p> <p>Controls: None</p> <p>Breach risk rating: 5</p>		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	<p>AMCI dispute this non-compliance. I have relied on the Authority's advice that payment is required, therefore I have recorded that controls are not in place to ensure payment is made within 20 business days.</p> <p>The impact on one other participant is minor; therefore, the audit risk rating is low.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>VAMS disputes this non-compliance, The last email received from the losing MEP regarding this was the 17 October 2016. AMCI also requested a further breakdown of the initial compensation tabled (not invoiced) from FCLM to validate the chargeable amount but that was not forthcoming. Correction to audit report – no invoice was received from FCLM just a spreadsheet with an initial high-level costs breakdown - costs which we questioned and required more details on.</p> <p>There has been no further requests in the 2018 or 2019 audit period.</p> <p>We also dispute that there are no controls, VAMS pays on receipt of an invoice, as any other business would, and would pay if an invoice was ever received. Our controls are very strong for claims that follow standard commercial procedures.</p>		2017	Disputed
Preventative actions taken to ensure no further issues will occur		Completion date	
<p>We will review each request for compensation on a case by case basis and if the claim meets the requirements of the code, VAMS will pay as required on receipt of an invoice. There were no claims during the 2018 audit period.</p> <p>Where practical AMCI is displacing all the 3<sup>rd</sup> party MEP assets onsite but ultimately this is controlled by the Retailer</p>		2017	

### 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

##### NGCM

I checked the event detail report for the period 01/10/18 to 31/05/19 for all records where NGCM became the MEP to evaluate the timeliness of updates.

##### AMCI

I checked the event detail report for the period 01/10/18 to 31/05/19 for all records where AMCI became the MEP to evaluate the timeliness of updates.

#### Audit commentary

##### NGCM

I examined an event detail report for a sample of 5,260 ICPs for the audit period in relation to this clause and the findings are shown in the table below. The registry was updated within 15 business days for 92% of the sample. 440 updates were later than 15 business days and late nomination by the trader was the cause for all 440 ICPs.

Year	ICPs Switched	Notified to registry within 15 days	Percentage compliant	Average days
2015	16,126	14,671	91%	9.2
2016	37,411	31,810	85%	18.9
Feb 2017	3,307	3,155	95%	9.7
Oct 2017	1,285	1,078	84%	8.6
Oct 2018	1,241	1,044	84%	17
<b>Jul 2019</b>	<b>5,260</b>	<b>4,820</b>	<b>92%</b>	<b>9</b>

##### AMCI

I examined an event detail report for 48 switches in relation to this clause and the findings are shown in the table below.

Year	ICPs	Notified to registry within 15 days	Percentage compliance	Average days
2015	90	41	46%	
2016	125	52	42%	
Feb 2017	71	49	69%	
Oct 2017	41	26	63%	
Oct 2018	39	31	80%	26.6
<b>Jul 2019</b>	<b>48</b>	<b>22</b>	<b>46%</b>	<b>18</b>

#### Audit outcome

Non-compliant

Non-compliance	Description
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Audit Ref: 3.2 With: Clause 2 of Schedule 11.4 From: 01-Oct-18 To: 31-May-19	Some registry updates later than 15 business days. Potential impact: Medium Actual impact: Low Audit history: Multiple times Controls: Strong Breach risk rating: 1		
<b>Audit risk rating</b>	<b>Rationale for audit risk rating</b>		
<b>Low</b>	Controls are in place to ensure the timeliness of updates, but AMS is often prevented from updating the registry due to late field notification. The impact on other participants is minor; therefore, the audit risk rating is low.		
<b>Actions taken to resolve the issue</b>		<b>Completion date</b>	<b>Remedial action status</b>
NGCM: Updates to registry where NGCM had control were 100% within the required timeframes, only late nominations from retailers let us down. AMCI – AMCI continue to monitor and push the FSPs to deliver paperwork in a timely fashion. AMCI also continues to request MEP nominations with Retailer SRs. Overall the average days to update the Registry has come down from 26.6 to 18 days		Ongoing	Identified
<b>Preventative actions taken to ensure no further issues will occur</b>		<b>Completion date</b>	
Until Retailers are forced to provide nomination on time, MEPs cannot guarantee 100% compliance. We do continue to chase retailers on a weekly basis for late nominations. AMCI continue to monitor and push the FSPs to deliver paperwork in a timely fashion.		Ongoing	

### 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

### NGCM

I checked with NGCM to confirm whether there had been any requests from other MEPs.

### AMCI

I checked with AMCI to confirm whether there had been any requests from other MEPs.

## Audit commentary

### NGCM

This has not occurred, and no examples are available to examine.

### AMCI

This has not occurred, and no examples are available to examine.

## Audit outcome

Compliant

## 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

### NGCM

I confirmed that NGCM has ceased to be responsible for some metering installations by checking the event detail report.

### AMCI

I confirmed that AMCI has ceased to be responsible for some metering installations by checking the event detail report.

#### **Audit commentary**

##### NGCM

NGCM has ceased to be responsible for some metering installations and they still continue with their responsibilities, mainly in relation to the storage of records, which are kept indefinitely. As mentioned in **section 1.4**, some of these responsibilities will be met by ATHs on behalf of NGCM.

##### AMCI

AMCI has ceased to be responsible for some metering installations and they still continue with their responsibilities, mainly in relation to the storage of records, which are kept indefinitely. I checked records from 2016 for five ICPs to confirm compliance.

#### **Audit outcome**

Compliant

## 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, 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

##### NGCM

NGCM has engaged several ATHs for certification activities. The ATHs have provided design reports for this work, which I have checked.

##### ACMI

AMCI has engaged the VEMS, Delta, Accucal and Metrix ATHs for certification activities. The ATHs have provided design reports for this work which I have checked.

#### Audit commentary

##### NGCM

NGCM has prepared design reports and has provided these to all ATHs. The reports include all of the requirements noted above and they were prepared by a person with the appropriate level of skills, expertise, experience and qualifications. I checked 64 certification records and confirmed that the design report was recorded in all 64 records.

##### ACMI

AMCI has a generic design report. This design report contains most of the information above but does not include configuration scheme. It is considered that the certification records become part of the design report once the certification is complete. The certification records include the configuration information.

#### Audit outcome

Compliant

#### 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

###### NGCM

I confirmed that NGCM uses the ATHs recorded in **section 1.4**.

###### AMCI

I confirmed that AMCI uses VEMS, Accucal, Delta and Metrix ATHs.

##### Audit commentary

###### NGCM

NGCM has the scope statements on record for all ATHs to ensure they are appropriate.

###### AMCI

AMCI has the scope statements on record for all ATHs to ensure they are appropriate.

##### Audit outcome

Compliant

#### 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

###### NGCM

I checked the processes used by NGCM to ensure compliance with the design and with the error thresholds stipulated in Table 1. I also checked the certification records for 43 metering installations.

###### AMCI

I checked the processes used by AMCI to ensure compliance with the design and with the error thresholds stipulated in Table 1. I also checked the certification records for 25 metering installations.

## Audit commentary

### NGCM

NGCM does not fully comply with the requirements in relation to error determination. Most ATHs now have compliant practices, however I found examples where the error and uncertainty were not correctly calculated and reported.

In the previous audit it was reported that the Wells ATH had taken steps to improve its processes for calculation and reporting of uncertainties when conducting comparative recertification. The Wells certification reports now state overall uncertainty and overall installation error. However, in two of the five reports that I checked (ICPs 0000005626DE115 and 0007161309RN31B) an additional 0.6% had been added to the "Combined Absolute Error & Uncertainty %" field. The relevant part of the metering installation certification report is shown below, and it can be explained as follows:

The uncertainty of the Hioki working standard is combined with an uncertainty due to the temperature on site resulting in a total uncertainty. In this case the total uncertainty equals 0.27% and is recorded in the "Corrected Error & Uncertainty" field. The measured error is recorded as 0.88% and is recorded in the "Error %" field. The measured error and total uncertainty are then added together with 0.6% and reported as 1.75% in the "Combined Absolute Error & Uncertainty %". It seems that the 0.6% which is the maximum allowed uncertainty has been added in this final step. The actual total error and uncertainty in this case should have been reported as 1.15%.

#### Prevailing Load Test

Completed: 19 Mar 2019 20:18

Multiplier	40
Hioki Asset No	Set 9 - 500A
Hioki Cert Temp	21
Hioki Cert Error	0.06
Hioki Cert Uncertainty	0.264
Hioki Cert Error & Uncertainty	0.2720
Hioki Cert Min Test Temp	10.07
Hioki Connected Photo	YES
Pre Test Read	0.053
Temperature	20
Corrected Error & Uncertainty	0.27
Corrected Error & Uncertainty Test	
Post Test Read	0.167
Registered kWh	4.56
Register Advance Test Value	-4.56
Register Advance Test	
Seconds	1201
Measured kWh	4.52
Corrected Measured kWh	4.52
Error %	0.88
Combined Absolute Error & Uncertainty %	1.75
Accuracy Test	

The design report was recorded for all 64 installations checked.

#### AMCI

AMCI does not fully comply with the requirements in relation to error determination. Most ATHs now have compliant practices, however I found examples where the error and uncertainty were not correctly calculated and reported.

A category 4 installation, ICP 0000208247DEC59, was certified by the Delta ATH. The uncertainty figure reported in the certification report was greater than the maximum allowable 0.3% from Table 1 of schedule 10.1. Certification of this installation is cancelled. The relevant part of the metering installation certification report is included below;

Overall Installation Test Results (using meter pulse O/P)	Site Temperature (6.6 C to 34.4C for 3196)	11.5	Measured Error (Meter Output vs. Wkg Std)	-0.074%
	Measured Humidity (80% rh Max for 3196)	62%	Instrument Uncertainty at stated site conditions	0.533%
	Allowable Installation Error +/- (%)	1.25%	Calculated Total Installation Error (%)	0.606%
	( Cat 2 = 2.5%, Cat 3 & 4 = 1.25%, Cat 5 =0.75% )		Overall Installation ( Pass / Fail )	PASS

With regard to the design of the installation (including data storage device and interrogation system), AMCI ensures 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. There are no components installed where “coarse” rounding is in place for the data or where meters with a low pulse rate are connected to separate data storage devices. Data from meters and data storage devices has a minimum of two decimal places.

There is a requirement for AMCI to ensure the metering installation complies with the design report and the requirements of Part 10. The ATHs have a field in their certification reports to record the design report reference. I checked 25 certification reports and the design report was recorded for all installations.

#### Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.3 With: Clause 4(1) of Schedule 10.7  From: 01-Oct-18 To: 31-May-19	Error and uncertainty calculations not conducted correctly for 2 Category 2 metering installations certified by Wells. Uncertainty higher than 0.3% for 1 Cat 4 installation certified by Delta. Potential impact: Medium Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2



Audit risk rating	Rationale for audit risk rating		
Low	<p>I have recorded the controls as moderate because there is room to improve the records provided by ATHs and their processes.</p> <p>There could be a minor impact on metering installation accuracy; therefore, the audit risk rating is low</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>NGCM: This (0.6%) was identified earlier this year during Well's ATH audit and was corrected, this is no longer an issue. The final calculated value is only used to identify a pass or fail result. As this calculation added to the value, there was never a risk to incorrectly result in a pass. At worst, there was potential to incorrectly fail a result that should have passed.</p> <p>AMCI – AMCI is working with Vircom (Delta) to review all sites certified by Delta during the audit period including the 1 x CAT4 as non-compliant.</p>		30/10/2019	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
AMCI – AMCI is seeking confirmation that Delta currently fully comply with the requirement		15/10/2019	

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

##### Code reference

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

##### Code related audit information

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

##### Audit observation

###### NGCM

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

###### AMCI

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

##### Audit commentary

###### NGCM

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

#### AMCI

There are two cases where subtraction is used for metering installations.

The customer at ICP 1002050361LC60D installed a new HV supply. Due to the configuration of the new and old supplies and location of the CTs subtraction is being used to ensure that correct volumes are submitted. This case is recorded in the retailer's latest audit and the retailer has a documented process in place to ensure that submission is correct.

