

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

For

**ELECTRICITY INVERCARGILL/THE POWER
COMPANY
(MANAGED BY POWERNET)**

Prepared by: Ewa Glowacka

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Date audit report completed: 8 February 2018

Audit report due date: 08-Feb-18

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EXECUTIVE SUMMARY

This participant audit was performed at the request of PowerNet to encompass the Authority's request for an audit, as required by clause 10.20, of Part 10, of the Electricity Industry Participation Code 2010. PowerNet is a management company which manages the MEP functions on behalf of The Power Company (TPCO) and Electricity Invercargill (ELIN). PowerNet is also a MEP in its own right. (This is covered in a separate document). The company provides the MEP services for metering installations of category 1 and 2 only.

The relevant clauses were audited as required by the Guidelines for Metering Equipment Provider v.2.0 issued by the Electricity Authority.

Contact Energy has ceased deployment of smart meters in The Power Company and Electricity Invercargill network, yet only approximately 50% of ICPS have been converted to smart meters. AMS is still installing smart meters as a part of the deployment project for other SmartCo retailers but they also will be ceasing shortly. It means that ELIN/TPCO have been left with many installations which require an upgrade. ELIN/TPCO started using Delta as a contractor in October last year, due to the deployment of smart meters and the necessary upgrades required. Smart meters are installed and at a later stage all, re-certified installations will be transferred to SmartCo for the MEP services. Electricity Invercargill and The Power Company will retain ownership of the meters. The meters won't be read remotely until they are transferred to SmartCo.

During the audit we identified eight non-compliances for TPCO and ELIN. The level of compliance has improved since the last audit. Based on Table 1 of the Guidelines for Reconciliation Participant audit, the next audit should happen within the next 12 months. Our recommendation is to conduct the next audit in 12 months.

We thank PowerNet's staff for their full and complete cooperation in this audit.

AUDIT SUMMARY

NON-COMPLIANCES

Electricity Invercargill (ELIN)

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Participants to provide accurate information	2.5	11.2	Information for small number of ICPs is missing or incorrect	Moderate	Low	2	Identified
Changes to registry records	4.10	3 of Schedule 11.4	Registry metering data updated later than 10 business days for small number of ICPs	Moderate	Low	2	Identified
Accurate and complete records	5.1	4(1)(b)(v) of Schedule 10.6	Lack of certification tests for some Q meters	Strong	Low	1	Identified
Provision of registry information	6.2	7 of Schedule 11.4	CTs information not populated in the registry for 12 ICPs	Moderate	Low	2	Identified
Correction of errors in registry	0	6 of Schedule 11.4	For two months ELIN did not compare the information obtained from the registry with the MEP's own records as per this clause requirements	Moderate	Low	2	Identified
Registry metering records	6.5	11.8A	12 category 2 metering installations do not have CTs information recorded in the registry.	Moderate	Low	2	Identified
Certification and maintenance	7.1		Certification expired for 4 installations (cat 2)	Moderate	Low	2	Identified
Time keeping requirements	7.10	23 of Schedule 10.7	Time is not being checked on these devices	Moderate	Low	2	Identified
Category 2 to 5 inspections	8.2	46(1) of Schedule 10.7	4 category 2 installations were not inspected	Moderate	Low	2	Identified
Future Risk Rating						17	

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

Based on Table 1 of the Guidelines for Reconciliation Participant audit, the next audit should happen within the next 12 months. Our recommendation is to conduct the next audit in 12 months.

RECOMMENDATIONS

Subject	Section	Description	Recommendation
		Nil	

ISSUES

Subject	Section	Description	Issue
		Nil	

The Power Company (TPCO)

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Participants to provide accurate information	2.5	11.2	Information for small number of ICPs is missing or incorrect	Moderate	Low	2	Identified
Changes to registry records	4.10	3 of Schedule 11.4	Registry metering data updated later than 10 business days for small number of ICPs	Moderate	Low	2	Identified
Accurate and complete records	5.1	4(1)(b)(v) of Schedule 10.6	Lack of certification tests for some Q meters	Strong	Low	1	Identified
Provision of registry information	6.2	7 of Schedule 11.4	CTs information not populated in the registry for 19 ICPs 5 ICPs certification duration is incorrect	Moderate	Low	2	Identified
Correction of errors in registry	0	6 of Schedule 11.4	For two months TPCO did not compare the information obtained from the registry with the MEP's own records as per this clause requirements	Moderate	Low	2	Identified
Registry metering records	6.5	11.8A	19 category 2 metering installations do not have CTs information recorded in the registry.	Moderate	Low	2	Identified
Certification and maintenance	7.1		Certification expired for 770 installations (cat 1) and 3 ICPs (cat 2)	Moderate	Low	2	Identified
Time keeping requirements	7.10	23 of Schedule 10.7	Time is not being checked on these devices	Moderate	Low	2	Identified
Category 2 to 5 inspections	8.2	46(1) of Schedule 10.7	3 category 2 installations were not inspected	Moderate	Low	2	Identified
Future Risk Rating						17	

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

Based on Table 1 of the Guidelines for Reconciliation Participant audit, the next audit should happen within the next 12 months. Our recommendation is to conduct the next audit in 12 months.

RECOMMENDATIONS

Subject	Section	Description	Recommendation
		Nil	

ISSUES

Subject	Section	Description	Issue
		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.

