

**ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTOR AUDIT REPORT**

For

VECTOR

Prepared by: Rebecca Elliot, Veritek Limited

Date audit commenced: 4 September 2019

Date audit report completed: 17 October 2019

Audit report due date: 19-Oct-19

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EXECUTIVE SUMMARY

This Distributor audit was performed at the request of **Vector Limited (Vector)** to encompass the Electricity Industry Participation Code requirement for an audit as required by clause 11.10 of part 11. The audit was carried out at Vector's premises in Auckland on September 19th & 20th, 2019.

The audit was conducted in accordance with the Guideline for Distributor Audits version 7.2, which was produced by the Electricity Authority.

This audit found 15 non-compliances and makes nine recommendations. Whilst there is an increase in the number of non-compliances found in this audit, I note that all but three have a low audit risk rating and the controls in all but four instances are rated as either moderate or strong.

Vector have made improvements to their discrepancy reporting during the audit period. I have recommended that the audit compliance report be used to assist in the identification of potential discrepancies. This audit identified a number of opportunities to improve the accuracy and timeliness of information being populated to the registry which improve overall compliance. Resource constraints can at times hinder Vector's ability to correct errors in a timely fashion.

Vector are reviewing the initial electrical connection date capture and the decommissioning processes as they recognise that the trader's involvement in these processes is not producing the desired outcome. This is discussed further in **sections 3.5 and 4.11**.

The area of unmetered load was examined and identified that:

- this is not captured well for new connections;
- a high number of errors for the sample checked due to the incorrect selection of unmetered load type when the unmetered load was identified;
- the recommended format is not used making it difficult for traders to confirm the correct load; and
- that there may be some historical distributed unmetered load that has more than one NSP associated with the items of load.

I recommend that the Electricity Authority's recommended format is adopted and that unmetered load details are captured at the time of the new connection application.

Vector have continued to make good progress in reducing the volume of ICPs with addresses that are not readily locatable.

The issue of mismatched ICPs between Gentrack and the registry identified in the last audit has been resolved. A new report has been created to identify potentially mis-mapped ICPs and this is reviewed as part of BAU. The audit compliance report has identified more potentially mis-mapped ICPs. Vector intend to use this report to ensure that ICPs are correctly mapped.

I thank Justine and the team for their assistance during the audit.

The indicative audit frequency table indicates the next audit should be in three months. I have considered this in conjunction with Vector's responses and recommend that the next audit be in nine months. The matters raised are detailed in the table below.

AUDIT SUMMARY

NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Requirement to provide complete and accurate information	2.1	11.2(1) and 10.6(1)	Registry information not complete and accurate in all instances specifically in relation to the capturing of the initial electrical connection date and the accuracy of unmetered load details.	Moderate	Low	2	Investigating
Requirement to correct errors	2.2	11.2(2)	Errors not corrected as soon as practicable.	Moderate	Low	2	Identified
Provision of ICP information to the registry	3.3	11.7	10,160 ICPs with no initial electrical connection date populated since this requirement came into effect. 14 ICPs with unmetered load created during the audit period but where Vector has no unmetered load recorded.	Weak	Medium	6	Investigating
Timeliness of Provision of ICP Information to the registry manager	3.4	7(2) of Schedule 11.1	27 ICPs not updated on the registry prior to commencement of trading.	Moderate	Low	2	Investigating
Timeliness of provision of IECD	3.5	7(2A) of Schedule 11.1	9,251 late initial electrical connection dates.	Weak	Low	3	Investigating
Connection of ICP that is not an NSP	3.6	11.17	26 ICPs connected without a trader having accepted responsibility for them on the registry.	Moderate	Low	2	Investigating

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Management of “new” status	3.13	13 Schedule 11.1	ICPs in the “New” status not managed.	Strong	Low	1	Identified
Monitoring of “new” & “ready” statuses	3.14	15 Schedule 11.1	ICPs at new and ready not monitored.	Weak	Low	3	Identified
Embedded generation loss category	3.15	7(6) Schedule 11.1	Unique loss factor code not recorded from the date generation is recorded.	Weak	Medium	6	Investigating
Changes to registry information	4.1	8 of Schedule 11.1	Registry event updates backdated greater than three days.	Moderate	Low	2	Identified
Notice of NSP for each ICP	4.2	7(1)(b) Schedule 11.1	52 ICPs mapped to the incorrect NSP.	Moderate	Low	2	Identified
ICP location address	4.4	2 Schedule 11.1	2,244 ICPs with addresses that are not readily locatable.	Moderate	Low	2	Identified
Distributor to provide ICP information to the registry.	4.6	7 (1) (m)&(p) of Schedule 11.1	<p>Distributed generation details incorrect for a small number of ICPs.</p> <p>13 ICPs with an incorrect initial electrical connection date populated.</p> <p>Incorrect unmetered load recorded for potentially 55% (based on the sample) of those with a variance between the traders daily kWh figure and the Vector unmetered load description.</p> <p>Four “GN” ICPs with an incorrect dedication flag of “Y”.</p>	Moderate	Low	2	Investigating

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
			43 LE ICPs with the incorrect NSP dedication flag of "N".				
Management of "decommissioned" status	4.11	20 schedule 11.1	ICPs decommissioned but not updated to decommissioned on the registry.	Moderate	Low	2	Identified
Updating table of loss category codes	5.1	21 Schedule 11.1	One loss factor code not applied from the correct start date and not notified two months in advance.	Moderate	Medium	4	Investigating
Future Risk Rating						41	
Indicative Next Audit Frequency						3 months	

Future risk rating	0-1	2-5	6-8	9-20	21-29	30+
Indicative audit frequency	36 months	24 months	18 months	12 months	6 months	3 months

RECOMMENDATIONS

Subject	Section	Recommendation	Next action
Provide complete and accurate information	2.1	Run and review the audit compliance report monthly for data discrepancies.	Vector will run the audit compliance report from registry at the start of each month and review identified issues.
Provision of ICP information to the registry	3.3	Capture unmetered load details at the time of application.	To be adopted
		Adopt the Electricity Authority's recommended unmetered load format.	Not adopted
Timeliness of provision of ICP information to the registry	3.4	Daily Gentrack update to the registry occur prior to midnight.	Vector agree the timing of updates has caused non-compliance and have changed the update time to 10pm each day.
Monitoring of "new" & "ready" statuses	3.14	Review process to ensure it is being followed.	Vector have changed monitoring of ready status to be included in the monthly reporting rather than separately actioned.

Embedded generation loss category	3.15	Confirm the consumption loss factor is correct.	Vector confirms that this ICP has minimal to nil import consumption most months but will set the Import factor back to be in line with the VECW4 code.
Distributor to provide ICP information to the registry.	4.6	Check that the load for ICPs with multiple items of load are associated with one NSP only.	Vector has bulk UML ICPs with database records attached. In some cases these are being split out by the retailer into individual ICPs. AT bus shelters were done last year. Currently working with Trustpower to separate out the Chorus cabinets.
		Confirm cell phone unmetered load with trader.	Retailer has 10 ICPs for cell phone towers and their records match Vectors on 8. Have sent two ICPs 1001135977UN7EE & 1001279294UNE3B back to retailer to explain the anomaly.
		Investigate why LE ICP dedication flag was changed from "Y" to "N".	These were changed in error due to a mis-interpretation of the rule.

ISSUES

Subject	Section	Issue	Description
		Nil	

1. ADMINISTRATIVE

1.1. Exemptions from Obligations to Comply with Code (Section 11)

Code reference

Section 11 of Electricity Industry Act 2010.

Code related audit information

Section 11 of the Electricity Industry Act provides for the Electricity Authority to exempt any participant from compliance with all or any of the clauses.

Audit observation

The Authority website was checked to determine whether there are code exemptions in place.

Audit commentary

Vector has no exemptions in place that are relevant to the scope of this audit.

1.2. Structure of Organisation

Vector provided a copy of the relevant part of the organisation chart.

1.3. Persons involved in this audit

Auditor:

Rebecca Elliot

Veritek Limited

Electricity Authority Approved Auditor

Vector personnel assisting in this audit were:

Name	Title
Hayden Oswin	Information Specialist
Jacques de la Bat	Senior Planning Engineer
Justine Perks	Customer Connections Team Leader
Naomi Achaval Macizo	Team Leader Information and Systems Specialists
Rob Charlton	Electricity Network Planning Manager

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 contractor's fulfilment 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

Vector were asked to provide the details of any sub-contractors authorised to perform electrical connection activities on their networks.

Audit commentary

Activities covered by the scope of this audit, including fieldwork and inspection are conducted by Vector employees.

1.5. Supplier list

Vector does not use any sub-contractors.

1.6. Hardware and Software

Vector uses Gentrack Velocity for the management of ICPs and associated information. This updates directly to the registry on a daily basis. Siebel is used for work management with customers and traders. Vector have a full disaster recovery plan in place. All systems are backed up to the cloud.

1.7. Breaches or Breach Allegations

Vector has not had any breach allegations related to the scope of this audit recorded by the Electricity Authority during the audit period.

1.8. ICP and NSP Data

The NSP mapping table was examined. Vector has two participant codes covering two geographical areas. VECT is for the Auckland region south of the Harbour bridge and UNET is for north of the Harbour bridge and includes West Auckland. These are each detailed below:

VECT

Distributor	NSP POC	Description	Parent POC	Parent Network	Balancing Area	Network type	Start date	No of active ICPs
VECT	HEP0331	HEPBURN ROAD			AUCKLNDVECTG	G	1/05/2008	4,720
VECT	HOB1101	HOBSON STREET			AUCKLNDVECTG	G	24/01/2014	6,105
VECT	MNG0331	MANGERE			AUCKLNDVECTG	G	1/05/2008	24,591
VECT	MNG1101	MANGERE			AUCKLNDVECTG	G	21/12/2015	1
VECT	OTA0221	OTAHUHU			AUCKLNDVECTG	G	1/05/2008	17,808
VECT	PAK0331	PAKURANGA			AUCKLNDVECTG	G	1/05/2008	44,050
VECT	PEN0221	PENROSE			AUCKLNDVECTG	G	1/05/2008	12,725
VECT	PEN0331	PENROSE			AUCKLNDVECTG	G	1/05/2008	68,887
VECT	PEN1101	PENROSE			AUCKLNDVECTG	G	1/11/2014	31,391
VECT	ROS0221	MT. ROSKILL			AUCKLNDVECTG	G	1/05/2008	44,216
VECT	ROS1101	MT. ROSKILL			AUCKLNDVECTG	G	1/04/2012	22,418
VECT	TAK0331	TAKANINI			AUCKLNDVECTG	G	1/05/2008	44,149
VECT	WIR0331	WIRI			AUCKLNDVECTG	G	1/05/2008	19,639

The list file as at 31/8/19 was examined and found:

Status	Number of ICPs 2019	Number of ICPs 2018	Number of ICPs 2017
New (999,0)	1	0	8
Ready (0,0)	1,117	553	728
Active (2,0)	341,060	336,352	332,328
Distributor (888,0)	121	105	103
Inactive – new connection in progress (1,12)	426	397	438
Inactive – electrically disconnected vacant property (1,4)	4,096	3,958	4616
Inactive – electrically disconnected remotely by AMI meter (1,7)	1,039	851	614
Inactive – electrically disconnected at pole fuse (1,8)	13	19	9
Inactive – electrically disconnected due to meter disconnected (1,9)	1,195	1,168	201
Inactive – electrically disconnected at meter box fuse (1,10)	15	8	4
Inactive – electrically disconnected at meter box switch (1,11)	10	8	5
Inactive – electrically disconnected ready for decommissioning (1,6)	477	296	632
Inactive – reconciled elsewhere (1,5)	2	2	2
Inactive (1,0)	0	0	0
Decommissioned (3)	53,972	52,292	50,598

