

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

For



FINANCIAL CORPORATION LIMITED (FCLM)

Prepared by: Brett Piskulic – Veritek Limited

Date audit commenced: 5 July 2018

Date audit report completed: 9 August 2018

Audit report due date: 10-Aug-18

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EXECUTIVE SUMMARY

Financial Corporation Limited (FCLM) is a Metering Equipment Provider (MEP) and is required to undergo an audit by 10/08/18 in accordance with clause 1(1)(b) of schedule 10.5.

13 non compliances are recorded and four recommendations are made. The main issues are as follows:

- Certification remains cancelled for incorrect monitoring of 7 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.
- Monitoring has not been not conducted of 2 installations certified with insufficient load.
- Certification is expired for 2,995 ICPs. 1,800 were previously fully certified.
- 874 ICPs were not read during the maximum interrogation cycle.

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. To ensure FCLM has sufficient time to implement changes I recommend an audit frequency of nine months.

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 Incorrect meter readings provided when 3,504 meters reconfigured	Moderate	High	6	Cleared
Registry updates	3.2	2 of Schedule 11.4	39 registry updates later than 15 business days.	Strong	Low	1	Cleared
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

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	<p>Certification cancelled and registry not updated for incorrect monitoring of 7 installations certified at a lower category.</p> <p>Certification cancelled and registry not updated for 2 installations not monitored since insufficient load certification was completed.</p>	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 2,995 ICPs	Moderate	Medium	4	Identified
Insufficient load	7.7	14(3) and (4) of Schedule 10.7	Monitoring not conducted of 2 installations certified with insufficient load.	Weak	Medium	6	Identified
Alternative certification	7.9	32(2), (3) and (4) of Schedule 10.7	The market administrator was advised later than 10 business days after the date of certification of the metering installation.	Moderate	Low	2	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	<p>874 ICPs not read during the maximum interrogation cycle.</p> <p>Processes not in place to resolve issues preventing interrogation.</p>	Weak	Medium	6	Cleared
Time Errors for Metering Installations	10.7	8(4) of Schedule 10.6	Clock errors greater than the threshold for 8 ICPs	Strong	Low	1	Identified
Future Risk Rating						42	

Indicative Audit Frequency	3 months
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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
Uncertainty calculations	4.3	Clause 4(1) of Schedule 10.7	Require the ATHs to provide error and uncertainty results more clearly on metering installation certification reports.
Accuracy of records	5.1	Clause 4(1)(a) and (b) of Schedule 10.	Require ATHs to provide certification records with better clarity.
Electronic Interrogation of Metering Installations	10.5	Clause 8 of Schedule 10.6	Implement suitable processes to ensure issues preventing successful interrogation are resolved
Comparison of HHR Data with Register Data	10.9	Clause 8(9) of Schedule 10.6	Ensure all sumcheck failures are investigated and report on the results of each investigation.