AMCI is working with the customer and the ATH to arrange for alterations to be made to correct this situation.

In the second case an exemption is in place for ICP 0008803342WEFC3 which uses subtraction (exemption 278).

#### **Audit outcome**

Non-compliant

Non-compliance	Description		
Audit Ref: 4.4 With: Clause 4(2)(a) of Schedule 10.7  From: 01-Oct-18 To: 18-Jul-19	Subtraction is used in a metering installation. Potential impact: Medium Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	Controls are rated as moderate as this situation is a one-off case caused by the unique design of the HV supply to the customer.  The impact on other participants is low as the situation was identified and a process implemented to ensure that submission volumes are correct; therefore, the audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status
AMCI – AMCI has provided Pioneer and the Customer with a metering proposal to resolve the requirement for subtraction metering – implementation of solution depends on the Customer approving the options presented – implementation period is unknown so AMCI will be looking at requesting an Exemption from the EA in the meantime if deemed necessary.		Ongoing	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	

AMCI – AMCI are requesting more detailed technical information (SLDs) from the Retailers before work is carried out – C&I metering remains complex with multiple HSE requirements that need to be met before AMCI can conduct our routine compliance work (Eg. Hospitals, Water Treatment Plants, etc.). Legacy NZ electrical design setups hamper AMCI’s ability to resolve these non-compliances easily with complexities that need to be worked through with the Retailers and their Customer. AMCI often have no control over an outcome. Exemption process needs review as AMCI do not believe that the MEP should be requesting an Exemption if the issue is Customer related.	Ongoing	
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#### 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

###### NGCM

I checked NGCM’s list file to confirm compliance with this requirement.

###### AMCI

I checked AMCI’s list file to confirm compliance with this requirement.

##### Audit commentary

###### NGCM

I checked NGCM’s list file to confirm compliance with this requirement. There are no installations over Category 2.

###### AMCI

I checked AMCI’s list file and I confirm compliance with this requirement.

##### Audit outcome

Compliant

#### 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**

##### NGCM

I checked if NGCM is responsible for any NSP metering.

##### AMCI

I checked if AMCI is responsible for any NSP metering.

#### **Audit commentary**

##### NGCM

NGCM is the MEP for four Embedded Networks with NSP metering. I checked and confirm that subtraction is not used to determine submission information.

##### AMCI

AMCI is the MEP for 228 Embedded Networks with NSP Metering. I checked and confirm that subtraction is not used to determine submission information.

#### **Audit outcome**

Compliant

### **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**

##### NGCM

NGCM is not responsible for any grid metering.

##### AMCI

AMCI is not the MEP for any grid metering.

#### **Audit commentary**

##### NGCM

NGCM is not responsible for any grid metering.

##### AMCI

AMCI is not the MEP for any grid metering.

#### **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

##### NGCM

NGCM's instructions to ATH's include several clauses in relation to physical and electrical characteristics.

##### AMCI

AMCI's instructions to ATH's include several clauses in relation to physical and electrical characteristics.

#### Audit commentary

##### NGCM

NGCM's instructions to ATH's include several clauses in relation to physical and electrical characteristics.

##### AMCI

AMCI's instructions to ATH's include several clauses in relation to physical and electrical characteristics.

#### Audit outcome

Compliant

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

#### Code reference

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

#### Code related audit information

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

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

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

#### Audit observation

##### NGCM

NGCM has provided copies of the design reports to all distributors and traders in order to achieve compliance with this requirement.

##### AMCI

AMCI has provided copies of the design reports to all distributors and traders in order to achieve compliance with this requirement.

#### Audit commentary

##### NGCM

NGCM has provided copies of the design reports to all distributors and traders in order to achieve compliance with this requirement.

#### AMCI

AMCI has provided copies of the design reports to all distributors and traders in order to achieve compliance with this requirement.

#### **Audit outcome**

Compliant

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

#### **Code reference**

*Clause 3 of Schedule 11.4*

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

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

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

#### **Audit observation**

##### NGCM

I checked the event detail report for the period 01/10/18 to 31/05/19 to evaluate the timeliness of registry updates.

##### AMCI

I checked the event detail report for the period 01/10/18 to 31/05/19 to evaluate the timeliness of registry updates.

#### **Audit commentary**

##### NGCM

I examined the event detail report for the period 01/10/18 to 31/05/19 and the table below shows the results.

Event type	Year	Total	Total within 10 days	% Compliant	Average days
Update	2015	67,719	62,950	93%	13.5
	2016	41,190	25,983	63%	127
	Feb 2017	79,049	70,634	89%	27.7
	Oct 2017	59,360	52,948	89%	39
	Oct 2018	73,361	69,249	94%	17.7
	<b>Jul 2019</b>	<b>48,679</b>	<b>36,836</b>	<b>76%</b>	<b>106</b>
New connection	2015	2,043	1,698	83%	8
	2016	7,366	6,538	89%	6.7
	Feb 2017	1,581	1,471	93%	5.4
	Oct 2017	2,415	1,955	81%	8.6
	Oct 2018	2,348	2,143	91%	6.0

	<b>Jul 2019</b>	<b>6,505</b>	<b>6,151</b>	<b>95%</b>	<b>3</b>
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5% of new connection updates were later than 10 business days. I checked a sample of 25 examples of late new connection updates, 20 of the 25 were due to late nomination by the trader (over five business days). The rest were late due to processing issues.

#### AMCI

I examined the event detail report for the period 01/10/18 to 31/05/19 and the table below shows the results.

Event type	Year	Total	Within 10 days	% Compliance	Average days
Update	2015	1,373	309	23%	
	2016	2,040	908	45%	
	Feb 2017	3,828	868	23%	
	Oct 2017	6,403	3,616	56%	
	Oct 2018	1,470	638	43%	327
	<b>Jul 2019</b>	<b>23,679</b>	<b>18,673</b>	<b>79%</b>	<b>171</b>
New Connection	2015	118	26	22%	
	2016	82	28	34%	
	Feb 2017	64	38	59%	
	Oct 2017	53	14	26%	
	Oct 2018	41	14	34%	19
	<b>Jul 2019</b>	<b>112</b>	<b>71</b>	<b>37%</b>	<b>20</b>

I checked a sample of 32 examples of late new connection updates, 3 of the 32 were due to late nomination by the trader (over five business days).

#### **Audit outcome**

Non-compliant

Non-compliance	Description
Audit Ref: 4.10 With: Clause 3 of Schedule 11.4 From: 02-Oct-18 To: 31-May-19	Some records updated to the registry later than 10 business days. Potential impact: Medium Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	Rationale for audit risk rating
<b>Low</b>	I have recorded the controls as moderate in this area because there is room for improvement. Late updates for new connections can have a minor impact on participants and settlement, therefore the audit risk rating is low.
Actions taken to resolve the issue	
Completion date	Remedial action status

<p>NGCM – Investigating why the average days is so high and hence, why the update % has reduced this audit period.</p> <p>AMCI – Legacy NHH certification updates also impacts the statistics. Taking into account these factors statistical improvement is evident.</p>	Ongoing	Investigating
<b>Preventative actions taken to ensure no further issues will occur</b>	<b>Completion date</b>	
<p>We are regularly providing the Retailers with ICP lists where nominations are outstanding. This is helping to improve update response time to the Registry. We continue to chase FSPs for late paperwork, this is improving also.</p>	Ongoing	

#### 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

###### NGCM

NGCM's metering infrastructure was examined as part of this audit to confirm compliance.

###### AMCI

AMCI's metering infrastructure is examined as part of reconciliation participant agent audits and I confirm compliance. Output to host checks confirm the system operates as intended before certification is applied.

##### Audit commentary

###### NGCM

NGCM's metering infrastructure was examined as part of this audit and I confirm compliance.

###### AMCI

AMCI's metering infrastructure is examined as part of reconciliation participant agent audits and I confirm compliance. Output to host checks confirm the system operates as intended before certification is applied.

##### 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

###### NGCM

I checked whether NGCM was the MEP at any decommissioned metering installations and whether notification had been provided to relevant traders.

###### AMCI

I checked whether AMCI was the MEP at any decommissioned metering installations and whether notification had been provided to relevant traders.

##### Audit commentary

###### NGCM

There were no examples of decommissioned metering installations where the ICP was not also decommissioned.

###### AMCI

There were no examples of decommissioned metering installations where the ICP was not also decommissioned.

##### Audit outcome

Compliant

#### 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

###### NGCM

I asked NGCM whether they had approved any burden changes during the audit period.

###### AMCI

I asked AMCI whether they had approved any burden changes during the audit period.

##### Audit commentary

###### NGCM

There have not been any examples of this occurring during the audit period.

###### AMCI

There have not been any examples of this occurring during the audit period

##### Audit outcome

Compliant

#### 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**

##### NGCM

I checked if there any examples of changes in accordance with these clauses.

##### AMCI

I checked if there any examples of changes in accordance with these clauses.

#### **Audit commentary**

##### NGCM

There have been no examples of any changes during the audit period.

##### AMCI

There have been no examples of any changes during the audit period.

#### **Audit outcome**

Compliant

### **4.15. Temporary Energisation (Clause 10.28(6))**

#### **Code reference**

*Clause 10.28(6)*

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

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

#### **Audit observation**

##### NGCM

I checked examples of insufficient load certification to determine whether there were any examples of temporary energisation for the purposes of testing. None were identified.

##### AMCI

I checked examples of insufficient load certification to determine whether there were any examples of temporary energisation for the purposes of testing. None were identified.

#### **Audit commentary**

##### NGCM

I checked examples of insufficient load certification to determine whether there were any examples of temporary energisation for the purposes of testing. None were identified.

##### AMCI

I checked examples of insufficient load certification to determine whether there were any examples of temporary energisation for the purposes of testing. None were identified. AMCI advised that their processes do not allow for temporary energisation to be used.

#### **Audit outcome**

Compliant

## 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

##### NGCM

I checked certification records for 64 metering installations and I also checked all available inspection records to evaluate compliance with this clause.

##### AMCI

I checked certification records for 25 metering installations and I also checked all available inspection records to evaluate compliance with this clause.

#### Audit commentary

##### NGCM

NGCM has validations in their system (JDE) and monitors a number of reports in relation to the accuracy of records and data. The following checks are in place:

- meter change request and NGCM is not the meter owner;
- meter changed but MEP switch has not been initiated by the trader (eight days after meter change);
- overdue meter changes (KPI is five days plus one day for the provision of records);
- validation against the "meter in stock" once metering is installed, to ensure meter dials, phases, registers etc. is correct;

- tariff validation – configurations are specific to NSPs to ensure a match between switching times and configurations; and
- validation of CT ratio to ensure NHH installations are not certified as a lower category.

As mentioned in **section 1.4**, agreements between NGCM and ATHs clearly specify to the ATHs that they are acting as an agent for the management of certification records, and they are required to produce these within five business days. I requested records for 64 metering installations and complete records were supplied for all 64.

Several of the records were difficult to read and some of the critical fields were difficult to identify. I recommend AMS requires ATHs to include the following information clearly on the first page of certification records:

1. ICP;
2. Metering installation certification date;
3. Metering installation certification expiry date;
4. Electrical connection date (if known and if the ATH is also the agent);
5. Metering Category; and
6. Certification type (selected component, comparative, fully calibrated, alternative, low load, lower category).

The inspection reports I checked were signed and contained the required information.

Recommendation	Description	Audited party comment	Remedial action
Regarding Clause 4(1)(a) and (b) of Schedule 10.6	Require ATHs to include the following information clearly on the first page of certification records:  1. ICP;  2. Metering installation certification date;  3. Metering installation certification expiry date;  4. Electrical connection date (if known and if the ATH is also the agent);  5. Metering Category; and  6. Certification type (selected component, comparative, fully calibrated, alternative, low load, lower category).	2019 inspections well underway, we will look at this for next year's inspections.	Identified

#### AMCI

There were no ICPs during this audit without records populated in the registry.

The inspection reports I checked were signed and contained the required information.

#### **Audit outcome**

Compliant

## 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

#### NGCM

I asked NGCM whether any requests had been made for copies of inspection reports.