UNET

Distributor	NSP POC	Description	Parent POC	Parent Network	Balancing Area	Network type	Start date	No of active ICPs
UNET	ALB0331	ALBANY			NORTHRNUNETG	G	1/05/2008	54,091
UNET	ALB1101	ALBANY			NORTHRNUNETG	G	1/05/2008	23,644
UNET	HEN0331	HENDERSON			NORTHRNUNETG	G	1/05/2008	47,887
UNET	HEP0331	HEPBURN RD			NORTHRNUNETG	G	1/05/2008	40,812
UNET	SVL0331	SILVERDALE			NORTHRNUNETG	G	1/05/2008	30,340
UNET	WEL0331	WELLSFORD			NORTHRNUNETG	G	1/05/2008	15,326,
UNET	WRD0331	WAIRAU RD			NORTHRNUNETG	G	14/05/2013	21,591

The list file as at 31/8/19 was examined and found:

Status	Number of ICPs 2019	Number of ICPs 2018	Number of ICPs 2017
New (999,0)	1	3	6
Ready (0,0)	466	452	429
Active (2,0)	232,055	228,106	224,210
Distributor (888,0)	50	47	46
Inactive – new connection in progress (1,12)	273	341	392
Inactive – electrically disconnected vacant property (1,4)	3,171	3,097	3,164
Inactive – electrically disconnected remotely by AMI meter (1,7)	793	796	588
Inactive – electrically disconnected at pole fuse (1,8)	7	3	1
Inactive – electrically disconnected due to meter disconnected (1,9)	240	236	52
Inactive – electrically disconnected at meter box fuse (1,10)	9	7	1
Inactive – electrically disconnected at meter box switch (1,11)	4	6	2
Inactive – electrically disconnected ready for decommissioning (1,6)	242	180	614
Inactive – reconciled elsewhere (1,5)	0	0	0
Inactive (1,0)	1	3	2
Decommissioned (3)	21,591	20,769	19,550

There are 114 embedded networks connected to the Vector network. Ten of these have been connected during the audit period. These are discussed in **section 4.10**. The new networks are detailed in the table below:

Distributor	NSP POC	Description	Parent Network	Parent POC	Balancing Area	Network Type	Start Date
CBRE	CSC0011	Blg A 167-191 Victoria St Ack	VECT	PEN1101	CSC0011CBREE	E	1/12/2018
CBRE	CSC0012	Blg B 167-191 Victoria St Ack	VECT	PEN1101	CSC0012CBREE	E	1/12/2018
TENC	TBQ0011	2-8 White St Auckland	VECT	PEN1101	TBQ0011TENCE	E	1/09/2019
TENC	TBW0011	33 Broadway Newmarket Auckland	VECT	PEN0331	TBW0011TENCE	E	1/10/2018
TENC	TCG0011	103 Carlton Gore Road	UNET	PEN0331	TCG0011TENCE	E	1/01/2019

Distributor	NSP POC	Description	Parent Network	Parent POC	Balancing Area	Network Type	Start Date
TENC	TFT0011	4 Fred Thomas Drive	VECT	ALB1101	TFT0011TENCE	E	1/11/2018
TENC	TGB0011	96 St Georges Bay Road Auckland	VECT	PEN1101	TGB0011TENCE	E	1/02/2018
TENC	TKL0011	16 West Coast Rd Glen Eden Akld	VECT	HEP0331	TKL0011TENCE	E	1/09/2019
TENC	TLB0011	88 Te Oneroa Way Auckland	UNET	ALB0331	TLB0011TENCE	E	7/11/2018
TENC	TPW0012	132 Halsey Street Auckland	VECT	HOB1101	TPW0012TENCE	E	1/12/2018

1.9. Authorisation Received

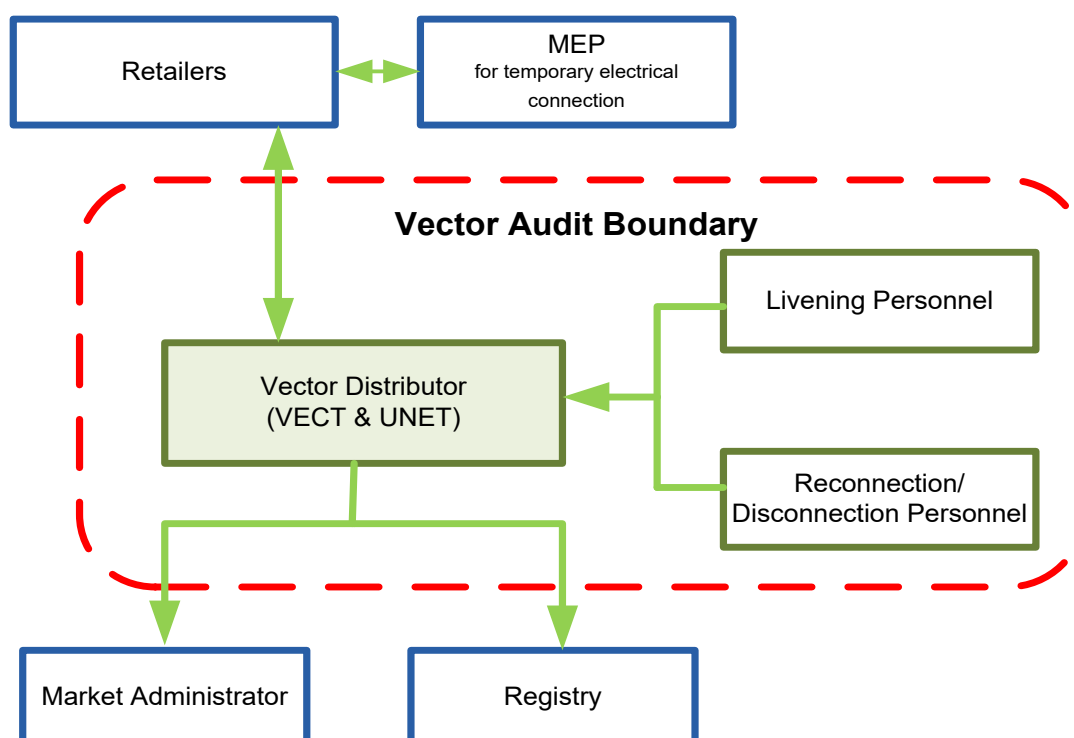
Vector provided a letter of authorisation to Veritek, permitting the collection of data from other parties for matters directly related to the audit.

1.10. Scope of Audit

This Distributor audit was performed at the request of **Vector Limited (Vector)** to encompass the Electricity Industry Participation Code requirement for an audit as required by clause 11.10 of part 11. The audit was carried out at Vector's premises in Auckland on September 19th & 20th, 2019.

The audit was conducted in accordance with the Guideline for Distributor Audits version 7.2, which was produced by the Electricity Authority.

The scope of the audit is shown in the diagram below, with the Vector audit boundary shown for clarity.



1.11. Summary of previous audit

Vector provided a copy of their previous audit report, conducted by Ewa Glowacka of TEG and Associates Limited in October 2018. This found eight non-compliances and made no recommendations. The current status of these has been updated below:

Table of Non-Compliance

Subject	Section	Clause	Non-compliance	Status
Requirement to provide complete and accurate information	2.1	11.2(1) and 10.6(1)	Incorrect data is proactively corrected but there are outstanding NSP issues identified in the last audit.	Still existing for different issues
Timeliness of provision of IED	3.5	7(2A) of Schedule 11.1	Initial electrical connection date for a small number of ICPs updated on the registry later than 10 business days.	Still existing
Connection of ICP that is not an NSP	3.6	11.17	4 ICPs were connected without a trader being recorded in the registry as accepting responsibility for the ICP.	Still existing
Changes to registry information	4.1	8 of Schedule 11.1	A number of updates to registry information are later than 3 business days. The most backdated transactions are related to decommissioned ICPs.	Still existing
ICP location address	4.4	2 of Schedule 11.	Addresses for 741 ICPs do not allow the ICP to be readily located.	Still existing
Provide information to the registry	4.6	7 (1) (m)&(p) of Schedule 11.1	Distributed generation details incorrect or missing. Small number of ICPs with an incorrect initial electrical connection date populated. 11 LE ICPs with the incorrect NSP dedication flag.	Still existing
Updating loss factors	5.2	22 of Schedule 11.1	Late update of eight loss factors.	Still existing
Obligation concerning change in network owner	6.10	29(1)(b)(c) of Schedule 11.1	The Authority and reconciliation manager were notified 15 business days in advance of the transfer of ICPs from the Body Corporate 478483 (Norfolk) to the Vector network.	Cleared - has not occurred during the audit period

2. OPERATIONAL INFRASTRUCTURE

2.1. Requirement to provide complete and accurate information (Clause 11.2(1) and 10.6(1))

Code reference

Clause 11.2(1) and 10.6(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 Parts 10 or 11 is:

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

Audit observation

I walked through the process to ensure that registry information is complete, accurate and not misleading or deceptive, including viewing reports used to resolve discrepancies.

The registry list file as at 31/08/19 and the audit compliance reports for the audit period from 1/09/18 to 31/08/19 were examined to confirm compliance.

Audit commentary

Vector monitors the registry NOT files on a weekly basis.

The report suite detailed below is used to provide an overview of data discrepancies:

Reason for Difference
In Gentrack but Missing in Registry or Siebel :
Retailer In Gentrack Different to Registry (and > 10 Days old) :
ICP unclaimed by retailer after 24 months :
Network Owner different between Gentrack and Registry :
Loss Factor Code different between Gentrack and Registry :
Price Plan different between Gentrack and Registry :
Status : DZ in Gentrack but Connected in Registry (Elec) :
Status : Disconnected in Registry but CO in Gentrack (Elec) :
Status : Inactive/Vacant in Registry but Not DI in Gentrack (Elec) :
Status : Inactive/Ready To Decom in Registry but Not DI in Gentrack (Elec) :
Status : CO in Gentrack but Not Active in Registry (Elec) :
Status : DI in Gentrack but Active in Registry (Elec) :

Issues have been identified with this reporting during the audit period. False positives are reported, and some discrepancies were not being identified as expected. Additional reporting has been put in place to better identify potential discrepancies. This is expected to be run each month but due to resource constraints this is not always achieved. I recommend that the audit compliance reporting available is run on a monthly basis to assist with the identification of potential data discrepancies. This is evident when reviewing the accuracy of unmetered load details (discussed in **section 4.6**). Discrepancies between Vector's unmetered load details and that recorded by the trader are not checked.

Recommendation	Description	Audited party comment	Remedial action
Provide complete and accurate information	Run and review the audit compliance report monthly for data discrepancies.	Vector will run the audit compliance report from registry at the start of each month and review identified issues.	Identified

As detailed in **sections 3.5** and **4.1**, analysis of the updating of the registry found that the incorrect event date is being applied in some instances. For example, all updates of the initial electrical connection dates are defaulted to be one day prior to the event date:

ICP	Event date	Update date	Operator	Initial electrical connection date
1002053632LC520	11-Dec-18	11-Dec-18	VECT	11/09/2018

The data dictionary in the registry defines the event date as follows:

The Event Date defines the date from which the attribute values of the event should apply.

