ELECTRICITY INDUSTRY PARTICIPATION CODE
METERING EQUIPMENT PROVIDER AUDIT REPORT

For

VECTOR ADVANCED METERING SERVICES

Prepared by: Steve Woods – Veritek Limited

Date audit commenced: 11 October 2017

Date audit report completed: 23 November 2017

Audit report due date: 23-Nov-17

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EXECUTIVE SUMMARY

AMS is a Metering Equipment Provider (MEP) and is required to undergo an audit by 23/11/17, in accordance with clause 1(1)(b) of schedule 10.5.

AMS has four MEP codes and two distinct operations. AMCI is the code for the Commercial and Industrial (C&I) operation and NGCM is the code for the mass market operation. There is one ICP (1001252164UNB02) in the registry with NGCS as the MEP, but this is in the process of switching to NGCM. NGCM has accepted but metering details have not yet been loaded. ICP 0000545280NRE79 is in the registry with STRM as the MEP, but it is an unmetered load ICP and does not have metering installed.

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

- Many ATH practices have improved, which clears several non-compliances.
- Registry data discrepancies have reduced.
- The total quantity of installations with expired certification has reduced.

16 non-compliances were identified. Those with the highest breach risk rating are as follows:

- There are 69,390 ICPs with incorrect registry data.
- Over 150 installations have cancelled certification and the registry is not updated.
- Certification is expired for 49,758 ICPs. 427 were previously fully certified.
- Some inspections were conducted outside the allowable window.

With regard to expired certification, I checked the correspondence from retailers to confirm whether they were compliant with clause 10.7 which requires them to arrange access. NGCM specifically requested assistance with access arrangements from retailers in March 2017 and they are still waiting for this assistance six months later in most cases. I have concluded that retailers have not used best endeavours to give access in accordance with Clause 10.7(4). Therefore it appears NGCM only has influence over the outcome for approx. 12,500 installations.

The date of the next audit is determined by the Electricity Authority and is dependent on the level of compliance during this audit. The table below provides some guidance on this matter and although it recommends an audit frequency of three months, my recommendation is that the Authority considers a frequency of nine months. My reasoning for this is two-fold. Firstly, AMS has made improvements during the audit period and they have plans in place to resolve a number of the non-compliances. Secondly, there are instances where one "event" has resulted in multiple non-compliances. Certification of metering installations is recorded in Sections 7.1 and 7.19. Registry updates are recorded in Sections 2.5, 6.2 and 6.3. Faulty metering installations are recorded in Sections 9.1, 9.2 and 9.3.

AUDIT SUMMARY

NON-COMPLIANCES

Subject	Section	Clause	Non Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Provision of accurate information	2.5	11.2 and 10.6	Registry not always updated as soon as practicable by NGCM	Moderate	Low	2	Identified
Payment of costs to losing MEP	3.1	10.22	Payment not made to the losing MEP within 20 business days	None	Low	3	Disputed
Registry updates	3.2	2 of Schedule 11.4	Some registry updates later than 15 business days.	Strong	Low	1	Identified
Metering Installation Design & Accuracy	4.3	4(1) of Schedule 10.7	Error and uncertainty calculations not conducted correctly for most Category 2 metering installations. Design report not recorded for one installation	Moderate	Low	2	Investigating
Changes to registry records	4.10	3 of Schedule 11.4	Some records updated on the registry later than 10 business days	Moderate	Low	2	Identified
Meter reading for decommissioned ICPs	4.12	11.18B(3)	Trader not advised to carry out final meter read for decommissioned ICPs.	Strong	Low	1	Investigating
Accurate and complete records	5.1	4(1) of Schedule 10.6	Metering records not populated on registry for one ICP	Strong	Low	1	Cleared
Provision of Registry Information	6.2	Clause 7 (1), (2) and (3) of Schedule 11.4	Some registry records incomplete or incorrect	Moderate	Medium	4	Identified
Correction of Errors in Registry	6.3	Clause 6 of Schedule 11.4	Discrepancies not resolved within 5 business days	Moderate	Medium	4	Investigating
Cancellation of certification	6.4	6 of Schedule 11.4	Certification cancelled and registry not updated for: 2 Category 3 installations with inspections completed	Moderate	Medium	4	Identified

			early 2 Category 4 installations with inspections completed late 3 Category 5 installations with inspections completed early 4 three phase installations with only one phase metered 68 Category 2 installations with overdue inspections 94 installations where meters were bridged				
Certification of metering installations	7.1	10.38 (a), clause 1 and clause 15 of Schedule 10.7	Certification expired for 49,750 NGCM ICPs Certification expired for 8 AMCI ICPs	Moderate	Medium	4	Investigating
Interim certification	7.19	18 of Schedule 10.7	49,331 ICPs with expired interim certification	Moderate	Medium	4	Investigating
Inspections	8.2	46(1) of Schedule 10.7	Inspections not conducted within the required window for: 19 NGCM installations where inspections were not conducted 2 Category 3 installations with inspections completed early 2 Category 4 installations with inspections completed late 3 Category 5 installations with inspections completed early	Moderate	Medium	4	Identified
Investigation of Faulty Metering Installations	9.1	10.43(4) and (5)	Faulty meters not reported to traders within 20 business	Moderate	Low	2	Identified

			days.				
Testing of faulty metering installations	9.2	10.44	Statement of situation not arranged	Moderate	Low	2	Identified
Statement of situation	9.3	10.46(2)	Statements of situation not provided to the market administrator or participants within 3 business days	Moderate	Low	2	Identified
Max interrogation cycle	10.5	8(2) of schedule 10.6	1,930 metering installations not read within the maximum interrogation cycle.	Moderate	Low	2	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	Recommendation	Description
		Nil	

ISSUES

Subject	Section	Recommendation	Description
		Nil	

1. ADMINISTRATIVE

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

Code reference

Section 11 of Electricity Industry Act 2010.

Code related audit information

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

Audit observation

I checked the Electricity Authority website and I confirm there are two exemptions in place. (224 and 259).

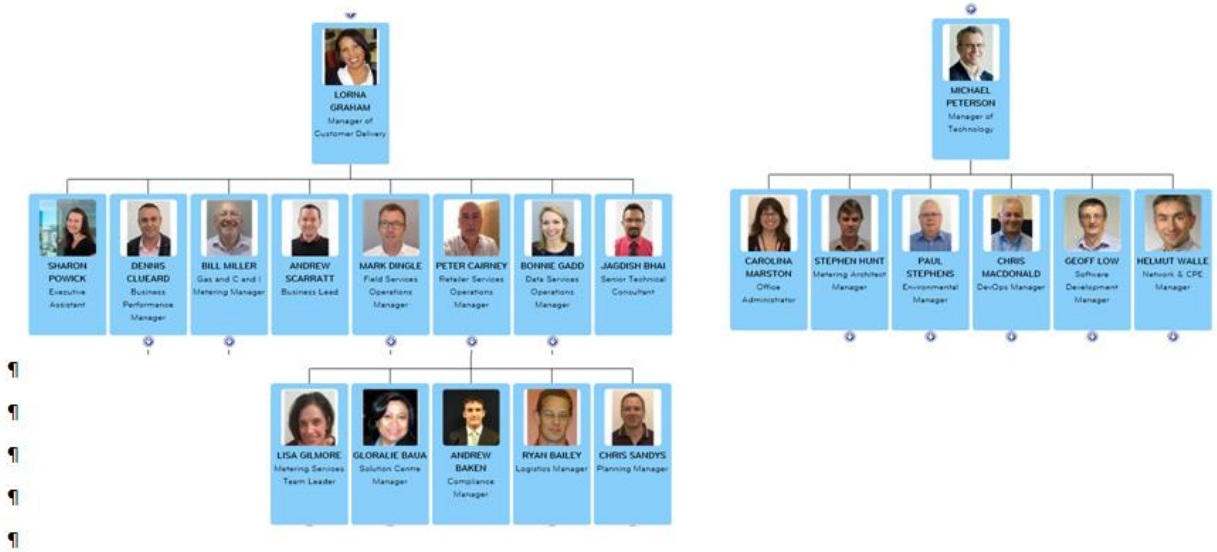
Audit commentary

Exemption 224 relates to clause 10.24 (c) of Part 10, allowing the use of subtraction to determine submission information for ICP 0000840407WE388. This exemption expires on 31 December 2024, or when Contact is no longer the trader, or when Contact no longer has an agreement to receive half hour metered data with the retailer of any ICP required in the subtraction calculation at Solid Energy's Rotowaro mine, or the date on which any embedded generation is installed on any part of Solid Energy's Rotowaro mine between Contact's outgoing and incoming metering points. Embedded generation is not installed; therefore this exemption is still valid

Exemption 259 allows the metering installation at ICP 0800539060LCBFF to be uncertified. The site is Auckland hospital and the supply configuration needs to be changed before a shutdown can be arranged. The expiry date is 31/07/18.

1.2. Structure of Organisation

NGCM and AMCI structure diagrams,



1.3. Persons involved in this audit

Auditor: Steve Woods

Supporting Auditor: Brett Piskulic

Veritek Limited

Electricity Authority Approved Auditor

AMS personnel assisting in this audit were.

Name	Title
Andrew Baken	Compliance Manager
Thomas Steere	Senior Data Analyst
Michael Trenwith	Data Analyst
Bill Miller	Gas and C&I Operations Manager
Aidan Sweetman	C & I Metering Operations Manager
Shreena Patel	AMS C&I Operations Coordinator
Shaun Schwartfeger	FSP Technical Support 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 contractors fulfillment of the participants Code obligations*
- *cannot assert that it is not responsible or liable for the obligation due to the action of a contractor*
- *must ensure that the contractor has at least the specified level of skill, expertise, experience, or qualification that the participant would be required to have if it were performing the obligation itself.*

Audit observation

NGCM

NGCM engages ATHs to conduct certification activities. These parties are not considered agents for this activity. ATHs are also engaged to store records in accordance with clauses 4(1)(v)&(viii) of schedule 10.6. I checked that records were available from the relevant ATHs.

The ATHs engaged are as follows:

- Wells
- Delta
- Vircom-EMS
- Wel Networks
- Trustpower
- Indeserve
- ELectrix

AMCI

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

Audit commentary

NGCM

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

AMCI

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

1.5. Hardware and Software

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

1.6. Breaches or Breach Allegations

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

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

1.7. ICP Data

NGCM

Metering Category	Number of ICPs
1	1,019,761
2	10,145
3	0
4	0
5	0
9	5

AMCI

Metering Category	Number of ICPs
1	1709
2	5676
3	3543
4	1377
5	174
9	13

There is one ICP (1001252164UNB02) in the registry with NGCS as the MEP, but this is in the process of switching to NGCM. NGCM has accepted but metering details have not yet been loaded.