#### AMCI

I asked AMCI whether any requests had been made for copies of inspection reports.

### Audit commentary

#### NGCM

NGCM has not been requested to supply any Category 1 inspection reports.

NGCM has not conducted any Category 2 inspections since 29 August 2013, although some are now overdue, and certification has been cancelled. NGCM intends to recertify any Category 2 installations where inspections are due, but this did not occur for some ICPs as recorded in **section 6.4**.

#### AMCI

AMCI has signed inspection reports and these can be provided as required. Most participants have access to AMCI's web portal.

AMCI has not been requested to supply any inspection reports.

### Audit outcome

Compliant

## 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

#### NGCM

I checked a directory of metering records from 2015 to confirm compliance.

#### AMCI

I checked a directory of metering records from 2015 to confirm compliance.

## Audit commentary

### NGCM

NGCM intends to keep records indefinitely and the ATHs are required to keep them for seven years after the installation is decommissioned or components are removed.

### AMCI

AMCI intends to keep records indefinitely.

## Audit outcome

Compliant

## 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

#### NGCM

NGCM will comply with this requirement as it arises. There are no current examples where this has occurred.

#### AMCI

AMCI will comply with this requirement as it arises. There are no current examples where this has occurred. ATHs can log in to the web portal to get these records.

## Audit commentary

### NGCM

NGCM will comply with this requirement as it arises. There are no current examples where this has occurred.

### AMCI

AMCI will comply with this requirement as it arises. There are no current examples where this has occurred. ATHs can log in to the web portal to get these records.

## Audit outcome

Compliant



## 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

##### NGCM

I checked the switch breach history detail report to confirm whether all responses were within 10 business days.

##### AMCI

I checked the switch breach history detail report to confirm whether all responses were within 10 business days.

#### Audit commentary

##### NGCM

The switch breach history report identified no late responses during the audit period. NGCM has automated the MEP switch acceptance process based on certain NSPs where they approve the installation of their metering. This means the switch acceptance timeframes are mostly immediate. I checked all ICPs where NGCM had become the MEP and the acceptance was provided within 10 business days for all of them. If a nomination is received for an NSP where NGCM does not install metering, it is rejected.

##### AMCI

The switch breach history detail report for the audit period contained seven ICPs where the AMCI response was later than 10 business days. The details are shown in the table below.

ICP	Nomination Date	Acceptance Date	Days to acceptance
0000045156WEE91	29-04-19	15-05-19	12
0000044051HBDB1	04-12-18	20-12-18	12
1002062923LCC4B	13-05-19	17-06-19	25
0000043800HBD91	05-11-18	29-11-18	18
0000043000HR539	08-05-19	13-06-19	26
0000009954CEE59	16-04-19	18-06-19	42
1002055394UN661	29-03-19	23/05/19	36

## Audit outcome

### Non-compliant

Non-compliance	Description		
Audit Ref: 6.1 With: Clause 1(1) of Schedule 11.4 From: 01-Oct-18 To: 31-May-19	Seven late MN files. Potential impact: Low Actual impact: Low Audit history: None Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	The controls are recorded as strong because they mitigate risk to an acceptable level. There was no impact; therefore, the audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status
AMCI – Current process is not to approve a nomination without a formal service request from the Retailer and upfront cost approval – If the Retailer does not approve the upfront costs we will not approve the MEP nomination whether the 10BD period has been reached or not. The 10BD obligation is not practical for all scenarios - Where we have the SR upfront immediate nomination acceptance is actioned – We will send a reminder to the Retailers to send SRs and approve costs Periodic staff shortages can impact the processing of these Registry nominations. 0000045156WEE91 – Staff shortage and training issue 0000044051HBDB1 – Staff shortage and training issue 1002062923LCC4B - No evidence of a formal MEP nomination received in AMCI's system 0000043800HBD91— MEP nomination no accepted due to no quote approval from Retailer 0000043000HR539 - No evidence of a formal MEP nomination received in AMCI's system 0000009954CEE59 – MEP = NGCM not AMCI - ICP doesn't exist in our system. Retailer nominated us in error and reversed it (Case:01917829). We declined this nomination on 18/6/19, never accepted it (Case:01492535) 1002055394UN661 - Staff shortage and training issue		Ongoing	Identified

Preventative actions taken to ensure no further issues will occur	Completion date	
AMCI – Current process generally works but as per comments above. Processing gaps due to staff shortages is being handled via cross training initiatives to makes sure all staff members can process these Registry requests across the board.	Ongoing	

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

### Code reference

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

### Code related audit information

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

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

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

### Audit observation

#### NGCM

I checked the list file for 100% of records and I checked the Category 1 inspection records to identify discrepancies.

#### AMCI

I checked the list file for 100% of records to identify discrepancies.

### Audit commentary

#### NGCM

I checked NGCM’s Category 1 inspection records for 534 ICPs inspected in 2018, which recorded the following findings:

- 75 illegible or missing certification stickers;
- 27 LCDs found on site when none recorded, there is no impact on tariffs as code IN; and
- eight LCDs not found on site when asset database recorded one on site, there is no impact on tariffs as code UN.

Analysis of the list file and an event detail report for all ICPs found some discrepancies. The table below shows these and includes a comparison with the previous audit results.

Issue	Feb 2017 Quantity	Oct 2017 Quantity	Oct 2018 Quantity	Jul 2019 Quantity

NGCM is recorded on the registry as the MEP but the metering records have not been populated on the registry.  5 are unmetered, 22 have meters physically removed and the remainder have other MEPs metering installed.	57	16	17	27
Category 1 ICPs with CTs installed, indicating an incorrect Category.	114	15	12	0
Compensation factor of 3, certified after 29/08/13.	4	4	5	14
Category 3 ICPs have an RPS profile, indicating an incorrect metering category.	0	0	0	0
HHR profile with NHH installation type.	14	0	12	2
Category 2 interim certified.	19	53	38	33
Day + Night not equal to 24.	1	3	0	0
ICP has a "day 16" without a "night 8".	0	0		0
ICPs have a "night 8" without a "day 16".	0	0		0
Day with no night.	25	20	6	67
Night with no day.	700	530	325	346
ICPs have "IN24". The Authority has indicated this combination should not be used.	64,567	64,650	65,535	303,667
ICPs have CN only (residential only).	454	286	201	186
Category 2 or above without CTs.	72	101	88	73
Incorrect certification expiry.	5	7	9	6
Incorrect certification date.	2	1	4	0
Generation ICPs with no injection register.	220	173	294	222
Invalid ATH recorded.	0	0	0	0
No control device for register content requiring a control device (excluding AMI where the control device may be internal).	4,239	3,304	3,092	2,819

No control device for IN register content (excluding AMI where the control device may be internal).	1,046	400	368	289
Profile requiring a certified control device and flag is "N".	3,874	4,919	4,630	3,846

## AMCI

Analysis of the list file and an event detail report for all AMCI ICPs found a number of issues. The table below shows the issues found and has a comparison to the previous audit results.

Issue	Quantity Feb 2017	Quantity Oct 2017	Quantity Oct 2018	Quantity Jul 2019
AMCI is recorded on the registry as the MEP but the metering records have not been populated on the registry.	1	0	0	5
Category 3, 4 or 5 installations "interim certified".	0	0	0	0
HHR profile but NHH metering installation.	0	0	0	0
Category 5 with a certification period longer than 3 years.	0	0	0	0
Category 4 with incorrect certification duration.	9	0	2	5
Category 3 with certification period longer than 10 years.	2	0	2	1
Category 2 with incorrect certification duration.	4	0	2	1
Category 1 with incorrect certification duration.	3	0	2	3
Incorrect certification dates for new connections.	1	0	0	0
Generation installations without an injection register.	51	41	43 3 confirmed as incorrect	49
Over Category 1 with no measuring transformers on the registry.	2	1	2	0
Incorrect compensation factors.	0	3	Refer to section 7.14	Refer to section 7.14

Incorrect ATH.	0	0	3	4
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#### Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 6.2</p> <p>With: Clause 7 (1), (2) and (3) of Schedule 11.4</p> <p>From: 01-Oct-18</p> <p>To: 31-May-19</p>	<p>Some registry records incomplete or incorrect.</p> <p>Potential impact: Medium</p> <p>Actual impact: Medium</p> <p>Audit history: Multiple times</p> <p>Controls: Moderate</p> <p>Breach risk rating: 4</p>		
Audit risk rating	Rationale for audit risk rating		
<b>Medium</b>	<p>I have recorded the controls as moderate in this area. There are still a small number of areas where improvement can be made.</p> <p>Some of the discrepancies have a moderate impact on participants, customers or settlement. The relevant ones in this regard are tariff related. The audit risk rating is medium.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>NGCM - We are constantly updating these discrepancies, some have proven to be more difficult than others. The dramatic increase in IN24 is due to previous numbers being limited by Excel to approximately 65k lines. This project is underway and we expect to clear the bulk of these by December 2019.</p> <p>AMCI – We continue to handle exception cases daily and we have implemented a full programme of cross training to all staff to make sure inaccuracies and handled consistently – With respect to the generation installation without an injection register AMCI do not believe this to be the MEP responsibility to maintain specifically where the setup in the Registry by the Network and Retailer has not included generation when the ICPs have been setup</p>		Ongoing	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Continue to work through these and look for opportunities to improve the speed in which they are addressed.		Ongoing	

#### 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

### NGCM

I conducted a walkthrough of the validation processes to confirm compliance. I checked all records in the event detail report to confirm whether the timeliness requirements were being met.

### AMCI

I conducted a walkthrough of the validation processes to confirm compliance. I checked all records in the event detail report to confirm whether the timeliness requirements were being met.

## Audit commentary

### NGCM

NGCM has a number of checks in place to ensure registry data is correct. They are as follows:

- mandatory data missing from files being sent to registry;
- awaiting MEP nomination after eight days (there are a large number of these because files from the registry are not processed automatically in JDE);
- registry rejections;
- MEP responsibility is lost, leading to a removal of assets and a stop of interrogation;
- a new MEP has accepted a switch request but NGCM has a works order in progress;
- difference between NGCM and the registry data for files sent;
- MEP switch reversal but a works order is in progress;
- ICP status is not valid on the registry (e.g. ready instead of active); and
- no MEP switch response file within the time period.

In addition to the points noted above, NGCM is also conducting a complete validation for all fields in accordance with this clause. Whilst the validation processes are robust, corrections are not made within five business days, which is recorded as non-compliance.

### AMCI

AMCI runs a registry list file and checks Service Max against these records and vice versa. Compliance is achieved with the requirement to conduct a complete validation as required by this clause. However, discrepancies are not resolved within five business days.

## Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 6.3 With: Clause 6 of Schedule 11.4  From: 01-Oct-18 To: 31-May-19	Discrepancies not resolved within 5 business days. Potential impact: Medium Actual impact: Medium Audit history: Multiple times Controls: Moderate Breach risk rating: 4		
Audit risk rating	Rationale for audit risk rating		
<b>Medium</b>	I have recorded the controls as moderate in this area. There are still a small number of areas where improvement can be made.  Some of the discrepancies have a moderate impact on participants, customers or settlement. The relevant ones in this regard are tariff related. The audit risk rating is medium.		
Actions taken to resolve the issue		Completion date	Remedial action status
As above, we constantly reconcile the registry and our back-office systems and update discrepancies however some of these are difficult to resolve, particularly where it involves third parties, and do not happen within the 5 days stipulated. We endeavour to meet this timeframe and will continue to look for ways to improve timeliness of updates.  AMCI – Daily registry case exception handling supports faster delivery of corrected information to the Registry.		Ongoing	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Set up regular meetings with the team undertaking these updates to ensure we are assigning the right amount of resource to meet the requirements. Instigate review of reconciliation report to ensure all the above are captured.  AMCI – We continue to look at ways to improve so we can meet the 5BD requirement		Ongoing	

#### 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) or 19(6)*



- b) the metering installation is classed as outside the applicable accuracy tolerances set out in Table 1 of Schedule 10.1, defective or not fit for purpose under this Part or any audit*
- c) an ATH advises the metering equipment provider responsible for the metering installation of a reference standard or working standard used to certify the metering installation not being compliant with this Part at the time it was used to certify the metering installation, or the failure of a group of meters in the statistical sampling recertification process for the metering installation, or the failure of a certification test for the metering installation*
- d) the manufacturer of a metering component in the metering installation determines that the metering component does not comply with the standards to which the metering component was tested*
- e) an inspection of the metering installation, that is required under this Part, is not carried out in accordance with the relevant clauses of this Part*
- f) if the metering installation has been determined to be a lower category under clause 6 and the maximum current conveyed through the metering installation at any time exceeds the current rating of its metering installation category as set out in Table 1 of Schedule 10.1*
- g) the metering installation is certified under clause 14 and sufficient load is available for full certification testing and has not been retested under clause 14(4)*
- h) a control device in the metering installation certification is, and remains for a period of at least 10 business days, bridged out under clause 35(1)*
- i) the metering equipment provider responsible for the metering installation is advised by an ATH under clause 48(6)(b) that a seal has been removed or broken and the accuracy and continued integrity of the metering installation has been affected.*

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

#### **Audit observation**

##### NGCM

I checked for examples of all the points listed above, and checked whether certification had been cancelled, and whether the registry had been updated within 10 business days.