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

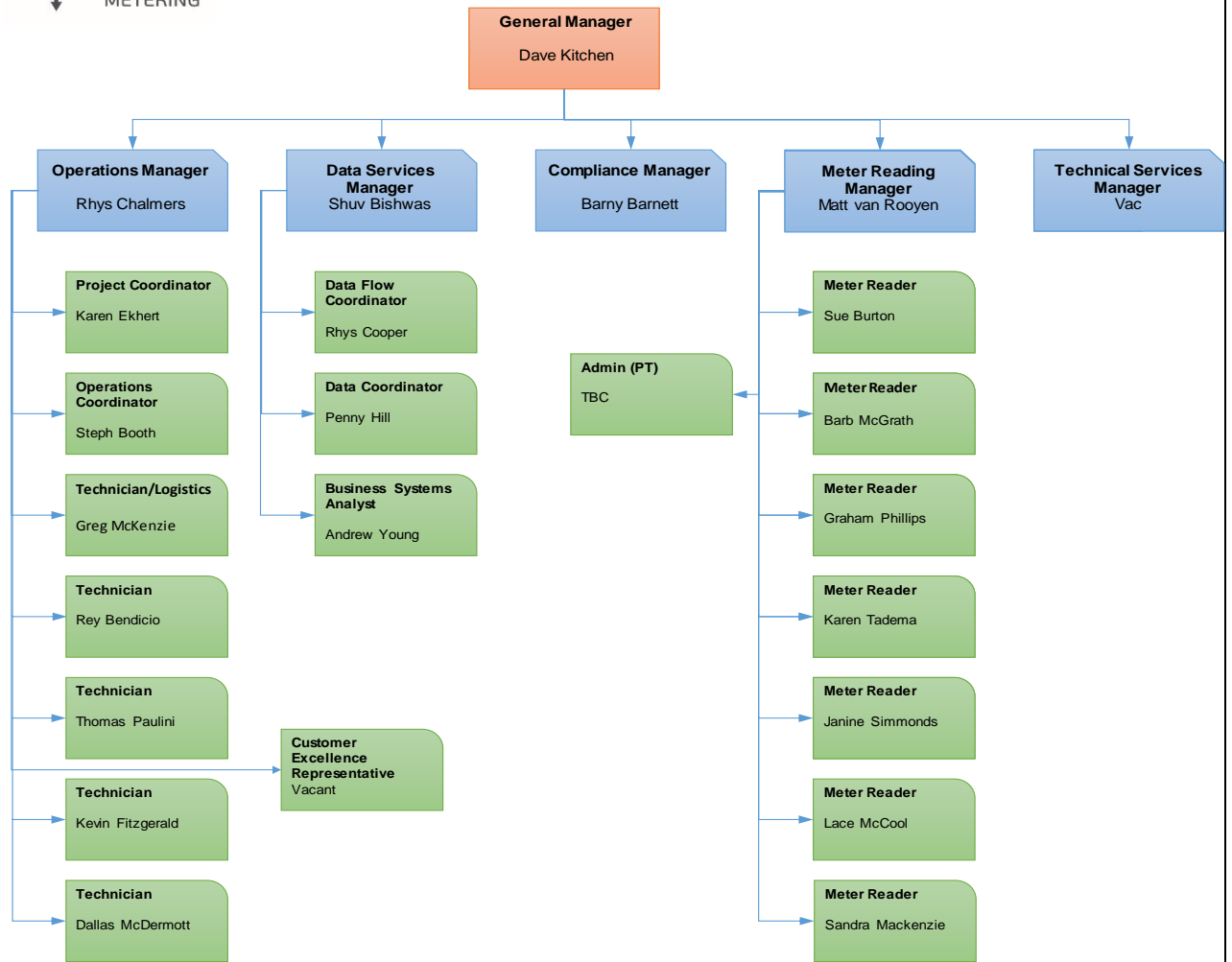
I checked the Electricity Authority website and I confirmed that FCLM was granted exemption 267 on 11 May 2018. FCLM is exempted from complying with the obligation in clause 7(1) of Schedule 11.4 of the Electricity Industry Participation Code 2010 ("Code") to provide to the registry manager the information indicated in lines 23 to 30 of Table 1. FCLM is exempt from providing the metering records that The Lines Company Limited uses only for network billing purposes.

1.2. Structure of Organisation

FCLM Metering Services Structure – Effective 11 July 2018



FCL Metering Organisational Chart



1.3. Persons involved in this audit

Auditor: Brett Piskulic

Supporting Auditor: Steve Woods

Veritek Limited

Electricity Authority Approved Auditor

FCLM personnel assisting in this audit were.

Name	Title
David Barnett	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 was changed prior to the last audit with FCLM requiring the ATHs to provide certification reports for all activities. The certification records are stored in Orion under each ICP. I checked 50 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 provided details of two self breaches it submitted to the Authority.

1.7. ICP Data

Metering Category	Number of ICPs
1	31,576
2	1477
3	46
4	8
5	0
9	16

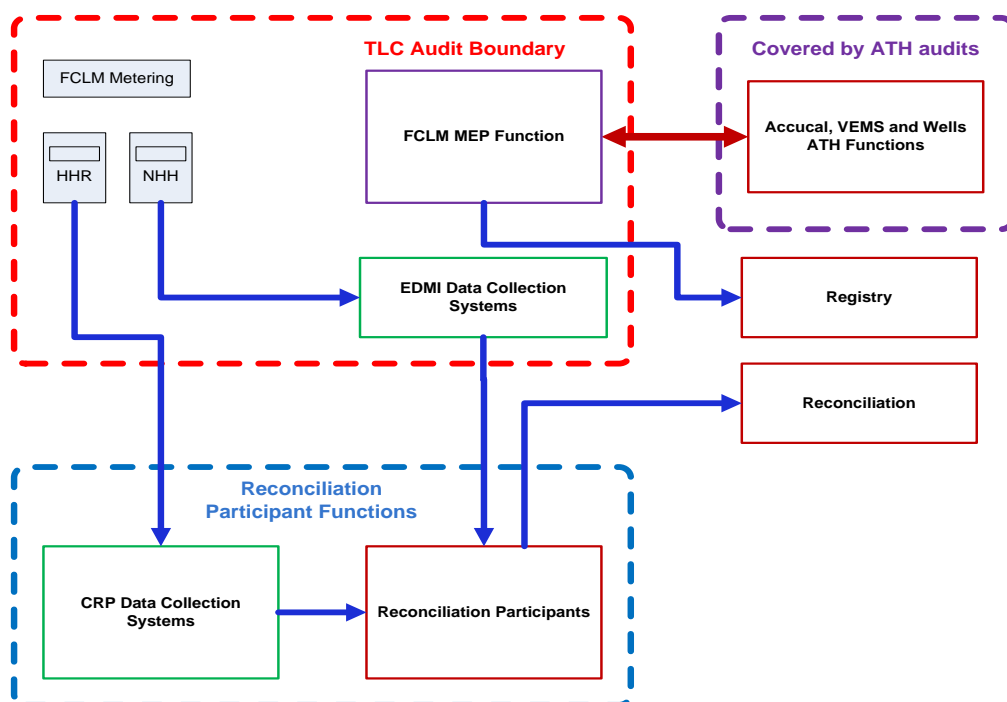
1.8. Authorisation Received

A letter of authorisation was not required or requested.

