ELECTRICITY INDUSTRY PARTICIPATION CODE
METERING EQUIPMENT PROVIDER AUDIT REPORT

For

ADVANCED METERING ASSETS LIMITED
NZBN: 9429038499685

Prepared by: Brett Piskulic – Veritek Limited

Date audit commenced: 29 June 2022

Date audit report completed: 19 October 2022

Audit report due date: 26-Oct-22

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EXECUTIVE SUMMARY

Advanced Metering Assets Limited (Vector Metering) is a Metering Equipment Provider (MEP) and is required to undergo an audit by 26 October 2022, in accordance with clause 16A.17(a).

Vector Metering 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.

This audit identified 19 non-compliances and three recommendations are made. I have repeated a recommendation from the last audit regarding uncertainty calculations used by the Wells Approved Test House, and I recommend that Vector Metering clarify the maximum interrogation cycles for AMCI meters and ensure that this is recorded accurately in certification reports.

An additional non-compliance was found, and a recommendation made regarding time keeping requirements for non-communicating AMI meters with time dependent meter registers that are not monitored and corrected every 12 months.

Non-compliance continues to exist in relation to missing and inaccurate fields in certification records from ATHs. There has been improvement in this area with the ATHs updating their processes to meet the requirements of Code changes introduced in February 2021.

The other main issues from this audit are as follows:

- certification is cancelled due to 534 NGCM and 32 AMCI inspections not being conducted,
- certification expired or cancelled for 32,914 NGCM metering installations,
- certification expired or cancelled for 360 AMCI metering installations,
- three installations have cancelled certification because low burden was not addressed,
- inaccurate registry information,
- late updating of registry information,
- some certification tests not completed by ATHs, and
- certification reports containing inaccurate and incomplete information.

The date of the next audit is determined by the Electricity Authority and is dependent on the level of compliance during this audit. The future risk rating provides some guidance on this matter and recommends an audit frequency of three months. After considering AMS's responses and the remedial actions proposed I recommend an audit frequency of at least six months to allow time for improvements to be made.

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)	**NGCM** Services access interface incorrectly recorded in the certification records for six of 70 metering installations sampled. **AMCI** Services access interface incorrectly recorded in the certification records for three metering installations and not recorded for one metering installation of 65 metering installations sampled.	Strong	Low	1	Investigating
Provision of accurate information	2.5	11.2 and 10.6	**NGCM** Some certification reports not complete and accurate. **AMCI** and **NGCM** Registry not always updated as soon as practicable.	Moderate	Medium	4	Investigating
Registry updates	3.2	2 of Schedule 11.4	**AMCI** and **NGCM** Some registry updates later than 15 business days.	Strong	Low	1	Investigating
Changes to registry records	4.10	3 of Schedule 11.4	**NGCM** and **AMCI** Some records updated to the registry later than 10 business days.	Moderate	Low	2	Investigating

Accurate and Complete Records	5.1	4(1)(a) and (b) of Schedule 10.6, and Table 1, Schedule 11.4	**NGCM** and **AMCI** Some inaccurate certification records.	Moderate	Low	2	Investigating
Response to switch request	6.1	1(1) of Schedule 11.4	**AMCI** 11 late MN files.	Strong	Low	1	Identified
Provision of Registry Information	6.2	Clause 7 (1), (2) and (3) of Schedule 11.4	**NGCM** and **AMCI** Some registry records incomplete or incorrect.	Moderate	Medium	4	Investigating
Correction of Errors in Registry	6.3	Clause 6 of Schedule 11.4	**NGCM** and **AMCI** Discrepancies not resolved within five business days.	Moderate	Medium	4	Investigating
Cancellation of certification	6.4	6 of Schedule 11.4	Certification cancelled, and registry not updated within 10 business days for: - NGCM – three installations with low burden, - NGCM – 534 Category 2 installations with inspection not conducted, - NGCM - three ICPs where sum-check failures were not resolved within three business days, - AMCI - one installation with low burden, - AMCI - 32 installations with inspection not conducted, and - AMCI – one faulty metering installation.	Moderate	Low	2	Investigating
Certification of metering installations	7.1	10.38 (a), clause 1 & clause	**NGCM** Certification expired or cancelled for 32,914	Moderate	Medium	4	Investigating

		15 of Schedule 10.7	NGCM metering installations. **AMCI** Certification expired for 359 AMCI metering installations.				
Certification Tests	7.2	10.38(b) and clause 9 of Schedule 10.6	**NGCM** Some certification tests not conducted by ATHs.	Strong	Low	1	Investigating
Alternative Certification Requirements	7.9	32(2), (3) and (4) of Schedule 10.7	**AMCI** Notification of alternative certification not provided to the Authority within 10 business days.	Moderate	Low	2	Investigating
Timekeeping Requirements	7.10	23 of Schedule 10.7	**NGCM** 257 ICPs with time dependent meter registers that were not monitored every 12 months.	Moderate	Low	2	Investigating
Interim certification	7.19	18 of Schedule 10.7	**NGCM** 20,909 ICPs with expired interim certification.	Moderate	Medium	4	Investigating
Category 1 Inspections	8.1	45 of Schedule 10.7	**NGCM** and **AMCI** Incorrect date used to determine sample size for Category 1 sample inspections.	Strong	Low	1	Identified

Inspections	8.2	46(1) of Schedule 10.7	**NGCM** 539 metering installations with inspection not conducted. **AMCI** 32 Metering installations with inspection not conducted.	Moderate	Medium	4	Investigating
Timeframe for correct defects and inaccuracies	9.4	10.46A	**NGCM** Remedial action not completed in required timeframe after notification of a faulty metering installation for nine ICPs.	Moderate	Low	2	Investigating
Meter bridging	9.5	10.33C	**NGCM** Meters not reinstated after bridging within five business days of bridging for 22 Category 1 ICPs.	Moderate	Low	2	Investigating
Time errors	10.7	Clause 8(4) of Schedule 10.6	**NGCM** 1,164 examples of clock errors outside the allowable thresholds in the most recent reports.	Strong	Low	1	Investigating
					Future Risk Rating	**44**	
					Indicative Audit Frequency	**3 months**	

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

RECOMMENDATIONS

Subject	Section	Clause	Recommendation	Remedial Action
Metering Installation Design & Accuracy	4.3	4(1) of schedule 10.7	Monitor the potential remedial actions taken by the Wells ATH to ensure error and uncertainty calculations are accurate and include all sources of uncertainty.	Identified
Accurate and Complete Records	5.1	4(1)(a) and (b) of Schedule 10.6, and Table 1, Schedule 11.4	Work with the ATHs to clarify the maximum interrogation cycles for AMCI meters and ensure that this is recorded accurately in certification reports.	Investigating
Timekeeping Requirements	7.10	23 of Schedule 10.7	Develop a process to identify meters which become subject to the timekeeping Requirements of Clause 23 of Schedule 10.7 and ensure the time is monitored and corrected as required.	Investigating

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") to 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

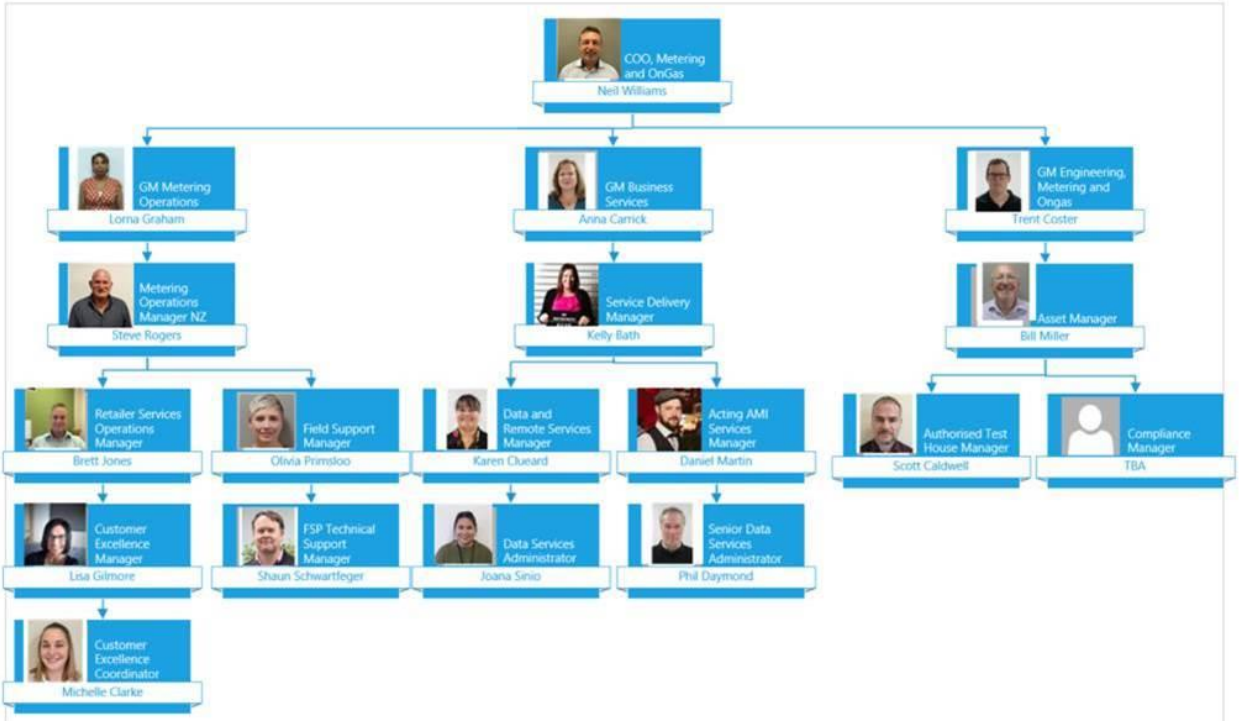
d. the date when Meridian Energy Limited no longer has an agreement with any retailer of ICP 0000015182WE1AD, ICP 0000025029WEF4E or ICP 0003146175WE243 to receive half hour metered data required in the subtraction calculation for ICP 0000840407WE388; and

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.