##### AMCI

I checked for examples of all the points listed above, and checked whether certification had been cancelled, and whether the registry had been updated within 10 business days.

#### **Audit commentary**

##### NGCM

There is one Category 2 metering installation overdue for inspection. Certification is therefore cancelled, and the registry has not been updated.

The report from the previous audit recorded that certification was cancelled for Category 1 installations due for inspection by statistical sampling during 2017 and 2018, due to an incorrect sample selection method. AMS combined the records for both AMS (AMCI and NGCM) and ARC Innovations MEPs, but each MEP must conduct a separate inspection process. After the previous audit was finalised, the Authority granted an exemption for the 2018 inspection period, allowing more time to complete the inspections and the Authority approved an alternative to AS NZS 1284 to allow AMS to recertify the installations from 2017 by using a smaller than normal sample size. Further information was provided by the Authority on 14/05/19, stating that the requirement to conduct inspections within the 12-month period stipulated in the Code may not be enforceable, meaning that certification is not cancelled, even though the correct number of inspections was not conducted. AMS and ARC intend to continue with the recertification by statistical sampling, even though the certification remains current.

There are 11 installations incorrectly certified by the statistical sampling method on 24<sup>th</sup> August 2018, which are also three phase with only one phase metered. Certification has been cancelled because the installations are not fit for purpose and not all electricity conveyed is quantified in accordance with the Code.

The matter of “bypassed” metering was evaluated during the audit. The previous audit report recorded that eight ICPs had been bridged and recertification has not occurred. There were also a further 57 ICPs from the October 2017 audit report which had not been recertified at the time of the November 2018 audit. Certification should therefore have been cancelled. I’ve re-checked all 65 and the table below shows that 35 have not been recertified if the registry details are correct.

Bridged meters not recertified from October 2017 audit			
ICP	Certification date	Reconnection date	Contractor comments
0001920770PC6B6	15/04/2015	2/05/2016	Meter bridged as per Shailesh at AMS and Shaun at Retailer as meter had comms fault. Rdg 005066
0000503291CE464	12/02/2016	13/05/2016	Meter bridged as per Retailer contractor helpline, they were unable to remote reconnect
0000001651CP99E	29/07/2015	26/05/2016	Meter bridged as instructed by Hock at AMS. Meter 15A021187 Rdg 7311
0000143872UN62A	11/11/2009	2/06/2016	tech went to site, tried 5 times to get through to ams. smart mtr bridged rdg 039165
0000037115HBF43	19/11/2015	16/06/2016	Tech reco'd pedestal and Meter was bridged as per AMS (Tech noted it had been disco'd at pedestal and remotely). Rdg 14
0001542700PC03D	14/02/2011	11/07/2016	meter bridged as requested, meter#10A020253 rdg 033442
0033302114PCD81	6/09/2011	26/09/2016	 METER#10A032330. READING 53694. BRIDGE METER AS PER AMS REQUEST.
0001446429UN0B0	29/04/2016	23/09/2016	ams system down, calum @ ams advised to bridge meter. rdg 773
0000500207NRA4C	12/01/2015	26/09/2016	recod meter bridged as per ams rdg 009034
0000025321TR8C0	16/08/2010	22/07/2016	Meter bridged as AMS unable to reconnect. Meter 09A004036 (209117036) Rdg 027065
0000058580TRA05	1/12/2011	18/10/2016	Meter bridged as Tech could not reach AMS. Meter 11A089808 (211316258) Rdg 39184
0000160103EN557	9/09/2014	27/09/2016	Meter bridged as per Kaylee
0000914006BU8A1	2/06/2015	7/10/2016	Tech went to site, rang AMS who said meter already reco'd. Customer switching from Globug to Retailer and wants to change from globug prepay (top up) to monthly bill. VEMS spoke to Hadleigh at Retailer who advised Tech to bridge meter, so customer has power for weekend. Meter bridged. Tech noted meter read wrong on job is not 1704 should be Rdg 7106
0000159638TRC6C	14/03/2016	7/11/2016	Meter bridged as AMS unable to remotely reco Rdg 003093
0006786928RN6C2	28/07/2008	28/10/2016	Meter bridged as remote reco failed. Meter 208021218 Rdg 67055
0000224001UN536	14/06/2014	12/12/2016	smart mtr reco no signal tech had to bridge

0000044451UNBBF	12/02/2016	2/12/2016	Meter bridged. Rdg 011156 003464
0007156566RN07F	13/03/2014	23/11/2016	Meter bridged as AMS unable to remote reco Meter 213507801 Rdg 018968
1000017955BP4F0	30/07/2015	15/11/2016	Smart meter bypassed. Meter 15A035558 (215216421) Rdg 006791
0006201440RN8B8	6/09/2016	9/12/2016	Meter bridged as AMS not answering phone calls. Meter 216278885 rdg 000195
0161072879LC599	13/04/2013	9/12/2016	Metering tech was called to site as customer was concerned about cover being left off fuse box. Tech advised ok to safely reconnect. Unbridged meter and remotely reco'd reading 023831
0000311868WEABB	19/07/2010	29/11/2016	Meter bridged as remote reco failed. Meter 09A081551 (210062321) Rdg 021031
0000012807CPC13	14/05/2012	7/12/2016	Bridged meter as AMS not open Saturday @ meter reading 016433/009527
0000742398TUF23	22/05/2013	6/12/2016	Meter bridged. Rdg 016052
0000684671UN93A	15/06/2015	16/12/2016	Meter bridged. Rdg 001768. No reception
0000164097UNC7F	2/11/2010	11/01/2017	no signal smart meter bridged rdg 02636204 landlord ph 027 459 8900 PJ Please call PJ when unbridging Meter as lives in Albany and he has key for access to meters inside building
0000674701UNOFF	6/05/2014	2/03/2017	Meter bridged as instructed by Faasil at AMS as could not activate meter. Meter 213571178 Rdg 007266 003376
0006571670RNAF5	3/12/2008	14/03/2017	Reco'd at meter. Called Electrician, gave permission to take off lock off site. Noticed seal had been crimped, asked him if he did it, he said he had entered meter. Advised him to let Retailer know what he had done. Sue of Switched On witness to conversation. Broken seal job needs to be raised.
0000239369UN910	19/08/2013	25/03/2017	Meter bridged. Meter - RD10161848 - rdg 051270
0005175034WA1DF	8/12/2011	20/04/2017	Meter bridged as per AMS. main switch off, unable to gain reads
<b>Bridged meters not recertified from November 2018 audit</b>			
0000377983TUEE3	9/03/2015	1/12/2017	
0001257170UNBCA	28/09/2011	28/01/2018	
0015774401EL119	12/10/2012	18/02/2018	
0000652907UNB76	19/08/2009	19/02/2018	
1001150655CK434	16/08/2011	26/03/2018	

I checked a report identifying 47 cases where meters had been bridged during the audit period. In 46 of these cases the installations were recertified when the bridge was removed therefore cancelling the previous certification. There was one ICP found where certification has not been cancelled following bridging of a meter. This is shown in the table below.

ICP	Bridge date	Certification date
0045110361PCEC5	29/01/2019	01/08/2018

The next issue relates to low burden on CT metered installations. The Authority provided a memo on 04/04/16 clarifying that:

The Electricity Industry Participation Code 2010 (Code) requires an ATH to ensure that an approved calibration laboratory or a class A ATH has confirmed that all measuring transformers comply with the standards in Table 5 of Schedule 10.1 (clause 3(b) of Schedule 10.8). If the errors are within the limits set by the standards, the transformer has passed the test and may be certified as accurate within that range of burden (clause 3 of Schedule 10.8 and Table 5 of Schedule 10.1).

If a measuring transformer is installed in a metering installation with the burden lower than the lowest test point used in the measuring transformer's calibration, then burdening resistors must be used to ensure that the measuring transformer operates within its calibration range.<sup>1</sup>

The memo also states:

If an ATH certifies a metering installation with under-burdened measuring transformers, and it has not complied with clause 31(7) of Schedule 10.7 of the Code, then:

1. The ATH will breach clause 31(7) of Schedule 10.7 and also clause 43 of Schedule 10.7 by failing to grant certification in accordance with Part 10
2. The metering installation may be classed outside the applicable accuracy tolerances specified in Table 1 of Schedule 10.1, or not be fit for purpose, and if so, the metering installation certification is cancelled (clause 20(1)(b) of Schedule 10.7)
3. In certifying the metering installation, the ATH may breach clause 21 of Schedule 10.7 by certifying a metering installation that exceeds that maximum permitted error set out in Table 1 of Schedule 10.1.

The Authority confirmed on 01/03/18 that certification is cancelled for installations where low burden is not addressed.

Analysis of the certification records for 43 Category 2 metering installations found that two had been certified with burden lower than the lowest test point, without a Class A ATH confirming that the measuring transformers will not be adversely affected. Therefore, in accordance with the Authority's memo, these metering installations are not considered "fit for purpose". This means certification is cancelled. The ICPs are shown in the table below.

In the previous audit there were six category 2 installations identified which had been certified with burden lower than the lowest test point, without a Class A ATH confirming that the measuring transformers will not be adversely affected. Certification for these installations has not yet been cancelled. The ICPs are shown in the table below.

Low burden from November 2018 audit		
ICP	ATH	Certification date
0000043908DEE81	WELL	3/09/2018
0005411157RN897	WELL	3/09/2018
0000100263UN3BD	VEMS	2/08/2018

0441173039LCDAA	VEMS	22/05/2018
0000013176CPDA2	INDS	24/06/2018
0000039818TR106	INDS	1/02/2018
<b>Low burden from this audit</b>		
<b>ICP</b>	<b>ATH</b>	<b>Certification date</b>
0351681566LC84B	VCOM	10/04/2019
0001428366UN851	VCOM	19/10/2018

The previous audit identified 132 ICPs certified at a lower category where monitoring is required identified. As monitoring was not conducted in July and August of 2018 certification was cancelled for these ICPs. At the time of the previous audit certification had not been cancelled for these ICPs. I checked the registry and found that certification has not been cancelled for 127 of these ICPs.

I checked the monitoring reports for the current audit periods and confirmed that monitoring has taken place as required.

There are two Category 2 installations certified by Wells which do not have correct test facilities installed in accordance with Clause 28(4) Of Schedule 10.7, (ICPs 0001001165PC022 and 0042168500PC5EF). Burden resistors have been installed within the test facilities which has rendered the current links of the test facilities inoperable as it is no longer possible to access the current circuits for testing while the metering installation is in normal service. These metering installations are deemed not fit for purpose and certification is cancelled.

In the previous audit there were five Category 2 metering installations certified by Wells identified which had total uncertainty figures greater than the maximum allowable 0.6%. Certification is cancelled for these five metering installations. The registry has not been updated with the cancellation and the installations have not been recertified.

#### AMCI

I checked the registry and determined that there were 114 ICPs at Category 2,3,4 and 5 that were due for inspection during the audit period. There were two inspections completed early, eight inspections completed late and 45 inspections not completed. Certification is therefore cancelled for these 53 installations.

