

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

For



Prepared by: Steve Woods – Veritek Limited

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Date audit report completed: 16 August 2017

Audit report due date: 17-Aug-17

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EXECUTIVE SUMMARY

Mercury NZ Limited is a Metering Equipment Provider (MEP) and is required to undergo an audit by 17/08/17, in accordance with clause 1(1)(b) of schedule 10.5. This report refers to “Metrix” because all functions are performed under that name.

Ten non-compliances were found and two recommendations are made. Although this is two more than the last audit, it does not reflect that compliance is at a lower standard, it’s more a case that some previous non-compliances have been separated out and have become two non-compliances in the new report format. Overall the level of compliance has improved, specifically in the areas of registry data discrepancies and the number of installations with expired certification.

The quantity of installations with expired certification has reduced from 7,763 to 2,747. 1,690 of these are previously interim certified installations.

Approved Test Houses are still causing Metrix to be non-compliant. Error and uncertainty calculations conducted by Wells are not compliant because the uncertainty is not conducted per installation taking into account site-specific conditions. In 2016 the Authority recently provided a memo in relation to low burden on CT metered installations, clarifying that the certifying ATH for the metering installation must ensure that CTs are accurate at low burden. Many installations have older CTs with high rated burden where the in-service burden is lower than the lowest test point, and confirmation has not been provided by the manufacturer or a Class A ATH that the CTs will continue to operate within their accuracy range. I have therefore recorded non-compliance for at least nine metering installations in relation to this clause and the associated interpretation.

The matter of bridged AMI metering is still present, where it appears that metering installations are not always being re-certified when the bridge is removed.

One of the new items is in relation to ensuring AMI installations are successfully interrogated at least once during the maximum interrogation cycle. Reporting needs to be developed in order to improve the controls in this area.

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 12 months. My reasoning for this is two-fold. Firstly, Metrix has made considerable improvements during the audit period and they have plans in place to resolve many 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 discrepancies are recorded in Sections 2.5, 6.2 and 6.3. If the scores were combined for these two areas the overall score would be 19, which results in a 12 month recommendation.

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	All practicable steps not taken to ensure data is correct and that incorrect data is corrected as soon as practicable.	Moderate	Low	2	Investigating
Registry updates	3.2	2 of Schedule 11.4	Ten registry updates later than 15 business days.	Strong	Low	1	Investigating
Error and uncertainty	4.3	4(1) of Schedule 10.7	Error and uncertainty calculations do not consider site-specific conditions. Therefore, Metrix is not ensuring the sum of the measured error and uncertainty does not exceed the maximum permitted error.	Moderate	Low	2	Identified
Changes to registry records	4.10	3 of Schedule 11.4	Some records updated on the registry later than 10 business days	Moderate	Low	2	Investigating
Provision of registry information	6.2	7 (1), (2) and (3) of Schedule 11.4	Some registry records incomplete or incorrect.	Moderate	Low	2	Investigating
Error correction	6.3	6 of Schedule 11.4	Discrepancies not resolved within 5 business days.	Moderate	Low	2	Investigating
Certification cancellation	6.4	20 of Schedule 10.7	Certification not cancelled on the registry for 60 ICPs where AMI meters were bridged, and nine metering installations where low burden is present.	Moderate	Low	2	Investigating
Certification of metering installations	7.1	10.38 (a), clause 1 and clause 15 of	Certification expired, cancelled or late for 2,747 ICPs	Moderate	Medium	4	Identified

		Schedule 10.7					
Interim certification	7.19	18 of Schedule 10.7	1,690 ICPs with expired interim certification.	Moderate	Medium	4	Identified
Maximum interrogation cycle	10.5	8 of Schedule 10.6	Some installations not interrogated within the maximum interrogation cycle.	Weak	Medium	6	Identified
Future Risk Rating						27	
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
Accuracy of records	5.1	Clause 4(1)(a) and (b) of Schedule 10.	Require ATHs to provide certification records with better clarity.
AMI events	10.8	Clause 8(7)(b)(ii) of schedule 10.6	Provide retailers with monthly reports of events.

ISSUES

Subject	Section	Recommendation	Description
		Nil	

1. ADMINISTRATIVE

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

Code reference

Section 11 of Electricity Industry Act 2010.

Code related audit information

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

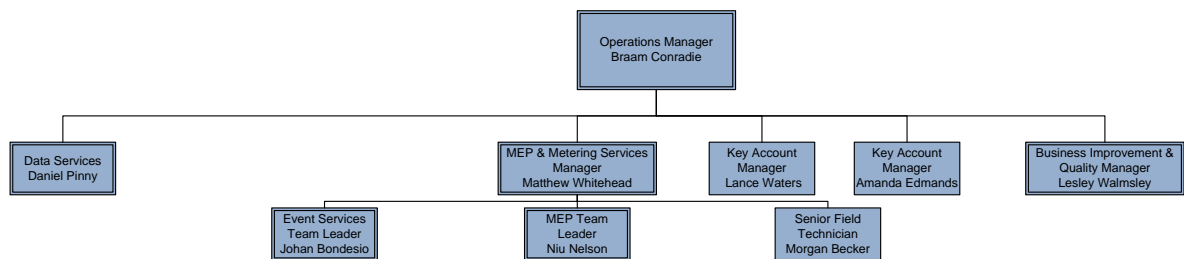
Audit observation

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

Audit commentary

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

1.2. Structure of Organisation



1.3. Persons involved in this audit

Auditor: Steve Woods

Veritek Limited

Electricity Authority Approved Auditor

Metrix personnel assisting in this audit were.

Name	Title
Braam Conradie	Operations Manager
Lesley Walmsley	Business Improvement & Quality Manager
Niu Nelson	MEP Team Leader
Brett Piskulic	Technical Specialist
Chris Chambers	Compliance Co-ordinator

Name	Title
Rehan Nayagam	AMI Performance Engineer
Daniel Pinny	Data Services Manager (AMI)

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

Metrix engages with ATHs to conduct certification activities, and Metrix is an ATH. As an MEP, they have copies of all relevant records for installations above Category 1. They have copies of records attached to SAP for recent ICPs, but they rely on ATHs to manage and store Category 1 certification records for most ICPs. I requested certification reports for 35 ICPs to confirm their compliance and availability.

Audit commentary

All certification records were provided, which achieves compliance with this clause. Some of the content of certification records is unclear, specifically with regard to installation certification dates and energisation dates. There were non-compliant practices employed by some ATHs. These two matters are discussed further in Sections 4.3 and 5.1.

1.5. Hardware and Software

Metrix MEP data is held in SAP, which is subject to backup arrangements in accordance with standard industry protocols.

AMI data collection occurs using four different head ends and the data is stored and managed in a Meter Data Management System, which is described further in Section 10. These systems are also subject to backup arrangements in accordance with standard industry protocols.