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

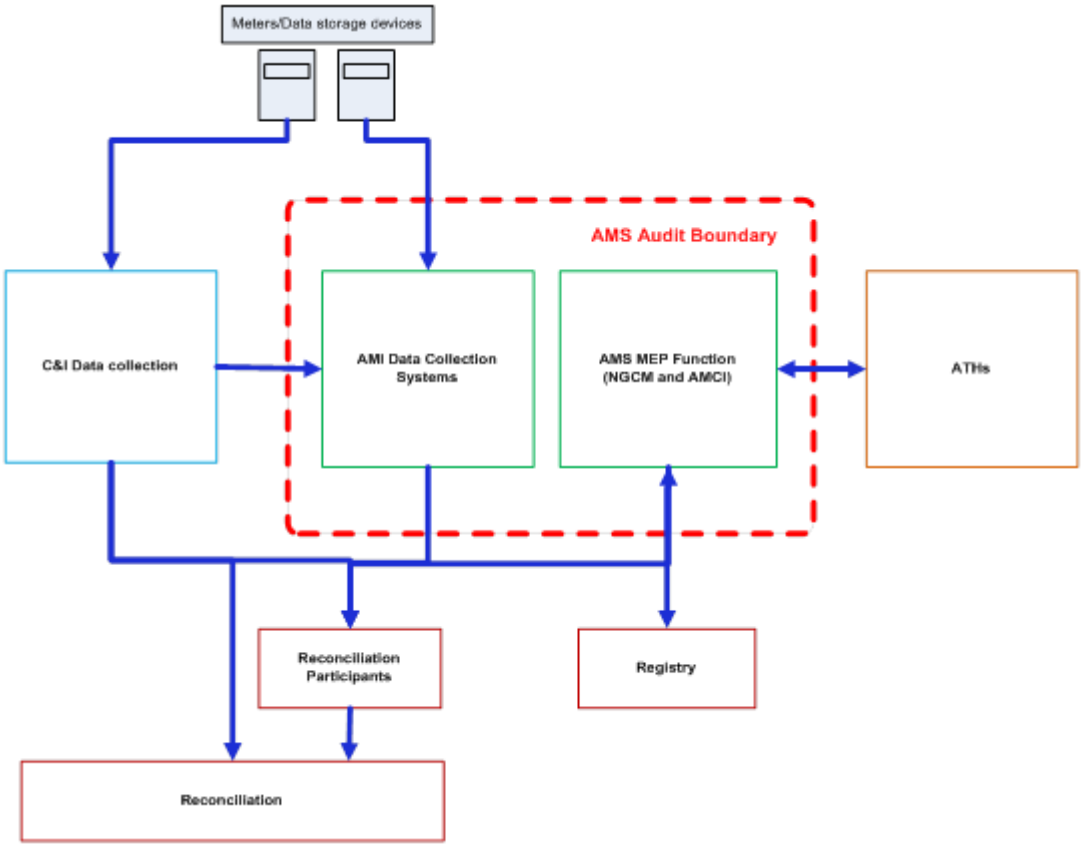
1.8. Authorisation Received

A letter of authorization was not required or requested.

1.9. Scope of Audit

This audit was conducted in accordance with the Guideline for Metering Equipment Provider Audits V2.1, which was published by the Electricity Authority.

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


Meters/Data storage devices
AMS Audit Boundary
C&I Data collection
AMI Data Collection Systems
AMS MEP Function (NGCM and AMCI)
ATHs
Reconciliation Participants
Registry
Reconciliation

1.10. Summary of previous audit

The previous audit was conducted in February 2017 by Steve Woods of Veritek Limited. The table below shows that some of the issues have been cleared.

Table of Non Compliance

Subject	Section	Clause	Non compliance	Status
Payment of costs	3.1	10.22(2) of part 10	Payment not made to the losing MEP within 20 business days	Still existing
Response to nomination	6.1	1(1) of schedule 11.4	1 MN file sent late	Cleared
Registry notification timeframe	3.2 NGCM	2 of schedule 11.4	Registry not updated within 15 days for 5% of updates where NGCM has become the MEP.	Still existing
	3.2 AMCI		Registry not updated within 15 days for 22 of 71 ICPs.	Still existing
Error calculations	4.3	4(1)(a) of schedule 10.7	Error calculations do not consider estimated load and site specific conditions. Therefore NGCM is not ensuring the sum of the measured error and uncertainty does not exceed the maximum permitted error.	Still existing
Cancellation of certification	6.4 NGCM	20(2) of schedule 10.7	Registry not notified that certification is cancelled for: - At least 87 metering installations where the meters were bypassed - 19 ICPs where inspections are overdue - 4 three phase installations with only one phase metered - 2 Category 2 installations with insufficient load certification where load was not monitored	Still existing
	6.4 AMCI		Inspection not conducted for ICP 0000513608NR392, registry not updated with cancelled certification	Cleared
Final interrogation	4.12	11.18B(3) of part 11	Trader not advised to carry out final meter read for decommissioned ICPs.	Still existing

Subject	Section	Clause	Non compliance	Status
Metering records	5.1	4(1)(b)(i), (ii), (v) & vii of schedule 10.6	Complete certification records not provided for 2 of 47 metering installations. 600 Northpower metering installation certification reports do not contain meter certification records.	Still existing
Accuracy of registry records	6.2 NGCM	7(1) of schedule 11.4 & 11.2(1)(a) of part 11 & 10.6(1)(a) of part 10	Some registry records incomplete or incorrect.	Still existing
	6.2 AMCI			Still existing
Changes to registry records	4.10 NGCM	3 of schedule 11.4	Some records updated later than 10 business days.	Still existing
	4.10 AMCI			
Correction of errors	6.3 NGCM	6 of schedule 11.4	Corrections not made within five business days.	Still existing
	6.3 AMCI			
Complete and accurate information	2.5 NGCM	10.6(2) of part 10 & 11.2(2) of part 11	Registry not always updated as soon as practicable.	Still existing
	2.5 AMCI			
Certification of metering installations	7.1 NGCM	10.38(a) of part 10 & 15(1) of schedule 10.	Some metering installations with expired certification. 1 ICP certified later than 5 business days after energisation	Still existing
	7.1 AMCI		23 metering installations with expired certification. 1 metering installations not certified at the time of energisation.	Still existing
Certification tests	9.2	10.38(b) of part 10	Accumulation of pulses not measured for raw meter data output test by VEMS for up to 22,712 metering installations during the audit period.	Cleared

Subject	Section	Clause	Non compliance	Status
Insufficient load	7.8 NGCM	14 of schedule 10.7	2 ICP certified with insufficient load without monitoring in place.	Cleared
	7.8 AMCI		Monitoring of insufficient load ICPs not conducted because certification delayed for one ICP	Cleared
Meter certification	7.15	26(1) of schedule 10.7	NGCM is not ensuring meters are certified.	Cleared
Data storage device certification	7.17	36(1) of schedule 10.7	NGCM is not ensuring data storage devices are certified.	Cleared
Inspections	8.2 NGCM	46 of schedule 10.7	19 Category 2 inspections not conducted.	Still existing
	8.2 AMCI		Inspection not conducted for ICP 0000513608NR392	Still existing for different ICPs
Faulty metering installations	9.1	10.43(4) of part 10	Participants not notified of installations deemed not fit for purpose.	Still existing
Interrogation cycle	10.5	8(2)(a)&(b) of schedule 10.6	Not all installations interrogated within the maximum interrogation cycle	Still existing

Table of Recommendations

Subject	Section	Clause	Recommendation for improvement	Status
CT burden	7.5	31(7) of schedule 10.7	Require ATHs to measure on-site burden and take steps to ensure accuracy if required, including the installation of burden resistors if necessary.	This is now raised as non-compliance in ATH reports
Sumcheck validation	10.9	8(8)&(9) of schedule 10.6	Confirm that 253 ICPs without a last read date have had at least one sumcheck performed	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 all relevant ATHs.

AMCI

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

Audit commentary

NGCM

NGCM has an AMI system and for many installations the services access interface will be "remote". For non-AMI installations (including C&I installations) the services access interface is "local". I checked 35 certification records and found the services access interface was recorded by all ATHs.

AMCI

AMCI conducts HHR data collection as an agent to reconciliation participants, not as an MEP. Therefore the services access interface is "local" in all cases. The design reports include the services access interface location and AMCI considers the design report forms part of the certification record once certification is complete. This approach appears to achieve compliance with the requirements of the Code because the location of the services access interface is documented. I checked 20 certification records and found the services access interface was recorded by all ATHs.

Audit outcome

Compliant

2.2. Dispute Resolution (Clause 10.50(1) to (3))

Code reference

Clause 10.50(1) to (3)

Code related audit information

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

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

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

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

AMCI

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

Audit outcome

Compliant

2.3. MEP Identifier (Clause 7(1) of Schedule 10.6)

Code reference

Clause 7(1) of Schedule 10.6

Code related audit information

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

NGCM uses the NGCM identifiers for all MEP functions.

AMCI

AMCI uses the AMCI code for all MEP functions. There is one STRM ICP but it is a data logger used to record streetlight on/off times and the ICP needs to be changed to unmetered.

Audit outcome

Compliant

2.4. Communication Equipment Compatibility (Clause 40 Schedule 10.7)

Code reference

Clause 40 Schedule 10.7

Code related audit information

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

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

AMCI

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

Audit outcome

Compliant

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

Code reference

Clause 11.2 and Clause 10.6

Code related audit information

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

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

As mentioned in Section 6 there are some registry records which are not complete and accurate. NGCM is attempting to correct information as soon as practicable, bearing in mind that there is often liaison with other parties and/or fieldwork involved. There are some metering installations with cancelled certification and the registry has not been updated as soon as practicable.

AMCI

The content of this audit report indicates that AMCI has taken all practicable steps to ensure that information is complete and accurate.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.5 With: Clause 11.2 and Clause 10.6 From: 01-Feb-17 To: 11-Oct-17	Registry not always updated as soon as practicable by NGCM 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	Controls are recorded as moderate because there is room to improve the timeliness of registry updates. 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
VAMS have introduced a new work order tool to achieve this. Most of the cancelled certifications are fault jobs (clause 10.43), which provides us some leeway when trying to comply with clause 10.6(2). We believe we generally meet this clause but as mentioned above, have taken further steps to improve the timeliness of registry updates.	Oct 2017	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
A new work order system has been recently introduced to improve our timeliness to updating the registry as soon as practicable. This includes a new report called 'Bridged meter report' which is run weekly.	Nov 2017	

3. PROCESS FOR A CHANGE OF MEP

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

Code reference

Clause 10.22

Code related audit information

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

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

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

Audit observation

NGCM

I checked if NGCM had sent or received any invoices.

AMCI

I checked if AMCI had sent or received any invoices.

Audit commentary

NGCM

NGCM has not sent or received any invoices yet.

AMCI

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

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

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

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

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

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 10.22 From: 01-Feb-17 To: 11-Oct-17	Payment not made to the losing MEP within 20 business days Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: None Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	AMCI dispute this non-compliance. I have relied on the Authority's advice that payment is required, therefore I have recorded that controls are not in place to ensure payment is made within 20 business days. The impact on one other participant is minor; therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
The last email received from the losing MEP regarding this was the 17 October 2016. They do not appear to be pursuing this any further and VAMS believe there is no breach because the losing MEP are still claiming lease fees on the CT's, therefore, they cannot claim certification costs. We believe either the code needs to be clearer on the intent of this clause, or better education of participants is required to avoid misinterpretation.	Nov 2017	Disputed
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We have only received one such request in 4 years, but if Vector receive any further claims, we will review each on a case by case basis, and if they meet the requirements of the code, we will pay the fees. Therefore, I believe our controls are strong. In this particular case, we do not believe the fees were justified as the losing MEP is still charging lease fees on their CT's. We discussed this with the Authority and they agreed with our interpretation of the code, however we believe the code could be rewritten to clarify the intent better.	Ongoing	

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

Code reference

Clause 2 of Schedule 11.4

Code related audit information

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

Audit observation

NGCM

I checked the event detail for the period 01/12/16 to 31/08/17 for all records where NGCM became the MEP to evaluate the timeliness of updates.

