

**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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Audit report due date: 08-Feb-19

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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). 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.

The number of ICPs for which TPCO/ELIN provides MEP services is steadily decreasing. Since the last audit the number of ICPs for TPCO decreased by 4,126 and for ELIN by 1,806.

Eight non-compliances were identified for ELIN and nine for TPCO.

Improvements were made in the following areas since the last audit:

- The comparison between the information obtained from the registry with the MEP's own records as per this clause requirement is done regularly
- Number of interim certified installations has decreased

The main issues identified during this audit are:

- No inspections for category 1 metering installations in 2018
- Metering installations with expired certification

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 a small number of ICPs is missing	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 a small number of ICPs	Strong	Low	1	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(1) of Schedule 11.4	CT information not populated in the registry for 7 ICPs	Moderate	Low	2	Identified
Registry metering records	6.5	11.8A	7 category 2 metering installations do not have CT information recorded in the registry.	Moderate	Low	2	Identified
Certification and maintenance	7.1	10.38(a)	Certification expired for 3 installations (cat 2)	Moderate	Low	2	Identified
Category 1 inspections	8.1	45 of Schedule 10.7	Category 1 metering installations were not inspected in 2018	Moderate	Low	2	Identified
Category 2 to 5 inspections	0	46(1) of Schedule 10.7	3 category 2 installations were not inspected	Moderate	Low	2	Identified
Future Risk Rating						15	

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 a small number of ICPs is missing	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 a 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(1) of Schedule 11.4	CT information not populated in the registry for 10 ICPs	Moderate	Low	2	Identified
Registry metering records	6.5	11.8A	10 category 2 metering installations do not have CT information recorded in the registry.	Moderate	Low	2	Identified
Certification and maintenance	7.1	10.38(a)	Certification expired for 525 installations (cat 1) and 3 ICPs (cat 2)	Moderate	Low	2	Identified
Interim certification	7.19	18 of Schedule 10.7	490 ICPs with expired interim certification	Moderate	Low	2	Identified
Category 1 inspections	8.1	45 of Schedule 10.7	Category 1 metering installations were not inspected in 2018	Moderate	Low	2	Identified

Category 2 to 5 inspections	0	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.*