1.6. Breaches or Breach Allegations

There are three self-reported breaches for three metering installations where issues associated with inaccurate metering were not resolved within 10 business days; resulting from delays in dependent activity by consumers or other MEPs. This is discussed further in Section 9.

1.7. ICP Data

Metering Category	Number of ICPs
1	394,787
2	2,643
3	9
4	1
5	0

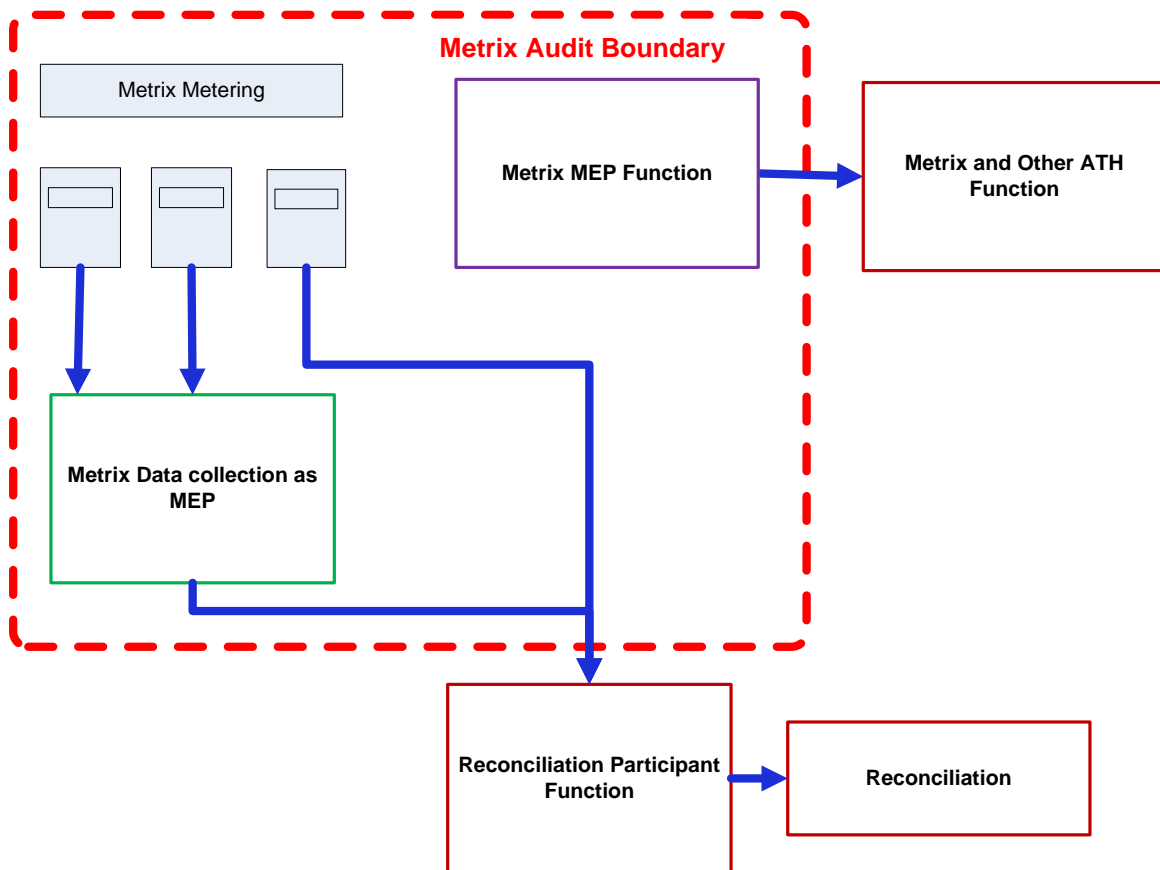
1.8. Authorisation Received

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.



1.10. Summary of previous audit

The previous audit was conducted in August 2016 by Steve Woods of Veritek Limited. The table below shows that most of the issues still remain; however there has been improvement made in most areas.

Table of Non Compliance

Subject	Section	Clause	Non compliance	Status
Registry updates	3.2	2 of schedule 11.4	Some late registry updates following MEP nomination.	Still existing
Error and uncertainty	4.3	4(1)(a) of schedule 10.7	Error and uncertainty calculations do not consider site specific conditions. Therefore, Metrix 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	20(2) of schedule 10.7	Registry not notified that certification is cancelled for 126 metering installations where remotely disconnected AMI meters were bridged out, and two installations where the burden is lower than the lowest test point.	Still existing for a small number
Metering records	5.1	4(1) of schedule 10.6	Certification records not complete and accurate.	Cleared and a recommendation is made
Accuracy of registry records	6.2	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
Changes to registry records	4.10	3 of schedule 11.4	Some records updated on the registry later than 10 business days.	Still existing
Registry validation	6.3	6 of schedule 11.4	Discrepancies not resolved within 5 business days.	Still existing
Certification of metering installations	7.1	10.38(a) of part 10 & clauses 15 & 18 of schedule 10.7	7,763 metering installations showing as expired on the registry.	Still existing for a smaller number

Table of Recommendations

Subject	Section	Clause	Recommendation for improvement	Status
Use of contractors	4.3 and 5.1	10.3(2)(c) of Part 10	Continue to liaise with ATHs to ensure compliance.	Still existing
Event monitoring	10.8	8(7)(b)(ii) of schedule 10.6	Provide retailers with monthly reports of events.	Still existing
Sumcheck validation	10.9	8(8)&(9) of Schedule 10.6	Complete the sum-check capability.	Not applicable as we are not providing HHR certified data.

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

I checked certification records for 35 metering installations, covering all relevant ATHs.

Audit commentary

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 and the services access interface is recorded correctly by them all.

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

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

Audit commentary

Metrix 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

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

Audit commentary

Metrix uses the MTRX identifier in all cases.

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

Metrix is the MEP for AMI metering installations where communication equipment is present. There are also some HHR metering installations with modems. I checked that the ATHs have processes in place to check the relevant type test certificates to ensure compliance with this clause.

Audit commentary

Metrix ensures all communication equipment is appropriately certified with the relevant telecommunications standards. This is recorded in type test certificates and other approval documents. A copy of the type test schedule was provided, which contains a list of all components used and the type test report reference. One of the EDM1 Mk 10 models needed a specific modem to be used to ensure compliance. No other issues were identified.

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

The content of this audit report was reviewed to determine whether all practicable steps had been taken to provide accurate information. Several specific points related to AMI data collection were evaluated following identification of areas of interest by the Authority.

Audit commentary

In Section 6.2 I have recorded that there are some registry data discrepancies. Whilst there has been excellent progress made in resolving these, I have determined that the “as soon as practicable” threshold has not been met in relation to the existence of discrepancies and the timeframe for resolution, because they have been in existence for almost four years.

