

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

For



FINANCIAL CORPORATION LIMITED (FCLM)

Prepared by: Steve Woods – Veritek Limited

Date audit commenced: 26 October 2017

Date audit report completed: 10 November 2017

Audit report due date: 10-Nov-17

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EXECUTIVE SUMMARY

Financial Corporation Limited (FCLM) is a Metering Equipment Provider (MEP) and is required to undergo an audit by 10/11/17, in accordance with clause 1(1)(b) of schedule 10.5.

FCLM has resolved many of the registry discrepancies and most of the non-compliances caused by approved test houses (ATHs) have also been resolved. The only outstanding issue related to ATHs is that they are not always recording the design reference and some ATHs are not calculating measurement uncertainty in accordance with the Code.

12 non compliances are recorded and two recommendations are made. The main issues are as follows:

- Certification is cancelled and the registry has not been updated for incorrect monitoring of 9 installations certified at a lower category. Many of these were cancelled in 2013 when they had a different MEP. The only way this non-compliance can be cleared is to recertify the metering installations.
- Certification is expired for 3,227 ICPs. 1,578 were previously fully certified.

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 recommends an audit frequency of three months. FCLM plans to complete some system enhancements by April 2018; I recommend the next audit is conducted after the system changes have been made. I therefore recommend a 9 month period.

AUDIT SUMMARY

NON-COMPLIANCES

Subject	Section	Clause	Non Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Provision of accurate information	2.5	11.2 and 10.6	Registry not always updated as soon as practicable in some cases	Moderate	Low	2	Identified
Registry updates	3.2	2 of Schedule 11.4	39 registry updates later than 15 business days.	Strong	Low	1	Identified
Metering Installation Design & Accuracy	4.3	4(1) of Schedule 10.7	ATHs are not always recording the design report reference Error and uncertainty calculations not always conducted correctly by ATHs.	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	Strong	Low	1	Identified
Accurate and complete records	5.1	4(1) of Schedule 10.6	Metering records not populated on registry for 49 ICPs Some CT information is missing.	Moderate	Low	2	Identified
MEP response	6.1	1(1) of Schedule	8 late MN files	Strong	Low	1	Identified

		11.4					
Provision of Registry Information	6.2	7 (1), (2) and (3) of Schedule 11.4	Some registry records incomplete or incorrect	Strong	Low	1	Identified
Cancellation of certification	6.4	6 of Schedule 11.4	Certification cancelled and registry not updated for: Incorrect monitoring of 9 installations certified at a lower category	Weak	Medium	6	Identified
Certification of metering installations	7.1	10.38 (a), clause 1 and clause 15 of Schedule 10.7	Certification expired for 3,227 ICPs	Moderate	Medium	4	Identified
Certification as a lower category	7.6	6(1)(b) and (d), and 6(2)(b) of Schedule 10.7	Incorrect monitoring of 9 installations certified at a lower category	Weak	Medium	6	Identified
Interim certification	7.19	18 of Schedule 10.7	1,648 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.	Moderate	Medium	4	Identified
Future Risk Rating						34	
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.	Advise ATHs that FCLM requires certification reports within 5 business days in accordance with clause 14 of schedule 10.4
Accuracy of records	5.1	Clause 4(1)(a) and (b) of Schedule 10.	Require ATHs to provide certification records with better clarity.

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

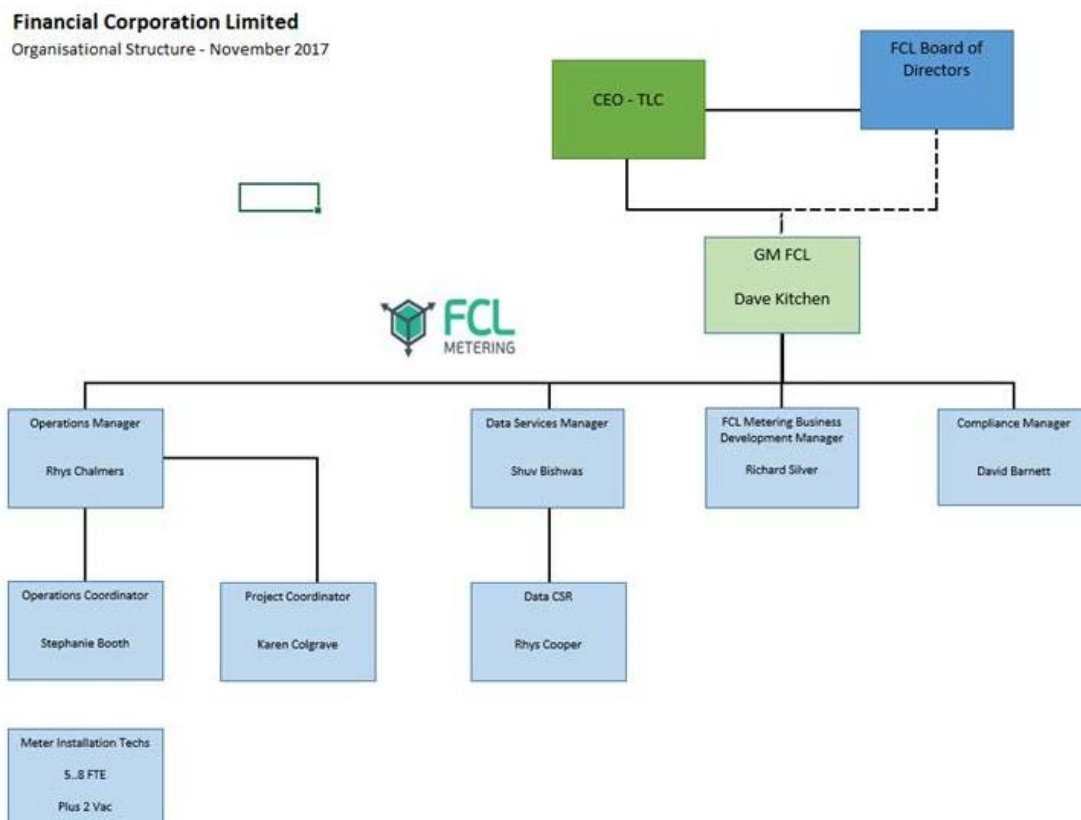
I checked the Electricity Authority website and I confirm there are no exemptions in place.