The event date should always be updated to indicate the effective date the change applies from.

Vector's current process to capture the initial electrical connection date is resulting in the information not being captured in all instances and is unlikely to identify incorrect first active dates. In other Distributor audits where either the Network carry out the electrical connection, or the approved contractor's provides the date of the initial electrical connection directly to the network, I have found instances where the BTS supply is not being recorded on the registry and the permanent supply is the first meter to be recorded on the registry. As Vector receives the initial electrical connection date from the trader, effective validation cannot occur between the trader's first active date and the initial electrical connection date, and unrecorded BTS supplies will not be identified. This is discussed further in **section 3.4**.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.1 With: 11.2(1) & 10.6(1) From: 01-Sep-18 To: 31-Aug-19	Registry information not complete and accurate in all instances specifically in relation to the capturing of the initial electrical connection date and the accuracy of unmetered load details. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are rated as moderate as they will mitigate risk most of the time but some opportunities for further improvements have been identified. The audit risk rating is low as the incorrect information has a small or no effect on reconciliation.		
Actions taken to resolve the issue		Completion date	Remedial action status
Please refer below			Investigating
Preventative actions taken to ensure no further issue will occur		Completion date	
Event date: Vector have updated our process instructions to populate the event date with the initial energisation date. Initial electrical connection date: refer actions in section 3.5		15/10/2019 In progress	

2.2. Requirement to correct errors (Clause 11.2(2) and 10.6(2))

Code reference

Clause 11.2(2) and 10.6(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

Vector's data management processes were examined. The registry list file as at 31/08/19 was examined to confirm compliance.

Audit commentary

Vector have processes in place to identify and resolve registry discrepancies as described in **section 2.1**. Not all discrepancies are being identified or actioned and therefore are not being corrected. This is recorded as non-compliance.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.2 With: 11.2(2) From: 01-Sep-18 To: 31-Aug-19	Errors not corrected as soon as practicable. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are rated as moderate as the checks in place identify most potential discrepancies but not all. The audit risk rating is low as the incorrect initial electrical connection dates are not used directly in the reconciliation process.		
Actions taken to resolve the issue		Completion date	Remedial action status
Vector will include the new Audit Compliance report from the registry in the monthly reporting to identify potential errors and resolve any discrepancies.		16/10/2019	Identified
Preventative actions taken to ensure no further issue will occur		Completion date	
As above			

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

The new connection process was examined in detail and is described in **section 3.2**.

A diverse characteristics sample of 30 new connection applications per code of the 11,684 (VECT 6,967 & UNET 4,717) created since 1/09/2018 were checked from the point of application through to when the ICPS were created. The sample included ICPS with:

- various meter categories (including category 3 and above);
- various proposed traders;
- various price categories;
- with and without distributed generation;
- with and without standard or distributed unmetered load connected (no ICPS with shared unmetered load were created); and
- connected to different NSPs.

Audit commentary

Vector creates ICPS as required by clause 1 of schedule 11.1. The sample checked confirmed that they were created compliantly.

The distributor is responsible for creating the ICP for the point of connection for an embedded network to its parent network. There have been ten new embedded networks created during the audit period and I confirmed that all had at least one LE ICP created.

All embedded networks were checked and confirmed that they all had at least one LE ICP.

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 three 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

The new connection process was examined in detail. A diverse characteristics sample of 30 new connection applications of the 11,684 ICPs (VECT 6,967 & UNET 4,717) created since 01/09/2018 were checked to determine whether the ICPs had been created within three business days of a request by a trader.

Audit commentary

All requests for new connections (excluding LE ICPs requested which are discussed below) are received from the customer's agent not the trader. These are either lodged via the online portal or via Vector's contact centre (outsourced to Telnet). Once received each job is assessed. If the request is for more than five ICPs or is a three-phase connection or greater, these are treated as projects. All jobs are managed via Siebel with a service request assigned. Vector works to a 3-business day SLA for ICP creations. Customers are advised if further information is required before an ICP can be created. Once all the required information is provided the customer and the nominated trader are advised of the ICP. Traders advise if they wish to reject, acceptance is assumed. If the trader rejects the ICP, Vector contact the customer to nominate another trader. The registry is updated to reflect the new nominated trader accordingly.

The creation of LE ICPs was discussed. This process is managed via email requests from the embedded network or their nominated agent. Vector were unaware that the 3-day ICP creation rule applied to these. They are reviewing their process to ensure that these are created, or the participant is advised if they are unable to create these within three business days of the request. The LE ICPs created during the audit period were reviewed, none were able to be created within the three business days of the request as these generally require engineering approval. However, this was communicated to the participant (or their designated agent) in all instances.

Audit outcome

Compliant

3.3. Provision of ICP Information to the registry manager (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

The new connection process for populating all required registry fields was examined. The list file for all ICPs created and the audit compliance reporting for 1/09/18 to 31/8/19 were examined

Audit commentary

As detailed in **section 3.2**, an application is received for all new connections. Unmetered load connections are allowed but the new connection application does not require the unmetered load details to be captured resulting in the load being incorrectly loaded as a metered application in the first instance and then corrected later. I recommend that this be reviewed, and that the recommended unmetered load format is used to capture this information:

Information	Format
Connected load	Watts, 4 digits, zero decimal places. Eg 1565
Semi colon separator	;
Running hours per day	Hours to 2 digits, and decimal hours to 1 decimal place Eg 02.5 (ie two and one half hours)
Semi colon separator	;
Other text	Free form as required

E.g. 1565;11.5 streetlight

Recommendation	Description	Audited party comment	Remedial action
Provision of ICP information to the registry	<p>Capture unmetered load details at the time of application.</p> <p>Adopt the Electricity Authority's recommended unmetered load format.</p>	<p>Vector believes it is compliant with the code as per the below taken from Schedule 11.1 7(m).</p> <p>All load is set up in watts and loaded against the ICP and then calculated into kW in format 0.00 to the registry and noted as either ENG (engineered) or 24HR. Vector believes this to be clear to the trader whether to multiply the kW by the ENG profile or by 24HR. In some cases there are two items of UML on an ICP so the load will show as kW/ENG and kW/24UC. In cases where there is multiple load and not enough space to record items this is shown as Mult and information is provided to retailer.</p>	<p>Identified</p> <p>Not adopted</p>

The process for updating the registry is automated for all fields.

9,235 (5,362 VECT & 3,873 UNET) ICPs were created during the audit period. All the required information for these ICPs was populated excluding the population of the initial electrical connection date and unmetered load details. This is discussed below.

Initial electrical connection date

The audit compliance reporting identified 10,160 ICPs (6,276 VECT & 3,884 UNET) which have no initial electrical connection date recorded since this requirement came into effect.

In other Distributor audits where either the Network carry out the electrical connection or the approved contractor's provides the date of the initial electrical connection directly to the network, I have found instances where the BTS supply is not recorded on the registry and the permanent supply is the first meter to be recorded on the registry. As Vector receives the initial electrical connection date from the trader, effective validation cannot occur between the trader's first active date and the initial electrical connection date, and unrecorded BTS supplies will not be identified. Vector are reviewing this process to require warranted livening agents to provide this information directly to Vector. This should greatly improve the capturing of this data.

Unmetered load

Examination of the list files identified 14 VECT ICPs (no UNET ICPs) with unmetered load created during the audit period where Vector has not populated an unmetered load. As discussed above these details are not required in the new connection application hence, they were not recorded by Vector.

The process to capture, and the accuracy of the initial electrical connection dates and unmetered loads is discussed in **section 4.6**. The timeliness of these updates is discussed in **sections 3.4** and **3.5**.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.3 With: 11.7 From: 29-Aug-13 To: 31-Aug-19	10,160 ICPs with no initial electrical connection date populated since this requirement came into effect. 14 ICPs with unmetered load created during the audit period but where Vector has no unmetered load recorded. Potential impact: Medium Actual impact: Unknown Audit history: None Controls: Weak Breach risk rating: 6		
Audit risk rating	Rationale for audit risk rating		
Medium	Controls are rated as weak as the process in place to capture the initial electrical connection date is not independent of the trader and the capturing of unmetered load details is weak. The audit risk rating is medium due to the volume of ICPs with no initial electrical connection date populated since this requirement came into effect, preventing validation of the first active date to be confirmed.		
Actions taken to resolve the issue		Completion date	Remedial action status
Unmetered Load: ICPs Fixed immediately Initial electrical connection date: Refer actions section 3.5		17/10/19	Investigating

Preventative actions taken to ensure no further issue will occur	Completion date	
<p>Unmetered Load: Vector agrees that the upfront process for recording unmetered load is flawed. On request for creation of a UML ICP crucial information such as what the supply is for is often missing from the contractor or retailer and needs to be followed up. There is also lack of understanding from all parties as to how some of these supplies operate i.e. the plate wattage should not be used as set up wattage in order to calculate a sensible daily kWh figure.</p> <p>Vectors Remedial Action is to introduce a new process whereby any new unmetered ICP created will then be sent to Vector Billing to set up the UML load.</p> <p>14 ICPs with unmetered load created during the audit period but where Vector has no unmetered load recorded.</p> <p>After investigation it was found for many of these the load is recorded on Vectors system and shows on the registry historical records, however an ongoing system bug whereby subsequent GXP updates to registry overwrites the unmetered load with blank field. This was thought to be fixed but apparently still more work to be done. Going back to the developer for further investigation and remedy.</p> <p>Initial electrical connection date: Refer actions section 3.5</p>	07/10/2019	

3.4. Timeliness of Provision of ICP Information to the registry manager (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

The registry lists for 31/08/19 and the registry compliance audit reports for 01/09/18 to 31/08/19 were examined to determine the timeliness of the provision of ICP information for new connections.

Audit commentary

The ICP is created in Gentrack and then writes to the registry overnight. This process runs in the early hours of the following morning. This will result in any ICPs created and electrically connected on the same day not being recorded on the registry until the day after thereby causing Vector to be non-compliant. I recommend that the time of the daily registry update be reviewed and moved to before midnight.

Recommendation	Description	Audited party comment	Remedial action
Timeliness of provision of ICP information to the registry	Daily Gentrack update to the registry occur prior to midnight.	Vector agree the timing of updates has caused non-compliance and have changed the update time to 10pm each day.	Identified

The audit compliance report identified 27 (13 VECT & 14 UNET) ICPs that were not updated prior to electrical connection. These were examined and found:

- 11 ICPs appeared to be created late due to the overnight registry update issue discussed above;
- six ICPs were delayed due to a Gentrack issue that allows operators to create events pre-dating the ICPs creation date, which causes the ICPs not to flow to the registry and requires IT to correct the issue before the updates can flow - Vector have a job logged with Gentrack to correct this;
- six ICPs were delayed due to the ICP missing a detail that prevented it flowing to the registry due to human error, these were all corrected upon discovery;
- ICP 0000229365UN2EF was decommissioned in error and rather than reverse the decommission a new ICP was created;
- ICP 1002057304UNAC6 was created when a decommissioned site was reconnected without Vector's knowledge, and as the meter had been physically removed the supply was treated as a new connection;
- ICP 1002058128LCDFE was discovered when an existing ICP switched to a new trader and a meter was found that was not recorded against the ICP, the ICP was backdated to the date of the original meter certification; and
- ICP 1002053421LC94A was electrically connected before the ICP was requested by the trader causing Vector to be non-compliant.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.4 With: 7(2) of Schedule 11.1 From: 09-May-12 To: 13-Jun-19	27 ICPs not updated on the registry prior to commencement of trading. Potential impact: Low Actual impact: None Audit history: None Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are rated as moderate as the registry updating process is unnecessarily causing ICPs to appear to be backdated. The audit risk rating is volume of ICPs affected is very small.		
Actions taken to resolve the issue		Completion date	Remedial action status
All noted issues were corrected at the time.			Investigating
Preventative actions taken to ensure no further issue will occur		Completion date	
Timing of Gentrack process updates has been changed. Process now runs at 10pm each day. Vector are currently working on a system solution to prevent users from creating events that predate the ICP creation date. Solutions are still being investigated.		07/10/2019 Estimated Dec 2019/Jan 2020	

3.5. Timeliness of Provision of Initial Electrical Connection 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 manager no later than 10 business days after the date on which the ICP is initially electrically connected.