One particular issue with regard to AMI data collection does not achieve compliance with clause 10.6, which requires that information is accurate and not misleading. When register reads cannot be obtained for a particular meter, a read from a prior day is sent, provided it is not more than three days prior. The issue is that the time stamping of the read is not for the correct day. For example, if a read is provided on the 8th because a reading for the 9th cannot be obtained, the reading on the 8th is date stamped with the 9th. It is not known how widespread this issue is.

Another point of interest is that not all register reads are “midnight” reads. Whilst this is an issue for retailers, it is not considered non-compliance because the Code does not require reads to be taken at midnight and the reads are correctly time-stamped.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.5 With: Clause 11.2 and Clause 10.6 From: 29-Aug-13 To: 23-Jun-17	All practicable steps not taken to ensure data is correct and that incorrect data is corrected as soon as practicable. 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 are still a small number of areas where improvement can be made. Certification date accuracy is a good example. Very few of the registry related discrepancies have an impact on participants, customers or settlement. The only relevant ones in this regard are tariff related and there were only a small number. The issue of incorrectly timestamped AMI data has a minor impact on participants and possibly settlement. The audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status
This issue affects less than 1% (approximately) of the readings that Metrix provides. We're in the process of upgrading our Meter Data Management System at present, and this issue is not replicated in the new system (reads will only be sent stamped with the date they were collected).		Estimated March 2018	Investigating

Preventative actions taken to ensure no further issues will occur	Completion date	
Data discrepancies that have market impact are identified and dealt with as high priority.	Estimated March 2018	

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

Metrix has not sent or received any invoices in relation to this clause.

Audit commentary

Metrix has not sent or received any invoices in relation to this clause.

Audit outcome

Compliant

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

Code reference

Clause 2 of Schedule 11.4

Code related audit information

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

Audit observation

I checked the event detail for the period 01/08/16 to 23/06/17 for all records where Metrix became the MEP to evaluate the timeliness of updates.

Audit commentary

The table below shows that there were ten late updates to the registry out of 19 events. In eight of ten cases, the trader had nominated Metrix late causing the late update.

Event	Year	Total ICPs	ICPs Notified Within 15 Days	ICPs Notified Greater Than 15 Days	Average Notification Days	Percentage Compliant
New MEP	2015	886	121	765		13.7%
	2016	150	39	111	126.5	26.0%
	2017	19	9	10	49	47%

For the two examples where the nomination was on time, the reason the update was late was because of discrepancies in the paperwork for one example and late paperwork from the trader for the other example.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.2 With: Clause 2 of Schedule 11.4 From: 01-Aug-16 To: 23-Jun-17	Ten 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 Metrix is often prevented from updating the registry due to late nomination or late updates from traders. 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
Metrix will continue to work with Traders and Contractors to support timely updates to the Registry. Quality checks will remain in place to ensure discrepancies are resolved before updates are made.		On-going	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	
Metrix will continue to work with Traders to ensure nominations are in place before issuing field work.		October 2017	

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

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

Audit commentary

No requests have occurred during the audit period. Some requests have been made to Metrix to reverse their meter removal event in the registry, so that the gaining MEP can upload their data.

Audit outcome

Compliant

3.4. Termination of MEP Responsibility (Clause 10.23)

Code reference

Clause 10.23

Code related audit information

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

The MEP is responsible if it:

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

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

An MEPs obligations terminate only when;

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

Audit observation

I confirmed that Metrix has ceased to be responsible for some metering installations by checking the event detail report. I then checked the records for a selection of 10 ICPs.

Audit commentary

Metrix continues with their responsibilities, mainly in relation to the storage of records, which are kept indefinitely.

Audit outcome

Compliant

4. INSTALLATION AND MODIFICATION OF METERING INSTALLATIONS

4.1. Design Reports for Metering Installations (Clause 2 of Schedule 10.7)

Code reference

Clause 2 of Schedule 10.7

Code related audit information

The MEP must obtain a design report for each proposed new metering installation or a modification to an existing metering installation, before it installs the new metering installation or before the modification commences.

Clause 2(2) and (3)—The design report must be prepared by a person with the appropriate level of skills, expertise, experience and qualifications and must include a schematic drawing, details of the configuration scheme that programmable metering components are to include, confirmation that the configuration scheme has been approved by an approved test laboratory, maximum interrogation cycle, 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

I checked the suite of design reports provided by Metrix to relevant ATHs, and I checked that ATHs were correctly recording the design report in the certification records.

Audit commentary

The design reports include all relevant details required by the Code and ATHs had correctly recorded the design for all 35 metering installations checked. There were no new design reports produced during the audit period.

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

I confirmed which ATHs had been used during the audit period, in order to check the Authority's website for scope of approval.

Audit commentary

Metrix uses several ATHs and they all have a current and appropriate scope of approval.

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

I checked the processes used by Metrix to ensure compliance with the design and with the error thresholds stipulated in Table 1. I also checked the certification records for 35 metering installations.

Audit commentary

All fully calibrated and selected component processes are compliant, as confirmed by checking certification records.

For Category 2 comparative certification, I have summarised the findings below.

Metrix as an ATH has an error and uncertainty calculator for use when conducting comparative certification, which considers working standards and clamps. Metrix is calculating the uncertainty per installation, as required by this clause. Metrix has reviewed and updated the uncertainty calculations to include the consideration of a temperature range from 3° Celsius to 43° Celsius, based on the working standard's manufacturer's specification for temperature variation. This achieves compliance with the requirement to consider all site-specific conditions.

Delta has not conducted any comparative certification during the audit period.

VEMS is now correctly calculating error and uncertainty using the MSL calculator, which includes consideration of temperature variances.

Wells uses the maximum allowable uncertainty of 0.6% but there is no evidence this is a calculated figure, because it is not included in the certification reports.

With regard to the design of the installation (including data storage device and interrogation system), Metrix 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.

Metrix ensures the metering installation complies with the design report and the requirements of Part 10 by requiring ATH's to confirm the installation matches the design, or by requiring updates to be provided if the installation does not match the design. The design report was correctly recorded in the certification records for the 35 installations I checked.

Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 4.3</p> <p>With: Clause 4(1) of Schedule 10.7</p> <p>From: 01-Aug-16</p> <p>To: 23-Jun-17</p>	<p>Error and uncertainty calculations do not consider site-specific conditions. Therefore, Metrix is not ensuring the sum of the measured error and uncertainty does not exceed the maximum permitted error.</p> <p>Potential impact: Medium</p> <p>Actual impact: Low</p> <p>Audit history: Multiple times</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p>		
Audit risk rating	Rationale for audit risk rating		
Low	<p>I have recorded the controls as moderate in this area because this matter has been present for several years now and it appears there are solutions available.</p> <p>The impact on accuracy and therefore settlement is minor because there were only 17 metering installations certified during the audit period without uncertainty calculations being conducted and the total error is within the allowable threshold.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
Metrix will continue to communicate with Wells to ensure they are working towards meeting this requirement.		October 2017	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Regularly review capabilities of ATH's and ensure they are only performing work where they meet compliance		November 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

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

Audit commentary

Metrix 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

I checked the records for all 10 ICPs where the metering category was greater than Category 2.