Audit commentary

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

1.2. Structure of Organisation

FCLM Metering Services Structure – Effective 1st October 2017



1.3. Persons involved in this audit

Auditor: Steve Woods

Supporting Auditor: Brett Piskulic

Veritek Limited

Electricity Authority Approved Auditor

FCLM personnel assisting in this audit were.

Name	Title
David Barnett	Technical and Compliance Manager
Rhys Chalmers	Operations Manager
Shuv Biswas	Data Services Manager

1.4. Use of Agents (Clause 10.3)

Code reference

Clause 10.3

Code related audit information

A participant who uses a contractor

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

Audit observation

FCLM engages Accucal, Electrix, VEMS and Wells as ATHs to conduct certification activities. These parties are not considered agents for this activity.

Audit commentary

FCLM had previously used ATHs as agents for the storage of certification records. This practise has now changed with FCLM requiring the ATHs to provide certification reports for all activities. The certification records are stored in Orion under each ICP. I checked 41 FCLM certification records to confirm this.

1.5. Hardware and Software

FCLM MEP data is held in Orion, which is subject to backup arrangements in accordance with standard industry protocols. The Orion system replaced the previous system Gentrack in April 2017.

1.6. Breaches or Breach Allegations

FCLM confirmed there was one breach allegation (File reference: 1703FINC1) related to the scope of this audit. FCLM provided copies of the breach allegation, the FCLM response and the Electricity Authority's ruling. The Authority's ruling was that FCLM did not breach the code.

1.7. ICP Data

Metering Category	Number of ICPs
1	30,961
2	1413
3	33
4	6
5	0
9	8

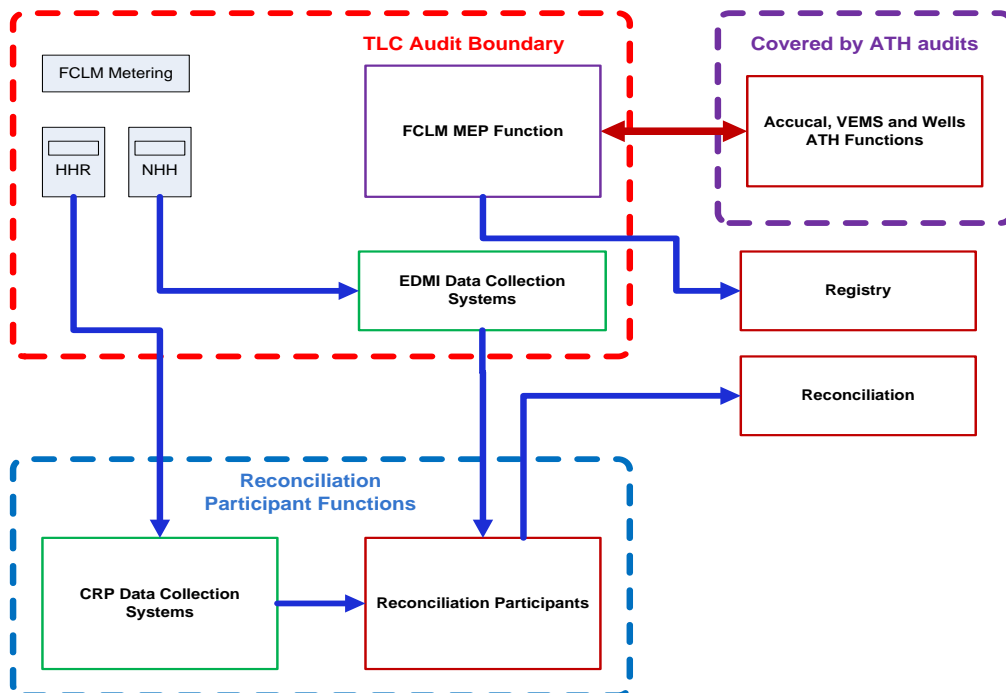
1.8. Authorisation Received

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 December 2016 by Steve Woods of Veritek Limited. The table below shows that some of the issues have been cleared.

Table of Non Compliance

Subject	Section	Clause	Non compliance	Status
Switch Notification	6.1	1(1) of Schedule 11.4	2 MN files sent later than 10 days.	Still existing
Registry notification	3.3	2 of schedule 11.4	Registry not notified within 15 days for 7 of 60 ICPs.	Still existing
Error and uncertainty	4.3.1	4(1) of schedule 10.7	Uncertainty calculations not conducted in accordance with clause 22 of schedule 10.7. Some design report references missing.	Still existing
Cancellation of certification	4.6	20(1)(e) and (2) of schedule 10.7	Five Category 1, one Category 3 and one Category 4 metering installations with overdue inspections. 17 installations certified as a lower category and monitoring not conducted every month. Certification is cancelled and the registry is not updated.	Still existing
Metering records	5.1	4(1)(b)(i), (ii), (v) & (vii) of schedule 10.6	Some CT information is missing. Certification records not provided for 7 metering installations.	Still existing
Accuracy of registry information	6.1	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 inaccurate.	Still existing