Audit observation

The registry lists as at 31/08/19 and the audit compliance reports for 01/09/18 to 31/08/19 were examined to identify all ICPs not updated within ten business days of electrical connection. A sample the 15 ICPs were selected for each code using the typical case methodology.

Audit commentary

Vector's current process requires the trader to provide the initial electrical connection date. This is loaded to Gentrack and this then writes to the registry overnight. Vector recognise this process is not producing the expected result and it is being reviewed.

xamination of the audit compliance report found 9,251 (5,098 VECT & 4,153 UNET) updates of the initial electrical connection dates were updated late. The dates related to initial electrical connection dates being updated since this requirement came into effect. The sample of 15 late updates for each code were checked and found:

- 26 were late due to the information being received late from the trader (or their agent);
- three were due to human error which prevented the event writing to the registry in the first instance; and
- one instance where a subsequent event had stripped the date out and this was repopulated.

The effective event date being applied for these updates does not match the initial electrical connection date. The data dictionary in the registry defines the event date as follows:

The Event Date defines the date from which the attribute values of the event should apply.

Therefore, the event date or effective date should be the same date as the initial electrical connection date. This is recorded as non-compliance in **section 2.1**.

Any ICPs with a missing initial electrical connection date are discussed in **section 3.3**. The accuracy of the initial electrical connection dates is recorded in **section 4.6**.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.5 With: 7(2A) of Schedule 11.1 From: 01-Sep-18 To: 31-Aug-19	9,251 late initial electrical connection dates. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Weak Breach risk rating: 3		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are rated as weak as Vector has made the traders responsible for the provision of this data, and it either not being provided or provided late in many instances. The audit risk rating is low as this has no direct impact on reconciliation.		
Actions taken to resolve the issue		Completion date	Remedial action status
Vector are continuing to follow up with traders and livening agents to obtain and populate the missing energisation dates.		Ongoing	Investigating
Preventative actions taken to ensure no further issue will occur		Completion date	
Initial Electrical Connection Date: Vector are reviewing the current process for warranted persons. Vector propose to directly warrant the livening agent. As part of the agreement, the livening agent will be required to supply the connection date direct to Vector within agreed timeframes. Our networks HSE team is progressing this change in process. Event date: Vector have updated our process instructions to populate the event date with the initial energisation date.		Estimated April 2020 15/10/2019	

3.6. Connection of ICP that is not an NSP (Clause 11.17)

Code reference

Clause 11.17

Code related audit information

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

The distributor must not 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 connect an ICP unless a trader is recorded in the registry as accepting responsibility for the shared unmetered load, and all traders that are responsible for an ICP on the shared unmetered load have been advised.

Audit observation

The new connection process was examined in **section 3.2**.

The registry lists as at 31/08/19 and the audit compliance reports for 01/09/18 to 31/08/19 were examined to determine the timeliness of the provision of ICP information for new connections.

Vector has no known shared unmetered load recorded and does not allow shared unmetered load to be connected.

Audit commentary

For all ICPs examined electrical connection occurred after acceptance by a trader with the exception of 26 (12 VECT & 14 UNET) ICPs which did not have a proposed trader recorded in the registry prior to electrical connection. This is one less than the total recorded in **section 3.4**. as ICP 1002054803LCCF6 had a trader recorded as responsible on the day it was electrically connected so it is compliant.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.6 With: 11.17 From: 09-May-12 To: 13-Jun-19	26 ICPs connected without a trader having accepted responsibility for them on the registry. Potential impact: Low Actual impact: None Audit history: Twice previously Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are rated as moderate as the registry updating process is unnecessarily causing ICPs to appear to be backdated. The audit risk rating is volume of ICPs affected is very small.		
Actions taken to resolve the issue		Completion date	Remedial action status
Refer preventative action below			Investigating
Preventative actions taken to ensure no further issue will occur		Completion date	
Timing of Gentrack process updates has been changed. Process now runs each day at 10pm.		07/10/2019	

3.7. Connection of ICP that is not an NSP (Clause 10.31)

Code reference

Clause 10.31

Code related audit information

A distributor must not connect an ICP that is not an NSP unless requested to do so by the trader trading at the ICP, or if there is only shared unmetered load at the ICP and each trader has been advised.

Audit observation

The new connection process was examined in **section 3.2**.

A diverse characteristics sample of 30 new connection applications of the 11,684 created since 1/09/19 were checked to determine if the ICPs were connected at the request of the trader.

The registry lists as at 31/8/19 was reviewed to confirm that all active ICPs had a trader recorded.

Audit commentary

As discussed in **section 3.2**, Vector notifies traders of ICP nominations and traders advise if they wish to reject, acceptance is assumed unless the trader advises otherwise. Review of the registry list confirmed that a trader is recorded for all active and inactive ICPs, and a proposed trader is recorded for all “Ready” ICPs.

This clause requires that a distributor must not connect an ICP across which unmetered load is shared unless a trader is recorded in the registry as accepting responsibility for the shared unmetered load. Vector does not allow or intend to allow any new shared unmetered load connections. Review of a registry lists confirmed there is no shared unmetered load connected to any ICP.

Audit outcome

Compliant

3.8. Temporary electrical connection of ICP that is not an NSP (Clause 10.31A)

Code reference

Clause 10.31A

Code related audit information

A distributor may only temporarily electrically connect an ICP that is not an NSP if requested by an MEP for a purpose set out in clause 10.31A(2), and the MEP:

*has been authorised to make the request by the trader responsible for the ICP; and
the MEP has an arrangement with that trader to provide metering services.*

If the ICP is only shared unmetered load, the distributor must advise the traders of the intention to temporarily connect the ICP unless:

*advising all traders would impose a material cost on the distributor, and
in the distributor’s reasonable opinion, the advice would not result in any material benefit to any of the traders.*

Audit observation

The new connection process was examined in **section 3.2**. The registry lists for 31/08/19 and the registry compliance audit report for 01/09/18 to 31/08/19 were examined to determine.

Audit commentary

The majority of new connections are permanent connections. Vector does not carry out any electrical connections but has approved warranted people who are engaged by the traders to this. Analysis found no temporarily electrically connected sites.

Audit outcome

Compliant

3.9. Connection of NSP that is not point of connection to grid (Clause 10.30)

Code reference

Clause 10.30

Code related audit information

A distributor must not connect an NSP on its network that is not a point of connection to the grid unless requested to do so by the reconciliation participant responsible for ensuring there is a metering installation for the point of connection.

The distributor must, within five business days of connecting the NSP that is not a point of connection to the grid, advise the reconciliation manager of the following in the prescribed form:

the NSP that has been connected

the date of the connection

the participant identifier of the MEP for each metering installation for the NSP

the certification expiry date of each metering installation for the NSP.

Audit observation

The NSP table was reviewed.

Audit commentary

No new NSPs were created by Vector during the audit period.

Audit outcome

Compliant

3.10. Temporary electrical connection of NSP that is not point of connection to grid (Clause 10.30(A))

Code reference

Clause 10.30(A)

Code related audit information

A distributor may only temporarily electrically connect an NSP that is not a point of connection to the grid if requested by an MEP for a purpose set out in clause 10.30A(3), and the MEP:

has been authorised to make the request by the reconciliation participant responsible for the NSP; and

the MEP has an arrangement with that reconciliation participant to provide metering services.

Audit observation

The NSP table was reviewed.

Audit commentary

No new NSPs were created by Vector during the audit period.

Audit outcome

Compliant

3.11. 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:

xxxxxxxxxxccc where:

xxxxxxxxxx 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 Authority.

Audit observation

The process for the creation of ICPs was examined.

Audit commentary

The process for the creation of ICPs was examined, and all ICPs are created in the appropriate format.

Audit outcome

Compliant

3.12. 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

The list files as at 31/08/19 was examined to confirm all active ICPs have a single loss category code.

Audit commentary

Each active ICP only has a single loss category, which clearly identifies the relevant loss factor.

Audit outcome

Compliant

3.13. 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

The ICP creation process was reviewed. The registry list file as at 31/08/19 was examined to determine compliance.

Audit commentary

Vector’s new connections process is not designed to use the “New” status. All ICPs are created at the “Ready” status. Examination of the UNET list file found ICP 1001282162UN6DC at the “New” status. This has been at the “New” status since 2015. This was examined and found that in April 2018 the trader advised the ICP was no longer required but this not actioned. This has now been corrected.

Examination of the VECT list file found ICP 1002057212LC2F4 at the “New” status and has been so since 8/04/2019. This was examined and found it to be decommissioned in Gentrack but this hadn’t flowed through to the registry. This has since been corrected.

The management of ICPs at this status for greater than 24 months is discussed in **section 3.14**.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.13 With: 13 Schedule 11.1 From: 01-Sep-15 To: 16-Sep-19	ICPs in the “New” status not managed. Potential impact: Low Actual impact: None Audit history: None Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are rated as strong ICPs at these were the only two ICPs at the “New” status indicating these were both exceptions and not an endemic process issue. The audit risk rating is low as only two ICPs were affected and the incorrect status has no direct impact on reconciliation.		
Actions taken to resolve the issue		Completion date	Remedial action status
Both ICPs have been corrected		17/10/2019	Identified
Preventative actions taken to ensure no further issue will occur		Completion date	
Vector are generating a new report to be able to monitor ICPs in a “New” status in future		Estimated Nov 2019	

3.14. 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 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

The process to monitor ICPs at “new” and “ready” status was reviewed. The registry lists for 31/08/19 and the registry compliance audit report for 01/09/18 to 31/08/19 were examined to determine compliance. An extreme example of ten ICPs for each code were checked to confirm compliance.

Audit commentary

Vector has a report as part of the reporting suite to identify any ICPs at the “New” or “Ready” status. An email is expected to be sent to the nominated trader to confirm if the ICP is still required at least annually.

There are 115 (55 VECT and 60 UNET) ICPs that have been at the “Ready” status for more than 24 months and one UNET ICP at the “New” status. The ICP at “New” was confirmed to be no longer required as detailed in **section 3.13**. This had been missed from being decommissioned. A sample of ten ICPs at the “Ready” status for each code were checked. I couldn’t find evidence of these being followed up with the trader. I recommend Vector review this process to ensure that it is being followed as expected.