AMCI

I checked the event detail for the period 01/12/16 to 31/08/17 for all records where AMCI became the MEP to evaluate the timeliness of updates.

Audit commentary

NGCM

I examined an event detail report for a sample of 1,285 ICPs for the audit period in relation to this clause and the findings are shown in the table below. The registry was updated within 15 business days for 84% of the sample. 207 updates were later than 15 business days and late nomination by the trader was the cause for 176 of the 207 ICPs.

Year	ICPs Switched	Notified to registry within 15 days	Percentage compliant	Average days
2015	16,126	14,671	91%	9.2
2016	37,411	31,810	85%	18.9
Feb 2017	3,307	3,155	95%	9.7
Oct 2017	**1,285**	**1,078**	**84%**	**8.6**

AMCI

I examined an event detail report for 41 switches in relation to this clause and the findings are shown in the table below. Late nomination by the trader was the cause of the late update for 8 of 41 ICPs checked in detail. Compliance is at 63% and could have been 83% without the late nominations.

Year	ICPs	Notified to registry within 15 days	Percentage compliance
2015	90	41	46%
2016	125	52	42%
Feb 2017	71	49	69%
Oct 2017	**41**	**26**	**63%**

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 2 of Schedule 11.4 From: 01-Dec-16 To: 31-Aug-17	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 AMS is often prevented from updating the registry due to late field notification. The impact on other participants is minor; therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
NGCM As stated by the auditor, we do have strong controls in place to ensure we update the Registry as soon as possible. We have introduced a new work order system since the last audit, which is reducing the time to return FSP information. Our average days to update the registry is continuing to reduce (now 8.6 days), however we are still hamstrung by late nominations which continue to keep our percentage compliant down.	Ongoing	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
NGCM Continuing to send our weekly report to traders who have not nominated. All contracted ATHs and most retailers are in the new system, this will improve information returns and automatically reject incorrect information, speeding up the process and removing human errors. We are currently working to on-board the remaining retailer and expect to have this in place early next year.	March 2018	

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

Not applicable

3.4. Termination of MEP Responsibility (Clause 10.23)

Code reference

Clause 10.23

Code related audit information

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

The MEP is responsible if it:

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

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

An 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 still continue with their responsibilities, mainly in relation to the storage or records, which are kept indefinitely. As mentioned in Section 2.1, some of these responsibilities will be met by ATHs on behalf of NGCM.

AMCI

AMCI has ceased to be responsible for some metering installations and they still continue with their responsibilities, mainly in relation to the storage or 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, 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 VEMS and DELTA ATHs for certification activities. The ATHs have provided design reports for this work which I have checked.

ACMI

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

Audit commentary

NGCM

NGCM has prepared design reports and has provided these to all ATHs. The reports include all of the requirements noted above and they were prepared by a person with the appropriate level of skills, expertise, experience and qualifications.

ACMI

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

Audit outcome

Compliant

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

Code reference

Clause 9 of Schedule 10.6

Code related audit information

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

Audit observation

NGCM

I confirmed that NGCM uses the ATHs recorded in Section 1.4.

ACMI

I confirmed that AMCI uses VEMS, ACCUCAL and ELECTRIX ATHs.

Audit commentary

NGCM

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

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 18 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 20 metering installations.

Audit commentary

NGCM

NGCM does not fully comply with the requirements in relation to error determination. Some ATHs are not calculating uncertainty for metering installations certified using the comparative method, and the error is not calculated for each metering installation taking into account estimated load or specific site conditions, such as temperature. This does not achieve compliance with clause 4(1)(a) of schedule 10.7. All ATHs have now been audited at least once under "new Part 10" and these audits have confirmed that some ATHs do have a process for calculating uncertainty. The uncertainty calculation for Hioki working standards is particularly important because the 3196 model has a temperature coefficient of 0.03% per degree Celsius and the 3169 has a temperature coefficient of 0.02% per degree Celsius. If these working standards are used in cold temperatures the combination of uncertainties could easily approach or exceed the maximum allowable threshold of 0.6%.

The table below shows the level of compliance for all ATHs who have conducted comparative certification since 29/08/13. The table also shows the total number of category 2 certifications conducted during this period, however it is not known how many of these are comparative and how many are selected component.

ATH	Number of certifications	Compliance Status
Delta	771	Previously recorded as compliant, but uncertainty calculations do not consider the temperature coefficient of the working standard. This matter has been disputed by Delta.
Electrix	19	Compliant
Indeserve	290	Compliant
Northpower	18	Not compliant
VEMS	983	Compliant since late 2016
Wells	3,401	Not compliant

The design report was not recorded for one of the installations certified by Northpower; therefore NGCM is not able to determine that the metering installation complies with the design.

AMCI

All ATHs used by AMCI have now been audited at least once under "new Part 10" and these audits have confirmed that all ATHs now have a process for calculating uncertainty which I consider is compliant with the required outcome of the Code.

I checked 12 certification reports where uncertainty was required to be calculated and confirmed that the ATHs had done so correctly.

With regard to the design of the installation (including data storage device and interrogation system), AMCI ensures the sum of the measured error and the smallest possible increment of the energy value of the raw meter data does not exceed the maximum permitted error set out in Table 1 of Schedule 10.1 for the category of installation. There are no components installed where "coarse" rounding is in place for the data or where meters with a low pulse rate are connected to separate data storage devices. Data from meters and data storage devices has a minimum of two decimal places.

There is a requirement for AMCI to ensure the metering installation complies with the design report and the requirements of Part 10. The ATHs have a field in their certification reports to record the design report reference. I checked 20 certification reports and the design report was recorded for all installations.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.3 With: Clause 4(1) of Schedule 10.7 From: 29-Aug-13 To: 18-Oct-17	Error and uncertainty calculations not conducted correctly for most Category 2 metering installations. Design report not recorded for one 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 because there is room to improve the records provided by ATHs and their processes. There could be a minor impact on metering installation accuracy; therefore, the audit risk rating is low

Actions taken to resolve the issue	Completion date	Remedial action status
VAMS do not contract to Northpower and have not done so since before the previous audit.	December 2017	Investigating
We have worked closely with Wells since last audit and the following email shows they have adjusted their process to comply with the code. The action will be to check this specific issue during service provider audits *Latest correspondence from Wells on 28/09/2017* *The Hiokis have their calibration certified at 21-22 oC (recorded on the certificate), they have a specified operating temperature range of 0-40oC, and a temperature accuracy characteristic of within ±0.03% f.s./˚C, so there is confidence that they are relatively unaffected by ambient temperature, however I purchased a set of digital thermometers for our Cat-2 techs and have provision for the ambient temperature to be recorded in the workflow during the Prevailing Load Test. Regards, Leith Robertson* As mentioned, Delta are currently disputing this issue, they are however, measuring temperature and humidity relating to their Hioki 3196, and displaying this on the commissioning sheets.		<u>Auditor comment</u> The relevant ATHs have not demonstrated compliance during their most recent audits, therefore this matter remains unresolved. Whilst there is no agreement in place between VAMS and Northpower, Northpower has certified some metering installations where VAMS is the MEP
Preventative actions taken to ensure no further issues will occur	Completion date	

Northpower not used by VAMS since February 2017. Issue to be specifically reviewed during field service audits to ensure the process is being followed.	December 2017	

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

Code reference

Clause 4(2)(a) of Schedule 10.7

Code related audit information

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

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

AMCI

There is an exemption in place for ICP 0000840407WE388 which uses subtraction (exemption 224). Other than this AMCI does not have any metering installations where subtractive metering is used.

Audit outcome

Not applicable

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

Code reference

Clause 4(2)(b) of Schedule 10.7

Code related audit information

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

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

AMCI

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

Audit outcome

Compliant

4.6. NSP Metering (Clause 4(3) of Schedule 10.7)

Code reference

Clause 4(3) of Schedule 10.7

Code related audit information

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

Audit observation

NGCM

I checked if NGCM is responsible for any NSP metering.

AMCI

I checked if AMCI is responsible for any NSP metering.

Audit commentary

NGCM

NGCM is not the MEP for any NSP metering.

AMCI

AMCI is the MEP for 194 Embedded Networks with NSP Metering. I checked and confirm that subtraction is not used to determine submission information.

Audit outcome

Compliant

4.7. Responsibility for Metering Installations (Clause 10.26(10))

Code reference

Clause 10.26(10)

Code related audit information

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

Audit observation

NGCM

NGCM is not responsible for any grid metering.

AMCI

AMCI is not the MEP for any grid metering.

Audit commentary

NGCM

NGCM is not responsible for any grid metering.

AMCI

AMCI is not the MEP for any grid metering.

Audit outcome

Not applicable

4.8. Suitability of Metering Installations (Clause 4(4) of Schedule 10.7)

Code reference

Clause 4(4) of Schedule 10.7

Code related audit information

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

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

AMCI

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

Audit outcome

Compliant

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

Code reference

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

Code related audit information

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

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

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

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

AMCI

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

Audit outcome

Compliant

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

Code reference

Clause 3 of Schedule 11.4

Code related audit information

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

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

Audit observation

NGCM

I checked the event detail report for the period 01/12/16 to 31/08/17 to evaluate the timeliness of registry updates.

AMCI

I checked the event detail report for the period 01/12/16 to 31/08/17 to evaluate the timeliness of registry updates.

Audit commentary

NGCM

I examined the event detail report for the period 01/12/16 to 31/08/17 and the table below shows the results.

Event type	Year	Total	Total within 10 days	% Compliant	Average days
Update	2015	67,719	62,950	93%	13.5
	2016	41,190	25,983	63%	127
	Feb 2017	79,049	70,634	89%	27.7
	Oct 2017	**59,360**	**52,948**	**89%**	**39**
New connection	2015	2,043	1,698	83%	8
	2016	7,366	6,538	89%	6.7
	Feb 2017	1,581	1,471	93%	5.4
	Oct 2017	**2,415**	**1,955**	**81%**	**8.6**

19% of new connection updates were later than 10 business days. Late nomination by the trader (over 5 business days) was the cause for 319 of the 460 late updates.

I checked the records in detail for 25 ICPs where new connections had occurred and where the certification date was different to the initial energisation date or the retailer's active date. I found the following:

- Initial energisation dates appear incorrect for all 25 ICPs
- Active date is possibly incorrect for 1 of 25 ICPs
- Certification date was incorrect for 1 of 25 ICPs

The incorrect certification date has been updated and is recorded in Section 6.2 as non-compliance.

AMCI

I examined ICPs where new connections had occurred or metering records had changed on the registry during the audit period. The table below shows the results. 30 of the 39 late updates were caused by late nomination by the relevant trader. Compliance could be up to 86% if nominations were on-time.

I examined the event detail report for the period 01/12/16 to 31/08/17 and the table below shows the results.

