

**ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTOR AUDIT REPORT**

For

**THE POWER COMPANY LIMITED, ELECTRICITY
INVERCARGILL LIMITED, OTAGONET JOINT
VENTURE, ELECTRICITY SOUTHLAND LIMITED**

(MANAGED BY POWERNET)

Prepared by: Ewa Glowacka
Date audit commenced: 19 July 2017
Date audit report completed: 15 September 2017
Audit report due date: 04-Sep-17

TABLE OF CONTENTS

Executive summary	4
Audit summary	5
Non-compliances – THE POWER COMPANY LTD	5
Recommendations - THE POWER COMPANY LTD	6
Issues - THE POWER COMPANY LTD	6
Non-compliances – Electricity Invercargill Ltd	6
Recommendations - Electricity Invercargill Ltd	7
Issues - Electricity Invercargill Ltd	7
Non-compliances – OTAGONET JV	7
Recommendations - OTAGONET JV	8
Issues - OTAGONET JV	8
Non-compliances – ELECTRICITY southland LTD	8
Recommendations - ELECTRICITY southland LTD	9
Issues - ELECTRICITY southland LTD	9
1. Administrative	10
1.1. Exemptions from Obligations to Comply with Code (Section 11)	10
1.2. Structure of Organisation	10
1.3. Persons involved in this audit	11
1.4. Use of contractors (Clause 11.2A)	11
1.5. Supplier list	11
1.6. Hardware and Software	11
1.7. Breaches or Breach Allegations	12
1.8. ICP and NSP Data	12
1.9. Authorisation Received	15
1.10. Scope of Audit	15
1.11. Summary of previous audit	17
2. Operational Infrastructure	19
2.1. Requirement to provide complete and accurate information (Clause 11.2(1))	19
2.2. Requirement to correct errors (Clause 11.2(2))	20
3. Creation of ICPs	22
3.1. Distributors must create ICPs (Clause 11.4)	22
3.2. Participants may request distributors to create ICPs (Clause 11.5(3))	23
3.3. Provision of ICP Information to the registry (Clause 11.7)	23
3.4. Timeliness of Provision of ICP Information to the registry (Clause 7(2) of Schedule 11.1)	24
3.5. Timeliness of Provision of Initial Energisation Date (Clause 7(2A) of Schedule 11.1)	26
3.6. Connection of ICPs (Clause 11.17)	27
3.7. Electrical connection of ICPs (Clause 10.28(7))	29
3.8. Electrical connection of ICP that is not an NSP (Clause 10.31)	29
3.9. Electrical connection of NSP that is not a point of connection to the grid (Clause 10.30(2))	31
3.10. Definition of ICP identifier (Clause 1(1) Schedule 11.1)	31
3.11. Loss category (Clause 6 Schedule 11.1)	32
3.12. Management of “new” status (Clause 13 Schedule 11.1)	32
3.13. Monitoring of “new” & “ready” statuses (Clause 15 Schedule 11.1)	33
3.14. Embedded generation loss category (Clause 7(6) Schedule 11.1)	35

4.	Maintenance of registry information.....	37
4.1.	Changes to registry information (Clause 8 Schedule 11.1)	37
4.2.	Notice of NSP for each ICP (Clauses 7(1), (4) and (5) Schedule 11.1)	40
4.3.	Customer queries about ICP (Clause 11.31).....	41
4.4.	ICP location address (Clause 2 Schedule 11.1)	41
4.5.	ICP de-energisation (Clause 3 Schedule 11.1)	42
4.6.	Distributors to Provide ICP Information to the Registry (Clause 7(1) Schedule 11.1)	43
4.7.	Provision of information to registry after the trading of electricity at the ICP commences (Clause 7(3) Schedule 11.1)	46
4.8.	GPS coordinates (Clause 7(8) and (9) Schedule 11.1)	46
4.9.	Management of “ready” status (Clause 14 Schedule 11.1)	47
4.10.	Management of “distributor” status (Clause 16 Schedule 11.1)	47
4.11.	Management of “decommissioned” status (Clause 20 Schedule 11.1)	48
4.12.	Maintenance of price category codes (Clause 23 Schedule 11.1).....	49
5.	Creation and maintenance of loss factors	50
5.1.	Updating table of loss category codes (Clause 21 Schedule 11.1)	50
5.2.	Updating loss factors (Clause 22 Schedule 11.1)	51
6.	Creation and maintenance of NSPs (including decommissioning of NSPs and transfer of ICPs)52	
6.1.	Creation and decommissioning of NSPs (Clause 11.8 and Clause 25 Schedule 11.1).....	52
6.2.	Provision of NSP information (Clause 26(1) and (2) Schedule 11.1)	52
6.3.	Notice of balancing areas (Clause 24(1) and Clause 26(3) Schedule 11.1)	53
6.4.	Notice of supporting embedded network NSP information (Clause 26(4) Schedule 11.1)53	
6.5.	Maintenance of balancing area information (Clause 24(2) and (3) Schedule 11.1)	54
6.6.	Notice when an ICP becomes an NSP (Clause 27 Schedule 11.1)	54
6.7.	Notification of transfer of ICPs (Clause 1 to 4 Schedule 11.2)	55
6.8.	Responsibility for metering information for NSP that is not a POC to the grid (Clause 10.25(1) and 10.25(3))	55
6.9.	Responsibility for metering information when creating an NSP that is not a POC to the grid (Clause 10.25(2))	56
6.10.	Obligations concerning change in network owner (Clause 29 Schedule 11.1)	57
6.11.	Electrically connecting NSP that is not point of connection to grid (Clause 10.30(1))....	57
6.12.	Change of MEP for embedded network gate meter (Clause 10.22(1)(b))	57
6.13.	Confirmation of consent for transfer of ICPs (Clauses 5 and 8 Schedule 11.2)	58
6.14.	Transfer of ICPs for embedded network (Clause 6 Schedule 11.2).....	59
7.	Maintenance of shared unmetered load	60
7.1.	Notification of shared unmetered load ICP list (Clause 11.14(2) and (4))	60
7.2.	Changes to shared unmetered load (Clause 11.14(5)).....	60
8.	Calculation of loss factors	61
8.1.	Creation of loss factors (Clause 11.2).....	61
	Conclusion	62
	Participant response	62

EXECUTIVE SUMMARY

This distributor audit was performed at the request of PowerNet as required by clause 11.10 of Part 11, to assure compliance with the Electricity Industry Participation Code 2010. PowerNet is a management company which manages the electricity network assets of:

- The Power Company Limited – TPCO
- Electricity Invercargill Limited – ELIN
- OtagoNet Joint Venture – OTPO
- Electricity Southland Limited (Trading name Lakeland Network) – LLNW

The relevant rules audited are as required by the Distributor Auditor Guidelines V7.0, issued by the Electricity Authority.

Overall, we found that the PowerNet processes are robust particularly the ICP creation process. We would like to acknowledge the willingness of PowerNet to comply with the Code and complement them on their on-going improvement. There are still areas which require more attention such as the correctness of the information in the registry for unmetered load and embedded generation. These are not easy areas to monitor especially for embedded generation (solar panels).

AUDIT SUMMARY

NON-COMPLIANCES – THE POWER COMPANY LTD

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Requirement to provide complete information	2.1	11.2(1)	Information about embedded generation is not complete and UML ICPs info is not updated following traders update	Weak	Low	3	Identified
Connection of ICPs	3.6	11.17	ICP 0001819219TPB5D, it is connected without a trader recorded in the registry	Moderate	Low	2	Identified
Electrical connection of ICP	3.8	10.31	ICP 0001819219TPB5D, was connected without a trader requesting connection	Weak	Low	3	Identified
Changes to registry information	4.1	8 of Schedule 11.1	Registry information not updated within 3 business	Weak	Low	3	Identified
ICP location address	4.4	2 of Schedule 11.1	Duplicate addresses for 4 ICPs	Moderate	Low	1	Cleared
Distributor to provide information to the registry	4.6	7 (1) of Schedule 11.1	Incorrect or lack of information in the registry	Weak	Medium	6	Identified
Future Risk Rating						17	
Indicative Audit Frequency						12 months	

RECOMMENDATIONS - THE POWER COMPANY LTD

Subject	Section	Description	Recommendation
ICPs with the Status of NEW or READY longer than 24 months	3.12	ICPs with the Status of NEW or READY longer than 24 months not regularly monitored	Create a process so that as soon as a job is cancelled in Maximo (ICP no longer required) the registry is updated.

ISSUES - THE POWER COMPANY LTD

Subject	Section	Description	Issue
		Nil	

NON-COMPLIANCES – ELECTRICITY INVERCARGILL LTD

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Timeliness of provision of IED to the registry	3.5	7(2A) of Schedule 11.1	IED for 3 ICPs was uploaded to the registry	Strong	Low	1	Identified
Changes to registry information	4.1	8 of Schedule 11.1	Registry information not updated within 3 business	Weak	Low	3	Identified
Distributor to provide information to the registry	4.6	7 (1) of Schedule 11.1	Incorrect or lack of information in the registry	Weak	Medium	6	Identified
Future Risk Rating						10	
Indicative Audit Frequency						12 months	

RECOMMENDATIONS - ELECTRICITY INVERCARGILL LTD

Subject	Section	Description	Recommendation
ICPs with the Status of NEW or READY longer than 24 months	3.12	ICPs with the Status of NEW or READY longer than 24 months not regularly monitored	Create a process so that as soon as a job is cancelled in Maximo (ICP no longer required) the registry is updated.

ISSUES - ELECTRICITY INVERCARGILL LTD

Subject	Section	Description	Issue
		Nil	

NON-COMPLIANCES – OTAGONET JV

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Requirement to provide complete information	2.1	11.2(1)	Information about embedded generation is not complete and UML ICPs info is not updated following traders update	Weak	Low	3	Identified
Timeliness of provision of IED to the registry	3.5	7(2A) of Schedule 11.1	IED for 3 ICPs was uploaded to the registry	Strong	Low	1	Identified
Changes to registry information	4.1	8 of Schedule 11.1	Registry information not updated within 3 business	Weak	Low	3	Identified
Distributor to provide information to the registry	4.6	7 (1) of Schedule 11.1	Incorrect or lack of information in the registry	Weak	Medium	6	Identified
Future Risk Rating						13	
Indicative Audit Frequency						12 months	

RECOMMENDATIONS - OTAGONET JV

Subject	Section	Description	Recommendation
ICPs with the Status of NEW or READY longer than 24 months	3.12	ICPs with the Status of NEW or READY longer than 24 months not regularly monitored	Create a process so that as soon as a job is cancelled in Maximo (ICP no longer required) the registry is updated.

ISSUES - OTAGONET JV

Subject	Section	Description	Issue
		Nil	

NON-COMPLIANCES – ELECTRICITY SOUTHLAND LTD

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Requirement to provide complete information	2.1	11.2(1)	Information about embedded generation is not complete and UML ICPs info is not updated following traders update	Weak	Low	3	Identified
Timeliness of provision of IED to the registry	3.5	7(2A) of Schedule 11.1	IED for 4 ICPs was uploaded to the registry	Strong	Low	1	Identified
Changes to registry information	4.1	8 of Schedule 11.1	Registry information not updated within 3 business	Weak	Low	3	Identified
Distributor to provide information to the registry	4.6	7 (1) of Schedule 11.1	Incorrect or lack of information in the registry	Weak	Medium	6	Identified

Updating table of loss category codes	5.1	21 of Schedule 11.1	The new Loss Category Code (LLNWNL) for LLNW was uploaded to the registry later than two months in advance. It was late by 19 days.	Strong	Low	1	Cleared
Future Risk Rating						14	
Indicative Audit Frequency						12 months	

RECOMMENDATIONS - ELECTRICITY SOUTHLAND LTD

Subject	Section	Description	Recommendation
ICPs with the Status of NEW or READY longer than 24 months	3.12	ICPs with the Status of NEW or READY longer than 24 months not regularly monitored	Create a process so that as soon as a job is cancelled in Maximo (ICP no longer required) the registry is updated.