Recommendation	Description	Audited party comment	Remedial action
Monitoring of ICPs at new and ready	Review process to ensure it is being followed.	Vector have changed monitoring of ready status to be included in the monthly reporting rather than separately actioned.	Identified

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.14 With: 15 Schedule 11.1 From: 09-May-16 To: 31-Aug-19	ICPs at new and ready not monitored. Potential impact: Low Actual impact: Low Audit history: None Controls: Weak Breach risk rating: 3		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as weak whilst they are being identified the process to contact traders does not appear to be being actioned. The audit risk rating is low as the overall volume of ICPs affected is small.		
Actions taken to resolve the issue		Completion date	Remedial action status
Retailers have been emailed ICPs greater than 24 months through to the trader for confirmation.		29/08/2019	Identified
Preventative actions taken to ensure no further issue will occur		Completion date	
Vector have changed monitoring of ready and new status to be included in the monthly reporting rather than separately actioned.		Effective 1 November	

3.15. 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 10 MW 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:

- *the unique loss category code assigned to the ICP*
- *the ICP identifier of the ICP*
- *the NSP identifier of the NSP to which the ICP is connected*
- *the plant name of the embedded generating station.*

Audit observation

This requirement was discussed and the registry lists as at 31/08/19 were examined to determine compliance.

Audit commentary

The list file identified one UNET ICP 0001442868UN4DC with greater than 10MW generation capacity. This generation has been connected since 14/06/2013 but was not recorded on the registry. This was discovered when the changes were made to how the Electricity Authority managed the ACOT payments. The distributed generation was updated on the registry on 10/6/2019 and backdated to 14/06/2013. A new unique "RDVL" loss category code was uploaded on 27/05/19 with a backdated effective date of 1/11/18. This loss category code has not been applied to the start of the generation being recorded in the registry. The backdating of the loss category code is recorded as non-compliance in **section 5.1**.

This site is required to pay the Electricity Authority levy and the unique loss category code is used to identify such sites. The lack of a unique loss category code being recorded from the time of the embedded generation being installed is recorded as non-compliance below.

I note that the ICP previously had the VECW4 loss category code applied which has a loss consumption factor of 1.0208 but that the RDLV consumption loss factor is 1. I queried this and was advised that if the site consumed anything at all it would be negligible and is therefore 1.00. I recommend that this is checked to confirm that the consumption loss factor is accurate as it is different to the loss factor applied from the time of electrical connection in 2004.

Recommendation	Description	Audited party comment	Remedial action
Embedded generation loss category	Confirm the consumption loss factor is correct.	Vector confirms that this ICP has minimal to nil import consumption most months but will set the Import factor back to be in line with the VECW4 code.	Identified

The recording of embedded generation for large generation stations is discussed further in **section 4.6**.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.15 With: Clause 7(6) Schedule 11.1 From: 14-Jun-13 To: 27-May-19	Unique loss factor code not recorded from the date generation is recorded. Potential impact: Medium Actual impact: Medium Audit history: None Controls: Weak Breach risk rating: 6		
Audit risk rating	Rationale for audit risk rating		
Medium	Controls are rated as weak as this generation was not recorded on the registry and therefore the unique loss factor was not created. The audit risk rating is rated as medium due to the volumes associated with this ICP.		
Actions taken to resolve the issue		Completion date	Remedial action status
The loss category of RDVL has been set effective 01/11/2018 as this is when additional generation was added to the site by the consumer. Vector are currently investigating the appropriate loss factor for the period between initial generation installation 2013 and additional generation added in 2018.		Ongoing	Investigating
Preventative actions taken to ensure no further issue will occur		Completion date	
Vector are reviewing our distributed generation process for >10kw to include requirement for new loss factor to be created.		Estimated 1 Nov 2019	

3.16. Electrical connection of a point of connection (Clause 10.33A)

Code reference

Clause 10.33A(4)

Code related audit information

No participant may electrically connect a point of connection or authorise the electrical connection of a point of connection, other than a reconciliation participant.

Audit observation

Sub-clause (4) states that no participant may electrically connect a point of connection without the permission of the Reconciliation Participant. The electrical connection of streetlight circuits which are a point of connection was examined.

Audit commentary

Vector's project contract requires developers to liaise with Auckland Transport (who in this instance are acting as an agent to their trader) to get streetlights electrically connected. Auckland Transport add these to the RAMM database with the electrical connection date. The Auckland Transport DUML audit examines this process in detail. Vector is meeting its requirements in relation to this clause.

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 give written notice to the registry manager of that change.

Notification must be given by the distributor within three 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 eight business days after the change takes effect.

If the change to the NSP identifier is for more than 10 business days, the notification must be provided no later than the 13th business day and be backdated to the date the change took effect.

In the case of decommissioning an ICP, notification must be given by the later of three business days after the registry manager has advised the distributor that the ICP is ready to be decommissioned, or three business days after the distributor has decommissioned the ICP.

Audit observation

The management of registry updates was reviewed.

The registry lists, audit compliance reporting and the event detail reports for 01/09/18 to 31/08/19 were reviewed to determine compliance. A diverse sample of a minimum of ten (or all if there were less than ten examples) backdated events by event type were reviewed to determine the reasons for the late updates.

The management of NSP changes was examined.

Audit commentary

ICP changes are updated in Gentrack and these write to the registry overnight. A small number are updated directly in the registry as required.

The audit compliance report was analysed to identify backdated event updates, and found:

Address events

99.81% of all VECT address updates were made on time with an average time to update the registry of less than a day. There were 528 late address updates. The sample checked of these found all related to a bulk update adding the GPS co-ordinates to ICPs and in these instances the last effective event date was reused causing these to appear backdated.

99.79% of all UNET address updates were made on time with an average time to update the registry of less than a day. There were 386 late address updates. The sample checked of these found the same issue as found for the VECT ICPs.

The volume of backdated was very small and this has no material impact.

Network events

The network events evaluated excluded those relating to the population of the initial electrical connection dates (discussed in **section 3.5**), NSP changes (discussed below) and the initial network events relating to the creation of ICPs.

Overall compliance of VECT network updates was 90.31% with 1,892 late network update events with an average of 87.92 days to update. A sample of ten of these updates were checked and found:

- five related to a known Gentrack issue to repopulate unmetered load values that had been incorrectly stripped out by an earlier network event; and
- the remaining five late network events found no change had been made to the network information so effectively no change was made, and Vector are investigating with Gentrack why these events were generated.

Overall compliance of UNET network updates was 96.57% with 1,259 late network update events with an average of 18.87 days to update. A sample of ten of these updates were checked and found:

- five examples of the same issue for as found in the VECT updates of a backdated network event where no change has occurred;
- three examples of the same Gentrack issue of the unmetered load being repopulated due to be stripped out by an earlier network event; and
- two examples of where the unmetered load was not captured at the time of application and was subsequently populated late.

The compliance reporting specifically measures distributed generation updates, so I have included these findings below as a subset of the overall network updates.

Distributed Generation

12.5% of all VECT distributed generation network updates were made on time with an average time to update the registry of 229.3 days. There were 357 late network updates. The sample checked of these found:

- four of these related to Vector's project where Tesla batteries were installed which were not intended to export back to the grid but do in some instances, so Vector have a project in place to populate these as distributed generation ICPs on the registry, these have been backdated to reflect the installation date;
- three were late due to late notification of the installation from the field; and
- three were updated in Gentrack but the update did not flow to the registry, these were identified as part of BAU and updated directly on the registry.

17.87% of all UNET distributed generation network updates were made on time with an average time to update the registry of 181.51 days. There were 432 late network updates. The sample checked of these found all related to the updating the ICPs with batteries installed.

The project undertaken during the audit period caused a high percentage of these updates to be late, but Vector is complying with the requirement to provide complete and accurate information. Also impacting the level of compliance is the slow return of paperwork in relation to distributed generation. Vector chase this where possible.

The distributed generation process is discussed in **section 4.6**.

Change of NSP

The process of NSP changes was examined. The operations team provide notifications of NSP changes that are for longer than 14 days. These are then updated in GIS and then this is uploaded to Gentrack which updates to the registry. A new report was added to the registry discrepancy reporting suite in August 2019 that identifies discrepancies between Gentrack and Registry. The audit compliance report identified 92 (23 VECT & 69 UNET late NSP changes). A sample of ten late updates for each network code were examined and found that all were identified as part of the new discrepancy reporting and were backdated to the correct date.

The accuracy of NSP mapping is discussed in **section 4.2**.

Pricing events

Trader's send price change requests through and these are processed at the end of each month. Vector's UoSA allows pricing to be backdated.

The compliance reporting found 12,602(23%) late VECT pricing updates of a total of 55,495 pricing updates. The average time to update the registry late was 13.85 days. The sample checked of these found:

- nine of these related to trader's request to change the pricing; and
- one was a change of price code from BTS to permanent supply where the electrical connection information was provided late by the trader to Vector.

The compliance reporting found 12,314(30%) late UNET pricing updates of a total of 41,438 pricing updates. The average time to update the registry late was 13.15 days. The sample checked of these found:

- seven of these related to trader's request to change the pricing; and
- three were changes of price code from a BTS to a permanent supply where the electrical connection information was provided late by the trader to Vector.

Decommissioning Status events

The decommissioning process is discussed in **section 4.11**. The code changed on 1/11/18 in relation to the Distributor updating an ICP to decommissioned. I have assessed the activity in relationship to this in accordance of the code effective at the time the event occurred.

A total of 2,384 (1,608 VECT & 776 UNET) ICPs were decommissioned during the audit period. 370 (251 VECT & 119 UNET) ICPs were updated prior to the code change. Of these 291 (78%) (189 VECT & 102 UNET) were updated late. There were 2,014 (1357 VECT & 657 UNET) ICPs decommissioned post the code change. Of these 625 ICPs (31%) (461 VECT & 164 UNET) were updated late. I examined a sample of ten late updates for each network code and found the majority were late due to a delay in the activity in Siebel not being completed. The current process is reliant on the trader's task being closed out before the activity for updating the ICP opens in Siebel before Gentrack and then the registry can be updated. Vector are reviewing this process.

The backdating of events to the registry is recorded as non-compliance.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 4.1 With: clause 8 schedule 11.1 From: 01-Sep-18 To: 31-Aug-19	Registry event updates backdated greater than three days. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are rated as moderate as controls are sufficient to mitigate risk but there is still room for errors to occur. The audit risk rating is low as the volume of late updates is low in relation to the volume of updates to the registry.		
Actions taken to resolve the issue		Completion date	Remedial action status
Distributed generation: The batteries are setup not to export any energy, but it is possible for them to export a little. The registry was rectified at the time it was brought to our attention.		Various dates	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Address: Vector will ensure on any further bulk update processes that the current date is used rather than the previous event date. NSP: Our intention is to continue to run our NSP report to monitor this. We will also review the NSP listed on the Audit Compliance report. Decommission: System process change to be implemented. When the trader activity opens, system will automatically check status of ICP from registry. If status is "Ready for decommissioning", system will automatically close the trader activity.		n/a n/a Estimated Nov 2019	

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

Code reference

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

Code related audit information

Under Clause 7(1)(b) of Schedule 11.1, the distributor must provide to the registry manager the NSP identifier of the NSP to which the ICP is usually connected.

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

The process to determine the correct NSP was examined. The audit compliance reports identified 558 (308 VECT & 250 UNET) active ICPs where 10% or fewer ICPs on a street have a different NSP and there are fewer than three ICPs with a different NSP. A typical sample was checked of 41 ICPs per network code was checked.

Audit commentary

The process for allocating new ICPs to the correct transformer was examined. Each ICP is reviewed in GIS to determine the correct transformer based on the ICPs surrounding it. The transformer maps back to the NSP. Vector have put in place a new registry discrepancy report that checks for NSP anomalies.