Year	Event type	Qty	Allowed days	Within allowed days	% Compliance
2015	Update	1,373	10	309	23%
2016	Update	2,040	10	908	45%
Feb 2017	Update	3,828	10	868	23%
Oct 2017	**Update**	**6,403**	**10**	**3,616**	**56%**

2015	New connection	118	10	26	22%
2016	New connection	82	10	28	34%
Feb 2017	New connection	64	10	38	59%
Oct 2017	**New connection**	**53**	**10**	**14**	**26%**

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.10 With: Clause 3 of Schedule 11.4 From: 01-Dec-16 To: 31-Aug-17	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
VAMS believes we have strong controls in place (they are the same controls as per section 3.2, clause 2 of schedule 11.4) to ensure we update the Registry within the 10 days. We have introduced a new work order system since the last audit, which is reducing the time to return FSP information. Our average days to update the registry is continuing to reduce (now 8.6 days), however we are still hamstrung by late nominations which continue to keep our percentage compliant down. This is more prevalent in the C&I space where our percentage compliance is down to 26%, primarily due to late nominations. AMCI continues to monitor paperwork delivery from our ATHs to ensure our ATHs meet their 5 BD contracted KPI which allows AMCI to attain better 10 BD delivery to the Registry. New contracts with the ATHs will be actioned early next year in which additional delivery KPIs will be set to assist and support this delivery requirement.	Nov 2017	Identified <u>Auditor comment</u> The control rating includes new connections and corrections for both NGCM and AMCI. There is some room for improvement before the controls can be recorded as strong across all parts of the business.
Preventative actions taken to ensure no further issues will occur	**Completion date**	

Continuing to send our weekly report to traders who have not nominated. All contracted ATHs and most retailers are in the new system, this will improve information returns and automatically reject incorrect information, speeding up the process and removing human errors. We are currently working to on-board the remaining retailer and expect to have this in place early next year. AMCI has new contracts with the ATHs, these will be actioned early next year in which additional delivery KPIs will be set to assist and support this delivery requirement. The AMCI Operational team also pick up ATHs certification work orders early in our process to ensure we update our system more proactively.	March 2018	

4.11. Metering Infrastructure (Clause 10.39(1))

Code reference

Clause 10.39(1)

Code related audit information

The MEP must ensure that for each metering installation:

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

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

AMCI

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

Audit outcome

Compliant

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

Code reference

Clause 11.18B(3)

Code related audit information

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

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

Some ICPs have been decommissioned since 29/08/13 and NGCM has not notified the trader that a final interrogation is required. For AMI installations, there is always a "midnight read" and this is provided to traders as required. For non-AMI installations, NGCM does not normally have knowledge of upcoming decommissioning events and therefore has difficulty complying with this clause. This appears to be an industry wide issue, and MEPs do not appear to have found a solution.

AMCI

Some ICPs have been decommissioned since 29/08/13. I examined examples where ICPs were decommissioned and in all cases, the final interrogation was arranged by AMCI, which I believe meets the intent of this clause. In the rare event that metering is removed prior to a download, the download occurs by powering up the device and collecting the data, which also meets the intent of this clause.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 4.12 With: Clause 11.18B(3) From: 01-Dec-16 To: 31-Aug-17	Trader not advised to carry out final meter read for decommissioned ICPs. Potential impact: None Actual impact: None Audit history: Multiple times Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	I have not identified any controls NGCM could put in place to achieve compliance with this clause.

Actions taken to resolve the issue	Completion date	Remedial action status
This appears to contradict Clause 11.18(3) which states 'If an ICP is to be decommissioned, the trader who is responsible for the ICP must, a) Arrange for a final interrogation to take place before or on removal of the meter and, b) Advise the MEP responsible for the ICP that it is to be decommissioned. We raised this with the EA on 15 Feb 2017. <u>AMCI</u> Retailers advise AMCI of decommissioning through SRs received for actioning equipment removals. All final reads are taken onsite and where possible prior to meters being removed. Alternatively, meters are sent to VAMS Tech Support or our ATH test house for urgent bench downloads. Where meters cannot be downloaded due to faults we will request approval from the Retailer to estimate data.	Ongoing	Investigating <u>Auditor comment</u> The contradiction in the Code is taken into account with regard to this non-compliance when the final next audit date recommendation is made.
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As per above	N/A	

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

Code reference

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

Code related audit information

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

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

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

AMCI

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

Audit outcome

Compliant

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

Code reference

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

Code related audit information

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

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

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

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

During previous audits, I had examined two examples of changes in accordance with these clauses and I confirmed all of the requirements above were met. There have been no additional examples.

AMCI

This activity is conducted by the Technical Support team in Christchurch. I examined two examples of changes in accordance with these clauses during previous audits and I confirm all of the requirements above were met. No changes have occurred during the audit period.

Audit outcome

Not applicable

4.15. Temporary Energization (Clause 10.28(6))

Code reference

Clause 10.28(6)

Code related audit information

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

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

AMCI

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

Audit outcome

Not applicable

5. METERING RECORDS

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

Code reference

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

Code related audit information

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

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

Audit observation

NGCM

I checked certification records for 35 metering installations and I also checked all available inspection records to evaluate compliance with this clause.

AMCI

I checked certification records for 20 metering installations and I also checked all available inspection records to evaluate compliance with this clause.

Audit commentary

NGCM

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

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

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

As mentioned in Section 1.4, agreements between NGCM and ATHs clearly specify to the ATHs that they are acting as an agent for the management of certification records, and they are required to produce these within five business days. I requested records for 35 metering installations and complete records were supplied for all 35.

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

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

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

AMCI

At the time the analysis was conducted for this audit, there was one ICP (0000431409TU76E) where AMCI was recorded on the registry as the MEP but the metering records had not been populated on the registry. AMCI metering had been removed by the ATH at the request of the customer's electrician, but the ICP was still Active. AMCI are following up with the trader.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 5.1 With: Clause 4(1) of Schedule 10.6 From: 01-Feb-17 To: 11-Oct-17	Metering records not populated on registry for one ICP 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	I have recorded the controls as strong because AMCI processes would not normally allow for this to occur. It is likely that this installation is no longer active; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status

AMCI's ATH removed metering on this ICP without AMCI permission. The metering had been deenergized and the customer electrician was not using it and wanted it removed – AMCI immediately advised the Retailer and the ICP has subsequently been decommissioned as at 20/11/2017	20 Nov 2017	Cleared
Preventative actions taken to ensure no further issues will occur	**Completion date**	
AMCI has formally advised our ATHs not to remove any metering without a formal request from AMCI no matter what the Customer requests and specifically unless the ICP has been deemed decommissioned.	Nov 2017	

5.2. Inspection Reports (Clause 4(2) of Schedule 10.6)

Code reference

Clause 4(2) of Schedule 10.6

Code related audit information

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

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

NGCM has not conducted any Category 2 inspections since 29/08/13, although some are now overdue and certification has been cancelled. NGCM intends to recertify any Category 2 installations where inspections are due, but this did not occur for some ICPs as recorded in Section 6.4.

AMCI

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

AMCI has not been requested to supply any inspection reports.

Audit outcome

Compliant

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

Code reference

Clause 4(3) of Schedule 10.6

Code related audit information

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

Audit observation

NGCM

I checked a directory of metering records from 2014 to confirm compliance.

AMCI

I checked a directory of metering records from 2014 to confirm compliance.

Audit commentary

NGCM

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

AMCI

AMCI intends to keep records indefinitely.

Audit outcome

Compliant

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

Code reference

Clause 6 Schedule 10.6

Code related audit information

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

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

AMCI

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

Audit outcome

Not applicable

6. MAINTENANCE OF REGISTRY INFORMATION

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

Code reference

Clause 1(1) of Schedule 11.4

Code related audit information

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

Audit observation

NGCM

I checked the event detail report for the period 01/12/16 to 31/08/17 to confirm whether all responses were within 10 business days.

AMCI

I checked the event detail report for the period 01/12/16 to 31/08/17 to confirm whether all responses were within 10 business days.

Audit commentary

NGCM

NGCM has automated the MEP switch acceptance process based on certain NSPs where they approve the installation of their metering. This means the switch acceptance timeframes are mostly immediate. I checked all ICPs where NGCM had become the MEP and the acceptance was provided within 10 business days for all of them. If a nomination is received for an NSP where NGCM does not install metering, it is rejected.

AMCI

I checked all ICPs where AMCI had become the MEP (274 ICPs) and the acceptance was provided within 10 business days for all of them.

Audit outcome

Compliant

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

Code reference

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

Code related audit information

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

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

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

I checked NGCM's Category 1 inspection records for 515 ICPs during the last audit, which recorded the following findings:

- 49 Illegible certification stickers
- 3 missing certification stickers
- 56 incorrect component serial numbers
- One component (CN meter) found on site not recorded in registry
- One component in database but not on site.

The 2017 inspections are not yet complete.

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

Issue	2016 Quantity	Feb 2017 Quantity	Oct 2017 Quantity
NGCM is recorded on the registry as the MEP but the metering records have not been populated on the registry. 2 are unmetered, 7 have meters physically removed and the remainder have other MEPs metering installed	14	57	16
Category 1 ICPs with CTs installed, indicating an incorrect Category	32	114	15
Compensation factor of 3, certified after 29/08/13	4	4	4
Category 3 ICPs have an RPS profile, indicating an incorrect metering category.	0	0	0
HHR profile with NHH installation type	22	14	0
Category 2 interim certified	Unknown	19	53
Day + Night not equal to 24	0	1	3
ICP has a "day 16" without a "night 8"	1	0	0
ICPs have a "night 8" without a "day 16"	0	0	0
Day with no night	46	25	20

Night with no day	982	700	530
ICPs have "IN24". The Authority has indicated this combination should not be used	65,493	64,567	64,650
ICPs have CN only (residential only)	354	454	286
Category 2 or above without CTs	43	72	101
Incorrect certification expiry	14	5	7
Incorrect certification date	2	2	1
Generation ICPs with no injection register	236	220	173
Invalid ATH recorded	0	0	0
No control device for register content requiring a control device (excluding AMI where the control device may be internal)	5,376	4,239	3,304
No control device for IN register content (excluding AMI where the control device may be internal)	1,025	1,046	400
Profile requiring a certified control device and flag is "N"	2,834	3,874	4,919

AMCI

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

Issue	Quantity 2016	Quantity Feb 2017	Quantity Oct 2017
AMCI is recorded on the registry as the MEP but the metering records have not been populated on the registry	1	1	0
Category 3, 4 or 5 installations "interim certified"	3	0	0
HHR profile but NHH metering installation	0	0	0
Category 5 with a certification period longer than 3 years.	1	0	0
Category 4 with incorrect certification duration	5	9	0
Category 3 with certification period longer than 10 years.	4	2	0
Category 2 with incorrect certification duration	13	4	0
Category 1 with incorrect certification duration	16	3	0
Incorrect certification dates for new connections	0	1	0
Generation installations without an injection register	68	51	41

Over Category 1 with no measuring transformers on the registry	8	2	1
Incorrect compensation factors	1	0	3

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.2 With: Clause 7 (1), (2) and (3) of Schedule 11.4 From: 01-Dec-16 To: 31-Aug-17	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 improvement can be made. Some of the discrepancies have a moderate impact on participants, customers or settlement. The relevant ones in this regard are tariff related. The audit risk rating is medium.