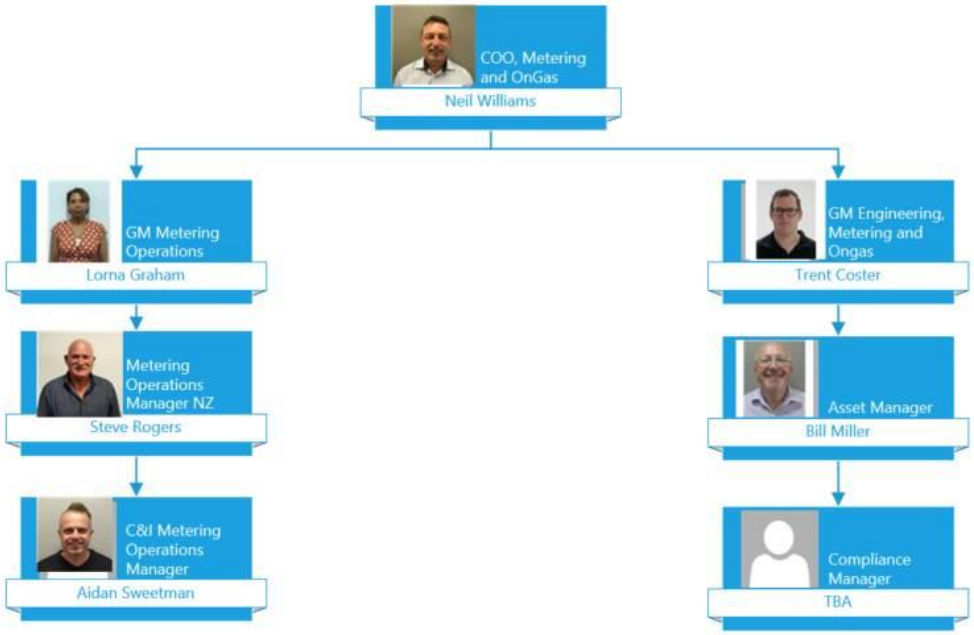
1.2. Structure of Organisation

Vector Metering provided the relevant structure diagrams as of September 2022.

NGCM



AMCI



1.3. Persons involved in this audit

Auditor:

Brett Piskulic

Veritek Limited

Electricity Authority Approved Auditor

Vector Metering personnel assisting in this audit were:

Name	Title
Bill Miller	Asset Manager
Karen Clueard	Data and Remote Services Team Leader
Daniel Martin	Acting AMI Manager
Phil Daymond	Senior Data Services Administrator
John Kingston	Quality assurance coordinator
Shaun Schwartfeger	FSP Technical support Manager
Scott Caldwell	Authorised Test House Manager
Joana Sinio	Data Services Administrator
Lisa Gilmore	Customer Excellence Manager
Michelle Clarke	Customer Excellence Coordinator
Aidan Sweetman	C & I Metering Operations Manager

1.4. Use of Agents (Clause 10.3)

Code reference

Clause 10.3

Code related audit information

A participant who uses a contractor

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

Audit observation

NGCM

NGCM engages ATHs to conduct certification activities. These parties are not considered agents for certification activities, but they are considered agents for the storage of 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:

- Accucal,
- Wells,
- Delta,
- Vector Electrical Services (VCOM) 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:

- Accucal,
- Delta,
- Ventia,
- Intellihub, and
- Vector Electrical Services (VCOM).

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**.

The Indeserve ATH approval ended on 2nd June 2022, NGCM has obtained copies of all certification records for NGCM metering installations certified by Indeserve.

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 is ServiceMax. All systems are subject to backup arrangements in accordance with standard industry protocols.

1.6. Breaches or Breach Allegations

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

1.7. ICP Data

NGCM

Metering Category	Number of ICPs Jul 2022	Number of ICPs Sep 2021	Number of ICPs Feb 2021	Number of ICPs 2020	Number of ICPs 2019	Number of ICPs 2018	Number of ICPs 2017
1	1,215,413	1,173,177	1,142,301	1,108,598	1,119,048	1,102,244	1,019,761
2	14,232	13,863	13,502	12,950	12,578	11,868	10,145
3	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0
9	18	21	10	18	22	8	5

AMCI

Metering Category	Number of ICPs Jul 2022	Number of ICPs Sep 2021	Number of ICPs Feb 2021	Number of ICPs 2020	Number of ICPs 2019	Number of ICPs 2018	Number of ICPs 2017
1	1,245	1,368	1,415	1,487	1,511	1,603	1,709
2	5618	5,668	5,684	5,698	5,737	5,730	5,676
3	3,816	3,768	3,736	3,648	3,611	3,579	3,543
4	1,665	1,601	1,571	1,515	1,474	1,447	1,377
5	189	181	174	177	177	172	174
9	45	32	46	31	26	18	13

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

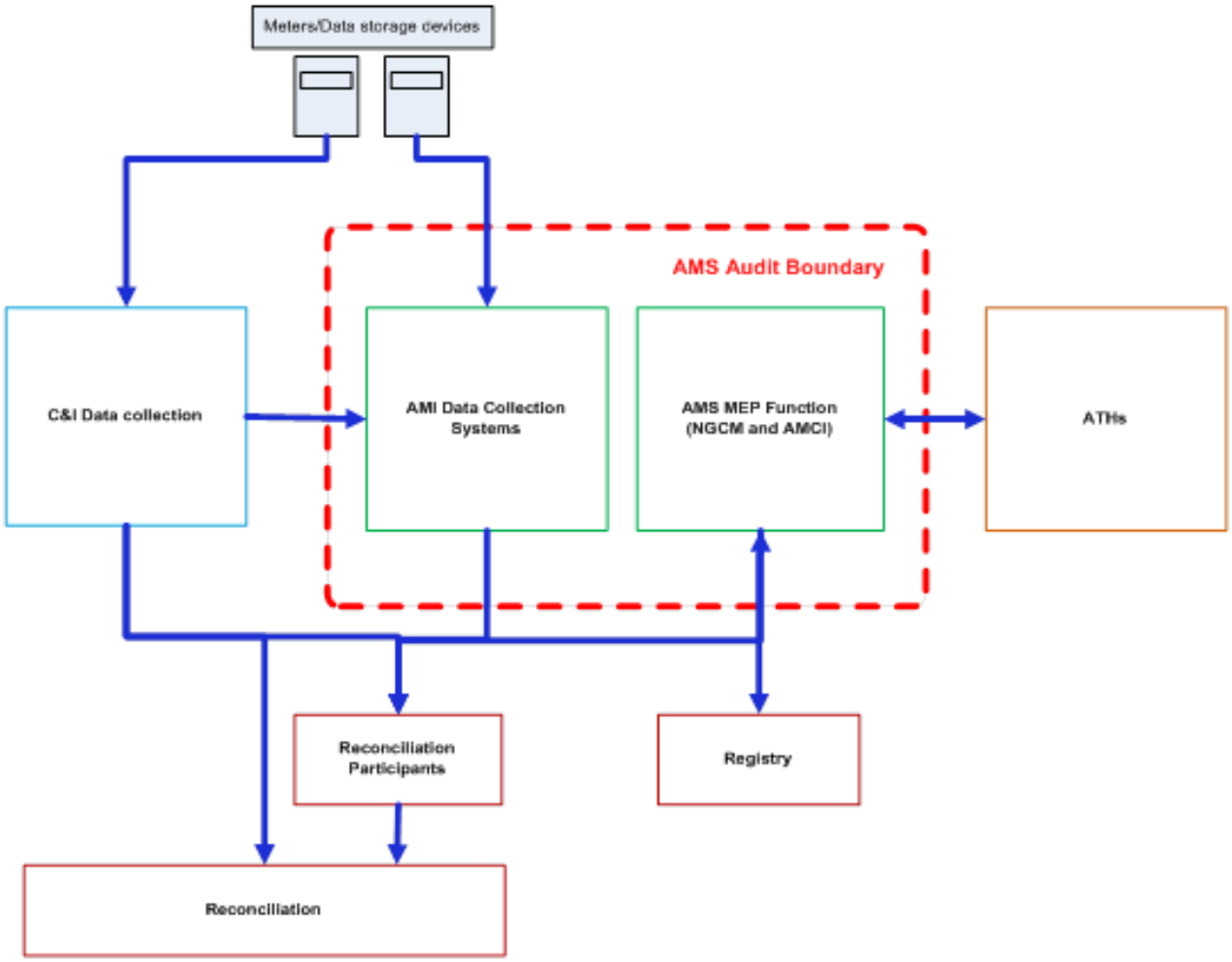
1.8. Authorisation Received

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 October 2021 by Steve Woods of Veritek Limited. The table below shows that most of the issues remain.

NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Status
MEP responsibility for services access interface	2.1	10.9(2)	**NGCM** Services access interface incorrectly recorded correctly in the certification records for 35 of 75 metering installations. **AMCI** Services access interface incorrectly recorded correctly in the certification records for five metering installations.	Still existing
Provision of accurate information	2.5	11.2 and 10.6	**NGCM** Some certification reports not complete and accurate. **AMCI** and **NGCM** Registry not always updated as soon as practicable.	Still existing
Registry updates	3.2	2 of Schedule 11.4	**AMCI** and **NGCM** Some registry updates later than 15 business days.	Still existing
Design reports	4.1	2 of Schedule 10.7	**NGCM** Design reports do not include all relevant information as specified in the Code.	Cleared
Subtractive Metering	4.4	4(2)(a) of Schedule 10.7	**AMCI** Subtraction is used in a metering installation.	Cleared
Changes to registry records	4.10	3 of Schedule 11.4	**NGCM** and **AMCI** Some records updated to the registry later than 10 business days.	Still existing
Accurate and Complete Records	5.1	4(1)(a) and (b) of Schedule 10.6, and Table 1, Schedule 11.4	**NGCM** and **AMCI** Some inaccurate certification records. Wells certification reports contain a misleading section called “Set Default Answers”.	Still existing
Response to switch request	6.1	1(1) of Schedule 11.4	**NGCM** 194 late MN files. **AMCI** 95 late MN files.	Still existing
Provision of Registry Information	6.2	Clause 7 (1), (2) and (3) of	**NGCM and AMCI**	Still existing

