

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

For

**ADVANCED METERING SERVICES**

Prepared by: Steve Woods – Veritek Limited

Date audit commenced: 11 January 2021

Date audit report completed: 1 April 2021

Audit report due date: 23-Mar-21

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## EXECUTIVE SUMMARY

Advanced Metering Services (AMS) is a Metering Equipment Provider (MEP) and is required to undergo an audit by 23 March 2021, in accordance with clause 16A.17(a).

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 increased from 16 during the last audit to 19 in this audit, with the future risk rating increasing from 45 to 53, mainly due to the new clauses coming into effect on 1 February 2021. One recommendation is made regarding the uncertainty calculations used by the Wells Approved Test House.

Some additional matters were found, as follows:

- design reports do not include the maximum interrogation cycle for each services access interface,
- processes and reporting not in place to ensure the AMI field is updated within 10 business days of unsuccessful interrogation,
- 2165 metering installations not interrogated within the maximum interrogation cycle where the AMI flag is still “Y”, leading to cancelled certification, and
- reporting and processes not established to resolve interrogation issues or change the AMI flag to “N” at 22 days.

Processes and reporting are not yet in place for many of the new requirements of Part 10 as they relate to data collection, particularly the maximum interrogation cycle and sum-check requirements. Some areas were unable to be fully examined for this reason and will need to be checked during the next audit.

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

- all of the ICPs with cancelled certification from previous audits have been updated in the registry,
- the timeliness of registry updates has improved, and
- the number of registry discrepancies has reduced.

The main issues from this audit are as follows:

- certification is cancelled due to 1,621 NGCM and 44 AMCI inspections not being conducted,
- certification is cancelled for 2,165 ICPs due to interrogation not occurring within the maximum interrogation cycle,
- four installations have cancelled certification because low burden was not addressed,
- two installations were outside the maximum accuracy tolerance, and
- the total quantity of ICPs with expired or cancelled certification has increased.

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, particularly those required by the 1 February 2021 Code changes, where system changes need to be specified, designed, tested and implemented.

The matters raised are shown in the tables below.

## AUDIT SUMMARY

### NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
MEP responsibility for services access interface	2.1	10.9(2)	<b>AMCI</b> Services access interface incorrectly recorded in certification records for four metering installations.	Strong	Low	1	Identified
Provision of accurate information	2.5	11.2 and 10.6	<b>NGCM</b> Some certification reports not complete and accurate. <b>AMCI and NGCM</b> Registry not always updated as soon as practicable.	Moderate	Medium	4	Identified
Registry updates	3.2	2 of Schedule 11.4	<b>AMCI and NGCM</b> Some registry updates later than 15 business days.	Strong	Low	1	Identified
Design reports	4.1	2 of Schedule 10.7	<b>NGCM</b> Design reports do not include the maximum interrogation cycle for each services access interface.	Strong	Low	1	Identified
Subtractive Metering	4.4	4(2)(a) of Schedule 10.7	<b>AMCI</b> Subtraction is used in a metering installation.	Moderate	Low	2	Identified
Changes to registry records	4.10	3 of Schedule 11.4	<b>NGCM and AMCI</b> Some records updated to the registry later than 10 business days. <b>NGCM</b> Processes and reporting not in place to ensure the AMI field is updated within 10 business days of unsuccessful interrogation.	Moderate	Low	2	Identified

Accurate and Complete Records	5.1	4(1)(a) and (b) of Schedule 10.6, and Table 1, Schedule 11.4	<b>AMCI</b> Some inaccurate certification records. <b>NGCM</b> Some inaccurate certification records.	Moderate	Low	2	Identified
Provision of Registry Information	6.2	Clause 7 (1), (2) and (3) of Schedule 11.4	<b>NGCM and AMCI</b> Some registry records incomplete or incorrect.	Moderate	Medium	4	Identified
Correction of Errors in Registry	6.3	Clause 6 of Schedule 11.4	<b>NGCM and AMCI</b> 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 - 44 installations with inspection not conducted,</li> <li>• NGCM – 1,621 Category 2 installation with overdue inspection,</li> <li>• NGCM - 4 installations with low burden,</li> <li>• NGCM – 1 ICP with a bridged control device,</li> <li>• NGCM - 2165 metering installations not interrogated within the maximum interrogation cycle where the AMI flag is still “Y”,</li> <li>• NGCM - 6 metering installations were not recertified at the time bridging was removed,</li> <li>• AMCI - 11 installations with low burden, and</li> <li>• AMCI – 2 faulty metering installations outside</li> </ul>	Weak	Medium	6	Investigating

			applicable accuracy tolerances.				
Certification of metering installations	7.1	10.38 (a), clause 1 & clause 15 of Schedule 10.7	<b>NGCM</b> Certification expired or cancelled for 37,121 NGCM metering installations.  <b>AMCI</b> Certification expired for 118 AMCI metering installations.	Moderate	Medium	4	Investigating
Alternative Certification Requirements	7.9	32(2), (3) and (4) of Schedule 10.7	<b>AMCI</b> Notification of alternative certification not provided to the market administrator within 10 business days.	Moderate	Low	2	Identified
Interim certification	7.19	18 of Schedule 10.7	<b>NGCM</b> 24,694 ICPs with expired interim certification.	Moderate	Medium	4	Identified
Inspections	8.2	46(1) of Schedule 10.7	<b>NGCM</b> 1,621 NGCM installations with inspection not conducted.  <b>AMCI</b> 44 AMCI installations with inspection not conducted.	Moderate	Medium	4	Identified
Investigation of Faulty Metering Installations	9.1	10.43(4) and (5)	<b>AMCI</b> Notification of investigation of faulty installations not provided to affected parties within 5 business days.	Moderate	Low	2	Cleared
Statement of Situation	9.3	10.46(2)	<b>AMCI</b> Statement of situation not provided to Authority and affected parties within 3 business days.	Moderate	Low	2	Cleared



Max interrogation cycle	10.5	8(2) of schedule 10.6	<b>NGCM</b> 2,161 metering installations not read within the maximum interrogation cycle, where the AMI flag is still "Yes".	Moderate	Low	2	Identified
Time errors	10.7	Clause 8(4) of Schedule 10.6	<b>NGCM</b> 1,042 examples of clock errors outside the allowable thresholds in the most recent reports.	Strong	Low	1	Identified
Investigation of AMI interrogation failures.	10.12	8(11), 8(12) and 8(13) of Schedule 10.6.	<b>NGCM</b> Reporting and processes not established to resolve interrogation issues or change the AMI flag to "N" at 22 days.	None	Low	5	Identified
<b>Future Risk Rating</b>						<b>53</b>	
<b>Indicative Audit Frequency</b>						<b>3 months</b>	

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	Clause	Recommendation	Remedial Action
Metering Installation Design & Accuracy	4.3	4(1) of schedule 10.7	Monitor the potential remedial actions taken by Wells ATH to ensure error and uncertainty calculations are accurate and include all sources of uncertainty.	Identified

## 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 is one exemption in place, exemption 296.

#### Audit commentary

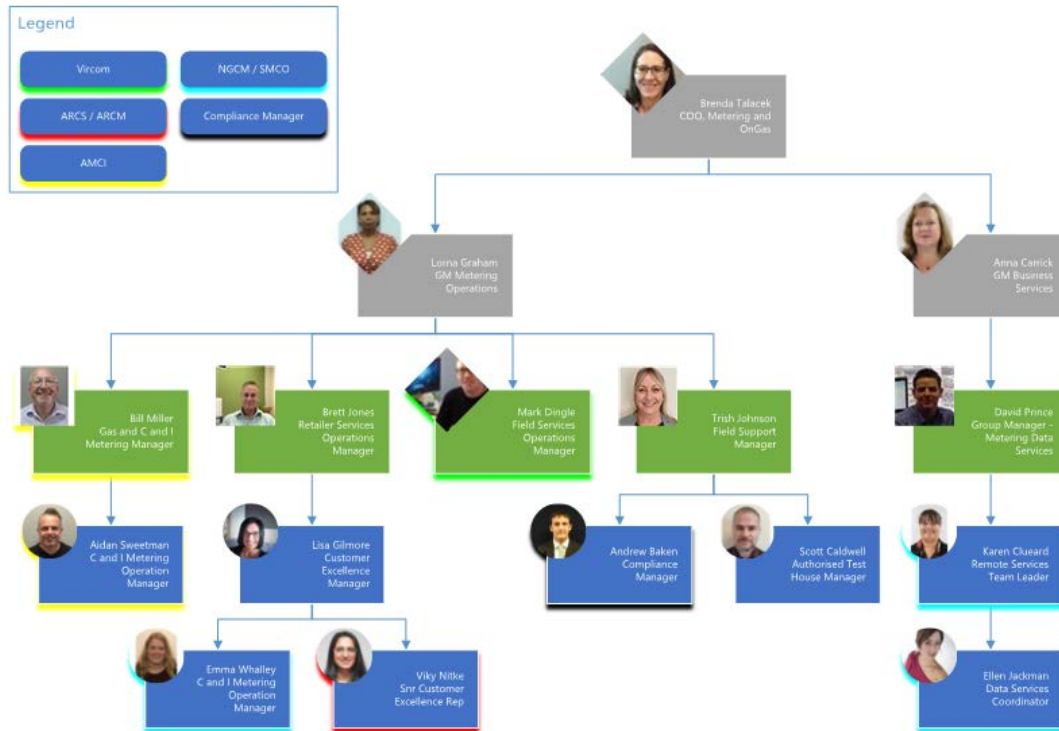
Exemption 296 relates to clause 4(2)(a) of Schedule 10.7 of the Electricity Industry Participation Code 2010 ("Code") not to use subtraction to determine submission information. This exemption applies only to ICP 0000840407WE388.

This exemption expires on the earlier of:

- a. the close of 30 June 2025, and
- b. the date when; Meridian Energy Limited is no longer in the registry as being the trader for ICP0000840407WE388, and
- c. the date when Vector Metering is no longer recorded in the registry as being the Metering Equipment Provider for ICP 0000011015WEC04 or ICP 0000011055WEEA1, and
- d. the date when Meridian Energy Limited no longer has an agreement with any retailer of ICP 0000015182WE1AD, ICP 0000025029WEF4E or ICP 0003146175WE243 to receive half hour metered data required in the subtraction calculation for ICP 0000840407WE388, and
- e. the date on which the metering or distribution configuration is changed so that submission information no longer needs to be calculated by a subtractive process.