The last audit identified 3,268 ICPs which had a different NSP recorded in Gentrack to that recorded on the registry. These have been corrected and the same report was run and contained only nine ICPS. These are being reviewed as part of BAU.

The audit compliance report identifies potentially mis-mapped ICPs based on NSP allocation to a street as detailed above. The check of the VECT ICPs identified 25 incorrect NSPs (61% error rate of the sample checked). The check of the UNET ICPs identified 27 incorrect NSPs (68% error rate of the sample checked). The rate of error indicates that more than 50% of the 558 ICPs identified are likely to be incorrectly mapped. Vector intends to use the audit compliance report to monitor these.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 4.2 With: Clause 7(1)(b) Schedule 11.1 From: 01-Sep-18 To: 31-Aug-19	52 ICPs mapped to the incorrect NSP. Potential impact: Low Actual impact: None Audit history: None Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as moderate as they will mitigate risk most of the time but there is room for errors to occur. The risk rating is low as Vector has one balancing area per network and therefore an incorrect NSP has no direct impact on reconciliation.		
Actions taken to resolve the issue		Completion date	Remedial action status
Of the ICP samples that were reviewed by our item, a large number of ICPs fell into one of the following three categories: <ol style="list-style-type: none"> ICPs on pending Transformers ICPs on Transformers with typos ICPs on 'dummy' GXP (generally Streetlights, Toilets or Traffic Lights). These were identified to the customer team for remediation.		Ongoing	Identified
Preventative actions taken to ensure no further issue will occur		Completion date	
To mitigate the number of errors going forward, the new Audit Compliance report supplied via registry will now be run monthly to monitor potential errors. Report will be reviewed, and errors corrected.		15/10/2019	

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

The management of customer queries was examined.

Audit commentary

Vector does receive direct requests for ICP identifiers, and these are provided immediately.

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

The process to determine correct and unique addresses was examined. The audit compliance reports identified 2,244 (1,060 VECT & 1,184 UNET) active ICPs that do not have a readily locatable address. A typical sample of ten ICPs per network code were checked.

Audit commentary

The address information provided by the customer is used to locate the ICP. Gentrack does not stop duplicate addresses being created but operators are expected to manually check for duplicate addresses before they create an ICP. There is an ongoing project to clean up historically hard to locate addresses. The volume of these continues to decrease year on year. Vector has undertaken a project during the year to add GPS co-ordinates. 182 ICPs had duplicate GPS co-ordinates recorded. The audit compliance report will be used going forward to monitor these.

The sample checked found none were readily locatable. This is recorded as non-compliance below.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 4.4 With: Clause 2 Schedule 11.1 From: 01-Sep-18 To: 31-Aug-19	2,244 ICPs with addresses that are not readily locatable. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as moderate as they will mitigate risk most of the time but there is room for errors to occur. The risk rating is low as this has no direct impact on reconciliation.		
Actions taken to resolve the issue		Completion date	Remedial action status
Vector continue to work on identifying and correcting historical address information on our ICPs. This is an ongoing project.		Ongoing	Identified
Preventative actions taken to ensure no further issue will occur		Completion date	
For permanent ICPs, Vector are requesting written confirmation from customer as to permanent address, usually in the form of an email or letter from Council. For builders' temporary supplies, Vector use the proposed address from the customer as outlined on their approved subdivision plans. For all new ICPs and address changes, Vector check to see if there is an existing ICP already with the same address. If so, the new ICP creation is placed on hold while further information is obtained from customer.		Existing Process	

4.5. Electrically disconnecting an ICP (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 electrically disconnected without electrically disconnecting 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 the difference between the total consumption for the embedded network and all other ICPs on the embedded network.

Audit observation

The management of this process was discussed.

Audit commentary

Vector has required that all ICPs created since 7 October 2002 will comply with this clause.

Audit outcome

Compliant

4.6. Distributors to Provide ICP Information to the Registry manager (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 manager:

- *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 for a billing period from metering information collected for that billing period*
 - c) *if there is more than one capacity value at the ICP, and at least one, but not all, of those capacity values can be determined for a billing period from the metering information collected for that billing period-*
 - (i) *no capacity value recorded in the registry field for the chargeable capacity; and*
 - (ii) *either the term "POA" or all other capacity values, recorded in the registry field in which the distributor installation details are also recorded*
 - d) *if there is more than one capacity value at the ICP, and none of those capacity values can be determined for a billing period from the metering information collected for that billing period-*
 - (i) *the annual capacity value recorded in the registry field for the chargeable capacity; and*
 - (ii) *either the term "POA" or all other capacity values, recorded in the registry field in which the distributor installation details are also recorded*

- e) *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 one 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*
- *the initial electrical connection date of the ICP (Clause 7(1)(p) of Schedule 11.1).*

Audit observation

The management of registry information was reviewed. The registry lists as at 31/08/19 and the audit compliance reports were reviewed to determine compliance. A typical sample of data discrepancies were checked.

Registry data validation processes are discussed in **section 2.1**.

Audit commentary

All ICP information was checked and confirmed compliant unless discussed below:

Distributed Generation

Vector require an application for all distributed generation. All applications have to be approved before allowing distributed generation to be connected to their network, but Vector is reliant on customers following the process. This is only loaded to Gentrack once the code of compliance (COC) has been received back from the contractor to confirm compliant export/import metering has been installed. As noted in **section 4.1**, this can be slow in being returned and causes Vector to be late in updating this information to the registry.

Examination of the list files found 4,777 (2,205 VECT & 2,572 UNET) ICPs with generation capacity. All had a generation capacity and fuel type recorded. 11 ICPs (seven VECT & four UNET) had distributed generation recorded but the installation type of L. These were examined and found that a network event had changed the "B" back to "L". These have been corrected. This is recorded as non-compliance.

The audit compliance reporting identified 352 ICPs (151 VECT & 201 UNET) where the trader has indicated that distributed generation is present, and Vector have none recorded. Vector has reporting in place using the trader's profile to identify ICPs with distributed generation indicated where Vector has none recorded. This was set only to look for profiles with "EG" and therefore not all ICPs were being identified. Vector are adding a check for "PV" profiles to this report.

A sample of ten ICPs per network code were examined and found:

- an application has been approved for 14 (eight VECT & six UNET) ICPs but no COC has been received;
- an application has never been received for the remaining four (two VECT & two UNET) ICPs; and
- the job had been closed out but not updated in Gentrack for two ICPs, these have now been updated in Gentrack and the registry.

The two ICPs with distributed generation installed but not recorded on the registry is recorded as non-compliance.

A check of the list files identified 1,548 ICPs where Vector has distributed generation is present, but the trader's profile does not indicate this. There is a known issue with one trader's system not recording the correct distributed generation profile on the registry and when their code is excluded it reduces the number to 240 (99 VECT & 141 UNET) ICPs. A sample of ten ICPs per network code were checked and found:

- Vector had paperwork confirming that distributed generation is present, and the meter has an injection channel recorded for 19 (nine VECT & ten UNET) ICPs indicating that the trader's profile is incorrect; and
- no application has been received for ICP 0102593027LCBF8 and there is no injection metering installed, the trader has since confirmed that no distributed generation is present and updated the profile accordingly.

I checked the distributed generation information populated on the registry against the paperwork provided for a sample of 19 ICPs and found:

VECT

ICP	Registry effective electrically connected date	Installation paperwork High risk register certification date	Registry kW capacity	Installation paperwork kW capacity	Comments
0102574022LCFAA	3/10/2013	None	3	3	
0114046743LC1B0	13/09/2016	None	3	3	
0115827803LC22A	19/01/2019	22/01/2019	4.6	4.6	COC paperwork indicates Vector's date is correct
0122635027LC172	8/12/2015	16/12/2015	1.53	1.53	COC paperwork indicates Vector's date is correct.
0123005973LC78B	26/05/2016	25/08/2016	3.2	3.2	COC paperwork indicates Vector's date is correct.
0128821035LC789	21/03/2015	24/03/2015	2	1.5	COC paperwork indicates Vector's date is correct.

ICP	Registry effective electrically connected date	Installation paperwork High risk register certification date	Registry kW capacity	Installation paperwork kW capacity	Comments
					The kW value is recorded incorrectly.
0130444243LC9B7	17/02/2019	14/02/2019	8	8	COC paperwork indicates Vector's date is correct.
0132001039LCC04	3/06/2016	None	3	3	
0139022007LCD57	26/03/2018	28/03/2018	2.43	3	COC paperwork indicates Vector's date and kW value is correct.

UNET

ICP	Registry effective electrically connected date	Installation paperwork High risk register certification date	Registry kW capacity	Installation paperwork kW capacity	Comments
0000101321UN939	27/07/2018	None	3	3	
0000113010UNA26	31/07/2015	17/08/2015	2	2	COC paperwork indicates Vector's date is correct.
0000115432UNE37	3/04/2018	9/04/2018	3.6	3.6	COC paperwork indicates Vector's date is correct.
0000122400UNC06	27/03/2018	5/04/2018	4.64	4.64	COC paperwork indicates Vector's date is correct.
0000123865UN315	9/12/2016	20/12/2016	2.28	2.28	COC paperwork indicates Vector's date is correct.
0000125011UN28F	9/05/2018	17/05/2018	4.35	4.35	COC paperwork indicates Vector's date is correct.
0000125887UNCEA	21/03/2017	23/03/2017	2.6	2.6	COC paperwork indicates Vector's date is correct.
0000126845UN960	29/01/2019	4/02/2019	5	5	COC paperwork indicates Vector's date is correct.

ICP	Registry effective electrically connected date	Installation paperwork High risk register certification date	Registry kW capacity	Installation paperwork kW capacity	Comments
0000132845UN701	12/04/2018	17/04/2018	6	6	COC paperwork indicates Vector's date is correct.
0000133418UNDFE	14/09/2016	14/09/2016	5	5	

The one incorrect kW capacity recorded is recorded as non-compliance below.

Post the last audit it appeared that some large generation had not been recorded on the registry as expected. I checked the generation fleet listings from the EMI site with the list files and this was discussed during the site audit:

Station_Name	ICP	Comments
Ascot Ave	1001116687LC9CF	Had a generation capacity of 1 kW but this should be 100kW. This has been corrected.
Auckland District Hospital	0800539060LCBFF	The EMI spreadsheet had this recorded as connected to PEN0331 but Vector have confirmed that this is correctly recorded in the registry as connected to PEN1101.
Greenmount Landfill	1001138597LC16C	Has had the fuel type corrected from "other" to "bio mass".
Mansons Developments		Vector are contacting the trader in relation to this listing as no ICP could be found. The generation capacity is recorded as 0.002 MW on the EMI spreadsheet.
Pacific Steel	1001283553LCAD4	This appears to be back up generation. The ICP has no generation recorded in the registry. Vector are confirming with the trader whether this can be injected into the grid or not.
Watercare Clevedon	0201189083LC007	This has a zero MW capacity recorded on the EMI table and no generation is recorded on the registry. Vector is checking with the trader to confirm what is present. This was already under investigation prior to the audit.

Station_Name	ICP	Comments
Watercare Mangere	0286447869LCCF5	This has no generation recorded on the registry. Vector is checking with the trader to confirm what is present. This was already under investigation prior to the audit.
Whitford Landfill	0206259429LCF4D	The generation was added to the registry in April 2019 and backdated to the time of installation. The value of 5300 kW recorded in the registry is believed to be correct but is different to that recorded in the EMI spreadsheet of 3MW.

The two ICPs with incorrect details recorded on the registry are recorded as non-compliance below.