		Schedule 11.4	Some registry records incomplete or incorrect.	
Correction of Errors in Registry	6.3	Clause 6 of Schedule 11.4	**NGCM and AMCI** 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 - 31 installations with inspection not conducted, • NGCM – 1 Category 2 installation with overdue inspection, • NGCM - 3 installations with low burden, • NGCM – 1 installation not recertified after bridging, • AMCI - 12 installations with low burden, • AMCI – monitoring not conducted for one metering installation certified at a lower category, and • AMCI – 2 faulty metering installations outside applicable accuracy tolerances.	Still existing
Certification of metering installations	7.1	10.38 (a), clause 1 & clause 15 of Schedule 10.7	**NGCM** Certification expired or cancelled for 33,222 NGCM metering installations. **AMCI** Certification expired for 136 AMCI metering installations.	Still existing
Certification Tests	7.2	10.38(b) and clause 9 of Schedule 10.6	**NGCM** Some certification tests not conducted by ATHs.	Still existing
Certification as a Lower Category	7.6	6(1)(b) and (d), and 6(2)(b) of Schedule 10.7	**AMCI** Monitoring not conducted for one metering installation certified at a lower category.	Cleared
Interim certification	7.19	18 of Schedule 10.7	**NGCM** 22,679 ICPs with expired interim certification.	Still existing
Inspections	8.2	46(1) of Schedule 10.7	**NGCM** 166 NGCM installations with inspection not conducted. **AMCI** 43 AMCI installations with inspection not conducted.	Still existing

Time errors	10.7	Clause 8(4) of Schedule 10.6	**NGCM** 409 examples of clock errors outside the allowable thresholds in the most recent reports.	Still existing

RECOMMENDATIONS

Subject	Section	Clause	Recommendation	Status
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.	Still existing
Certification records	5.1	clause 4(1)(a) and (b) of Schedule 10.6, and Table 1, Schedule 11.4	Implement validation to ensure the accuracy of certification records.	Cleared

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 70 metering installations.

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 65 metering installations.

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

Audit commentary

NGCM

I checked 70 certification records and found that in six cases the ATHs had not recorded all possible services access interfaces.

For AMI metering installations the services access interface will normally be "remote". It is also possible that the services access interface may be local for these metering installations if there are problems communicating with the meters. All of the ATHs currently used have improved their processes to record each services access interface but there were six examples where each available option was not recorded.

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 65 certification records and found the services access interface was recorded correctly by the ATHs for 61 records. Three certification records had the services access interface incorrectly recorded as both local and remote. Of the three, one was certified by the Delta ATH, and two by the Vector Metering ATH. The certification record for one metering installation certified using the alternative certification method by the Ventia ATH did not include the services access interface.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 10.9(2) From: 01-Nov-21 To: 29-Jun-22	**NGCM** Services access interface incorrectly recorded in the certification records for six of 70 metering installations sampled. **AMCI** Services access interface incorrectly recorded in the certification records for three metering installations and not recorded for one metering installation of 65 metering installations sampled. Potential impact: Low Actual impact: None Audit history: Once Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	I have recorded the controls as strong because the services access interface is still maintained in a compliant manner despite the incorrect recording in certification reports. 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
Vector Metering to remind its ATHs that all possible SAI must be stated in the certification and where there is non-compliance in the certification the ATH is to determine the root case. Also, in all circumstances they must correctly record the service access as either “remote” or “local”.	31 January 2023 proposed	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Vector Metering will implement an internal audit process to monitor inclusion of service access to ensure that it is either recoded as “remote” or “local” for all ICPs.	Ongoing	

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 **sections 5** and **6** there are some registry and certification records which are not complete and accurate. AMCI 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.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.5 With: Clause 11.2 and Clause 10.6 From: 01-Nov-21 To: 29-Jun-22	**NGCM** Some certification reports not complete and accurate. **AMCI** and **NGCM** Registry not always updated as soon as practicable. Potential impact: Medium Actual impact: Medium Audit history: Multiple times Controls: Moderate Breach risk rating: 4
Audit risk rating	**Rationale for audit risk rating**
Medium	Controls are recorded as moderate because there is room to improve the timeliness of registry updates and the accuracy of certification records. The impact on other participants could be moderate due to the use of potentially incorrect data, thinking it is correct; therefore, the audit risk rating is medium.

Actions taken to resolve the issue	Completion date	Remedial action status
Vector Metering is considering current processes and the best way to ensure certification reports are complete and accurate and implement a process to monitor and resolve issues are identified and amended in a timely fashion.	31 January 2023 proposed	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Vector Metering will implement an internal audit process to monitor inclusion of certification reports to ensure they are complete and accurate and resolve issues that are identified and amended in a timely fashion.	31 March 2023	

3. PROCESS FOR A CHANGE OF MEP

3.1. Change of metering equipment provider (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 November 2021 to 29 June 2022 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 November 2021 to 29 June 2022 for all records where AMCI became the MEP to evaluate the timeliness of updates.

Audit commentary

NGCM

I examined the audit compliance report for 26,367 switches in relation to this clause and the findings are shown in the table below. 1,599 of the late updates were due to the trader's nomination being later than five business days. I checked a sample of 20 updates for events which occurred during the audit period in detail and found the following:

- corrections of incorrect details from original update for five examples,
- automated registry update failures due to missing or incorrect information in JDE for 12 examples,
- a previous MEP event for removed metering blocking the loading of new metering in the registry for two examples, and
- late receipt of certification details from ATH for one example.

Year	ICPs Switched	Notified to registry within 15 days	Percentage compliant	Average days
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

Jan 2021	13,613	11,944	88%	Not calculated
Sep 2021	17,409	15,642	89.85%	Not calculated
Jul 2022	**26,367**	**24,168**	**91.66%**	Not calculated

AMCI

I examined the audit compliance report for 105 switches in relation to this clause and the findings are shown in the table below. 54 late updates were identified by the audit compliance report. Analysis of the late updates found that 17 were due to late nomination by the trader, 33 were due to corrections of historical registry information and four were due to the MEP being late. AMCI advised that delays or errors in the information received from ATHs were the cause of the late updates.

Year	ICPs	Notified to registry within 15 days	Percentage compliance	Average days
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
Jan 2021	148	42	28%	Not calculated
Sep 2021	68	17	25%	Not calculated
Jul 2022	**105**	**51**	**48%**	**Not calculated**

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 2 of Schedule 11.4 From: 01-Nov-21 To: 29-Jun-22	**AMCI** and **NGCM** Some registry updates later than 15 business days. Potential impact: Medium Actual impact: Low Audit history: Multiple times Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are in place to ensure the timeliness of updates, but Vector Metering 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.

Actions taken to resolve the issue	Completion date	Remedial action status
Vector Metering will review its process to determine what improvements can be made to current process, including if there is additional information the could be provided t in an effort to promote prompt responses from other participants to minimise this matter, but recognise that to a fair extent this matter is outside its immediate control as it is caused by other participants.	16 December 2022 proposed	Investigating
Preventative actions taken to ensure no further issues will occur	Completion date	
Vector Metering will review its processes to determine what improvements can be made and communicate with other participants to remind them of their responsibilities.	28 February 2023 proposed	

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 MEPs obligations terminate only when:

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

Audit observation

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.

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 Accucal, VCOM, Delta, Indeserve and Wells 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, Ventia and Intellihub ATHs for certification activities. The ATHs have provided design reports for this work which I have checked.

Audit commentary

NGCM

In the previous audit non-compliance was recorded as the NGCM design reports did not contain all the information required following the Code changes effective 1 February 2021. I checked and confirmed that the design reports have been updated to include all required information and have been provided to all ATHs.

ACMI

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

Audit outcome

Compliant

4.2. Contracting with ATH (Clause 9 of Schedule 10.6)

Code reference

Clause 9 of Schedule 10.6

Code related audit information

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

Audit observation

NGCM

I confirmed that NGCM has used the Accucal, VCOM, Delta, Indeserve and Wells ATHs.

ACMI

I confirmed that AMCI has used VCOM, Delta, Intellihub, Ventia and Accucal ATHs.

Audit commentary

NGCM

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

The Indeserve ATH approval ended on 2nd June 2022. I confirmed that no certification was conducted for NGCM by Indeserve after 2nd June 2022.

ACMI

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 70 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 65 metering installations.

Audit commentary

NGCM

The ATHs have compliant practices and are calculating uncertainty for metering installations certified using the comparative method. My checks of the metering installation certification reports for 22 category 2 installations certified using the comparative recertification method confirmed that error and uncertainty were both recorded. The last three Wells ATH reports contained 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. I repeat the recommendation from the last audit that NGCM monitor the actions taken by the Wells ATH to ensure error and uncertainty calculations are accurate and include all sources of uncertainty.

Recommendation	Description	Audited party comment	Remedial action
4(1) of schedule 10.7	Monitor the potential remedial actions taken by the Wells ATH to ensure error and uncertainty calculations are accurate and include all sources of uncertainty.	Vector Metering will raise this issue with Wells and monitor compliance.	Identified

The design report was recorded for all 70 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 10 category 2 installations certified using the comparative recertification method and 20 installations certified using the fully calibrated method confirmed that error and uncertainty were correctly calculated and recorded.

The design report was recorded for all 65 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 AMCI 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 is one case where subtraction is used in a metering installation, this is conducted under exemption 296 at ICP 0000840407WE388 as detailed in **section 1.1**.

In the last audit non-compliance was recorded as subtraction was being used at ICP 1002050361LC60D. The subtraction related to an old supply to the site from ICP 0800539060LCBFF which now has a status of "inactive - electrically disconnected ready for decommissioning". Whilst the old supply is disconnected it has been kept as a back-up supply which can be switched on by the network if needed, a new back-up supply is planned to be commissioned within 18 months. I checked communications between the trader, AMCI and the Authority which confirmed that due to the configuration of the installation the meter at ICP 0800539060LCBFF was still recording consumption from the new main supply at ICP 1002050361LC60D. It has been determined that there is no need to use subtraction as it is not physically possible for both supplies to be connected at the same time. There is currently no requirement for the metering at ICP 0800539060LCBFF to be certified as the ICP is inactive. Compliance is now recorded.

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

Audit outcome

Compliant

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 confirmed that subtraction is not used to determine submission information.

AMCI

AMCI is the MEP for 278 Embedded Networks with NSP Metering. I checked and 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, it must do so within 10 business days after the most recent unsuccessful interrogation.

If the MEP is updating the registry in accordance with clause 8(13) of Schedule 10.6, it must do so within 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 November 2021 to 29 June 2022 to evaluate the timeliness of registry updates.

AMCI

I checked the audit compliance report for the period 1 November 2021 to 29 June 2022 to evaluate the timeliness of registry updates.