## 1.2. Structure of Organisation

AMS structure diagram as of February 2021.



### 1.3. Persons involved in this audit

Auditor:

Steve Woods – lead auditor.

Brett Piskulic – supporting auditor.

**Veritek Limited**

**Electricity Authority Approved Auditor**

AMS personnel assisting in this audit were:

Name	Title
Andrew Baken	Compliance Manager
Aidan Sweetman	C & I Metering Operations Manager
Karen Clueard	Data services Team Leader
Ellen Jackman	Data Service Coordinator

### 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:

- WEL Networks
- Wells,
- Delta,
- Vircom-EMS, and

- Indeserve.

#### AMCI

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

The ATHs engaged are as follows:

- Metrix/Intellihub
- Accucal,
- Delta, and
- Vircom-EMS.

#### 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 2021	Number of ICPs 2020	Number of ICPs 2019	Number of ICPs 2018	Number of ICPs 2017
1	1,142,301	1,108,598	1,119,048	1,102,244	1,019,761
2	13,502	12,950	12,578	11,868	10,145
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
9	10	18	22	8	5

#### AMCI

Metering Category	Number of ICPs 2021	Number of ICPs 2020	Number of ICPs 2019	Number of ICPs 2018	Number of ICPs 2017
1	1,415	1,487	1,511	1,603	1,709
2	5,684	5,698	5,737	5,730	5,676

3	3,736	3,648	3,611	3,579	3,543
4	1,571	1,515	1,474	1,447	1,377
5	174	177	177	172	174
9	46	31	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.

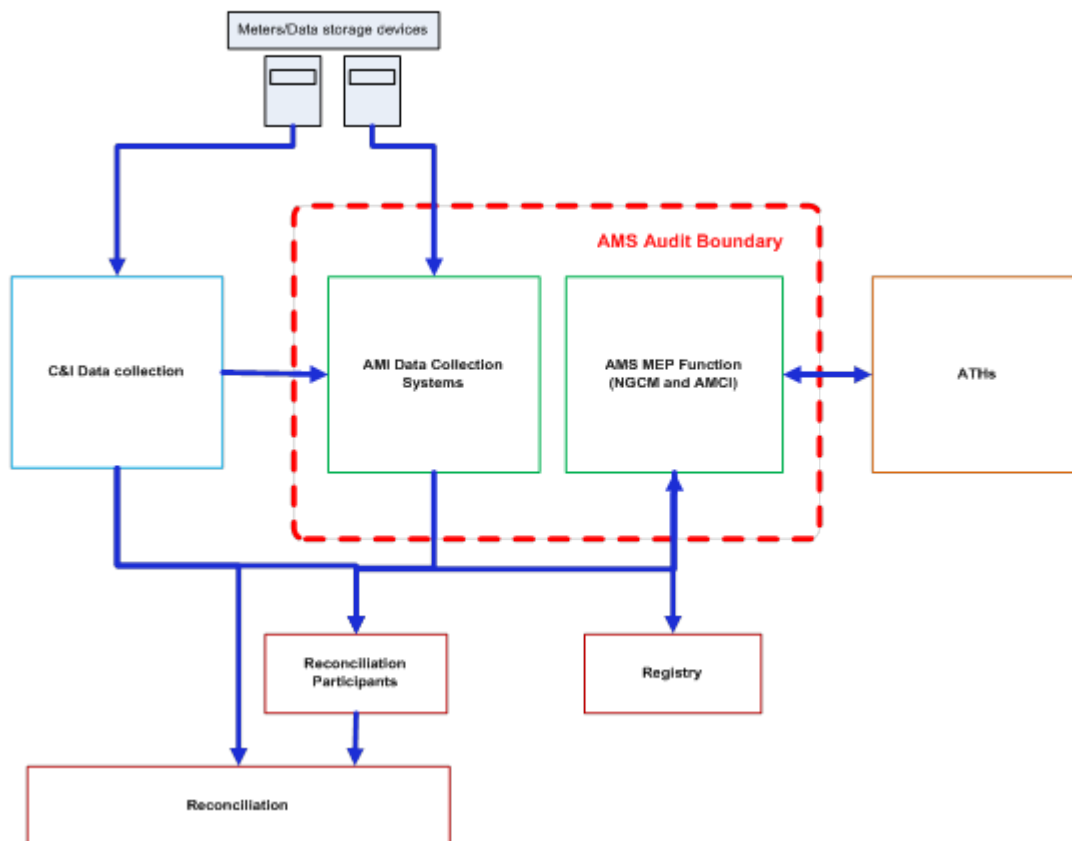
## 1.8. Authorisation Received

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 March 2020 by Brett Piskulic of Veritek Limited. The table below shows that most of the issues 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.	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	Uncertainty higher than 0.3% for 1 Cat 4 installation certified by Delta.	Cleared
Subtractive Metering	4.4	4(2)(a) of Schedule 10.7	Subtraction is used in a metering installation.	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
Response to switch request	6.1	Clause 1(1) of Schedule 11.4	113 late MN files.	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: AMCI - 2 installations with inspections not conducted, NGCM - 37 three phase installations with only one phase metered, NGCM - 17 Category 2 installation with overdue inspection, NGCM - 30 installations where meters were bridged, NGCM - 25 installations with low burden, AMCI - 12 installations with low burden, NGCM - 127 installations certified as a lower category but monitoring report wasn't produced for July and August 2018, NGCM - 2 Category 2 installations with inoperable test facilities, NGCM - Uncertainty higher than 0.6% for 5 installations certified by Wells, AMCI - Uncertainty higher than 0.3% for a Category 4 installation certified by Delta, and	Cleared for the installations specified in the previous audit

			<ul style="list-style-type: none"> <li>AMCI – 2 Category 2 installations outside applicable accuracy tolerances.</li> </ul>	
Certification of metering installations	7.1	10.38 (a), clause 1 & clause 15 of Schedule 10.7	<p>Certification expired for 33,131 NGCM metering installations.</p> <p>Certification expired for 84 AMCI metering installations.</p>	Still existing
Insufficient Load for Certification Tests	7.7	14(3) and (4) of Schedule 10.7	Monitoring not conducted of 2 installations certified with insufficient load.	Cleared
Alternative Certification Requirements	7.9	32(2), (3) and (4) of Schedule 10.7	Notification of alternative certification not provided to the market administrator.	Still existing
Interim certification	7.19	18 of Schedule 10.7	30,480 ICPs with expired interim certification.	Still existing
Inspections	8.2	46(1) of Schedule 10.7	<p>17 NGCM installations with inspection not conducted.</p> <p>58 AMCI installations with inspection not conducted.</p>	Still existing
Max interrogation cycle	10.5	8(2) of schedule 10.6	2,226 metering installations not read within the maximum interrogation cycle.	Still existing
Time errors	10.7	Clause 8(4) of Schedule 10.6	1,308 examples of clock errors outside the allowable thresholds in the most recent reports.	Still existing

## RECOMMENDATIONS

Subject	Section	Clause	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.

Since 1 February 2021, the Code requires that all possible services access interfaces be recorded. This is discussed further in **section 5.1**, where non-compliance is recorded.

#### Audit commentary

##### NGCM

NGCM has an AMI system and for many installations the services access interface will be “remote”. For non-AMI installations the services access interface is “local”. I checked 60 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 50 certification records and found the services access interface was recorded correctly by the ATHs for 46 records. Four certifications completed by the Delta ATH had incorrectly recorded the services access interface as remote.

#### Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.1 With: Clause 10.9(2)  From: 24-Mar-20 To: 30-Nov-20	<b>AMCI</b>  Services access interface incorrectly recorded in certification records for four metering installations.  Potential impact: Low  Actual impact: None  Audit history: None  Controls: Strong  Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	I have recorded the controls as strong as the services access interface is recorded correctly in most cases.  There is no impact because the MEP normally determines the location of the services access interface; therefore, the audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status
Vircom uses Delta as an FSP and ATH for some AMCI work. I have requested Vircom to advise Delta to utilize SAI – LOCAL going forward.		23/03/2021	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
To be checked by the AMCI operations team during cert QA checks.		23/03/2021	

## 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.

#### 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 **sections 5 and 6** there are some registry and certification 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		
<p>Audit Ref: 2.5</p> <p>With: Clause 11.2 and Clause 10.6</p> <p>From: 01-Mar-20</p> <p>To: 28-Feb-21</p>	<p><b>NGCM</b></p> <p>Some certification reports not complete and accurate.</p> <p><b>AMCI and NGCM</b></p> <p>Registry not always updated as soon as practicable.</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>Controls are recorded as moderate because there is room to improve the timeliness of registry updates and the accuracy of certification records.</p> <p>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.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>NGCM – Vector Metering will be presenting the new Code changes to all ATHs at our technical forum in April 2021. This has the express purpose of ensuring all test houses understand what is required in certification and design reports, including improvements that can be made.</p> <p>Vector Metering runs a continuous reconciliation program to ensure information between our system and the Registry is in alignment. We have been producing the ‘Audit Compliance’ reports each month, and our MEP team is working to clear discrepancies and errors.</p> <p>We have been actively cancelling certifications when the above issues are identified, but there is still room for improvement. We have made progress on the items raised and discussed in section 6 of this report.</p> <p>AMCI – Vector Metering runs an additional reconciliation report out of the Registry each month to pick up inaccuracies. This is in addition to the existing Registry Case Exception handling process and monthly Servicemax vs Registry exception reporting and data corrections. 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. Exception cases from the Registry for data inaccuracies are monitored and corrected daily.</p>		<p>NGCM – 31/05/2021</p> <p>AMCI - Ongoing</p>	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	

<p>NGCM – once the new Code changes are reflected in the certification reports, this non-compliance will be cleared.</p> <p>AMCI - Additional monthly checks have been put in place.</p>	Ongoing	
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### 3. PROCESS FOR A CHANGE OF MEP

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

##### Code reference

Clause 10.22

##### Code related audit information

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

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

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

*The gaining MEP is not required to pay costs if:*

- the losing MEP has agreed in writing that the gaining MEP is not required to pay costs, or the losing MEP has failed to provide notice within 40 business days.*
- within three business days, the gaining MEP replaces, removes or recertifies the metering component or metering installation.*
- the losing MEP has failed to provide notice of the costs to the gaining MEP within 40 business days.*

##### 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. The table below shows that there is only one scenario where costs will be payable, and this is unlikely to occur.