Initial Electrical Connection Date

As discussed in **section 3.5**, Vector reply on the trader or their agent to provide them with the initial electrical connection date. In other Distributor audits where either the Network carry out the electrical connection or the approved contractor's provides the date of the initial electrical connection directly to the network, I have found instances where the BTS supply is not being recorded on the registry and the permanent supply is the first meter to be recorded on the registry. As Vector receives the initial electrical connection date from the trader, effective validation cannot occur between the trader's first active date and the initial electrical connection date, and unrecorded BTS supplies will not be identified.

The audit compliance reports identified 21 (15 VECT & six UNET) ICPs where the initial electrical connection date is different to that of the first active date or the meter certification date. These volumes are small as Vector is effectively using the trader's first active date to populate this. These were examined and found:

VECT

ICP	Meter Certification date	Initial Electrical Connection date	First Active date	Comments
1002050559LC5E7	27/06/2019	1/07/2019	12/07/2019	Trader's agent has provided the initial electrical connection date. Vector are following this up with the trader.
1002050553LC776	28/06/2019	1/07/2019	15/07/2019	Trader's agent has provided the initial electrical connection date. Vector are following this up with the trader.
1002050557LC67C	28/06/2019	1/07/2019	12/07/2019	Trader's agent has provided the initial electrical connection date. Vector are following this up with the trader.

ICP	Meter Certification date	Initial Electrical Connection date	First Active date	Comments
1002050554LCABC	28/06/2019	1/07/2019	9/07/2019	Trader's agent has provided the initial electrical connection date. Vector are following this up with the trader.
1002064896LCF72	29/06/2019	1/06/2019	29/06/2019	Trader's agent has provided the initial electrical connection date. Vector are following this up with the trader.
1002057664LCA27	2/05/2019	22/03/2019	2/05/2019	The trader has corrected the original first active date and this has not been provided to Vector.
1002058905LCFFD	4/02/2019	4/02/2019	4/04/2019	Vector's date matches the meter certification date indicating the trader has the incorrect start date.
1002058077LC32C	13/02/2019	15/02/2019	13/02/2019	This was entered incorrectly and has now been corrected.
1002058093LC89C	11/02/2019	9/01/2019	11/02/2019	Trader's agent has provided the initial electrical connection directly. Vector are following this up with the trader.
1002058205LCCF3	16/01/2019	16/01/2019	5/02/2019	Vector's date matches the meter certification date indicating the trader has the incorrect start date.
1002056176LCEAD	23/11/2018	29/11/2018	23/11/2018	This was entered incorrectly and has now been corrected.
1002052144LCF50	1/10/2018	18/09/2018	1/10/2018	Trader's agent has provided the initial electrical connection directly. Vector are following this up with the trader.
1002054751LCB74	12/10/2018	24/10/2018	12/10/2018	This was entered incorrectly and has now been corrected.
1002054440LCE9F	11/10/2018	21/11/2018	11/10/2018	This was entered incorrectly and has now been corrected.
1002052624LCFA2	21/09/2018	31/08/2018	21/09/2018	Trader's agent has provided the initial electrical connection directly. Vector are following this up with the trader.

UNET

ICP	Meter Certification date	Initial Electrical Connection date	First Active date	Comments
1002047249UN6DD	10/05/2019	30/11/2018	10/05/2019	Trader's agent has provided the initial electrical connection date. Vector are following this up with the trader.
1002059146UNA21	14/02/2019	31/01/2019	14/02/2019	Trader's agent has provided the initial electrical connection date. Vector are following this up with the trader.
1002058213UNDC5	18/01/2019	16/01/2019	18/01/2019	Trader's agent has provided the initial electrical connection date. Vector are following this up with the trader.
1002058132UNFD6	17/01/2019	16/01/2019	17/01/2019	Trader's agent has provided the initial electrical connection date. Vector have since confirmed the trader's date is correct and have updated to match.
1002057809UN693	9/01/2019	9/01/2019	11/01/2019	Vector's date matches the meter certification date indicating the trader has the incorrect start date.
1002049626UN232	15/06/2018	15/06/2018	26/09/2018	Vector's date matches the meter certification date indicating the trader has the incorrect start date.

In summary of the 21 ICPs examined found:

- 13 ICPs appear to have an incorrect initial electrical connection date. The trader's agent provided the date directly to Vector for nine of these. Vector is following these up with the trader. Four were entered incorrectly due to human error and have been corrected. This is recorded as non-compliance.
- Vector's date matches the meter certification date in four instances, and these were all earlier than the traders first active date. Vector's date is correct.
- Four had three different dates so I am unable to determine when the ICP was initially electrically connected. Vector are following these up with the trader.

The audit compliance report identified 13 (6 VECT & 7 UNET) ICPs that are not yet active but have an initial electrical connection date recorded. These were examined and found:

- ten have been made active for the correct date since the report was provided;
- ICP 1002061434UN6D0 has been made active by the trader for 1/04/2019 but Vector were advised the initial electrical connection date was 19/06/2019 - this is an unmetered supply and is being queried with the trader; and
- the trader's agent has provided the initial electrical connection date for ICP 1002066301UN705, but the trader has not yet made it active.

ICPs that have not had an electrical connection date populated are recorded as non-compliant in **section 3.3**.

Unmetered Load

Vector allow unmetered load connections on the network but as noted in **section 3.3**, this is not captured on the new connection application form.

Gentrack has a “drop down” selection of unmetered load types. The format of these is:

- kW value;
- available hours; and
- load type

If the descriptor contains “MultUNMLoad” this indicates multiple items of load are connected and these could indicate distributed unmetered load.

I recommend in **section 3.3** that Vector adopt the Electricity Authority’s recommended unmetered load format. The recording watts rather than the kW value would greatly assist traders to more easily calculate and confirm unmetered load values. Additionally, rather than record the loads availability the guideline uses running hours this will assist in calculating the anticipated kWh figure. This is particularly evident when looking at the description of auto gates. The traders have estimated the running time at 1 hour per day, but Vector have this recorded as 24 hours e.g.

Vector description	Traders description
0.05kW:24:VECT Auto Gate	500watt;1hr;gate

The list files identified 2,349 (1,718 VECT & 631 UNET) ICPs with unmetered load details recorded by Vector.

I was able to compare the loads for 1,490 ICPs (1,118 VECT & 372 UNET). I found the load matched within +/- 0.1 kWh for 935 (831 VECT & 104 UNET) ICPs (63%). An extreme example of the ten ICPs with the greatest variance for each network code was examined.

- 11 ICPs had the incorrect load description and these have been corrected and now match the trader’s value. These discrepancies mostly related to being incorrectly selected unmetered load types at the time of set up.
- Vector had the correct load recorded and the trader’s load was incorrect for five ICPs.
- Two ICPs related to telco cabinets which are multiple points of connection recorded under a bucket ICP. These should likely be treated by the trader as distributed unmetered load. I note that items of load recorded by Vector for ICP 0001416958UNFD4 are likely to be connected across multiple NSPs (e.g. from Parakai in West Auckland to Browns Bay on the North Shore) and therefore should have an ICP per NSP. I recommend any such ICPs are investigated to confirm that the associated load is recorded for one NSP per ICP only.

Recommendation	Description	Audited party comment	Remedial action
Provide ICP information to the registry	Check that the load for ICPs with multiple items of load are associated with one NSP only.	Vector has bulk UML ICPs with database records attached. In some cases these are being split out by the retailer into individual ICPs. AT bus shelters were done last year. Currently working with Trustpower to separate out the Chorus cabinets.	Investigating

- Two ICPs related to unmetered cell phone towers. Vector indicates these loads are 25W by 24 hours which equates to a daily unmetered load of 6kWh. The trader has a daily load of 1.44kWh for ICP 1001279294UNE3B and 6kWh for ICP 1002061433UNB1A. I recommend that Vector confirm the correct load with the trader.

Recommendation	Description	Audited party comment	Remedial action
Provide ICP information to the registry	Confirm cell phone unmetered load with trader.	Retailer has 10 ICPs for cell phone towers and their records match Vectors on 8. Have sent two ICPs 1001135977UN7EE & 1001279294UNE3B back to retailer to explain the anomaly.	Investigating

ICPs with unmetered load created during the audit period but where Vector has none recorded are recorded as non-compliance in **section 3.3**.

Dedicated vs non-dedicated

The application of dedicated vs non-dedicated flag was examined. All of Vector's GN ICPs are expected to be set to "N". Examination of the list files identified four ICPs with the flag set to "Y". These were examined and found to have the incorrect flag and these are being corrected.

The LE ICPs were examined and found 43 (26 VECT & 17 UNET) of the LE ICPs had the flag incorrectly set to "N". These were set up correctly but network updates in carried out in August 2018 changed the dedication flag to "Y" to "N". This includes four of the five ICPs identified in the last audit. I recommend that these events be investigated to understand why these were changed.

Recommendation	Description	Audited party comment	Remedial action
Provide ICP information to the registry	Investigate why LE ICP dedication flag was changed from "Y" to "N".	These were changed in error due to a mis-interpretation of the rule.	Identified

Additionally, the LE creation process is being reviewed to ensure these are created correctly. The flag is expected to be corrected for these ICPs.

Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 4.6</p> <p>With: Clause 7(1)</p> <p>Schedule 11.1</p> <p>From: 01-Sep-18</p> <p>To: 31-Aug-19</p>	<p>Distributed generation details incorrect for a small number of ICPs.</p> <p>13 ICPs with an incorrect initial electrical connection date populated.</p> <p>Incorrect unmetered load recorded for potentially 55% (based on the sample) of those with a variance between the traders daily kWh figure and the Vector unmetered load description.</p> <p>Four "GN" ICPs with an incorrect dedication flag of "Y".</p> <p>43 LE ICPs with the incorrect NSP dedication flag of "N".</p> <p>Potential impact: Medium</p> <p>Actual impact: Low</p> <p>Audit history: Multiple times</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p>		
Audit risk rating	Rationale for audit risk rating		
Low	<p>Controls are rated as moderate as they will mitigate risk most of the time, but the area of unmetered load indicates that the potential error rate is high.</p> <p>The risk rating is low, but it would be medium if the trader's used Vector's unmetered load details for reconciliation.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
The NSP dedicate flag has be corrected on all ICPs identified. Vectors process document for LE ICPs has been updated to outline requirements for the dedicated NSP flag to be marked as Y.		07/10/2019	Investigating
Vector are still confirming the correct initial electrical connection date with both trader and the livening agent and will correct dates where necessary.		Ongoing	
Vector are still investigating the potential generation installations listed on the EMI site. Actions as noted in the earlier table.		Ongoing	
Preventative actions taken to ensure no further issue will occur		Completion date	

Vector is concerned at the statement that 55% of this load is incorrectly recorded.

Of the 98 sites on the UNET network - 5 required fixing by distributor. Most of the remainder are not a volume issue, a few have sent back to retailer to fix or clarify.

On the VECT network these fell into the below categories with most of the ICPs falling into category 1 below

1. Retailer and network are billing the same. The networks load is rounded to two decimals to go to registry i.e. 25.2Watts description but showing as .03/24HR. To remedy any confusion Vector will ask developer to open up the field to send to 4 decimal places on the registry.
2. Retailer and network have the same description however the sheet shows a different calculation for the retailer and the network. Not sure who has done this calculation, but Vector does not understand why there is a difference.
3. Distributor has set up load as 24HR when it should be ENG and vice versa. These have been fixed.
4. Discrepancy between retailer and distributor load which are being worked through and verified by Vector and corrected either from the network or the retailer side.
5. Multiple unmetered load i.e. engineered and 24 hour on an ICP. Distributor is showing this as #kW/ENG and #kW/24 hour or alternately Mult Load. Each retailer reports this on the registry differently.
6. Varying descriptions by retailer for standard equipment for which Vector sets a standard wattage e.g. in the below example the two highlighted have the same description but the sheet sent from the auditor shows a different calculated daily kWh figure.