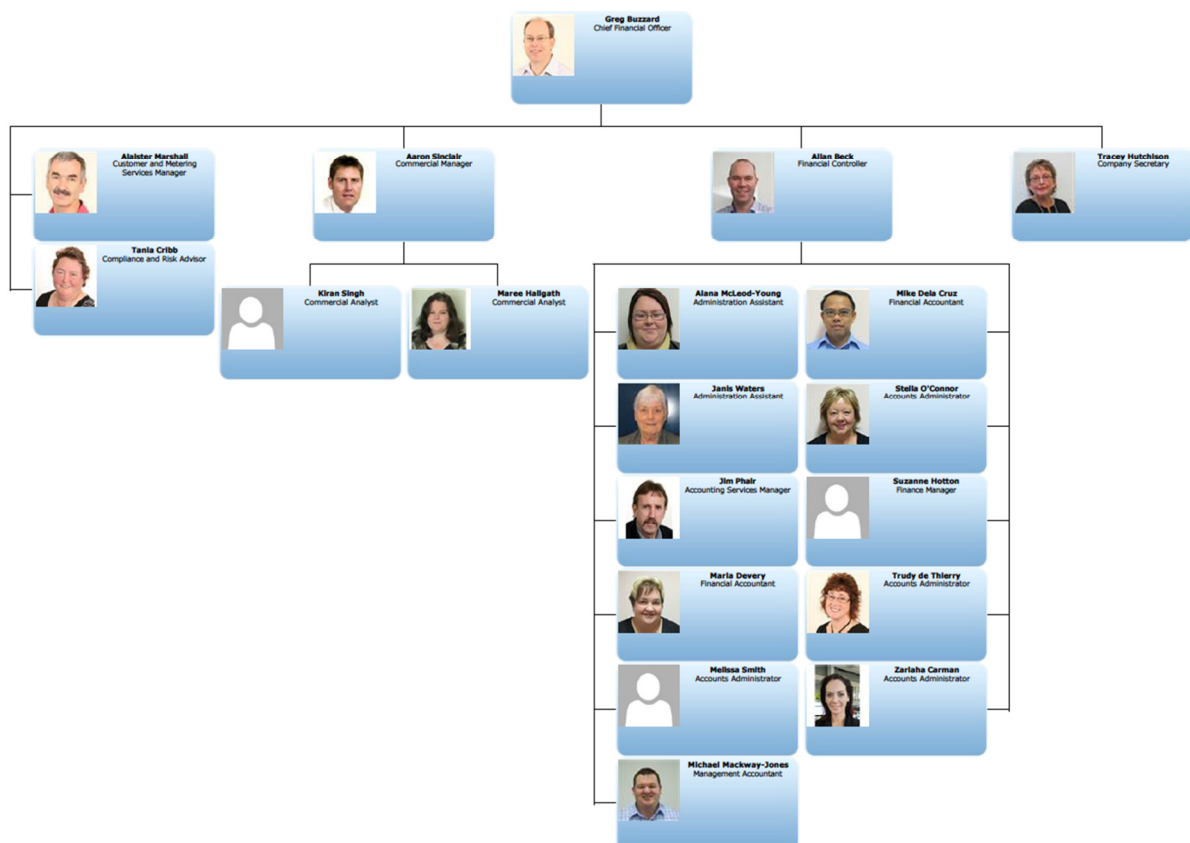
Audit observation

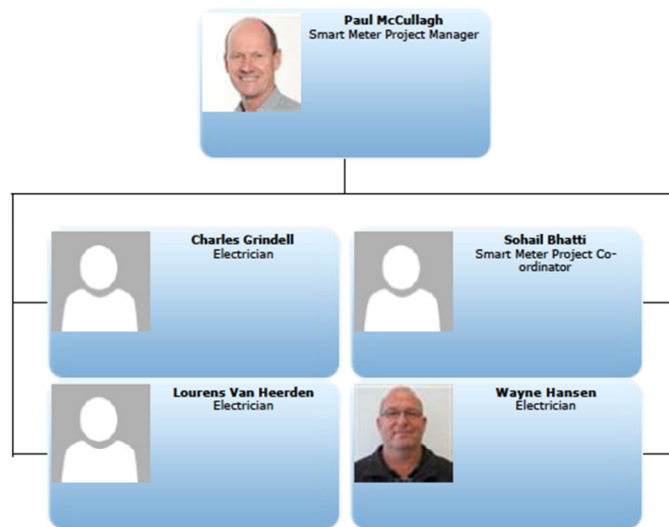
TPCO/ELIN do not have any exemptions granted to exempt them from compliance with all or any of the clauses.

Audit commentary

TPCO/ELIN did not apply for any exemptions. We checked the Electricity Authority website and confirm that there are no exemptions in place.

1.2. Structure of Organisation





1.3. Persons involved in this audit

Name	Title	Company	Comment
Alaister Marshall	Customer and Metering Services Manager	PowerNet	Contact person
Grant Smith	Director	Ace Computer Consultants	PowerNet database developer
Ewa Glowacka	Electricity Authority Approved Auditor	TEG & Associates Ltd	

1.4. Use of Agents (Clause 10.3)

Code reference

Clause 10.3

Code related audit information

A participant who uses a contractor

- *remains responsible for the contractor's fulfilment of the participant's 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

PowerNet on behalf of TPCO/ELIN does not use agents for the functions covered by this audit.

Audit commentary

All functions covered in this audit are performed in-house by PowerNet's staff, or by their database developer Ace Computer Consultants.

1.5. Hardware and Software

The key infrastructure required for the audited processes comprises of the Metering database. The software is constantly updated to add monitoring functionality.

1.6. Breaches or Breach Allegations

We can confirm that there were no breaches related to areas covered by the last audit.

1.7. ICP Data

ELIN

Metering Category	Number of ICPs
1	8,073
2	135
3	0
4	0
5	0

TPCO

Metering Category	Number of ICPs
1	16,960
2	99
3	0
4	0
5	0

1.8. Authorisation Received

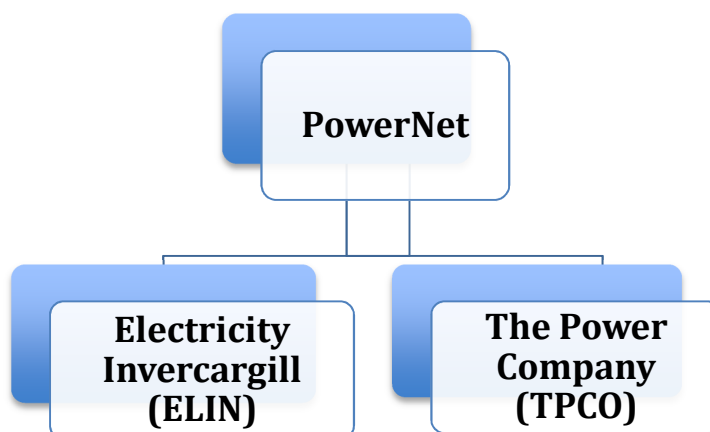
PowerNet provided a letter of authorisation to TEG & Associates permitting the collection of data from other parties for matters directly related to the audit.

1.9. Scope of Audit

This participant audit was performed at the request of PowerNet to encompass the Authority's request for an audit as required by clause 10.20, of Part 10, of the Electricity Industry Participation Code 2010. PowerNet Limited is a joint venture company that manages the metering equipment provider functionality on behalf of Electricity Invercargill and The Power Company.

The company uses the same processes and software to deliver the MEP service for both MEPs therefore this report will cover the analysis of compliance for both Electricity Invercargill and The Power Company. If any differences are identified during this audit in relation to compliance with the Code, it will be highlighted.

In the body of this report the name PowerNet will be used to represent ELIN and TPCO equally. Where the names ELIN and TPCO are used they will refer singularly.



The audit was carried out on the PowerNet premises at 251 Racecourse Road, in Invercargill, on the 23/27 January 2018.

The audit covered the following functions:

- Process for changing a MEP
- Installation and modification of metering installations
- Metering records
- Maintenance of registry information
- Certification of metering installations
- Inspection of metering installations
- Process of handling faulty metering installations
- Access to and provision of raw meter data and metering installations

1.10. Summary of previous audit

The previous audit was conducted on 14/15 November 2016 by Ewa Glowacka of TEG Associates. The following non-compliances were identified.

Electricity Invercargill (ELIN)

Subject	Clause	Non-compliance	Cleared
MEP to provide registry with meter information changes	3 of Schedule 11.4	Registry metering data updated later than 10 business days for a small number of ICPs	
MEP to provide information to registry	7 of Schedule 11.4 11.2 of Part 11	Some information provided to registry is incorrect or incomplete	
MEP to provide metering records to the registry	11.8A	For 17 ICPs (installations of category 2) CT details are not recorded in the registry	
Certification of metering installations	10.38(a)	For 25 ICPs cat 2 and 949 ICPs cat 1, certification has expired	
Interim certified metering installations	18 of Schedule 10.7	5,166 ICPs are interim certified installations	

Subject	Clause	Issue	Cleared
MEP receives MEP's nomination from a trader	1(1) of Schedule 11.4	Traders backdate the MEP nominations.	

The Power Company (TPCO)

Subject	Clause	Non-compliance	Cleared
MEP to provide registry with meter information changes	3 of Schedule 11.4	Registry metering data updated later than 10 business days for a small number of ICPs	
MEP to provide information to registry	7 of Schedule 11.4 11.2 of Part 11	Some information provided to registry is incorrect or incomplete	
MEP to provide metering records to the registry	11.8A	For 57 ICPs (installations of category 2) CT details are not recorded in the registry	

Certification of metering installations	10.38(a)	1,674 ICPs cat 1, certification has expired	
Interim certified metering installations	18 of Schedule 10.7	15,165 ICPs are interim certified installations	

Subject	Clause	Issue	Cleared
MEP receives MEP's nomination from a trader	1(1) of Schedule 11.4	Traders backdate the MEP nominations.	

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

All installations, for which ELIN and TPCO are responsible, have both historic “vanilla” and new smart meters. The meters are read manually by meter readers appointed by traders. A meter reader visits the site and visually reads the meter’s register and records the data then passes it to traders.

Smart meters being installed by ELIN and TPCO include a communication module to connect with PowerNet’s communications mesh system, however PowerNet has no headend infrastructure to facilitate remote access, therefore they are also read manually by meter readers. Once the smart meter transitions to SmartCo full smart functionality is activated via the SmartCo headend.

Audit commentary

A meter register display is considered to be the service access interface. Any issues with the service access interface reported during inspections or reported by traders is attended to promptly.

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

PowerNet has a procedure in place detailing how disputes between participants will be resolved if the need arises. It is the same procedure that would be used by PowerNet as a distributor. Since the last audit, no disputes related to metering have been lodged.

Audit commentary

Since the last audit, no disputes related to metering have been referred to the Authority.

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

The LIS file dated 21st January 2018 was analysed, and we confirm that the 4-letter code of ELIN is used for Electricity Invercargill and TPCO for The Power Company.