The report from the previous audit recorded that certification was cancelled for Category 1 installations due for inspection by statistical sampling during 2017 and 2018, due to an incorrect sample selection method. AMS combined the records for both AMS (AMCI and NGCM) and ARC Innovations MEPs, but each MEP must conduct a separate inspection process. After the previous audit was finalised, the Authority granted an exemption for the 2018 inspection period, allowing more time to complete the inspections and the Authority approved an alternative to AS NZS 1284 to allow AMS to recertify the installations from 2017 by using a smaller than normal sample size. Further information was provided by the Authority on 14/05/19, stating that the requirement to conduct inspections within the 12-month period stipulated in the Code may not be enforceable, meaning that certification is not cancelled, even though the correct number of inspections was not conducted. AMS and ARC intend to continue with the recertification by statistical sampling, even though the certification remains current.

For 2018 AMS gained an exemption (exemption 282) from the requirement of clause 45(2)(c) and 45(2)(d) of schedule 10.7 to identify and select the minimum number of installations set out in table 8 of schedule 10.1 of the Code.

AMCI also have some ICPs certified with low burden, leading to cancellation of certification. They are shown in the table below.

In the previous audit there were 9 category 2 installations identified which had been certified with burden lower than the lowest test point, without a Class A ATH confirming that the measuring transformers will not be adversely affected. Certification for these installations has not yet been cancelled. The ICPs are shown in the table below.

Low burden from November 2018 audit		
ICP	ATH	Certification date
0000002007EP8E1	ACCL	15/02/2018
0000008595UN44B	ACCL	15/08/2018
0000057977UN86C	ELTX	2/03/2018
0167010506LC493	MTRX	2/05/2018
0321292022LC0EE	MTRX	6/08/2018
0104309555LCC5F	MTRX	29/05/2018
0000013175CP162	VEMS	7/02/2018
Low burden from this audit		
ICP	ATH	Certification date
0000003232AA14F	MTRX	14/03/2019
0000031338AA8B6	MTRX	14/03/2019
0000000045CED18	MTRX	27/03/2019
0038819020LC4DC	VCOM	03/04/2019
0104912006LC93A	VCOM	28/03/2019

A category 4 installation, ICP 0000208247DEC59, was certified by the Delta ATH. The uncertainty figure reported in the certification report was greater than the maximum allowable 0.3% from Table 1 of schedule 10.1. Certification of this installation is cancelled.

#### Audit outcome

Non-compliant

Non-compliance	Description
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<p>Audit Ref: 6.4</p> <p>With: Clause 6 of Schedule 11.4</p> <p>From: 01-Oct-18</p> <p>To: 31-May-19</p>	<p>Certification cancelled, and registry not updated for:</p> <ul style="list-style-type: none"><li>• AMCI - 2 installations with inspections completed early;</li><li>• AMCI - 8 installations with inspections completed late;</li><li>• AMCI - 45 installations with inspection not conducted;</li><li>• NGCM - 11 three phase installations with only one phase metered;</li><li>• NGCM - 1 Category 2 installation with overdue inspection;</li><li>• NGCM - 36 installations where meters were bridged;</li><li>• NGCM - 8 installations with low burden;</li><li>• AMCI - 12 installations with low burden;</li><li>• NGCM - 127 installations certified as a lower category but monitoring report wasn't produced for July and August 2018;</li><li>• NGCM - 2 Cat 2 installations with inoperable test facilities;</li><li>• NGCM - Uncertainty higher than 0.6% for 5 installations certified by Wells; and</li><li>• AMCI - Uncertainty higher than 0.3% for a Cat 4 installation certified by Delta.</li></ul> <p>Potential impact: Medium</p> <p>Actual impact: Medium</p> <p>Audit history: Multiple times</p> <p>Controls: Weak</p> <p>Breach risk rating: 6</p>		
<b>Audit risk rating</b>	<b>Rationale for audit risk rating</b>		
<b>Medium</b>	<p>I have recorded the controls as weak in this area. Many of the examples found were present during previous audits and risks are not being mitigated.</p> <p>The issues found can all potentially have a moderate impact on other participants and on settlement. The audit risk rating is medium.</p>		
<b>Actions taken to resolve the issue</b>		<b>Completion date</b>	<b>Remedial action status</b>

<p>NGCM:</p> <ul style="list-style-type: none"> <li>• 127 installations certified as a lower category but monitoring report wasn't produced for July and August 2018, this was due to an IT error that caused the report to not email automatically. These have been monitored each month since and all are still within the required limits. VAMS disputes the need to cancel and recertify these at significant cost when all are still accurate and fit for purpose.</li> <li>• X3 installations that cannot be corrected without input from the customer are UTI'd now and referred back to the Retailer.</li> <li>• 36 installations where meters were bridged, our bridging process has improved significantly since these were done however these have been overlooked and will be addressed.</li> </ul> <p>AMCI</p> <ul style="list-style-type: none"> <li>• The early and late reported inspections reported have been reviewed and the certification has been cancelled where applicable. Recertification jobs have been raised to recertify.</li> <li>• AMCI – With respect CAT2 sites certified via the comparative certification method the Code is not clear around the requirement to burden CAT2 CTs. AMCI requires clarification in the Code from the EA. Other than AMCI, our ATHs are also not in agreement regarding the requirement and expectation – noting that for comparative certification we are not certifying the CTs and hence our view is that as long as the site error is within the requirements set in Table 1 of Schedule 10.1, the site is accurate.</li> <li>• AMCI – AccuCal will be reviewing their interpretation and may opt for burdening of all sites including CAT2 but that has not been finalised formally</li> </ul>	<p>Ongoing</p>	<p>Disputed</p> <p>Some of the non-compliances are disputed particularly around burdening of CTs.</p>
<p><b>Preventative actions taken to ensure no further issues will occur</b></p>	<p><b>Completion date</b></p>	



<p>AMCI – Recertification on all sites inspected too early or too late or not at all have been actioned – we issue inspections 3 month prior to lapsing and we include the required window period to complete. We also advise our ATHs that should the inspection window lapse to recertify immediately as part of the original inspection job</p> <p>Low burdening CAT2 sites is still under review by AMCI and our affiliated ATHs</p> <p>Following the EA forum on burdening earlier this year, the EA were to get legal interpretation regarding whether CT burdening was required during comparative testing, the industry is still waiting for this interpretation from the EA in order to move forward.</p>	Ongoing	
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## 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

#### NGCM

This clause refers to schedule 11.4 which is discussed in **section 6.2**, apart from the requirement to provide information in the “prescribed form”. I checked for examples of NGCM not using the prescribed form.

#### AMCI

This clause refers to schedule 11.4 which is discussed in **section 6.2**, apart from the requirement to provide information in the “prescribed form”. I checked for examples of AMCI not using the prescribed form.

### Audit commentary

#### NGCM

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

#### AMCI

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

### Audit outcome

Compliant

## 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

##### NGCM

I conducted the following checks to identify metering installations with expired, cancelled or late certification:

- the registry PR255 report was checked to identify ICPs with expired certification;
- the new connections process was checked by using the event detail report, PR255 and the list file to identify ICPs where the certification was not conducted within five business days of energisation; and
- I checked ICPs where certification was cancelled to ensure the registry was updated accordingly.

##### AMCI

I conducted the following checks to identify metering installations with expired, cancelled or late certification:

- the registry PR255 report was checked to identify ICPs with expired certification;
- the new connections process was checked by using the event detail report, PR255 and the list file to identify ICPs where the certification was not conducted within five business days of energisation; and
- I checked ICPs where certification was cancelled to ensure the registry was updated accordingly.

#### Audit commentary

##### NGCM

At the time of my analysis, NGCM has 2,069 previously fully certified ICPs with expired certification and 33,977 previously interim certified installations that have now expired. 22 of the previously certified ICPs are Category 2.

The following two ICPs have expired alternative certification.

ICP	Certification Type	Category	Expiry Date	Current status
0006927629RN8D6	A	1	31-03-11	CCC Tramway site, non-standard LV installation with six phases to be metered, metering is located in an Orion HV substation, only Accucal have access permission.
0900087528PC733	A	2	31-05-12	This site is a network substation with 9 meters – some Cat 2 and Cat 3 meters. PowerCo advised not safe to access the CT's while the panel is 'live' – large steel panels need to be removed to access. To do the job it needs to be organised with PowerCo for a FULL Shutdown – this will also affect buildings supplied by this substation.

I also checked NGCM's records and the Network Supply Points Table on the Authority's website and confirmed all 4 NSP's metering had current certification.

#### AMCI

At the time of my analysis the registry showed 63 ICPs with expired full certification.

I also checked AMCI's records and the Network Supply Points Table on the Authority's website and confirmed all 228 NSP's metering had current certification.

There are nine installations with expired alternative certification.

#### **Audit outcome**

Non-compliant

Non-compliance	Description
<p>Audit Ref: 7.1</p> <p>With: Clause 10.38 (a), clause 1 and clause 15 of Schedule 10.7</p> <p>From: 12-Aug-14</p> <p>To: 31-May-19</p>	<p>Certification expired for 36,046 NGCM ICPs.</p> <p>Certification expired for 72 AMCI ICPs.</p> <p>Potential impact: High</p> <p>Actual impact: Medium</p> <p>Audit history: Multiple times</p> <p>Controls: Moderate</p> <p>Breach risk rating: 4</p>

Audit risk rating	Rationale for audit risk rating		
<b>Medium</b>	<p>I have recorded the controls as moderate in this area because certification has been expired for a number of years for some ICPs and because some of the expired installations were fully certified at one point.</p> <p>The impact on settlement is recorded as moderate because of the increased likelihood of failure or inaccuracy for metering installations with expired certification. The audit risk rating is recorded as medium.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>NGCM:</p> <ul style="list-style-type: none"> <li>AMS are conducting a statistical sampling program on the 36,046 entire population.</li> <li>Outside of this we have been pushing hard to get these recertified but have hit many barriers that we are working through and have regularly shared with the Electricity Authority. The number is slowly decreasing.</li> </ul> <p>AMCI:</p> <ul style="list-style-type: none"> <li>The C&amp;I space has limited test house resources with our two primary test houses completing work for multiple other MEP parties as well – these test houses are not able to complete the compliance volumes being issued to them by all these MEPs.</li> <li>Additionally, the overall compliance volumes for FY20 and 21 is up by 35% compared with previous years – this has added additional strain on already thin resources.</li> <li>Due to Retailers and Customer having no Code obligation to provide MEPs with timely shutdowns for primarily CT related shutdown compliance work, higher volumes of sites are falling non-complaint and that includes alternative CT certs lapsing. No order of communications with these parties easily yields resolution.</li> <li>Due to 3<sup>rd</sup> parties, who own revenue assets on sites where AMCI is the MEP, and have no Code obligation, actions by these parties to facilitate recertification is lacking – the options for AMCI to displace the assets is challenged in that we are not able to get approved shutdowns easily and in many cases we are having to cover the certification costs for the 3<sup>rd</sup> party owned assets with no option for compensation</li> </ul>		Ongoing	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
AMCI – We continue to proactively issue compliance work		Ongoing	

## 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

#### NGCM

I checked the certification records for 64 metering installations to confirm compliance. ATHs have shown that their processes include all tests, and reports confirm tests are completed.

#### AMCI

I checked the certification records for 25 metering installations to confirm compliance. ATHs have shown that their processes include all tests, and reports confirm tests are completed.

### Audit commentary

#### NGCM

Most certification activities have been conducted by Wells, VEMS and Delta. The most recent audit reports for all ATHs confirm the appropriate testing is conducted.

#### AMCI

Most certification activities have been conducted by AMCI using VEMS, Accucal, Metrix and Delta ATHs. The most recent audit reports for all ATHs confirm the appropriate testing is conducted.

### Audit outcome

Compliant

## 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**

##### NGCM

I checked the certification records for 43 metering installations to confirm compliance.

##### AMCI

I checked the certification records for 25 metering installations to confirm compliance.