1.9. Scope of Audit

This audit was conducted in accordance with the Guideline for Metering Equipment Provider Audits V2.1, 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 October 2017 by Steve Woods of Veritek Limited. The table below shows that some of the issues have been cleared.

Table of Non Compliance

Subject	Section	Clause	Non compliance	Status
Provision of accurate information	2.5	11.2 and 10.6	Registry not always updated as soon as practicable in some cases	Still existing
Registry updates	3.2	2 of Schedule 11.4	39 registry updates later than 15 business days.	Still existing
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.	Still Existing
Changes to registry records	4.10	3 of Schedule 11.4	Some records updated on the registry later than 10 business days	Still existing
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.	Still existing
MEP response	6.1	1(1) of Schedule 11.4	8 late MN files	Cleared
Provision of Registry Information	6.2	7 (1), (2) and (3) of Schedule 11.4	Some registry records incomplete or incorrect	Still existing
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	Still existing

Subject	Section	Clause	Non compliance	Status
Certification of metering installations	7.1	10.38 (a), clause 1 and clause 15 of Schedule 10.7	Certification expired for 3,227 ICPs	Still existing
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	Cleared
Interim certification	7.19	18 of Schedule 10.7	1,648 ICPs with expired interim certification	Still existing
Maximum interrogation cycle	10.5	8 of Schedule 10.6	Some installations not interrogated within the maximum interrogation cycle.	Still existing

Table of Recommendations

Subject	Section	Clause	Recommendation for improvement	Status
Accuracy of records	5.1	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	Cleared
Accuracy of records	5.1	4(1)(a) and (b) of Schedule 10.	Require ATHs to provide certification records with better clarity.	Still existing

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 50 metering installations, covering all relevant ATHs.

Audit commentary

FCLM 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 50 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.

In April 2018, FCLM reconfigured 3,504 meters to replace demand registers with TOU registers to cater for a change in line charging methodology by The Lines Company. This change also resulted in the kWh registers being “zeroed”. Reporting was established to include the “final read” and a “start read” (which was zero). It was discovered by a retailer that the “final read” was for the day prior to the change, not the day of the change. In total, under reporting of 103,465 kWh occurred. The matter is now resolved, but non-compliance is recorded because information was provided that was not “complete and accurate”.

Note: FCLM Self Breached the above incident to the Electricity Authority and to date has not had notification of the outcome of the Self Breach.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.5 With: Clause 11.2 and Clause 10.6 From: 01-Nov-17 To: 30-Jun-18	Registry not always updated as soon as practicable in some cases Incorrect meter readings provided when 3,504 meters reconfigured Potential impact: Medium Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 6		
Audit risk rating	Rationale for audit risk rating		
High	Controls are recorded as moderate because there is room to improve the timeliness of registry updates. Controls are recorded as moderate because accurate information is provided most of the time. The impact on other participants is minor; therefore, the audit risk rating is low. The impact on retailers and settlement was high because incorrect billing, network billing and submission occurred and in total it was 103,465 kWh.		
Actions taken to resolve the issue		Completion date	Remedial action status
Immediate response to notify all retailers of the issue. Replacement reads sent. One off goodwill credits supplied to all retailers		30/06/2018	Cleared
Preventative actions taken to ensure no further issues will occur		Completion date	
Reporting issue rectified		30/06/2018	

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 invoiced another MEP during the previous audit period and this invoice is yet to be paid.

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 01/10/17 to 31/05/18 for all records where FCLM became the MEP to evaluate the timeliness of updates.

Audit commentary

I examined an event detail report for 367 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 32 of 39 ICPs where the update was late. Compliance is at 89% and could have been 98% 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%
Jun 2018	367	328	6	89%

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.2 With: Clause 2 of Schedule 11.4 From: 01-Nov-17 To: 30-Jun-18	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
Work order module added to Orion for creating and tracking work orders. JIRA Service Desk installed 10/07/2018. This enables FCLM to track all service request emails and overdue service notifications are also a feature being used in the new system. These are based on a 10 day timeline for jobs to be completed. This also enables us to track our service provider's progress and take action when jobs are overdue. Weekly telephone operational conference calls with Wells and Vircom have been introduced to ensure progress against service levels is monitored and escalated as necessary.		10/07/2018	Cleared
Preventative actions taken to ensure no further issues will occur		Completion date	
Continuing to work with service providers to work to keeping to our service agreement timeframes		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 Accucal, Electrix, VEMS and Wells have current and appropriate scope of approvals. FCLM monitors the ATH schedule on the Authority's website to ensure that these ATHs 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 50 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.