ISSUES - ELECTRICITY SOUTHLAND LTD

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.

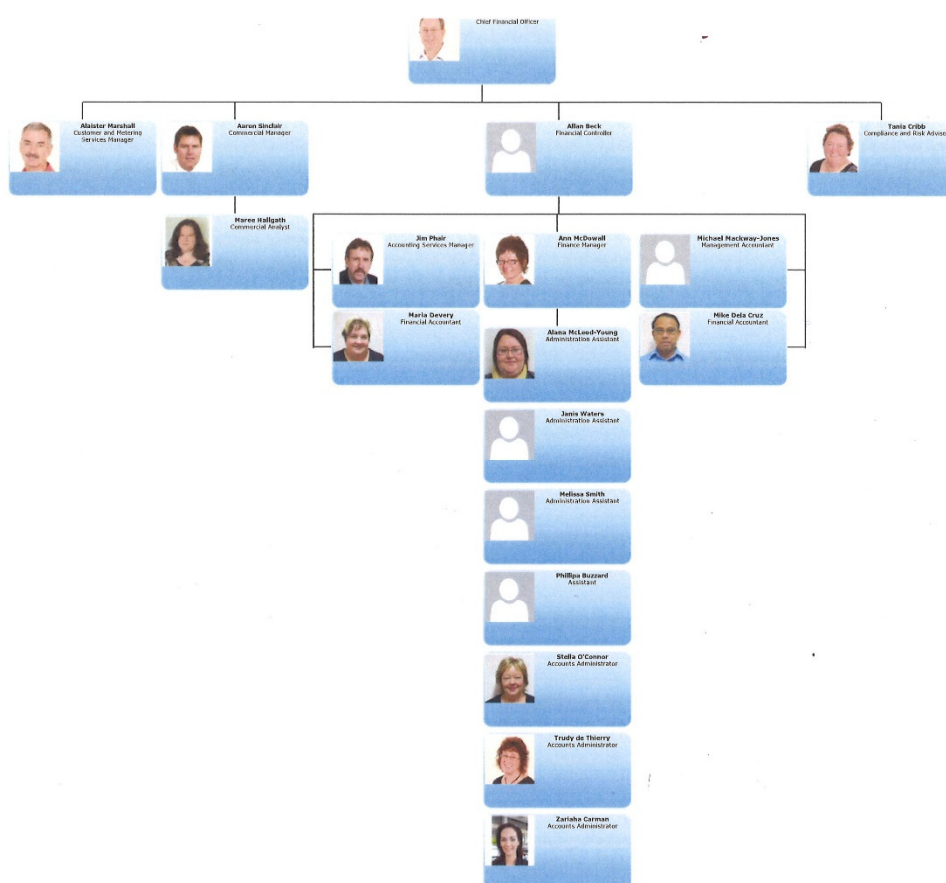
Audit observation

None of the networks audited have been granted any exemption from section 11 of Electricity Act 2010.

Audit commentary

No exemption granted.

1.2. Structure of Organisation



1.3. Persons involved in this audit

Name	Title	Company	Comment
Alaister Marshall	Customer and Metering Services Manager	PowerNet	
Richard Lee	Distribution Manager	PowerNet	
Grant Smith	Director	Ace Computers Consultant	The ICP database developer
Ewa Glowacka	Electricity Authority Approved Auditor	TEG & Associates Ltd	

1.4. Use of contractors (Clause 11.2A)

Code reference

Clause 11.2A

Code related audit information

A participant who uses a contractor

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

Audit observation

There are no contractors who assist PowerNet with its operations that were audited.

Audit commentary

There are no contractors who assist PowerNet with its operations that were audited.

1.5. Supplier list

ACE Computer Consultant provides support for the ICP database.

1.6. Hardware and Software

The key infrastructure required for the audited processes comprises of:

- Microsoft SQL Server 2014
- MS Access 2016
- Training database that can also be used for testing database mods
- The ICP Database runs on a virtual server running Microsoft Windows Server 2012 R2
- The virtual server runs on VMware ESX server v5.5 on a LENOVO System x3650 M5 server, connected to a V7000 SAN

1.7. Breaches or Breach Allegations

PowerNet stated that they have no pending or active breaches.

1.8. ICP and NSP Data

TPCO

Distribu tor	NSP POC	Description	Parent POC	Parent Network	Balancing Area	Network type	Start date	No of ICPs
TPCO	BLF0111	Bluff	INV0331	TPCO	SOUTHLDTPCOG	I	1/05/08	
TPCO	EDN0331	Edendale			SOUTHLDTPCOG	G	1/03/16	1,833
TPCO	ELL0111	Elles Rd	INV0331	TPCO	SOUTHLDTPCOG	I	1/05/08	
TPCO	GOR0331	GORE			SOUTHLDTPCOG	G	1/03/16	10,769
TPCO	INV0331	Invercargill			SOUTHLDTPCOG	G	1/05/08	9,840
TPCO	LEV0331	Leven St	INV0331	TPCO	SOUTHLDTPCOG	I	1/05/08	
TPCO	NMA0331	Nth Makarewa			SOUTHLDTPCOG	G	1/05/08	15,075
TPCO	OCB0111	CB46	INV0331	TPCO	SOUTHLDTPCOG	I	1/05/08	
TPCO	SOU0331	Southern Sub	INV0331	TPCO	SOUTHLDTPCOG	I	1/05/08	
TPCO	STD0111	Stead St	INV0331	TPCO	SOUTHLDTPCOG	I		

The total number of ICPs on the registry as of 13 July 2017 was 40,773

Status	Number of ICPs (13/7/17)	Number of ICPs (date)	Number of ICPs (date)
Active (2,0)	35,643		
Inactive- new connection in progress (1,12)	26		
Inactive – vacant (1,4)	1,505		
Inactive – AMI remote disconnection (1,7)	27		
Inactive – at pole fuse (1,8)	4		
Inactive – de-energised due to meter disconnected (1,9)	2		
Inactive – de-energised at meter box switch (1,10)	0		
Inactive- at meter box switch (1,11)	0		
Inactive – ready for decommissioning (1,6)	202		
Decommissioned (3)	3,256		
Distributor (888)	1		
Ready (0)	84		
New (999)	23		

ELIN

Distributor	NSP POC	Description	Parent POC	Parent Network	Balancing Area	Network type	Start date	No of ICPs
ELIN	BLF0111	Bluff	INV0331	ELIN	INVGILLELING	I	1/05/08	
ELIN	ELL0111	Elles Rd	INV0331	ELIN	INVGILLELING	I	1/05/08	
ELIN	INV0331	INVERCARGILL			INVGILLELING	G	1/05/08	17,896
ELIN	LEV0331	Leven St	INV0331	ELIN	INVGILLELING	I	1/05/08	
ELIN	OCB0111	IVC_CB13	INV0331	ELIN	INVGILLELING	I	1/05/08	
ELIN	SOU0331	Southern Sub	INV0331	ELIN	INVGILLELING	I	1/05/08	
ELIN	STD0111	Stead St	INV0331	ELIN	INVGILLELING	I	1/05/08	
ELIN	BLF0111	Bluff	INV0331	ELIN	INVGILLELING	I	1/05/08	

The total number of ICPs on the registry as of 13 July 2017 was 19,056

Status	Number of ICPs (13/7/17)	Number of ICPs (date)	Number of ICPs (date)
Active (2,0)	17,380		
Inactive- new connection in progress (1,12)	7		
Inactive – vacant (1,4)	360		
Inactive – AMI remote disconnection (1,7)	22		
Inactive – at pole fuse (1,8)	8		
Inactive – de-energised due to meter disconnected (1,9)	1		
Inactive – de-energised at meter box switch (1,10)	1		
Inactive- at meter box switch (1,11)	0		
Inactive – ready for decommissioning (1,6)	93		
Decommissioned (3)	1,161		
Distributor (888)			
Ready (0)	14		
New (999)	9		

OTPO

Distribu tor	NSP POC	Description	Parent POC	Parent Network	Balancing Area	Network type	Start date	No of ICPs
OTPO	BAL0331	BALCLUTHA			BALCTHAOTPOG	G	1/01/12	9,630
OTPO	HWB0331	HALFWAY BUSH			PALMSBYOTPOG	G	7/11/14	0
OTPO	HWB1101	HALF WAY BUSH			PALMSBYOTPOG	G	1/11/14	3,494
OTPO	NSY0331	NASEBY			PALMSBYOTPOG	G	1/05/08	2,591

The total number of ICPs on the registry as of 13 July 2017 was 17,491.

Status	Number of ICPs (13/7/17)	Number of ICPs (date)	Number of ICPs (date)
Active (2,0)	14,888		
Inactive- new connection in progress (1,12)	12		
Inactive – vacant (1,4)	713		
Inactive – AMI remote disconnection (1,7)	35		
Inactive – at pole fuse (1,8)	2		
Inactive – de-energised due to meter disconnected (1,9)	0		
Inactive – de-energised at meter box switch (1,10)	0		
Inactive- at meter box switch (1,11)	1		
Inactive – ready for decommissioning (1,6)	40		
Decommissioned (3)	1,776		
Distributor (888)	0		
Ready (0)	13		
New (999)	11		

LLNW

Distribu tor	NSP POC	Description	Parent POC	Parent Network	Balancing Area	Network type	Start date	No of ICPs
LLNW	FKN0331	Frankton			LAKELNDLLNWG	G	1/10/08	1,015
LLNW	NLK0111	OUTLET ROAD WANAKA	CML0331	DUNE	NLK0111LLNWE	E	12/07/17	0

The total number of ICPs on the registry as of 13 July 2017 was 1,081.

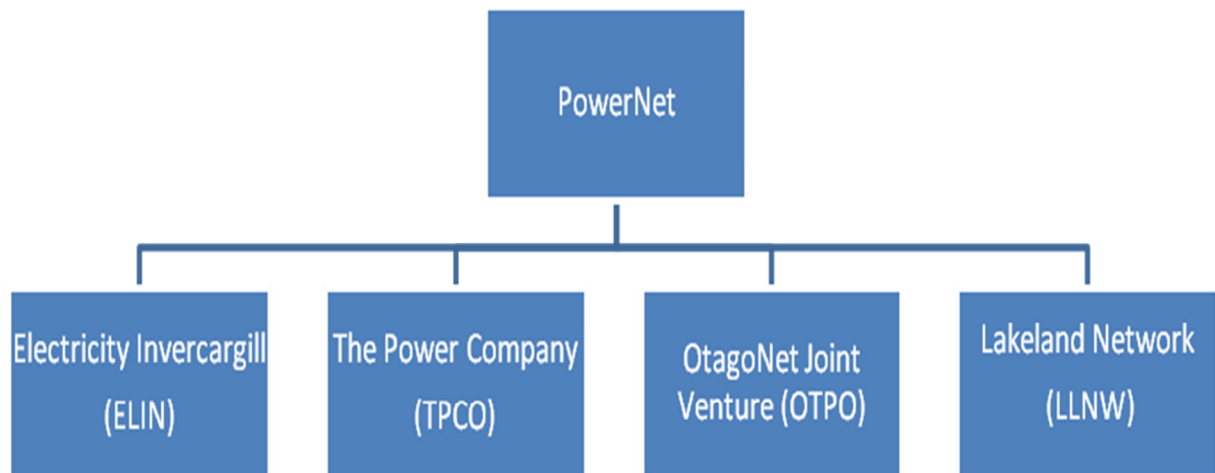
Status	Number of ICPs (13/7/17)	Number of ICPs (date)	Number of ICPs (date)
Active (2,0)	959		
Inactive- new connection in progress (1,12)	25		
Inactive – vacant (1,4)	5		
Inactive – AMI remote disconnection (1,7)	1		
Inactive – at pole fuse (1,8)	0		
Inactive – de-energised due to meter disconnected (1,9)	0		
Inactive – de-energised at meter box switch (1,10)	0		
Inactive- at meter box switch (1,11)	0		
Inactive – ready for decommissioning (1,6)	1		
Decommissioned (3)	0		
Distributor (888)	66		
Ready (0)	10		
New (999)	14		

1.9. Authorisation Received

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

1.10. Scope of Audit

This audit was performed at the request of PowerNet as required by clause 11.10 of Part 11 to assure compliance with the Electricity Industry Participation Code 2010. PowerNet Limited is a joint venture company that manages the electricity reticulation networks of Electricity Invercargill Limited, The Power Company Limited, OtagoNet Joint Venture and Electricity Southland Limited (Lakeland Network.)