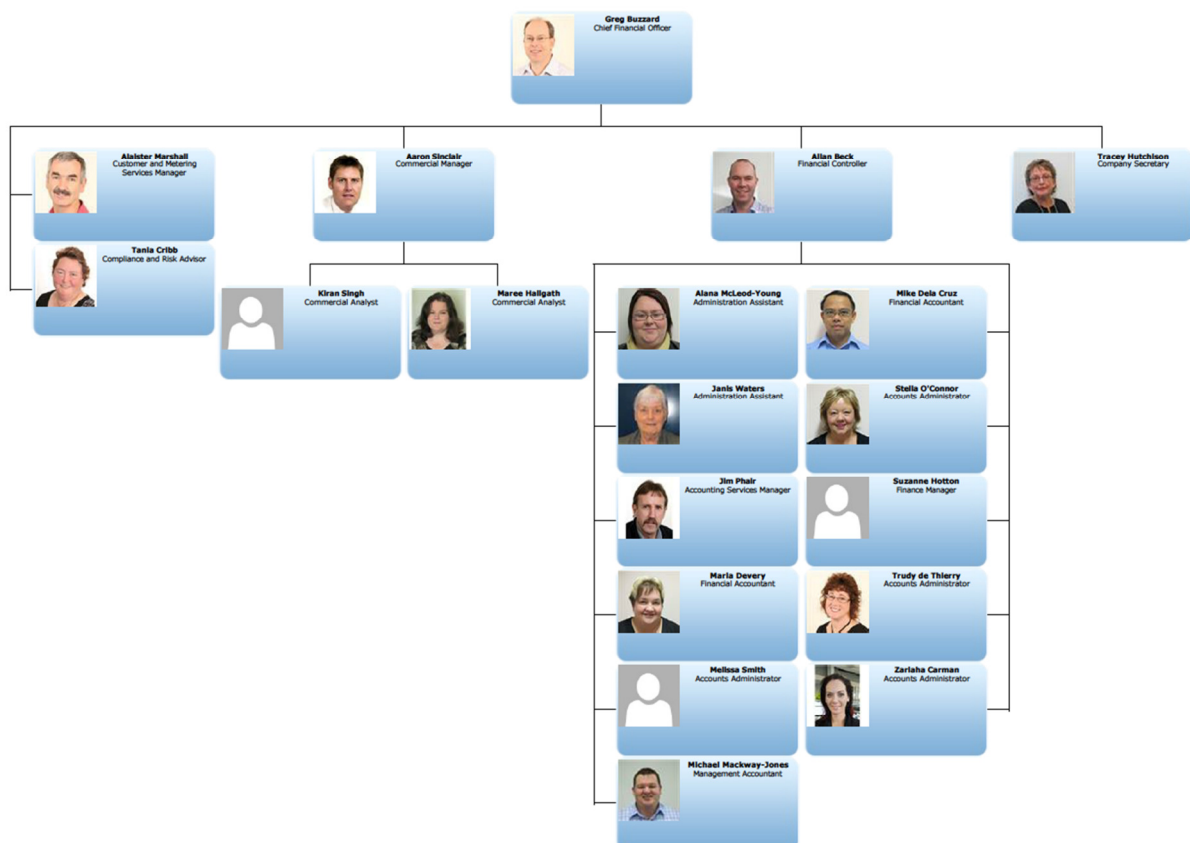
#### Audit observation

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
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 since the last audit.

#### 1.7. ICP Data

##### ELIN

Metering Category	Number of ICPs (2019)	Number of ICPs (2018)
1	6,267	8,073
2	126	135
3	0	0
4	0	0
5	0	0

## TPCO

Metering Category	Number of ICPs (2019)	Number of ICPs (2018)
1	12,834	16,960
2	90	99
3	0	0
4	0	0
5	0	0

### 1.8. Authorisation Received

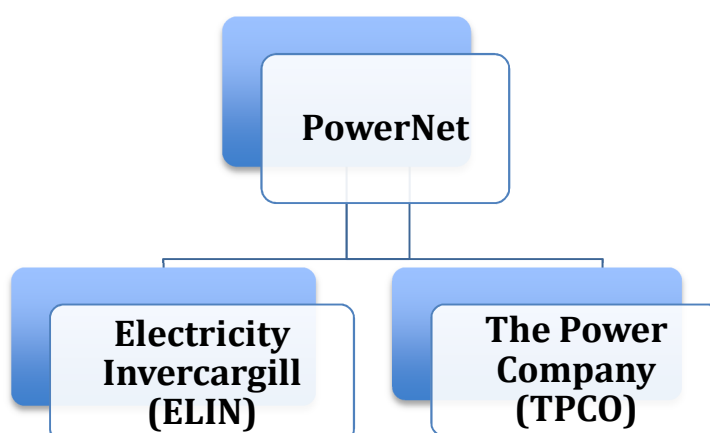
PowerNet provided a letter of authorisation to TEG & Associates permitting the collection of data from other parties for matters directly related to the audit.

### 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 17/18 January 2019.

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 Jan'18 by Ewa Glowacka of TEG Associates. The following non-compliances were identified.

##### Electricity Invercargill (ELIN)

Subject	Section	Clause	Non-Compliance	Comment
Changes to registry records	4.10	3 of Schedule 11.4	Registry metering data updated later than 10 business days for a small number of ICPs	Still exits
Accurate and complete records	5.1	4(1)(b)(v) of Schedule 10.6	Lack of certification tests for some Q meters	Still exits
Provision of registry information	6.2	7 of Schedule 11.4	CT information not populated in the registry for 12 ICPs	Still exits
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 requirement	Cleared
Registry metering records	6.5	11.8A	12 category 2 metering installations do not have CT information recorded in the registry.	Still exits
Certification and maintenance	7.1		Certification expired for 3 installations (cat 2)	Still exits
Time keeping requirements	7.10	23 of Schedule 10.7	Time is not being checked on these devices	Cleared
Category 2 to 5	0	46(1) of	3 category 2 installations were	Still exits

inspections		Schedule 10.7	not inspected	
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**The Power Company (TPCO)**