Audit commentary

NGCM

I checked the audit compliance report for the period 1 November 2021 to 29 June 2022 and the table below shows the results.

Event type	Year	Total	Total within 10 days	% Compliant	Average days
Recertification	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
	Jan 2021	417,406	381,958	92%	36
	Sept 2021	28,812	25,998	90.23%	14.77
	Jul 2022	**39,979**	**36,133**	**90.38%**	**5.71**
New connection	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
	Jan 2021	20,519	19,964	97%	Not calculated
	Sept 2021	13,655	13,259	97.1%	Not calculated
	Jul 2022	**15,767**	**15,469**	**98.11%**	Not calculated

I was unable to accurately determine the total number of updates after recertification due to duplicates in the audit compliance report AC020MEP04 (Metering update after recertification). None of the reports

account for reversed and replaced events, which leads to inaccurate reporting. I checked a sample of 10 late recertification updates and found that six were due to late field notification and four were corrections of incorrect details from original the update.

I checked a sample of 15 late updates for new connections which occurred during the audit period in detail and found that two were due to late field notification and 13 were corrections of incorrect details from original the update.

170 of 298 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, they must update within 10 business days after the most recent unsuccessful interrogation. I checked NGCM's records for unread ICPs and registry updates and confirm this requirement was met. These updates are automated.
2. If the MEP is updating the registry in accordance with clause 8(13) of Schedule 10.6, they have three business days following the expiry of the time period or date from which the MEP determines it cannot restore communications. As recorded in **section 10.12**, this process is now automated, and all updates were provided within three business days.

AMCI

I checked the audit compliance report for the period 1 November 2021 to 29 June 2022 and the table below shows the results.

Event type	Year	Total	Within 10 days	% Compliance	Average days
Recertification	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
	Jan 2021	3,498	1,074	30.7%	360
	Sep 2021	1,528	934	38.87%	326
	Jul 2022	**1,763**	**904**	**51.28%**	**258**
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
	Jan 2021	270	83	30.74%	Not calculated
	Sep 2021	153	35	22.88%	Not calculated
	Jul 2022	**228**	**66**	**28.95**	**Not calculated**

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

I checked a sample of 20 updates for recertification events which occurred during the audit period in detail and found that two were due to late updates by AMCI due to processing delays, six were due to late field notification and 12 were due to corrections of incorrect details from original the update. There were 421 updates with certification dates prior to 2021, I have assumed that these are all corrections.

I checked a sample of 25 late updates for new connections which occurred during the audit period in detail and found that 13 were due to corrections of incorrect details from original the update, eight were due to late field notification and four were due to an issue with the registry update from AMCI. AMCI has updated its process to require the operator to manually force the registry update and is now monitoring reporting of time taken for ATH updates. There were 63 updates with certification dates prior to 2021, I have assumed that these are all corrections.

27 of 162 late updates were due to late nomination by the trader.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.10 With: Clause 3 of Schedule 11.4 From: 01-Nov-21 To: 29-Jun-22	**NGCM** and **AMCI** Some records updated to the registry later than 10 business days. Potential impact: Medium Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	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
It is noted that significant improvements have been made over the years by NGCM on this matter. AMCI has recently made process changes requiring the operator to manually force change. Vector Metering will continue to monitor and look for further change that can be made to improve this matter, including the recent process change made by AMCI.	16 December 2022 proposed	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Vector Metering will remind its ATHs of the requirement to deliver accurate certification within the time requirements of the Code and ensure, when required, recertifications are provided as promptly as possible.	28 February 2023	

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 burden changes occurring during the audit period except at the time of recertification.

AMCI

There have not been any examples of burden changes occurring during the audit period except at the time of recertification.

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 70 metering installations, and I also checked five inspection records to evaluate compliance with this clause.

AMCI

I checked certification records for 65 metering installations, and I also checked 10 inspection records to evaluate compliance with this clause.

Audit commentary

NGCM

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

I checked the content of 70 certification reports and found a number of missing or inaccurate fields. The table below shows the results.

		Number of incorrect or missing fields				
Clause	**Field required**	**Accucal (2)**	**Delta (8)**	**VCOM (21)**	**Wells (31)**	**Indeserve (8)**
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.	2		2		2
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.		6	10		
2(1)(e) of Schedule 10.8	For CT certification reports, determine and record the range that the in-service burden must be within	1	2			2
31(7) of schedule 10.7	Ensure and record appropriate in-service burden					
10.11 & 8(4) of Schedule 10.7	Metering installation category					
6(4) of Schedule 10.7	Certification as a lower category detail					
8(2) of Schedule 10.7	Whether the installation is HHR or NHH or both	2		2		
11(5)(a) & 13(4) of Schedule 10.7	Confirmation ATH has checked the design report					
11(5)(b) of Schedule 10.7	Confirmation that components have been calibrated and certified					
11(5)(c) of Schedule 10.7	Confirmation that table 3 tests have been conducted and passed					
11(5)(d) of Schedule 10.7	Confirmation that wiring is correct					
11(5)(e) of Schedule 10.7	Details of tests and checks to confirm the integrity of the installation		6	10		
11(6) of Schedule 10.7	Details of compensation factors					

12(5) of Schedule 10.7	Confirmation that components in comparative certified installations are fit for purpose					
14(2) of Schedule 10.7	Additional integrity checks for insufficient load certification					
17(1) of Schedule 10.7	Installation certification and expiry date					1
22(3) of Schedule 10.7	Percentage error and uncertainty					
26(4) of Schedule 10.7	Maximum interrogation cycle	2			30	
27(5) of Schedule 10.7	Meter certification expiry date					1
29(3) of Schedule 10.7	Measuring transformer expiry date					
33(2)(b) of Schedule 10.7	Control device certification expiry date					
33(2)(d) of Schedule 10.7	Confirmation that the control device is compliant and fit for purpose					
37(1) of Schedule 10.7	Data storage device expiry date					
1(1)(d) of Schedule 10.8	Validity period					
9(1)(c)(i)(A) of Schedule 10.7	Raw meter data output test load greater than 5% for Cat 1		6	10		
9(1)(c)(i)(B) of Schedule 10.7	Raw meter data output test load greater than10A per phase for Cat 2					
3 of schedule 10.8	Ensure CTs are calibrated prior to certification					
Table 3	Prevailing load test conducted using a working standard for recertification without meter replacement.			2	2	
	Total number	**7**	**20**	**36**	**32**	**6**

There has been a reduction in the number of errors and incomplete information in certification reports as the ATHs have updated their processes to include information to meet the requirements of Code changes effective 1 February 2021. Not all of the points above are mentioned in Clause 4 of Schedule 10.6, therefore I've also recorded non-compliance in **section 2.5**, which requires participants to ensure information is complete and accurate.

In response to a recommendation in the last audit NGCM has been holding monthly meetings with all ATHs to raise issues and encourage improvements in ATH practices and records.

AMCI

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

		Number of incorrect or missing fields				
Clause	**Field required**	**Accucal (34)**	**Delta (3)**	**VCOM (26)**	**Ihub (1)**	**Ventia (1)**
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.		1	2		1
26(4) of Schedule 10.7	Maximum interrogation cycle	30	1	24		1
8(2) of Schedule 10.7	Whether the installation is HHR or NHH or both		1	2		1
2(1)(e) of Schedule 10.8	For CT certification reports, determine and record the range that the in-service burden must be within	21	1			
	Total number	**51**	**4**	**28**	**0**	**3**

There is a high number of discrepancies between the maximum interrogation cycle being recorded on the registry by AMCI and what is recorded in the certification reports by the ATHs. I recommend that AMCI work with the ATHs to clarify the maximum interrogation cycles for its meters and ensure that this is recorded accurately in certification reports.

Recommendation	Description	Audited party comment	Remedial action
Regarding clause 4(1)(a) and (b) of Schedule 10.6, and Table 1, Schedule 11.4	AMCI work with the ATHs to clarify the maximum interrogation cycles for its meters and ensure that this is recorded accurately in certification reports.	Vector Metering is actively working to define the maximum interrogation periods for its different types of metering. Once this has been internally agreed this will be notified to the ATHs.	Investigating

The 10 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-Nov-21 To: 29-Jun-22	**NGCM** and **AMCI** Some inaccurate certification records. Potential impact: Medium Actual impact: Low Audit history: Twice Controls: Moderate Breach risk rating: 2

Audit risk rating	Rationale for audit risk rating
Low	I have recorded the controls as moderate because instruction has been provided to ATHs, but there is further work to be done. 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
Vector Metering requires to review this area and further reinforce with its ATHs this requirement and determine how this can be monitored and, where issues are identified, raised with its ATHs promptly.	31 January 2023 proposed	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Remind ATHs of their obligation and Vector Metering implement a monitoring and reporting system, where issues are identified, with the applicable ATHs.	30 April 2023	

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 the NGCM record keeping processes to confirm compliance.

AMCI

I checked the AMCI record keeping processes to confirm compliance.

Audit commentary

NGCM

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

AMCI

AMCI intends to keep records indefinitely 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 manager 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 manager 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 identify 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 expected to be 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 identified 11 ICPs where the AMCI response was later than 10 days. AMCI has implemented a change in its process which ensures that nominations are not accepted unless a service request is received from the trader. Daily reporting from the registry is used to identify new nominations and traders are advised to reverse nominations which are not accepted.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.1 With: 1(1) of Schedule 11.4 From: 01-Nov-21 To: 29-Jun-22	**AMCI** 11 late MN files. Potential impact: Low Actual impact: Low Audit history: Once Controls: Strong Breach risk rating: 1

Audit risk rating	Rationale for audit risk rating		
Low	The controls are recorded as strong as AMCI has put reporting in place to identify nominations. The impact is low; therefore, the audit risk rating is low.		
Actions taken to resolve the issue		**Completion date**	**Remedial action status**
For AMCI Vector Metering will monitor the success of the process that has been implemented and introduce changes as required.		2 December 2022 proposed	Identified
Preventative actions taken to ensure no further issues will occur		**Completion date**	
Vector Metering will continue to monitor the success of its process changes on a regular basis to minimise the opportunity for this issue to reoccur.		28 February 2023 proposed	

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 and the list file to identify discrepancies.