Subject	Section	Clause	Non compliance	Status
Changes to registry records	6.2	3 of schedule 11.4	Some records updated on the registry later than 10 business days.	Still existing
Correction of registry errors	6.3	6(3) of schedule 11.4	Registry discrepancies not corrected within 5 business days.	Still existing
Certification of metering installations	7.1	10.38(a) of part 10	4,262 installations with expired or cancelled certification.	Still existing
Certification tests	7.3	10.38(b) of part 10	Accumulation of pulses not measured for raw meter data output test by VEMS.	Cleared
Certification as a lower category	7.7	Clause 6 of schedule 10.7	17 installations certified as a lower category but monitoring not conducted.	Still existing
Compensation factors	7.14	Clause 24 of schedule 10.7	2 category 1 installations certified with a compensation factor of 3.	Cleared
Meter certification	7.15	26(1) of schedule 10.7	FCLM is not ensuring meters are certified.	Cleared
Measuring transformer burden	7.16	31(7) of schedule 10.7	FCLM is not ensuring ATHs are considering in service burden when certifying CT metered installations.	Now recorded as non-compliance in ATH reports
Data storage device certification	7.17	36(1) of schedule 10.7	FCLM is not ensuring data storage devices are certified.	Cleared
Inspections	8.1	45 of schedule 10.7	5 metering installations overdue for inspection.	Cleared
	8.2	46 of schedule 10.7	One Category 3 and one Category 4 metering installations overdue for inspection.	Cleared

Subject	Section	Clause	Non compliance	Status
Event logs	10.3.4	8(7)(b)(ii) of schedule 10.6	Not all relevant events sent to reconciliation participants.	Cleared

Table of Recommendations

Subject	Section	Clause	Recommendation for improvement	Status
			Nil	

2. OPERATIONAL INFRASTRUCTURE

2.1. MEP responsibility for services access interface (Clause 10.9(2))

Code reference

Clause 10.9(2)

Code related audit information

The MEP is responsible for providing and maintaining the services access interface.

Audit observation

I checked certification records for 41 metering installations, covering all relevant ATHs.

Audit commentary

NGCM has an AMI system and for many installations the services access interface will be “remote”. For non-AMI installations (including C&I installations) the services access interface is “local”. I checked 41 certification records and found the services access interface was recorded by all ATHs.

Audit outcome

Compliant

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

Code reference

Clause 10.50(1) to (3)

Code related audit information

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

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

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

Audit observation

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

Audit commentary

FCLM 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

FCLM uses the FCLM 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

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

Audit commentary

FCLM ensures all communication equipment is appropriately certified with the relevant telecommunications standards. This is recorded in type test certificates and other approval documents.

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.

Audit commentary

The content of this audit report indicates that FCLM has taken all practicable steps to ensure that information is complete and accurate in most cases; however in sections 6.2 and 6.4 the report records that some information was not updated as soon as practicable.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.5 With: Clause 11.2 and Clause 10.6 From: 01-Dec-16 To: 31-Aug-17	Registry not always updated as soon as practicable in some cases Potential impact: Medium Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are recorded as moderate because there is room to improve the timeliness of registry updates. The impact on other participants is minor; therefore the audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status
New MDMS implemented 01/04/2017. Working with ATH and IT systems to ensure integrity of data is retained and updated within timeframes.		30/04/2018	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
New MDMS transition period caused delay in updating registry information. New system upgrades will include management of work issued to ATH, which will include monitoring of delays.		30/04/2018	

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

I checked if FCLM had sent or received any invoices.

Audit commentary

FCLM has not sent or received any invoices in relation to this clause during the audit period.

FCLM had invoiced AMCI during the previous audit period; payment has not yet been received.

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 01/12/16 to 31/08/17 for all records where FCLM became the MEP to evaluate the timeliness of updates.

Audit commentary

I examined an event detail report for 517 switches in relation to this clause and the findings are shown in the table below. Late nomination by the trader was the cause of the late update for 15 of 39 ICPs where the update was late. Compliance is at 92% and could have been 95% without the late nominations.

Audit	Total ICPs	Total within 15 days	Average days	% compliant
Oct 2015	283	124	45	44%
May 2016	440	88	66	20%
Dec 2016	60	53	33	88%
Oct 2017	517	478	7	92%

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 2 of Schedule 11.4 From: 01-Dec-16 To: 31-Aug-17	39 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 FCLM is often prevented from updating the registry due to late field notification. The impact on other participants is minor; therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Although all efforts are being made the exceptions are due to late nomination by the retailer, as identified, or issues that have arisen through the installation process of the metering equipment on the site outside of ATH or MEP control.	Ongoing	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
Continue dialogue between ATH, Retailers, site contacts and relevant parties to minimise these exceptions.	Ongoing	

3.3. Provision of Metering Records to Gaining MEP (Clause 5 of Schedule 10.6)

Code reference

Clause 5 of Schedule 10.6

Code related audit information

During an MEP switch, a gaining MEP may request access to the losing MEP's metering records.

On receipt of a request from the gaining MEP, the losing MEP has 10 business days to provide the gaining MEP with the metering records or the facilities to enable the gaining MEP to access the metering records.

The losing MEP must ensure that the metering records are only received by the gaining MEP or its contractor, the security of the metering records is maintained, and only the specific metering records required for the purposes of the gaining MEP exercising its rights and performing its obligations are provided.

Audit observation

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

Audit commentary

This has not occurred and no examples are available to examine. FCLM have stated that any information will be provided as necessary.

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 FCLM 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 FCLM has ceased to be responsible for some metering installations by checking the event detail report.

Audit commentary

FCLM has ceased to be responsible for some metering installations and they still continue with their responsibilities, mainly in relation to the storage or records, which are kept indefinitely.

Audit outcome

Compliant

4. INSTALLATION AND MODIFICATION OF METERING INSTALLATIONS

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

Code reference

Clause 2 of Schedule 10.7

Code related audit information

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

Clause 2(2) and (3)—The design report must be prepared by a person with the appropriate level of skills, expertise, experience and qualifications and must include a schematic drawing, details of the configuration scheme that programmable metering components are to include, confirmation that the configuration scheme has been approved by an approved test laboratory, maximum interrogation cycle, any compensation factor arrangements, method of certification required, and name and signature of the person who prepared the report and the date it was signed.

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

Audit observation

FCLM has engaged the Accucal, VEMS, Electrix and Wells ATHs for certification activities. Both FCLM and the ATHs have provided design reports for this work which I have checked.