Audit commentary

All relevant installations are HHR metered.

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

Metrix is not responsible for any NSP metering.

Audit commentary

Metrix is not responsible for any NSP metering.

Audit outcome

Not applicable

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

Code reference

Clause 10.26(10)

Code related audit information

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

Audit observation

Metrix is not responsible for any grid metering.

Audit commentary

Metrix is not responsible 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

I checked the certification records for all ATHs to confirm this point is being considered at the time of certification.

Audit commentary

The certification records for all ATHs contain a field or a statement in relation to this clause and the technician is required to confirm that installations are compliant and safe.

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

I checked previous communication regarding metering designs and I checked whether there were any new or modified designs during the audit period.

Audit commentary

Metrix has communicated with all Distributors and Traders in relation to this requirement. I checked some examples of sent and received documentation, which confirmed compliance. There were no new or modified designs during the audit period.

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

I checked the event detail report for the period 01/08/16 to 23/06/17 to evaluate the timeliness of registry updates.

Audit commentary

The table below shows that registry updates were on time for 91% of new connections. 41 of the 82 late updates were due to late nomination by traders. I checked 10 of the late updates where the nomination was on time and in all cases the issue was late or no notification from the trader. Mercury Energy is the trader in all cases and for new connections; the field notification goes to them first and is then passed on to Metrix.

There were a large number of corrections conducted and most of these were correctly backdated to 2013, when records were first populated into the registry, or to when the metering was installed. Compliance is difficult to achieve for corrected data updates.

Event	Year	Total ICPs	ICPs Notified Within 10 Days	ICPs Notified Greater Than 10 Days	Average Notification Days	Percentage Compliant
New connection	2015	1,231	438	793		35.6%
	2016	711	474	237	11.5	66.7%
	2017	897	815	82	5.8	91%
Update	2015	82,787	5,430	77,357		6.6%
	2016	44,928	6,465	38,463	483	14.4%
	2017	139,000	5,000	134,000	N/A	3.6%

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 4.10 With: Clause 3 of Schedule 11.4 From: 01-Aug-16 To: 23-Jun-17	Some records updated on 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 to improve and shorten the notification process for new connections. The late updates for new connections occurred after the trader had populated their records, therefore the impact on participants, customers or settlement is minor, therefore the audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status
Metrix continued to correctly update discrepancies through Data Cleanse activity which resulted in late updates. Metrix will continue to work with contractors and Mercury to support timely updates to the Registry for New Connections.		December 2017	Identified

Preventative actions taken to ensure no further issues will occur	Completion date	
Metrix will continue to perform weekly KPI reporting on Registry update timeframes. This will help improve early identification where timeframes begin to deteriorate. High and medium priority data cleansing activity is completed which has resulted in 90%+ clean records. Discrepancies are resolved prior to updates made on the Registry.	On-going	

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

Metrix has AMI data collection systems and these are considered “metering infrastructure”. I checked that the systems operate as intended and are compatible with all metering components interrogated, by examining the success rate of data collection along with the number of events generated.

Audit commentary

There were no obvious issues with the operation of the AMI systems. All components operate as intended in an integrated manner.

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

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

Audit commentary

Metrix has supplied a letter to all relevant traders, advising them of their responsibilities to ensure they carry out a final interrogation of metering installations where Metrix is the MEP.

Audit outcome

Compliant

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

Code reference

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

Code related audit information

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

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

Audit observation

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

Audit commentary

They have not approved any burden or compensation factor changes without recertification occurring. A check of certification records confirmed compliance.

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

Metrix has not conducted any changes during the audit period.

Audit commentary

Metrix has not conducted any changes 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

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

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 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

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

Audit commentary

All of the records listed above are available and the records were correct for the 35 examples checked and for the inspections checked. Several of the certification records were difficult to read and some of the critical fields were difficult to identify. I recommend Metrix 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)

Audit outcome

Compliant

Recommendation	Description	Audited party comment	Remedial action
Clause 4(1)(a) and (b) of Schedule 10.6	Require ATHs to provide certification records with better clarity.	Metrix will continue to work with ATH's to provide better clarity in paperwork.	Investigating

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

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

Audit commentary

Metrix has not been requested to supply any inspection reports, but these are available and can be supplied on request.

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

I checked a directory of metering records from 2012 to confirm compliance.

Audit commentary

Metrix keeps records indefinitely and the availability of the 2012 records confirms compliance.

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

Metrix has provided information to ATH's in the past and this may occur in future. There are no current examples to examine.

Audit commentary

Metrix has provided information to ATH's in the past and this may occur in future. There are no current examples to examine.

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

I checked the event detail report for the period 01/08/16 to 23/06/17 to confirm whether all responses were within 10 business days.

Audit commentary

All 916 MN files were sent within 10 business days.

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

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

Audit commentary

I examined the records for 507 metering installations where Metrix had conducted inspections during 2016. A number of data related issues were present, as follows:

- 351 installations where the certification date from the site could not be compared to database records because the date was not populated
- 141 installations where the on-site certification date was unreadable because the sticker was faded, unreadable or missing

- 14 installations where the site certification date did not match the certification date in the database
- 119 load control device serial number mismatches
- 18 installations where load control devices were identified on-site but were not in the database.

I checked all of Metrix's records to identify discrepancies with their data. The table below shows the results.

Quantity of ICPs July 2017	Quantity of ICPs June 2016	Quantity of ICPs October 2015	Issue
0	76	210	Blank records on the registry.
0	6	61	Category 1 ICPs with CTs.
0	1	2	Interim certified installations over Category 1.
0	0	0	Incorrect compensation factors of 2 or 14, which should have been 1.
0	0	1	Category 3 NHH.
11,299	120,293	140,318	Incorrect interim expiry dates. These appear to be fully certified with incorrect "I" flag.
462	19,422	21,639	Category 1 with certification duration of more than 15 years.
0	3	3	Category 1 with certification date the same as certification expiry date.
0	9	20	Incorrect certification date or certification expiry date for Cat 2.
14	0	0	Incorrect certification date or certification expiry date for Cat 1.
3	35	1,408	IN24 as register content code and period of availability.
0	5	-	IN0 as register content code and period of availability.
0	32	1,519	CN24 as register content code and period of availability. Some of these should be CN13.
0	1	0	D24 and should be D16.
0	1	1	N24.
0	639	1	UN0.
0	0	11	UN12 or UN19.
0	110	292	Day with no night.
0	6	25	Night with no day.
10	0	0	CN only on residential.
3,047	57,31	68,646	Max interrogation cycle of zero days. <i>These are correct in SAP and will be updated on the registry.</i>

2,675	7,701	9,877	Expired certification. Three Cat 2. <i>(Cancelled certification and self-breach due dependent activity from consumer or other MEP)</i>
25,982	39,959	47,486	Controlled tariff with no load control device.
4,338	6,174	7,422	Metrix has accepted an MEP nomination but the registry is not updated. <i>Validation is in place for this and none of these have Metrix meters.</i>
39	56	91	Export ICPs with no injection register. <i>Metrix monitors the "B" field and then pro-actively asks the retailer whether they wish to have an import/export meter installed</i>
139			Stat sampled with a certification duration greater than 7 years

Metrix has made considerable progress with regard to resolving discrepancies in the registry data. 15 of the discrepancy categories above now have zero records.