Subject	Section	Clause	Non-Compliance	Comment
Changes to registry records	4.10	3 of Schedule 11.4	Registry metering data updated later than 10 business days for a small number of ICPs	Still exits
Accurate and complete records	5.1	4(1)(b)(v) of Schedule 10.6	Lack of certification tests for some Q meters	Still exits
Provision of registry information	6.2	7 of Schedule 11.4	CT information not populated in the registry for 19 ICPs and 5 ICPs certification duration is incorrect	Still exits
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 requirement	Cleared
Registry metering records	6.5	11.8A	19 category 2 metering installations do not have CT information recorded in the registry.	Still exits
Certification and maintenance	7.1		Certification expired for 770 installations (cat 1) and 3 ICPs (cat 2)	Still exits
Time keeping requirements	7.10	23 of Schedule 10.7	Time is not being checked on these devices	Cleared
Category 2 to 5 inspections	0	46(1) of Schedule 10.7	3 category 2 installations were not inspected	Still exist

## 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.

#### 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.

Since 2017 smart meters being installed by ELIN and TPCO include a communication module to connect with PowerNet’s communications mesh system but they are also read manually because PowerNet has no headend infrastructure to facilitate remote access. The meter subsequently transition to SmartCo where they become fully functioning smart meters.

#### 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

#### 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 15/01/19 was analysed.

#### Audit commentary

A review of the LIS file confirmed that the 4-letter code of ELIN is used for Electricity Invercargill and TPCO for The Power Company.

#### 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.

#### Audit commentary

All meters for which ELIN/TPCO provides the MEP services are read by meter readers. 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 use the 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 the processing of bulk meter change information received from Delta Utility Services carrying out ELIN/TPCO meter replacements for recertification and smart meter roll-out.

#### 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.

As metering data is changed within the Metering Database, the change is automatically sent as an update to the Registry as long as ELIN or TPCO is the MEP or a proposed MEP. Updates are sent daily. The Metering Database checks an acknowledgement from the registry for each update line item. Any errors returned are investigated and corrected immediately. Such a process gives PowerNet the confidence that the metering data and registry remain consistent with each other.

In **section 6.2** we noted that some information in the registry was missing.

#### Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.5 With: 11.2  From: 16-Jan-18 To: 15-Jan-19	Information for a small number of ICPs is missing Potential impact: Low Actual impact: Low Audit history: Once previously Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	Controls are rated as moderate because there are some improvements that can be made. Only a 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
Historically CT information had not been recorded and can only obtained by detailed examination within the switchboard on site. As ICPs come up for recertification the information will be collected.		Ongoing	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
No recurrence is anticipated, all future CT installations will have fully information recorded.		N/A	



### 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 16/01/18 to 15/01/19 to assess compliance. The process of sending data to the registry was examined

##### Audit commentary

Overall TPCO received 184 nominations, 47 of them were rejected because some already had SMCO meters installed or a nomination related to an ICP located outside of Southland area where the MEP services are provided.

ELIN received 19 nominations. 2 nominations were rejected as SMCO was meant to be nominated as the MEP.

We followed though all ELIN nominations and 15 TPCO nominations to check if ELIN and TPCO uploaded metering data within 15 business days. We confirm that for all sampled ICPs metering data was downloaded within a few days, very often it is the same day.

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.

Compliance confirmed based on a process review and sampling.

#### **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 the last audit.

#### **Audit commentary**

Since 2017 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.

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

#### **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.

#### **Audit commentary**

ELIN and TPCO's long term strategy is to be a meter equipment owner only, with MEP functions being covered by SmartCo. Compliance is confirmed based on a review of records while working through different sections of this report.

#### **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 directly employs contractors who work in Invercargill and in the Southland area “under” the Delta Utilities Test House (DELT) certification.

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

DELT ATH provided contractors with a set of wiring drawings for different types of metering installation configurations.

#### Audit commentary

The reference number is recorded on the Meter Report (Compliance and Electrical Safety Certificate) issued by contractors working under DELT and VircomEMS certification.

During this audit we sighted a folder used by installers containing wiring diagrams approved by ATHs. We viewed 15 Metering Reports and confirm that on each of them a design number was recorded.