This audit covers the following processes under clause 11.10(4) of Part 11 performed by PowerNet Power on behalf of the networks listed above:

- (a) -The creation of ICP identifiers for ICPs
- (b) -The provision of ICP information to the registry and the maintenance of that information
- (c) - The creation and maintenance of loss factors

The audit was carried out on the PowerNet premises at 251 Racecourse Road in Invercargill, on the 19 July 2017.

1.11. Summary of previous audit

TPCO

Subject	Clause	Non-compliance	Cleared
Distributor to provide information to the registry	7(1)(p) & 7(3) of Schedule 11.1 7(1)(m) of Schedule 11.1	The initial energisation date is not populated for 4 ICPs energised after 29 August 2013; Initial Energisation Date for one ICP was provided late to the registry UML details for 15 ICPs not populated in registry	Not cleared
Distributors to change ICP information provided to registry	8 of Schedule 11.1	Registry not updated within 3 business days.	Not cleared
Replacement of existing loss factor	22(5) of Schedule 11.1	Update later for 39 Loss Factors	Cleared (one-off)

Subject	Clause	Issue	Cleared
"NEW" or "READY" status for 24 calendar months or more	15 of Schedule 11.1	ICP status not updated in registry once a job is cancelled by a customer	Not cleared

ELIN

Subject	Clause	Non-compliance	Cleared
Distributor to provide information to registry	7(1)(p) of Schedule 11.1	The initial energisation date is not populated for 3 ICPs energised after 29 August 2013	Cleared
Distributors to change ICP information provided to registry	8 of Schedule 11.1	Registry not updated within 3 business days.	Not cleared
Replacement of existing loss factor	22(5) of Schedule 11.1	Update later for 2 Loss Factors	Cleared (one-off)

Subject	Clause	Issue	Cleared
"NEW" or "READY" status for 24 calendar months or more	15 of Schedule 11.1	ICP status not updated in registry once a job a is cancelled by a customer	

OTPO

Subject	Clause	Non-compliance	Cleared
Distributor to provide information to the registry	7(1)(p) of Schedule 11.1	The initial energisation date is not populated for 2 ICPs energised after 29 August 2013	Not cleared
	7(1)(m) of Schedule 11.1	UML details for 55 ICPs not populated in registry	Not cleared
Distributors to change ICP information provided to registry	8 of Schedule 11.1	Registry not updated within 3 business days.	Not cleared

Subject	Clause	Issue	Cleared
"NEW" or "READY" status for 24 calendar months or more	15 of Schedule 11.1	ICP status not updated in registry once a job a is cancelled by a customer	???

LLNW

Subject	Clause	Non-compliance	Cleared
Distributor to provide information to the registry	7(1)(p) of Schedule 11.1	The initial energisation date is not populated for 4 ICPs energised after 29 August 2013	Not cleared
Distributors to change ICP information provided to registry	8 of Schedule 11.1	Registry not updated within 3 business days.	Not cleared

2. OPERATIONAL INFRASTRUCTURE

2.1. Requirement to provide complete and accurate information (Clause 11.2(1))

Code reference

Clause 11.2(1)

Code related audit information

A participant must take all practicable steps to ensure that information that the participant is required to provide to any person under Part 11 is:

- a) complete and accurate*
- b) not misleading or deceptive*
- c) not likely to mislead or deceive.*

Audit observation

PowerNet makes every effort to ensure the Registry data is accurate and complete.

Audit commentary

Daily updates of data are entered by a number of operators within PowerNet using a data entry tool that provides many business rules to ensure correctness against Registry rules as well as company policy. The data is monitored by a data administrator, who is very experienced in the registry rules, and the Customer and Meter Services Manager to ensure correctness of format and accuracy. During this audit, we did not identify any situations when data was misleading or deceptive because of negligence.

There are still areas, which need work on such unmetered load and embedded generation (solar). Traders update UML information but PowerNet is not notified about it via email. Notification from the registry is sent but it is not monitored.

Embedded generation, customers applied for a connection but later on PowerNet is not notified when new metering is installed and embedded generation is connected. The number of such installations is increasing therefore there is need to put closer monitoring in place.

ICPs being not assigned to the right NSP is concern. It does not affect reconciliation because it is the same balancing area.

There are some areas where accuracy and completeness of information is closely monitored on daily basis but some area are lacking similar focus.

Our assessment of quality of controls is Weak

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.1 With: 11.2(1) From: 01-Aug-16 To: 30-Jun-17	Information about embedded generation is not complete and UML ICPs info is not updated following traders update Potential impact: Low Actual impact: Low Audit history: None Controls: Weak Breach risk rating: 3		
Audit risk rating	Rationale for audit risk rating		
Low	Overall processes are good, weak area is embedded generation, small ICPs on wrong NSP but the same balancing area		
Actions taken to resolve the issue		Completion date	Remedial action status
UML – A number of ICPs with trader UML on the registry were investigated. This was generally historic UML, and most were found to have details recorded in the PowerNet ICP d/b but had not uploaded to the registry. This was corrected. A smaller number were queried with traders and found their registry data was incorrect and would be removed. DG – DG installers have always been very tardy in return completion notifications, despite many follow-ups. Historic records of approved applications were searched and the registry updated for those ICPs.		25/8/17	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
DG – From the beginning of August 17 electronic processing has been introduced to automatically update the registry with DG details when an application for connection of DG is approved.		11/8/17	

2.2. Requirement to correct errors (Clause 11.2(2))

Code reference

Clause 11.2(2)

Code related audit information

If the participant becomes aware that in providing information under this Part, the participant has not complied with that obligation, the participant must, as soon as practicable, provide such further information as is necessary to ensure that the participant does comply.

Audit observation

New information or corrections can come from a number of sources. They can be discovered internally or be advised by external organizations, e.g. traders. They are verified for correctness and if updates to registry information are required they are undertaken without delay. A typical example is traders advising of new address information. These are always checked against other data systems such as the GIS landbase data.

Audit commentary

PowerNet provided examples of emails from traders, in which they request changes to Price Code for a particular ICP or address. Contact for example, sends a list every month containing a number of ICPs asking to change the Price Code to or from Low User. PowerNet updates the registry to meet the traders requests which often results in a technical breach because it requires backdating the registry for more than 3 business days.

Audit outcome

Compliant



3. CREATION OF ICPS

3.1. Distributors must create ICPs (Clause 11.4)

Code reference

Clause 11.4

Code related audit information

The distributor must create an ICP identifier in accordance with Clause 1 of Schedule 11.1 for each ICP on the distributor's network. This includes an ICP identifier for the point of connection at which an embedded network connects to the distributor's network.

Audit observation

PowerNet uses their ICP Database to create ICPs for connections on its networks. PowerNet has a stringent process to make sure that an ICP is created before an installation is electrically connected.

TPCO, ELIN and LLNW are managed from the office in Invercargill. A customer applies for an ICP using an Installation Connection Application form for all networks. After all costs are assessed and paid, an ICP identifier is raised in the ICP Database. The installation owner, or its representative, is advised of the ICP identifier.

OTPO is managed from the office in Balclutha, where the process is a little different, the ICP identifier is created as soon as an application from a customer for a new connection is registered with the company.

Audit commentary

To assess compliance, we randomly chose 15 new ICPs to follow the process of creating ICP identifiers.

ICP	Customer application	ICP creation
0008679871NV3C2	23/10/16	15/11/16
0008103255NV465	20/04/17	7/06/17
0007550561NV948	13/05/16	25/05/16
0007550561NV948	11/04/17	28/04/17
0008541693NVF6E	11/04/17	28/04/17
0008541692NV32B	11/04/17	28/04/17
0008541694NV2A4	11/04/17	28/04/17
0007559151NVE11	17/10/16	22/10/16
0000404782TP9DD	21/11/16	2/12/16
0000408307TP659	1/12/16	16/12/16
0000408107TPC5E	30/11/16	8/12/16
0000659960TP465	26/01/17	21/02/17
0009510415LN13B	3/07/17	12/07/17
0000951648LN7FB	10/07/17	12/07/17

ICPs are created the same day or within a few days, it depends on whether any extra line work has to be done. ICPs are always created before a connection is electrically connected. From our observation, the new process works very well.

Audit outcome

Compliant

3.2. Participants may request distributors to create ICPs (Clause 11.5(3))

Code reference

Clause 11.5(3)

Code related audit information

The distributor, within 3 business days of receiving a request for the creation of an ICP identifier for an ICP, must either create a new ICP identifier or advise the participant of the reasons it is unable to comply with the request.

Audit observation

ICP identifiers are not requested by a participant, requests come from the customer, therefore while PowerNet is cognisant of clause 11.5(3), generally it does not apply.

Audit commentary

PowerNet is requested to create an ICP identifier by customers not a participant.

Audit outcome

Not applicable

3.3. Provision of ICP Information to the registry (Clause 11.7)

Code reference

Clause 11.7

Code related audit information

The distributor must provide information about ICPs on its network in accordance with Schedule 11.1.

Audit observation

In the week of 10 June 2017, the process for the provision of ICP information to the registry changed.

New ICPs are still created in the ICP Database, the installation owner is notified. An email is sent to the trader nominated by the customer advising the details of the new ICP. Once the trader confirms to PowerNet they accept the ICP, PowerNet records this information into the ICP Database. At this point the registry is notified, and all mandatory fields are populated, therefore the registry assigns the status of READY to the ICP.

Previously a new ICP containing all distributor information except a proposed trader was uploaded to the registry. The registry was assigning the status of NEW. Once an acceptance email was received from a trader, information was recorded in the ICP Database, a file was uploaded to the registry, the registry was changing the ICP status from NEW to READY.

The new process acts as an additional “safeguard” as it precludes traders progressing the ICP and prevents it being electrically connected without a trader being recorded on the registry.

Audit commentary

We walked through the process of ICP creation, which is documented. PowerNet developed a report which allows them to trace newly created ICPs, which wait to be accepted by traders. It is a very effective monitoring tool. Once the acceptance is received, it is noted in the ICP Database, which triggers an upload to the registry. We followed the process through for 12 ICPs to confirm that the new process was implemented and ICPs uploaded to the registry have the status of READY assigned.