I also checked the accuracy of certification dates and certification expiry dates. 17 of 897 new connections had a certification date different to either the Initial Energisation date or the Active date. I checked all 17 records in detail with the following findings:

- 11 certification dates were incorrect on the registry
- two initial energisation dates were incorrect on the registry
- two Active dates were incorrect on the registry
- three installations were not certified within the five business day window
- dates cannot be determined for one installation due to conflicting information.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.2 With: Clause 7 (1), (2) and (3) of Schedule 11.4 From: 01-Aug-16 To: 23-Jun-17	Some registry records incomplete or incorrect. Potential impact: Medium Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	Rationale for audit risk rating

Low	<p>I have recorded the controls as moderate in this area because there are still a small number of areas where improvement can be made. Certification date accuracy is a good example.</p> <p>Very few of the discrepancies have an impact on participants, customers or settlement. The only relevant ones in this regard are tariff related and there were only a small number. The audit risk rating is low.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
Data Cleanse activity is completed which has resulted in 90%+ clean records.		March 2017	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	
<p>Metrix will continue to work with contractors to provide better clarity in paperwork and ensure they are meeting this requirement.</p> <p>Discrepancies are identified and resolved prior to updates made on the Registry, which has resulted in better quality of data uploaded.</p>		October 2017	

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

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

This clause is specific and prescriptive and it requires a complete metering record comparison to be undertaken. Metrix is conducting a complete validation, but errors are not being corrected within five business days, as recorded in Section 4.10.

Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 6.3</p> <p>With: Clause 6 of Schedule 11.4</p> <p>From: 01-Aug-16</p> <p>To: 23-Jun-17</p>	<p>Discrepancies not resolved within 5 business days.</p> <p>Potential impact: Medium</p> <p>Actual impact: Low</p> <p>Audit history: Multiple times</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p>		
Audit risk rating	Rationale for audit risk rating		
Low	<p>I have recorded the controls as moderate in this area because there are still a small number of areas where improvement can be made. Certification date accuracy is a good example.</p> <p>Very few of the discrepancies have an impact on participants, customers or settlement. The only relevant ones in this regard are tariff related and there were only a small number. The audit risk rating is low.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
Metrix will continually work towards bringing this within compliance. Metrix identify daily reconciliation exceptions and resolved as soon as possible, some discrepancies require collaboration with other market participants to enable resolution, and this is not always performed in a timely manner and Metrix does not wish to update the Registry, until it is confident that the update is of high quality.		December 2017	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	
<p>Streamline monthly reconciliation and ensure exceptions are resolved within 5 business days.</p> <p>Metrix will continue to resolve discrepancies prior to updates made on the Registry, which will not impact the total number of monthly discrepancies.</p>		December 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

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

There are 78 examples of bridged AMI meters identified by Retailers and not necessarily passed onto Metrix MEP. 60 of these have not been recertified nor have they had a registry update of the cancellation of certification.

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

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

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

The memo also states:

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

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

Analysis of the certification records for 17 Category 2 metering installations found that nine had been certified with burden lower than the lowest test point, without a Class A ATH confirming that the measuring transformers will not be adversely affected. Therefore, in accordance with the Authority's memo, these metering installations are not considered "fit for purpose". This means certification is cancelled.

There were no examples of any of the other points.

Audit outcome

Non-compliant

Non-compliance	Description
<p>Audit Ref: 6.4</p> <p>With: Clause 20 of Schedule 10.7</p> <p>From: 09-Apr-15</p> <p>To: 26-Apr-17</p>	<p>Certification not cancelled on the registry for 60 ICPs where AMI meters were bridged, and nine metering installations where low burden is present</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: Multiple times</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p>
Audit risk rating	Rationale for audit risk rating

Low	<p>I have recorded the controls as moderate in this area because they are reactive processes. Metrix could initiate liaison with traders to identify process improvements for bridging.</p> <p>The impact on settlement is unknown in relation to bridging, but this is a trader responsibility not an MEP responsibility. The installations with low burden are all recording within the allowable 2.5% therefore the impact on settlement is minor. The responsibility for Metrix is to cancel certification on the registry once they know certification is cancelled and the impact of not doing this is minor, therefore the audit risk rating is low.</p>														
Actions taken to resolve the issue		Completion date	Remedial action status												
<p>We are investigating the 78 sites mentioned above and will work with Traders to ensure they advise Metrix when an installation has been bridged. We have worked through the 78 sites mentioned above and found that we have had to cancel certification for 26 icps and follow up with Traders to send through consumer and access information so that we can determine if site has been bridged and un-bridge and recertify.</p> <table><tr><td>10</td><td>No Access</td></tr><tr><td>10</td><td>Bridging did not take place</td></tr><tr><td>25</td><td>Recertified</td></tr><tr><td>1</td><td>Decommissioned</td></tr><tr><td>6</td><td>ATH's to reconfirm certification duration</td></tr><tr><td>26</td><td>Cancelled certification on the grounds of this MEP audit 13/07/2017</td></tr></table>		10	No Access	10	Bridging did not take place	25	Recertified	1	Decommissioned	6	ATH's to reconfirm certification duration	26	Cancelled certification on the grounds of this MEP audit 13/07/2017	October 2017	Investigating
10	No Access														
10	Bridging did not take place														
25	Recertified														
1	Decommissioned														
6	ATH's to reconfirm certification duration														
26	Cancelled certification on the grounds of this MEP audit 13/07/2017														
Preventative actions taken to ensure no further issues will occur		Completion date													
<p>Bridging – Metrix has instructed contracted ATHs to recertify installations when meters are unbridged.</p> <p>Metrix monitor events to identify meters that have been bridged and ask the Trader to confirm bridging and raise a site visit to unbridge and recertify.</p> <p>When Metrix are requested to bridge installations, we will follow up with the Traders to ensure they raise another job to have the installation unbridged and recertified</p> <p>Metrix will retrain staff to ensure appropriate process is followed in the event of bridged meters.</p> <p>Burden - Metrix understanding is that burden needs to be applied when an individual component is being certified (EIPC Schedule Part 10, Schedule 10.7, Clause 31, (7)). The comparative method of certification does not certify the component. Metrix ATH is confident that sufficient testing is carried out to ensure that installations are classed as within the applicable accuracy tolerances set out in Table 1 of Schedule 10.1, IE they meet the requirements of EIPC Schedule Part 10, Schedule 10.7, Clause 20, 1,(b).</p>		October 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

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 Metrix not using the prescribed form.