All ATHs are now calculating uncertainty for metering installations certified using the comparative method. Whilst the uncertainty is being calculated the results are not always recorded clearly on the metering installation certification reports. I recommend that FCLM require the ATHs to provide error and uncertainty results more clearly on metering installation certification reports.

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

ATH	Compliance Status
Electrix	Compliant
VEMS	Compliant since late 2016
Wells	Compliant since late 2017

Audit outcome

Non-compliant

Non-compliance	Description
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Audit Ref: 4.3 With: Clause 4(1) of Schedule 10.7 From: 01-Nov-17 To: 30-Jun-18	ATHs are not always recording the design report reference, 23 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	

Recommendation	Description	Audited party comment	Remedial action
Clause 4(1) of Schedule 10.7	Require the ATHs to provide error and uncertainty results more clearly on metering installation certification reports.	Calculation method has been supplied and no issues identified.	Cleared

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 36 NSPs. FCLM confirmed that subtraction is not used at these NSPs.

Audit outcome

Compliant

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

Code reference

Clause 10.26(10)

Code related audit information

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

Audit observation

FCLM is not responsible for any grid metering.

Audit commentary

FCLM is not responsible for any grid metering.

Audit outcome

Compliant

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

Code reference

Clause 4(4) of Schedule 10.7

Code related audit information

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

Audit observation

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 01/10/17 to 31/05/18 to evaluate the timeliness of registry updates.

Audit commentary

The table below shows that there were registry updates for 322 new connections completed of which 38 were late, 88% of updates were compliant.

There were 19,524 updates of which 685 were late, 96% 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%
	Jun 2018	322	284	38	7	88%
Updates	Oct 2015	11,077	3,756	7,321	191	34%
	May 16	12,362	6,340	6,022	192	51%
	Dec 16	31,245	2,605	28,640	394	8%
	Oct 2017	7,420	3,167	4,253	349	43%

	Jun 2018	19,524	18,839	685	9	96%
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Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 4.10 With: Clause 3 of Schedule 11.4 From: 01-Nov-17 To: 30-Jun-18	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
Work order module added to Orion for creating and tracking work orders. JIRA Service Desk installed 10/07/2018. This enables FCLM to track all service request emails and overdue service notifications are also a feature being used in the new system. These are based on a 10 day timeline for jobs to be completed. This also enables us to track our service provider's progress and take action when jobs are overdue. Weekly telephone operational conference calls with Wells and Vircom have been introduced to ensure progress against service levels is monitored and escalated as necessary.		10/07/2018	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Working with retailers to ensure they adhere to timeframes for updating the registry		Ongoing	

4.11. Metering Infrastructure (Clause 10.39(1))

Code reference

Clause 10.39(1)

Code related audit information

The MEP must ensure that for each metering installation:

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

Audit observation

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.

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 was a change made to the software and firmware of a population of EDM1 meters during the audit period. The purpose of the update was to change the period of availability and add extra network registers of meters on The Lines Company network. The new configuration was tested and approved by the VEMS laboratory and this was communicated to the certifying ATHs. I checked the records for examples of meters which had been upgraded, the records recorded that the new configuration had been applied.

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

Compliant

5. METERING RECORDS

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

Code reference

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

Code related audit information

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

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

Audit observation

I checked certification records for 50 metering installations to evaluate compliance with this clause.

Audit commentary

Metering installation certification reports were provided for all 50 installations. The certification reports were confirmed as compliant during the recent VEMS and Wells ATH audits.

I found 30 ICPs where FCLM is recorded on the registry as the MEP but the metering records have not been populated on the registry.

FCLM has 56 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.

Alternative certification has been applied in one case for ICP 0016100092EL8AA. I checked the installation certification report and the notification sent to the Authority. The details of the alternative certification were recorded correctly in the certification report. The prescribed form was used and sent to the authority.

Several of the records were difficult to read and some of the critical fields were difficult to identify. I repeat the previous recommendation that 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, insufficient 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.	In discussion with ATHs to obtain historical information prior to FCLM's move to store records within Orion and therefore fix this historical data issue.	Identified

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 5.1 With: Clause 4(1) of Schedule 10.6 From: 01-Nov-17 To: 30-Jun-18	Metering records not populated on registry for 30 ICPs Some CT information is missing. 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 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
Ownership unknown - Emails sent to Retailers to gather information or create service requests for all ICPs		29/06/2018	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Future connections require all components and their owner to be on the cert.		Ongoing	

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.