Actions taken to resolve the issue	Completion date	Remedial action status
We are addressing the discrepancies on the table and expect to have them cleared in a couple of months. We have included these in our reconciliation process to ensure we capture and correct as many discrepancies as possible going forward. • Discrepancies such as ' ICPs have CN only (residential)' This is where the Retailer has used the wrong ANSIC code, these are actually industrial or irrigation sites. • 'Generation ICP with no injection register' This is because Distributor setting load type to 'B' but Retailer has never raised a job for imp/exp metering. • Profile requiring a certified control device and flag is "N" The majority of these are where the Retailer has set incorrect profile on Registry. AMCI forwarded the list of 41 ICPs with incorrect injection information – analysis has found that the Registry is potentially incorrectly set up – AMCI is following up on this with our Data Services team and Retailer These are primarily legacy sites.	Feb 2017	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

We have included these in our reconciliation process to ensure we capture and correct as many discrepancies as possible going forward. We now produce a monthly reconciliation report like the one the auditor used in this report. AMCI - All new sites are correctly setup in Servicemax and information is sent to the Registry with the correct Injection informaiton	Ongoing	

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

Code reference

Clause 6 of Schedule 11.4

Code related audit information

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

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

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

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

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

- Mandatory data missing from files being sent to registry
- Awaiting MEP nomination after eight days (there are a large number of these because files from the registry are not processed automatically in JDE)
- Registry rejections
- MEP responsibility is lost, leading to a removal of assets and a stop of interrogation
- A new MEP has accepted a switch request but NGCM has a works order in progress
- Difference between NGCM and the registry data for files sent
- MEP switch reversal but a works order is in progress
- ICP status is not valid on the registry (e.g. ready instead of active)

- No MEP switch response file within the time period.

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

AMCI

AMCI runs a registry list file and checks Service Max against these records and vice versa. Compliance is achieved with the requirement to conduct a complete validation as required by this clause. However, discrepancies 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-Dec-16 To: 31-Aug-17	Discrepancies not resolved within 5 business days. Potential impact: Medium Actual impact: Medium Audit history: Multiple times Controls: Moderate Breach risk rating: 4
Audit risk rating	**Rationale for audit risk rating**
Medium	I have recorded the controls as moderate in this area. There are still a small number of areas where improvement can be made. Some of the discrepancies have a moderate impact on participants, customers or settlement. The relevant ones in this regard are tariff related. The audit risk rating is medium.

Actions taken to resolve the issue	Completion date	Remedial action status
We do strive to resolve all discrepancies within the 5 day window however it has been very hard to achieve full compliance. We continue to look for ways to improve the way we report and subsequently resolve these. Most of these are historical (however not all) so as we introduce new systems to ensure we update the registry with the correct information from the get go, these numbers will reduce.	Ongoing	Investigating
Preventative actions taken to ensure no further issues will occur	Completion date	
We have introduced a new work order system with validation to ensure paperwork from FSPs is correct prior to updating the registry, this will eliminate incorrect data being updated to the Registry and will speed up paperwork returns.	Oct 2017	

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

Code reference

Clause 20 of Schedule 10.7

Code related audit information

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

- *a) the metering installation is modified otherwise than under sub clause 19(3) or 19(6)*
- *b) the metering installation is classed as outside the applicable accuracy tolerances set out in Table 1 of Schedule 10.1, defective or not fit for purpose under this Part or any audit*
- *c) an ATH advises the metering equipment provider responsible for the metering installation of a reference standard or working standard used to certify the metering installation not being compliant with this Part at the time it was used to certify the metering installation, or the failure of a group of meters in the statistical sampling recertification process for the metering installation, or the failure of a certification test for the metering installation*
- *d) the manufacturer of a metering component in the metering installation determines that the metering component does not comply with the standards to which the metering component was tested*
- *e) an inspection of the metering installation, that is required under this Part, is not carried out in accordance with the relevant clauses of this Part*
- *f) if the metering installation has been determined to be a lower category under clause 6 and the maximum current conveyed through the metering installation at any time exceeds the current rating of its metering installation category as set out in Table 1 of Schedule 10.1*
- *g) the metering installation is certified under clause 14 and sufficient load is available for full certification testing and has not been retested under clause 14(4)*
- *h) a control device in the metering installation certification is, and remains for a period of at least 10 business days, bridged out under clause 35(1)*
- *i) the metering equipment provider responsible for the metering installation is advised by an ATH under clause 48(6)(b) that a seal has been removed or broken and the accuracy and continued integrity of the metering installation has been affected.*

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

Audit observation

NGCM

I checked for examples of all of 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 of 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

During the previous audit, there were 19 Category 2 metering installations, which were overdue for inspections. This audit identified 68 ICPs (nine from the last audit, plus another 59) where inspections are overdue; certification is therefore cancelled and the registry has not been updated.

There are four installations incorrectly certified by the selected component method since 29/08/13, which are also three phase with one phase metered. Certification has been cancelled because the installations are not fit for purpose and not all electricity conveyed is quantified in accordance with the Code.

The matter of "bypassed" metering was evaluated during the audit. There are 94 ICPs where the meter was bridged and recertification has not occurred. Certification is therefore cancelled.

During the previous audit, there were two Category 2 metering installations certified by Northpower in accordance with the "insufficient load" provisions of the Code, but monitoring was not being conducted by NGCM. These have both been recertified.

AMCI

I checked the inspection reports for 110 completed inspections. There were 5 inspections completed early (0000005096KPB1A, 0657033571LC6DA, 0006679226RNEC7, 1000022040BPC17x2) and 2 completed late (0000100581UN680, 0000020485WEF6E). As the inspections weren't completed within the timeframes specified in Table 1 of Schedule 10.1 certification is cancelled and the registry needs to be updated. Whilst early inspections potentially provide a better outcome than the Code requires, the Code requires the inspections to be conducted within the prescribed "window".

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.4 With: Clause 6 of Schedule 11.4 From: 01-Dec-16 To: 31-Aug-17	Certification cancelled and registry not updated for: • 2 Category 3 installations with inspections completed early • 2 Category 4 installations with inspections completed late • 3 Category 5 installations with inspections completed early • 4 three phase installations with only one phase metered • 68 Category 2 installations with overdue inspections • 94 installations where meters were bridged Potential impact: Medium Actual impact: Medium Audit history: Multiple times Controls: Moderate Breach risk rating: 6
Audit risk rating	**Rationale for audit risk rating**
Medium	I have recorded the controls as moderate in this area. Many of the examples found were present during previous audits and there is room for improvement. The issues found can all 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

We have a thorough inspections policy and most of our metering installations are inspected within the correct windows for their category. This is the first time we have been given non-compliances for early inspections, and this only occurred on a very small number of higher category sites. We do not inspect on Cat 2 sites as the majority are on a 10 year recertification cycle, however there still some on a 15 year cycle which were not picked up, a new report has been created to identify these at least 6 months ahead of time, they will then be recertified within the certification date. We have worked through the 94 installations where the metering has been bridged and have found that for most ICPs in the report, VAMS weren't aware that site was bridged until after the retailer sent us a job to un-bridge and re-certify site. Most sites that the ATH unbridged and re-certified, were just data entry errors made when the job was closed off. We have corrected the data for them in our system and Registry is now showing correct re-certification details. Our process is to return next day to recertify whenever a bridge takes place, this is usually when a remote disconnection has taken place and the meter has since lost communications, so a remote reconnection cannot take place. <u>AMCI</u> AMCI has cancelled certification on all highlighted sites; AMCI reviewed 2 ICPs listed above and found the EIPC inspection had been completed in the window period – evidence to be sent to EA Auditor Corrective recertification has been actioned by AMCI on all highlighted ICPs	Nov 2017	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
A new report has been created for Cat 2 ICPs with a 15 year certification expiry, to identify when these reach 10 years, at which time we will recertify them. AMCI has included checks in our quality & assurance procedures to confirm if any EIPC inspections are done outside the allowed window period AMCI is also including in our EIPC inspection work orders the complete allowed window period that the inspection can be done	Nov 2017	

6.5. Registry Metering Records (Clause 11.8A)

Code reference

Clause 11.8A

Code related audit information

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

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

AMCI

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

Audit outcome

Compliant

7. CERTIFICATION OF METERING INSTALLATIONS

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

Code reference

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

Code related audit information

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

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

Audit observation

NGCM

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

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

AMCI

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

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

Audit commentary

NGCM

At the time of my analysis, NGCM has 419 previously fully certified ICPs with expired certification and 49,331 previously interim certified installations that have now expired. 16 of the previously certified ICPs are Category 2 and the details are contained in the table below. Three of these were present in the last audit.

ICP	Certification Type	Category	Expiry Date
0000006631DE492	F	2	16-05-17
0000011989EAD92	F	2	29-03-16
0000023264WED77	F	2	20-02-16
0000028125CEF21	F	2	11-05-17
0000173676UN007	F	2	29-08-13
0000800821TU661	F	2	14-06-17
0001161620PC6FE	F	2	23-11-15
0001202120PC5F0	F	2	22-03-16
0001742380PC1AE	F	2	02-08-16
0007128547RN316	F	2	30-08-16
0011005233PCEAD	F	2	18-08-15
0011005806PCE10	F	2	22-09-16
0011006229PC471	F	2	24-01-17
0168855844LC889	F	2	31-07-17
0249331004LCCAC	F	2	15-05-17
0282326065LCBFE	F	2	15-03-17

The following three ICPs have expired alternative certification. This is raised as non-compliance.

ICP	Certification Type	Category	Expiry Date	Current status
0006927629RN8D6	A	1	31-03-11	CCC Tramway site, non-standard LV installation with six phases to be metered, metering is located in an Orion HV substation, only Accucal have access permission.
0033300862PC31A	A	2	31-03-12	Carnival outlet supply box for the AMP Show. Only livened for 1 week each year.
0900087528PC733	A	2	31-05-12	This site is a network substation with 9

				meters – some Cat 2 and Cat 3 meters. PowerCo advised not safe to access the CT's while the panel is 'live' – large steel panels need to be removed to access. To do the job it needs to be organized with PowerCo for a FULL Shutdown – this will also affect building supplied by this substation.

NGCM provided a breakdown of the status the previously interim certified metering installations remaining uncertified. The report is from 20/10/17. The report contained the following information.

Responsible party	Reason	Total
NGCM	Available	10,941
	Unable to complete – NGCM developing or investigating solutions	1,447
Retailers	Retailer has not granted permission	19,230
	Retailer has not made installations available for deployment	7,051
	Safety issues	5,525
	Access issues	8,220

I checked the correspondence from retailers to confirm whether they were compliant with clause 10.7 which requires them to arrange access to the premises. NGCM specifically requested assistance with access arrangements from retailers in March 2017 and they are still waiting for this assistance six months later in most cases. I have concluded that retailers have not used best endeavours to give access in accordance with Clause 10.7(4). Therefore it appears NGCM only has influence over the outcome for approx. 12,500 installations.

AMCI

The registry showed 8 ICPs with expired certification. The table below contains the ICPs with their current status. All 8 ICPs also had expired certification during the last audit.

ICP	Category	Expiry date	Comments
0007090031DF9AE	2	21-12-16	AMCI equipment removed - site to NGCM
0007140785RN123	4	07-07-15	Earthquake damaged - Retailer advised ICP decommissioning in Nov 2017
0007140786RNDE3	4	07-07-15	Earthquake damaged - Retailer advised

			ICP decommissioning in Nov 2017
0007140787RN1A6	4	06-07-15	Earthquake damaged - Retailer advised ICP decommissioning in Nov 2017
0007140788RNE78	4	07-07-15	Earthquake damaged - Retailer advised ICP decommissioning in Nov 2017
0800462068LC113	5	02-11-15	Safe access issue due to HV arcing - Customer currently upgrading - Aidan Sweetman following up with new Retailer.
0800539060LCBFF	4	01-09-16	Covered by EA Exemption until June/July 2018 - Upgrade currently underway
0800539060LCBFF	4	18-07-16	Covered by EA Exemption until June/July 2018 - Upgrade currently underway

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

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: 31-Aug-17	Certification expired for 49,750 NGCM ICPs Certification expired for 8 AMCI ICPs 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, therefore the audit risk rating is medium.