Audit commentary

Compliance confirmed based on a review of the LIS files.

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

All installations, for which ELIN and TPCO are responsible, use both “vanilla” and smart meters. Smart meters recently being installed are not interfaced with a smart meter headend. All meters for which ELIN/TPCO provides the MEP services are read by meter readers.

Audit commentary

This clause is not applicable. Compliance was not assessed.

Audit outcome

Non-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

PowerNet utilises their metering database developer (Ace Computer Consultants) to perform stringent monitoring of metering transactions on a daily basis. This covers adhoc data changes entered manually and processing of bulk meter change information received from two sources:

- VAMS (Vector Advanced Metering Services), as agent for SmartCo, reporting ELIN/TPCO meter displacements for installation of SmartCo meters.
- Delta Utility Services carrying out ELIN/TPCO meter replacements for recertification and smart meter roll-out.
- PowerNet's metering data is edited within their metering database, and the ICP is automatically tagged as needing to send Metering updates to the Registry. Provided they are the MEP or Proposed MEP, these changes flow through to the registry daily. The MEP update system looks for a satisfactory Acknowledgement for each update line item. Any Errors returned are investigated and corrected immediately. This ensures PowerNet's metering data and registry remain consistent with each other.

Audit commentary

All meter information is constantly checked for completeness and accuracy, as well as monitoring to ensure meter replacement have been correct and appropriate, e.g. if an ICP has multiple meter have all meters been replaced. If a discrepancy is discovered, it is immediately raised with the appropriate parties for clarification and/or correction.

In section 6.2 we noted that some information in the registry is missing of incorrect.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.5 With: 11.2 From: 01-Dec-16 To: 31-Dec-17	Information for small number of ICPs is missing or incorrect Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as moderate because there are some improvements that can be made. Only small number of ICPs are effected by this non-compliance. There was no impact on settlement. The audit risk rating is recorded as low.		
Actions taken to resolve the issue		Completion date	Remedial action status
Data errors are corrected as soon as they become known. Missing data is loaded as soon as the data is available.		Ongoing	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Continue with monitoring of data.		Ongoing	

3. PROCESS FOR A CHANGE OF MEP

3.1. Change of metering equipment provider (Clause 10.22)

Code reference

Clause 10.22

Code related audit information

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

The 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

The topic was discussed with PowerNet and their comment was that this clause has not been exercised since the last audit.

Audit commentary

ELIN/TPCO has a full understanding of their obligation that until another MEP accepts responsibility for an installation, they must meet their obligations.

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 manager of the registry metering records for the metering installation within 15 days of becoming the MEP for the metering installation.

Audit observation

PowerNet provided the EDA files for the period 1/11/2016 to 31/12/2017 to assess compliance. Since the last audit, PowerNet changed their business strategy and started accepting the MEP nominations (not many) for new connections from different traders. They are also being asked by Contact to become the MEP and replace Contact's own pre-pay meters. Contact's system does not allow them to issue a job directly to SMCO therefore ELIN and TPCO are being used as an intermediary step to replace meters and become the MEP. Once it is done Contact nominates SMCO as the MEP and the meters will be transitioned to SmartCo.

Overall TPCO received 27 nominations and ELIN 45 nominations. 5 nominations were rejected by ELIN because they were outside of the area where the MEP services are provided.

Audit commentary

We followed though all ICPs in the registry to check if ELIN and TPCO uploaded metering data within 15 business days. Contact Energy does not nominate ELIN or TPCO as the MEP until they are processing the installation details for the new metering equipment that has been installed, even though the company had actually requested the MEP service in advance by sending SRs.

We confirm that in all instances metering data was uploaded the same or following day after accepting the MEP nomination.

Audit outcome

Compliant

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

ELIN/TPCO has not been asked to provide metering records by a new MEP. Since October'17 PNET has started installing their own smart meters. As part of the process once an installation is certified, the registry is updated. The next step is that SmartCo is nominated as the new MEP by the trader for that ICP. Once the nomination is accepted, PowerNet passes on the metering information which SmartCo upload to the registry. It is purely an administrative activity.

Audit commentary

As described above, PowerNet provides metering information to SmartCo, without being asked, under the business arrangements between the two companies. Metering data is transferred in batches. SMC's request is to nominate the MEP from the day the meters were installed.

The company stated that since the last audit they have not been asked by any gaining MEP to provide access to metering records. If such a request is received, PowerNet will follow the Code requirements.

Audit outcome

Compliant

3.4. Termination of MEP Responsibility (Clause 10.23)

Code reference

Clause 10.23

Code related audit information

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

The MEP is responsible if it:

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

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

An MEPs obligations terminate only when;

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

Audit observation

PowerNet has a system in place to keep records. All documents are scanned and retained electronically indefinitely. The company will follow this process and continue to keep metering records even if ELIN/TPCO ceases to be responsible for an installation. ELIN and TPCO's long term strategy is to be a meter equipment owner only, with MEP functions being covered by SmartCo.

Audit commentary

Compliance is confirmed based on a review of records for 10 ICPs in the Metering Database.

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

PowerNet employs directly contractors who work in Invercargill and in the Southland area “under” the Delta Utilities Test House (DELT) certification. The contractor working in the Gore area works “under” the VircomEMS (VEMS) certification.

PowerNet also has arranged for Delta to carry out bulk re-metering for certification and smart meter roll-out. In this case Delta engages the individual installers are engaged by Delta.

DELT ATH provided contractors with a set of wiring drawings for different types of metering installation configurations. The reference number is recorded on the Meter Report (Compliance and Electrical Safety Certificate) issued by contractors working under DELT and VircomEMS certification.

Audit commentary

During this audit we sighted a folder used by installers containing wiring diagrams approved by ATHs. We viewed 20 Metering Reports and confirm that on each of them a design number was recorded. In October’17 PowerNet started a roll-out of their own smart meters.

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

PowerNet uses mainly DELT and VircomEMS in relation to the certification of metering installations.

Audit commentary

The certification of DELT and VircomEMS is appropriate for the work which is required to be undertaken as per the Electricity Authority's website.

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

PowerNet works in conjunction with the DELT and VircomEMS ATH. All installations for which ELIN/TPCO provide the MEP functions are category 1 and 2. All installations are wired in accordance with the wiring diagrams approved by ATHs.

Audit commentary

PowerNet uses the selective component metering method to certify metering installations of category 1 and 2. The accuracy tolerance of category 1 installations is determined by a meter, the only metering component installed. It means that if the installed meter is class 2, an installation will meet the accuracy tolerance as specified in Table 1 of Schedule 10.1. A metering installation of category 2 requires a meter class 2 and CTs class 1. PowerNet installs meters' class 1 and CTs class 0.5

The requirements stated in Table 1 of Schedule 10.1 are met.

Audit outcome

Compliant

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

No subtractive metering is used for new or recertified metering installations.

Audit commentary

During discussion with PowerNet we learned they are aware there can be existing (historic) installations which are using subtractive metering. Unfortunately, their metering data does not identify if a meter is using subtraction. When subtractive metering is encountered during replacement work it is removed.

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

ELIN and TPCO do not provide the MEP services for category 3 or higher metering installations as per the LIS file dated 21st January 2018.

Audit commentary

This clause is not applicable. Compliance was not assessed.

Audit outcome

Not applicable

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

ELIN/TPCO is not a MEP for any NSP's metering installations that are not connected to the grid.

Audit commentary

This clause is not applicable. Compliance was not assessed.

Audit outcome

Not applicable

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

Code reference

Clause 10.26(10)

Code related audit information

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

Audit observation

ELIN/TPCO is not a MEP for any NSP's metering installations that are connected to the grid.

Audit commentary

This clause is not applicable. Compliance was not assessed.

Audit outcome

Not applicable

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

Code reference

Clause 4(4) of Schedule 10.7

Code related audit information

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

Audit observation

The standard designs for category 1 and 2 metering installations are used and were designed in conjunction with VAMS (as SmartCo agent), DELT and VircomEMS. Most category 1 metering installations are located within domestic premises, others in smaller commercial premises. Neither have any unusual physical and electrical characteristics.