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

Compliant

6. MAINTENANCE OF REGISTRY INFORMATION

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

Code reference

Clause 1(1) of Schedule 11.4

Code related audit information

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

Audit observation

I checked the event detail report for the period 01/10/17 to 31/05/18 to confirm whether all responses were within 10 business days.

Audit commentary

There were no late MN files identified by the analysis in Sections 3.2 and 4.10.

Audit outcome

Compliant

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

Code reference

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

Code related audit information

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

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

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

Audit observation

I checked the list file for 100% of records 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
Jul 18	Sep 17	Dec 16	May 16		
30	49	78	98	Blank metering records	4 – another MEP nominated

					<p>1 – we believe is unmetered</p> <p>4 - completed and now has metering details</p> <p>8 - with current work orders</p> <p>23 – Working with retailers to obtain customer access details. More than likely some dismantles required.</p>
0	1	2	0	Category 2 ICP recorded as Category 1	N/A
0	0	2	6	Compensation factor of 3 on recently certified installations	N/A
1	0	5	5	ICPs over Category 1 with interim certification	Updated
15	9	3	46	ICPs with Y for the HHR flag but with NHH installations	These have been updated and are now picked up by a new meter reconciliation report and updated as required.
1	2	0	16	Category 2 installations certified for more than 10 years or for zero years (cert date = expiry date)	Updated – To be automated stage 3 Orion. In the interim manual monitoring to take place.
1				Category 4 installations certified for more than 5 years	Updated – To be automated stage 3 Orion. In the interim manual monitoring to take place.
3	3	5	154	Category 1 installations certified for more than 15 years or for zero years (cert date = expiry date)	Updated – To be automated stage 3 Orion. In the interim manual monitoring to take place.
1	1	0	0	ICPs with IN24. The EA has advised that IN24 should not be used.	<p>Updated – manual input error.</p> <p>Reminder to the retailer and FCLM staff not to use this setup on service requests.</p>
0	0	0	0	ICPs with IN0	N/A

0	0	0	0	ICPs with UN0	N/A
0	0	0	5	D18 without N6	N/A
0	0	0	7	Day without night	N/A
296	293	37	519	Night without day	These are correct and are all three register meters on the Electralines Network – Total registers = 24hr – Grandfathered Triple Rate Meters and therefore should not be included as contributing towards FCLMs compliance.
3	4	3	41	CN only, these should have an associated code or they could be IN	These are pumps and have controlled load only.
592	157	464	7	Controlled load with no control device	These are ICPs that either have an electronic meter with programmed registers or some older type meters that require a relay to switch registers that we do not have relay details for These will be picked up on compliance change outs or AMI upgrades.
81	77	487	0	IN content code without a control device	Following up, The majority are not owned by FCLM but have duplicate serial numbers so can't be processed in Orion.
56	60	129	168	Installations without CT information populated on the registry	Ownership unknown - Emails sent to Retailers to gather information or create service requests for all ICPs
0	0	3	3	Interim certification expiry dates incorrect	N/A
9	8	6	5	Export ICPs without an injection register	one – with another MEP one – Registry has been updated one – being discussed with the retailer and the customer Six the registry profile has been changed since the meter was

					installed. We have had no requests for a tariff change.
2	4	1	2	Category 3 or 4 with a NHH meter installation type	Updated – To be automated stage 3 Orion. In the interim manual monitoring to take place.
158	279	188	213	Profile requiring certified control device where control device is not certified (excl AMI)	These are identified in the meter reconciliation report and updated as required. The 158 will be where the retailer has changed the profile for a meter already installed that does not support the profile.
0	0	0	15,264	7304 register missing from the registry	N/A
0	0	2	0	ICPs recorded as AMI without a NHH register	N/A

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 6.2 With: Clause 7 (1), (2) and (3) of Schedule 11.4 From: 01-Nov-17 To: 30-Jun-18	Some registry records incomplete or incorrect. Potential impact: Medium Actual impact: Low Audit history: Multiple times Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
Low	I have recorded the controls as strong 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
Orion stage 3 upgrades will assist this process.		October 2018	Identified

Preventative actions taken to ensure no further issues will occur	Completion date	
Database upgrades scoped.	As necessary and to meet customer requirements	

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 the latest report to confirm that it had been run.

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. The previous audit had found that the monitoring of 9 category 2 metering installations which were certified at a lower category had been conducted incorrectly. FCLM has since corrected the method of monitoring. However, the certification of 7 of these ICPs was not cancelled and they have not been recertified.

There were two examples of insufficient load certifications, Cat 2 ICP 1002046119LC662 and Cat 4 ICP 0148028039LCC7C. FCLM has not conducted monitoring of these installations since certification. The certification of these installations has not been cancelled.