#### **Audit commentary**

##### NGCM

Category 2 AMI metering installations are predominantly “consumption only” and therefore the meters are required to measure and separately record export reactive energy. The data storage devices are capable of this but are not configured this way, however compliance is achieved because the Code does not require the reactive energy channel to be interrogated and returned.

##### AMCI

All metering installed since 29 August 2013 records all four quadrants.

#### **Audit outcome**

Compliant

### **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

#### NGCM

I asked NGCM if there were any examples of burden changes or the addition of non-metering equipment being connected to metering CTs.

#### AMCI

I asked AMCI if there were any examples of burden changes or the addition of non-metering equipment being connected to metering CTs.

### Audit commentary

#### NGCM

There are no examples of burden changes having occurred. In **section 6.4** I have recorded non-compliance due to low burden not being addressed.

#### AMCI

There are no examples of burden changes having occurred. In **section 6.4** I have recorded non-compliance due to low burden not being addressed.

### 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**

##### **NGCM**

I checked all ICPs for examples where the CT ratio was above the threshold to confirm that protection was appropriate or that monitoring was in place.

##### **AMCI**

I checked all ICPs for examples where the CT ratio was above the threshold to confirm that protection was appropriate or that monitoring was in place.

#### **Audit commentary**

##### **NGCM**

NGCM has certified 134 metering installations as a lower category. As recorded in **section 6.4**, in the previous audit 132 installations certified at a lower category were not monitored between July and August 2018. Certification for 127 of these installations was therefore cancelled. The registry has not been updated with the certification cancellation and they have not been recertified. I have checked the monitoring reports for the audit period and confirm that monitoring has taken place.

##### **AMCI**

AMCI has certified some metering installations as a lower category and monitoring is in place in accordance with this clause for all ICPs.

#### **Audit outcome**

Compliant

### **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

##### NGCM

I checked if there were any examples of Insufficient load certifications.

##### AMCI

I checked if there were any examples of Insufficient load certifications.

#### Audit commentary

##### NGCM

NGCM's instruction to ATHs is to connect a load bank if insufficient load is available. No examples of insufficient load certification were identified.

##### AMCI

I found an example of insufficient load certification, ICP 0000007053TC43C. In this example monitoring identified sufficient load and the ATH returned to complete testing within 20 business days.

#### Audit outcome

Compliant

### 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

##### NGCM

There are no examples of tests conducted demonstrating that the metering installation is not within the relevant maximum permitted error.

##### AMCI

There are no examples of tests conducted demonstrating that the metering installation is not within the relevant maximum permitted error.

#### Audit commentary

##### NGCM

There are no examples of tests conducted demonstrating that the metering installation is not within the relevant maximum permitted error.

##### AMCI

There are no examples of tests conducted demonstrating that the metering installation is not within the relevant maximum permitted error.

#### Audit outcome

Compliant

### 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 five 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

##### NGCM

I checked the registry records to confirm whether alternative certification had been applied.

##### AMCI

I checked the registry records to confirm whether alternative certification had been applied.

#### Audit commentary

##### NGCM

Alternative certification was applied to two ICPs and is now expired. This is raised as non-compliance in **section 7.1**.

##### AMCI

Alternative certification has been applied for 47 ICPs where AMCI is the MEP. Certification has expired for nine of these ICPs and this is recorded as non-compliance in **section 7.1**.

I checked the alternative certification application forms for ICPs 0011007494PCE3E, 0149125038LC8CC, 1001146800CKA59 and 1001148427LC063. All four examples were due to CT access issues.

#### Audit outcome

Compliant

### 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 two seconds per day over a period of 12 months*
- b) is monitored and corrected at least once every 12 months.*

## Audit observation

### NGCM

I asked NGCM whether there were any metering installations with time clocks.

### AMCI

I asked AMCI whether there were any metering installations with time clocks.

## Audit commentary

### NGCM

NGCM confirmed there are some metering installations which have time clocks, but these do not switch meter registers.

### AMCI

AMCI confirmed there are no metering installations that have time clocks but are not remotely read.

## Audit outcome

Compliant

## 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

### NGCM

I checked the process for the management of bridged control devices, and I checked whether any notifications were required to other parties.

### AMCI

I checked the process for the management of bridged control devices, and I checked whether any notifications were required to other parties.

## Audit commentary

### NGCM

NGCM provided a comprehensive process document which achieves compliance with this clause. Control devices are categorised in the document into those that can be certified, and those that must be removed.

NGCM provided five examples of bridged control devices. In all five cases they were notified by the trader, there was no requirement for notification of any other participants.

### AMCI

AMCI does not have any control devices used for submission purposes.

## Audit outcome

Compliant

## 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 three business days inform the following parties of the ATH's determination (including all relevant details):*

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

### Audit observation

#### NGCM

I checked the steps NGCM had taken to identify regions with signal propagation issues.

#### AMCI

I checked the steps AMCI had taken to identify regions with signal propagation issues.

## Audit commentary

### NGCM

NGCM provided a comprehensive process document which achieves compliance with this clause.

### AMCI

AMCI does not have any control devices used for submission purposes.

## Audit outcome

Compliant

## 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**

##### NGCM

I checked whether statistical sampling had occurred during the audit period.

##### AMCI

I checked whether statistical sampling had occurred during the audit period.

#### **Audit commentary**

##### NGCM

NGCM has not conducted any statistical sampling. As recorded in **sections 6.4** and **8.1** NGCM intends to complete statistical sampling in 2019.

##### AMCI

AMCI does not intend to conduct statistical sampling.

#### **Audit outcome**

Compliant

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

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

#### **Audit observation**

##### NGCM

I checked the records for 43 Category 2 metering installations to confirm that compensation factors were correctly recorded on the registry. I also checked the registry data for unusual compensation factors.

##### AMCI

I checked all the records for 25 Category 2 and above metering installations to confirm that compensation factors were correctly recorded on the registry.

#### **Audit commentary**

##### NGCM

Compensation factors were updated accurately on the registry for the 43 ICPs checked.

##### AMCI

I checked the records for 25 ICPs and 4 had a compensation factor of 1, which was incorrect. This may be a hangover from the introduction of new Part 10 when the industry believed all data collection was conducted by MEPs, therefore all compensation factors should be 1 in the registry. This assumption is not correct and even though AMS is the data collection agent and they apply the compensation factor; the compensation factor is still required in the registry.

#### Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 7.14 With: Clause 24(3) of Schedule 10.7 From: 01-Oct-18 To: 31-May-19	Incorrect compensation factors of 1 for 4 AMCI ICPs. Potential impact: Medium Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement. The impact on settlement and participants could be minor if a trader uses the incorrect registry factor, therefore the audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status
AMCI – A process was implemented to ensure the actual compensation factor (not unity) would be updated to the Registry – the process which was previously automated based on the Code interpretation is now manual and hence prone to mistakes AMCI – Where the meter has been programmed internally we are sending unity		30/10/2019	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
AMCI – Will confirm that the ICPs highlighted with unity are not related to meters internally programmed and if not, the factor will be correctly updated to the Registry AMCI - We will run a report to highlight any other site with unity to make sure update is corrected		30/10/2019	

#### 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

##### NGCM

I checked the certification records for 64 metering installations to confirm compliance.

##### AMCI

I checked the certification records for 25 metering installations to confirm compliance.

#### Audit commentary

##### NGCM

I checked 64 metering installation certification records and found that meters and data storage devices are being certified by ATHs.

##### AMCI

I checked 25 metering installation certification records and found that meters and data storage devices are being certified by ATHs.

#### Audit outcome

Compliant

### 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

##### NGCM

I checked the certification records for 43 metering installations to confirm compliance.

##### AMCI

I checked the certification records for 25 metering installations to confirm compliance.

#### Audit commentary

##### NGCM

Most CTs are supplied pre-certified by the TWS Energy Controls Class A ATH and this was the case for most of the examples I examined. VEMS certifies some CTs in their Class A ATH. All new or recalibrated CTs are 500/5 or above, to eliminate the issue with inaccuracy related to low burden on ratios lower than 500/5.

##### AMCI

In all 25 certification reports that I checked there was confirmation that an ATH had certified the CTs.

#### Audit outcome

Compliant

## 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

#### NGCM

I checked the certification records for 64 metering installations to confirm compliance.

#### AMCI

I checked the certification records for 25 metering installations to confirm compliance.

### Audit commentary

#### NGCM

The 64 certification records that I checked confirmed that the ATHs that data storage devices are being correctly certified.

#### AMCI

The 25 certification records that I checked confirmed that the ATHs that data storage devices are being correctly certified.

### Audit outcome

Compliant

## 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

#### NGCM

I checked the ATH register to confirm compliance.

#### AMCI

I checked the ATH register to confirm compliance.

### Audit commentary

#### NGCM

All relevant ATHs have appropriate approval.



#### AMCI

All relevant ATHs have appropriate approval.

#### **Audit outcome**

Compliant

### 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**

##### NGCM

I checked the registry records (PR255) to identify any ICPs with interim certification recorded.

##### AMCI

I checked the registry records (PR255) to identify any ICPs with interim certification recorded.

#### **Audit commentary**

##### NGCM

As recorded in **section 7.1**, there are a 33,977 previously interim certified metering installations where recertification did not occur by 01 April 2015.

##### AMCI

AMCI does not have any interim certified metering installations.

#### **Audit outcome**

Non-compliant

Non-compliance	Description
Audit Ref: 7.19 With: Clause 18 of Schedule 10.7 From: 01-Apr-15 To: 31-May-19	33,977 ICPs with expired interim certification.  Potential impact: High Actual impact: Medium Audit history: Multiple times Controls: Moderate Breach risk rating: 4
Audit risk rating	Rationale for audit risk rating
<b>Medium</b>	I have recorded the controls as moderate in this area because certification has been expired for a number of years for these ICPs.  The impact on settlement is recorded as moderate because of the increased likelihood of failure or inaccuracy for metering installations with expired certification. The audit risk rating is recorded as medium.

Actions taken to resolve the issue	Completion date	Remedial action status
<p>NGCM:</p> <p>As above, we are currently running a statistical sampling programme on the entire population to achieve certification.</p> <p>Certification by normal methods has been difficult and slow but is heading in the right direction.</p>	Ongoing	Identified
<p><b>Preventative actions taken to ensure no further issues will occur</b></p>	<p><b>Completion date</b></p>	
<p>Continue working with all parties to certify non-certified ICPs where ever possible.</p>	Ongoing	

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

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

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

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

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

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

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

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

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

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

#### Audit observation

##### NGCM

I checked the process, and the results for the Category 1 inspection regime to confirm compliance.

##### AMCI

I checked the process, and the results for the Category 1 inspection regime to confirm compliance.

## Audit commentary

### NGCM

The report from the previous audit recorded that certification was cancelled for Category 1 installations due for inspection by statistical sampling during 2017 and 2018, due to an incorrect sample selection method. AMS combined the records for both AMS (AMCI and NGCM) and ARC Innovations MEPs, but each MEP must conduct a separate inspection process. After the previous audit was finalised, the Authority granted an exemption for the 2018 inspection period, allowing more time to complete the inspections and the Authority approved an alternative to AS NZS 1284 to allow AMS to recertify the installations from 2017 by using a smaller than normal sample size. Further information was provided by the Authority on 14/05/19, stating that the requirement to conduct inspections within the 12-month period stipulated in the Code may not be enforceable, meaning that certification is not cancelled, even though the correct number of inspections was not conducted. AMS and ARC intend to continue with the recertification by statistical sampling, even though the certification remains current.

Whilst this exempted AMS from the requirement for 2018 they still selected a sample and completed inspections.

AMS has combined the NGCM and AMCI category 1 metering installations for the purpose of conducting inspections. The inspections were conducted using the method under clause 45(1)(b), sample inspection. AMS has had their process approved by the Authority and I have reviewed the inspection reports and summary report to ensure compliance. The reporting to the Authority was provided by 01 April 2019, it was sent via email on 27 March 2019.

The inspection report states that from a population of 1,286,009, 101,131 installations which were certified in the previous 84 months were removed. Through analysis of the certification dates of the meter population, I suspect that this is an error and the actual figure certified or inspected in the previous 84 months is likely to be in excess of 1,100,000. The minimum required sample size for the remaining population in accordance with Table 8 of schedule 10.1 is 500. The sample selected was 2000 of which 534 were inspected.