AMCI

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

Audit commentary

NGCM

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	Sep 2021 Quantity	Jul 2022 Quantity
NGCM is recorded on the registry as the MEP, but the metering records have not been populated on the registry. One is unmetered, 22 have meters physically removed. NGCM has no records of metering at three installations.	16	17	27	27	18	27	**26**
Category 1 ICPs with CTs installed, or with compensation factors, indicating an incorrect Category. Incorrect category has been corrected.	15	12	0	0	3	0	**1**
Compensation factor of 3, certified after 29/08/13. These are all historic and all have cancelled certification. No additional examples were identified.	4	5	14	37	33	32	**31**
Category 3 ICPs have an RPS profile, indicating an incorrect metering category.	0	0	0	0	0	0	**0**
HHR profile with NHH installation type. Trader has incorrect profile.	0	12	2	1	5	6	**4**
Category 2 interim certified.	53	38	33	0	0	23	**24**
Day + Night not equal to 24. Five are repeated from last audit, all have Day and two Night. One of the Nights should be a different code.	3	0	0	5	5	5	**10**

Five were entered incorrectly and have now been corrected.							
Day with no night. One ICP same as last audit. One has now been corrected	20	6	67	3	1	1	**2**
Night with no day.	530	325	346	230	182	167	**153**
ICPs have "IN24". The Authority has indicated this combination should not be used.	64,650	65,535	303,667	245,803	2	1	**0**
ICPs have CN only (residential only). One ICP is correct the rest are incorrect.	286	201	186	76	85	90	**80**
Category 2 or above without CTs. Three ICPs have been corrected.	101	88	73	57	49	57	**65**
Incorrect certification expiry.	7	9	6	12	7	7	**7**
Incorrect certification date.	1	4	0	0	2	0	**0**
Invalid ATH recorded. (VEMS identifier used after 28 September 2018)	0	0	0	209	233	296	**8**
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	4,805	**3,686**
No control device for IN register content (excluding AMI where the control device may be internal).	400	368	289	692	679	823	**955**
Control device installed, register content UN.	-	-	-	9,353	20,631	20,377	**9,193**

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	Sep 2021 Quantity	Jul 2022 Quantity
AMCI is recorded on the registry as the MEP, but the metering records have not been populated on the registry. Two are unmetered, 11 have been updated.	0	0	5	29	21	17	**32**
Category 3, 4 or 5 installations "interim certified".	0	0	0	0	0	0	**0**
HHR profile but NHH metering installation. Trader error.	0	0	0	0	0	0	**1**
Category 5 with a certification period longer than 3 years.	0	0	0	0	0	0	**0**
Category 4 with incorrect certification duration. Data entry error, to be corrected.	0	2	5	6	15	5	**4**
Category 3 with certification period longer than 10 years. Data entry error, to be corrected.	0	2	1	1	3	2	**1**
Category 2 with incorrect certification duration. Data entry error, to be corrected.	0	2	1	1	4	5	**5**
Category 1 with incorrect certification duration.	0	2	3	2	1	1	**0**
Incorrect certification dates for new connections.	0	0	0	0	0	0	**0**

Over Category 1 with no measuring transformers on the registry. All have been corrected.	1	2	0	2	1	0	**4**
Incorrect compensation factors.	3	Refer to section 7.14	Refer to section 7.14	0	0	0	**0**
Incorrect ATH identifier.	0	3	4	41	11	89	**66**
Incorrect certification variation of alternative recorded in registry. All have been corrected.	-	-	-	-	40	5	**11**
Control device installed, register content UN.	-	-	-	215	210	212	**186**

As recorded in **section 7.1** there were 49 metering installations recertified by AMCI, but details of the certifications were not uploaded to the registry. Further investigation found that some of these were due to the operator not ticking an upload field and some were due to date discrepancies in the effective date field.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 6.2 With: Clause 7 (1), (2) and (3) of Schedule 11.4 From: 01-Nov-21 To: 29-Jun-22	**NGCM** and **AMCI** 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**		
Medium	I have recorded the controls as moderate in this area. There are still a small number of areas where improvements 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**

Vector Metering considers this to be an administrative issue and intend to review current process to identify opportunities for improvement for the small number, in particular, how amendments can be completed more quickly.	28 February 2023 proposed	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Implement improvements identified.	30 April 2023	

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 demonstrated its registry validation processes. The process is run daily, and discrepancies are identified on a dashboard which details the number of exceptions found in each category and tracks the numbers of days taken to resolve these. The tracking shows that whilst the validation processes are robust, corrections are not always able to be made within five business days, which is recorded as non-compliance.

AMCI

AMCI runs a registry list file every two weeks 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-Nov-21 To: 29-Jun-22	**NGCM** and **AMCI** Discrepancies not resolved within five 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	I have recorded the controls as moderate in this area. There are still a small number of areas where improvements 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
Vector Metering intend to review current processes to identify opportunities for improvement, in particular, how amendments can be completed more quickly. However, we note that we are heavily reliant on other participants completing their activities before we can undertake amendments. Also, for AMCI consideration will be given to running the registry list file more frequently than every two weeks against Service Max as a means of minimising the extent of the issue and resolving more quickly.	28 February 2023 proposed	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Implement opportunities where possible and look to reduce registry list file more frequently than every two weeks against Service Max	30 April 2023 proposed	

6.4. Cancellation of Certification (Clause 20 of Schedule 10.7)

Code reference

Clause 20 of Schedule 10.7

Code related audit information

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

a) *the metering installation is modified otherwise than under sub clause 19(3), 19(3A) or 19(3C)*
b) *the metering installation is classed as outside the applicable accuracy tolerances set out in Table 1 of Schedule 10.1, defective or not fit for purpose under this Part or any audit*
c) *an ATH advises the metering equipment provider responsible for the metering installation of a reference standard or working standard used to certify the metering installation not being compliant with this Part at the time it was used to certify the metering installation, or the failure of a group of meters in the statistical sampling recertification process for the metering installation, or the failure of a certification test for the metering installation*
d) *the manufacturer of a metering component in the metering installation determines that the metering component does not comply with the standards to which the metering component was tested*
e) *an inspection of the metering installation, that is required under this Part, is not carried out in accordance with the relevant clauses of this Part*
f) *if the metering installation has been determined to be a lower category under clause 6 and:*
    a. *the MEP has not received the report under 6(2A)(a) or 6(2A)(b); or*
    b. *the report demonstrates the maximum current is higher than permitted; or*
    c. *the report demonstrates the electricity conveyed exceeds the amount permitted*
g) *the metering installation is certified under clause 14 and sufficient load is available for full certification testing and has not been retested under clause 14(4)*
h) *a control device in the metering installation certification is, and remains for a period of at least 10 business days, bridged out under clause 35(1)*
i) *the metering equipment provider responsible for the metering installation is advised by an ATH under clause 48(6)(b) that a seal has been removed or broken and the accuracy and continued integrity of the metering installation has been affected.*
j) *the installation is an HHR AMI installation certified after 29 August 2013 and*
    a. *the metering installation is not interrogated within the maximum interrogation cycle; or*
    b. *the HHR and NHH register comparison is not performed; or*
    c. *the HHR and NHH register comparison for the same period finds a difference of greater than 1 kWh and the issue is not remediated within 3 business days*

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

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

Audit observation

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 but three cases, the registry has now been updated. The three ICPs not cancelled were certified with low burden and are detailed in the table below.

Low burden from the previous audits		
ICP	**ATH**	**Certification date**
0089217802PC769	Wells	19 March 2021
0001731321TGD94	Wells	10 February 2021
0000194732TR969	Wells	1 July 2021

I checked all of the points mentioned above as follows.

Inspection

I checked the registry records to identify Category 2 ICPs where inspections were due. 539 ICPs were due for inspection during the audit period and inspections were not conducted. NGCM cancelled certification for all 539 ICPs on 11th August 2022. I have recorded non-compliance as this was not done within 10 business days of the maximum inspection period for 534 ICPs.

Low Burden

Analysis of the certification records for 41 Category 2 metering installations found none were certified with burden lower than the lowest test point.

Bridged control devices

NGCM provided a list of bridged control devices. I checked 10 examples, and in all cases, the appropriate notification was provided and none of the ICPs had profiles requiring the operation of control devices.

Not read during maximum interrogation cycle

As recorded in **section 10.5**, all ICPs not read within the maximum interrogation cycle had the AMI flag set to "N".

Sum-check Failure

I checked for examples where meters had not passed sum-check, were not resolved within three business days and certification was not cancelled within 10 business days. As recorded in **section 10.9**, NGCM has a process to identify sum-check failures and cancel certification if not resolved within three business days. The reporting provided by NGCM identified four meters that had failed sum-check and were not resolved within three business days. Due to processing delays the registry was not updated within 10 business days for three of the four ICPs as detailed in the following table:

ICP	Date of sum-check failure	Cert cancelled date	Date registry updated	Business days to update registry
0000010150HR5A1	19/07/2022	19/07/2022	19/08/2022	23
1000587381PCC55	19/07/2022	19/07/2022	19/08/2022	23
0110010478EL584	19/07/2022	19/07/2022	19/08/2022	23
0000459103HB746	19/07/2022	19/07/2022	28/07/2022	7

Bridged meters

I checked 25 examples of bridged meters, and they were all either recertified or cancelled within 10 business days of being bridged.

AMCI

I checked all of the ICPs from previous audits where certification was cancelled and in all but one case, the registry has now been updated. The ICP not cancelled was certified with low burden and is detailed in the table below.

Low burden from the previous audit		
ICP	**ATH**	**Certification date**
0104912006LC93A	VCOM	28 March 2019

I checked all of the points mentioned above as follows.

Inspection

I checked the registry and determined that there were 292 ICPs at Categories 2, 3, 4 and 5 that were due for inspection during the audit period. 260 of these ICPs were either inspected or recertified within the maximum inspection period. There were 32 ICPs where inspections were not completed within the maximum inspection period and certification was not cancelled within 10 business. I have recorded non-compliance for these 32 ICPs.

Certification at a lower category

I checked the list maintained by AMCI of installations requiring monitoring and confirmed that monitoring had taken place each month. Compliance is confirmed.

Low burden

Analysis of the certification records for 62 Category 2 and above metering installations found none were certified with burden lower than the lowest test point during the audit period.