Audit outcome

Non-compliant

Non-compliance	Description
<p>Audit Ref: 6.4</p> <p>With: Clause 20 of Schedule 10.7</p> <p>From: 01-Nov-17</p> <p>To: 31-May-18</p>	<p>Certification cancelled and registry not updated for incorrect monitoring of 7 installations certified at a lower category.</p> <p>Certification cancelled and registry not updated for 2 installations not monitored since insufficient load certification was completed.</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 there is no monitoring conducted of installations certified with insufficient load.</p> <p>The issues found can all potentially have a moderate impact on other participants and on settlement. The audit risk rating is medium.</p>

Actions taken to resolve the issue	Completion date	Remedial action status
<p>Monitoring in place 07/07/2018 this includes % thresholds to give advance warning, automated reporting and a means of identifying installations to be monitored. FCL had temporary monitoring in place Oct 2017 and in fact identified 1 site that was over the threshold and has been recertified at a higher category. The original 9 sites were purchased from another MEP and we were not aware of the certification at the time of purchase. As a rule we do not use this method of certification and try to certify at the correct installation category according to the CT size.</p> <p>FCL staff trained to check the certification type on Cat 2 and above installations.</p> <p>FCL will revisit the 7 sites once more to recertify as was done previous to our last audit.</p>	October 2018	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
Monitoring upgrades implemented into Orion and recertifying 7 sites identified.	October 2018	

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 2995 ICPs have expired certification. The table below gives a breakdown of these.

Oct 2015	May 2016	Dec 2016	Sep 2017	Jul 2018	Description
8,299	3,633	2,376	1,648	1,118	Expired interim certification
		3		0	Interim without 01/04/15 expiry
435	264	1,782	1,539	1800	Expired full certification (Category 1)
22	36	95	39	67	Expired full certification (Category 2)
0	0	1	0	2	Expired full certification (Category 3)
0	0	0	1	1	Expired full certification (Category 9)
2,814	2,340	5	0	0	Cancelled certification due to overdue inspections (Category 1)
241	61	0	0	0	Cancelled certification due to overdue inspections (Category 2)
0	8	0	0	0	Cancelled certification due to overdue inspections (Category 3 & 4)
5	16	0	9	7	Cancelled certification due to certification as a lower category and monitoring not conducted
1	0	0	0	0	Expired certification for metering installation at ETC0011ESDPEN
11,817	6,358	4,262	3,236	2995	Total

FCL provided the table below which details the reasons for not being able to complete a meter replacement at 2,325 installations.

Reason	Total	Comment
Access	908	Customer refusals and issues with access
Health & Safety	152	Health and Safety
No Power	185	Denergised sites (TLC and Retailer)
Technical (Includes tariff issues)	758	Tariff issues related to Load Control
Questionable ICP	267	ICPs created in error by the Network
Unable to locate	27	ICPs that have been unable to locate
Vacant	28	Vacant denergised (Retailer)

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 7.1 With: Clause 10.38 (a), clause 1 and clause 15 of Schedule 10.7 From: 01-Nov-17 To: 30-Jun-18	Certification expired for 2,995 ICPs Potential impact: High Actual impact: Medium Audit history: Multiple times Controls: Moderate Breach risk rating: 4		
Audit risk rating	Rationale for audit risk rating		
Medium	I have recorded the controls as moderate in this area because certification has been expired for a number of years for some ICPs and because some of the expired installations were fully certified at one point. The impact on settlement is recorded as moderate because of the increased likelihood of failure or inaccuracy for metering installations with expired certification, therefore the audit risk rating is medium.		
Actions taken to resolve the issue		Completion date	Remedial action status

<p>FCLM is a 100% subsidiary of TLC and have responsibility for 32,820 ICPs nationally.</p> <p>TLC network accounts for 23,371 ICPs (71%)</p> <p>Remainder of NZ accounts for 9,449 ICPs (29%)</p> <p>TLC network summary is as per the summary attached for 2325 installations</p> <p>Off network (Remainder of NZ)</p> <p>Off Network our requests to replace our expired metering have been met with refusals by most of the large retailers as they have been previously engaged with other MEPs as part of their deployment roll outs. However, these have now come to an end for the majority and our meeting remains in place. We have now engaged with all of the retailers and with the exception of Powershop our requests to access our meters for compliance related work are now being actioned. We now have a plan for each Retailer. Service Request are now being issued through our Orion MDMS (previously this was via manual spreadsheets) and in March 2018 – 250 requests were raised. This is in line with the contact information being received from the Retailers and the availability of resource of our two ATHs – VircomEMS and Wells.</p>	Ongoing	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
Orion compliance reporting identifies installations due for recertification. Work orders are created from the reports to ensure compliance is maintained.	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 50 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

Compliant

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.

I checked the recent monitoring reports and confirmed that the monitoring is conducted correctly.

The previous audit had found that the monitoring of 9 category 2 metering installations which were certified at a lower category had been conducted incorrectly. FCLM has since corrected the method of monitoring. However, the certification of 7 of these ICPs was not cancelled and they have not been recertified. This is recorded as non-compliance in section 6.4.