Scenario	Likelihood of occurring	Costs payable
Gaining MEP replaces losing MEPs component	High	No
Gaining MEP removes losing MEPs component	High	No
Gaining MEP recertifies losing MEPs component	High	No
Gaining MEP replaces losing MEPs installation	High	No
Gaining MEP removes losing MEPs installation	High	No

Gaining MEP recertifies losing MEPs installation	High	No
Gaining MEP retains losing MEPs components and metering installation	Zero	Yes

#### AMCI

AMCI have not sent or received any invoices in relation to this clause.

#### **Audit outcome**

Compliant

### 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 audit compliance report for the period 1 March 2020 to 11 January 2021 for all records where NGCM became the MEP to evaluate the timeliness of updates.

##### AMCI

I checked the audit compliance report for the period 1 March 2020 to 11 January 2021 for all records where AMCI became the MEP to evaluate the timeliness of updates.

#### **Audit commentary**

##### NGCM

I examined the audit compliance report for 16,205 switches in relation to this clause and the findings are shown in the table below. A large number of the late updates are due to corrections. I checked a sample of 10 updates for events which occurred during the audit period in detail and found there were three reasons, as follows:

1. queries back to the contractor to ensure the information was complete and accurate,
2. late field notification, and
3. previous MEP event for removed metering blocking the loading of new metering in the registry.

The level of compliance has improved significantly since the last audit.

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



Jul 2019	5,260	4,820	92%	9
Jan 2020	16,205	10,133	63%	Not calculated
<b>Jan 2021</b>	<b>13,613</b>	<b>11,944</b>	<b>88%</b>	Not calculated

### AMCI

I examined the audit compliance report for 148 switches in relation to this clause and the findings are shown in the table below. A large number of the late updates are due to corrections. I checked a sample of 30 updates for events which occurred during the audit period in detail and found that five were due to late nomination by the trader, 18 were corrections and seven were due to the MEP being late.

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
Jul 2019	48	22	46%	18
Jan 2020	176	46	26%	Not calculated
<b>Jan 2021</b>	<b>148</b>	<b>42</b>	<b>28%</b>	<b>Not calculated</b>

### Audit outcome

#### Non-compliant

Non-compliance	Description		
Audit Ref: 3.2 With: Clause 2 of Schedule 11.4  From: 01-Mar-20 To: 11-Jan-21	<b>AMCI and NGCM</b> 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>

<p>NGCM – Although there were fewer backdates and other projects to bring the percentage of late registry updates down this year, we continue to correct discrepancies and errors, which are often backdated, causing these to look like late updates.</p> <p>AMCI – AMCI continues to monitor and push the FSPs to deliver paperwork in a timely fashion. We currently have a 5BD paperwork delivery target from FSP to AMCI – currently the FSPs are providing paperwork in 6BDs. AMCI also continues to request MEP nominations with Retailer SRs. We endeavour to improve on our overall SLAs. A contributing factor to non-compliance is the loss of sub-contractor resources in key areas due to injury or retirement.</p>	Ongoing	Identified
<b>Preventative actions taken to ensure no further issues will occur</b>	Completion date	
<p>NGCM – As we continue to correct metering data (excluding large correction or projects that might be disruptive), we expect our compliance level to improve.</p> <p>AMCI - FSPs' current resource restructures are under way to aid with Vector Metering's 4G project. This will also support quicker transition of paperwork from the field to the ATH and the MEP back office.</p>	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 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 continue with their responsibilities, mainly in relation to the storage of records, which are kept indefinitely. I checked records from 2017 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 for each services access interface, any compensation factor arrangements, method of certification required, and name and signature of the person who prepared the report and the date it was signed.*

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

#### Audit observation

##### NGCM

NGCM has engaged the VCOM, Delta, Indeserve, Wells and WEL Networks ATHs for certification activities. The ATHs have provided design reports for this work, which I have checked.

##### ACMI

AMCI has engaged the VCOM, Delta, Accucal and Metrix/Intellihub 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 the requirements noted above and they were prepared by a person with the appropriate level of skills, expertise, experience and qualifications. I checked 60 certification records and confirmed that the design report was recorded in all 60 records.

I requested a sample of design reports after 1 February 2021 to ensure they contained the maximum interrogation cycle for each services access interface. The table below shows that the Delta design does not include the maximum interrogation cycle for each services access interface. The Wells, Indeserve and VCOM designs were not available at the time the audit report was finalised.

ATH	Design contains maximum interrogation cycle for each services access interface?
Delta	No
Wells	Unknown
VCOM	Unknown
Indeserve	Unknow

## 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

Non-compliant

Non-compliance	Description		
Audit Ref: 4.1 With: Clause 2 of Schedule 10.7  From: 01-Feb-21 To: 20-Mar-21	<b>NGCM</b>  Design reports do not include the maximum interrogation cycle for each services access interface.  Potential impact: Low  Actual impact: None  Audit history: None  Controls: Strong  Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	Strong controls are in place to ensure design reports are accurate. There was a very short time period to change design reports and have them approved between mid-December 2020 and the date of the audit.  There is no impact because the maximum interrogation cycles are not derived from the design reports.		
Actions taken to resolve the issue		Completion date	Remedial action status
NGCM - Vector Metering will be presenting the new Code changes to all ATHs at our technical forum in April 2021. This has the express purpose of ensuring all test houses understand what is required in certification and design reports, including improvements that can be made.		31/05/2021	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
NGCM – once the new Code changes are reflected in the certification reports, this non-compliance will be cleared.		31/05/2021	

## 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 VCOM, Delta, Indeserve, Wells and WEL Networks ATHs.

#### AMCI

I confirmed that AMCI uses VCOM, Delta, Metrix/Intellihub and Accucal 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 60 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 50 metering installations.

## Audit commentary

### NGCM

The ATHs have compliant practices and are now calculating uncertainty for metering installations certified using the comparative method. My checks of the metering installation certification reports for 27 category 2 installations certified using the comparative recertification method confirmed that error and uncertainty were both recorded. The most recent Wells ATH report contains two recommendations regarding error and uncertainty calculations which are relevant to NGCM. The Wells process is that the technician starts and stops the working standard by pushing a button when the least significant digit on the meter registers advances. The uncertainty calculation does not include any potential error introduced by the reaction time of the technician when pushing the button. It was recommended that Wells investigate the possibility of using pulses from the meter or determine and add an allowance in the uncertainty calculation for the influence of the reaction time. The second point relates to temperature. Ambient temperature is measured and recorded by the technician on-site. The uncertainty calculation includes an allowance based on the difference between the calibrated temperature of the working standard to the ambient temperature based on the temperature drift specification of the device. This influence is also added as an absolute figure to the overall error measurement. It appears that the influence of the ambient temperature is being applied twice. It was recommended that Wells review the application of the ambient temperature influence to determine if the adjustment of the overall error figure is necessary.

Recommendation	Description	Audited party comment	Remedial action
4(1) of schedule 10.7	Monitor the potential remedial actions taken by Wells ATH to ensure error and uncertainty calculations are accurate and include all sources of uncertainty.	We will discuss what remedial action Wells have taken to ensure their calculations are accurate and include all sources of uncertainty.	Identified

The design report was recorded for all 60 installations checked.

### AMCI

The ATHs have compliant practices and are now calculating uncertainty for metering installations certified using the comparative and fully calibrated methods. My checks of the metering installation certification reports for nine category 2 installations certified using the comparative recertification method and 14 installations using the fully calibrated method confirmed that error and uncertainty were both recorded.

The design report was recorded for all 50 installations checked.

## Audit outcome

Compliant

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

#### Code reference

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

#### Code related audit information

*MEPs must ensure that the metering installation records imported electricity separately from exported electricity. For category 1 and 2 installations the MEP must ensure the metering installation records imported and exported electricity separately for each phase. For category 3 or higher installations, the*



MEP does not need to ensure that imported and exported electricity is recorded separately for each phase.

If the metering installation contains multiple phases, the MEP may aggregate together the amounts of imported electricity recorded on different phases, or the amounts of exported electricity recorded on different phases. However, the MEP must not aggregate imported and exported electricity together. 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 and whether imported and exported electricity is recorded separately for each phase for any metering installations where they were the MEP.

##### AMCI

I asked NGCM to confirm whether subtraction was used and whether imported and exported electricity is recorded separately for each phase for any metering installations where they were the MEP.

#### Audit commentary

##### NGCM

NGCM does not have any metering installations where subtractive metering is used. All current metering installations record import and export separately for each phase.

##### AMCI

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

As recorded in **section 1.1** Exemption 296 applies to ICP 0000840407WE388.

At ICP 1002050361LC60D the customer 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.

All current metering installations record import and export separately for each phase.

#### 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: 24-Feb-21	<b>AMCI</b> Subtraction is used in a metering installation. Potential impact: Medium Actual impact: Low Audit history: Twice Controls: Moderate Breach risk rating: 2
<b>Audit risk rating</b>	<b>Rationale for audit risk rating</b>

<b>Low</b>	<p>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.</p> <p>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.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
AMCI – Pioneer has escalated the outstanding issue with their Customer (large hospital). The Customer is looking at further upgrading the old supply which will resolve the subtraction metering issue. Vector Networks has advised that the upgrade may be a few years away. AMCI has provided, via our high voltage test house AccuCal, a metering solution for the current double metering issue. AMCI will be looking at what further action we need to take as the MEP based on the advice that the upgrade will not be happening anytime soon.		Ongoing	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
AMCI – Due to the nature of the Customer (large hospital), AMCI has taken a mindful and careful approach in pushing the Customer to provide an opportunity to correct the issue. With Pioneer escalating the outstanding issue, AMCI was hoping we would get a faster resolution but action on any upgrade is beyond the MEP's control.		Ongoing	

#### 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

NGCM is not responsible for any metering installations at Category 3 and above.

###### AMCI

I checked the audit compliance report to confirm compliance with this requirement.

##### Audit commentary

###### NGCM

NGCM is not responsible for any metering installations at Category 3 and above.