Metering installation is defective or not fit for purpose

AMCI provided details of a faulty high voltage metering installation at ICP 0800025067LC887. In this case the ATH went to site on 4th May 2022 and determined that the voltage transformer had been damaged by a flashover on the same day. A statement of situation was provided on 6th May 2022. AMCI cancelled the certification on the registry on 23rd May 2022. I have recorded non-compliance as the registry was not updated with cancelled certification within 10 business days.

Audit outcome

Non-compliant

Non-compliance	Description

Audit Ref: 6.4 With: Clause 6 of Schedule 11.4 From: 01-Nov-21 To: 29-Jun-22	Certification cancelled, and registry not updated within 10 business days for: - NGCM - three installations with low burden, - NGCM – 534 Category 2 installation with inspection not conducted, - NGCM - three ICPs where sum-check failures were not resolved within three business days, - AMCI - one installation with low burden, - AMCI - 32 installations with inspection not conducted, and - AMCI – one faulty metering installation. Potential impact: Medium Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2

Audit risk rating	Rationale for audit risk rating
Low	I have recorded the controls as moderate in this area as there is room for improvement with missed inspections. The responsibility for the MEP is to cancel certification on the registry once they know certification is cancelled and the impact of not doing this is minor, therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Vector Metering will review its processes and look for opportunities for improvement.	31 March 2023 proposed	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Vector Metering will implement process changes identified to improve performance in this area.	30 May 2023 proposed	

6.5. Registry Metering Records (Clause 11.8A)

Code reference

Clause 11.8A

Code related audit information

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

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

AMCI

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

Audit outcome

Compliant

7. CERTIFICATION OF METERING INSTALLATIONS

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

Code reference

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

Code related audit information

The MEP must obtain and maintain certifications 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 12,002 previously fully certified ICPs with expired certification and 20,909 previously interim certified installations that have now expired. 1,791 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 nine 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.

As recorded in **section 6.4**, three ICPs have cancelled certification and the registry has not been updated.

I also checked NGCM's records and the Network Supply Points Table on the Authority's website and confirmed that the two NSPs with NGCM metering had current certification.

AMCI

The audit compliance report identified 350 ICPs with expired full certification as detailed in the table below:

Category	Number of expired certifications
1	220
2	24
3	55
4	50
5	1

49 of the expired certifications have been recertified and are recorded in the AMCI systems as such. Details of the new certification information had not been added to the registry due to issues with the AMCI systems, this is also recorded in **section 6.2**.

I also checked the Network Supply Points Table on the Authority's website and confirmed that AMCI is responsible for the metering at 283 NSPs. There were eight of the 283 NSPs which were recorded as having expired certification.

As recorded in **section 6.4**, one metering installation has cancelled certification due to low burden, and the registry has not been updated.

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: 29-Jun-22	**NGCM** Certification expired or cancelled for 32,914 NGCM metering installations. **AMCI** Certification expired for 359 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**
Medium	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
Vector Metering will look to correctly record ICPs status as quickly as possible and where possible recertify ICP. However, it is noted that there is a reliance on other participants, consumers, and resource availability to complete this work in a number of instances.	30 April 2023 proposed	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Vector Metering will continue to correct ICPs status and complete recertification when it is able	30 June 2023 proposed	

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 70 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 65 metering installations to confirm compliance. ATHs have shown that their processes include all tests, and reports confirm tests are completed.

Audit commentary

NGCM

As recorded in **section 5.1**, there are some tests not conducted by ATHs and some tests with results not recorded and therefore it is not confirmed the tests were conducted. The issues are recorded below. It's probable that many of the tests were conducted but not recorded, however the requirement to conduct a prevailing load test using a working standard to re-certify an installation with existing components was definitely not conducted by ATHs.

		Number of incorrect or missing fields				
Clause	**Field required**	**Accucal (2)**	**Delta (8)**	**VCOM (21)**	**Wells (31)**	**Indeserve (8)**
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.		6	10		
11(5)(e) of Schedule 10.7	Details of tests and checks to confirm the integrity of the installation		6	10		
9(1)(c)(i)(A) of Schedule 10.7	Raw meter data output test load greater than 5% for Cat 1		6	10		
Table 3	Prevailing load test conducted using a working standard for recertification without meter replacement.			2	2	

AMCI

My checks of 65 certification records confirmed that the ATHs had conducted all required testing and recorded the results in the metering installation certification reports.

Audit outcome

Non-compliant

Non-compliance	Description

Audit Ref: 7.2 With: Clause 10.38(b) and clause 9 of Schedule 10.6 From: 01-Nov-21 To: 29-Jun-22	**NGCM** Some certification tests not conducted by ATHs. Potential impact: Medium Actual impact: Low Audit history: None Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as strong because the main test not conducted is prevailing load using a working standard to recertify an installation with existing components. Other testing confirms the integrity of the installation, and the industry has the view that this test is not required. 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
Vector Metering will remind its ATHs of the requirements and continue to monitor data and where required seek prompt remedial action.	30 November 2022 proposed	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Vector Metering will continue to remind its ATHs of the requirements and continue to monitor data and where required seek prompt remedial action.	Ongoing	

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 70 metering installations to confirm compliance.

AMCI

I checked the certification records for 65 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 record 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. I checked the certification records for six metering installations certified at a lower category during the audit period. Three of the certifications were conducted on the basis of there being a current limiting device limiting the current to within the category certified. Details of the current limiting devices were recorded by the ATH in the metering installation certification reports.

Three of certification records included a statement from the ATH advising the MEP of the requirement to monitor monthly to ensure that the maximum current does not exceed the category limit. I confirmed that these three installations had been added to the monitoring list and that monitoring had taken place each month.

AMCI

I have checked the monitoring reports for the audit period and confirm that monitoring has taken place. I checked the certification records for a sample of four metering installations certified at a lower category during the audit period. All four certification records included a statement from the ATH advising the MEP of the requirement to monitor monthly to ensure that the maximum current does not exceed the category limit. I confirmed that these four installations had been added to the monitoring list and that monitoring had taken place each month.

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

There were no examples of insufficient load certification during the audit period. NGCM has previously instructed ATHs that load must be added to perform certification testing and that insufficient load certification should not be conducted.

AMCI

I found 12 examples of insufficient load certification during my certification report checks. All 12 certification reports included a statement from the ATH advising the MEP of the requirement to monitor monthly and advise when load is available. AMCI demonstrated that monitoring is in place as required by this clause and all 12 examples had been added to the monitoring last and monitoring had been taken place each month.

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

I checked if there were any examples of tests conducted demonstrating that the metering installation is not within the relevant maximum permitted error.

AMCI

I checked if there were any 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 Authority, by no later than 10 business days after the date of certification of the metering installation, of the details in clause 32(2)(a) of Schedule 10.7*
- *respond, within 5 business days, to any requests from the Authority 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 Authority 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 and communications to the Authority for a sample of five of the 32 metering installations certified using the alternative certification method during the audit period. In all five cases the certification records contained appropriate details and notification was sent to the Authority using the prescribed form. I have recorded non-compliance as in three of the five cases the notification to the Authority was not provided within 10 business days due to delays in receiving the certification records from the ATH. Details of these are listed in the following table,

ICP	ATH	Certification date	Notification date	Business days
0000130980ENFA4	ACCL	13/02/2022	3/05/2022	53
0000015383WE7EF	ACCL	24/05/2022	18/06/2022	17
0666004025PC6C7	ACCL	2/06/2022	21/06/2022	12

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 7.9 With: Clauses 32(2), (3) and (4) of Schedule 10.7 From: 28-Feb-22 To: 21-Jun-22	**AMCI** Notification of alternative certification not provided to the Authority within 10 business days. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	I have recorded the controls as moderate in this area because there is room for improvement. There is no impact on participants and settlement, therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Vector Metering need to complete a review to understand the reasons why in 5 cases for AMCI the notification was not provided to the Authority within the required 10 business days. In addition, a review of the process to raise alternate certification will be completed. From this we can identify opportunities for improvement.	16 December 2022 proposed	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	

Implement any opportunities for improvement identified.	Ongoing proposed	

7.10. Timekeeping Requirements (Clause 23 of Schedule 10.7)

Code reference

Clause 23 of Schedule 10.7

Code related audit information

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

a) has a time keeping error of not greater than an average of 2 seconds per day over a period of 12 months

b) is monitored and corrected at least once every 12 months.

Audit observation

NGCM

I asked NGCM whether there were any metering installations with time switches switching meter registers or any AMI metering installations with time dependant register content codes where the AMI flag had been changed to "N" for more than 12 months.

AMCI

I asked AMCI whether there were any metering installations with time switches switching meter registers or any AMI metering installations with time dependant register content codes where the AMI flag had been changed to "N" for more than 12 months.

Audit commentary

NGCM

NGCM confirmed there are no metering installations which have time switches that control meter registers.

NGCM has AMI meters with configurations using multiple registers that are remotely monitored to meet the requirements of Clause 8(4) of Schedule 10.6. In cases where AMI meters fail to communicate the MEP switches the AMI flag in the registry to "N" to avoid cancellation of certification. When the meter is not communicating its time is no longer monitored and it becomes subject to the requirements of this clause if there are registers switched by the time of meter. 257 ICPs with time dependent register content codes (D/N) where the AMI flag had been changed to "N" due to an inability to communicate for more than 12 months were identified. I have recorded non-compliance for these ICPs as the requirement to monitor and correct time at least once every 12 months has not been met.

I recommend that NGCM develops a process to identify meters which become subject to the timekeeping Requirements of Clause 23 of Schedule 10.7 and ensure the time is monitored and corrected as required.

Recommendation	Description	Audited party comment	Remedial action

Regarding Clause 23 of Schedule 10.7	Develop a process to identify meters which become subject to the timekeeping Requirements of Clause 23 of Schedule 10.7 and ensure the time is monitored and corrected as required.	Vector Metering has commenced reviewing how it deals with meters where the installation is non-communicating and there is a time dependent code with a view to ensuring a physical check within each 12 months.	Investigating

AMCI

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

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 7.10 With: Clause 23 of Schedule 10.7 From: 01-Aug-21 To: 10-Apr-22	257 ICPs with time dependent meter registers with time that were not monitored every 12 months. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	I have recorded the controls as moderate as NGCM has the capability to identify this, but regular monitoring has not taken place. The impact on settlement and participants could be minor; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Vector Metering has commenced reviewing how it deals with meters where the installation is non-communicating and there is a time dependent code with a view to ensuring a physical check within each 12 months, where required.	31 January 2023 proposed	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Introduce process changes identified in the review, including need to monitor installations and completing a physical visit where required.	31 March 2023 proposed	

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

As recorded in **section 6.4**, NGCM provided a list of bridged control devices. I checked 10 examples, and in all cases, the appropriate notification was provided and none of the ICPs had profiles requiring the operation of control devices.