Details of the instances of non-compliance found are detailed in the table below;

Count of ICPs	Description of Non-compliance:
75	Site certificates illegible or missing. However, all sites have a certificate # loaded into Registry by the correct FSP. There is no one region or year where these are focused.
28	ICPs in Wel Networks have had Wel SmartBox installed since the original metering installation. Our site certificates have been displaced. All Vector-AMS recorded equipment is still extant as we have recorded them. EA Registry has been checked and confirms WEL Networks as the last site certifier. Original certification date used and no additional/less control added.
27	LCDs found on site when none recorded. No impact on tariffs as code IN.
8	LCDs not found on site when asset database recorded one on site. No impact on tariffs as code UN

Count of ICPs	Description of Non-compliance:
2	Found metering components found un-sealed on site. No evidence of tampering and the meter functioning as would be expected. Inspector re-certified with the original certification date and re-sealed.
1	ICP removed as physically disconnected from the main switch. (i.e. no line side conductor) and meter labelled as “disconnected”. Updated status in registry.
1	ICP removed from EIPC Inspections as obvious tampering had occurred. RA raised by Retailer.
Please note that some ICPs are in more than one category.	

#### AMCI

AMS has combined the NGCM and AMCI category 1 metering installations for the purpose of conducting inspections, comments above under NGCM.

#### **Audit outcome**

Compliant

### 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**

##### NGCM

I checked the registry information to confirm which ICPs were due for inspection.

##### AMCI

I checked the registry information to confirm which ICPs were due for inspection.

I checked the NSP table to confirm which NSP metering installations were due for inspection.

## Audit commentary

### NGCM

NGCM does not intend to conduct inspections for Category 2 metering installations because the inspection period is the same as the certification period. As noted in **section 6.4**, there is one non-compliant metering installation where certification has been cancelled because it was due for inspection.

### AMCI

My analysis determined that there were 114 ICPs due for inspection during the audit period. I checked the inspection records for these installations, the results are recorded in the table below;

ICPs due for inspection during audit period					
Category	Due for Inspection	Inspected On-time	Inspected Early	Inspected Late	Not Inspected
2	1	1	-	-	-
3	40	28	-	1	11
4	46	19	1	2	24
5	27	13	1	3	10

There were two inspections completed early, six inspections completed late and 45 inspections not completed. Certification is therefore cancelled for these 53 installations.

My analysis of the NSP table identified 38 metering installations that were due for inspection during the audit period. I checked the inspection records for these installations, the results are recorded in the table below;

NSPs due for inspection during audit period					
Category	Due for Inspection	Inspected On-time	Inspected Early	Inspected Late	Not Inspected
3	7	3	1	1	2
4	25	11	4	-	10
5	6	2	3	1	-

There were eight inspections completed early, two inspections completed late and 12 inspections not completed. Certification is therefore cancelled for these 22 installations.

## Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 8.2  With: Clause 46(1) of Schedule 10.7  From: 01-Oct-18 To: 31-May-19	Inspections not conducted within the required window for: <ul style="list-style-type: none"><li>10 AMCI installations with inspections completed early</li><li>8 AMCI installations with inspections completed late</li><li>57 AMCI installations with inspection not conducted.</li></ul> Potential impact: Medium  Actual impact: Medium  Audit history: Multiple times  Controls: Moderate  Breach risk rating: 4		
Audit risk rating	Rationale for audit risk rating		
Medium	I have recorded the controls as moderate in this area for NGCM because reporting is in place but one ICP was overlooked. AMCI’s inspection controls are rated as moderate to strong because there is a regime in place and only a small number were outside the window.  The issues found can potentially have a moderate impact on other participants and on settlement. The audit risk rating is medium.		
Actions taken to resolve the issue		Completion date	Remedial action status
AMCI – Recertification action has been taken on all AMCI sites where the EIPC inspection has been missed, done too early or too late		16/08/2019	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
AMCI – We have a good forecasting tool and will continue to issue inspections in advance but will always be challenges while we have dwindling C&I test house resources		Ongoing	

### 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

#### NGCM

I checked the process and results from inspection regimes to ensure any incorrect records were updated.

#### AMCI

I checked the process and results from inspection regimes to ensure any incorrect records were updated.

#### **Audit commentary**

#### NGCM

NGCM has completed some inspections for Category 1 metering installations and the process includes a registry comparison.

#### AMCI

AMCI conducts the checks required by this clause and compares data to that shown in Service Max.

#### **Audit outcome**

Compliant

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

#### **Code reference**

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

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

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

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

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

*The MEP must make the above arrangements within*

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

#### **Audit observation**

#### NGCM

I checked all examples of notification of missing seals, which were all as a result of inspection processes or notification by field technicians.

#### AMCI

I checked all examples of notification of missing seals, which were all as a result of inspection processes or notification by field technicians.

#### **Audit commentary**

#### NGCM

NGCM has a documented process in place for the management of seals and any subsequent investigation and reporting. There were two examples of seals being found missing during category 1 inspections. In both cases the ATH determined the meters were functioning correctly, the seals were replaced, and the installations recertified.



### AMCI

AMCI has a documented process in place for the management of seals and any subsequent investigation and reporting. There was one example of broken VT seals found during an inspection of ICP 0000021431AA104. In this case testing was completed to confirm the accuracy of the metering installation and the seals were replaced at the time of inspection.

### **Audit outcome**

Compliant

## 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) five business days for Category 3 or higher.*

#### Audit observation

##### NGCM

I checked ten examples where NGCM had become aware of faulty metering installations, where meters had been bridged in order to reconnect.

##### AMCI

I checked two examples where AMCI had become aware of faulty metering installations.

#### Audit commentary

##### NGCM

NGCM has a documented process in place to achieve compliance with this requirement. The process was followed for all ten installations. In all of these examples an ATH returned within three days, unbridged the meters and recertified the installations. Appropriate notification was provided to other participants in all ten cases.

##### AMCI

AMCI has a process in place to achieve compliance with this requirement. I checked two examples, and, in both cases, the appropriate notification was provided to other participants.

#### Audit outcome

Compliant

## 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 five business days of:*
- c) becoming aware that the metering installation may be inaccurate, defective or not fit for purpose; or*
- d) reaching an agreement with the participant.*

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

### Audit observation

#### NGCM

I checked ten examples where NGCM had become aware of faulty metering installations, where meters had been bridged in order to reconnect.

#### AMCI

I checked two examples where AMCI had become aware of faulty metering installations.

### Audit commentary

#### NGCM

NGCM has a documented process in place to achieve compliance with this requirement. The process was followed for all ten installations. In all of these examples an ATH returned within three days, unbridged the meters and recertified the installations. The information returned by the ATH met the requirement for the provision of a statement of situation in all ten examples.

#### AMCI

AMCI has a process in place to achieve compliance with this requirement. Two examples were checked, and the information returned by the ATH met the requirement for the provision of a statement of situation in both examples.

### Audit outcome

Compliant

### 9.3. Statement of Situation (Clause 10.46(2))

#### Code reference

Clause 10.46(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 Authority (for all category 3 and above metering installations) and any category 1 and category 2 metering installations on request.

#### Audit observation

##### NGCM

I checked ten examples where NGCM had become aware of faulty metering installations, where meters had been bridged in order to reconnect.

##### AMCI

I checked three examples where AMCI had become aware of a faulty metering installation.

#### Audit commentary

##### NGCM

The information returned by the ATH met the requirement for the provision of a statement of situation in all ten examples. AMCI provided this information to the trader within three business days in all ten examples.

##### AMCI

Two examples were checked and although the notification to participants was compliant, there was no notification to the Authority as required by this clause for one Category 3 metering installation at ICP 0000011078EA8C9. The other ICP was Category 2.

#### Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 9.3 With: Clause 10.46(2)  From: 21-Jun-18 To: 02-Aug-19	Statement of situation not provided to the Authority within 3 business days for one ICP.  Potential impact: Medium  Actual impact: Low  Audit history: Once  Controls: Moderate  Breach risk rating: 2
Audit risk rating	Rationale for audit risk rating
<b>Low</b>	The controls are recorded as moderate because there is room for improvement.  The impact on settlement and participants is minor; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
AMCI – Process has been put in place to send EA Notifications	16/08/2019	Identified
<b>Preventative actions taken to ensure no further issues will occur</b>	Completion date	
AMCI – As per above	16/08/2019	

## 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

##### NGCM

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

##### AMCI

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

#### Audit commentary

##### NGCM

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

##### AMCI

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

#### 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

#### NGCM

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

#### AMCI

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

### Audit commentary

#### NGCM

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

#### AMCI

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

### 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

#### NGCM

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

#### AMCI

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

#### **Audit commentary**

#### NGCM

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

#### AMCI

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

#### **Audit outcome**

Compliant

### 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**

#### NGCM

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

#### AMCI

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

#### **Audit commentary**

#### NGCM

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

#### AMCI

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

#### **Audit outcome**

Compliant



## 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.*

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

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

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

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

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

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

### Audit observation

#### NGCM

NGCM 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 requested reporting of the following:

- interrogation not conducted within the maximum interrogation cycle;
- event report sent to retailers;
- clock synchronisation reports; and
- sum-check failures.

## AMCI

AMCI conducts HHR data collection for C&I metering as an agent to reconciliation participants. This activity is not conducted as an MEP.

## Audit commentary

## NGCM

The relevant parts of this clause are maximum interrogation cycle and storage of data. The other parts of the clause are discussed in other sections.

NGCM provided reporting of ICPs where interrogation did not occur within the maximum interrogation cycle of 90 days. There are 2,821 Active ICPs in the report. The following table lists the reasons for inability to interrogate.

<b>AMS &amp; Retailer Comment on Meters that have not Communicated for 90+ days</b>	<b>Count of Meter Serial Number</b>
Advised Retailer of non-communicating meters. Working with Retailers to validate why and raise field jobs for meters that may have a Communication Fault (rather than known customer reason)	104
Potential Vodafone fault	782
Backlog of meters that either require VAMS to notify Retailers or re-notify current Retailers (Due to switch activity and inaction by previous Retailer)	906
Vacant Sites - Unable to perform comms fault job due to access issues and HSE rules to not interfere with mains supply at vacant properties (Note, this includes irrigation sites)	10
Not active in the Registry	15
<b>Grand Total</b>	<b>1817</b>

Total Sites Impacted By 90+ No-reads <b>VS</b> Total AMI(Y) Meter Fleet (1,039,056)	0.29%
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The Authority published a memo in July 2017 indicating their expectation that MEPs will manually read metering installations where the AMI flag is set to Y and where the automated interrogation fails. The expectation for investigation and updating the registry is as follows:

- where meters are interrogated daily, MEPs will trigger an investigation of repeated failures to communicate after no more than one week with no communication;
- where meters are not interrogated daily, MEPs will trigger an investigation of repeated failures to communicate after no more than three consecutive failed attempts, but within 31 days of the first communication failure;
- investigations should begin immediately and conclude within three business days even if a site visit is required; if site access is not available and the meter is still not communicating, the meter should be designated as AMI="N" until a site visit can be arranged; and

- if communications cannot be restored and the services access interface will not be the MEP's back office system, the registry should be updated as soon as practicable after the investigation is completed, but within three business days.

The Authority has proposed a Code change to clarify the timeframes for completing an investigation and updating the registry.

NGCM has not met the requirements of the memo or the Code requirement to interrogate once within the maximum interrogation cycle for 2,821 ICPs.

NGCM has met the requirement to securely archive data for at least 48 months. This data was viewed during the audit.

#### AMCI

AMCI conducts HHR data collection for C&I metering as an agent to reconciliation participants. This activity is not conducted as an MEP.