Audit outcome

Compliant

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

Code reference

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

Code related audit information

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

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

Audit observation

I checked if there were any examples of Insufficient load certifications

Audit commentary

There were two examples of insufficient load certifications, Cat 2 ICP 1002046119LC662 and Cat 4 ICP 0148028039LCC7C. FCLM has not conducted monitoring of these installations since certification.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 7.7 With: 14(3) and (4) of Schedule 10.7 From: 01-Nov-17 To: 30-Jun-18	Monitoring not conducted of 2 installations certified with insufficient load. 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
Investigation underway as to why these were certified in this manner. Our service providers are contracted to supply load banks in these instances. We do not expect to have any certified using the insufficient load method.		31/08/2018	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	

Dialogue with test houses of our contractual requirements.	31/08/2018	
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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

FCLM has not conducted monitoring of insufficient load certifications.

Audit commentary

FCLM has not conducted monitoring of insufficient load certifications.

Audit outcome

Compliant

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

Code reference

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

Code related audit information

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

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

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

Audit observation

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

Audit commentary

Alternative certification has been applied in one case for ICP 0016100092EL8AA. I checked the installation certification report and the notification sent to the Authority. The details of the alternative certification were recorded correctly in the certification report. The prescribed form was used and sent to the authority, however the form was not sent within the required 10-day timeframe. The certification was completed on 17/01/2018, the form was dated 7/02/2018, a period of 14 business days.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 7.9 With: 32(2), (3) and (4) of Schedule 10.7 From: 01-Nov-17 To: 30-Jun-18	The market administrator was advised later than 10 business days after the date of certification of the metering installation. Potential impact: Medium Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	I have recorded the controls as moderate in this area as there was only one example and it was four days late. There is no impact on settlement or other participants. The audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status
Work order module added to Orion for creating and tracking work orders. JIRA Service Desk installed 10/07/2018 .This enables FCLM to track all service request emails and overdue service notifications are also a feature being used in the new system. These are based on a 10 day timeline for jobs to be completed. This also enables us to track our service provider's progress and take action when jobs are overdue.		10/07/2018	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Continuing to work with service providers to work to keeping to our service agreement timeframes		Ongoing	

7.10. Timekeeping Requirements (Clause 23 of Schedule 10.7)

Code reference

Clause 23 of Schedule 10.7

Code related audit information

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

- 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 15 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 15 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 50 metering installations to confirm compliance.

Audit commentary

Meters were certified for all 50 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 25 metering installations to confirm compliance.

Audit commentary

Measuring transformers were certified for all 25 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 50 metering installations to confirm compliance.

Audit commentary

The 50 certification records that I checked confirmed that the data storage devices are being correctly certified.

Audit outcome

Compliant

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

Code reference

Clause 7 (3) Schedule 10.3

Code related audit information

If the MEP is 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 1,118 previously interim certified installations with expired certification.

Audit outcome

Non-compliant

Non-compliance	Description
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Audit Ref: 7.19 With: Clause 18 of Schedule 10.7 From: 01-Nov-17 To: 30-Jun-18	1,118 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
Some ICPs have been visited and are unable to be completed as information listed in section 7 of this report. We are unable to do anything more to make these compliant at this stage without additional assistance from Networks/Retailers. The remainder are ongoing.		Ongoing	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Continue working with participants to get these compliant.		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

Compliant

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

Code reference

Clause 46(1) of Schedule 10.7

Code related audit information

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

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

Audit observation

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

Compliant

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

Code reference

Clause 44(5) of Schedule 10.7

Code related audit information

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

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

Audit observation

There were no inspections required to be completed during the audit period.

Audit commentary

There were no inspections required to be 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 an example of a category 1 installation (ICP 1001292905LC61E) which had seals removed and the meter was bridged.

Audit commentary

In this case FCLM were advised that the meter was unsealed and the meter bridged after being remotely disconnected. FCLM arranged for an ATH to visit site within the required 20 days. The ATH unbridged the meter, recertified the installation and resealed the meter.

The FCLM process requires that all unsealed meters are tested by the ATH and recertified if required.

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 1 ICP 0002222600WFB98 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 1 ICP 0002222600WFB98 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

Compliant

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

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

Code reference

Clause 1 of Schedule 10.6

Code related audit information

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

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

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

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

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

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

Audit observation

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

Audit commentary

No requests have been received but 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 is now in place and this was demonstrated. There are 874 ICPs without a successful interrogation with the maximum interrogation cycle of 90 days. This information is provided to reconciliation participants, but whilst reporting is in place, no further action is taken to resolve any issues preventing successful interrogation; FCLM is reactive to this and only takes remedial action if the relevant participant sends a service request. I recommend FCLM implements suitable processes to ensure all ICPs are successfully interrogated within the maximum interrogation cycle.