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

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

Audit observation

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 recertified any metering installations by statistical sampling during the audit period but has engaged the VCOM ATH to complete a statistical recertification project. I checked the VCOM process in the latest ATH audit and confirmed compliance.

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 41 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 62 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 41 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 62 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 70 metering installations to confirm compliance.

AMCI

I checked the certification records for 65 metering installations to confirm compliance.

Audit commentary

NGCM

I checked 70 metering installation certification records and found that meters are being certified by ATHs.

AMCI

I checked 65 metering installation certification records and found that meters 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 19 Category 2 metering installations certified using the selected component method to confirm compliance.

AMCI

I checked the certification records for 46 Category 2 and above metering installations certified using the selected component and fully calibrated methods to confirm compliance.

Audit commentary

NGCM

Measuring transformers were certified for all 19 Category 2 metering installations certified using the selected component method.

AMCI

Measuring transformers were certified for all 46 Category 2 and above metering installations certified using the selected component and fully calibrated methods.

Audit outcome

Compliant

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

Code reference

Clause 36(1) of Schedule 10.7

Code related audit information

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

Audit observation

NGCM

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

AMCI

I checked the certification records for 65 metering installations to confirm compliance.

Audit commentary

NGCM

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

AMCI

The 65 certification records that I checked confirmed that the 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 given notice 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 clauses 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.

The Indeserve ATH approval ended on 2nd June 2022. I confirmed that no certification was conducted for NGCM by Indeserve after 2nd June 2022.

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 20,909 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: 29-Jun-22	**NGCM** 20,909 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**
Medium	I have recorded the controls as moderate in this area because certification has been expired for a number of years for these ICPs. The impact on settlement is recorded as moderate because of the increased likelihood of failure or inaccuracy for metering installations with expired certification. The audit risk rating is recorded as medium.

Actions taken to resolve the issue	Completion date	Remedial action status
Vector Metering continues to actively work to reduce the number of interim certified ICPs that it has. However, it recognises that to achieve participation the cooperation of other participants and consumers is required, especially where remedial work is needed prior to certification activity taking place.	30 April 2023 proposed	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Continue to work to minimise interim certifies ICPs	On going	

8. INSPECTION OF METERING INSTALLATIONS

8.1. Category 1 Inspections (Clause 45 of Schedule 10.7)

Code reference

Clause 45 of Schedule 10.7

Code related audit information

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

- *have been inspected by an ATH within 126 months from the date of the metering installation's most recent certification or*
- *for each 12-month period, commencing 1 January and ending 31 December, ensure an ATH has completed inspections of a sample of the category 1 metering installations selected under clause 45(2) of Schedule 10.7.*

Before a sample inspection process can be carried out, the MEP must submit a documented process for selecting the sample to the Electricity Authority, at least 2 months prior to first date on which the inspections are to be carried out, for approval (and promptly provide any other information the Authority may request).

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

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

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

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

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

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

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

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

Audit observation

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

Vector Metering 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. Vector Metering has had their process approved by the Authority and I have reviewed the inspection reports and summary report to ensure compliance.

The Code was changed on 1st February 2021 requiring the MEP to determine the number of inspections required to be calculated by producing a list of all ICP identifiers of each category 1 metering installation for which it is responsible and removing from the list of ICP identifiers any ICP identifier for a metering installation that has been certified or inspected in the 84 months prior to 31 December in the year in which the list was produced. Prior to the Code change the MEP was able to remove from the list of ICP identifiers any ICP identifier for a metering installation that has been certified or inspected in the 84 months prior to the date on which the list was produced.

Vector Metering produced its list of ICP identifiers in March 2021 and determined the number requiring inspection using the previous Code requirement of removing ICP identifiers for metering installations certified in the 84 months prior to the date the list was produced. I have recorded non-compliance as the date used to determine the number of ICPs to be removed was not 31 December in the year which the list was produced as required by the Code. The use of the incorrect date resulted in approximately 96,500 additional ICPs being removed from the list. There was no impact on the number of ICPs inspected as regardless of the date used, the total number of inspections required was the maximum of 800 as determined by Table 8 of Schedule 10.1.

The summary report to the Authority was dated 16 December 2021. The inspection report states that a sample of 801 ICPs were inspected.

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

Count of ICPs	Description of Non-compliance:
26	Site certificate illegible or missing
48	WEL site certificate on site
3	Seals missing but no sign of tampering *Verified and re-sealed.*
48	WEL LCDs found on site but not on Registry *All updated on Registry*
22	LCD details to be updated *LCDs recorded on site have been updated.*
10	LCDs found bridged on site
28	LCD not recorded on site. *Updated on JDE and Registry*
9	Tariff to be updated

Count of ICPs	Description of Non-compliance:
1	LCD bridged due to local network requirements
11	Meters that have remote communication capability but are not communicating. All have AMI=N on our records and in the Electricity Registry

The 2022 inspection regime is not yet complete and will be examined during the next audit.

AMCI

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

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 8.1 With: Clause 45 of Schedule 10.7 From: 31-Mar-21 To: 31-Dec-21	**NGCM** and **AMCI** Incorrect date used to determine sample size for Category 1 sample inspections. Potential impact: Actual impact: Low Audit history: None Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	I have recorded the controls as strong as Vector Metering has updated its processes to ensure that the correct sample size will be selected in future inspections. There is no impact on other participants and on settlement as the correct number of inspections was completed. The audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Vector Metering is now working to the requirements of the Code amendment made on 1 February 2021.	31 October 2022 proposed	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Ensure requirements of the Code are followed.	16 December 2022 proposed	

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:

- *126 months for Category 2*
- *63 months for Category 3*
- *33 months for Category 4*
- *19 months for Category 5.*

Audit observation

NGCM

I checked the registry information to confirm which ICPs were due for inspection and checked the NGCM records to determine if inspections were conducted.

AMCI

I checked the registry information to confirm which ICPs were due for inspection and checked the AMCI records to determine if inspections were conducted.

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. There were 539 metering installations due for inspection during the audit period and inspections were not completed. Non-compliance is also recorded in **section 6.4** as certification was not cancelled within 10 business days for 534 of the 539 ICPs.

AMCI

My analysis determined that there were 292 ICPs at Categories 2, 3, 4 and 5 that were due for inspection during the audit period. There were 32 inspections not completed within the required timeframes.

Non-compliance is also recorded in **section 6.4** as certification had not been cancelled within 10 business days for the 32 ICPs.

Audit outcome

Non-compliant

Non-compliance	Description

Audit Ref: 8.2 With: Clause 46(1) of Schedule 10.7 From: 01-Nov-21 To: 29-Jun-22	**NGCM** 539 metering installations with inspection not conducted. **AMCI** 32 Metering installations with inspection not conducted. Potential impact: Medium Actual impact: Medium Audit history: Multiple times Controls: Moderate Breach risk rating: 4
Audit risk rating	**Rationale for audit risk rating**
Medium	I have recorded the controls as moderate in this area for NGCM because reporting is in place but there is room for improvement. AMCI's inspection controls are rated as moderate because there is a regime in place and only a small number were outside the window. The issues found can potentially have a moderate impact on other participants and on settlement. The audit risk rating is medium.

Actions taken to resolve the issue	Completion date	Remedial action status
Vector Metering recognise that there are a number of issues that contribute to this issue, including access and filed resources. As a consequence of resource constraints Vector Metering made the decision to stop completing Inspection on the few remaining Cat 2 ICPs and instead focus resource on recertification.	31 October 2022 proposed	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Vector Metering will continue to work to complete Inspections within the required timeframes and work with participants and its field services providers to minimise the number of overdue Inspections	Ongoing	

8.3. Inspection Reports (Clause 44(5) of Schedule 10.7)

Code reference

Clause 44(5) of Schedule 10.7

Code related audit information

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

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

NGCM has completed inspections for Category 1 metering installations and the process includes a registry comparison and the registry is updated when required.

AMCI

AMCI conducts the checks required by this clause and compares data to that shown in Service Max. The registry is updated when discrepancies are identified.

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

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

Audit observation

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 were three examples 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 25 examples where NGCM had become aware of faulty metering installations, where meters or had been bridged in order to reconnect.

AMCI

I checked four 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 25 cases where meters had been bridged during the audit period. In all cases, the appropriate participants were notified at the time of bridging, compliance was achieved with the required timeframes.

AMCI

AMCI provided details of four faulty metering installations.

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

ICP	Metering installation category	Date fault found	Date MEP advised	Date notification provided to participants	Business days to notify participants
0005876060RNF57	4	8/08/2022	10/08/2022	10/08/2022	<1
0800025067LC887	4	4/05/2022	4/05/2022	6/05/2022	2
0000103107TR67C	3	3/05/2022	10/05/2022	11/05/2022	1
0000880301WE9B5	3	13/01/2022	14/01/2022	18/01/2022	2

I have recorded compliance in this section as notification to the affected participants was provided in within five business days.

I have recorded non-compliance in **section 6.4** as AMCI did not cancel the certification of ICP 0800025067LC887 within 10 business days.

Audit outcome

Compliant

9.2. Testing of Faulty Metering Installations (Clause 10.44)

Code reference

Clause 10.44

Code related audit information

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

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

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

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

Audit observation

NGCM

I checked 25 examples where NGCM had become aware of faulty metering installations, where meters or had been bridged in order to reconnect.

AMCI

I checked four 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 25 examples where meters had been bridged during the audit period. The forms completed in the field by the ATHs contain sufficient information to report to relevant parties and meet the requirement for the provision of a statement of situation.

AMCI

AMCI has a process in place to achieve compliance with this requirement. Four examples were checked, and the ATH performed testing and provided statements of situation in all four examples.

Audit outcome

Compliant

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

Code reference

Clause 10.46(2)

Code related audit information

Within 3 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 25 examples where NGCM had become aware of faulty metering installations, where meters or had been bridged in order to reconnect.