Category 2 metering installations are located within business premises. An inspector won't certify an installation where the physical and environmental situations won't guarantee the safety and accuracy of metering. It is covered under the Certificate of Compliance.

The level of metering provided by ELIN and TPCO is below metering installations which could have a significant electrical characteristic which require special consideration in relation to metering. All installations are of a similar standard.

Audit commentary

Almost all installations for which any works are done are already well known by inspectors employed by PowerNet. To the best knowledge of PowerNet all installations, for which they are the MEP, have appropriate metering installed.

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 installation's:

- *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

ELIN and TPCO are also the respective distributors therefore a consultation process to make sure that proposed or modified metering installations meet distributor requirements is easily achieved. The wiring diagrams used by technicians were consulted with distributors to ensure their requirements are met.

Audit commentary

SRs received from traders requesting the MEP services specify metering instructions which are followed by PowerNet's inspectors.

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 manager 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

To assess compliance, we analysed the EDA files for the period 01/11/2016 to 31/12/17.

ELIN

PowerNet uploaded 8,777 metering files for ELIN ICPs. This included a very small number of files for newly gained ICPs, which although they have 15BD timeframe were minimal in number and left in for the 10BD analysis. Out of 8,777 updates 8,620 updates were uploaded to the registry within 10BD, which is 98.21%. 157 updates were outside of 10 BD. This is an improvement in comparison with the last audit, when we identified 232 updates later than 10BD. The range of backdated days are from -1088 to -12. Most of them are updates of single ICPs as part of PowerNet's on-going data monitoring and correction process.

On 12th and 13th April 2017 PowerNet updated records for 8,050 ICPs as the result of achieving recertification by statistical sampling of cat 1 metering installations. Metering Certification Expiry Date was updated to 30/03/2022. The registry was updated within 10 BD.

TPCO

PowerNet uploaded 17,119 metering files for TPCO ICPs. This included a very small number of files for newly gained ICPs, which although they have 15BD timeframe were minimal in number and left in for the 10BD analysis. Out of 17,119 updates 14,483 updates were uploaded to the registry within 10BD, which is 84.60%. 2,636 updates were outside of 10 BD. This result is not as good as in the period covered by the last audit, where we identified 240 updates later than 10BD. It was caused by the late upload on 16/05/17 of updated Certification Expiry Date for 2,287 ICPs which achieved recertification under PowerNet's statistical sample project. The range of backdated days are from -1864 to -12. With the exception of those 2,287 certification expiry updates, most of them are updates of single ICPs as part of PowerNet's on-going data monitoring and correction process.

From 3rd of May to 16th of May 2017 PowerNet updated records for 14,765 ICPs as the result of statistical sampling of cat 1 metering installations. The Metering Certification expiry date was updated to 21/04/2022. The registry was updated within 10 BD for 12,129 ICPs. 2,287 ICPs (17.8%) were updated on the 18th BD.

Audit commentary

We identified non-compliance as a number of updates were late.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 4.10 With: 3 of Schedule 11.4 From: 01-Dec-16 To: 31-Dec-17	ELIN/TPCO- Registry metering data updated later than 10 business days for small number ICPs Potential impact: Low Actual impact: Low Audit history: three times previously Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as moderate because there are some improvements that can be made to them. Some metering information in the registry is backdated as part of an on-going data correction process, which PowerNet sees important to backdate to the correct date even if it means later than 10BD. There was no impact on settlement outcome. The audit risk rating is recorded as low		
Actions taken to resolve the issue		Completion date	Remedial action status
The majority of late updates relates the statistical sample recertification project. This was a one-off event and will not be repeated in the future.		31/05/18	Identified

Preventative actions taken to ensure no further issues will occur	Completion date	
PowerNet is fully aware of the requirements for data to be updated with 10 business days. Every endeavour is made to achieve this, but at times it is affected by interactions of other parties. Also, some updates are backdated longer than 10 BD under the requirements of ensuring data is fully correct.	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

Each installation is tested, and the results recorded on the Meter Report – Compliance and Safety Certification by the technician. If any component does not pass the test, an installation is not certified. There were no complaints from customers or traders about components installed since the last audit.

Audit commentary

Contractors working for PowerNet are provided with the wiring diagrams approved by ATHs. There were no complaints from customers or traders about components installed since the last audit.

Audit outcome

Compliant

4.12. Decommissioning of an 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 3 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

The request for ICP decommissioning is received from a customer or trader by PowerNet as a distributor. The equipment is removed from the site including meters. A contactor records the removal read on the Metering Report, which is passed to a trader responsible for the ICP. The removal reads are uploaded to the registry.

Audit commentary

PowerNet provided six examples of decommissioned ICPs. We confirm that the removal reads were recorded in the Metering Report and uploaded to the registry. Uploading of removal reads to the registry is not mandatory.

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

There are no installations, for which ELIN/TPCO is the MEP, which contain VTs. Category 2 installations have CTs installed. PowerNet does not add or change the burden or compensation factor of a measuring transformer. New CTs will be installed and the installation re-certified.

Audit commentary

The company policy is to replace a CT with a new one when necessary. Additionally, ELIN/TPCO provides the MEP services for metering installations which do not require additional factors for CTs.

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

ELIN/TPCO does not have any installation where meters installed would require changes to data storage device software

Audit commentary

This clause is not applicable. Compliance was not assessed.

Audit outcome

Not applicable

4.15. Temporary Electrical Connection (Clauses 10.29A)

Code reference

Clause 10.29A

Code related audit information

An MEP must not request that a grid owner temporarily electrically connect a POC to the grid unless the MEP is authorised to do so by the grid owner responsible for that POC and the MEP has an arrangement with that grid owner to provide metering services.

Audit observation

ELIN/TPCO is not a MEP for any NSP's metering installations that are connected to the grid.

Audit commentary

This clause is not applicable. Compliance was not assessed.

Audit outcome

Not applicable

4.16. Temporary Electrical Connection (Clause 10.30A)

Code reference

Clause 10.30A

Code related audit information

An MEP must not request that a distributor temporarily electrically connect an NSP that is not a POC to the grid unless the MEP is authorised to do so by the reconciliation participant responsible for that NSP and the MEP has an arrangement with that reconciliation participant to provide metering services.

Audit observation

ELIN/TPCO is not a MEP for any NSP's metering installations that are not connected to the grid.

Audit commentary

This clause is not applicable. Compliance was not assessed.

Audit outcome

Not applicable

4.17. Temporary Electrical Connection (Clause 10.31A)

Code reference

Clause 10.31A

Code related audit information

An MEP must not request that a distributor temporarily electrically connect an ICP that is not an NSP unless the MEP is authorised to do so by the trader responsible for that ICP and the MEP has an arrangement with that trader to provide metering services.

Audit observation

PowerNet, while representing ELIN and TPCO, did not make such a request.

Audit commentary

Compliance based on a verbal assurance.

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:

Please note in bold letter we specify the location of each record kept by TPCO/ELIN as the MEP.

- a) *The certification expiry date of each metering component in the metering installation – **Metering Database***
- b) *All equipment used in relation to the metering installation, including serial numbers and details of the equipment's manufacturer - **Metering Database***
- c) *The manufacturer's or (if different) most recent test certificate for each metering component in the metering installation - **Metering Database***
- d) *The metering installation category and any metering installations certified at a lower category – **No installations are certified to 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 - **Some removed meters are tested and certified by DELT. Calibration documents are provided and stored electronically. Current transformer test certificates issued by TWS are stored as hard copy for cat 2 metering installations.***
- f) *The contractor who installed each metering component in the metering installation - **Meter Reports, which are scanned and archived***
- g) *The certification sticker, or equivalent details, for each metering component that is certified under Schedule 10.8 in the metering installation: **Metering Database***
- h) *Any variations or use of the 'alternate certification' process – **no 'alternate certification' process used***
- i) *Seal identification information - **Meter Reports, which are scanned and archived***
- j) *Any applicable compensation factors - **Metering Database***
- k) *The owner of each metering component within the metering installation- **Meter Reports, which are scanned and archived. ELIN/TPCO install only their own equipment***

l) Any applications installed within each metering component – no special applications are installed within the metering component. PowerNet uses standard meters

m) The signed inspection report confirming that the metering installation complies with the requirements of Part 10. – **Metering Installation Annual Inspection Reports are archived.**

Audit observation

Meter Reports – Compliance and Electrical Safety Compliance and Metering Database are the main sources of metering information. Information from Meter Reports is transferred manually into the Metering Database. PowerNet does not hold meter certification for some Q meters.