Recommendation	Description	Audited party comment	Remedial action
Regarding Clause 8 of Schedule 10.6	Implement suitable processes to ensure issues preventing successful interrogation are resolved	<p>FCL believe the 90 day rule is correct as the reading of FCLM meters is done under contract with the retailers.</p> <p>Some do not require AMI reads and read all of their meters.</p> <p>Others receive readings within the timeframe and would send a service request if a meter stopped communicating.</p>	Identified

Data is stored indefinitely and this was confirmed by checking some historic data from 2015.

Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 10.5</p> <p>With: Clause 8 of Schedule 10.6</p> <p>From: 01-Sep-17</p> <p>To: 30-Jun-18</p>	<p>874 ICPs not read during the maximum interrogation cycle.</p> <p>Processes not in place to resolve issues preventing interrogation.</p> <p>Potential impact: High</p> <p>Actual impact: Medium</p> <p>Audit history: Once</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 because processes have not been developed to resolve issues preventing interrogation.</p> <p>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.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>FCL believe the 90 day rule is correct as the reading of the meters is done under contract with the retailers.</p> <p>Some do not require AMI reads and read all of their meters.</p> <p>Others receive readings within the timeframe and would send a service request if a meter stopped communicating.</p>		N/A	Cleared

Preventative actions taken to ensure no further issues will occur	Completion date	
Discussion with the EA to revise the proposed use of AMI and interrogation cycle.	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 EDMl 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:

- ICP 0000223337MP488 had an error of 92 seconds, which is now corrected.
- ICP 0140854002LCACE had an error of 97 seconds, which is now corrected.

In total there were eight examples of clock errors greater than 30 seconds during 2018.

This clause is clear that when errors are outside the threshold, compliance is not achieved. The exact text is as follows:

“A metering equipment provider must ensure that a data storage device in a metering installation for which it is responsible for interrogating does not exceed the maximum time error set out in Table 1 of subclause (5).”

EDMl 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. EDMl confirmed that the data would need to be manually apportioned to prior periods. This will be a rare event, but EDMl and FCLM have a process in place to deal with this if required.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 10.7 With: Clause 8(4) of Schedule 10.6 From: 01-Sep-17 To: 30-Jun-18	Clock errors greater than the threshold for 8 ICPs Potential impact: Low Actual impact: None Audit history: None Controls: Strong Breach risk rating: 1
Audit risk rating	Rationale for audit risk rating
Low	The controls are recorded as strong because interrogation is attempted daily and clock errors are addressed during all interrogations. The errors were all small and none were across a trading period, therefore there is no impact on participants or settlement. The audit risk rating is low.
Actions taken to resolve the issue	
Completion date	Remedial action status

This is due to meters suddenly communicating after a long period of non-communication.	Ongoing	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
Action immediately as current process.	Ongoing	

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

Code reference

Clause 8(7) of Schedule 10.6

Code related audit information

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

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

Audit observation

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. The events include reverse rotation and phase failure.

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. 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_PCTTHRSHLD	Register Read Validation Percentage Threshold	NUMBER	1
ORION_AM	RRVAL_REMEDIATION	Register Read Validation Remediation	NUMBER	0

An example of the report was examined and it showed some examples where the sumcheck had failed. Data is still provided to participants and it is labelled as having failed, but no further action is taken to determine the cause of the failure. Whilst this clause does not require any further action, if there is an undiagnosed problem, it could cause non-compliance with Clause 10.6, which is the requirement to provide complete and accurate information. I recommend sumcheck failures are examined and the results recorded to ensure accurate information is provided.

Recommendation	Description	Audited party comment	Remedial action
Regarding Clause 8(9) of Schedule 10.6	Ensure all sum check failures are investigated and report on the results of each investigation.	To be reviewed	Identified

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

13 non compliances are recorded and four recommendations are made. The main issues are as follows:

- Certification remains cancelled for incorrect monitoring of 7 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.
- Monitoring has not been not conducted of 2 installations certified with insufficient load.
- Certification is expired for 2,995 ICPs. 1,800 were previously fully certified.
- 874 ICPs were not read during the maximum interrogation cycle.

PARTICIPANT RESPONSE

FCLM would again like to thank the Auditors for the diligence and guidance during the audit process.

With the introduction and continued development of our Orion MDMS system the number of non-compliances has continued to reduce year on year and the areas that remain for attention require us to work closely with third parties to achieve compliance.

The additional deployment of the JIRA Service Desk to further monitor and track performance of our third party providers and prioritise requests from Retailers will ensure that we continue to work towards our compliance obligations. However, we feel that the issue of communication meters with the guidelines suggested by the Authority is prohibitively expensive and time consuming to introduce and as such would drive additional cost into our business as well as the Retailers as Service Requests would need to be continually raised to rectify issues that may or may not be actual communication errors.