Actions taken to resolve the issue	Completion date	Remedial action status

NGCM We have been reporting on progress of the 49,331 previously interim certified installations with the EA separately. We are continuing to actively pursue these with Retailers, and recertify the site when made available. ICP 0033300862PC31A is currently being upgraded and moved outside the transformer, which will make future certification easier. AMCI Non-compliance is monitored weekly – all non-compliant sites currently have actions against them to resolve Customers not allowing safe access to our installations are our biggest issues or installations requiring upgrade – AMCI is working with our customers to progress these sites	Ongoing	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above	Ongoing	

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

Code reference

Clause 10.38(b) and clause 9 of Schedule 10.6

Code related audit information

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

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

Audit observation

NGCM

I checked the certification records for 35 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 20 metering installations to confirm compliance. ATHs have shown that their processes include all tests and reports confirm tests are completed.

Audit commentary

NGCM

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

AMCI

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

Audit outcome

Compliant

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

Code reference

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

Code related audit information

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

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

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

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

All other installations must measure and separately record:

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

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

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

Audit observation

NGCM

I checked the certification records for 19 metering installations to confirm compliance.

AMCI

I checked the certification records for 20 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 29/08/13 records all four quadrants

Audit outcome

Compliant

7.4. Local Service Metering (Clause 10.37(2)(b))

Code reference

Clause 10.37(2)(b)

Code related audit information

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

Audit observation

This clause relates to Transpower as an MEP.

Audit commentary

This clause relates to Transpower as an MEP.

Audit outcome

Not applicable

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

Code reference

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

Code related audit information

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

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

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

There are no examples of burden changes having occurred.

AMCI

There are no examples of burden changes having occurred.

Audit outcome

Not applicable

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

Code reference

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

Code related audit information

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

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

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

If a meter is certified in this manner:

- *the MEP must, each month, obtain a report from the participant interrogating the metering installation, which details the maximum current from raw meter data from the metering installation by either calculation from the kVA by trading period, if available, or from a maximum current indicator if fitted in the metering installation conveyed through the point of connection for the prior month; and*
- *if the MEP does not receive a report, or the report demonstrates that the maximum current conveyed through the POC was higher than permitted for the metering installation category it is certified for, then the certification for the metering installation is automatically cancelled.*

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

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

AMCI

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

Audit outcome

Compliant

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

Code reference

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

Code related audit information

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

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

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

AMCI

I found 4 examples where the ATHs had applied insufficient load certification, ICPs 0004810515EN53B, 0003225050DF901, 0007178264RNEF5 and 0007179197RN081. I confirmed that monitoring is in place for these ICPs.

ICP 0007179197RN081 was initially certified under insufficient load certification on 27/03/2017. It was identified as having sufficient load and was subsequently recertified on 29/06/2017.

Audit outcome

Compliant

7.8. Insufficient Load for Certification – Cancellation of Certification (Clause 14(6) of Schedule 10.7)

Code reference

Clause 14(6) of Schedule 10.7

Code related audit information

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

- *the metering installation certification is automatically revoked:*
- *the certifying ATH must advise the MEP of the cancellation within 1 business day:*
- *the MEP must follow the procedure for handling faulty metering installations (clause 10.43 - 10.48).*

Audit observation

NGCM

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

AMCI

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

Audit outcome

Not applicable

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

Code reference

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

Code related audit information

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

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

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

Audit observation

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 three ICPs and is now expired. This is raised as non-compliance in Section 7.1.

AMCI

Alternative certification has been applied for 26 ICPs where AMCI is the MEP. Certification has expired for three of these ICPs and this is recorded as non-compliance in Section 7.1.

I checked the alternative certification application form for ICP 0000014546HBCA7, this confirm that the reason for using alternative certification was due to an access problem with the CTs. application form, reason access to CTs. The ICP has subsequently been fully certified on 11/09/2017.

Audit outcome

Compliant

7.10. Timekeeping Requirements (Clause 23 of Schedule 10.7)

Code reference

Clause 23 of Schedule 10.7

Code related audit information

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

- *a) has a time keeping error of not greater than an average of 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 timeclocks.

AMCI

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

Audit commentary

NGCM

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

AMCI

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

Audit outcome

Compliant

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

Code reference

Clause 35 of Schedule 10.7

Code related audit information

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

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

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

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

AMCI

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

Audit outcome

Compliant

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

Code reference

Clause 34(5) of Schedule 10.7

Code related audit information

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

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

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

AMCI

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

Audit outcome

Compliant

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

Code reference

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

Code related audit information

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

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

NGCM arranged for statistical sampling to be conducted by VEMS during 2015. There are currently approx. 13,000 installations which were certified for five years from 23/04/15. There was no statistical sampling conducted during the audit period.

AMCI

AMCI does not intend to conduct statistical sampling.

Audit outcome

Not applicable

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

Code reference

Clause 24(3) of Schedule 10.7

Code related audit information

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

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

Audit observation

NGCM

I checked the records for 19 Category 2 metering installations to confirm that compensation factors were correctly recorded on the registry.

AMCI

I checked all the records to confirm that compensation factors were correctly recorded on the registry.

Audit commentary

NGCM

Compensation factors have been updated accurately on the registry. I confirmed this by checking the records for 19 ICPs.

AMCI

Compensation factors have been updated on the registry. I confirmed this by checking the records for a large number of ICPs. Checked all records and found three ICPs with incorrect compensation factors, as recorded in section 6.2.

Audit outcome

Non-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 35 metering installations to confirm compliance.

AMCI

I checked the certification records for 20 metering installations to confirm compliance.

Audit commentary

NGCM

During the previous audit, I recorded that there was an issue with some ATHs not certifying meters and data storage devices as required by the Code. This resulted in non-compliance by Northpower, Delta, VEMS, and therefore by NGCM. Delta and VEMS are now correctly certifying metering components and the certification reports confirm this. Northpower certification reports do not confirm meter certification; however NGCM has ceased to use Northpower as an ATH.

AMCI

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

Audit outcome

Compliant

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

Code reference

Clause 28(1) of Schedule 10.7

Code related audit information

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

Audit observation

NGCM

I checked the certification records for 19 metering installations to confirm compliance.

AMCI

I checked the certification records for 12 metering installations to confirm compliance.

Audit commentary

NGCM

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

AMCI

In all 12 certification reports that I checked there was confirmation that an ATH had certified the CTs.

Audit outcome

Compliant

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

Code reference

Clause 36(1) of Schedule 10.7

Code related audit information

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

Audit observation

NGCM

I checked the certification records for 35 metering installations to confirm compliance.

AMCI

I checked the certification records for 20 metering installations to confirm compliance.

Audit commentary

NGCM

During the previous audit, I recorded that there was an issue with some ATHs not certifying meters and data storage devices as required by the Code. This resulted in non-compliance by Northpower, Delta, VEMS, and therefore by NGCM. Delta and VEMS are now correctly certifying metering components and the certification reports confirm this. Northpower certification reports do not confirm meter certification; however NGCM has ceased to use Northpower as an ATH.

AMCI

The 20 certification records that I checked confirmed that the ATHs that data storage devices are being correctly certified.

Audit outcome

Compliant

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

Code reference

Clause 7 (3) Schedule 10.3

Code related audit information

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

Audit observation

NGCM

I checked the ATH register to confirm compliance.

AMCI

I checked the ATH register to confirm compliance.

Audit commentary

NGCM

All relevant ATHs have appropriate approval.

AMCI

All relevant ATHs have appropriate approval.

Audit outcome

Compliant

7.19. Interim Certification (Clause 18 of Schedule 10.7)

Code reference

Clause 18 of Schedule 10.7

Code related audit information

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

As recorded in Section 7.1, there are a large number of previously interim certified metering installations where recertification did not occur by 01/04/15.

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-Jan-01 To: 30-Jun-17	49,331 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, therefore the audit risk rating is medium.

Actions taken to resolve the issue	Completion date	Remedial action status
We continue to manage these sites with retailers and recertify as soon as practicable. Reporting to, and consultation with the EA regarding any blockers to compliance will be maintained until completed.	Ongoing	Investigating

Preventative actions taken to ensure no further issues will occur	Completion date	
Because this clause has a date that is already past, we will continue to breach it until every last 'formally interim certified' ICP is recertified. As above, we are actively managing this with Retailers and the EA.	Ongoing	

8. INSPECTION OF METERING INSTALLATIONS

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

Code reference

Clause 45 of Schedule 10.7

Code related audit information

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

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

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

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

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

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

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

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

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

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

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

NGCM has had their process approved by the Authority and I have reviewed the inspection reports and summary report to ensure compliance. The reporting to the Authority was provided by 01/04/16.

AMCI

AMCI conducts inspections of all Category 1 metering installations. I checked the records for five ICPs where inspections were due during the audit period and they were all conducted.

Audit outcome

Compliant

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

Code reference

Clause 46(1) of Schedule 10.7

Code related audit information

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

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

NGCM does not intend to conduct inspections for Category 2 metering installations because the inspection period is the same as the certification period. As noted in Section 6.5, there are 19 non-compliant metering installations where certification has been cancelled because they were due for inspection. Four of the 19 were present in the previous audit report.

AMCI

I checked AMCI's records for 110 ICPs where inspections were due during the audit period.

There were 5 inspections completed early (0000005096KPB1A, 0657033571LC6DA, 0006679226RNEC7, 1000022040BPC17x2) and 2 completed late (0000100581UN680, 0000020485WEF6E). As the inspections weren't completed within the timeframes specified in Table 1 of Schedule 10.1 certification is therefore cancelled and the registry needs to be updated. This is also recorded in section 6.4 of this audit.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 8.2 With: Clause 46(1) of Schedule 10.7 From: 01-Dec-16 To: 31-Aug-17	Inspections not conducted within the required window for: • 19 NGCM installations where inspections were not conducted • 2 Category 3 installations with inspections completed early • 2 Category 4 installations with inspections completed late • 3 Category 5 installations with inspections completed early 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 has been recently developed to identify inspection requirements. AMCI's inspection controls are rated as moderate to strong because there is a regime in place and only a small number were outside the window. The issues found can potentially have a moderate impact on other participants and on settlement. The audit risk rating is medium.

Actions taken to resolve the issue	Completion date	Remedial action status
We have a thorough inspections policy and most of our metering installations are inspected within the correct windows for their category. This is the first time we have been given non-compliances for early inspections, and this only occurred on a very small number of higher category sites. We do not inspect on Cat 2 sites as the majority are on a 10 year recertification cycle, however there still some on a 15 year cycle which were not picked up, a new report has been created to identify these at least 6 months ahead of time, they will then be recertified within the certification date. <u>AMCI</u> AMCI has cancelled certification on all highlighted sites; AMCI reviewed 2 ICPs listed above and found the EIPC inspection had been completed in the window period – evidence to be sent to EA Auditor	Ongoing	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

A new report has been created for Cat 2 ICPs with a 15 year certification expiry, to identify when these reach 10 years, at which time we will recertify them. AMCI has included checks in our quality & assurance procedures to confirm if any EIPC inspections are done outside the allowed window period AMCI is also including in our EIPC inspection work orders the complete allowed window period that the inspection can be done	Oct 2017	

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

Code reference

Clause 44(5) of Schedule 10.7

Code related audit information

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

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

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

AMCI

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

Audit outcome

Compliant

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

Code reference

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

Code related audit information

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

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

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

The MEP must make the above arrangements within

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

NGCM has a documented process in place for the management of seals and any subsequent investigation and reporting. There were no specific examples to examine.