Audit commentary

During the audit, we asked PowerNet to show us samples of Metering Reports, CTs and meter calibration sheets.

Metec Q meters are the only meters for which some of them PowerNet does not have a copy of calibration tests as METEC closed down the business and did not pass the records to its clients.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 5.1 With: 4(1)(b)(v) of Schedule 10.6 From: 01-Dec-16 To: 31-Dec-17	Lack of certification tests for some of Q meters Potential impact: Low Actual impact: Low Audit history: None Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as strong because there are good processes in place. ELIN/TPCO hold accurate and complete information except for some Q meters because of circumstances outside of their control. The audit risk rating is recorded as low		
Actions taken to resolve the issue		Completion date	Remedial action status
With all Metec data previously held by Metec itself, and not obtained prior to Metec closing down there is no means to correct this situation. Progressively the Metec meters are removed from service, being displaced under the smart meter roll-out.		Ongoing	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	

Eventual removal from service.	Ongoing	
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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

PowerNet conducted metering installation inspections in 2017 using the statistical sampling method.

Audit commentary

The reports are available on request. To date no participant has requested an inspection report.

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

Records of all the installation's components remain stored in the Metering Database and document management system after those components are removed. Records are kept indefinitely.

Audit commentary

Compliance confirmed based on the viewing of some records in the Metering Database at the same time the EDA file was analysed.

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

PowerNet uses DELT and VircomEMS ATHs. There are no plans to use another ATH but if this occurs the previous certification documentations will be provided to the newly appointed ATH.

Audit commentary

There are no plans to change ATHs in the near future.

Audit outcome

Compliant

6. MAINTENANCE OF REGISTRY INFORMATION

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

Code reference

Clause 1(1) of Schedule 11.4

Code related audit information

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

Audit observation

PowerNet provided the EDA files for the period 1/11/2016 to 31/12/2017 to assess compliance. Since the last audit, PowerNet change their business strategy and started accepting the MEP nominations from different traders. They are also being asked by Contact to replace Contact pre-pay meters. Contact's system does not allow them to issue a job directly to SMCO so ELIN and TPCO are the intermediary step and become the MEP then Contact nominates SMCO as the MEP.

Overall TPCO received 27 nominations and ELIN 45 nominations. 5 nominations were rejected by ELIN because it was outside of the area where the MEP services are provided.

ELIN – out of 45 MEP nominations, 4 nominations were for new installations, the rest of them were nominations for existing metering installations to replace pre-pay meters.

TPCO – out of 27 nominations, 6 were for new connections, 17 were nominations for existing metering installations to replace pre-pay meters and 2 nominations to replace faulty meters.

Audit commentary

The process has not changed since the last audit. Every day a check is made to see if any new MEP nominations were sent by traders. After validation of received nomination, the nomination is accepted, the same day, using the registry interface. We checked the timeliness of all MEP nominations for ELIN and TPCO. We confirm that all of them were accepted the same day, or following, after a notification was received from the registry.

Contact Energy does not nominate ELIN or TPCO as the MEP until they are processing the installation details for the new metering equipment that has been installed, even though the company had actually requested the MEP service in advance by sending SRs. We noted the same applies to a small number of ICPs traded by Trustpower and Mercury.

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 manager, 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 manager must derive from the metering equipment provider's records or the metering records contained within the current trader's system.

Audit observation

The LIS and PR-255 files, dated 31/12/2017, for TPCO and ELIN were analysed to check compliance with clause 7. For this analysis we used Registry Data Analysis dbase provided by the Authority to assist the auditors in the assessment of compliance with this clause. The results are shown below:

	TPCO	ELIN
Cat 2 with multiplier over 100	ICP(0008001281TPB51) – correct <u>PowerNet comment:</u> <i>No longer Cat 2. SMC0 replaced with Cat 1 meter and accepted MEP nomination but never loaded data to Registry. Therefore, incorrectly we remain named as MEP.</i>	no ICPs
Cat 3 and above without HHR profile or HHR meter or HHR installation	no ICPs	no ICPs
Cat 1 over 15 years Cat 2 over 10 years or over 15 if cert before 29/8/2013 Cat 3 over 10 years Cat 4 over 5 years Cat 5 over 3 years	Cat 1 more than 15 years <ul style="list-style-type: none">0000244195TP24E – 17 years0000326663TP9A0 – 15.5 years0000637506TPC8E – 18 years0004158545TPE33 - 15 years0006366985TP996 - 15 years and one month <u>PowerNet comment:</u> <i>All 5 of these ICPs were recertified via the stat sample project. It appears an error has occurred in the data upload where the certification date has failed to update, and no errors returned to alert an investigation.</i> <i>They will be corrected</i>	All correct

Certification expired	<p>41 ICPs – cat 1</p> <p>3 ICPs – cat 2</p> <p>0000243953TP043 - job issued, ask MERI to replace never completed <u>PowerNet comment:</u> Recertified by TPCO 25/01/18</p> <p>0000658467TPD07 - contains cat1 meter; and cat 2 certified in 11/2014; registry needs updating; cat 1 included in sampling project <u>PowerNet comment:</u> To update data and Registry</p> <p>0005791067TP928 <u>PowerNet comment:</u> To be issued for recert</p>	<p>1 ICPs - 0007302799NV01F- CTCT was asked to decom because meters removed in 2014 but the ICP is still active</p> <p>4 ICPs – cat 2</p> <ul style="list-style-type: none"> 0000760743NVE4B <u>PowerNet comment:</u> Had been with SMCO to replace meter and recertify but never completed. ELIN initiate now. 0000900319NV09D <u>PowerNet comment:</u> Whole Current meter recertified by Stat Sample. Registry to be updated 0007350691NVB3B <u>PowerNet comment:</u> Recertified 25/01/18 0000734968NVE35 <u>PowerNet comment:</u> To be issued for recert
Compensation factor on Cat 1 Installation	no ICPs	no ICPs
CT on Cat 1; Check component type of “C” on Cat 1	no ICPs	no ICPs
Export ICPs (load type of generation or both); Check that the registry has an “I” channel	no ICPs	<p>2 ICPs (0000814283NVEE2)</p> <p><u>PowerNet comment:</u> DG data on Registry is an error. Notes has been reversed but can’t have been and 0000845620NV4E8</p> <p><u>PowerNet comment:</u> Have advice a new MEP displaced our meter, but not loaded to Registry so we remain named as MEP,)</p>
HHR profile and submission type and meter or installation type is not HHR	no ICPs	no ICPs

Any installation with the flag "Interim"	729 – all of them are in so-called "Bad 2000", problem with access and others	no ICPs
ICP in LIS File but not in PR255	no ICPs	no ICPs
Any compensation factor that is not: 20,30,40,50,60,80,100,120,160,200,240,400	0008001125TP147 – correct <u>PowerNet comment:</u> See first item in this column	no ICPs

Over Cat 1 with No CTs populated in the registry	19 ICPs.	12 ICPs <ul style="list-style-type: none"> 0000724460NV1C8 <u>PowerNet comment:</u> Recertified 29/01/18 Data will now be loaded 0000734968NVE35 <u>PowerNet comment:</u> Will be collected at recertification about to be done. 0000912146NV6ED <u>PowerNet comment:</u> Will be collected at upcoming recertification. 0000931705NV5A3 <u>PowerNet comment:</u> Will be collected at upcoming recertification. 0000931725NV8F6 <u>PowerNet comment:</u> Serial numbers unreadable at recertification in 2010. 0007350104NV691 <u>PowerNet comment:</u> Will be collected at upcoming recertification. 0007350691NVB3B <u>PowerNet comment:</u> Recertified 25/01/18 Data now loaded 0007433982NV7EA <u>PowerNet comment:</u> Will be collected at upcoming recertification. 0007446795NVB1F <u>PowerNet comment:</u> Whole Current meter recertified by Stat Sample. Registry to be updated 0008305374NV169 <u>PowerNet comment:</u> Will be collected at upcoming recertification. 0008305963NVC04 <u>PowerNet comment:</u> Will be
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Profile analysis Check period of availability and register content: Day and night = 24	No ICPs	No ICPs
Profile analysis Check period of availability and register content: Day without Night	18 ICPs for TPCO as the MEP. Installations have two meters installed, one for day and another for night <u>PowerNet comment:</u> Will be resolved as smart meter roll-out progresses	No ICPs
Profile analysis Check period of availability and register content: IN Register cannot be 24 or 0	No ICPs	No ICPs
Control device not populated - All "IN" register content should have control device	No ICPs	No ICPs
Check for profile that requires a control device but CDC flag = N E11, E21, E24, E08, E13, C23, C24, TON, TOC, DCS, T07, T08, T23, T24	88 ICPs No notification from any trader asking for installation of CDC for reconciliation purposes	4 ICPs No notification from any trader asking for installation of CDC for reconciliation purposes