Audit commentary

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 Metrix 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

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

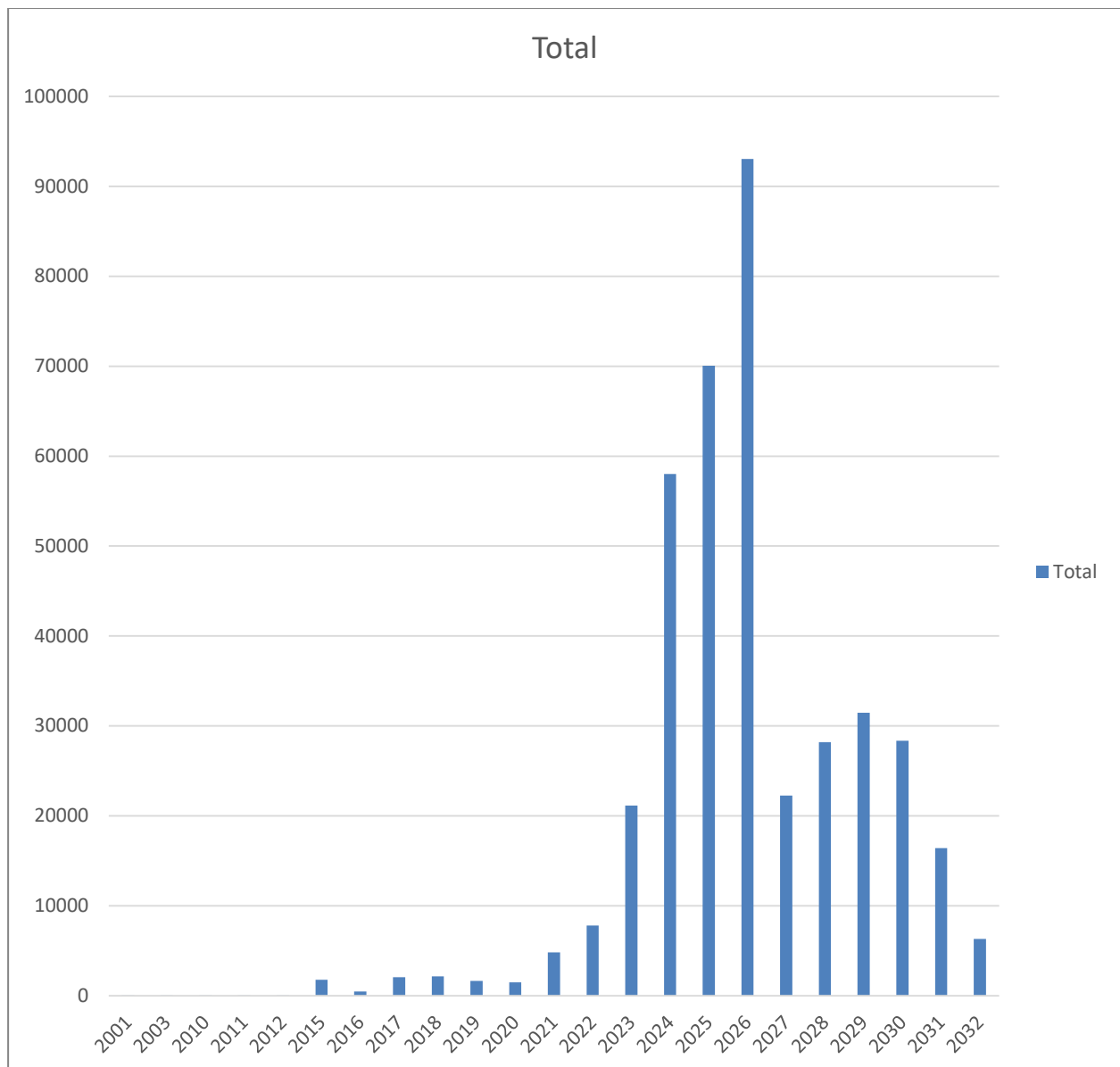
The registry shows 2,672 Category 1 ICPs with expired certification. 2,225 of these show as previously interim certified. 447 were fully certified and this has now expired. Metrix provided a summary of ICPs where certification was unable to be performed. This summary is shown in the table below.

Reason	Quantity
Already AMI Meter	9
Contractor Turndown	5
Meter Board Obstructed	2
Meter Incompatibility	60
No Access	113
No Power at Site	1
Refusal	151
Safety	22
Site Location	7

Trader switch out	52
Grand Total	422

There are 19 ICPs where statistical sampling certification has expired.

The graph below shows certification expiry totals out to 2032, which Metrix will need to plan for to ensure resources are available to conduct statistical sampling or field replacement.



There are three ICPs where it appears the certification occurred more than five days from energisation. The ICPs are shown in the table below.

ICP	Initial energisation date	Active date	Certification date	Comments
0000006009TCF05	15-Sep-16	15-Sep-16	14-Sep-16	This site appears to have been energised on 22/08/16 according to the ATH, so certification did not occur within 5 business days and the IED and active dates may be incorrect.
1001296406UN342	06-Oct-16	19-Oct-16	06-Oct-16	Certification was not conducted within 5 business days.
1001299610LC113	16-Dec-16	08-Feb-17	15-Dec-16	Certification was not conducted within 5 business days.

As recorded in Section 6.4, there are 60 ICPs with cancelled certification due to meters being bridged and nine where the burden is lower than the lowest test point.

There are three Category 2 metering installations where certification is cancelled due to the installations being faulty. The registry has been updated.

I also examined the matter of traders not allowing access to Metrix in order to conduct re-certification activities. There are six Category 2 ICPs where the trader has nominated another MEP to conduct the re-certification when this becomes due within the next few months. This creates some difficulty for Metrix if the proposed MEP does not complete the certification in time, because Metrix is still recorded as the MEP until the new MEP accepts the nomination.

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: 01-Jan-01 To: 30-Jun-17	Certification expired, cancelled or late for 2,747 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

Metrix are aware of the interim and expired sites and have a project in place through deployment to replace Legacy meters with AMI and recertify the installation. Majority of the remaining sites with expired and interim certification are also due to consumer turndowns.	December 2017	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
Metrix are proactively monitoring the RSP notification files in conjunction with internal reporting to manage certification. Metrix have in place a CAT2 recertification project to recertify Category 2 sites over the next 4 years before they expiry.	On-going	

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

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

Audit commentary

I confirm the appropriate tests are conducted and the results are recorded.