#### 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 mainly uses 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. ELIN/TPCO provide the MEP functions for category 1 and 2 metering installations only. All installations are wired in accordance with the wiring diagrams approved by ATHs.

#### Audit commentary

As noted in the previous audit, 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 discussions, PowerNet commented that they are aware there can be existing (historic) installations which are using subtractive metering. Their metering data does not identify if a meter is using subtraction. As soon as 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 15/01/19.

##### 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.

#### Audit commentary

An inspector won't certify any installation where the physical and environmental situations won't guarantee the safety and accuracy of metering. It is covered under the Certificate of Compliance. 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, there are no installations with extra ordinary characteristics. All installations are of a similar standard.

#### 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.

#### **Audit commentary**

The wiring diagrams approved by ATHs were consulted with distributors to ensure their requirements are met. 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 16/01/18 to 15/01/19.

#### **Audit commentary**

##### **ELIN**

PowerNet uploaded 2,339 metering files for ELIN ICPs. Out of 2,339 updates 2,212 updates were uploaded to the registry within 10BD, which is 94.57%

127 updates (0.24%) were outside of 10 BD. The range of backdated days are from -12 to -3,866 BD. Most of them are updates of single ICPs as part of PowerNet's on-going data monitoring and correction process.

##### **TPCO**

PowerNet uploaded 5,140 metering files for TPCO ICPs. Out of 5,140 updates 5,086 updates were uploaded to the registry within 10 BD, which is 98.9%.

197 updates (3.83%) were outside of 10 BD. It is a much better result than during the last audit. The range of backdated days are from -12 to -4,230 BD. Most of them are updates of single ICPs as part of PowerNet's on-going data monitoring and correction process.



We identified non-compliance as a number of updates were late. PowerNet strives to have correct and complete information in the registry. In some cases it means that corrections to the registry information are backdated.

#### Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 4.10 With: 3 of Schedule 11.4 From: 16-Jan-18 To: 15-Jan-19	ELIN/TPCO- Registry metering data updated later than 10 business days for a small number ICPs Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Strong Breach risk rating:1		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	Controls are rated as strong. Some metering information in the registry is backdated as part of an on-going data correction process, which PowerNet sees as important to backdate to the correct date, even if it means being later than 10 BD. There was no impact on settlement outcomes. The audit risk rating is recorded as low		
Actions taken to resolve the issue		Completion date	Remedial action status
The rule for timeframe for Registry updates is well understood, and every endeavour is made to comply. However, at times circumstances will be such that to comply with rules requiring complete accuracy backdating will occur.		Ongoing	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
As data continually improves less need for backdating is expected		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 process of decommissioning of an ICP was examined. The EDA file for the period of this audit was examined.

#### Audit commentary

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 lineman records the removal read on the Metering Report, which is passed to the trader responsible for the ICP. The removal reads are uploaded to the registry.

PowerNet provided five examples of decommissioned ICPs for each MEP. We confirm that the removal reads were recorded in the Metering Report and uploaded to the registry, which is not expected to be done by MEPs.

#### 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.

#### Audit commentary

The company policy is to replace a CT with a new one when necessary. 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 on behalf of 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 for smart meters 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.

As noted in the last audit, Metec Q meters are the only meters for which some of them PowerNet does not have a copy of the 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: Once previously Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	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
This is an historic situation relating to meters purchased a number of years ago. As time goes on these meters are being withdrawn from service, thus the situation is diminishing.		Ongoing	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
For future meter purchases certification documents are obtained. Therefore no reoccurrence is expected.		N/A	

## 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 during auditing different parts of the Code.

#### **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 16/01/18 to 15/01/19 to assess compliance.

#### Audit commentary

TPCO received 184 nominations, 47 of them were rejected because some already had SMCO meters installed or a nomination related to an ICP located outside of the Southland area where the MEP services are provided.

ELIN received 19 nominations. 2 nominations were rejected as SMCO was meant to be nominated as the MEP.

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.