AMCI

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

Audit commentary

NGCM

The forms completed in the field by the ATHs contain sufficient information to report to relevant parties and meet the requirement for the provision of a statement of situation in all 25 examples.

AMCI

AMCI provided details of four faulty metering installations.

Statements of situation were provided by the ATH in all four cases, and these were provided to affected participants. The timeframes 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	Date statement of situation provided to Authority	Business days to notify participants and Authority
0005876060RNF57	4	8/08/2022	10/08/2022	10/08/2022	10/08/2022	<1
0800025067LC887	4	4/05/2022	4/05/2022	6/05/2022	6/05/2022	2
0000103107TR67C	3	3/05/2022	10/05/2022	11/05/2022	11/05/2022	1
0000880301WE9B5	3	13/01/2022	14/01/2022	18/01/2022	18/01/2022	2

I have recorded compliance in this section as the statements of situation were provided to the Authority and affected participants within three business days.

Audit outcome

Compliant

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 25 examples where NGCM had become aware of a faulty metering installation.

AMCI

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

Audit commentary

NGCM

The required timeframe for an MEP to complete remedial action is within 10 business days of the date it is required to provide a report to participants under 10.43(4)(c). Clause 10.43(5) specifies the time period for providing the report as 20 business days after becoming aware of the event or circumstance for a Category 1 metering installation. Therefore, to achieve compliance with these clauses the remedial work must be completed within 30 business days of NGCM receiving notification of bridging of meters. I have recorded non-compliance as nine of 25 examples of bridged meters were not unbridged within 30 days.

I have also recorded non-compliance in **section 9.5** for 22 of the 25 examples as clause 10.33C requires the MEP to reinstate the meter so that all electricity flowing into the ICP flows through a certified metering installation within five business days of receiving the notice.

AMCI

AMCI provided details of four faulty metering installations.

Details of the faults, remedial actions and timeframes involved are included in the following table,

ICP	Metering installation category	Date fault found	Date remedial action completed	Details of fault and remedial action	Business days to complete remedial action
0005876060RNF57	4	8/08/2022	9/09/2022	Heat damaged CTs found during inspection. Shutdown arranged to replace CTs. Metering installation recertified.	24
0800025067LC887	4	4/05/2022	4/06/2022	HV flashover caused damage to VT. Supply disconnected and not able to be re-	22

				connected until the bus chamber was fully inspected and faulty equipment repaired or replaced. Metering installation recertified after repairs completed.	
0000103107TR67C	3	3/05/2022	3/05/2022	Whilst on site to conduct recertification the ATH found a wiring fault had caused a blown meter fuse. Wiring repaired and metering installation recertified while on-site.	<1
0000880301WE9B5	3	13/01/2022	14/01/2022	ATH attended site to check phase failure on metering. Metering unit found to have two failed HV fuses. Shutdown arranged to replace HV fuses. Metering installation recertified.	88

I have recorded compliance despite the remedial action not being completed within 10 business days for three of the cases. AMCI has used its best endeavours to complete the work within 10 business days but in these cases the nature of the work required meant that this not possible.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 9.4 With: Clause 46A From: 01-Nov-21 To: 29-Jun-22	**NGCM** Remedial action not completed in required timeframe after notification of a faulty metering installation for nine ICPs. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	I have recorded the controls as moderate as there is room for improvement. The impact on settlement and participants is minor based on the number of ICPs affected; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Vector Metering will review its processes to determine what improvements can be made to meet the Code requirements. It is noted that due to the nature of the activities involved it is not always possible to achieve the defined timeline requirements as we are reliant on others.	28 February 2023 proposed	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Implement process improvements.	On going	

9.5. Meter bridging (Clause 10.33C)

Code reference

Clause 10.33C

Code related audit information

An MEP may only electrically connect an ICP in a way that bypasses a meter that is in place ("bridging") if the MEP has been authorised by the responsible trader.

The MEP can then only proceed with bridging the meter if, despite best endeavours:

- *the MEP is unable to remotely electrically connect the ICP*
- *the MEP cannot repair a fault with the meter due to safety concerns*
- *the consumer will likely be without electricity for a period which would cause significant disadvantage to the consumer*

If the MEP bridges a meter, the MEP must notify the responsible trader within one business day and include the date of bridging in its advice.

Audit observation

NGCM

I checked 25 examples of bridged meters.

AMCI

I checked if there were any examples of bridged meters.

Audit commentary

NGCM

I checked 25 examples where meters had been bridged by the trader in order to reconnect. NGCM was notified by the traders on the day of bridging in all 25 cases.

Clause 10.33C requires the MEP to reinstate the meter so that all electricity flowing into the ICP flows through a certified metering installation within five business days of receiving the notice.

I have recorded non-compliance as for 22 of the 25 ICPs NGCM did not reinstate the meter so that all electricity flowing into the ICPs flows through a certified metering installation within five business days of receiving the notice.

AMCI

AMCI advised that there were no meters bridged in the audit period.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 9.5 With: Clause 10.33C From: 01-Nov-21 To: 29-Jun-22	**NGCM** Meters not reinstated after bridging within five business days of bridging for 22 Category 1 ICPs. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	I have recorded the controls as moderate as there is room for improvement. The impact on settlement and participants is minor based on the number of ICPs affected; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Vector Metering will review its processes to determine what improvements can be made to meet the Code requirements. It is noted that due to the nature of the activities involved it is not always possible to achieve the defined timeline requirements as we are reliant on others.	28 February 2023 proposed	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Implement identified process changes	30 May 2023 proposed	

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(2), 8(3), 8(5) and 8(6) of Schedule 10.6)

Code reference

Clause 8(2), 8(3), 8(5) and 8(6) 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 ±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 any 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 reports 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 demonstrated reporting of ICPs where interrogation did not occur within the maximum interrogation cycle of 90 days. Filtering of the report confirmed that all ICPs had the "AMI Comm" flag set to "N" in the registry, which means compliance is achieved. The registry field update is automatic and is changed back to "Y" once one full day of data is received. The timeliness of investigation of AMI interrogation failures is discussed in **section 10.12**.

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

Compliant

10.6. Security of Metering Data (Clause 10.15(2))

Code reference

Clause 10.15(2)

Code related audit information

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

Audit observation

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

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 31 August 2022 showed 1,164 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 the reports sent to 20 participants in relation to the 31 August 2022 reporting.

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.

Daylight saving adjustment is conducted as follows:

The meters collect all 'Half Hourly Consumption Data' in NZST. The MultiDrive and Storm head-ends record and store the 'Half Hourly Consumption Data' as NZST. Files are then produced in Coordinated Universal Time (UTC) from the head-ends to be used downstream.

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-Nov-21 To: 31-Aug-22	**NGCM** 1,164 examples of clock errors outside the allowable thresholds in the most recent reports. Potential impact: Medium Actual impact: Low Audit history: Multiple times Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	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
Vector Metering will review its assets and systems to determine what opportunity there is for improvement.	31 March 2023 proposed	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Implement any identified process or asset improvements.	30 June 2023 proposed	

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:

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

(ii) 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 sum-check 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 scalar interval metering data is compared to the scalar midnight snapshot. The NGCM process identifies failures which are unable to be resolved within three business days. A report is produced daily which identifies the unresolved failures, the report is sent to the MEP team to update the registry with cancellation of certification. Non-compliance is recorded in **section 6.4** for four ICPs that had failed sum-check and were not resolved within three business days where the registry was not updated with the cancellation within 10 business days.

Compliance is achieved with this clause because sum-check is conducted.

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

NGCM

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

AMCI

AMCI does not conduct electronic data collection as an MEP.

Audit commentary

NGCM

NGCM is not applying compensation factors to raw meter data.

AMCI

AMCI does not conduct electronic data collection as an MEP.

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

NGCM

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

AMCI

AMCI does not conduct electronic data collection as an MEP.

Audit commentary

NGCM

Reporting is in place for ICPs not interrogated. This reporting can be configured for any given time period. NGCM has automated the registry update of the "AMI Comm" flag to "N" at 20 days to ensure compliance with the requirement to update the registry within 22 days (25% of the 90-day maximum interrogation cycle). Reporting confirmed there were no examples of unread ICPs where the "AMI Comm" flag was "Y".

AMCI

AMCI does not conduct electronic data collection as an MEP.

Audit outcome

Compliant

CONCLUSION

Vector Metering 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.

This audit identified 19 non-compliances and three recommendations are made. I have repeated a recommendation from the last audit regarding uncertainty calculations used by the Wells Approved Test House, and I recommend that Vector Metering clarify the maximum interrogation cycles for AMCI meters and ensure that this is recorded accurately in certification reports.

An additional non-compliance was found, and a recommendation made regarding time keeping requirements for non-communicating AMI meters with time dependent meter registers that are not monitored and corrected every 12 months.

Non-compliance continues to exist in relation to missing and inaccurate fields in certification records from ATHs. There has been improvement in this area with the ATHs updating their processes to meet the requirements of Code changes introduced in February 2021.

The other main issues from this audit are as follows:

- certification is cancelled due to 534 NGCM and 32 AMCI inspections not being conducted,
- certification expired or cancelled for 32,914 NGCM metering installations,
- certification expired or cancelled for 360 AMCI metering installations,
- three installations have cancelled certification because low burden was not addressed,
- inaccurate registry information,
- late updating of registry information,
- some certification tests not completed by ATHs, and
- certification reports containing inaccurate and incomplete information.

The date of the next audit is determined by the Electricity Authority and is dependent on the level of compliance during this audit. The future risk rating provides some guidance on this matter and recommends an audit frequency of three months. After considering AMS's responses and the remedial actions proposed I recommend an audit frequency of at least six months to allow time for improvements to be made.

PARTICIPANT RESPONSE

While Vector Metering still has compliance issues that it continues to work on it is pleasing to note that progress has been made in a number of areas.

Vector Metering has commenced a review of the 3 recommendations made (sections 4.3, 5.1 and 7.10) with a view to implementing changes that will address these recommendations. This includes process changes and monitoring to ensure the changes are implemented, including by our ATH (Wells).

Our objective is to continue to develop processes and system, including other participants, that result in our compliance reduce.

Vector Metering note that it must be recognised that there will be a certain small percentage on non-compliance where we are reliant on other participants, which we have no or limited ability to control or influence. Consequently, a small percentage of non-compliance will continue to exist, but Vector Metering will continue to work to minimise this number.