Audit commentary

FCLM has provided design reports which are used by Wells on the Lines Company Network. In all other cases the ATHs provide design reports. I have checked the design reports and confirm they include all of the requirements noted above and they were prepared by a person with the appropriate level of skills, expertise, experience and qualifications.

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 that FCLM has uses the Accucal, Electrix, VEMS and Wells ATHs.

Audit commentary

I have checked the Authority's website and confirm that the VEMS and DELTA have current and appropriate scope of approvals. FCLM monitors the ATH schedule on the Authority's website and this confirmed that Accucal, Electrix, VEMS and Wells have an 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 FCLM to ensure compliance with the design and with the error thresholds stipulated in Table 1. I also checked the certification records for 41 metering installations.

Audit commentary

Design report reference was not included in the VEMS certification reports. The VEMS process requires the design report to be recorded on the commissioning sheet which forms part of the metering installation certification report; however these weren't provided with the reports I checked.

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

The table below shows the level of compliance for all ATHs who have conducted comparative certification since 29/08/13.

ATH	Compliance Status
Delta	Previously recorded as compliant, but uncertainty calculations do not consider the temperature coefficient of the working standard. This matter has been disputed by Delta.
Electrix	Compliant
VEMS	Compliant since late 2016
Wells	Not compliant

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 4.3 With: Clause 4(1) of Schedule 10.7 From: 29-Aug-13 To: 31-Aug-17	Error and uncertainty calculations not always conducted correctly by ATHs. ATHs are not always recording the design report reference, 11 x VEMS Potential impact: Medium Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	I have recorded the controls as moderate because there is room to improve the records provided by ATHs and their processes. There could be a minor impact on metering installation accuracy; therefore, the audit risk rating is low		
Actions taken to resolve the issue		Completion date	Remedial action status
Issue identified and being discussed on improvements by the ATHs non-compliant.		30/04/2018	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Ongoing discussions will confirm and expect to resolve non-compliance ATHs.		30/04/2018	

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

Audit commentary

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

Audit outcome

Compliant

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

Code reference

Clause 4(2)(b) of Schedule 10.7

Code related audit information

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

Audit observation

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

Audit commentary

I checked FCLM's list file and I confirm that all category 3 and above metering installations are HHR.

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

I checked if FCLM is responsible for any NSP metering.

Audit commentary

FCLM is responsible for metering at 34 NSPs. FCLM confirmed that subtraction is not used at these NSPs.

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

FCLM is not responsible for any grid metering.

Audit commentary

FCLM 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 asked FCLM to provide details of how they ensure the suitability of metering installations.

Audit commentary

FCLM has a metering manual, which addresses hazard identification and the suitability of metering enclosures. During the previous audit, I noted that this manual is not used for “off network” metering and that FCLM intended to send a letter to relevant parties reminding them of their responsibilities under this clause. All relevant ATHs have now been subject to an audit under new Part 10 and compliance is confirmed with the requirement to ensure enclosures are suitable.

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

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

Audit commentary

FCLM provided a copy of correspondence sent to distributors and traders in June 2016. I checked the contents of the correspondence and confirm that it meets the requirements above.

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 01/12/16 to 31/08/17 to evaluate the timeliness of registry updates.

Audit commentary

The table below shows that there were registry updates for 411 new connections completed of which 36 were late, 91% of updates were compliant.

There were 7,420 updates of which 4,253 were late, 43% of updates were compliant.

Event	Audit	Total ICPs	ICPs Notified Within 10 Days	ICPs Notified Greater Than 10 Days	Average Notification Days	Percentage Compliant
New Connection	Oct 2015	228	69	159	35	30%
	May 2016	149	61	88	28	41%
	Dec 2016	345	177	168	17	51%
	Oct 2017	411	375	36	8	91%
Updates	Oct 2015	11,077	3,756	7321	191	34%
	May 16	12,362	6,340	6022	192	51%
	Dec 16	31245	2605	28640	394	8%
	Oct 2017	7420	3167	4253	349	43%

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 4.10 With: Clause 3 of Schedule 11.4 From: 01-Dec-16 To: 31-Aug-17	Some records updated on the registry later than 10 business days. Potential impact: Low 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. 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
Bulk registry updates on implementation on new MDMS has brought these into report.		30/04/2018	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
New MDMS identifies these with further enhancements in progress.		30/04/2018	

4.11. Metering Infrastructure (Clause 10.39(1))

Code reference

Clause 10.39(1)

Code related audit information

The MEP must ensure that for each metering installation:

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

Audit observation

FCLM metering infrastructure was examined as part of this audit to confirm compliance.

Audit commentary

FCLM metering infrastructure was examined as part of this audit and I confirm compliance. During the previous audit there had been an issue with incorrect mapping in AMBIT leading to incorrect submission. This has been resolved by the replacement of AMBIT with Orion.

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

Audit commentary

FCLM has provided a letter to all traders advising them of their responsibilities under this clause.

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 FCLM whether they had approved any burden changes during the audit period.

Audit commentary

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

Audit outcome

Compliant

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

Code reference

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

Code related audit information

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

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

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

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

Audit observation

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

Audit commentary

FCLM advised that there were no changes to ROM, software or firmware during the audit period.

Audit outcome

Compliant

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.

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 41 metering installations to evaluate compliance with this clause.

Audit commentary

Of the 41 records checked 6 were job completion records, not the actual certification reports. The certification reports were confirmed as compliant during the recent VEMS and Delta ATH audits.

I recommend FCLM advises the relevant ATHs that certification reports are required within 5 business days from now on.

I found 49 ICPs where FCLM is recorded on the registry as the MEP but the metering records have not been populated on the registry. In some cases, it appears FCLM had been incorrectly recorded as the MEP. FCLM has had some difficulty getting traders to nominate the correct MEP, so they have issued service requests to replace the metering on some ICPs with FCLM meters.