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

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

Audit commentary

All relevant metering is compliant with this clause.

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

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

Audit commentary

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

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

Audit commentary

There are 63 Category 2 metering installations with CT ratios above 500/5. There are nine where the protection or transformer rating is greater than 500A or is unknown. Monitoring is in place for all of these and the maximum kVA for any of these installations is 241 which is less than the allowable 346kVA.

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

I checked the process and one example of insufficient load certification.

Audit commentary

The example checked had appropriate additional checks conducted to confirm the installation was likely to record accurately. The ICP was on the monitoring list and was recertified once the load reached 100A (as stipulated by the ATH).

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

I checked the only available example to confirm compliance.

Audit commentary

The example checked had appropriate additional checks conducted to confirm the installation was likely to record accurately. The ICP was on the monitoring list and was recertified once the load reached 100A (as stipulated by the ATH).

Audit outcome

Compliant

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

Code reference

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

Code related audit information

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

- *advise the market administrator, by no later than 10 business days after the date of certification of the metering installation, of the details in clause 32(2)(a) of Schedule 10.7*
- *respond, within 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

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

Audit commentary

Alternative certification has not been applied to any metering installations.

Audit outcome

Not applicable

7.10. Timekeeping Requirements (Clause 23 of Schedule 10.7)

Code reference

Clause 23 of Schedule 10.7

Code related audit information

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

- a) has a time keeping error of not greater than an average of 2 seconds per day over a period of 12 months*
- b) is monitored and corrected at least once every 12 months.*

Audit observation

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

Audit commentary

Metrix confirmed there are no metering installations with timeclocks.

Audit outcome

Not applicable

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

Code reference

Clause 35 of Schedule 10.7

Code related audit information

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

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

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

Audit observation

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

Audit commentary

Control device bridging sometimes occurs by contractors on behalf of traders and Metrix will then be notified in order to conduct remedial action, if the contractor is not operating under an ATH. Notification is not required to any other party because the request comes from the trader. The process is compliant but there were no examples to examine.

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

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

Audit commentary

Metrix asked all relevant distributors for information on areas with signal propagation issues. Vector responded with some specific areas in the “United” region and Metrix is ensuring control devices are not installed in these areas. The other responses indicated that no issues were present.

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

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

Audit commentary

Statistical sampling has not occurred during the audit period; however the process employed in previous periods is compliant. It is likely that more statistical sampling will occur in future.

Audit outcome

Compliant

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

Code reference

Clause 24(3) of Schedule 10.7

Code related audit information

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

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

Audit observation

I checked the records for 19 Category 2 or Category 3 metering installations to confirm that compensation factors were correct.

Audit commentary

The compensation factors were correct for all 19 metering installations.

Audit outcome

Compliant

7.15. Metering Installations Incorporating a Meter (Clause 26(1) of Schedule 10.7)

Code reference

Clause 26(1) of Schedule 10.7

Code related audit information

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

Audit observation

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

Audit commentary

Meters were certified for all 35 installations.

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

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

Audit commentary

Measuring transformers were certified for all 19 installations.

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

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

Audit commentary

Data storage devices were certified for all 35 installations.

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

I checked the ATH register to confirm compliance.

Audit commentary

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

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

Audit commentary

There are 1,690 previously interim certified installations with expired certification.

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	1,690 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
Metrix are aware of the interim certified sites and have a project in place through deployment to replace Legacy meters with AMI and recertify the installation. Majority of the remaining sites with expired and interim certification are also due to consumer turndowns.		December 2017	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Metrix have a process in place to capture interim certification and work through discrepancies with Contracted ATH's before the Registry is updated		December 2017	

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

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

Audit commentary

Metrix has conducted category 1 inspections by sample in accordance with this clause. The process for selection of the sample was approved by the Authority; the field process was compliant; the records were checked against SAP and appropriate reporting was provided to the Authority.

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

I checked the registry information to confirm which ICPs were due for inspection. I checked the records for the one relevant ICP.

Audit commentary

The one relevant ICP is Category 3 and it was inspected within the inspection window. I also checked to ensure the inspection was not conducted early.

Audit outcome

Compliant

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

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

Audit commentary

Metrix checked the relevant details during inspections and I observed evidence that updates had occurred where discrepancies were found.

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

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

There were 24 examples in total and in all cases the installation was re-sealed following confirmation that the integrity of the installation was not compromised.

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

I checked five examples where Metrix had become aware of faulty metering installations.

Audit commentary

In all cases the issue was found and reported on by the ATH conducting certification activities. They were all Category 2 and the relevant traders were notified within 10 business days.

Audit outcome

Compliant

9.2. Testing of Faulty Metering Installations (Clause 10.44)

Code reference

Clause 10.44

Code related audit information

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

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

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

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

Audit observation

I checked five examples where Metrix had become aware of faulty metering installations.

Audit commentary

In all cases the issue was found and reported on by the ATH conducting certification activities. They were all Category 2 and the statement of situation was supplied immediately by the ATH.

Audit outcome

Compliant

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

I checked five examples where Metrix had become aware of faulty metering installations.

Audit commentary

The statements of situation were all provided within three business days.

Audit outcome

Compliant

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

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

Code reference

Clause 1 of Schedule 10.6

Code related audit information

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

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

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

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

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

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

Audit observation

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

Audit commentary

No requests have been received but Metrix 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

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

Audit commentary

No requests have been received but Metrix 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

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

Audit commentary

No requests have been received but Metrix 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

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

Audit commentary

No requests have been received, but Metrix 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

I requested reporting on interrogation cycle to confirm compliance.

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

Audit commentary

Reporting is in place for all installations without a successful interrogation for more than seven business days. This report is being changed to have a setting of 30 days rather than seven days. There are approx. 7,000 on the list but the elapsed days is not available. Whilst elapsed days information is not available, it is highly likely that some were not read within the maximum interrogation cycle. Reporting is in place to traders and in most cases the trader will put the installation onto a manual meter reading round. AMI only traders, who are unable to conduct manual reads, will sometimes require their customer to switch to another retailer.

With regard to the security of raw meter data, I checked some data from 2009 to confirm it was available. All users have login and password to access working data and only certain IT experts can access raw data. There are no business processes that allow data to be edited. Event data is archived along with consumption data. This part of the process is compliant.

Event logs and clock synchronization processes are discussed in Sections 10.7 and 10.8.