Audit commentary

There is a significant decrease in the number of metering installations with expired certification due to the statistical sampling project.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 6.2 With: From: 01-Dec-16 To: 31-Dec-17	CTs information not populated in the registry for 19 ICPs (TPCO) and 12 ICPs (ELIN) and for 5 ICPs (TPCO) certification duration is incorrect Potential impact: Low Actual impact: Low Audit history: multiple times previously Controls: Moderate Breach risk rating: 2
Audit risk rating	Rationale for audit risk rating
Low	Controls are rated as moderate because there are some improvements that can be made to them. There was no impact on settlement. The audit risk rating is recorded as low.

Actions taken to resolve the issue	Completion date	Remedial action status
Missing information is loaded as soon as it comes to hand. Individual comments noted for each ICP. Recertification of Cat 2 ICPs was to take place as SmartCo moved to Cat2 roll-out program, but it achieved minimal installations then ceased.	Ongoing	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
Missing data relates to historic metering installations. All data is now loaded as sites are processed. This should not recur. Recertification recently began to be arranged by PowerNet.	Ongoing	

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

Code reference

Clause 6 of Schedule 11.4

Code related audit information

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

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

No later than 5 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 5 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 manager of any necessary changes to the registry metering records.

Audit observation

PowerNet constantly monitors the quality of data in the Metering Database and when the company learns new information or errors are discovered, information is changed, and the registry is updated. The comparison prescribed by this clause has been carried out every month except November and December last year.

Audit commentary

PowerNet commented that it is a very laborious process, taking a lot of time to identify errors created by other participants, which PowerNet does not have the capacity to correct.

Before this document had been finalised PowerNet decided to implement a new simpler Metering Registry Reconciliation Process that only looks at ELIN and TPCO ICP's where ELIN or TPCO are the MEP and only their Metering equipment installed. ICPs which do not meet these criteria will be excluded. Removed metering devices and decommissioned ICPs will be ignored, although they are satisfied that this data will actually match. We fully agree with the much simpler approach taken by PowerNet. The

challenge is that information recorded in the Metering Database is also used for billing purposes. All metering assets on The Power Company and Electricity Invercargill networks are owned by them but SMCO is the MEP for some of them. The plan for the future for The Power Company and Electricity Invercargill is to own meters but cease to be the MEP.

Non-compliance is identified because for two months the correction of errors in the registry was not performed as per this clause.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 6.3 With: From: 01-Nov-17 To: 31-Dec-17	For two months ELIN/TPCO did not compare the information obtained from the registry with the MEP's own records as per this clause requirements Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as moderate because there are some improvements that can be made to them. There was no impact on settlement. ELIN/TPCO check their data daily and correct when necessary. The audit risk rating is recorded as low.		
Actions taken to resolve the issue		Completion date	Remedial action status
Ongoing daily stringent review of daily metering transactions as outlined in 2.5 is a continual monitor of metering data quality.		Ongoing	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Implementation of a simplified process to make this reconciliation more achievable.		31/01/18	

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

The issue described in clause 20 of Schedule 10.7 is complex. The reasons for the certification cancellation can be put into two groups.

The first group of reasons consists of situations where ELIN/TPCO has no influence at all, e.g. a group of meters fail statistical sampling, and the manufacturer determines that the metering component does not comply with the standards to which it was tested. In a case like that, ELIN/TPCO can only rely on advice given by responsible parties and act accordingly.

Clause 20(1) of Schedule 10.7 covers the list of events which, if they were to take place, would cause the cancellation of certification. We discussed each such event during the audit and we listed references to the appropriate sections in this report below:

- (a) Installation modification – this was discussed with Alaister Marshall and is covered in section 4.1 – no installations were modified to his knowledge
- (b) Accuracy tolerance – this is covered in section 4.3 – PowerNet uses the selective component metering method to certify metering installations of category 1 and 2.
- (e) Inspections - PowerNet does not conduct inspections for metering installations of category 2, installations are re-certified. Inspections for category 1 metering installations were conducted and the report was passed to the Authority.
- (f) Certification to a lower category – no such ICPs, the ICP noted in the last audit had a whole current meter installer and SMCO accepted the MEP nomination
- (g) Insufficient load for full certification – it is not applicable to ELIN/TPCO

(h) Bridged out load control device – the process is described in section 7.11. If a customer contacts PowerNet’s Faults Call Centre advising of a lack of hot water, their own electrician is called out and authorised to bridge out the ripple receiver. The Faults Call Centre advise the metering team who will arrange a meter replacement, with the site being upgraded to a smart meter installation

(i) Seal broken – the process is discussed in section 8.4. When discovered, SR is issued and a meter re-sealed.

There were no occurrences requiring PowerNet to cancel certification of any metering installation except when a certification was not renewed in time due to customer access constraints.

Audit commentary

There were occurrences requiring PowerNet to cancel certification of 6 category 2 metering installations because inspections were not conducted, and installations were not certified. The Meter Certification Expire Dates were correct in the registry.

Audit outcome

Compliant

6.5. Registry Metering Records (Clause 11.8A)

Code reference

Clause 11.8A

Code related audit information

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

Audit observation

ELIN/TPCO provided the required metering information to the registry to their best knowledge. The information was provided in the prescribed form and the registry records were uploaded as per Schedule 11.4. As described in section 6.2, for 31 ICPs (installation of category 2) CT’s details are not recorded in the registry.

Audit commentary

Non-compliance identified.

Audit outcome

Non-compliant

Non-compliance	Description
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<p>Audit Ref: 6.5 With: 11.8A</p> <p>From: 01-Dec-16 To: 31-Dec-17</p>	<p>31 category 2 metering installations do not have CTs information recorded in the registry. 19 TPCO ICPs and 12 ELIN ICPs.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: multiple times</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p>		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as moderate because there are some improvements that can be made to them. There was no impact on settlement. The audit risk rating is recorded as low.		
Actions taken to resolve the issue		Completion date	Remedial action status
Actions are already outlined in 6.2 where some ICPs have already been corrected, some requiring processing of data on hand and others where data will be collected at next recertification.		Ongoing	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Missing data relates to historic metering installations. All data is now loaded as sites are processed. This should not recur.		Ongoing	

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

PowerNet provides the MEP services on behalf of ELIN and TPCO for category 1 and 2 metering installations only. ELIN, as the MEP, is responsible for 135 category 2 installations and 8,073 category 1 installations. TPCO is responsible for 99 category 2 installations and 16,960 category 1 installations.

The types of meters (smart and “vanilla”) used by ELIN/TPCO do not require maintenance, such as a battery replacement. Any changes to equipment installed such as meters, CTs or ripple receivers are recorded on a Meter Report and entered to the Metering Database.

There is a recertification programme for installations of category 1 using the statistical sampling method which was completed at the beginning of last year.

Analysis of PR-255 showed that certification expired for some metering installations. More details are in section 6.2

Metering category	TPCO	ELIN
Cat 1	770	0
Cat 2	3	4

Audit commentary

Non-compliance identified because, for a number of metering installations, certification has expired. The number of installations with expired certification decreased significantly since the last audit due to the recertification of category 1 installations using the statistical sampling methodology. The certification was extended by five years.