#### 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 15/01/19, for TPCO and ELIN were analysed to check compliance with clause 7. For this analysis we used the 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	no ICPs	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	All correct	All correct
Certification expired	35 ICPs – cat 1  3 ICPs – cat 2  0000225361TPAAC  0000240375TP473  0000129608TP93C	3 ICPs – cat 2  0000760743NVE4B  0007350104NV691  0000724460NV1C8
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	14 ICPs (no request from a trader)	3 ICPs (no request from a trader)
HHR profile and submission type and meter or installation type is not HHR	no ICPs	no ICPs
Any installation with the flag “Interim”	490 (Active ICPs only) – all of them are in so-called “Bad 2000” – All have had meter replacement attempted, with 50% of ICPs visited twice and 25% visited 3 times.	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	no ICPs
Over Cat 1 with No CTs populated in the registry	10 ICPs.	7 ICPs
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	No ICPs
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#### Audit commentary

The level of non-compliance has improved since the last audit, there is a small number ICPs with no CT details.

#### Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 6.2 With: 7(1) of Schedule 11.4  From: 16-Jan-18 To: 15-Jan-19	CT information not populated in the registry for 10 ICPs (TPCO) and 7 ICPs (ELIN)  Potential impact: Low  Actual impact: Low  Audit history: Multiple times  Controls: Moderate  Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	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
Historically CT information had not been recorded and can only be obtained by detailed examination within the switchboard on site. As ICPs come up for recertification the information will be collected.		Ongoing	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
No recurrence is anticipated, all future CT installations will have fully information recorded.		N/A	

### 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.

#### **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.

PowerNet made the following comment:

*There is a large volume of discrepancies that PowerNet have no ability to fix, which make it difficult to discover any which do fall on us.*

*This may be because PowerNet's metering has been tagged as removed in PowerNet database, but still on the Registry because of:-*

- *ELIN/TPCO newly installed smart meters working through the process of being 'Transitioned' to SMCO*
- *Trader / MEP has requested us to Reverse our meter removal Registry Update, so they can populate the Registry as of that date, but they have not completed the process. Therefore we have not been displaced as MEP.*

*Both these issues can span weeks or even months.*

*Similar situations relating to other parties arise where ELIN/TPCO have installed meters in place of another MEP, and we have the records in our database, but we are unable to update the Registry until we are nominated as MEP*

#### **Audit outcome**

Compliant

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

#### **Code reference**

*Clause 20 of Schedule 10.7*

#### **Code related audit information**

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

- a) *the metering installation is modified otherwise than under sub clause 19(3) or 19(6)*
- b) *the metering installation is classed as outside the applicable accuracy tolerances set out in Table 1 of Schedule 10.1, defective or not fit for purpose under this Part or any audit*

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

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

#### **Audit observation**

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.

#### **Audit commentary**

During the audit we discussed scenarios listed in Clause 20(1) of Schedule 10.7 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 are conducted annually.
- (f) Certification to a lower category – no such ICPs.
- (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**.
- (i) Seal broken – the process is discussed in **section 8.4**.

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 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

The LIS and PR-255 files, dated 15/01/19, for TPCO and ELIN were analysed to check compliance

#### Audit commentary

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 17 ICPs (installation of category 2) CT's details are not recorded in the registry.

## Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 6.5 With: 11.8A  From: 16-Jan-18 To: 15-Jan-19	10 TPCO ICPs and 7 ELIN ICPs do not have CT information recorded in the registry  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
Historically CT information had not been recorded and can only be obtained by detailed examination within the switchboard on site. As ICPs come up for recertification the information will be collected.		Ongoing	Identified

Preventative actions taken to ensure no further issues will occur	Completion date	
No recurrence is anticipated, all future CT installations will have fully information recorded.	N/A	

## 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 is responsible for 126 category 2 metering installations and 6,267 category 1 installations. TPCO is responsible for 90 category 2 installations and 12,834 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.