ICP	Creation Date
0007302442NV08A	4/08/17
0007317034NV798	20/07/17
0008111875NV89B	27/07/17
0000951457LN88F	4/08/17
0000958005LN0A3	20/07/17
0000958006LNC63	27/07/17
0001620133TG096	3/08/17
0000596209TP7AE	17/08/17
0001713115TPB7A	13/07/17
0004745054TPE78	20/07/17
0005433925TPB1D	8/08/17
0006375153TPF57	17/08/17

Audit outcome

Compliant

3.4. Timeliness of Provision of ICP Information to the registry (Clause 7(2) of Schedule 11.1)

Code reference

Clause 7(2) of Schedule 11.1

Code related audit information

The distributor must provide information specified in Clauses 7(1)(a) to 7(1)(o) of Schedule 11.1 as soon as practicable and prior to electricity being traded at the ICP.

Audit observation

PowerNet provided the EDA files for a period of 1/8/2016 to 30/6/2017 for all networks. Information for a new connection, in most cases, was provided in a timely manner.

Audit commentary

We identified one ICP which was electrically connected without the ICP having the proposed trader recorded in the registry, the status of the ICP was NEW. The timeline of information provided to the registry is described below

ICP 0009520514LN556 was created, using the old process, on 11/8/16 and uploaded to the registry without a proposed trader. The registry assigned status NEW. On 28/11/16 PowerNet uploaded Contact as a proposed trader backdating to 11/8/16. The registry assigned status READY. On 29/11/16 Contact changed the ICPs status to ACTIVE backdating to 31/10/16. It is a

non-compliance because electricity was traded at the ICP before a trader accepted the responsibility for the ICP in the registry.

It was discussed with PowerNet and the explanation was that PowerNet received the ICP acceptance from Contact but due to a system problem, information was not uploaded to the registry.

PowerNet's previous process for ICP creations was to upload it to the registry as soon as the ICP identifier is created in the ICP database, but it did not have a proposed trader. As was described in the previous section, PowerNet changed the process of uploading new ICPs to the registry. The new process does not allow the upload of an ICP without a proposed trader therefore the non-compliance identified for LLNW would not have happened after the change. Our assessment of effectiveness of controls for the last 12 months is Moderate, going forward we would assess as Strong.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.4 With: 7(2) of Schedule 11.1 From: 11-Aug-16 To: 28-Nov-17	LLNW – for ICP 0009520514LN556 did not have a proposed trader recorded in the registry before the ICP was electrically connected. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	Only one ICP was effected, the process was changed, no impact on market settlement.		
Actions taken to resolve the issue		Completion date	Remedial action status
As soon as the missing trader was discovered it was corrected.			Identified
Preventative actions taken to ensure no further issues will occur		Completion date	

<p>Significant change to ICP creation process as already outlined is believe to completely prevent recurrence.</p> <p>It is noted there have been instances of traders requesting an ICP be loaded to the registry so they can progress it. PowerNet believes under the previous structure they would have issued a job for metering/energisation without advising of their acceptance of being proposed trader. This is taken as confirmation the new process is controlling the traders actions, and has been successful.</p>	25/7/17	
---	---------	--

3.5. Timeliness of Provision of Initial Energisation Date (Clause 7(2A) of Schedule 11.1)

Code reference

Clause 7(2A) of Schedule 11.1

Code related audit information

The distributor must provide the information specified in subclause (1)(p) to the registry no later than 10 business days after the date on which the ICP is initially energised.

Audit observation

PowerNet provided the EDA files for a period of 1/8/2016 to 30/6/2017 for all networks.

Audit commentary

Our observation is that the timeliness of the population of the Initial Energisation Date is very good. It is a well-managed process. As soon as data is available it is uploaded to the registry. In the past PowerNet had problems with their database system, which from time to time failed to upload this information. The problem was fixed. PowerNet has now additional reports to watch for missing data.

We identified a few instances when the Initial Energisation Date was uploaded later than 10 business days, which identified as non-compliance. It was data corrections after last year's audit. The table below shows the list of ICPs effected (ELIN, LLNW and OTPO).

ICP	Effective Date	Input Date
0000731721NV3EA	10/10/15	19/08/16
0000754616NV5A4	11/07/16	19/08/16
0008803161NVE89	7/10/15	19/08/16
0000950818LN858	05/02/16	19/08/16
0000950903LN525	01/04/16	19/08/16
0000951057LN48E	22/03/16	19/08/16
0000951273LN2D6	14/12/15	19/08/16

0001250004TG0A6	25/11/15	19/08/16
0002741835TG44F	27/11/15	19/08/16
0003522254TG329	25/11/15	19/08/16

Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 3.5</p> <p>With: 7(2A) of Schedule 11.1</p> <p>From: 19-Aug-16</p> <p>To: 19-Aug-16</p>	<p>Initial Energisation Date for small number of ICPs was uploaded later than 10 BD. It was data correction after the last audit. Networks affected were LLNW, OTPO, and OTPO.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: Twice previously</p> <p>Controls: Strong</p> <p>Breach risk rating: 1</p>		
Audit risk rating	Rationale for audit risk rating		
Low	Audit risk rating is low because non-compliance was caused by data correction after the last audit and it was a very small number of ICPs		
Actions taken to resolve the issue		Completion date	Remedial action status
The PowerNet process is for livening agents to return documentation at the end of the day initial energisation has taken place. Close monitoring now takes place where weekly a report to identify any ICPs becoming Active with no IED recorded.		Ongoing	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Any instances found are investigated so contact can be made to the party involved and timeliness reinforced, under the threat of revoking their PowerNet authorisation to carry out this distributor function.		Ongoing	

3.6. Connection of ICPs (Clause 11.17)

Code reference

Clause 11.17

Code related audit information

A distributor must, when electrically connecting an ICP that is not also an NSP, follow the electrical connection process set out in Clause 10.31.

The distributor must not electrically connect an ICP (except for an ICP across which unmetered load is shared) unless a trader is recorded in the registry as accepting responsibility for the ICP. In respect of ICPs across which unmetered load is shared, the distributor must not electrically connect an ICP unless a trader is recorded in the registry as accepting responsibility for the shared unmetered load.

Audit observation

As was already identified in section 3.4, one ICP was connected before a trader was recorded in the registry as accepting responsibility for the ICP.

Audit commentary

ICP 0009520514LN556 was created on 11/8/16 and uploaded to the registry without a proposed trader. The registry assigned status NEW. On 28/11/16 PowerNet uploaded Contact as a proposed trader backdating to 11/8/16. The registry assigned status READY. On 29/11/16 Contact changed the ICPs status to ACTIVE backdating to 31/10/16. It is a non-compliance because electricity was traded at the ICP before all the information was uploaded to the registry.

The new process precludes such a situation occurring again on networks managed by PowerNet.

There is another ICP which is connected to TPCO network which does not have a proposed trader recorded in the registry. The ICP in question is 0001819219TPB5D, it is a supply to a temperature display in Gore. The ICP was created 18 May 2011, the daily usage is minimal. PowerNet tried many times to “convince” one of traders to take responsibility for this ICP but in vain. Unfortunately, it makes TPCO non-compliant because it was connected without a trader recorded in the registry.

We assess the effectiveness of the new process and the daily associated report as Strong but the fact that ICP0001819219TPB5D has been supplied without a trader in the registry for a number of years we change it to Moderate.

Audit outcome

Non-compliant

Non-compliance	Description
<p>Audit Ref: 3.6</p> <p>With: 11.17</p> <p>From: 01-Aug-16</p> <p>To: 15-Aug-17</p>	<p>LLNW – ICP 009520514LN556 was electrically connected without Contact Energy taking responsibility for the ICP in the registry.</p> <p>TPCO – ICP 0001819219TPB5D, it is connected without a trader recorded in the registry</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: Once before</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p>
Audit risk rating	Rationale for audit risk rating

Low	Audit risk is assigned as low because it is related to 2 ICPs. One ICP is connected but not metered		
Actions taken to resolve the issue		Completion date	Remedial action status
For 0001819219TPB5D see comments against clause 3.8 below			Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
For 0001819219TPB5D see comments against clause 3.8 below			

3.7. Electrical connection of ICPs (Clause 10.28(7))

Code reference

Clause 10.28(7)

Code related audit information

A network owner must not electrically connect a new point of connection that is to be quantified by metering unless requested to do so by the:

- *MEP (for a temporary energisation); or*
- *reconciliation participant responsible for ensuring there is a metering installation.*

Audit observation

We reviewed the process of connecting new ICPs.

Audit commentary

New connections are electrically connected by the metering contractor who is acting as a living agent and working under instructions from the reconciliation participant (SR). PowerNet is advised of the ICP being connected by the living agent sending the completed PowerNet application form to PowerNet on the day the ICP is livened.

Audit outcome

Compliant

3.8. Electrical connection of ICP that is not an NSP (Clause 10.31)

Code reference

Clause 10.31

Code related audit information

A distributor must not electrically connect an ICP that is not also an NSP unless:

- *the trader trading at the ICP has requested the electrical connection; or*
- *the MEP who has an arrangement with the trader trading at the ICP has requested temporary energisation of the ICP.*

Audit observation

We reviewed the process of connecting new installations.

Audit commentary

PowerNet does not electrically connect ICPs unless requested by a trader. It is strictly enforced. All installations are electrically connected by inspectors authorised by PowerNet only. As soon as a connection is electrically connected, paperwork is passed to the connections administrator and information entered into the ICP database.

PowerNet has not received any requests, in the last 12 months, for a temporary energisation of any ICP.

PowerNet connected ICP 0001819219TPB5D, which is the supply to a temperature display in Main Street in Gore. PowerNet has not been able to find a trader, which would like to take responsibility for this ICP.

Our assessment of control is Weak, the situation should have been resolved some time ago.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.8 With: 10.31 From: 01-Aug-16 To: 30-Jun-17	TPCO – ICP 0001819219TPB5D, was connected without a trader requesting connection Potential impact: Low Actual impact: Low Audit history: None Controls: Weak Breach risk rating: 3		
Audit risk rating	Rationale for audit risk rating		
Low	The temperature display takes only 100W, it contributes to UFE.		
Actions taken to resolve the issue		Completion date	Remedial action status
This ICP has been in this state for a long period. While it was being managed under the normal PowerNet new connection process it is unknown how it actually got connected. Ironically the situation with this ICP has been compounded by a complex issue where the connection was for the Gore District Council but The Power Company itself will actually become the customer – under a very historic contract for power supply at a penny a unit. There has been an internal failure between PowerNet and The Power Company for the account to be arranged with a trader. This is presently being taken up with The Power Company's trader and it will be resolved.		In progress	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	

It is believed present processes are much more robust and would prevent the connection being energized without a trader being involved.	31/8/17	
---	---------	--

3.9. Electrical connection of NSP that is not a point of connection to the grid (Clause 10.30(2))

Code reference

Clause 10.30(2)

Code related audit information

A distributor must, within 5 business days of electrically connecting an NSP that is not also a point of connection to the grid, notify the reconciliation manager of the following in the prescribed form:

- *the NSP electrically connected*
- *the date of the electrical connection*
- *the participant identifier of each MEP*
- *the certification expiry date for each metering installation.*

Audit observation

PowerNet does not manage such connections on behalf of ELIN, TPCO, LLNW, and OTPO. The compliance was not assessed.