###### AMCI

I checked the audit compliance report 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 five Embedded Networks with NSP metering. I checked and have confirmed that subtraction is not used to determine submission information.

##### AMCI

AMCI is the MEP for 247 Embedded Networks with NSP Metering. I checked and have confirmed 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**

Compliant

### 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), (2D) 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.*

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

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

#### **Audit observation**

##### 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**

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

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

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

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

#### **Audit observation**

##### NGCM

I checked the audit compliance report for the period 1 March 2020 to 11 January 2021 to evaluate the timeliness of registry updates.

##### AMCI

I checked the audit compliance report for the period 1 March 2020 to 11 January 2021 to evaluate the timeliness of registry updates.

#### Audit commentary

##### NGCM

I checked the audit compliance report for the period 1 March 2020 to 11 January 2021 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
	Jul 2019	48,679	36,836	76%	106
	Jan 2020	131,096	57,512	44%	91
	<b>Jan 2021</b>	<b>417,406</b>	<b>381,958</b>	<b>92%</b>	<b>36</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
	Jul 2019	6,505	6,151	95%	3
	Jan 2020	14,329	12,598	88%	Not calculated
	<b>Jan 2021</b>	<b>20,519</b>	<b>19,964</b>	<b>97%</b>	<b>Not calculated</b>

A large number of the late registry updates were changes to the register content code from IN24 to the correct code. Many of these were backdated to 2016.

I checked a sample of 10 late updates for new connections which occurred during the audit period in detail and found that all 10 were due to late field notification.

337 of 554 late updates were due to late nomination by the trader.

There are two additional requirements that came into effect on 1 February 2021, they are:

1. if the MEP is updating the registry in accordance with 8(11)(b) of Schedule 10.6, 10 business days after the most recent unsuccessful interrogation, and
2. if update the registry in accordance with clause 8(13) of Schedule 10.6, three business days following the expiry of the time period or date from which the MEP determines it cannot restore communications.

NGCM does not yet have processes or reporting in place to ensure compliance with the two points above.

##### AMCI

I checked the audit compliance report for the period 1 March 2020 to 11 January 2021 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
	Jul 2019	23,679	18,673	79%	171
	Jan 2020	2,633	679	26%	296
	<b>Jan 2021</b>	<b>3,498</b>	<b>1,074</b>	<b>30.7%</b>	<b>360</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
	Jul 2019	112	71	37%	20
	Jan 2020	205	33	16%	Not calculated
	<b>Jan 2021</b>	<b>270</b>	<b>83</b>	<b>30.74%</b>	<b>Not calculated</b>

A large number of the late recertification and new connection updates are due to corrections.

I checked a sample of 30 updates for recertification events which occurred during the audit period in detail and found that nine were due to late updates by AMCI and 21 were due to corrections.

I checked a sample of 30 late updates for new connections which occurred during the audit period in detail and found that five were due to late nomination by the trader and 10 were corrections, the remaining 15 were the result of late updates by AMCI.

#### Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.10 With: Clause 3 of Schedule 11.4  From: 01-Mar-20 To: 11-Jan-21	<b>NGCM and AMCI</b> Some records updated to the registry later than 10 business days.  <b>NGCM</b> Processes and reporting not in place to ensure the AMI field is updated within 10 business days of unsuccessful interrogation. 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 – The majority of the corrections were due to changes (and backdating) of the period of availability from IN24 to the correct POA relevant to the corresponding Network.</p> <p>AMCI – We have shown an improvement in both areas and KPIs. We continue to push for earlier MEP nomination as well as faster paperwork delivery. Our back office admin resources will be a key focus especially as we progress our 4G plan.</p>	Ongoing	Identified
<b>Preventative actions taken to ensure no further issues will occur</b>	Completion date	
<p>NGCM – IN24 RCC is no longer an issue; however, correction of Registry data will continue as required.</p> <p>We are regularly providing the Retailers with ICP lists of outstanding nominations. This is helping to improve update response time to the Registry. We continue to chase FSPs for late paperwork, an area that is improving.</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

The AMI metering and data collection system is considered “metering infrastructure”. The design report and type test report were checked 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

The type test report, design report and this audit report confirm that the system will operate in a compliant manner.



## 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. Decommissioning of an 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 MEP that is responsible for decommissioning the metering installation must:*

- *if the MEP is responsible for interrogating the metering installation, arrange for a final interrogation to take place before the metering installation is decommissioned, and provide the raw meter data from the interrogation to the responsible trader,*
- *if another participant is responsible for interrogating the metering installation, advise the other participant not less than 3 business days before the decommissioning of the time and date of the decommissioning, and that the participant must carry out a final interrogation.*

*To avoid doubt, if a metering installation at an ICP is to be decommissioned because the ICP is being decommissioned:*

- *the trader, not the MEP, is responsible for arranging a final interrogation of the metering installation,*
- *the responsible trader must arrange for a final interrogation of the metering installation.*

### **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 Electrical Connection (Clause 10.29A)**

#### **Code reference**

*Clause 10.29A*

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

*An MEP must not request that a grid owner temporarily electrically connect a POC to the grid unless the MEP is authorised to do so by the grid owner responsible for that POC and the MEP has an arrangement with that grid owner to provide metering services.*

#### **Audit observation**

##### NGCM

NGCM is not responsible for any grid metering.

##### AMCI

AMCI is not responsible for any grid metering.

#### **Audit commentary**

##### NGCM

NGCM is not responsible for any grid metering.

##### AMCI

AMCI is not responsible for any grid metering.

#### **Audit outcome**

Compliant

#### 4.16. Temporary Electrical Connection (Clause 10.30A)

##### Code reference

Clause 10.30A

##### Code related audit information

*An MEP must not request that a distributor temporarily electrically connect an NSP that is not a POC to the grid unless the MEP is authorised to do so by the reconciliation participant responsible for that NSP and the MEP has an arrangement with that reconciliation participant to provide metering services.*

##### Audit observation

###### NGCM

I checked if any NSPs where NGCM is the MEP had been temporarily electrically connected during the audit period.

###### AMCI

I checked if any NSPs where AMCI is the MEP had been temporarily electrically connected during the audit period.

##### Audit commentary

###### NGCM

There were no temporary electrical connections of NSPs where NGCM is the MEP during the audit period.

###### AMCI

There were no temporary electrical connections of NSPs where AMCI is the MEP during the audit period.

##### Audit outcome

Compliant

#### 4.17. Temporary Electrical Connection (Clause 10.31A)

##### Code reference

Clause 10.31A

##### Code related audit information

*Only a distributor may, on its network, temporarily electrically connect an ICP that is not an NSP. A MEP may only request the temporary electrical connection of the ICP if it is for the purpose of certifying a metering installation, or for maintaining, repairing, testing, or commissioning a metering installation at the ICP.*

##### Audit observation

###### NGCM

I checked if there were any temporary electrical connections for NGCM.

###### AMCI

I checked if there were any temporary electrical connections for AMCI.

##### Audit commentary

###### NGCM

NGCM stated that there were no temporary electrical connections during the audit period.

#### AMCI

AMCI stated that there were no temporary electrical connections during the audit period.

#### **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 60 metering installations and I also checked all available inspection records to evaluate compliance with this clause.

I requested certification reports for each ATH completed after 1 February 2021 to ensure the required changes were included.

##### AMCI

I checked certification records for 50 metering installations and I also checked all available inspection records to evaluate compliance with this clause.

#### Audit commentary

##### NGCM

The 60 certification records I checked contained the required information.

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

The additional information required in certification reports after 1 February 2021 are shown in the table below along with the level of compliance by ATHs.

Clause	Field required	Delta	VCOM	Wells	Indeserve
10.9(3)(b) & Clause 10 of Schedule 10.4 & Clause 8(2)(c) of Schedule 10.7	All services access interfaces and conditions under which each may be used.	No	No	No	No
9(1)(c) of Schedule 10.7	Record of increment in register value of accumulation of pulses over a measured time.  Record that the register has advanced	No	No	Yes	No
2(1)(e) of Schedule 10.8	For CT certification reports, determine and record:  The range that the in-service burden must be within	No	No	Unknown	No

#### AMCI

Some issues were identified with the content of certification reports as follows:

- there were six category 2 metering installations certified by the VCOM ATH using the comparative recertification method where the current transformers had incorrectly been recorded as certified,
- the maximum interrogation cycle was incorrectly recorded as 30 days in 28 certification records, and
- there were four installations certified by the Delta ATH where the services access interface was incorrectly recorded as remote.

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

#### **Audit outcome**

Non-compliant

Non-compliance	Description
Audit Ref: 5.1 With: Clause 4(1) of Schedule 10.6  From: 01-Mar-20 To: 11-Jan-21	<b>AMCI</b> Some inaccurate certification records.  <b>NGCM</b> Some inaccurate certification records. Potential impact: Medium Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
<b>Audit risk rating</b>	<b>Rationale for audit risk rating</b>

<b>Low</b>	I have recorded the controls as moderate because there is room for improvement. There is a minor impact on other participants; therefore, the audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>NGCM - Vector Metering will be presenting the new Code changes to all ATHs at our technical forum in April 2021. This has the express purpose of ensuring all test houses understand what is required in certification and design reports, including improvements that can be made.</p> <p>AMCI – SAI has been resolved. Some work is underway to standardise AMCI and Vector Metering’s maximum interrogation cycle requirements. CAT2 CTs are not certified but our system is configured to produce an automated expiry date – this date is fictitious and is ignored by the MEP and ATH. A systems modification will need to be made for CAT2 comparative certification.</p>		<p>NGCM – 31 /05/2021</p> <p>AMCI - Ongoing</p>	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
<p>NGCM – Once the reports reflect all the new Code changes, this issue is not expected to re-occur.</p> <p>AMCI - As per above.</p>		<p>AMCI - Ongoing</p>	

## 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 inspection reports.

#### 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 2017 to confirm compliance.

##### AMCI

I checked a directory of metering records from 2017 to confirm compliance.

#### **Audit commentary**

##### NGCM

Records were available from 2017, 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

Records were available from 2017, the AMCI 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.

#### **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 did not contain any late MN files. 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. If a nomination is received for an NSP where NGCM does not install metering, it is rejected.

##### AMCI

The switch breach history report for the audit period did not contain any late MN files.