Audit outcome

Non-compliant

Non-compliance	Description	
Audit Ref: 10.5 With: Clause 8 of Schedule 10.6 From: 01-Aug-16 To: 23-Jun-17	Some installations not interrogated within the maximum interrogation cycle. Potential impact: High Actual impact: Medium Audit history: None Controls: Weak Breach risk rating: 6	
Audit risk rating	Rationale for audit risk rating	
Medium	I have recorded the controls as weak because reporting is not available with regard to the maximum interrogation cycle The impact on settlement is considered moderate, because some traders will be required to estimate data. The impact on traders and customers is also moderate because some customers will be required to switch retailers if AMI data is not available. The audit risk rating is medium.	
Actions taken to resolve the issue		Completion date
Metrix has ensured that all customers receive a regular report detailing sites that have not had readings for 30 consecutive days, and has provide clear instructions to all Traders that they must arrange manual readings for these sites. Metrix is also implementing new reporting capabilities, as part of our Meter Data Management System upgrade, which will enable us to build stronger controls around the performance of meters against their maximum interrogation cycle.		Estimated; March 2018
Preventative actions taken to ensure no further issues will occur		Completion date
When sites are manually read, the maximum interrogation cycle and AMI no comms flag will be updated accordingly.		October 2017
		Identified

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

Code reference

Clause 10.15(2)

Code related audit information

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

Audit observation

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

Audit commentary

With regard to the security of raw meter data, I checked some data from 2009 to confirm it was available. All users have login and password to access working data and only certain IT experts can access raw data. There are no business processes that allow data to be edited. Event data is archived along with consumption data.

Audit outcome

Compliant

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

Code reference

Clause 8(4) of Schedule 10.6

Code related audit information

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

Audit observation

I checked the clock synchronization processes and reporting for all head ends.

Audit commentary

Metrix has five different systems. Time synchronisation occurs as follows:

1. Multidrive. The clock setting is five seconds to 30 seconds for Category 1 and five seconds to 10 seconds for Category 2. All errors in these bands are adjusted automatically and those over the maximum setting are adjusted manually. This task is conducted daily. If the manual adjustment fails due to a communications issue then a field visit is booked to fix the issue and synchronise the clock. There is a "repeat offenders" list of installations where the clock has drifted outside the threshold more than 20 times over a five day period. These devices are replaced.
2. Command Centre. The clock setting is 10 seconds, so any error less than 10 seconds is adjusted automatically and those over 10 seconds are adjusted manually. A separate "time synchronisation" report is run on a weekly basis to manage clock errors. Repeat offenders are also monitored and managed.

3. EAMS. This is an RF mesh system, which has “gate keepers” and “collectors”. Gate keepers are synchronised to the server on a daily basis. Every five hours the collectors broadcast a “time” signal to the devices and any errors greater than four seconds are adjusted. The setting is two to 25 seconds. Any large time errors over 25 seconds are managed manually.
4. Silverspring for Counties. The clock setting is 10 seconds to 20 minutes. For errors over 20 minutes a user must manually set the time. This list is run weekly and sent to Silverspring for them to adjust the clock.
5. Silverspring for Metrix. The clock setting is 10 seconds to 20 minutes. For errors over 20 minutes a user must manually set the time. This list is run weekly and sent to Silverspring for them to adjust the clock.

Metrix advises affected reconciliation participants of time error adjustments or any potential effect on raw meter data. Metrix monitors devices with multiple clock errors to ensure the meters are replaced.

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

I checked the interrogation logs and event logs to ensure the items above were managed in a compliant manner.

Audit commentary

The interrogation logs contain all of the information above. I checked all head ends to confirm this.

Metrix downloads the event log as required by this clause. All critical events are evaluated and appropriate action is taken. Relevant events, including tampering, are sent to reconciliation

participants. Metrix provided a table listing all events, which shows “required action”. The list appears to be comprehensive and complete.

I examined the process for filtering and managing events and I confirm that this is complete and robust. The only issue I see is that while event information is being sent to reconciliation participants; it has been reported that some of them are not receiving this information. I therefore recommend that a monthly report is supplied to all retailers even if there are no events for their installations.

Recommendation	Description	Audited party comment	Remedial action
Regarding: Clause 8(7)(b)(ii) of schedule 10.6	Provide retailers with monthly reports of events.	Metrix is building the capability to produce a monthly summary of meter events as part of our MDMS upgrade project.	Under investigation

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

I confirmed that Metrix is not conducting this check; therefore metering installations are not certified as HHR.

Audit commentary

I confirmed that Metrix is not conducting this check; therefore metering installations are not certified as HHR.

Audit outcome

Not applicable

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

I checked five installations in relation to this clause, as recorded in Section 9.1.

Audit commentary

There were a number of queries raised and they were all responded to within 10 business days. Information was provided regarding the quantification and timeframe of incorrect data.

Audit outcome

Compliant

CONCLUSION

Ten non-compliances were found and two recommendations are made. Although this is two more than the last audit, it does not reflect that compliance is at a lower standard, it's more a case that some previous non-compliances have been separated out and have become two non-compliances in the new report format. Overall the level of compliance has improved, specifically in the areas of registry data discrepancies and the number of installations with expired certification.

The quantity of installations with expired certification has reduced from 7,763 to 2,747. 1,690 of these are previously interim certified installations.

Approved Test Houses are still causing Metrix to be non-compliant. Error and uncertainty calculations conducted by Wells are not compliant because the uncertainty is not conducted per installation taking into account site-specific conditions. In 2016 the Authority recently provided a memo in relation to low burden on CT metered installations, clarifying that the certifying ATH for the metering installation must ensure that CTs are accurate at low burden. Many installations have older CTs with high rated burden where the in-service burden is lower than the lowest test point, and confirmation has not been provided by the manufacturer or a Class A ATH that the CTs will continue to operate within their accuracy range. I have therefore recorded non-compliance for at least nine metering installations in relation to this clause and the associated interpretation.

The matter of bridged AMI metering is still present, where it appears that metering installations are not always being re-certified when the bridge is removed.

One of the new items is in relation to ensuring AMI installations are successfully interrogated at least once during the maximum interrogation cycle. Reporting needs to be developed in order to improve the controls in this area.

PARTICIPANT RESPONSE

APPENDIX A - TEMPLATE FOR NON-COMPLIANCE, ISSUES AND RECOMMENDATIONS.

NON-COMPLIANCE

Non-compliance	Description	
Audit Ref: With: From: Click here to enter a date. To: Click here to enter a date.	Potential impact: Choose an item. Actual impact: Choose an item. Audit history: Controls: Choose an item. Breach risk rating:	
Audit risk rating	Rationale for audit risk rating	
Choose an item.		
Actions taken to resolve the issue	Completion date	Remedial action status
		Choose an item.
Preventative actions taken to ensure no further issues will occur	Completion date	

RECOMMENDATION

Recommendation	Description	Audited party comment	Remedial action

ISSUE

Issue	Description	Remedial action