Audit commentary

Audit outcome

Not applicable

3.10. Definition of ICP identifier (Clause 1(1) Schedule 11.1)

Code reference

Clause 1(1) Schedule 11.1

Code related audit information

Each ICP created by the distributor in accordance with Clause 11.4 must have a unique identifier, called the "ICP identifier", determined in accordance with the following format: yyyyyyyyyxxxccc where:

- *yyyyyyyyyy is a numerical sequence provided by the distributor*
- *xx is a code that ensures the ICP is unique (assigned by the Authority to the issuing distributor)*
- *ccc is a checksum generated according to the algorithm provided by the market administrator.*

Audit observation

We reviewed the LIS files provided by PowerNet for the networks they manage, ELIN, TPCO, LLNW, and OTPO.

Audit commentary

There are 4 unique distributor codes used within the PowerNet area. ELIN uses "NV", TPCO "TP", OTPO "TG", and LLNW "LN" distributor codes.

The ICP Database creates ICPs based on an installation number, unique distributor code and checksum, which is generated according to the algorithm embedded into the database. The ICP identifier has a format prescribed by the Code.

Audit outcome

Compliant

3.11. Loss category (Clause 6 Schedule 11.1)

Code reference

Clause 6 Schedule 11.1

Code related audit information

Each ICP must have a single loss category that is referenced to identify the associated loss factors.

Audit observation

To assess compliance, we reviewed the LIS files dated 13 July 2017 provided by PowerNet.

Audit commentary

All ICPs with the status of “READY”, “Active”, and “Inactive” have a single loss category code. The loss category code is assigned as soon as an ICP is created and uploaded to the registry. The registry design does not allow the assigning of more than a single loss category to an ICP.

Audit outcome

Compliant

3.12. Management of “new” status (Clause 13 Schedule 11.1)

Code reference

Clause 13 Schedule 11.1

Code related audit information

The ICP status of “New” must be managed by the distributor to indicate:

- *the associated electrical installations are in the construction phase (Clause 13(a) of Schedule 11.1)*
- *the ICP is not ready for activation (Clause 13(b) of Schedule 11.1).*

Audit observation

In the week of 10 June 2017, the process for the provision of ICP information to the registry changed. To confirm this, we reviewed the EDA files for the period of 1/8/16 to 30/6/17 to assess compliance.

Audit commentary

As was described in the last audit PowerNet used to upload ICPs without a proposed trader. The registry was assigning the status NEW. This process had some shortcomings therefore it was decided to change it. PowerNet uploads new ICPs to the registry with all the information to allow the registry to assign the status of READY. We confirm that from the week of 10 June 2017 there are no new ICPs with the status of NEW.

Audit outcome

Compliant

3.13. Monitoring of “new” & “ready” statuses (Clause 15 Schedule 11.1)

Code reference

Clause 15 Schedule 11.1

Code related audit information

If an ICP has had the status of “New” or has had the status of “Ready” for 24 calendar months or more:

- *the distributor must ask the trader who intends to trade at the ICP whether the ICP should continue to have that status (Clause 15(2)(a) of Schedule 11.1)*
- *the distributor must decommission the ICP if the trader advises that the ICP should not continue to have that status (Clause 15(2)(b) of Schedule 11.1).*

Audit observation

At the time of audit, the registry LIS files dated 13 July 2017 were examined and the table below shows a number of ICPs of status “NEW” and “READY” for more than 24 months for each distributor managed by PowerNet.

Distributor	NEW (2017)	NEW (2016)	NEW (2015)
TPCO	2	2	1
ELIN	1	0	0
OTPO	2	3	3
LLNW	1	0	0

Distributor	READY (2017)	READY (2016)	READY (2015)
TPCO	49	45	42
ELIN	2	2	4
OTPO	3	5	17
LLNW	0	0	0

Audit commentary

The number of ICPs with the status of “NEW” longer than 24 months has not changed much for ELIN/OTPO/TPCO over the last year. There is still a high number of ICPs on TPCO network with the status of READY.

There is no process in place to regularly monitor ICPs whose status has been NEW or READY for longer than 24 months.

Project managers working for PowerNet use the software called Maximo to manage all new connections. From time to time a job is closed on a customer request because they have changed their mind. There is no a link between Maximo and the ICP Database, which means that when a job is closed, and the ICP no longer required, it is not decommissioned in the registry.

We randomly picked up a number of ICPs from each network and asked PowerNet to show us if any follows up were done in the last 24 months. The results are shown below:

Status NEW

Network	ICP	ICP Creation Date	Comment
OTPO	0001750428TGF3F	25/10/06	no investigation yet
OTPO	0001780588TG275	24/11/14	no investigation yet
OTPO	0002761041TG9D8	11/05/06	no investigation yet
TPCO	0000233764TP6C3	12/11/15	cancelled in Maximo
TPCO	0001819219TPB5D	18/05/11	it is a temperature display (100W), minimal usage, no trader wants to take ownership of this ICP
ELIN	0000880396NV140	5/06/15	closed in Maximo
LLNW	0009501512LNCB4	6/03/15	

Status READY

Network	ICP	ICP Creation Date	Comment
OTPO	0001050286TG7B6	12/10/04	no correspondence
OTPO	0003331791TG7EA	26/02/13	no correspondence
LLNW	0009501512LNCB4	6/03/15	closed in Maximo
TPCO	0000165583TP1B4	14/07/15	no follow up
TPCO	0000471533TP0B4	2/07/15	letter send to a customer noted in Maximo
TPCO	0000657210TPAF6	8/04/15	cancelled in Maximo
TPCO	0004059033TPA28	24/03/15	still waiting for a customer to decide
TPCO	0000222764TPF82	5/08/13	closed in Maximo
TPCO	0000389514TPDBC	13/09/13	tried to follow up with a

			customer
TPCO	0004059145TP7FE	11/08/14	letter send to a customer, noted in Maximo
ELIN	0007302330NVA50	22/02/11	closed in Maximo
ELIN	0000836565NV058	7/06/12	pre-Maximo

We would like to strongly recommend the creation of a process that ensures that as soon as a job is cancelled in Maximo, the registry is updated.

Audit outcome

Compliant

Description	Recommendation	Audited party comment	Remedial action
ICPs with the status of NEW and READY	Create a process so that as soon as a job is cancelled in Maxim (ICP no longer required) the registry is updated.	There is no automatic means of having job closure in Maximo initiate decommissioning of the ICP. Manual process is relied on to decommission the ICP.	All PowerNet's registry updates are managed through the ICP database. Previously it did not allow decommissioning ICPs from New or Ready status. Any decommissioning from that status required a data administrator to action directly in the registry. Development of the ICP database to decommission New and Ready ICPs has recently been completed. This will provide the tool for job managers to decommission ICPs that arise from canceled customer jobs and allows the development of a proper business process of decommissioning ICPs when a job is canceled.

3.14. Embedded generation loss category (Clause 7(6) Schedule 11.1)

Code reference

Clause 7(6) Schedule 11.1

Code related audit information

If the ICP connects the distributor's network to an embedded generating station that has a capacity of 10MW or more (clause 7(1)(f) of Schedule 11.1):

- *The loss category code must be unique; and*
- *The distributor must provide the following to the reconciliation manager:*
 - o *the unique loss category code assigned to the ICP*
 - o *the ICP identifier of the ICP*
 - o *the NSP identifier of the NSP to which the ICP is connected*

- *the plant name of the embedded generating station.*

Audit observation

ELIN, LLNW, and Otago Joint Venture do not have an embedded generation station that has a capacity of 10MW or more.

TPCO has 0000315340TPEFC White Hill wind farm – 58MW

OTPO has 0002751984TGB5D Paerau-Patearoa Power Station – 12.25MW

Audit commentary

Both of these ICPs are confirmed as having loss category codes.

Audit outcome

Compliant

4. MAINTENANCE OF REGISTRY INFORMATION

4.1. Changes to registry information (Clause 8 Schedule 11.1)

Code reference

Clause 8 Schedule 11.1

Code related audit information

If information held by the registry that relates to an ICP for which the distributor is responsible changes, the distributor must provide notice to the registry of that change.

Notification must be given by the distributor within 3 business days after the change takes effect, unless the change is to the NSP identifier of the NSP to which the ICP is usually connected (other than a change that is the result of the commissioning or decommissioning of an NSP). In those cases, notification must be given no later than 8 business days after the change takes effect.

If the change to the NSP identifier is for more than 14 days, the time within which notification must be effected in accordance with Clause 8(3) of Schedule 11.1 begins on the 15th day after the change.

Audit observation

PowerNet provided the Event Detail files for all networks managed by them for a period 1/8/16 to 30/6/17. We analysed 4 types of transactions; network, address, pricing and status.

Audit commentary

The results of the analysis of the Event Detail files are shown in the table below. Some comments giving more insight are below the table.

Network	Activity	No of updates	No of updates later than 3BD	Date range of updates [BD]	Comment
ELIN	Address	141	0	1 to 2	
ELIN	Network	260	76 (29.2%)	4 to 1544	Clean-up to enter proposed trader, previously deleted by the system
ELIN	Pricing	1,699	1,518 (89.3%)	5 to 154	
ELIN	Status (0)	55		34	
ELIN	Status (999)	57	1	81	0088030022NVD02***
ELIN	Status (3)	76	21 (27.6%)	7 to 23	
LLNW	Address	348	0		
LLNW	Network	973	428 (43.9%)	5 to 399	Clean-up to enter proposed trader, previously deleted by the system

LLNW	Pricing	437	192 (43.9%)	4 to 26	
LLNW	Status (0)	78	3	8 to 78	0009520514LN556 backdated by 78BD. It was described in the relevant section. Electrically connected without a trader recorded in the registry
LLNW	Status (999)	199	0		
LLNW	Status (3)	9	1	6	
OTPO	Address	149	0		
OTPO	Network	313	115 (36.7%)	5 to 656	88 entries on 26/3/17 *
OTPO	Pricing	1,024	881 (86.04%)	5 to 442**	
OTPO	Status (0)	39	0		
OTPO	Status (999)	63	0		
OTPO	Status (3)	55	0		
TPCO	Address	646	0		
TPCO	Network	1,530	903 (58.67%)*	4 to 785	
TPCO	Pricing	2,911	2,403 (82.55%)**	4 to 337	337 BD, one ICP only, 0005907835TP9BA, correction of mistake
TPCO	Status (0)	182	2	35 and 274	ICPs were not electrically connected before traders accepted responsibility 0000180742TPA44 0000596746TPFD0
TPCO	Status (999)	174	0		
TPCO	Status (3)	144	21 (14.5%)	6 to 168	

*On 26 March 2017 PowerNet repopulated data for a number of ICPs as a data cleanup. In the past, the ICP database was removing a proposed trader if an ICP already had the status of

ACTIVE. PowerNet decided to repopulate this information to have accurate and complete data in the registry.

TPCO – 193 updates, proposed trader correction, previously deleted; 665 updates for ICPs shifting from NMA0331 to GOR0331. The update (28 June 2017) was delayed by 25 BD to 25 May 2017. We have chosen 27 ICPs and analyzed reasons for backdating, there were a mixture of reasons such as Initial Energisation Date or added solar information.

OTPO – 88 entries on 26 March 2017

** Traders sent thought the monthly request to change Price Codes in the registry. Contact Energy sends requests daily. PowerNet tries to accommodate the request within a month and use the date of request unless the file is sent late at the end of the month. There is no financial impact of the changes requested because the changes are done before the billing run. PowerNet does not run wash-up files therefore even if the changes to Price Codes was outside of the current billing month there is still no financial impact. If PowerNet identifies or is made aware of a genuine mistake it is corrected and a customer gets a credit.