#### Audit outcome

Compliant

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

#### Code reference

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

#### Code related audit information

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

*The MEP does not need to provide 'required' information if the information is only for the purpose of a distributor direct billing consumers on its network.*

*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 manager 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 audit compliance report, the list file and I checked the Category 1 inspection records to identify discrepancies.

### AMCI

I checked the audit compliance report and the list file to identify discrepancies.

## Audit commentary

### NGCM

I checked NGCM's Category 1 inspection records for 803 ICPs inspected in 2020, which recorded the following findings:

- 67 illegible or missing certification stickers,
- 40 LCDs found on site when none recorded,
- 8 LCDs bridged,
- one seal missing but no sign of tampering, and
- 22 incorrect register content codes or periods of availability

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

Issue	Oct 2017 Quantity	Oct 2018 Quantity	Jul 2019 Quantity	Jan 2020 Quantity	Jan 2021 Quantity
NGCM is recorded on the registry as the MEP but the metering records have not been populated on the registry.  7 are unmetered, 8 have meters physically removed. 2 are being investigated and one is now updated.	16	17	27	27	18
Category 1 ICPs with CTs installed, or with compensation factors, indicating an incorrect Category.	15	12	0	0	3
Compensation factor of 3, certified after 29/08/13.  All now have cancelled certification.	4	5	14	37	0
Category 3 ICPs have an RPS profile, indicating an incorrect metering category.	0	0	0	0	0
HHR profile with NHH installation type.  Installation type is correct, legacy meters are present.	0	12	2	1	5

Category 2 interim certified.	53	38	33	0	0
Day + Night not equal to 24.  All have Day and two Night. One of the Nights should be a different code.	3	0	0	5	5
ICP has a “day 16” without a “night 8”.	0		0	0	0
ICPs have a “night 8” without a “day 16”.	0		0	0	0
Day with no night.	20	6	67	3	1
Night with no day.	530	325	346	230	182
ICPs have “IN24”. The Authority has indicated this combination should not be used.  Both metering installations are now removed.	64,650	65,535	303,667	245,803	2
ICPs have CN only (residential only).  One ICP is correct, the rest are incorrect.	286	201	186	76	85
Category 2 or above without CTs.	101	88	73	57	49
Incorrect certification expiry.	7	9	6	12	7
Incorrect certification date.	1	4	0	0	2
Invalid ATH recorded. (VEMS identifier used after 28/09/2018)	0	0	0	209	233
No control device for register content requiring a control device (excluding AMI where the control device may be internal).	3,304	3,092	2,819	4,157	4,498
No control device for IN register content (excluding AMI where the control device may be internal).	400	368	289	692	679
Control device installed, register content UN	-	-	-	9,353	20,631

## AMCI

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

Issue	Quantity Oct 2017	Quantity Oct 2018	Quantity Jul 2019	Quantity Jan 2020	Quantity Jan 2021
AMCI is recorded on the registry as the MEP but the metering records have not been populated on the registry.	0	0	5	29	21
Category 3, 4 or 5 installations "interim certified".	0	0	0	0	0
HHR profile but NHH metering installation.	0	0	0	0	0
Category 5 with a certification period longer than 3 years.	0	0	0	0	0
Category 4 with incorrect certification duration.	0	2	5	6	15
Category 3 with certification period longer than 10 years.	0	2	1	1	3
Category 2 with incorrect certification duration.	0	2	1	1	4
Category 1 with incorrect certification duration.	0	2	3	2	1
Incorrect certification dates for new connections.	0	0	0	0	0
Over Category 1 with no measuring transformers on the registry.	1	2	0	2	1
Incorrect compensation factors.	3	Refer to section 7.14	Refer to section 7.14	0	0
Incorrect ATH.	0	3	4	41	11
Incorrect certification variation of alternative recorded in registry.	-	-	-	-	40
Control device installed, register content UN.	-	-	-	215	210

## Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 6.2  With: Clause 7 (1), (2) and (3) of Schedule 11.4  From: 01-Mar-20  To: 11-Jan-21	<b>NGCM and AMCI</b>  Some registry records incomplete or incorrect.  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

<p>NGCM - ICPs with IN24 have all been corrected.</p> <p><b>Residential (CN only) and Cat 2 without CTs:</b> A significant number are old interim certified. Although we have tried multiple times in some cases, we are unable to access the site to identify the equipment on site and upgrade the meter. As stated in section 7.1, we have launched a new program called 'Fantail' which, with the support of a major retailer, is investigating new ways to gain access and upgrade these old meters.</p> <p><b>Invalid ATH recorded:</b> We believe this is due to the switch from the old Vircom (VEMS) to VCOM participant codes. We will correct the participant code and monitor for any future incorrect codes.</p> <p><b>No control device for register content requiring a control device:</b> These are old expired interim legacy meters where we have been unable to get accurate information on LCDs, particularly where they are owned by the Network.</p> <p><b>Control device installed, register content UN:</b> Whilst this report identifies a potential error, it does not necessarily mean there is a non-compliance. It does not take into account that some of these sites may be correct and the LCD is disconnected but remains on site (i.e. switched to gas hot water). Further investigation is required as part of our reconciliation programme.</p> <p>AMCI – The monthly reconciliations reports out of the Registry will support the correction of incorrect records. This, as well as our daily exception handling process, should minimise these situations going forward. In some cases, human error is a factor.</p>	Ongoing	Identified
<b>Preventative actions taken to ensure no further issues will occur</b>	Completion date	
<p>We are running the new compliance reports from the Registry monthly alongside our current reconciliation reports to ensure we are capturing the above discrepancies and correcting them.</p> <p>AMCI – We continue to work through these issues and look for opportunities to improve the speed in which they are addressed.</p>	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 audit compliance 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 audit compliance 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-Mar-20 To: 11-Jan-21	<b>NGCM and AMCI</b>  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		
Medium	<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 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 continue to look for ways to improve the timeliness of updates.</p> <p>AMCI – The monthly reconciliations reports out of the Registry will support the correction of incorrect records. This, as well as our daily exception handling process, should minimise these situations going forward. In some cases, human error is a factor.</p>		Ongoing	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
We continue to look at ways to improve our processes 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:

- the metering installation is modified otherwise than under sub clause 19(3), 19(3A) or 19(3C)
- 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,
- 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,
- 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,
- an inspection of the metering installation, that is required under this Part, is not carried out in accordance with the relevant clauses of this Part,

- f) *if the metering installation has been determined to be a lower category under clause 6 and:*
  - a. *the MEP has not received the report under 6(2A)(a) or 6(2A)(b); or*
  - b. *the report demonstrates the maximum current is higher than permitted; or*
  - c. *the report demonstrates the electricity conveyed exceeds the amount permitted,*
- g) *the metering installation is certified under clause 14 and sufficient load is available for full certification testing and has not been retested under clause 14(4)*
- h) *a control device in the metering installation certification is, and remains for a period of at least 10 business days, bridged out under clause 35(1)*
- i) *the metering equipment provider responsible for the metering installation is advised by an ATH under clause 48(6)(b) that a seal has been removed or broken and the accuracy and continued integrity of the metering installation has been affected.*
- j) *the installation is an HHR AMI installation certified after 29 August 2013 and*
  - a. *the metering installation is not interrogated within the maximum interrogation cycle; or*
  - b. *the HHR and NHH register comparison is not performed; or*
  - c. *the HHR and NHH register comparison for the same period finds a difference of greater than 1 kWh and the issue is not remediated within three business days.*

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

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

#### **Audit observation**

##### **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**

I checked all of the ICPs from previous audits where certification was cancelled and in all cases the registry has now been updated. Cancellations during this audit relate to Category 2 inspections and low burden.

#### **Inspection**

I checked the registry records to identify Category 2 ICPs where inspections were due. 1,621 ICPs were due for inspection during the audit period and none of them were completed, therefore certification is cancelled.

#### **Low Burden**

The next issue relates to low burden on CT metered installations. The Authority provided a memo on 4 April 2016 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 1 March 2018 that certification is cancelled for installations where low burden is not addressed.

Analysis of the certification records for 40 Category 2 metering installations found four had been certified with burden lower than the lowest test point.

Low burden from this audit		
ICP	ATH	Certification date
0006424660RN060	Accucal	17/03/20
0001261320UND29	Wells	31/07/20
0001395415UNFEC	Wells	04/11/20
0007109459RNB49	Wells	10/11/20

### Bridged control devices

NGCM provided a list of bridged control devices. I selected two where the profile requires the control device to be operational, and I found the following:

- ICP 0006667783RNEB3 has the TOC and TON profiles, which are day/night. The control device has been bridged since 7 February 2020. An attempt was made to un-bridge, which was unsuccessful due to the service order address being incorrect. It appears to still be bridged, which means certification is cancelled.
- ICP has the E08 profile, which is night only. The control device has been bridged since 7 March 2020. An attempt was made to un-bridge, which was unsuccessful. It appears to still be bridged. This ICP does not have current certification, therefore it does not need to be cancelled.

### Not read during maximum interrogation cycle

2165 metering installations not interrogated within the maximum interrogation cycle where the AMI flag is still “Y”, as recorded in **section 10.5**.

### Bridged meters

As recorded in **section 9.1**, six metering installations were not recertified at the time bridging was removed.

### AMCI

#### Inspection

I checked the registry and determined that there were 270 ICPs at Category 3, 4 and 5 that were due for inspection during the audit period. There were 44 inspections not completed within the inspection window. Certification is therefore cancelled for these 44 installations.

AMS conducted inspection by statistical sampling during 2020 for NGCM and AMCI Category 1 metering installations as required.

#### Low burden

Analysis of the certification records for 47 Category 2 and above metering installations found that none had been certified with burden lower than the lowest test point.

There are 11 category 2 which were identified during previous audits 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 two previous audits		
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
0000003232AA14F	MTRX	14/03/2019
0000031338AA8B6	MTRX	14/03/2019
0038819020LC4DC	VCOM	03/04/2019
0104912006LC93A	VCOM	28/03/2019

**Metering installation is classed as outside the applicable accuracy tolerances.**

AMCI provided details of three faulty high voltage metering installations at ICPs 1001249127UN266, 0008901105TU32D and 1000571069PC7A4. In all three cases the ATH had been to site and determined that there was a faulty voltage transformer resulting in the metering installations being inaccurate. Statements of situation were provided and the ATH has advised that the MEP will need to arrange for the repair or replacement of the metering units.