#### Audit commentary

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	525	0
Cat 2	3	3

#### Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 7.1 With: 10.38(a)  From: 01-Dec-16 To: 31-Dec-17	TPCO - Certification expired for 525 installations (cat 1) and 3 ICPs (cat 2) ELIN - 3 category 2 metering installations  Potential impact: Low  Actual impact: Low  Audit history: Multiple times  Controls: Moderate  Breach risk rating:
Audit risk rating	Rationale for audit risk rating



<b>Low</b>	Controls are rated as moderate because there are some improvements that can be made to them. There is improvement within cat 1 installations. There was no impact on settlement. The audit risk rating is recorded as low.		
<b>Actions taken to resolve the issue</b>		<b>Completion date</b>	<b>Remedial action status</b>
<p>TPCO</p> <p>35 Category 1 ICPs had been fully certified at installation and had been included in the 2016 statistical sample recertification project, failed to achieve certification. They are now included in the meter replacement program.</p> <p>Expired interim certified Category 1 sites failed to achieve recertification under the statistical sample recertification project in 2016. They are now included in the meter replacement program.</p> <p>For meter replacement, in consultation with traders, PowerNet engages directly with customers for meter replacement and these ICPs have been issued to an FSP for meter replacement. Attempts have been made, which to date have been unsuccessful for a variety of reasons, eg customer refusal or technical.</p> <p>Note, progress on meter replacements is hampered by many customers opposing meter changes due to non-acceptance of smart meters. Recently customer communications have changed to emphasize the requirement for meter replacement rather than being a smart meter roll-out program. This has been quite successful.</p> <p>ELIN and TPCO</p> <p>The expiring Cat 2 sites have been overshadowed by PowerNet's emphasis on the Cat 1 meter replacement. These sites will be issued to and FSP for recertification.</p>		Ongoing	Identified
<b>Preventative actions taken to ensure no further issues will occur</b>		<b>Completion date</b>	
<p>Cat 1 - Continue efforts to recertify until all practical options are exhausted, then refer to traders.</p> <p>Cat 1 – Improve cognisance of upcoming expiry dates.</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.

##### Audit commentary

The company policy is to replace CTs if changes or additions to burden or compensation factor are necessary. 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**

TPCO used to have such an installation (ICP 0008001281TPB51) which was certified to a lower category than is indicated solely on the primary rating of the current transformers. The site downgraded to Cat 1 metering and switched to SMCO on 17/03/17.

#### **Audit commentary**

This clause is not applicable. Compliance was not assessed.

#### **Audit outcome**

Not applicable

### **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 not provide the MEP services 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 not provide the MEP services 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, 5 on ELIN and 10 on TPCO. The time keeping devices are not remotely monitored or corrected.

#### Audit commentary

Once per year these meters are visited to download metering data for PowerNet use. The company confirmed that last year the clocks were checked during the annual visit. These meters are configured to adjust for DLS. All ICPs are reconciled as NHH using RPS profile therefore reconciliation volumes are not affected.

#### Audit outcome

Compliant

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

#### Code reference

*Clause 35 of Schedule 10.7*

#### Code related audit information

*The participant must, within 10 business days of bridging out a control device or becoming aware of a control device being bridged out, 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. PowerNet commented that most of the installations where there were problems with ripple receivers were the responsibility of other MEPs.

### 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

The LIS file dated 15/01/19 was reviewed.

### Audit commentary

Analysis of the LIS files showed that there are 6 ICPs on ELIN RPS E08 or RPS T07 T23 and 67 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.

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

We checked if statistical sampling had occurred.

### Audit commentary

PowerNet arranged statistical sampling on behalf of ELIN/TPCO. It was conducted in 2017.

#### Audit outcome

Not applicable

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

#### Code reference

*Clause 24(3) of Schedule 10.7*

#### Code related audit information

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

*In all other cases the MEP must 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

PowerNet has calibration reports to all meters installed except Q meters. They 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 as METEC closed down the business and did not pass the records to its clients.. At the time of this audit, 23<sup>rd</sup> of January 2018, the quantity of Q meters installed were:

ELIN – 1,918

TPCO – 3,695

#### Audit commentary

PowerNet was provided with records for 834 1PH Q meters calibrated by Delta in the period 2006 to 2016. Calibration certificates of EDM1 meters are available on the EDM1 website. PowerNet does not have a copy of calibration tests for some Q meters. 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 a 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

We reviewed PR-255 dated 15/01/19 to identify any ICPs with interim certification recorded.