*** ICP 0088030022NVD02 for which the removal of the proposed retailer was backdated by 81 days. The Input Date was 23/3/17, the effective date was 1/12/16. It is an ICP for Seasonal - festive lights on street light poles. It is UML for the city council festive lights in the CBD. 4 ICPs for different groupings of lights were created and they were livened piece by piece. The group of lights on this ICP was not installed last summer, therefore it was not livened. At the time of the ICP creation Genesis was the council's retailer and accepted the ICP. Then ICC changed to Trustpower so the Genesis acceptance was withdrawn, but there has been no action on the ICP since, and no acceptance from Trustpower. PowerNet expects it to be livened for this coming Christmas.

Non-compliance identified. There are some areas such as pricing and updates to addresses that are managed and monitored well. As in the previous audit, updates for price codes are requested by traders and PowerNet tries to accommodate their request as well as possible unless they are not correct or unreasonable. PowerNet decided that it is better for customers not to follow the 3 BD obligation. There is no financial impact. Addresses are corrected when it is requested by traders. If PowerNet identifies an error itself it is corrected promptly. There is still a high percentage of backdated network entries. It appears to be a weak point in the PowerNet processes. There is not much monitoring in place. Our assessment of effectiveness of controls is weak.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 4.1 With: 8 of Schedule 11.1 From: 01-Aug-16 To: 30-Jun-17	Registry information not updated within 3 business days by all networks (ELIN, TPCO, LLNW, OTPO) Potential impact: Low Actual impact: Low Audit history: Three time before Controls: Weak Breach risk rating:		
Audit risk rating	Rationale for audit risk rating		
Low	Our audit risk rating is low because backdating of price codes has no financial impact. Addresses and statuses are well managed. There is no impact on settlement outcomes		
Actions taken to resolve the issue		Completion date	Remedial action status
Whenever data updates are identified the effective date is also considered, and they will be backdated if that is the most correct.		Ongoing	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Difficulties have arisen due to back-population of IED from historic records, because PowerNet had for many years prior to 2013 (implementation of IED) been recording the initial livening date for new connections. With that field already in the data structure PowerNet began to use it for IED from 2013. Difficulty arose from the registry's handling of the historic data being sent with present day updates, i.e. pre 2013 IED dates being sent. It is believed this issue is now resolved to prevent these data issues with the registry.		31/8/17	

4.2. Notice of NSP for each ICP (Clauses 7(1), (4) and (5) Schedule 11.1)

Code reference

Clauses 7(1), (4) and (5) Schedule 11.1

Code related audit information

The distributor must notify the registry of the NSP identifier of the NSP to which the ICP is usually connected under Clause 7(1)(b) of Schedule 11.1.

If the distributor cannot identify the NSP that an ICP is connected to, the distributor must nominate the NSP that the distributor thinks is most likely to be connected to the ICP, taking

into account the flow of electricity within its network, and the ICP is deemed to be connected to the nominated NSP.

Audit observation

We reviewed the LIS files provided by PowerNet and we also reviewed the process for the creation of ICP identifiers.

Audit commentary

Each ICP loaded into the registry has the NSP identifier assigned. It is a mandatory field in the ICP Database. The functionality of the database asks an operator to assign a transformer, which is “connected” to a NSP. The ICP Database has a network model built in for each participant.

Audit outcome

Compliant

4.3. Customer queries about ICP (Clause 11.31)

Code reference

Clause 11.31

Code related audit information

The distributor must advise a customer (or any person authorised by the customer) or embedded generator of the customer or embedded generator's ICP identifier within 3 business days after receiving a request for that information.

Audit observation

It was discussed with PowerNet during the audit.

Audit commentary

Any request from a customer for advice on an ICP for an existing connection is actioned immediately, while the customer is on the phone or at the office.

Audit outcome

Compliant

4.4. ICP location address (Clause 2 Schedule 11.1)

Code reference

Clause 2 Schedule 11.1

Code related audit information

Each ICP identifier must have a location address that allows the ICP to be readily located.

Audit observation

PowerNet provided the LIS files dated 13 July 2017.

Audit commentary

TPCO had 4 ICPs (2 pairs) with duplicate addresses, it made them difficult to locate. The addresses were corrected during the audit.

0000405743TP3D7 and 0004057419TP12D
0000425068TP699 and 0000425583TP7F2

We did not identify any such ICPs on ELIN, OTPO, and LLNW.

We assess strength of control as Moderate. They are historic information, for any new ICP the ICP database check for duplication.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 4.4 With: 2 of Schedule 11.2 From: 01-Aug-16 To: 30-Jun-17	TPCO – duplicate addresses for 4 ICPs Potential impact: Low Actual impact: None Audit history: None Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	Only 4 ICPs on TPCO network, corrected during the audit		
Actions taken to resolve the issue		Completion date	Remedial action status
The duplicate addresses were investigated and corrected immediately they were identified.		25/7/17	Cleared
Preventative actions taken to ensure no further issues will occur		Completion date	
These were historic ICPs that must have been overlooked in original checks of the whole database for duplicate addresses.		25/7/17	

4.5. ICP de-energisation (Clause 3 Schedule 11.1)

Code reference

Clause 3 Schedule 11.1

Code related audit information

Each ICP created after 7 October 2002 must be able to be de-energised without de-energisation of another ICP, except for ICPs that are the point of connection between a network and an embedded network, or ICPs that represent the consumption calculated by difference between the total consumption for the embedded network and all other ICPs on the embedded network.

Audit observation

It was discussed with PowerNet during the audit.

Audit commentary

There are no known situations where an ICP could not be de-energized without the de-energisation of another ICP.

Audit outcome

Compliant

4.6. Distributors to Provide ICP Information to the Registry (Clause 7(1) Schedule 11.1)

Code reference

Clause 7(1) Schedule 11.1

Code related audit information

For each ICP on the distributor's network, the distributor must provide the following information to the registry:

- *the location address of the ICP identifier (Clause 7(1)(a) of Schedule 11.1)*
- *the NSP identifier of the NSP to which the ICP is usually connected (Clause 7(1)(b) of Schedule 11.1)*
- *the installation type code assigned to the ICP (Clause 7(1)(c) of Schedule 11.1)*
- *the reconciliation type code assigned to the ICP (Clause 7(1)(d) of Schedule 11.1)*
- *the loss category code and loss factors for each loss category code assigned to the ICP (Clause 7(1)(e) of Schedule 11.1)*
- *if the ICP connects the distributor's network to an embedded generating station that has a capacity of 10MW or more (Clause 7(1)(f) of Schedule 11.1):*
 - a) *the unique loss category code assigned to the ICP*
 - b) *the ICP identifier of the ICP*
 - c) *the NSP identifier of the NSP to which the ICP is connected*
 - d) *the plant name of the embedded generating station*
- *the price category code assigned to the ICP, which may be a placeholder price category code only if the distributor is unable to assign the actual price category code because the capacity or volume information required to assign the actual price category code cannot be determined before electricity is traded at the ICP (Clause 7(1)(g) of Schedule 11.1)*
- *if the price category code requires a value for the capacity of the ICP, the chargeable capacity of the ICP as follows (Clause 7(1)(h) of Schedule 11.1):*
 - a) *a placeholder chargeable capacity if the distributor is unable to determine the actual chargeable capacity*
 - b) *a blank chargeable capacity if the capacity value can be determined from metering information*
 - c) *the actual chargeable capacity of the ICP in any other case*
- *the distributor installation details for the ICP determined by the price category code assigned to the ICP (if any), which may be placeholder distributor installation details only if the distributor is unable to assign the actual distributor installation details because the capacity or volume information required to assign the actual distributor installation details cannot be determined before electricity is traded at the ICP (Clause 7(1)(i) of Schedule 11.1)*

- *the participant identifier of the first trader who has entered into an arrangement to sell or purchase electricity at the ICP (only if the information is provided by the first trader) (Clause 7(1)(j) of Schedule 11.1)*
- *the status of the ICP (Clause 7(1)(k) of Schedule 11.1)*
- *designation of the ICP as "Dedicated" if the ICP is located in a balancing area that has more than 1 NSP located within it, and the ICP will be supplied only from the NSP advised under Clause 7(1)(b) of Schedule 11.1, or the ICP is a point of connection between a network and an embedded network (Clause 7(1)(l) of Schedule 11.1)*
- *if unmetered load, other than distributed unmetered load, is associated with the ICP, the type and capacity in kW of unmetered load (Clause 7(1)(m) of Schedule 11.1)*
- *if shared unmetered load is associated with the ICP, a list of the ICP identifiers of the ICPs that are associated with the unmetered load (Clause 7(1)(n) of Schedule 11.1)*
- *if the ICP is capable of generating into the distributors network (Clause 7(1)(o) of Schedule 11.1):*
 - a) *the nameplate capacity of the generator; and*
 - b) *the fuel type*
 - c) *the initial energisation date of the ICP (Clause 7(1)(p) of Schedule 11.1).*

Audit observation

PowerNet provided the LIS files and PR-255 to assist in assessment of compliance with this clause

Audit commentary

LIS files and PR-255 were analysed for the following parameters:

- List of ICPs with 10MW or greater so that Individual loss codes can be checked
- ICPs with null values for Property Name and Unit and Number, may not be populated correctly
- ICPs that have different NSPs in the same town and street, possibly incorrect NSP allocation
- ICPs with an energy flow direction of I with missing gen capacity and or fuel type
- ICPs with duplicated address attributes
- Energised ICP created after 29/8/13 with missing IED, or ICP created before 28/9/13 with IED
- ICPs with an energy flow direction of I on a register, but installation type is not B or G
- ICPs created in the nominated period, showing IE date and Status Excluding 999,000,001 12
- ICPs in the new or ready state for more than 24 Months
- Trader has unmetered load indicated, but Distributor has no unmetered load details

The results for each network are shown below:

TPCO

- 13 ICPs had UML populated but there was no a distributor entry
- 85 ICPs had no embedded generation details populated
- 30 ICPs – incorrect NSP assigned

LLNW

- 9 ICPs had no embedded generation details populated, for 2 ICPs no details available but Import/Export meter is installed

OTPO

- 40 ICPs had UML populated but there was no a distributor entry
- 57 ICPs – incorrect NSP assigned
- 1 ICP no details available but Import/Export meter is installed

ELIN

- 8 ICPs had UML populated but there was no a distributor entry
- 25 ICP no details available but Import/Export meter is installed

The biggest concern is the number of ICPs for which Import/Export meters are installed but PowerNet does not have a confirmation of installation being electrically connected. PowerNet keeps a record of applications to install solar but it is hardly ever notified of a connection being energized.

The concern is the number if ICPs for which the incorrect NSP is assigned in the registry. It is a weak point because there is no connection which allows the updating of the ICP Database with the network model kept up to date by the System Control. The System Control has a process (part of switching) to notify the Metering Manager if ICPs are “shifted” between NSPs longer than 14 days. In the last 12 months a large group of TPCO ICPs were switched between NSP due to temporary operational changes on the network, there NSPs were updated

In our view, there are no controls in some areas, such as checking the NSP allocation, and weak controls, such as for recording solar applications but not proactively following up.