At the time of the audit the registry was not updated with cancelled certification in two of the cases as follows,

ICP	Metering installation category	Date fault found	Certification expiry date	Certification cancelled Y/N
1001249127UN266	4	11/11/2020	7/11/2020	Y
0008901105TU32D	3	27/10/2020	14/10/2025	N
1000571069PC7A4	4	11/11/2020	15/02/2023	N

#### Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 6.4  With: Clause 6 of Schedule 11.4  From: 01-Mar-20  To: 11-Jan-21	<p>Certification cancelled, and registry not updated for:</p> <ul style="list-style-type: none"><li>• AMCI - 44 installations with inspection not conducted,</li><li>• NGCM – 1,621 Category 2 installation with overdue inspection,</li><li>• NGCM - 4 installations with low burden,</li><li>• NGCM – 1 ICP with a bridged control device,</li><li>• NGCM - 2165 metering installations not interrogated within the maximum interrogation cycle where the AMI flag is still “Y”,</li><li>• NGCM - 6 metering installations were not recertified at the time bridging was removed,</li><li>• AMCI - 11 installations with low burden, and</li><li>• AMCI – 2 faulty metering installations outside applicable accuracy tolerances.</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>		
Audit risk rating	Rationale for audit risk rating		
Medium	<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>		
Actions taken to resolve the issue		Completion date	Remedial action status

<p>NGCM – All installations identified will have their certification cancelled immediately.</p> <ul style="list-style-type: none"> <li>• <b>1,621 Category 2 installation with overdue inspection.</b> These are Cat 2 sites that were certified for 15 years prior to August 2013. It has always been our intention to recertify these and any further ones at 10 years rather than inspecting them. Unfortunately, a large number expired last year, particularly in the earlier months of 2020. We were unable to attend these due to the COVID-19 lockdown and were unable to get sufficient stock for a few months, causing us to fall behind. We are working with our test house to get these recertified as a priority.</li> <li>• <b>4 installations with low burden.</b> We have requested the test houses to explain why these were not burdened and to return to site to add additional burden and recertify.</li> <li>• <b>1 ICP with a bridged control device.</b> The job to recertify was cancelled due to COVID-19 but was not picked up later.</li> <li>• <b>2,165 metering installations not interrogated within the maximum interrogation cycle where the AMI flag is still “Y”.</b> There have always been a number of ICPs where we have not changed the flag, such as inactive ICPs or disconnected/mains off sites. After discussions with the Authority and auditor, we are now aware that these must follow the same AMI flag rules as all other ICPs.</li> <li>• <b>6 metering installations were not recertified at the time bridging was removed.</b> This was a clear mistake by the ATHs and certification should have been cancelled, moving the ICPs into the BAU team for recertification.</li> </ul> <p>AMCI – We have an interim burdening process in place which includes either wire loops or burden boxes. We are working on our supply of approved and technically safe and fit-for-purpose burdening boxes.</p> <p>AMCI – Some work is required around certification cancellation. This would include addressing missed opportunities to cancel certification of sites with defective metering, a few of which were due to human error. We have noted this issue and put a process in place to address it, including a refresher/training for the relevant staff members.</p>	Ongoing	Investigating
<p><b>Preventative actions taken to ensure no further issues will occur</b></p>	Completion date	
<p>NGCM – We continue to cancel certifications of sites with defective metering as we become aware of them. While we have been performing this at a steadily improving rate, there is still plenty of room for improvement.</p> <p>AMCI – These issues will be the subject of a refreshed focus on our part for FY21 and FY22.</p>	Ongoing	

## 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 exception-ns.

### 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 audit compliance 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 audit compliance 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 had 8,637 previously fully certified ICPs with expired certification and 24,694 previously interim certified installations that have now expired. 542 of the expired certifications are Category 2 installations.

The ICP below has expired alternative certification.

ICP	Certification Type	Category	Expiry Date	Current status
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 that the one NSP with NGCM metering had current certification.

NGCM provided the table below showing a breakdown of the reasons that certification has not been conducted. The totals in this table have increased since the analysis was conducted.

Status	Retailer approved	Retailer not approved	Total
Available	994		994
BTS or Temp supply	5		5
Inactive	7,582	396	7,978
Not Allowed		2,615	2,615
Special Project	1,511	328	1,839
UTC - Customer Issue	8,594	2,127	10,721
UTC - HSE	9,709	1,453	11,162
UTC - Retry	710	148	858
UTC - Technical	3,822	742	4,564
<b>Total</b>	<b>32,927</b>	<b>7,809</b>	<b>40,736</b>

## AMCI

At the time of my analysis, AMCI had 177 ICPs with expired full certification. A further check prior to finalising the audit report found that 66 of these ICPs had been certified and the registry updated.

I also checked AMCI's records and the Network Supply Points Table on the Authority's website and confirmed all 250 NSP's metering had current certification with the exception of seven NSPs.

### Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 7.1 With: Clause 10.38 (a), clause 1 and clause 15 of Schedule 10.7  From: 12-Aug-14 To: 11-Jan-21	<b>NGCM</b> Certification expired or cancelled for 37,121 NGCM metering installations.  <b>AMCI</b> Certification expired for 118 AMCI metering installations.  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 some ICPs and because some of the expired installations were fully certified at one point.  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 – Past audits will show the majority of these uncertified metering installations are old ‘interim certified’ legacy sites where we have attempted multiple times, in some cases, to attend and upgrade, without success.</p> <p>Last year around 6,000 new ICPs were added as a previous statistical sampled population expired.</p> <p>Late in 2020, Vector Metering launched a new project called ‘Fantail’ with the aim to upgrade these uncertified legacy sites. The difference this time is that we have the support of at least one major Retailer. The Fantail team is tasked with deep diving into the UTC reasons of the past and finding possible avenues to overcome the roadblocks, something we have not been able to do successfully in the past, especially without Retailer support.</p> <p>There are still nearly 8,000 ICPs where we have no Retailer approval to attend site.</p> <p>AMCI – After reviewing the full list of sites highlighted as uncertified, the final count as indicated was lower due to certifications being completed after the report was run out of the Registry. In some cases, the Registry was not updated with new certification information due to a systems update issue.</p> <p>AMCI – Third parties continue to neglect taking action to certify their assets, expecting MEPS to carry the cost – displacement is not always practical.</p> <p>AMCI – A number of sites have safety issues like customer related asbestos onsite or concerns over shutdowns (hospitals). The relevant parties are unwilling/unable to provide access, resulting in alt cert expiring in some cases.</p> <p>AMCI – Some customers are currently undergoing major supply and installation upgrades which means meter compliance is not being permitted or practical.</p> <p>AMCI has taken action in all cases to try to resolve non-compliances.</p> <p>The C&amp;I Ops Manager runs a non-compliance report each month comparing non-compliant volumes. Currently, our level of non-compliance remains stable with a good churn of old and new sites.</p>	Ongoing	Investigating
<p><b>Preventative actions taken to ensure no further issues will occur</b></p>	Completion date	
<p>We continue to upgrade/recertify meters when possible, as stated above. Better support from Retailers will make this task easier.</p> <p>AMCI – As per above.</p>	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 60 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 35 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, 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 40 metering installations to confirm compliance.

##### AMCI

I checked the certification records for 32 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

I have checked the monitoring reports for the audit period and confirm that monitoring has taken place. The most recent report did not have any exceptions.

##### AMCI

AMCI has 260 metering installations as a lower category that require monitoring. I confirmed that 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

I did not find any examples of insufficient load certification. NGCM's instruction to ATHs is to connect a load bank if sufficient load is not available.

#### AMCI

I found six examples of insufficient load certification, AMCI demonstrated that monitoring is in place as required by this clause.

#### **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 one ICP and is now expired. This is raised as non-compliance in **section 7.1**.

#### AMCI

I checked the certification records for three of the 33 metering installations certified using the alternative certification method during the audit period. In one of these cases, ICP 0001832963AL33F, AMCI had not advised the market administrator of the details in clause 32(2)(a) of Schedule 10.7 within 10 business days, the notification was sent after 11 business days.

### Audit outcome

Non-compliance	Description		
Audit Ref: 7.9  With: Clause 32(2), (3) and (4) of Schedule 10.7  From: 19-Jan-21  To: 20-Jan-21	<b>AMCI</b>  Notification of alternative certification not provided to the market administrator within 10 business days.  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>	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 – We missed one alt cert 10 BD notification. Overall, the alt cert process works well and notification goes out as soon as we receive the paperwork requesting an alt cert.		Ongoing	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
AMCI – We will focus on this issue in the second quarter of 2021.		Ongoing	

#### 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:*

- has a time keeping error of not greater than an average of two seconds per day over a period of 12 months,*
- 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 that 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 a list of bridged control devices. I selected two where the profile requires the control device to be operational, and I found the following:

- ICP 0006667783RNEB3 has the TOC and TON profiles, which are day/night. The control device has been bridged since 7 February 2020. An attempt was made to un-bridge, which was unsuccessful due to the service order address being incorrect. It appears to still be bridged, which means certification is cancelled, as recorded in **section 6.4**.
- ICP has the E08 profile, which is night only. The control device has been bridged since 7 March 2020. An attempt was made to un-bridge, which was unsuccessful. It appears to still be bridged, which means certification is cancelled, as recorded in **section 6.4**.

Compliance is confirmed in this section, because the relevant reconciliation participant is aware of the issues.

#### 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 during the audit period.

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

*In all other cases the MEP must update the compensation factor recorded in the registry in accordance with Part 11.*

**Audit observation**

NGCM

I checked the records for 40 Category 2 metering installations to confirm that compensation factors were correctly recorded on the registry. I also checked the audit compliance report for unusual compensation factors.

AMCI

I checked all the records for 47 Category 2 and above metering installations to confirm that compensation factors were correctly recorded on the registry. I also checked the audit compliance report for unusual compensation factors.

**Audit commentary**

NGCM

Compensation factors were updated accurately on the registry for the 40 ICPs checked. No examples of incorrect compensation factors were identified by the audit compliance report.

AMCI

Compensation factors were updated accurately on the registry for the 47 ICPs checked.

No examples of incorrect compensation factors were identified by the audit compliance report.

**Audit outcome**

Compliant

## 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 60 metering installations to confirm compliance.

#### AMCI

I checked the certification records for 50 metering installations to confirm compliance.