#### Audit commentary

As per **section 6.2**, there are 490 ICPs of previously interim certified metering installations where recertification did not occur by 01/04/15.

#### Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 7.19 With: 18 of Schedule 10.7  From: 16-Jan-18 To: 15-Jan-19	TPCO - 490 ICPs with expired interim certification  Potential impact: Low  Actual impact: Low  Audit history: Once previously  Controls: Moderate  Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	Controls are rated as moderate because there are some improvements that can be made. PowerNet on behalf of TPCO is slowly recertifying previously interim certified installations. 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

<p>Recertification of expired interim certified Category 1 sites was attempted via a statistical sample method in 2016. This group of ICPs failed to achieve recertification.</p> <p>In consultation with traders, PowerNet engages directly with customers for meter replacement and these ICPs have been issued to an FSP for meter replacement. Attempts have been made, which to date have been unsuccessful for a variety of reasons, eg customer refusal or technical.</p> <p>Efforts continue, and progress is still made. Where issues fall completely on the customer and they will not progress any solution the ICPs will be referred to the trader to provide access.</p>	Ongoing	Identified
<b>Preventative actions taken to ensure no further issues will occur</b>	<b>Completion date</b>	
By definition this situation cannot recur.	N/A	

## 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 2018 had been selected. TPCO will inspect 125 ICPs and ELIN 50 ICPs.

#### Audit commentary

Previously PowerNet submitted a documented process for selecting the sample to the Authority. The process was approved and it was implemented. The report for the year ending 2018 is due 1<sup>st</sup> April 2019. Non-compliance is identified because the inspections were not done yet. The sample was selected and passed to contractors to .....

#### Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 8.1 With: 45 of Schedule 10.7  From: 16-Jan-18 To: 15-Jan-19	TPCO/ELIN - category 1 metering installations were not inspected in 2018 Potential impact: Low Actual impact: Low Audit history: Once previously Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	Controls are rated as weak TPCO and ELIN did not meet their obligations. There is minor impact on settlement outcomes because of the small number of ICPs. The audit risk rating is recorded as low.		
Actions taken to resolve the issue		Completion date	Remedial action status
Sites due for recertification were identified as at 1 November and arrangements began to issue these to inspectors in conjunction with PowerNet's meter replacement program, as Inspect and Replace. The complexities of these arrangements have delayed action on the ground and the inspections are still ongoing at the time of audit.		31/03/2019	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Ensure inspections are initiated earlier in the year to ensure completion within the calendar year.		31/12/2019	

#### 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 reviewed PR-255 dated 15/01/19 to identify which ICPs were due for inspection.

#### Audit commentary

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 also identified 3 such installations. ICPs are listed in **section 6.2**.

Non-compliance was identified because 6 (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: 16-Jan-18 To: 15-Jan-19	3 category 2 installations for which TPCO is responsible were not inspected and 3 category 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		
<b>Low</b>	Controls are rated as moderate because there are some improvements that can be made to them. There was no impact on settlement outcomes. The audit risk rating is recorded as low.		
Actions taken to resolve the issue		Completion date	Remedial action status
No Category 2 sites are inspected, they are recertified.		Ongoing	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Ensure recertification occurs prior to expiry.		Next audit	

### 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*

- who removed or broke the seal*
- 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*

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

#### **Audit observation**

The process was discussed.

#### **Audit commentary**

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 it with a smart meter.

If broken seals are found during annual inspections the situation is rectified immediately.

#### **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 was examined.

#### Audit commentary

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. According to the process a contractor's role is to investigate the situation and to fix it. Once the job is complete the trader is notified, and the registry updated, if equipment is changed.

If a faulty meter or ripple receiver is identified a smart meter is installed. Compliance confirmed based on a review of nine 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



The process was examined.

#### **Audit commentary**

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 Reports are passed the same day, or following day, to the PowerNet office and all details are entered into the Metering Database. A copy of the Meter Report is passed to the trader.

#### **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  $\pm 5$  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

In PowerNet we always strive for full compliance. It is pleasing to see non-compliances reducing in number or severity and we will continue efforts.

Concern is noted where the individual issue of missing CT information generates multiple non-compliances, ie in sections 2.5, 6.2 and 6.5.