Overall we assess controls as Weak.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 4.6 With: 7(1) of Schedule 11.1 From: 01-Aug-16 To: 30-Jun-17	Incorrect or lack of information in the registry Potential impact: Low Actual impact: Low Audit history: None Controls: Weak Breach risk rating: 6		
Audit risk rating	Rationale for audit risk rating		
Medium			
Actions taken to resolve the issue		Completion date	Remedial action status

UML – A number of ICPs with trader UML on the registry were investigated. This was generally historic UML, and most were found to have details recorded in the PowerNet ICP d/b but had not uploaded to the registry. This was corrected. For ELIN all of, and on other networks small number, were queried with traders and found their registry data was incorrect and would be removed. DG – DG installers have always been very tardy in return completion notifications, despite many follow-ups. Historic records of approved applications were searched and the registry updated for those ICPs.	25/7/17	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
DG – From the beginning of August 17 electronic processing has been introduced to automatically update the registry with DG details when an application for connection of DG is approved.	11/8/17	

4.7. Provision of information to registry after the trading of electricity at the ICP commences (Clause 7(3) Schedule 11.1)

Code reference

Clause 7(3) Schedule 11.1

Code related audit information

The distributor must provide the following information to the registry no later than 10 business days after the trading of electricity at the ICP commences:

- *the actual price category code assigned to the ICP (Clause 7(3)(a) of Schedule 11.1)*
- *the actual chargeable capacity of the ICP determined by the price category code assigned to the ICP (if any) (Clause 7(3)(b) of Schedule 11.1)*
- *the actual distributor installation details of the ICP determined by the price category code assigned to the ICP (if any) (Clause 7(3)(c) of Schedule 11.1).*

Audit observation

We reviewed the process of ICP creation documented by PowerNet.

Audit commentary

We confirm, PowerNet provides the actual price code for each ICP when it is first uploaded to the registry.

Audit outcome

Compliant

4.8. GPS coordinates (Clause 7(8) and (9) Schedule 11.1)

Code reference

Clause 7(8) and (9) Schedule 11.1

Code related audit information

If a distributor populates the GPS coordinates (optional), it must meet the NZTM2000 standard in a format specified by the Authority.

Audit observation

No GPS coordinates are loaded into the registry.

Audit commentary**Audit outcome**

Not applicable

4.9. Management of “ready” status (Clause 14 Schedule 11.1)**Code reference**

Clause 14 Schedule 11.1

Code related audit information

The ICP status of “Ready” must be managed by the distributor and indicates that:

- *the associated electrical installations are ready for connecting to the electricity supply (Clause 14(1)(a) of Schedule 11.1); or*
- *the ICP is ready for activation by a trader (Clause 14(1)(b) of Schedule 11.1)*

Before an ICP is given the “Ready” status in accordance with Clause 14(1) of Schedule 11.1, the distributor must:

- *identify the trader that has taken responsibility for the ICP (Clause 14(2)(a) of Schedule 11.1)*
- *ensure the ICP has a single price category (Clause 14(2)(b) of Schedule 11.1).*

Audit observation

The new process was introduced this year. It was described in detail in section 3.1.

Audit commentary

According to a new process PowerNet uploads ICPs to the registry only when it gets confirmation from a trader that it will accept responsibility for the ICP. We walked through the process and confirm compliance.

Audit outcome

Compliant

4.10. Management of “distributor” status (Clause 16 Schedule 11.1)**Code reference**

Clause 16 Schedule 11.1

Code related audit information

The ICP status of “distributor” must be managed by the distributor and indicates that the ICP record represents a shared unmetered load installation or the point of connection between an embedded network and its parent network.

Audit observation

TPCO has one ICP with the status of “distributor”.

Audit commentary

It is the ICP 0004031015TP9AA. The flag of the ICP is LE, it is a connection to an embedded network in Te Anau.

Audit outcome

Compliant

4.11. Management of “decommissioned” status (Clause 20 Schedule 11.1)

Code reference

Clause 20 Schedule 11.1

Code related audit information

The ICP status of “decommissioned” must be managed by the distributor and indicates that the ICP is permanently removed from future switching and reconciliation processes (Clause 20(1) of Schedule 11.1).

Decommissioning only occurs when:

- *electrical installations associated with the ICP are physically removed (Clause 20(2)(a) of Schedule 11.1); or*
- *there is a change in the allocation of electrical loads between ICPs with the effect of making the ICP obsolete (Clause 20(2)(b) of Schedule 11.1); or*
- *in the case of a distributor-only ICP for an embedded network, the embedded network no longer exists (Clause 20(2)(c) of Schedule 11.1).*

Audit observation

PowerNet decommissions an ICP upon retailer instruction (email) or owner’s instruction. Before the ICP status is changed to “decommissioned”, a contractor goes on site and physically disconnects the installation. The LIS file was examined. We sampled 14 ICPs chosen randomly. The number of ICPs decommissioned since the last audit are shown in the table below.

Audit commentary

The LIS files and notes in the ICP database were examined. We sampled 9 ICPs chosen randomly. The results are shown in the table below since the last audit are shown in the table below.

ICP	Installation dismantled	Registry updated by trader	PNET update
0000382119TP106	4/07/17	11/07/17	7/08/17
0000731966NVA8E	23/06/17	14/07/17	7/08/17
0000731960NVB01	23/06/17	14/07/17	7/08/17
0000912588NVE98	6/06/17	20/06/17	6/07/17
0000357249TP17C	9/06/17	19/06/17	6/07/17
0003572495TPD67	16/06/17	26/06/17	5/07/17

0000177260TP36D	20/06/17	not yet	not yet
0000637515TPAE3	21/06/17	3/07/17	4/07/17
0000568791TP204	29/06/17	10/07/17	7/08/17

Audit outcome

Compliant

4.12. Maintenance of price category codes (Clause 23 Schedule 11.1)

Code reference

Clause 23 Schedule 11.1

Code related audit information

The distributor must keep up to date the table in the registry of the price category codes that may be assigned to ICPs on each distributor's network by entering in the table any new price category codes.

Each entry must specify the date on which each price category code takes effect, which must not be earlier than 2 months after the date the code is entered in the table.

A price category code takes effect on the specified date.

Audit observation

The Price Category table in the registry was examined for all four networks managed by PowerNet.

Audit commentary

There were no new Price Categories recorded in the registry since the last audit.

Audit outcome

Compliant

5. CREATION AND MAINTENANCE OF LOSS FACTORS

5.1. Updating table of loss category codes (Clause 21 Schedule 11.1)

Code reference

Clause 21 Schedule 11.1

Code related audit information

The distributor must keep the registry up to date with the loss category codes that may be assigned to ICPs on the distributor's network.

The distributor must specify the date on which each loss category code takes effect.

A loss category code takes effect on the specified date.

Audit observation

The table containing loss factors, stored in the registry, was examined for all four networks.

Audit commentary

The new Loss Category Code (OTPHH) was recorded in the registry for OTPO on 19 January 2017. The new Loss Factor Code took effect on 1 April 2017.

The new Loss Category Code (LLNWNL) was recorded in the registry for LLNW on 19 January 2017. The new Loss Factor Code took effect on 1 March 2017.

Non-compliance for LLNW was identified because the Loss Factor Code must be uploaded to the registry 2 months in advance. It was uploaded 19 days late.

PowerNet regularly updates loss factors in the registry, there is a process in place. The lateness of the recording of the new Loss Category Code for LLNW was caused by human error. Our assessment of controls is Strong because the rigid process is in place.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 5.1 With: 21 of Schedule 11.1 From: 19-Jan-17 To: 28-Feb-17	The new Loss Category Code (LLNWNL) for LLNW was uploaded to the registry later than two months in advance. It was late by 19 days. Potential impact: Low Actual impact: Low Audit history: None Controls: Strong Breach risk rating: 1
Audit risk rating	Rationale for audit risk rating
Low	The audit risk was assigned as low because it was only one loss factor code, which was uploaded later than 2 months in advance. Additionally, the value of loss factor was 1.
Actions taken to resolve the issue	
Completion date	Remedial action status

No action required as there were no ICP's assigned to this loss code until August 2017 resulting in no impact.	31/8/17	Cleared
Preventative actions taken to ensure no further issues will occur	Completion date	
Appropriate staff made aware of the code requirement of 2 months advanced notice for establishing new loss codes.	31/8/17	

5.2. Updating loss factors (Clause 22 Schedule 11.1)

Code reference

Clause 22 Schedule 11.1

Code related audit information

Each loss category code must have a maximum of 2 loss factors per calendar month. Each loss factor must cover a range of trading periods within that month so that all trading periods have a single applicable loss factor.

If the distributor wishes to replace an existing loss factor on the table on the registry, the distributor must enter the replaced loss factor on the table in the registry.

Audit observation

The table containing loss factors, stored in the registry, was examined for all four networks.

Audit commentary

For TPCO, each loss factor has one value for winter and another for summer, it was updated on 23 February 2017, valid from 1 May 2017 and 1 October 2017.

On the same day, the loss factor was updated for ELIN.

There were no updates for OTPO and LLNW.

Audit outcome

Compliant

6. CREATION AND MAINTENANCE OF NSPS (INCLUDING DECOMMISSIONING OF NSPS AND TRANSFER OF ICPS)

6.1. Creation and decommissioning of NSPs (Clause 11.8 and Clause 25 Schedule 11.1)

Code reference

Clause 11.8 and Clause 25 Schedule 11.1

Code related audit information

If the distributor is creating or decommissioning an NSP that is an interconnection point between 2 local networks, the distributor must notify the reconciliation manager of the creation or decommissioning.

If the embedded network owner is creating or decommissioning an NSP that is an interconnection point between 2 embedded networks, the embedded network owner must notify the reconciliation manager of the creation or decommissioning.

If the distributor is creating or decommissioning an NSP that is a point of connection between an embedded network and another network, the distributor must notify the reconciliation manager of the creation or decommissioning.

If the distributor wishes to change the record in the registry of an ICP that is not recorded as being usually connected to an NSP in the distributor's network, so that the ICP is recorded as being usually connected to an NSP in the distributor's network (a "transfer"), the distributor must:

- *notify the reconciliation manager*
- *notify the market administrator*
- *notify each affected reconciliation participant*
- *comply with Schedule 11.2.*

Audit observation

One new NSP, NLK011, was created on Aurora network for a new embedded network for LLNW on 12 July 2017.

Audit commentary

The Reconciliation Manager was notified on 21 February 2017 and the Market Administrator on 9 February 2017. PowerNet provided a copy of the notification to the reconciliation manager and the Market Administrator.

Audit outcome

Compliant

6.2. Provision of NSP information (Clause 26(1) and (2) Schedule 11.1)

Code reference

Clause 26(1) and (2) Schedule 11.1

Code related audit information

If the distributor wishes to create an NSP or transfer an ICP as described above, the distributor must request that the reconciliation manager create a unique NSP identifier for the relevant NSP.

The request must be made at least 10 business days before the NSP is electrically connected, in respect of an NSP that is an interconnection point between 2 local networks. In all other cases,

the request must be made at least 1 calendar month before the NSP is electrically connected or the ICP is transferred.

Audit observation

On 21 February 2017, PowerNet requested the reconciliation manager to create a new NSP, NLK0111.

Audit commentary

PowerNet provided a copy of the notification to the Reconciliation Manager.

Audit outcome

Compliant

6.3. Notice of balancing areas (Clause 24(1) and Clause 26(3) Schedule 11.1)

Code reference

Clause 24(1) and Clause 26(3) Schedule 11.1

Code related audit information

If a participant has notified the creation of an NSP on the distributor's network, the distributor must notify the reconciliation manager of the following:

- *if the NSP is to be located in a new balancing area, all relevant details necessary for the new balancing area to be created and notification that the NSP to be created is to be assigned to the new balancing area*
- *in all other cases, notification of the balancing area in which the NSP is located.*

Audit observation

A new balancing area was created for Wanaka's embedded network NLK0111LLNWE.