### Audit commentary

#### NGCM

I checked 60 metering installation certification records and found that meters and data storage devices are being certified by ATHs.

#### AMCI

I checked 50 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 40 metering installations to confirm compliance.

#### AMCI

I checked the certification records for 47 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. VCOM 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 47 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 60 metering installations to confirm compliance.

##### AMCI

I checked the certification records for 50 metering installations to confirm compliance.

#### **Audit commentary**

##### NGCM

The 60 certification records that I checked confirmed that the ATHs that data storage devices are being correctly certified.

##### AMCI

The 50 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 24,694 previously interim certified metering installations where recertification did not occur by 1 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: 03-Mar-21	<b>NGCM</b> 24,694 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>	<p>I have recorded the controls as moderate in this area because certification has been expired for a number of years for these ICPs.</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 – The number of ICPs with this issue has declined from 30,480 in 2020 to 24,694 in 2021. These are, as stated in previous reports, being actively managed. We have been sharing information about any barriers to compliance with the Authority so they can assist us in achieving compliance.</p> <p>Project Fantail is aimed at clearing any blockers so we can attend each of these sites and ideally upgrade them to smart metering and have the sites recertified.</p> <p>AMCI – N/A</p>		Ongoing	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
<p>Project Fantail is aimed at clearing any blockers so we can attend each of these sites and ideally upgrade them to smart metering and have them recertified.</p> <p>AMCI – N/A</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 126 months from the date of the metering installation's most recent certification or*
- *for each 12-month period, commencing 1 January and ending 31 December, ensure an ATH has completed inspections of a sample of the category 1 metering installations selected under clause 45(2) of Schedule 10.7.*

*Before a sample inspection process can be carried out, the MEP must submit a documented process for selecting the sample to the Electricity Authority, at least 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

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 summary report to the Authority was dated 1 December 2020. The inspection report states that a sample of 803 ICPs were inspected.

Details of the instances of non-compliance found are shown in the table below:

Count of ICPs	Description of Non-compliance:
94	Site certificates illegible or missing.
40	WEL LCDs found on site but not on Registry.
1	Found metering components 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.
22	Incorrect tariffs
8	LCD bridged due to local network requirements

### 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.

#### **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 are 1,621 non-compliant metering installations where certification has been cancelled due to inspections not being completed.

#### AMCI

My analysis determined that there were 270 ICPs due for inspection during the audit period. I checked the inspection records for these installations. There were 44 inspections not completed within the inspection window as follows,

- 30 not inspected,
- 9 inspected early, and
- 5 inspected late.

This analysis was completed prior to the code change which occurred on 1<sup>st</sup> February 2021. The new wording of clause 46(1) of Schedule 10.7 requires inspections to be undertaken at least once within the applicable period set out in Table 1 of Schedule 10.1 starting from the date of the metering installation's most recent certification. Following the code change the inspections completed early will no longer be recorded as non-compliant. As the inspections were due prior to the code change I have recorded non-compliance for the early inspections.

As recorded in **section 6.4** certification had not been cancelled at the time my analysis was completed.

#### **Audit outcome**

Non-compliant

Non-compliance	Description
Audit Ref: 8.2 With: Clause 46(1) of Schedule 10.7  From: 01-Mar-20 To: 11-Jan-21	<b>NGCM</b> 1,621 NGCM installations with inspection not conducted.  <b>AMCI</b> 44 AMCI installations with inspection not conducted. Potential impact: Medium Actual impact: Medium Audit history: Multiple times Controls: Moderate Breach risk rating: 4
<b>Audit risk rating</b>	<b>Rationale for audit risk rating</b>

<b>Medium</b>	<p>I have recorded the controls as moderate in this area for NGCM because reporting is in place but 17 ICPs were overlooked. AMCI's inspection controls are rated as moderate because there is a regime in place and only a small number were outside the window.</p> <p>The issues found can 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 - 1,621 NGCM installations have not been subject to an inspection.</p> <p>These are Cat 2 sites that were certified for 15 years prior to August 2013. It has always been our intention to recertify these and any further ones at 10 years rather than inspecting them. Unfortunately, a large number expired last year, particularly in the earlier months of 2020. We were unable to attend these due to the COVID-19 lockdown and were unable to get sufficient stock for a few months, causing us to fall behind. We are working with our test house to get these recertified as a priority.</p> <p>AMCI – We monitor late and early inspections with a process for certification cancellation in place. We are implementing a process for a technician to recertify a site as soon as possible when the technician misses an inspection for whatever reason.</p>		<p>NGCM - 30/04/2021</p> <p>AMCI - Ongoing</p>	Identified
<b>Preventative actions taken to ensure no further issues will occur</b>		<b>Completion date</b>	
<p>NGCM – We will review whether to move the certification expiry date to +10 years from 15 years. This would allow our monitoring database to detect those coming up for recertification and put in a process for a site visit.</p> <p>AMCI – We issue work 3 months prior to the inspection due date, yet FSPs still struggle to complete this work. The COVID-19 lockdown has impacted access to sites.</p>		<p>NGCM - 30/05/2021</p> <p>AMCI - Ongoing</p>	

### 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(1G), (4) and (5) of Schedule 10.7)

#### **Code reference**

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

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

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

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

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

*The MEP must make the above arrangements within*

- a) 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.*

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

#### **Audit observation**

#### NGCM

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

#### AMCI

I asked AMCI if there were any examples of broken or removed seals reported during the audit period.

#### **Audit commentary**

#### NGCM

NGCM has a documented process in place for the management of seals and any subsequent investigation and reporting. There was one example of seals being found missing during category 1 inspections. The ATH determined the meters were functioning correctly and the seals were replaced.

#### AMCI

AMCI has a documented process in place for the management of seals and any subsequent investigation and reporting. There were no examples of broken or removed seals reported during the audit period.

#### **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 21 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 faulty metering installations.

#### Audit commentary

##### NGCM

NGCM has a documented process in place to achieve compliance with this requirement.

I checked a report identifying 64 cases where meters had been bridged during the audit period. In 55 of these cases the installations were recertified when the bridge was removed therefore cancelling the previous certification. As recorded in **section 6.4**, there were six ICPs found where certification has not been cancelled following bridging of a meter. Appropriate notification was provided to other participants in all 64 cases.

I checked two other ICPs where meters were faulty, and in both cases, the appropriate action was taken and notification occurred to the relevant party.

##### AMCI

AMCI provided details of three faulty high voltage metering installations at ICPs 1001249127UN266, 0008901105TU32D and 1000571069PC7A4. In all three cases the ATH had been to site and determined that there was a faulty voltage transformer resulting in the metering installations being inaccurate. Statements of situation were provided and the ATH has advised that the MEP will need to arrange for the repair or replacement of the metering units.

Details of the notifications provided to affected participants are recorded in the following table,

ICP	Metering installation category	Date fault found	Date statement of situation provided by ATH	Date statement of situation provided to participants and Authority	Business days to notify participants and Authority
1001249127UN266	4	11/11/2020	12/11/2020	12/11/2020	<1
0008901105TU32D	3	27/10/2020	18/12/2020	13/01/2021	14
1000571069PC7A4	4	11/11/2020	18/12/2020	13/01/2021	14

In two of the three examples I have recorded non-compliance as the notification was not provided to the affected participants within five business days.

#### Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 9.1</p> <p>With: Clause 10.43(4) and (5)</p> <p>From: 29-Dec-20</p> <p>To: 13-Jan-21</p>	<p><b>AMCI</b></p> <p>Notification of investigation of faulty installations not provided to affected parties within 5 business days.</p> <p>Potential impact: Medium</p> <p>Actual impact: Low</p> <p>Audit history: None</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p>		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	<p>The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement.</p> <p>The impact on settlement and participants is minor; therefore, the audit risk rating is low.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
AMCI – AMCI has resolved this issue with the Authority, having missed the notification due dates. We will focus on ensuring notifications will be provided within the required timeframe. Certification cancellation for defective sites was misinterpreted but this has been clarified and all certification will be cancelled going forward.		23/03/2021	Cleared
Preventative actions taken to ensure no further issues will occur		Completion date	
As per above		23/03/2021	

## 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 21 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 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 21 installations. In all of these examples an ATH returned, 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 21 examples.

#### AMCI

AMCI has a process in place to achieve compliance with this requirement. Three examples were checked, and the ATH performed testing and provided statements of situation in all three 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 21 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. NGCM provided this information to the trader within three business days in all 21 examples.

##### AMCI

AMCI provided details of three faulty high voltage metering installations at ICPs 1001249127UN266, 0008901105TU32D and 1000571069PC7A4. In all three cases the ATH had been to site and determined that there was a faulty voltage transformer resulting in the metering installations being inaccurate. Statements of situation were provided and the ATH has advised that the MEP will need to arrange for the repair or replacement of the metering units.

Details of the notifications provided to affected participants are recorded in the following table,

ICP	Metering installation category	Date fault found	Date statement of situation provided by ATH	Date statement of situation provided to participants and Authority	Business days to notify participants and Authority
1001249127UN266	4	11/11/2020	12/11/2020	12/11/2020	<1
0008901105TU32D	3	27/10/2020	18/12/2020	13/01/2021	14
1000571069PC7A4	4	11/11/2020	18/12/2020	13/01/2021	14

In two of the three examples I have recorded non-compliance as the statement was not provided to the Authority and affected participants within three business days.

#### Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 9.3 With: Clause 10.46(2) From: 23-Dec-20 To: 13-Jan-21	<b>AMCI</b> Statement of situation not provided to Authority and affected parties within 3 business days. 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 is minor; therefore, the audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status
AMCI – AMCI has discussed and resolved this issue with the Authority. We will focus on ensuring notifications will be provided within the required timeframe. Certification cancellation for defective sites was misinterpreted but this has been clarified and all certification will be cancelled going forward.		23/03/2021	Cleared
Preventative actions taken to ensure no further issues will occur		Completion date	
As per above.		23/03/2021	

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

##### Code reference

Clause10.46A

##### Code related audit information

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

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

##### Audit observation

##### NGCM

I checked two examples where NGCM had become aware of a faulty metering installation.

#### AMCI

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

#### **Audit commentary**

#### NGCM

Remedial actions were completed within 10 business days.