The previous audit identified 16,839 installations for TPCO and 6,140 for ELIN.

Audit outcome

Non-compliant

Non-compliance	Description
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<p>Audit Ref: 7.1 With: 10.38(a)</p> <p>From: 01-Dec-16 To: 31-Dec-17</p>	<p>Certification expired for 770 installations (cat 1) and 3 ICPs (cat 2) – TPCO and 4 category 2 metering installations for ELIN</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: three times previously</p> <p>Controls: Moderate</p> <p>Breach risk rating:</p>		
Audit risk rating	Rationale for audit risk rating		
Low	<p>Controls are rated as moderate because there are some improvements that can be made to them. There is significant improvement within cat 1 installations. There was no impact on settlement. The audit risk rating is recorded as low.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>For TPCO under the Cat 1 stat sample recertification project 2164 ICPs were unable to be recertified. These were then arranged for meter replacement through a program carried out by Delta. Working through this schedule of replacements is nearing an end.</p> <p>The 770 remaining uncertified are where meter replacement has not been achieved for various reasons, such as no access, cannot contact the property owner to make arrangements, or customer refusal. Once the schedule has been worked fully through these sites will be taken up with the trader seeking access for meter changes.</p> <p>Customers refusing a smart meter are offered the same meter with the communications module disconnected, thus the meter is simply a modern electronic, but “dumb”, meter. This satisfies many people and replacement takes place.</p> <p>As outlined in 6.2 recertification of Cat 2 ICPs was to take place as SmartCo moved to Cat2 roll-out program, but it achieved minimal installations then ceased. Recertification recently began to be arranged by PowerNet.</p>		Ongoing	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
<p>Roll-out of smart meters via SmartCo and ELIN/TPCO’s own initiative is the primary means of ensuring metering installations are recertified prior to expiry.</p>		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

PowerNet uses inspectors who work under the “umbrella” of DELT and VircomEMS as ATHs.

Audit commentary

Both Test Houses, according to the Electricity Authority’s website, hold the certification of Test House, class B.

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

This clause is not applicable. ELIN and TPCO provide the MEP service for category 1 and 2 metering installations only.

Audit commentary

This clause is not applicable. Compliance was not assessed.

Audit outcome

Not applicable

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

ELIN/TPCO do not have such installations.

Audit commentary

This clause is not applicable. Compliance was not assessed.

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

Current transformers installed as part of metering installations are used only for metering purposes. ELIN/TPCO provides the MEP services for category 1 and 2 metering installations. For these type of installation CTs are always replaced. The company policy is to replace CTs if changes or additions to burden or compensation factor are necessary.

Audit commentary

ELIN/TPCO does not provide the MEP services for a POC to the grid. Compliance was confirmed based on the company statement

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

During previous audits, we identified one installation (ICP 0008001281TPB51) which was certified to a lower category than is indicated solely on the primary rating of the current transformers. The was previously part of a freezing works, which closed down some time ago. In recent times it has only been supply to a helicopter hanger.

The site has been altered and the old large switchboard abandoned, with new whole current metering installed by SMCO on a completely new switchboard and the site becoming category 1. At this stage the accepted nomination for SMCO to become MEP still remains on the Registry but they have not populated the metering data. Therefore, TPCO remains listed as MEP and the site Category 2, even though none of this is correct – this is typical of the errors relating to other parties that have been mentioned through this report.

Audit commentary

Although registry data says otherwise, TPCO does not have any metering installations certified as lower category.

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

ELIN/TPCO does provide the MEP serviced to HHR installations.

Audit commentary

This clause is not applicable. Compliance was not assessed.

Audit outcome

Not applicable

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

Code reference

Clause 14(6) of Schedule 10.7

Code related audit information

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

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

Audit observation

ELIN/TPCO does provide the MEP serviced to HHR installations.

Audit commentary

This clause is not applicable. Compliance was not assessed.

Audit outcome

Not applicable

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

Code reference

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

Code related audit information

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

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

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

Audit observation

ELIN/TPCO do not have access issues to any current transformer, which precludes the certification of a metering installation.

Audit commentary

Compliance confirmed based on a verbal statement from PowerNet.

Audit outcome

Compliant

7.10. Timekeeping Requirements (Clause 23 of Schedule 10.7)

Code reference

Clause 23 of Schedule 10.7

Code related audit information

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

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

Audit observation

There are 11 meters utilising the internal clock for switching between D16 and N8 registers, 4 on ELIN and 11 on TPCO. The time keeping devices are not remotely monitored and corrected. Once per year these meters are visited to download metering data for PowerNet use. In previous years the clocks have been checked during this visit but last year the time check was overlooked. These meters are configured to adjust for DLS. All ICPs are reconciled as NHH using RPS profile therefore reconciliation volumes are not affected

Audit commentary

Non-compliance identified because the clocks have not been checked, it was overlooked.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 7.10 With: 23 of Schedule 10.7 From: 01-Dec-16 To: 31-Dec-17	Time is not being checked on these devices Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as moderate because there are some improvements that can be made to them as this time round times was not checked. There was no impact on settlement. The audit risk rating is recorded as low.		
Actions taken to resolve the issue		Completion date	Remedial action status
Checking clocks at next visit in October 2018 will include checking meter time setting.		30/11/18	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Requirement for checking time setting to be reiterated to downloading personnel.		30/11/18	

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, advise 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

If a customer contacts the PowerNet Faults Call Centre advising of a lack of hot water, their own electrician is called out and authorised to bridge out the ripple receiver. The Faults Call Centre advise the metering team who will arrange the meter replacement, with the site being upgraded to a smart meter installation.

Audit commentary

It is the same process which was described in the last audit report. As a part of assessing compliance with defective installations where the ripple receiver was faulty, we viewed five Metering Reports.

Audit outcome

Compliant

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

Code reference

Clause 34(5) of Schedule 10.7

Code related audit information

If the MEP is advised by an ATH that the likelihood of a control device not receiving signals would affect the accuracy or completeness of the information for the purposes of Part 15, the MEP must, within 3 business days inform the following parties of the ATH's determination (including all relevant details):

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

Audit observation

Analysis of the LIS files showed that there are 4 ICPs on ELIN RPS E08 or RPS T07 T23 and 88 on TPCO, which could be affected if a control device does not reliably receive signals.

All these installations are traded by Contact Energy but PowerNet has never been asked by them to have load control devices certified.

Audit commentary

Compliance confirmed based on the company statement.

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

In November of 2015 the Settlement Agreement between Meridian Energy and PowerShop and Electricity Invercargill and The Power Company was signed, in which TPCO and ELIN agreed to take all practicable steps to achieve compliance as fast as possible, preferably by 14/12/2016. According to clause 7.1 of the Agreement, at the time of the regular MEP audit, the progress of implementation of this agreement was to be reviewed.

A revised settlement proposal has been developed by PowerNet, for ELIN and TPCO. This has been provided to the Authority, which was considered by the Compliance Committee on 30th August 2017.

The Compliance Committee approved the amendment to replace clause 7.1(d) of the settlement agreement between The Power Company Limited (TPCO) and Electricity Invercargill Limited (Electricity Invercargill) approved by the Compliance Committee on 15 October 2015 (settlement agreement) and directed Compliance to monitor Electricity Invercargill's and TPCO's compliance with the requirements of the settlement agreement, as amended.

7.1 Electricity Invercargill and TPCO agree to:

(d) donate the charged lease fee for each uncertified metering installation after 1 September 2016 to Southland Warm Homes Trust, up to a total cap of \$100,000. If the trader at the metering installation does not arrange reasonable access, and Electricity Invercargill or TPC made all reasonable efforts to meet the trader's access requirement, then that metering installation will not count for the purposes of this clause if Electricity Invercargill or TPC alleges a breach against the trader. This will ensure that Electricity Invercargill or TPC is not penalised for the trader's failure to arrange access, if the customer refuses access, or for safety issues for which the customer is responsible;

Audit commentary

The Market Administrator, Meridian, and PowerShop have agreed to this proposed amendment to the settlement agreement. The market administrator's approved on 27th August 2017

A short notice about the amendment is published on the EA website as is required.

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 update the compensation factor recorded in the registry in accordance with Part 11.