FCLM has 60 CT metered installations without measuring transformer information on the registry, therefore they do not have information related to points a, b, c and e above.

Recommendation	Description	Audited party comment	Remedial action
Regarding Clause 4(1)(a) and (b) of Schedule 10.6	Advise ATHs that FCLM requires certification reports within 5 business days in accordance with clause 14 of schedule 10.4	FCLM will be reminding ATH of requirement to deliver certification paperwork within a 5 day period.	Identified

Several of the records were difficult to read and some of the critical fields were difficult to identify. I recommend FCLM 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)

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.	One ATH has been identified for discussion on better clarity on paperwork to ensure the records are clear and able to be easily auditable.	Identified

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 5.1 With: Clause 4(1) of Schedule 10.6 From: 01-Dec-16 To: 31-Aug-17	Metering records not populated on registry for 49 ICPs Some CT information is missing. Potential impact: Medium Actual impact: Medium Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	Rationale for audit risk rating
Low	I have recorded the controls as moderate because there is room for improvement. There is a minor impact on other participants; therefore the audit risk rating is low.
Actions taken to resolve the issue	
Completion date	Remedial action status

Reporting functions in our new MDMS allows us to capture the missing information. In the process of collecting and updating missing information.	30/04/2018	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
New MDMS functionality enables us to populate going forward.	01/04/2017	

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

Code reference

Clause 4(2) of Schedule 10.6

Code related audit information

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

Audit observation

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

Audit commentary

FCLM 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 2013 to confirm compliance.

Audit commentary

FCLM keeps records indefinitely and intends to keep other records for at least 48 months. Where records are kept by contracted ATHs, FCLM requires them to keep records for the required period. Direct access is available from Wells; VEMS is working toward making this available.

I checked and confirmed that records for 0006430940WM654, which was decommissioned in 2016 were still available.

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

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

Audit commentary

FCLM has provided information to ATH's in the past and this may occur in future. There are no current examples to examine. FCLM demonstrated that records are kept in ORION; these are forwarded to the ATH as required.

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 01/12/16 to 31/08/17 to confirm whether all responses were within 10 business days.

Audit commentary

There were eight late MN files identified by the analysis in Sections 3.2 and 4.10.

Audit outcome

Non-compliant

Non-compliance	Description	
Audit Ref: 6.1 With: Clause 1(1) of Schedule 11.4 From: 01-Dec-16 To: 31-Aug-17	8 late MN files Potential impact: Low Actual impact: Low Audit history: None Controls: Strong Breach risk rating: 1	
Audit risk rating	Rationale for audit risk rating	
Low	I have recorded the controls as strong because FCLM has good monitoring in place for this. The late ones were mainly during the transition to the new system. There is a minor impact on other participants; therefore the audit risk rating is low.	
Actions taken to resolve the issue		Completion date
New MDMS implemented. Transition issues identified.		01/04/2017
Preventative actions taken to ensure no further issues will occur		Completion date
New MDMS implemented. Transition issues identified.		01/04/2017
		Identified

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 to identify discrepancies.

Audit commentary

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

Quantity of ICPs			Issue	FCLM Response
Sep 17	Dec 16	May 16		
49	78	98	Blank metering records	Part 10 ICP status issues, incorrect MEP nomination,
1	2	0	Category 2 ICP recorded as Category 1	
0	2	6	Compensation factor of 3 on recently certified installations	N/A
0	5	5	ICPs over Category 1 with interim certification	N/A
9	3	46	ICPs with Y for the HHR flag but with NHH installations	Transition issue, now resolved.
2	0	16	Category 2 installations certified for more than 10 years or for zero years (cert date = expiry date)	Manual data input error, now resolved.
3	5	154	Category 1 installations certified for more than 15 years or for zero years (cert date = expiry date)	Manual data input error, now resolved.
1	0	0	ICPs with IN24. The EA has advised that IN24 should not be used.	Manual data input error, now resolved.
0	0	0	ICPs with IN0	
0	0	0	ICPs with UN0	
0	0	5	D18 without N6	

0	0	7	Day without night	
293	37	519	Night without day	13 Data input errors, now resolved. Remainder are correct being DOP, DPK, N.
4	3	41	CN only, these should have an associated code or they could be IN	Correct. All installations with controlled load only.
157	464	7	Controlled load with no control device	Old legacy issues currently being replaced. Majority are electronic meters with control built into its functionality.
77	487	0	IN content code without a control device	Pending MEO information, in progress.
60	129	168	Installations without CT information populated on the registry	Pending MEO information, in progress.
0	3	3	Interim certification expiry dates incorrect	
8	6	5	Export ICPs without an injection register	3 identified as changed without MEP consultation. 2 installs now completed and updated, 1 in progress of installation. 1 advised export meter not required. 2 following up retailers.
4	1	2	Category 3 or 4 with a NHH meter installation type	Two ICPs dismantled, two MEP changed.
279	188	213	Profile requiring certified control device where control device is not certified (excl AMI)	14 Updated manually, remainder retailer changed profile that does not meet meter configuration.
0	0	15,264	7304 register missing from the registry	
0	2	0	ICPs recorded as AMI without a NHH register	

Audit outcome

Non-compliant

Non-compliance	Description
<p>Audit Ref: 6.2</p> <p>With: Clause 7 (1), (2) and (3) of Schedule 11.4</p> <p>From: 01-Sep-16</p> <p>To: 31-Aug-17</p>	<p>Some registry records incomplete or incorrect.</p> <p>Potential impact: Medium</p> <p>Actual impact: Low</p> <p>Audit history: Multiple times</p> <p>Controls: Strong</p> <p>Breach risk rating: 1</p>
Audit risk rating	Rationale for audit risk rating

Low	I have recorded the controls as strong in this area. There are still a small number of areas where improvement can be made. Certification date accuracy is a good example. 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.		
Actions taken to resolve the issue		Completion date	Remedial action status
New MDMS identifies these with further enhancements in progress. Dialogue required for retailer profile.		30/04/2017	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Updated where necessary and ongoing.		30/04/2017	

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

FCLM runs a discrepancy report on a monthly basis; corrections are made within 5 days, I checked an example, ICP 10000516405PC173, the ATH was incorrectly recorded in the registry, it was corrected within 5 days.