#### AMCI

AMCI provided details of three faulty high voltage metering installations at ICPs 1001249127UN266, 0008901105TU32D and 1000571069PC7A4. In all three cases the ATH had been to site and determined that there was a faulty voltage transformer resulting in the metering installations being inaccurate. Statements of situation were provided and the ATH has advised that the MEP will need to arrange for the repair or replacement of the metering units. The three metering installations require shutdowns to repair or replace the faulty metering equipment. AMCI is not the owner of the faulty equipment in two of the three examples and has advised the trader to arrange with the metering equipment owner for the work to take place. AMCI has issued a work request to the ATH to undertake the work in the case where they are the owner of the faulty equipment. I have recorded compliance despite the remedial action not being completed within 10 business days as AMCI have used its best endeavours to complete the work.

#### **Audit outcome**

Compliant

## 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.*

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

*When raw meter data can only be obtained from an MEP's back office, the MEP must, when interrogating a metering installation, download the event log, check the event log for evidence of an events that may affect the integrity or operation of the metering installation, such as malfunctioning or tampering.*

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

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

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

### Audit observation

#### 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

NGCM provided reporting of ICPs where interrogation did not occur within the maximum interrogation cycle of 90 days. There are 6,259 ICPs in the report. The following table lists the reasons for inability to interrogate.

AMS & Retailer Comment on Meters that have not Communicated for 90+ days	Count of Meter Serial Number
Advised Retailer of Non-Communicating Meters – sent out on most recent proactive potential faults list	1385
Non-Communicating meters that were N flagged – No comms for 90+ days	3473
Disconnected/Mains off - Unable to perform comms fault job due to site being in a disconnected or mains off state.	467
Decommissioned – ICP is no longer active and should have been N flagged	26
Inactive in Registry	908
<b>Grand Total</b>	<b>6259</b>

There are 2,161 ICPs not read within the maximum interrogation cycle where the registry has not been updated to AMI = "N". The new clauses in the Code, effective 1 February 2021, require certification to be cancelled for these ICPs, even the ones with an inactive status.

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

Event logs and clock synchronisation processes are discussed in **sections 10.7** and **10.8**.

### AMCI

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

## Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 10.5 With: Clause 8(2) of schedule 10.6 From: 01-Jun-19 To: 13-Jan-20	<b>NGCM</b> 2,161 metering installations not read within the maximum interrogation cycle, where the AMI flag is still "Yes". Potential impact: Medium Actual impact: Low Audit history: Three 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 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
NGCM - There have always been a number of ICPs where we have not changed the flag, such as inactive ICPs or disconnected/mains off sites. After discussions with the Authority and auditor, we are now aware that these must follow the same AMI flag rules as all other ICPs. We are working with the Retailers (our customers) to ensure changing the AMI flag from 'Y' to 'N' will not cause them issues with their customers. Once we have completed these discussions and agree to set the flags to 'N', this will be an easy process change.		30/06/2021	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
NGCM – Once the process is changed, as per above, we do not expect this non-compliance to re-occur.		30/06/2021	

## 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 of the 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)
	Summer	NZST	NZST	UTC (GMT)	DST

Half Hourly Consumption Data	Winter	NZST	NZST	UTC (GMT)	NZST
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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)	H1ZST(Summer)			UTC (GMT)	H1ZST(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)	H1ZST (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. Reporting for

January 2021 showed 1,042 examples of clock errors outside the thresholds. 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 a directory containing the reports sent to all participants in January 2021.

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-Jan-21 To: 31-Jan-21	<b>NGCM</b> 1,042 examples of clock errors outside the allowable thresholds in the most recent reports. Potential impact: Medium Actual impact: Low Audit history: Twice Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	The controls are recorded as strong because interrogation is attempted daily, and clock errors are addressed during all interrogations. 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
NGCM - Our system automatically corrects clock errors, but unfortunately, as soon as they are out of the time limit, we become non-compliant. Any meters with excessive time errors or are repeatedly exceeding the time limits are investigated by the technical team and action is taken to resolve the issue.		Ongoing	Identified
<b>Preventative actions taken to ensure no further issues will occur</b>		Completion date	
We have an automated system of correcting time errors. Should the time drift exceed the limits in the Code excessively or repeatedly, we will attempt to manually interrogate and make the necessary correction, and if unsuccessful, will replace the meter.		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 reports 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,
- phase failure (the voltage tolerance error is filtered by meter category to identify Category 2 phase failure), and
- temperature internal, diagnostic at time of read.

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

- take appropriate action where problems are apparent, and
- pass relevant event log entries, which could affect raw meter data, 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.

#### 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 for the same period.*

#### **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".

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 genuine 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.

The Code requires additional practices and reporting from 1 February 2021, specifically:

If an electronic interrogation is incomplete (missing register or missing intervals), Clause 8(11) of Schedule 10.6 applies, which is the requirement to complete an interrogation within 22 days. If the interrogation is successful before 22 days have elapsed, sum-check can be performed for the period the data had been incomplete. For example, if there is a successful interrogation on day 1 but the next successful interrogation (100% complete data including the register reading), is on day 5, sum-check can occur for a 5-day period.

It also seems that if a sum-check is not performed for 30 days or 25% of the maximum interrogation cycle (22 days in most cases), the AMI flag must be changed to “N”. With the flag set to “N”, certification is not cancelled, because the services access interface changes from remote to local once the flag changes from “Y” to “N”, and this clause only relates to installations where the services access interface is remote.

I have not been able to examine records in relation to these clauses because reporting is not yet in place.

#### 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

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

#### Code reference

*Clause 8(10) of Schedule 10.6*

#### Code related audit information

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

#### Audit observation

I checked whether NGCM was applying compensation factors to raw meter data.

#### Audit commentary

NGCM is not applying compensation factors to raw meter data.

#### Audit outcome

Compliant

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

#### Code reference

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

#### Code related audit information

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

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

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

#### Audit observation

I checked whether NGCM had reporting in place for installations not interrogated within 30 days or 25% of the maximum interrogation cycle.

#### Audit commentary

Reporting is in place for ICPs not interrogated within the maximum interrogation cycle of 90 days. This is discussed in **section 10.5**. Reporting is not in place to identify ICPs not interrogated within 22 days (25% of the 90-day maximum interrogation cycle), however based on the number not interrogated at 90 days (6,259), there will be a larger number not interrogated at 22 days.

#### Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 10.12</p> <p>With: Clause 8(11), 8(12) and 8(13) of Schedule 10.6</p> <p>From: 01-Feb-21</p> <p>To: 03-Mar-21</p>	<p><b>NGCM</b></p> <p>Reporting and processes not established to resolve interrogation issues or change the AMI flag to “N” at 22 days.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: None</p> <p>Controls: None</p> <p>Breach risk rating: 5</p>		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	<p>The controls are yet to be established to comply with this new requirement.</p> <p>The impact on traders due to not getting AMI data is high, because they have to estimate or manually read, and in some cases ask the customer to switch away, however the non-compliance is for not updating the registry and the impact of this is lower. I’ve recorded the audit risk rating as low.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>NGCM - We are working with the Retailers (our customers) to ensure changing the AMI flag from ‘Y’ to ‘N’ will not cause them issues with their customers. This will include changing our process to ensure that if we cannot re-establish communications within 25% of our maximum interrogation cycle, we will set the AMI flag to ‘N’.</p> <p>Once we have completed these discussions and agree to set the flags to ‘N’, this will be an easy process change.</p>		30/06/2021	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
<p>We need to work with our customers before going ahead and making these changes or we run the risk of causing unforeseen issues with end consumers.</p>		30/06/2021	

## CONCLUSION

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 increased from 16 during the last audit to 19 in this audit, with the future risk rating increasing from 45 to 53, mainly due to the new clauses coming into effect on 1 February 2021. One recommendation is made regarding the uncertainty calculations used by the Wells Approved Test House.

Some additional matters were found, as follows:

- design reports do not include the maximum interrogation cycle for each services access interface,
- processes and reporting not in place to ensure the AMI field is updated within 10 business days of unsuccessful interrogation,
- 2165 metering installations not interrogated within the maximum interrogation cycle where the AMI flag is still “Y”, leading to cancelled certification, and
- reporting and processes not established to resolve interrogation issues or change the AMI flag to “N” at 22 days.

Processes and reporting are not yet in place for many of the new requirements of Part 10 as they relate to data collection, particularly the maximum interrogation cycle and sum-check requirements. Some areas were unable to be fully examined for this reason and will need to be checked during the next audit.

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

- all of the ICPs with cancelled certification from previous audits have been updated in the registry,
- the timeliness of registry updates has improved, and
- the number of registry discrepancies has reduced.

The main issues from this audit are as follows:

- certification is cancelled due to 1,621 NGCM and 44 AMCI inspections not being conducted,
- certification is cancelled for 2,165 ICPs due to interrogation not occurring within the maximum interrogation cycle,
- four installations have cancelled certification because low burden was not addressed,
- two installations were outside the maximum accuracy tolerance, and
- the total quantity of ICPs with expired or cancelled certification has increased.

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 in the executive summary 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, particularly those required by the 1 February 2021 Code changes, where system changes need to be specified, designed, tested and implemented.

## PARTICIPANT RESPONSE

Vector Metering believes participants were not given sufficient time to understand the recent Code changes and their impact on customers, nor was there sufficient time to either implement these changes or propose Code changes or apply for exemptions. Participants were only notified of the changes on 15 December 2020 and given until 1 February 2021 to implement them, over the Christmas break when most staff take annual leave.

For Vector Metering, this equated to 37 business days in between the notification of the Code changes and our MEP audit. We have obligations to our customers (Retailers and ATHs) to work with them to ensure any changes we make to our systems do not negatively impact them or more so, their customers. We believe that as the first MEP to undergo an audit post the new changes, we have been disadvantaged by this unrealistic timeframe and we hope the Authority will take this into consideration when reviewing this report.

The new issues identified in this report relate to these new Code changes:

- design reports not including the maximum interrogation cycle for each services access interface,
- processes and reporting not in place to ensure the AMI field is updated within 10 business days of unsuccessful interrogation,
- 2,165 metering installations not interrogated within the maximum interrogation cycle where the AMI flag is still “Y”, leading to cancelled certification, and
- reporting and processes not established to resolve interrogation issues or change the AMI flag to “N” at 22 days.