Audit observation

This clause is not applicable.

Audit commentary

This clause is not applicable. No compliance was assessed.

Audit outcome

Not applicable

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

As from October'17 PowerNet implemented its own roll-out program installing smart meters (EDMI) because of AMS and Contact deciding not to proceed with the roll-out of smart meters.

ELIN and TPCO also still have some Q Meters which were bought from METEC in previous years. Each meter has a certification sticker attached to it but PowerNet does not have calibration reports for them. At the time of this audit, 23rd of January 2018, the quantity of Q meters installed were:

ELIN – 3,190

TPCO – 9,692

Historically some of the Q meters had been re-certified by DELT ATH after having been removed, in preparation to be installed again.

Audit commentary

PowerNet provided a list of 834 1PH Q meters calibrated by Delta in the period 2006 to 2016. Calibration certificates of EDM I meters are available on the EDM I website. PowerNet does not have copy of calibration tests for some Q meters as METEC closed down the business and did not pass the records to its clients. It was noted as a non-compliance in section 5.1

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

CT certifications for a number of category 2 metering installations were sighted. CTs are certified by the manufacturer, TWS. When CTs certification expires they are recertified by insitu certification providing they are suitable for that process, if not the CTs are replaced.

Audit commentary

PowerNet stated that, to their best knowledge, there are no sites where uncertified CTs are installed.

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

ELIN/TPCO does not provide the MEP services for installations where a data storage device is installed.

Audit commentary

This clause is not applicable. Compliance was not assessed.

Audit outcome

Not applicable

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

Code reference

Clause 7 (3) Schedule 10.3

Code related audit information

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

Audit observation

PowerNet understands clause 7 and, if it occurs, will take appropriate action in conjunction with the Authority.

Audit commentary

Appropriate action will be taken when necessary. It would be an industry-wide issue.

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

This clause is not applicable.

Audit commentary

This clause is not applicable. Compliance not assessed.

Audit outcome

Not applicable

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 2 months prior to first date on which the inspections are to be carried out, for approval (and promptly provide any other information the Authority may request).

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

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

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

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

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

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

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

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

Audit observation

PowerNet utilises the statistical sample method of carrying out annual inspection of category 1 metering installations, under an approved procedure. At the time of the audit, the sample for year 2017 had selected and inspected but the report not compiled. the report will be lodged as required by the 1st April 2018. TPCO inspected 125 ICPs and ELIN 80 ICPs.

Audit commentary

Previously PowerNet submitted a documented process for selecting the sample to the Authority. The processed was approved and it was implemented. The report for the year ending 2017 is due 1st April 2018.

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

We identified 3 category 2 metering installations for which TPCO is responsible that were not inspected within 120 months and were not recertified. For ELIN we identified 4 such installations. ICPs are listed in section 6.2.

Audit commentary

Non-compliance was identified because 7 (in total) category 2 metering installations were not inspected by an ATH within 120 months.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 8.2 With: 46(1) of Schedule 10.7 From: 01-Dec-16 To: 31-Dec-17	3 category 2 installations for which TPCO is responsible were not inspected and 4 cat 2 installations for ELIN were not inspected 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	Controls are rated as moderate because there are some improvements that can be made to them. There was no impact on settlement. The audit risk rating is recorded as low.

Actions taken to resolve the issue	Completion date	Remedial action status
Each will be visited for recertification. No inspections will be carried out.	Ongoing	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
Monitoring of certification expiry to ensure recertification is carried before expiry.	Ongoing	

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

Code reference

Clause 44(5) of Schedule 10.7

Code related audit information

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

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

Audit observation

The PowerNet process requires inspection reports to be compared to existing data and any discrepancies to be corrected if noted. The reports are archived and made available to participants when requested.

Audit commentary

Inspectors are employed by PowerNet to conduct inspection work under the “umbrella” of DELT and VircomEMS certification.

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

Audit observation

If PowerNet is advised that a seal is broken or removed, a job is issued to assess the situation and rectify, which normally will be to take the opportunity to replace with a smart meter.

If broken seals are found during annual inspections the situation is rectified immediately, in many cases meter replacement was already arranged to follow the inspection. The company provided examples to show this.

Audit commentary

Compliance confirmed based on review of five Metering Reports for each MEP.

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

The process has not changed since last year.

Once PowerNet is made aware, by a trader or one of their contractors, of a meter being inaccurate or defective, a job request is created, and a contractor goes on site. The rule is that a contractor's role is to investigate the situation and to fix it. PowerNet provided ten examples of service requests issued to replace faulty meters. Once the job is complete the trader is notified, and the registry updated if equipment is changed.

Audit commentary

Any attendance to faulty meter or ripple receiver results in the installation of a smart meter. Compliance confirmed based on a review of Metering Reports.

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 5 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

Once the inaccurate or defective metering installation is attended to and fixed, a Meter Report has all the details of what happened on site. The Meter Report is passed the same day, or following day, to the PowerNet office where all details are entered into the Metering Database. A copy of the Meter Report is passed to the trader. We viewed examples of five Metering Reports.

Audit commentary

ELIN/TPCO are responsible only for installations of category 1 and 2 and as per clause 10.42(2)(b)(ii) a statement of situation is not required.

Audit outcome

Compliant

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

Code reference

Clause10.46(2)

Code related audit information

Within 3 business days of receiving the statement from the ATH, the MEP must provide copies of the statement to:

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

Audit observation

ELIN/TPCO are the MEPs for installations of category 1 and 2 only. Any work performed on installations by electrical inspectors is documented in a Meter Report as described in the previous sections. A trader who is responsible for the ICP is always advised of the work done on the installation.

Audit commentary

We viewed a number of Metering reports and confirm compliance.

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

Neither ELIN nor TPCO read meters. They are read by meter reading companies nominated by traders. The raw data is collected and stored by a contractor nominated by traders. ELIN/TPCO do not have access to raw data.

Audit commentary

This clause is not applicable. Compliance was not assessed.

Audit outcome

Not applicable

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

ELIN/TPCO does not have any access to raw meter data.

Audit commentary

This clause is not applicable. Compliance was not assessed.

Audit outcome

Not applicable

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

The access will be provided if requested, but Health and Safety issues must be observed all the time.

Audit commentary

PowerNet stated that no such request has been received.

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

ELIN/TPCO confirmed that it will use its best endeavour to provide physical access to an installation. Since the last audit the company has not been approached with such a request.

Audit commentary

Since the last audit the company has not been approached with such a request.

Audit outcome

Compliant

10.5. Electronic Interrogation of Metering Installations (Clause 8(2), 8(3), 8(5) and 8(6) of Schedule 10.6)

Code reference

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

Code related audit information

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

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

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

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

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

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

When raw meter data can only be obtained from an MEP's back office, the MEP must, when interrogating a metering installation, download the event log, check the event log for evidence of 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

ELIN/TPCO do not read meters via their back office. They are read by meter reading companies nominated by traders.

Audit commentary

This clause is not applicable. Compliance was not assessed.

Audit outcome

Not applicable

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

ELIN/TPCO do not have access to raw metering data.

Audit commentary

This clause is not applicable. Compliance was not assessed.

Audit outcome

Not applicable

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

ELIN/TPCO do not read meters via their back office. They are read by meter reading companies nominated by traders.

Audit commentary

This clause is not applicable. Compliance was not assessed.

Audit outcome

Not applicable

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

ELIN/TPCO do not read meters via their back office. They are read by meter reading companies nominated by traders.

Audit commentary

This clause is not applicable. Compliance was not assessed.

Audit outcome

Not applicable

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

ELIN/TPCO do not read meters via their back office. They are read by meter reading companies nominated by traders.

Audit commentary

This clause is not applicable. Compliance was not assessed.

Audit outcome

Not applicable

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

Code reference

Clause 10.48(2), (3)

Code related audit information

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

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

Audit observation

ELIN/TPCO do not have access to raw metering data.

Audit commentary

This clause is not applicable. Compliance was not assessed.

Audit outcome

Not applicable

CONCLUSION

PARTICIPANT RESPONSE

PowerNet always treat these audits as a constructive exercise and welcome the investigation via the auditor's diagnostic tools. We continually strive for full compliance.