Audit outcome

Compliant

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

I checked all of the points mentioned above and found that the monitoring of 9 category 2 metering installations has been conducted incorrectly. The monitoring conducted each month was to ensure that the installation remained within the 0.5GWh per 12 month limit as per schedule 10.7 clause 6 (2)(c)(ii). However FCLM have been checking against a calendar 12 month period rather than the required rolling 12 months period up to the current month. As the monitoring has not been correctly completed certification is therefore cancelled from the first month after certification for each installation and the registry has not been updated.

This matter is also raised in section 7.6.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 6.4 With: Clause 6 of Schedule 11.4 From: 01-Dec-16 To: 31-Aug-17	Certification cancelled and registry not updated for incorrect monitoring of 9 installations certified at a lower category Potential impact: Medium Actual impact: Medium Audit history: Multiple times Controls: Weak Breach risk rating: 6		
Audit risk rating	Rationale for audit risk rating		
Medium	I have recorded the controls as weak in this area as the monitoring is done incorrectly. The issues found can all potentially have a moderate impact on other participants and on settlement. The audit risk rating is medium.		
Actions taken to resolve the issue		Completion date	Remedial action status
These were purchased from another participant. Once we had been made aware monitoring was required this was done but not on a rolling 12 month period. A technical non-compliance as we do have the data but did not monitor a rolling period. Changes to our management of this has been implemented. Two installations affected have pending work orders for recertification.		27/10/2017	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Changes to our management of this has been implemented.		27/10/2017	

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 FCLM 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 FCLM 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 3227 ICPs have expired certification. The table below gives a breakdown of these.

Oct 2015	May 2016	Dec 2016	Sep 2017	Description
8,299	3,633	2,376	1,648	Expired interim certification
		3		Interim without 01/04/15 expiry
435	264	1,782	1,539	Expired full certification (Category 1)
22	36	95	39	Expired full certification (Category 2)
0	0	1	0	Expired full certification (Category 3)
0	0	0	1	Expired full certification (Category 9)
2,814	2,340	5	0	Cancelled certification due to overdue inspections (Category 1)
241	61	0	0	Cancelled certification due to overdue inspections (Category 2)
0	8	0	0	Cancelled certification due to overdue inspections (Category 3 & 4)
5	16	0	0	Cancelled certification due to certification as a lower category and monitoring not conducted
1	0	0	0	Expired certification for metering installation at ETC0011ESDPEN
11,817	6,358	4,262	3,227	Total

FCL provided the table below which details UTI jobs which are currently being worked through to remedy the issues with the site electrical installations which prevented a meter replacement during a previous visit.

JOB STATUS	Total
Logged (Cold calls)	336
Work Not started (Needs all calls)	359
Job Req appt (Day calls)	106
Base Rej (Night calls)	83
Scheduled (Appt Booked)	18
Delivery in progress (Turndowns)	510
Base Accepted (App susp)	353
Cancelled by client (customer declines)	228
Rebook Office	31

Audit outcome

Non-compliant

Non-compliance	Description	
<p>Audit Ref: 7.1</p> <p>With: Clause 10.38 (a), clause 1 and clause 15 of Schedule 10.7</p> <p>From: 01-Dec-16</p> <p>To: 31-Aug-17</p>	<p>Certification expired for 3,227 ICPs</p> <p>Potential impact: High</p> <p>Actual impact: Medium</p> <p>Audit history: Multiple times</p> <p>Controls: Moderate</p> <p>Breach risk rating: 4</p>	
Audit risk rating	Rationale for audit risk rating	
Medium	<p>I have recorded the controls as moderate in this area because certification has been expired for a number of years for some ICPs and because some of the expired installations were fully certified at one point.</p> <p>The impact on settlement is recorded as moderate because of the increased likelihood of failure or inaccuracy for metering installations with expired certification, therefore the audit risk rating is medium.</p>	
Actions taken to resolve the issue		Completion date
FCLM working with participants, mainly TLC, for rectifying customer safety issues on their electrical installation. These have all been visited, some multiple times, and continues to be a work in progress. Number of ICPs with FCLM legacy metering on deployment by other MEP, preventing FCLM completing compliance work.		Ongoing
		Identified

Preventative actions taken to ensure no further issues will occur	Completion date	
Ongoing discussion with participants on resolution for each ICP. Some UTIs will be unable to be completed for various HS&E and outside MEP scope of obligation and requirements.	Ongoing	

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

Code reference

Clause 10.38(b) and clause 9 of Schedule 10.6

Code related audit information

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

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

Audit observation

I checked the certification records for 41 metering installations to confirm compliance. ATHs have shown that their processes include all tests and reports confirm tests are completed

Audit commentary

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

Audit outcome

Compliant

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

Code reference

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

Code related audit information

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

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

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

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

All other installations must measure and separately record:

- a) *import active energy*
- b) *export active energy*

- c) *import reactive energy*
- d) *export reactive energy.*

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

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

Audit observation

All relevant metering is compliant with this clause.

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 FCLM 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 for examples where the CT ratio was above the threshold to confirm that protection was appropriate or that monitoring was in place.

Audit commentary

The certification reports I checked confirm fusing and notification of the requirement to monitor.

The monitoring of 9 category 2 metering installations has been conducted incorrectly. The monitoring conducted each month was to ensure that the installation remained within the 0.5GWh per 12 month limit as per schedule 10.7 clause 6 (2)(c)(ii). However FCLM have been checking against a calendar 12 month period rather than the required rolling 12 months period up to the current month. As the

monitoring has not been correctly completed certification is therefore cancelled from the first month after certification for each installation and the registry has not been updated.

This matter is also raised in section 6.4.

Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 7.6</p> <p>With: 6(1)(b) and (d), and 6(2)(b) of Schedule 10.7</p> <p>From: 01-Dec-16</p> <p>To: 31-Aug-17</p>	<p>Incorrect monitoring of 9 installations certified at a lower category</p> <p>Potential impact: Medium</p> <p>Actual impact: Medium</p> <p>Audit history: Multiple times</p> <p>Controls: Weak</p> <p>Breach risk rating: 6</p>		
Audit risk rating	Rationale for audit risk rating		
Medium	<p>I have recorded the controls as weak in this area as the monitoring is done incorrectly.</p> <p>The issues found can all potentially have a moderate impact on other participants and on settlement. The audit risk rating is medium.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
Same as 6.4. These were purchased from another participant. Once we had been made aware monitoring was required this was done but not on a rolling 12 month period. A technical non-compliance as we do have the data but did not monitor a rolling period. Changes to our management of this has been implemented. Two installations affected have pending work orders for recertification.		27/10/2017	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Same as 6.4. Changes to our management of this has been implemented.		27/10/2017	

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 if there were any examples of Insufficient load certifications

Audit commentary

There are no examples of insufficient load certifications.

Audit outcome

Not applicable

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

There are no examples of insufficient load certifications.

Audit commentary

There are no examples of insufficient load certifications.

Audit outcome

Not applicable

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

Code reference

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

Code related audit information

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

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

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

Audit observation

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 FCLM whether there were any metering installations with timeclocks.

Audit commentary

FCLM has some Landis + Gyr meters with internal time clocks. The data is manually collected each year from these meters, and is used by The Lines Company as a Distributor for maximum demand charging. The data collection process includes a check and correction of the time clock. FCLM is in the process of replacing these meters, there are less than 100 remaining all of which have been visited and resulted in a UTI.

Audit outcome

Compliant

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

Code reference

Clause 35 of Schedule 10.7

Code related audit information

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

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

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

Audit observation

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

Audit commentary

FCLM has a process for dealing with control devices which have been bridged out. If any are bridged out for more than 10 business days, they notify as required by this clause. There have not been any recent examples.

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 FCLM had taken to identify regions with signal propagation issues.

Audit commentary

FCLM has not been advised of any areas by the ATHs.

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

FCLM has not conducted any statistical sampling during the audit period. They are not planning any until 2023.

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 10 Category 2 metering installations to confirm that compensation factors were correctly recorded on the registry.

Audit commentary

Compensation factors have been updated accurately on the registry. I confirmed this by checking the records for 10 ICPs.

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 41 metering installations to confirm compliance.

Audit commentary

Meters were certified for all 41 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 20 metering installations to confirm compliance.

Audit commentary

Measuring transformers were certified for all 20 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 20 metering installations to confirm compliance.

Audit commentary

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

Audit outcome

Compliant

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

Code reference

Clause 7 (3) Schedule 10.3

Code related audit information

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

Audit observation

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 1,648 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-Dec-16 To: 31-Aug-17	1,648 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
Same as 7.1. FCLM working with participants, mainly TLC, for rectifying customer safety issues on their electrical installation. These have all been visited, some multiple times, and continues to be a work in progress. Number of ICPs with FCLM legacy metering on deployment by other MEP, preventing FCLM completing compliance work.	Ongoing	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
Same as 7.1. Ongoing discussion with participants on resolution for each ICP. Some UTIs will be unable to be completed for various HS&E and outside MEP scope of obligation and requirements.	Ongoing	

8. INSPECTION OF METERING INSTALLATIONS

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

Code reference

Clause 45 of Schedule 10.7

Code related audit information

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

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

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

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

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

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

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

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

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

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

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

Audit observation

FCLM does not intend to commence Category 1 inspections through sampling. They intend to re-certify installations rather than do inspections.

Audit commentary

FCLM does not intend to commence Category 1 inspections through sampling. They intend to re-certify installations rather than do inspections. I checked the registry records and confirmed that all category 1 installations expire 120 months after certification.

Audit outcome

Not applicable

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. There were no category 2+ installations due for inspection.

Audit commentary

I checked the registry information to confirm which ICPs were due for inspection. There were no category 2+ installations due for inspection.

Audit outcome

Not applicable

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

There were no inspections completed during the audit period.

Audit commentary

There were no inspections completed during the audit period.

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

Category 2 ICP 0008803630WM74B was provided as an example of broken seals. The CT enclosure seals had been removed, FCLM arranged for an ATH to carry out an inspection within the required 10 business days.

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 an example where FCLM had become aware of a faulty metering installation.

Audit commentary

Category 2 ICP 0008803630WM74B was provided as an example of a faulty metering installation. Emails were provided to show that the necessary arrangements were made to investigate and affected participants were notified.

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 an example where FCLM had become aware of faulty metering installation.

Audit commentary

Category 2 ICP 0008803630WM74B was provided as an example of testing of a faulty metering installation. Emails were provided to show that the necessary arrangements were made for an ATH to investigate and affected participants were notified. There was no disagreement from any participant so no statement of situation was required.

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

There were no examples of statements of situation being required.

Audit commentary

There were no examples of statements of situation being required.

Audit outcome

Not applicable

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 FCLM 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 FCLM 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 FCLM 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 FCLM 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 was not available to confirm that interrogation occurred within the interrogation cycle for all ICPs.

Data is stored indefinitely and this was confirmed by checking some historic data.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 10.5 With: Clause 8 of Schedule 10.6 From: 01-Dec-16 To: 31-Aug-17	Reporting not available to confirm interrogation within the maximum interrogation cycle Potential impact: High Actual impact: Medium Audit history: None 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 processes are in place but reporting was not provided. 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	Remedial action status
New MDMS improvements to capture and update as required. We also believe consultation should be made on this topic as there are implications and rules needing to be made, currently based on EA Memos.		30/04/2018	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
New MDMS improvements to capture and update as required.		30/04/2018	

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

All data is secure and any transmission is via SFTP or password protected email.