AMCI

AMCI has a documented process in place for the management of seals and any subsequent investigation and reporting. There were no specific examples to examine.

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) 5 business days for Category 3 or higher.

Audit observation

NGCM

I checked 94 examples where NGCM had become aware of faulty metering installations, where meters had been bridged in order to reconnect.

AMCI

I checked an example 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; however this process was not followed in the case of installations where meters had been bridged. The certification is cancelled but the registry has not been updated and notification was not provided to participants as required by this clause. There are potentially more examples of bridged meters; the sample provided was only from one retailer.

There is another scenario where a retailer sends their own contractor to bridge the meter, without the knowledge of NGCM. The retailer should inform NGCM so they can raise a job the next day to unbridge the meter. Retailers do not always provide this notification, which impacts on NGCM's ability to be compliant.

AMCI

AMCI has a process in place to achieve compliance with this requirement. An example was provided for Category 4 ICPs ICP1001156774CK9E0 and ICP1001158929CK078. A timeline of events is included below.

Analysis of the timeline shows that AMCI were advised by Retailer 1 on 14/08/2017 that the metering installations could be faulty, the requirement to advise all affected participants within 5 days is met as Retailer 1 was already aware at the time AMCI was advised.

Timeline of events

Operational breakdown of events:

1. 14/08/2017 – Retailer 1 advises AMCI Ops that the customer's electrician has completed an initial investigation of two VAMS C&I meters installed on ICP1001156774CK9E0 and ICP1001158929CK078 and the outcome seems to elude to a metering wiring issue . Retailer 1 provide

AMCI Ops with a SR to investigate further – at this stage there was no specific evidence that any wiring was transposed;

2. 15/08/2017 – AMCI Ops undertakes cost recovery approval with Retailer 1 prior to any work being actioned;

3. 18/08/2017 – Costs are approved by Retailer 1 and job sent by AMCI Ops to VEMS;

4. 23-30/08/2017 – Further clarification is requested by VEMS and AMCI Ops prior to arranging any onsite work;

5. 04/09/2017 – VEMS visits site to meet with customer electrician – at this point it is confirmed by the electrician and VEMS that there is transposed wiring between the two meters and CTs onsite ;

6. 18/09/2017 – AMCI Ops requests further Single Line Diagrams from Retailer 1 of the installation to confirm expected wiring layout and to validate findings from site visit;

7. 19/09/2017 – Retailer 1 advises the customer can offer a shutdown opportunity on 01/10/2017 to physically correct the metering;

8. 20/09/2017 – Retailer 1 notify Retailer 2 of the potential issue on ICP1001156774CK9E0 switching in from Retailer 1 to Retailer 2;

9. 29/09/2017 – VAMS HSE notified Retailer 2 of possible wiring issues and that VEMS are currently investigating;

10. 3/10/2017 – Contractor returned to site to correct the wiring issue and recertify the site;

11. 4/10/2017 – AMCI Ops Servicemax work order system automatically notifies Retailer 2 of site investigation being conducted on ICP1001156774CK9E0 as well;

12. 9/10/2017 – Retailer 2 request an operational update on work order issued;

13. 10/10/2017 – AMCI Ops Manager provides Retailer 2 with an update and includes the site in the monthly VAMS/ Retailer 2 Operations meeting for the 19th of October 2017;

14. 16/10/2017 – Retailer 2 request another update on work order onsite;

15. 16/10/2017 – AMCI Ops Manager advised Retailer 2 that a full investigation report will be requested by AMCI Ops by VEMS and once this is completed we will provide further information to Retailer 2 and Retailer 1;

16. 18/10/2017 – Due to unclear information and instruction from the Retailer, our ATHs and the customer onsite I requested from Vircom a formal report (ICAM) on the Quality Incident.

17. 19/10/2017 – AMCI Ops provides Retailer 2 with an operational update regarding the potential issue found onsite;

18. 20/10/2017 – VAMS Gas & C&I Operations Manager requested our Data Services to start analysing the data impact on both the Retailer 1 and Retailer 2 ICPs;

19. 20/10/2017 – VEMS provide formal Investigation & Findings Report

Data Services breakdown of events:

1. 20/10/2017 – VAMS Data Services Manager actioned an internal request to investigate and confirm potential data impact with Retailer 1 and Retailer 2;

2. 20/10/2017 – VAMS Data Services provide the potential data impact figures;

3. 20&23/10/2017 – VAMS Data Services confirm data figures and impact;

4. 24/10/2017 – VAMS Data Services Manager drafted a response for Retailer 2 to confirm data findings and impact;

5. 25/10/2017 – VAMS Data Services Manager forwarded Retailer 2 the final notification email with consumption data information;

6. 25/10/2017 – VAMS Data Services quantifies data impact for Retailer 1;

7. 27/10/2017 – VAMS Data Services Manager phoned Retailer 1 and also forwarded the data analysis and final and formal VEMS Investigation & Findings Report to Retailer 1;

8. Currently – Awaiting response from Retailer 2 and Retailer 1

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 9.1 With: Clause 10.43(4) and (5) From: 01-Dec-16 To: 31-Aug-17	Faulty meters not reported to traders within 20 business days. Potential impact: Medium Actual impact: Low Audit history: Twice Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	I have recorded the controls as moderate in this area because there is room to improve the timeliness of notifications. The impact on settlement is recorded as minor because retailers have processes to estimate the data for the period meters are bridged.

Actions taken to resolve the issue	Completion date	Remedial action status
VAMS attends a failed remote reconnect and bridges the ICP- As a result of a failed remote reconnect VAMS attends site. The on-site process is to call VAMS Data Services team to resolve comms and remotely re-connect. If the tech cannot establish comms and remotely re-connect he may be asked to bridge. VAMS will return the following day to un-bridge and recertify. The issue at site is a comms issue not a faulty meter. Once un-bridged, the meter will correctly record consumption. Action to ensure that if bridged metering does not get re-certified next day, that installation is immediately cancelled. A new report has been created which will identify these on a weekly basis. <u>AMCI</u> Full timeline provided to EA Auditor regarding incident and actions taken.	Feb 2017	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	

Further information requested – currently being provided	Ongoing	

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 94 examples where NGCM had become aware of faulty metering installations.

AMCI

I checked one example 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; however this process was not followed in the case of installations where meters had been bridged. The certification is cancelled but the registry has not been updated and a statement of situation was not sought, or prepared as required by this clause.

AMCI

AMCI has a process in place to achieve compliance with this requirement. An example was provided for Category 4 ICPs ICP1001156774CK9E0 and ICP1001158929CK078. A timeline of events is included in section 9.1.

Analysis of the timeline shows that on 18/08/2017 AMCI issued a job to an ATH to go site and investigate. The ATH went to site on 04/09/2017 and performed testing which confirmed that the metering installations where inaccurate. This was reported back to AMCI by the ATH which fulfills the requirement for testing of the installations and provision of statements of situation.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 9.2 With: Clause 10.44 From: 01-Dec-16 To: 31-Aug-17	Statement of situation not arranged 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 in this area because there is room to improve the timeliness of notifications. The impact on settlement is recorded as minor because retailers have processes to estimate the data for the period meters are bridged.

Actions taken to resolve the issue	Completion date	Remedial action status
VAMS already has a strong process in place where a revenue assurance (RA) document is produced when requested. The RA is the equivalent to a statement of situation. We have renamed the document to make it clear it is a statement of situation.	Oct 2017	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Revenue assurance document renamed to Statement of situation to clarify what its purpose is. Document has been in use since part 10 introduction.	Oct 2017	

9.3. Statement of Situation (Clause10.46(2))

Code reference

Clause10.46(2)

Code related audit information

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

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

Audit observation

NGCM

I checked 94 examples where NGCM had become aware of faulty metering installations.

AMCI

I checked one example where AMCI had become aware of a faulty metering installation.

Audit commentary

NGCM

NGCM has a documented process in place to achieve compliance with this requirement; however this process was not followed in the case of installations where meters had been bridged. The certification is cancelled but the registry has not been updated and a statement of situation was not sought, or prepared as required by the Code, therefore it could not be provided to other parties. Compliance is therefore confirmed for this clause for NGCM.

AMCI

AMCI has a process in place to achieve compliance with this requirement. An example was provided for Category 4 ICPs ICP1001156774CK9E0 and ICP1001158929CK078. A timeline of events is included in section 9.1.

Analysis of the timeline of events shows that the ATH went to site on 04/09/2017 and reported its findings back to AMCI; this is deemed to meet the requirements of provision of statements of situations. However there is nothing in the information provided to show that copies of the statements of situation were provided to the Authority within the required period of 3 business days.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 9.3 With: Clause 10.46(2) From: 01-Dec-16 To: 31-Aug-17	Statements of situation not provided to the market administrator within 3 business days. Potential impact: Medium Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate because there is room for improvement. The impact on settlement and participants is minor; therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
AMCI will adjust their process to ensure on Cat 3 and above, that any statements of situation are sent to the Market administrator as well as the affected participant. This did not happen for the above two ICPs, an overall look at the process is therefore required.	Dec 2017	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

Change the process to ensure the statement of situation is sent to the Market administrator at the same time it is sent to the affected participant.	Dec 2017	

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

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

Code reference

Clause 1 of Schedule 10.6

Code related audit information

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

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

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

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

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

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

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

AMCI

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

Audit outcome

Compliant

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

Code reference

Clause 2 of Schedule 10.6

Code related audit information

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

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

AMCI

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

Audit outcome

Compliant

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

Code reference

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

Code related audit information

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

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

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

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

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

AMCI

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

Audit outcome

Compliant

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

Code reference

Clause 3(5) of Schedule 10.6

Code related audit information

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

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

AMCI

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

Audit outcome

Compliant

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

Code reference

Clause 8 of Schedule 10.6

Code related audit information

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

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

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

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

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

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

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

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

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

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

in a form that is accessible to authorised personnel.

Audit observation

NGCM

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

I conducted a walkthrough of the process and I requested reporting of the following:

- Interrogation not conducted within the maximum interrogation cycle
- Event report sent to retailers
- Clock synchronization reports
- Sumcheck failures

AMCI

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

Audit commentary

NGCM

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

NGCM provided reporting of ICPs where interrogation did not occur within the maximum interrogation cycle of 90 days. There are 1,930 Active ICPs in the report. The following table lists the reasons for inability to interrogate.