Audit commentary

On 21 February, the Reconciliation Manager was requested to create a new balancing area. Originally the network was to be lived on 31 March 2017 but it was delayed till 12 July 2017 because of technical reasons.

Audit outcome

Compliant

6.4. Notice of supporting embedded network NSP information (Clause 26(4) Schedule 11.1)

Code reference

Clause 26(4) Schedule 11.1

Code related audit information

If a participant notifies the creation of an NSP, or the transfer of an ICP to an NSP that is a point of connection between a network and an embedded network owned by the distributor, the distributor must notify the reconciliation manager at least 1 calendar month before the creation or transfer of:

- *the network on which the NSP will be located after the creation or transfer (Clause 26(4)(a))*

- the ICP identifier for the ICP that connects the network and the embedded network (Clause 26(4)(b))
- the date on which the creation or transfer will take effect (Clause 26(4)(c)).

Audit observation

PowerNet created a new NSP NLK011 on LLNW. There was no transfer of existing ICPs to this network

Audit commentary

PowerNet notified the Reconciliation manager of the creation of an NSP on 21 February 2017. There was no transfer of ICPs

Audit outcome

Compliant

6.5. Maintenance of balancing area information (Clause 24(2) and (3) Schedule 11.1)

Code reference

Clause 24(2) and (3) Schedule 11.1

Code related audit information

The distributor must notify the reconciliation manager of any change to balancing areas associated with an NSP supplying the distributor's network. The notification must specify the date and trading period from which the change takes effect, and be given no later than 3 business days after the change takes effect.

Audit observation

We reviewed the NSP mapping table in the registry and confirm that there were no changes to existing balancing areas.

Audit commentary

There have been no changes to existing balancing areas since the last audit.

Audit outcome

Compliant

6.6. Notice when an ICP becomes an NSP (Clause 27 Schedule 11.1)

Code reference

Clause 27 Schedule 11.1

Code related audit information

If a transfer of an ICP results in an ICP becoming an NSP at which an embedded network connects to a network, or in an ICP becoming an NSP that is an interconnection point, in respect of the distributor's network, the distributor must notify any trader trading at the ICP of the transfer at least 1 calendar month before the transfer.

Audit observation

There was no transfer of an ICP which resulted in an ICP becoming an NSP at which an embedded network connected to a network.

Audit commentary

No such situation has occurred

Audit outcome

Not applicable

6.7. Notification of transfer of ICPs (Clause 1 to 4 Schedule 11.2)

Code reference

Clause 1 to 4 Schedule 11.2

Code related audit information

If the distributor wishes to transfer an ICP, the distributor must notify the market administrator in the prescribed form, no later than 3 business days before the transfer takes effect.

Audit observation

There was no transfer of ICPs, since the last audit, on any network managed by PowerNet, therefore compliance was not assessed.

Audit commentary

No such situation has occurred

Audit outcome

Not applicable

6.8. Responsibility for metering information for NSP that is not a POC to the grid (Clause 10.25(1) and 10.25(3))

Code reference

Clause 10.25(1) and 10.25(3)

Code related audit information

A network owner must, for each NSP that is not a point of connection to the grid for which it is responsible, ensure that:

- *there is 1 or more metering installations (Clause 10.25(1)(a)); and*
- *the electricity is conveyed and quantified in accordance with the Code (Clause 10.25(1)(b))*

For each NSP covered in 10.25(1) the network owner must, no later than 20 business days after a metering installation at the NSP is recertified notify the reconciliation manager of:

- *the reconciliation participant for the NSP*
- *the participant identifier of the metering equipment provider for the metering installation*
- *the certification expiry date of the metering installation*

Audit observation

There is one NSP that is not a point of connection to the grid.

Audit commentary

We checked the details of this NSP on the RM portal. The details of the NSP are below

NSP	MEP	Certification expire
HER0111	AMCI	14/4/2020

This NSP was created on 1 May 2008.

Audit outcome

Compliant

6.9. Responsibility for metering information when creating an NSP that is not a POC to the grid (Clause 10.25(2))

Code reference

Clause 10.25(2)

Code related audit information

If the network owner proposes the creation of a new NSP which is not a point of connection to the grid it must:

- *assume responsibility for being the metering equipment provider (Clause 10.25(2)(a)(i)); or*
- *contract with a metering equipment provider to be the MEP (Clause 10.25(2)(a)(ii)); and*
- *no later than 20 business days after identifying the MEP advise the reconciliation manager in the prescribed form of:*
 - a) *the reconciliation participant for the NSP (Clause 10.25(2)(b)(i)); and*
 - b) *the MEP for the NSP (Clause 10.25(2)(b)(ii)); and*
 - c) *no later than 20 business days after the data of certification of each metering installation, advise the reconciliation participant for the NSP of the certification expiry date (Clause 10.25(2)(c)).*

Audit observation

A new embedded network was created in Wanaka on 12 July 2017. The MEP for this NSP is PowerNet (PWNT).

Audit commentary

NSP	MEP	Certification expire
NLK0111	PWNT	27/07/2027

The Reconciliation Manager was notified about the reconciliation participant on 9 February 2017.

Details of the MEP for NKLO011 and the date of certification were sent to the Reconciliation Manager on 7 August 2017. It is 19 business days therefore compliance is met.

Audit outcome

Compliant

6.10. Obligations concerning change in network owner (Clause 29 Schedule 11.1)

Code reference

Clause 29 Schedule 11.1

Code related audit information

If a network owner acquires all or part of a network, the network owner must notify:

- *the previous network owner (Clause 29(1)(a) of Schedule 11.1)*
- *the reconciliation manager (Clause 29(1)(b) of Schedule 11.1)*
- *the market administrator (Clause 29(1)(c) of Schedule 11.1)*
- *every reconciliation participant who trades at an ICP connected to the acquired network or part of the network acquired (Clause 29(1)(d) of Schedule 11.1).*

At least 1 calendar month notification is required before the acquisition (Clause 29(2) of Schedule 11.1).

The notification must specify the ICPs to be amended to reflect the acquisition and the effective date of the acquisition (Clause 29(3) of Schedule 11.1).

Audit observation

No network managed by PowerNet acquired all or part of a network.

Audit commentary

Audit outcome

Not applicable

6.11. Electrically connecting NSP that is not point of connection to grid (Clause 10.30(1))

Code reference

Clause 10.30(1)

Code related audit information

A distributor must not electrically connect an NSP that is not a point of connection to the grid unless:

- *a reconciliation participation has requested the electrical connection (Clause 10.30(1)(a)); or*
- *a metering equipment provider (authorised by the trader) has requested the electrical connection for a temporary energisation of the ICP (Clause 10.30(1)(b)).*

Audit observation

A new embedded network created by LLNW is within the Aurora network, therefore connection was Aurora's responsibility. There was no new NSP created that is not a point of connection to the grid within networks managed by PowerNet.

Audit commentary

Audit outcome

Not applicable

6.12. Change of MEP for embedded network gate meter (Clause 10.22(1)(b))

Code reference

Clause 10.22(1)(b)

Code related audit information

If the MEP for an ICP which is also an NSP changes the participant responsible for the provision of the metering installation under Clause 10.25, the participant must notify the reconciliation manager and the gaining MEP.

Audit observation

There was no change of the MEP for the Heritage/Aurora embedded network. The MEP is AMCI. The MEP for Wanaka network is PWNT.

Audit commentary

There are no plans to change the MEP for the Heritage or Wanaka networks. If such a situation occurs, which is very unlikely, PowerNet will advise the reconciliation manager.

Audit outcome

Compliant

6.13. Confirmation of consent for transfer of ICPs (Clauses 5 and 8 Schedule 11.2)

Code reference

Clauses 5 and 8 Schedule 11.2

Code related audit information

The distributor must give the market administrator confirmation that it has received written consent to the proposed transfer from:

- *the distributor whose network is associated with the NSP to which the ICP is recorded as being connected immediately before the notification (unless the notification relates to the creation of an embedded network) (Clause 5(a) of Schedule 11.2)*
- *every trader trading at an ICP being supplied from the NSP to which the notification relates (Clause 5(b) of Schedule 11.2).*

The notification must include any information requested by the Authority (Clause 8 of Schedule 11.2).

Audit observation

No such situation occurred.

Audit commentary

A newly created embedded network in Wanaka did not require the transfer of ICPs. A new ICP will be created for each new connection.

Audit outcome

Not applicable

6.14. Transfer of ICPs for embedded network (Clause 6 Schedule 11.2)

Code reference

Clause 6 Schedule 11.2

Code related audit information

If the notification relates to an embedded network, it must relate to every ICP on the embedded network.

Audit observation

No such situation occurred

Audit commentary

A newly created embedded network in Wanaka did not require the transfer of ICPs. A new ICP will be created for each new connection.

Audit outcome

Not applicable

7. MAINTENANCE OF SHARED UNMETERED LOAD

7.1. Notification of shared unmetered load ICP list (Clause 11.14(2) and (4))

Code reference

Clause 11.14(2) and (4)

Code related audit information

The distributor must notify the registry and each trader responsible for the ICPs across which the unmetered load is shared of the ICP identifiers of those ICPs.

A distributor who receives notification from a trader relating to a change under Clause 11.14(3) must notify the registry and each trader responsible for any of the ICPs across which the unmetered load is shared of the addition or omission of the ICP.

Audit observation

Networks managed by PowerNet do not have shared unmetered load. The company policy is not to allow shared unmetered load.

Audit commentary

Audit outcome

Not applicable

7.2. Changes to shared unmetered load (Clause 11.14(5))

Code reference

Clause 11.14(5)

Code related audit information

If the distributor becomes aware of a change to the capacity of a shared unmetered load ICP or if a shared unmetered load ICP is decommissioned, it must notify all traders affected by that change or decommissioning as soon as practicable after the change or decommissioning.

Audit observation

Networks managed by PowerNet do not have shared unmetered load. The company policy is not to allow shared unmetered load.

Audit commentary

Audit outcome

Not applicable

8. CALCULATION OF LOSS FACTORS

8.1. Creation of loss factors (Clause 11.2)

Code reference

Clause 11.2

Code related audit information

A participant must take all practicable steps to ensure that information that the participant is required to provide to any person under Part 11 is:

- a) complete and accurate*
- b) not misleading or deceptive*
- c) not likely to mislead or deceive.*

Audit observation

PowerNet is still using PSS/Adept software to calculate the technical loss for its network. Loss factors were revised many years ago by a team reporting to the Chief Engineer. Technical loss factors are calculated at different voltages. There are two major components of technical losses taken under consideration: loss of zone substations and distribution transformers, and variable components of delivery conductors.

Audit commentary

The loss factor for ELIN, TPCO is calculated for day/night summer/winter. Historically the value of the loss factor for TPCO is heavily influenced by the configuration of its network, of which a large percentage is rural, and it is higher than for ELIN and OTPO. LLNW and OTPO loss factor is not seasonal. For bigger customers, an individual loss factor is calculated.

The non-technical loss is calculated for ELIN, TPCO, OTPO and LLNW from reconciliation submissions by retailers.

PowerNet has plans to implement a new software CYME, there is no date set for implementation. PowerNet takes all practicable steps to ensure that their calculations are complete and accurate.

Loss Codes and Factors for each network are listed on PowerNet's website.

Audit outcome

Compliant

CONCLUSION

PARTICIPANT RESPONSE

The participant audit is always treated as a productive exercise, with correction where possible of any errors identified.

In 2015, a series of development proposals was drawn up to build better safeguards into the electronic and business processes to improve compliance. While piece by piece these are being implemented, unfortunately progress has been much slower than anticipated but does continue.