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

Audit commentary

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

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

During interrogation, the system time is compared to the data logger time. MultiDrive automatically adjusts any clock errors up to the appropriate pre-set value. Errors over the threshold are investigated and the time is adjusted manually unless fieldwork is required to resolve an issue.

The event information supplied to FCLM by EDM I contains clock adjustment information and this is sent to retailers as required by this clause.

I checked two examples of event reports for time errors greater than 30 seconds.

A report was sent in both cases as follows;

- Simply Energy advising of a meter error of 89 seconds which had been corrected.
- King Country Energy advising of a meter time error of -32 secs.

EDMI provides data in NZST and FCLM converts to NZDT in the MDX Processing Application. I checked this in the system and confirm it is operating as expected.

I examined the situation where clocks are fast by more than one trading period to confirm what happens to the data in those trading periods. EDM I confirmed that the data would need to be manually apportioned to prior periods. This will be a rare event, but EDM I and FCLM have a process in place to deal with this if required.

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

Audit commentary

EDMI downloads the event log as required by this clause. All critical events are evaluated and appropriate action is taken. All events are supplied to FCLM, and from there they are passed to reconciliation participants using a manual extraction process. FCLM has processes in place to manage relevant fieldwork.

This clause requires that all "relevant event log entries" are passed on to reconciliation participants. The previous audit recorded that there were two events in addition to the tamper event that were "relevant" which were not passed on. The two events were phase failure and reverse rotation. Reverse rotation indicates that generation is present for a meter where generation is not expected. This is normally caused by the connection of solar generation without notification to the participant. These two events are now sent to participants to achieve compliance.

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

Audit commentary

The sumcheck process is conducted in Orion, below is an extract from the Orion specification which details the sumcheck process. An example of the report was examined which showed no failures.

The register read materiality threshold is set at 1KWh

Validating Register Reads 10.4.2

Register reads are validated against interval reads received for the same period on the same meter channel. The validation process creates validation errors which can be reviewed by a user in Orion.

The Register Read validation process runs as a nightly task. For performance reasons, the validation process only considers register reads from the past 90 days. Please note that this value (number of days) is configurable. If the validation issues are not resolved within this timeframe, the exception remains in the system and is not re-validated even if the related interval is subsequently updated.

Automatically resolved validation errors are removed from the TOU Data Errors list automatically.

Validation errors can be manually flagged as Completed by users.

Figure 134: Register Read Validation Errors

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If a user flags an error as completed, this error is deleted from the system the next time the overnight process runs.

The following details the steps taken by the validation process to validate register reads in the system:

1. The process finds any manually resolved (Completed) validation errors, updates the register read as validated and deletes the validation error.
2. For all registers reads which have not been previously validated within the cut-off period, where there is a prior register read (not necessarily the day prior) on the same channel and where all required interval reads have been received or estimated for the period between the un-validated read and the most recent prior read:
 - a. A: Sum all interval read values where start read date time is between the register read and the prior register read.
 - b. B: Calculate the difference between the un-validated register read and the prior register read.
 - c. If the absolute value of $A - B$ equals or exceeds the materiality threshold AND the absolute value of $(A - B)/A$ equals or exceeds the percentage threshold and there is not already an exception for a register read, a validation error is created.
 - d. If no exception is created, the read is flagged as validated and any previous validation error for this register read is deleted.
 - e. Register reads, which previously failed validation and where the exception hasn't been resolved, will be re-checked regularly in case interval reads have been added or updated.
 - f. Register reads are received from EDM1 in NZDT so this process uses the NZDT times of the interval reads for these comparisons. It is assumed for each meter the time the register reads are taken (in Zulu time) does not change, only that the read time in NZDT differs when daylight savings is in effect.

Threshold parameters in Orion below:

system_id	param_code	param_desc	param_type_code	parameter
ORION_AM	RRVAL_CUTOFFDAYS	Register Read Validation Cutoff Days	NUMBER	90
ORION_AM	RRVAL_ABSTHRSHLD	Register Read Validation Materiality Threshold (kWh)	NUMBER	1
ORION_AM	RRVAL_PCTTHRS	Register Read Validation Percentage Threshold	NUMBER	1
ORION_AM	RRVAL_PCTTHRS	Register Read Validation Percentage Threshold	NUMBER	1

Audit outcome

Compliant

10.10. Correction of Raw Meter Data (Clause 10.48(2),(3))

Code reference

Clause 10.48(2),(3)

Code related audit information

If the MEP is notified of a question or request for clarification in accordance with clause 10.48(1), the MEP must, within 10 business days:

- *respond in detail to the questions or requests for clarification*
- *advise the reconciliation participant responsible for providing submission information for the POC of the correction factors to apply and period the factors should apply to.*

Audit observation

FCLM has not received any requests in relation to this clause.

Audit commentary

FCLM has not received any requests in relation to this clause.

Audit outcome

Not applicable

CONCLUSION

FCLM has resolved many of the registry discrepancies and most of the non-compliances caused by approved test houses (ATHs) have also been resolved. The only outstanding issue related to ATHs is that they are not always recording the design reference and some ATHs are not calculating measurement uncertainty in accordance with the Code.

12 non compliances are recorded and two recommendations are made. The main issues are as follows:

- Certification is cancelled and the registry has not been updated for incorrect monitoring of 9 installations certified at a lower category.
- Certification is expired for 3,227 ICPs. 1,578 were previously fully certified.

PARTICIPANT RESPONSE

Our primary focus over the past two years has been on the build and implementation of our MDMS system. Our compliance has shown improvements since its implementation. With ongoing improvements FCLM intend to continue to undertake, will enable us to continue to resolve non-compliance issues.

FCLM are working with TLC on non-compliant ICPs on the LINE network. This is an additional effort to aim to bring non-compliant issues to an end. This is a large task, requiring additional resources and expertise to achieve and is ongoing.