AMS & Retailer Comment On Meters That Have Not Communicated For 90+ Days	Count Of Meter Serial Number
Advised Retailer Of Non-Communicating Meter. Working With Retailers To Validate Why And Raise Field Jobs For Meters That May Have A Communication Fault (Rather Than Known Customer Reason)	**1110**
Renovations/Holiday Home/Vodafone Issue impacting meters Comms	3
Retailer confirmed site not vacant & power is being used - waiting for retailer to raise comms fault job	185
Retailer is validating or waiting for raised comms fault job to be completed	25
No Comment from Retailer to date - needs retailers to validate to remove meters with known customer issues	897
Backlog Of Meters That Either Require VAMS To Notify Retailers Or Re-Notify Current Retailers (Due To Switch Activity And Inaction By Previous Retailer)	**273**
Requires retailer validation to filter out meters with known customer issues	273
Mains Off On Site	**390**
Irrigation site – List Provided by Retailer as likely mains off	26
Retailer advised mains off	38
Mains Off - Technician identified on site during comms fault job	326
Vacant Sites - Unable To Perform Comms Fault Job Due To Access Issues And HSE Rules To Not Interfere With Main Power Supply At Vacant Properties	**157**
Retailer Advised Vacant Site - Will not raise comms fault job	145
Vacant Site - Technician identified on site during comms fault job - no action performed	12
Inactive In EA Registry	**1992**
Grand Total	**3922**

Total Sites Impacted By 90+ No-reads **VS** Total Meter Fleet (1,012,584)	0.39%

The Authority published a memo in July 2017 indicating their expectation that MEPs will manually read metering installations where the AMI flag is set to Y and where the automated interrogation fails. The expectation for investigation and updating the registry is as follows:

- Where meters are interrogated daily, MEPs will trigger an investigation of repeated failures to communicate after no more than one week with no communication.
- Where meters are not interrogated daily, MEPs will trigger an investigation of repeated failures to communicate after no more than three consecutive failed attempts, but within 31 days of the first communication failure.
- Investigations should begin immediately and conclude within three business days even if a site visit is required. If site access is not available and the meter is still not communicating, the meter should be designated as AMI="N" until a site visit can be arranged.
- If communications cannot be restored and the services access interface will not be the MEP's back office system, the registry should be updated as soon as practicable after the investigation is completed, but within three business days.

The Authority intends to propose a Code change to clarify the timeframes for completing an investigation and updating the registry, and will be using the above expectations as the basis for consultation on the proposed Code change.

NGCM has not met the requirements of the memo or the Code requirement to interrogate once within the maximum interrogation cycle for 1,930 ICPs.

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

AMCI

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

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 10.5 With: Clause 8(2) of schedule 10.6 From: 01-Dec-16 To: 30-Sep-17	1,930 metering installations not read within the maximum interrogation cycle. Potential impact: Medium Actual impact: Low Audit history: Once 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 to tighten the timeframes for resolution of these matters. 589 examples are over 365 days for Active ICPs. I note that retailers have an important role to play in the resolution of many of the issues. The impact on settlement is recorded minor because of the low number involved; therefore the audit risk rating for most retailers is low. For AMI only retailers, the impact would be major and the audit risk rating high.

Actions taken to resolve the issue	Completion date	Remedial action status
The above list is being actively managed, half of them are inactive sites that may well be communicating, but are not powered, we will know when they are re-powered as they will begin communicating again. As stated, Retailers need to play their part in resolving most of these for VAMS to be successful. Actions: We have communicated many of these to retailers and have had no reply, without their support we cannot determine if there is a fault of if the power is off. We also need a service request to attend site to repair. We accept there are some ICPs that have been inactive for a long period and we are pushing hard to get the AMI flag correctly updated on these.	Ongoing	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Note: The Maximum interrogation cycle is not what we use to define the time for investigating a communication fault. This time is generally 10 days consecutive no reads from a meter. Some retailers have slightly different wants (shorter) so we try to cater to that. There are several steps when identifying a no comms fault so we are reviewing our process to identify real faults and repair them sooner. The current process involves: • the Data services team identifying the fault, • validating the fault, • sending to the retailer • Retailer validates the fault, • Retailer may contact the customer, • Retailer sends out a letter to say that someone will be coming to site, • Service request raised with Retailer Services team, • Raised to FSP to visit site Tech on site to resolve fault.	Ongoing	

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

Code reference

Clause 10.15(2)

Code related audit information

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

Audit observation

NGCM

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

AMCI

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

Audit commentary

NGCM

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

AMCI

AMCI does not conduct electronic data collection as an MEP.

Audit outcome

Compliant

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

Code reference

Clause 8(4) of Schedule 10.6

Code related audit information

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

Audit observation

NGCM

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

AMCI

AMCI does not conduct electronic data collection as an MEP.

Audit commentary

NGCM

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

Daylight saving adjustment is conducted as follows:

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

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

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

Summer to Winter Transition:

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

Winter to Summer Transition:

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

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

The MEP must record in the interrogation and processing system logs the time, the date, and the extent of any change in the internal clock setting in the metering installation. The interrogation log contains this information.

The MEP must ensure that a data storage device in a metering installation does not exceed the maximum time error set out in Table 1 of clause 8(5) of Schedule 10.6. The MEP must compare the time on the internal clock of the data storage device with the time on the interrogation and processing system clock, calculate and correct (if required by this provision) any time error, and advise the affected reconciliation participant. The relevant part of this table is shown below.

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

During interrogation the system time is compared to the data logger time. Category 2 installations have a setting of 3 to 10 seconds and Category 1 installations have a setting of 3 to 30 seconds. On any given day, there are approx. 200 installations over the maximum threshold. 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. The table in Section 12.3.4 lists the events sent to participants and it includes time changes. I checked the most recent report sent to every relevant retailer.

AMCI

AMCI does not conduct electronic data collection as an MEP.

Audit outcome

Compliant

10.8. Event Logs (Clause 8(7) of Schedule 10.6)

Code reference

Clause 8(7) of Schedule 10.6

Code related audit information

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

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

Audit observation

NGCM

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

AMCI

AMCI does not conduct electronic data collection as an MEP.

Audit commentary

NGCM

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

- Loss of power
- Battery low
- Pulse overflow
- Voltage tolerance
- VT failure (voltage tolerance failure)
- Measurement error
- Memory failure
- ROM error
- Meter hardware error
- Possible meter tamper (these are caused by a site visit or meter installation and can be ignored)
- Relay stuck
- Reverse rotation

- Tamper
- Phase failure (the voltage tolerance error is filtered by meter category to identify Category 2 phase failure).

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

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

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

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

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

The list of events sent to retailers is shown below.

CODE - D7 DEVICE (HEADEND RAW EVENTS)	CODE - D7 DEVICE (HEADEND RAW EVENTS)	NEW EVENT_TYPE - TAKING OUT (GREC AND C1219 FROM SSWG90 CODE (D1 STANDARD) MDM STANDARD EVENT - NEW/UPDATED EVENT DESCRIPTION	NEW DESCRIPTION - TAKING OUT "TRAP" AND C1219	ORACLE MDM REPORTING CATEGORY - UPDATED CATEGORY
EDMI GPRS (MD)	EFA - Pulse Output Overflow	EFA_PULSE_OUTPUT_OVERFLOW	Alarm raised when specified minimum off time is violated	Meter Notification
EDMI GPRS (MD)	EFA - Tamper	EFA_TAMPER	Tamper attempt detected	Tamper
EDMI GPRS (MD)	EFA - Modem Failure	MODEM_FAILURE	This alarm is generated if the modem is found to be faulty	Meter Notification
EDMI GPRS (MD)	Power Off	POWER_OFF	Power to the meter was switched off or lost	Outage
EDMI GPRS (MD)	Power On	POWER_ON	Power to the meter was switched on	Restoration
EDMI GPRS (MD)	EFA - Reverse Power	TBL3_REVERSE_ENERGY	Reverse energy: Received KWh (Table 3: CA400000)	Health and Safety
EDMI GPRS (MD)	Time Changing	TIME_CHANGING	System time is about to be changed by more than 2 seconds	Meter Notification
EDMI GPRS (MD)	EFA - Voltage Tolerance	VOLTAGE_TOLERANCE_ERROR	Default 1 minute time delay is applied to this test	Health and Safety
EDMI GPRS (MD)	EFA - VT Failure	VOLTAGE_TRANSFORMER_FAILURE	Default 1 minute time delay is applied to this test	Health and Safety
EDMI GPRS (MD)	Relay Stuck	RELAY_STUCK	Relay stuck	Meter Failure

AMCI

AMCI does not conduct electronic data collection as an MEP.

Audit outcome

Compliant

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

Code reference

Clause 8(9) of Schedule 10.6

Code related audit information

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

Audit observation

NGCM

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

AMCI

AMCI does not conduct electronic data collection as an MEP.

Audit commentary

NGCM

NGCM has a “sumcheck” process where the “billable registers” from midnight reads are compared with HHR data. If the difference is more than 0.1 kWh this is considered a “fail”. This comparison is conducted in the data warehouse. If a “fail” occurs the data may be sent to the retailer, depending on what agreement is in place. Failures occur due to meters not communicating; it does not mean there is a fault with the device. The main reason for failure is due to data spikes, which can be present in devices with an old firmware version. These events are all identified and the matter is raised with the relevant retailer. NGCM is in the process of updating the firmware version in all relevant installations.

NGCM reported that all meters have had at least one “pass”, which confirms that HHR certification for the meters is appropriate. If communication has not been established within 10 business days, the AMI comm flag is set to No.

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

Not applicable

CONCLUSION

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

- Many ATH practices have improved, which clears several non-compliances.
- Registry data discrepancies have reduced.
- The total quantity of installations with expired certification has reduced.

16 non-compliances were identified. Those with the highest breach risk rating are as follows:

- There are 69,390 ICPs with incorrect registry data.
- Over 150 installations have cancelled certification and the registry is not updated.
- Certification is expired for 49,758 ICPs. 427 were previously fully certified.
- Some inspections were conducted outside the allowable window.

With regard to expired certification, I checked the correspondence from retailers to confirm whether they were compliant with clause 10.7 which requires them to arrange access. NGCM specifically requested assistance with access arrangements from retailers in March 2017 and they are still waiting for this assistance six months later in most cases. I have concluded that retailers have not used best endeavours to give access in accordance with Clause 10.7(4). Therefore it appears NGCM only has influence over the outcome for approx. 12,500 installations.

PARTICIPANT RESPONSE

Vector AMS would like to thank the auditor for his role in this audit, the final outcome of 16 non-compliances reflects a few issues that unfortunately, create non-compliances across multiple clauses. Overall our percentage compliance is very high and we are continually improving our systems and processes to achieve full compliance.

With respect to the non-compliances with the highest breach risk rating,

- There are 69,390 ICPs with incorrect registry data.
    - These are ICPs with IN24 as the register content code and period of availability. This is a known incorrect combination and VAMS has not been using it for nearly 12 months. There are still many thousands out there but these are being managed and reported to the EA outside this audit.
- Over 150 installations have cancelled certification and the registry is not updated.
    - Predominantly bridged meters, we have created a new weekly report to identify these, cancel the certification immediately, followed by a return visit and recertification.
- Certification is expired for 49,758 ICPs. 427 were previously fully certified.
    - The majority of these are ICPs that were previously interim certified but since 1 April 2015, are now classed as simply ‘uncertified’. These are also being actively managed and reported to the EA outside this audit.
- NGCM does not have a Category 2 inspection regime and some AMCI inspections were conducted outside the allowable window.
    - Any Cat 2 ICPs where the cert expiry is 15 years, we actively try to recertify these when the inspection is due. A small number slipped through and were not cancelled immediately, we have tightened this process to ensure they get captured.