#### **Audit outcome**

Non-compliant

Non-compliance	Description		
Audit Ref: 10.5 With: Clause 8(2) of schedule 10.6 From: 01-Oct-18 To: 31-May-19	2,821 metering installations not read within the maximum interrogation cycle. Potential impact: Medium Actual impact: Low Audit history: Twice Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	I have recorded the controls as moderate in this area because there is room to tighten the timeframes for resolution of these matters. The impact on settlement is recorded as minor because of the low number involved; therefore, the audit risk rating for most retailers is low. For AMI only retailers, the impact would be major and the audit risk rating high.		
Actions taken to resolve the issue		Completion date	Remedial action status
Whilst still not 100% compliant in this space we have been actively working on the backlog to reduce it. Last report was 4,932 now down 2,111 to 2,821. We advised the retailer in over 1,600 cases which significantly helped, and we cleared a lot of the inactive ICPs. We are continuing to work on the remainder of the backlog, the current process works well and is not adding to the backlog.		Ongoing	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	

Continuing to work with retailers to reduce backlog	Ongoing	
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## 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

#### NGCM

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

#### AMCI

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

### Audit commentary

#### NGCM

Most data is provided to reconciliation participants via SFTP or FTP over private VPN. Some data is supplied by password protected email. Password security is in place to prevent unauthorised access prior to data being sent to participants.

#### AMCI

AMCI does not conduct electronic data collection as an MEP.

### 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

#### NGCM

I conducted a walkthrough of the management of time errors and I checked the relevant reports.

#### AMCI

AMCI does not conduct electronic data collection as an MEP.

### Audit commentary

#### NGCM

NGCM's server time is verified against an internet time source several times per day.

Daylight saving adjustment is conducted as follows:

The meters collect all 'Half Hourly Consumption Data' in NZST. MultiDrive (the collection system) records and stores the 'Half Hourly Consumption Data' as NZST. Files are then produced in Coordinated Universal Time (UTC) from MultiDrive to be used in downstream systems including the DWBI (Interval Data Delivery).

		EDMI Meter	MultiDrive (collection system)	File Export (CMEP)	DWBI (Interval Data Delivery)
Half Hourly Consumption Data	Summer	NZST	NZST	UTC (GMT)	DST
	Winter	NZST	NZST	UTC (GMT)	NZST

On cutover from summer to winter (and vice versa), there are either +2 or -2 intervals due to the cutover. For example, additional reads are recorded for 1:59 and 2:29 on the summer to winter transition as shown below.

#### Summer to Winter Transition:

UTC (GMT)			NZST(Summer)			UTC (GMT)			NZST(Summer to Winter)		
Interval End			Interval End	Int.		Interval End			Interval End	Int.	
11:30			0:29	1		11:30			0:29	1	
12:00			0:59	2		12:00			0:59	2	
12:30			1:29	3		12:30			1:29	3	
13:00			1:59	4		13:00			1:59	4	
13:30			2:29	5		13:30			2:29	5	
14:00			2:59	6		14:00			1:59	6	
14:30			3:29	7		14:30			2:29	7	
15:00			3:59	8		15:00			2:59	8	
:			:	:		:			:	:	
11:00			0:00	48		11:00			0:00	50	

#### Winter to Summer Transition:

UTC (GMT)			NZST (Winter)			UTC (GMT)			DST Starts (Winter to Summer)		
Interval End			Interval End	Int.		Interval End			Interval End	Int.	
12:30			0:29	1		12:30			0:29	1	
13:00			0:59	2		13:00			0:59	2	
13:30			1:29	3		13:30			1:29	3	
14:00			1:59	4		14:00			2:59	4	
14:30			2:29	5		14:30			3:29	5	
15:00			2:59	6		15:00			3:59	6	
15:30			3:29	7		15:30			4:29	7	
16:00			3:59	8		16:00			4:59	8	
:			:	:		:			:	:	
12:00			0:00	48		12:00			0:00	46	

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 interrogation log contains this information.

The MEP must ensure that a data storage device in a metering installation does not exceed the maximum time error set out in Table 1 of clause 8(5) of Schedule 10.6. The MEP must compare the time on the internal clock of the data storage device with the time on the interrogation and processing system clock,

calculate and correct (if required by this provision) any time error, and advise the affected reconciliation participant. The relevant part of this table is shown below.

Metering Installation Category	HHR Metering Installations (seconds)	NHH Metering Installations (seconds)
1	±30	±60
2	±10	±60

During interrogation the system time is compared to the data logger time. Category 2 installations have a setting of 3 to 10 seconds and Category 1 installations have a setting of 3 to 30 seconds. On any given day, there are approx. 200 installations over the maximum threshold. Reporting for 31/05/2019 showed 1,586 examples. These are all dealt with manually and no interval data is sent until the clock is re-set or the issue is resolved.

Details of time changes are sent to reconciliation participants as required by this clause. I checked the most recent report sent to every relevant retailer.

This clause is slightly different to the clause in Part 15 for reconciliation participants. This clause requires MEPs to ensure the time is not outside the allowable thresholds, therefore non-compliance exists for those examples where time has drifted outside the allowable threshold.

#### AMCI

AMCI does not conduct electronic data collection as an MEP.

#### **Audit outcome**

Non-compliant

Non-compliance	Description		
Audit Ref: 10.7 With: Clause 8(4) of Schedule 10.6 From: 01-Oct-18 To: 31-May-19	1,586 examples of clock errors outside the allowable thresholds in the most recent reports. Potential impact: Medium Actual impact: Low Audit history: None Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement. The impact on settlement and participants is minor; therefore, the audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status

VAMS has robust processes to correct time errors before they go outside the limits allowed by the code. Due to the high number of meters, sometimes these limits are breached, however the process still detects and corrects the errors.	Ongoing	Identified
<b>Preventative actions taken to ensure no further issues will occur</b>	<b>Completion date</b>	
Fully automated process, a very small percentage exceed the limits but will always be resolved.	Ongoing	

## 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

#### NGCM

I conducted a walkthrough of the event management process and I checked the most recent report sent to all relevant retailers.

#### AMCI

AMCI does not conduct electronic data collection as an MEP.

### Audit commentary

#### NGCM

NGCM downloads the event log as required by this clause. All critical events are evaluated, and appropriate action is taken. The list of events is as follows:

- loss of power;
- battery low;

- pulse overflow;
- voltage tolerance;
- VT failure (voltage tolerance failure);
- measurement error;
- memory failure;
- ROM error;
- meter hardware error;
- possible meter tamper (these are caused by a site visit or meter installation and can be ignored);
- relay stuck;
- reverse rotation;
- tamper; and
- phase failure (the voltage tolerance error is filtered by meter category to identify Category 2 phase failure).

The Code requires NGCM to review the event log either manually or by an automated software function which flags exceptions and to:

(i) take appropriate action where problems are apparent; and

(ii) pass relevant event log entries to the reconciliation participant for the metering installation.

Compliance is achieved with the requirement to take appropriate action where problems may affect the operation or accuracy of the metering installation and NGCM passes relevant event log entries to the reconciliation participant in all cases.

The “reverse power” event is becoming more relevant now that the quantity of distributed generation installations has increased. Reverse power means that “generation” is detected on a “load” register. This is normally caused by distributed generation being connected without notification to the trader. I have encouraged retailers to monitor and act on this event.

The list of events sent to retailers is shown below.

CODE - D7 DEVICE (HEADEND RAW EVENTS)	CODE - D7 DEVICE (HEADEND RAW EVENTS)	NEW EVENT TYPE - TAKING OUT L1001 AND C1213 FROM BURNED CODE (B1 TO R100000) FROM STANDARD EVENT	NEW/UPDATED EVENT DESCRIPTION	NEW DESCRIPTION - TAKING OUT "TRAP" AND C1213	ORACLE - MDM REPORTING CATEGORY - UPDATED CATEGORY
EDMI GPRS (MD)	EFA - Pulse Output Overflow	EFA_PULSE_OUTPUT_OVERFLOW		Alarm raised when specified minimum off time is violated	Meter Notification
EDMI GPRS (MD)	EFA - Tamper	EFA_TAMPER		Tamper attempt detected	Tamper
EDMI GPRS (MD)	EFA - Modem Failure	MODEM_FAILURE		This alarm is generated if the modem is found to be faulty	Meter Notification
EDMI GPRS (MD)	Power Off	POWER_OFF		Power to the meter was switched off or lost	Outage
EDMI GPRS (MD)	Power On	POWER_ON		Power to the meter was switched on	Restoration
EDMI GPRS (MD)	EFA - Reverse Power	TBL3_REVERSE_ENERGY		Reverse energy: Received kWh (Table 3: CA400000)	Health and Safety
EDMI GPRS (MD)	Time Changing	TIME_CHANGING		System time is about to be changed by more than 2 seconds	Meter Notification
EDMI GPRS (MD)	EFA - Voltage Tolerance	VOLTAGE_TOLERANCE_ERROR		Default 1 minute time delay is applied to this test	Health and Safety
EDMI GPRS (MD)	EFA - VT Failure	VOLTAGE_TRANSFORMER_FAILURE		Default 1 minute time delay is applied to this test	Health and Safety
EDMI GPRS (MD)	Relay Stuck	RELAY_STUCK		Relay stuck	Meter Failure

## AMCI

AMCI does not conduct electronic data collection as an MEP.

## 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.*

### Audit observation

#### NGCM

I conducted a walkthrough of the event management process and I checked the most recent reporting.

#### AMCI

AMCI does not conduct electronic data collection as an MEP.

### Audit commentary

#### NGCM

NGCM has a "sum-check" process where the "billable registers" from midnight reads are compared with HHR data. If the difference is more than 0.1 kWh this is considered a "fail". In the previous audit it was reported that negative errors (where the sum of the intervals is less than the difference between register reads) were not being reported. A new version of MDM has since been implemented which allows negative errors to be reported.

This comparison is conducted in the data warehouse. If a "fail" occurs the data may be sent to the retailer, depending on what agreement is in place. Failures occur due to meters not communicating; it does not mean there is a fault with the device. The main reason for failure is due to data spikes, which can be present in devices with an old firmware version. These events are all identified, and the matter is raised with the relevant retailer. NGCM is in the process of updating the firmware version in all relevant installations.

#### AMCI

AMCI does not conduct electronic data collection as an MEP.

### 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

#### NGCM

NGCM has a process in place to achieve compliance with this requirement. No specific examples were available to examine.

#### AMCI

AMCI has a process in place to achieve compliance with this requirement. No specific examples were available to examine.

#### **Audit commentary**

#### NGCM

NGCM has a process in place to achieve compliance with this requirement. No specific examples were available to examine.

#### AMCI

AMCI has a process in place to achieve compliance with this requirement. No specific examples were available to examine.

#### **Audit outcome**

Compliant

## CONCLUSION

The quantity of non-compliances has decreased from 20 during the last audit to 17 in this audit, with the future risk rating decreasing from 59 to 50. Some additional matters were found, as follows:

- subtraction is being used in a metering installation; and
- there were late responses to MN requests in seven cases.

Improvements have been made in the following areas since the last audit:

- the sum-check validation process now allows negative errors to be reported;
- the process for monitoring of installations certified at a lower category has been conducted each month as required by the code;
- the process for recertification of bridged meters has improved;
- the timeliness of registry updates has improved; and
- the total quantity of installations with expired certification has reduced.

The date of the next audit is determined by the Electricity Authority and is dependent on the level of compliance during this audit. The audit frequency matrix provides some guidance on this matter and although it recommends an audit frequency of three months, my recommendation is that the Authority considers a longer frequency of at least six months to allow sufficient time to resolve the issues, many of which require system changes or field visits.

## PARTICIPANT RESPONSE

VAMS accepts 15 of the non-compliances and has disputed 2 of them. Where the code requires cancellation of metering installations where there is little-to-no benefit, VAMS have concerns about the unnecessary significant cost to the industry.

For example; the cancellation of the 127 ICPs due to missing two months monitoring, reports have been monitored each month since the last audit and the ICPs found to be still within the required limits. The cancellation and recertification of 127 Cat 2 sites not only has a dollar value, but takes limited resource of technicians away from other work, and interrupts businesses for no gain.

Another example is the cancellation and recertification of the 2017 inspections population, whilst only an administration exercise, has taken many hours of VAMS time to implement as well as that of retailers who get bombarded with registry notifications and who need to carefully manage the notifications into their systems, particularly where it can affect billing.