VECT	Dist	Dist	Ret	RET
0.05 kW 24	VECT Auto Gate	1.2	0.6	0.025;24;AutoGate
0.05 kW 24	VECT Auto Gate	1.2	0.3	0.05KW:24:VECT AUTO GATE
0.05 kW 24	VECT Auto Gate	1.2	0.936	0.05kW:24:VECT Auto Gate
0.05 kW 24	VECT Auto Gate	1.2	0.55	0.55;1;AutoGate
0.05 kW 24	VECT Auto Gate	1.2	0.34	340.00;1.00;UNM UnKnown

Vector has 114,076 unmetered ICPS 97% of the volume is engineered load that is updated monthly on the registry in line with the AT database. This load is further reconciled each month in line with the GXP metered data. The remaining 3% being 24hour supply – table as below.

Type	Supplies	kWhs	%
ENGINEERED	112,331	4,123,489.57	97.48
24HR	1,745	106,551.00	2.52
Grand Total	114,076	4,230,040.57	

All load is set up in watts and loaded against the ICP and then calculated into kW in format 0.00 to the registry and noted as either ENG (engineered) or 24HR. Vector believes this to be clear to the trader whether to multiply the kW by the ENG profile or by 24HR. In some cases there are two items of

n/a

UML on an ICP so the load will show as kW/ENG and kW/24UC. In cases where there is multiple load and not enough space to record items this is shown as Mult and information is provided to retailer.		
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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 manager 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

The management of registry information was reviewed. The registry lists and audit compliance reporting for 01/09/18 to 31/08/19 were reviewed to determine compliance.

Audit commentary

Vector has confirmed these details are known prior to electrical connection of the ICP. If any changes are required these are updated as soon as possible. The backdated price category changes were checked in **section 4.1** and relate to corrections. Placeholder values are not used.

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

The registry lists as at 31/08/19 were examined. I checked that the GPS coordinates used meet the NZTM2000 standard.

Audit commentary

Vector have used the NZTM2000 standard to record the GPS co-ordinates. This was confirmed by looking at the format of the GPS co-ordinates used.

Audit outcome

Compliant

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

Vector’s current process is to create all ICPs at the “ready” status.

The registry lists showed 1,583 (1,117 VECT & 466 UNET) ICPs currently at “ready” status, 115 (55 VECT & 60 UNET) have been at “ready” status for more than two years. This is discussed further in **section 3.14**.

All ICPs at “ready” status had a single price category assigned and proposed trader identified.

Audit commentary

As noted in **section 3.2**, ICP requests come directly from customers or their agents and are received either via the online portal or via the contact centre. Once all the details have been gathered the ICP is provided to the applicant and the trader.

The price category field in Gentrack contains a “drop down” list, which ensures each ICP can only have a single price category. Examination of the list file confirmed that all ICPs at “ready” status had a single price category assigned and proposed trader identified. The timeliness of this information being populated is discussed in **section 3.4**.

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

Processes to manage the “distributor” status were reviewed.

The registry list file as at 31/08/19 was reviewed to identify ICPs at the “distributor” status and check compliance.

Audit commentary

Vector has 171 (121 VECT & 50 UNET) ICPs that have a status of “distributor.” All distributor ICPs are points of connection between embedded networks and the Vector network. There is no known shared unmetered load, and none has been identified as part of the streetlight audits. I checked the mapping of all LE ICPs to the embedded networks and confirmed all had at least one LE ICP for all but one embedded network. This is recorded as non-compliance in **section 3.1**.

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

The registry list as at 31/08/19 was reviewed to identify ICPs at the “decommissioned” or “ready for decommissioning” status.

A diverse sample of ten “decommissioned” ICPs for each network code were examined. I also examined a diverse sample of ten ICPs at “ready for decommissioning” status.

Audit commentary

Vector’s decommissioning process has been automated as much as possible. All ICPs to be decommissioned are expected to have an application for decommissioning to be submitted via Siebel which raises a service request. These can be lodged by the customer directly or via the contact centre. All details are verified before the decommissioning is progressed. The job is issued to Electrix or Northpower. The trader and MEP are notified via email. The trader is expected to close their task in Siebel. Once the job is closed in Siebel, Gentrack gets updated and this then flows to the registry. If there are details missing a work queue is created and Vector review these on a case by case basis to close them. Vector’s system also checks for an open job in Siebel for any ICPs that are set to “Ready for decommissioning” in the registry. If no request has been lodged a notification is issued to the trader to lodge the service request. Vector are reviewing this process, as if the trader doesn’t complete their task the decommissioning cannot be processed. The timeliness of these updates is discussed in **section 4.1**.

The sample of ICPs decommissioned confirmed that all were decommissioned for the correct date.

The list files found 719 ICPs (477 VECT & 242 UNET) at “ready for decommissioning” status at the time of the audit analysis. The volume of ICPs at this status is growing. A sample of ten ICPs per network code were checked and found:

- ten ICPs have been decommissioned but cannot be completed as no service request has been lodged by the trader, the trader has been requested to do this in all instances;
- nine ICPs have had a registry event dated after the decommissioning date that need to be reversed before the decommissioning event can be processed, seven of these relate to address updates and two require traders to reverse events; and
- ICP 0057644612LC529 was decommissioned on 19/11/2018 but the event has not flowed to the registry from Gentrack as expected.

Those ICPs not decommissioned due to events Vector can reverse are recorded as non-compliance.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 4.11 With: clause 20 schedule 11.1 From: 18-Feb-15 To: 31-Aug-19	ICPs decommissioned but not updated to decommissioned on the registry. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are rated as moderate as controls are sufficient to mitigate risk but there is still room for errors to occur. The audit risk rating is low this has no direct impact on reconciliation.		
Actions taken to resolve the issue		Completion date	Remedial action status
ICPs identified have been fixed where possible. During this process we have identified further later events against 2 ICPs where the metering is now preventing the update. We are approaching the meter owner to have this reversed to enable the update.		17/10/2019	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Refer actions in section 4.1			

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 two 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 code table on the registry was examined for the VECT and UNET network codes.

Audit commentary

There were four new VECT price codes uploaded on 14/01/19 with an effective date of 1/04/2019.

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 loss category code table on the registry was examined.

Audit commentary

There was one new UNET loss factor code. RDVL was uploaded on 27/05/19 with a backdated effective date of 1/11/18. This is a unique loss factor code for ICP 0001442868UN4DC. Generation has been present since 14/06/2013 therefore the loss factor should be applied from the date of generation being installed. This is discussed in **section 3.15**. The late updating for an incorrect start date is recorded as non-compliance.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 5.1 With: Clause 21 Schedule 11.1 From: 14-Jun-13 To: 27-May-19	One loss factor code not applied from the correct start date and not notified two months in advance. Potential impact: Medium Actual impact: Medium Audit history: None Controls: Moderate Breach risk rating: 4		
Audit risk rating	Rationale for audit risk rating		
Medium	Controls are rated as moderate this late update related to a one off correction. The audit risk rating is rated as medium due to the volumes associated with this ICP.		
Actions taken to resolve the issue		Completion date	Remedial action status
The loss category of RDVL has been set effective 01/11/2018 as this is when additional generation was added to the site by the consumer. Vector are currently investigating the appropriate loss factor for the period between initial generation installation 2013 and additional generation added in 2018.		Ongoing	Investigating
Preventative actions taken to ensure no further issue will occur		Completion date	
Vector are reviewing our distributed generation process for >10kw to include requirement for new loss factor to be created.		Estimated 1 Nov 2019	

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 in the registry, the distributor must enter the replaced loss factor on the table in the registry.

Audit observation

The loss category code table on the registry was examined.

Audit commentary

Eight loss factors (four VECT & four for UNET) have been updated during the audit period. All were notified within the required timeframe.

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 give written notice to 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 two embedded networks, the embedded network owner must give written notice to 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 give written notice to 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:

- give written notice to the reconciliation manager*
- give written notice to the Authority*
- give written notice to each affected reconciliation participant*
- comply with Schedule 11.2.*

Audit observation

The NSP table was examined.

Audit commentary

No NSPs have been created or decommissioned during the audit period.

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 two local networks. In all other cases, the request must be made at least one month before the NSP is electrically connected or the ICP is transferred.

Audit observation

The NSP table was examined.

Audit commentary

No NSPs have been created or decommissioned during the audit period.

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 give written notice to 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

The NSP table was reviewed.

Audit commentary

No balancing area changes have occurred during the audit period.

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 give notice to the reconciliation manager at least 1 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

The NSP table was reviewed.

Audit commentary

Vector has not created any new embedded networks during the audit period.

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 give written notice to 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

The NSP table was reviewed.

Audit commentary

No balancing area changes have occurred during the audit period for Vector's NSPs.

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 give written notice to any trader trading at the ICP of the transfer at least 1 month before the transfer.

Audit observation

The NSP table was reviewed.

Audit commentary

No existing ICPs became NSPs during the audit period.

Audit outcome

Compliant

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 give written notice to the Authority in the prescribed form, no later than 3 business days before the transfer takes effect.

Audit observation

The NSP table was reviewed.

Audit commentary

Vector has not initiated the transfer of any ICPs during the audit period.

Audit outcome

Compliant

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 one 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 advise 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

The NSP supply point table was examined.

Audit commentary

All Vector's NSPs are grid connected.

Audit outcome

Not applicable

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 date 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

The NSP supply point table was reviewed.

Audit commentary

All Vector's NSPs are grid connected.

Audit outcome

Not applicable

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 give written notice to:

- *the previous network owner (Clause 29(1)(a) of Schedule 11.1)*
- *the reconciliation manager (Clause 29(1)(b) of Schedule 11.1)*
- *the Authority (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 one month's 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

The NSP supply point table was reviewed.

Audit commentary

Vector have not initiated any changes of network owner.

Audit outcome

Compliant

6.11. 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 advise the reconciliation manager and the gaining MEP.

Audit observation

The NSP supply point table was examined.

Audit commentary

Vector has no embedded networks.

Audit outcome

Not applicable

6.12. 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 Authority 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

The NSP supply point table was reviewed.

Audit commentary

Vector has not initiated the transfer of any ICPs during the audit period.

Audit outcome

Compliant

6.13. 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

The NSP supply point table was reviewed.

Audit commentary

Vector has not initiated the transfer of any ICPs during the audit period.

Audit outcome

Compliant

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 give written notice to the registry manager 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 give written notice to the registry manager 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

The registry list file was reviewed to identify any ICPs with shared unmetered load connected. The streetlight audits of the network were assessed.

Audit commentary

No shared unmetered load is known or has been identified as part of the streetlight audits undertaken.

Audit outcome

Compliant

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 give written notice to all traders affected by that change or decommissioning as soon as practicable after the change or decommissioning.

Audit observation

The registry list file was reviewed to identify any ICPs with shared unmetered load connected. The streetlight audits of the network were assessed.

Audit commentary

No shared unmetered load is known or has been identified as part of the streetlight audits undertaken.

Audit outcome

Compliant

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.

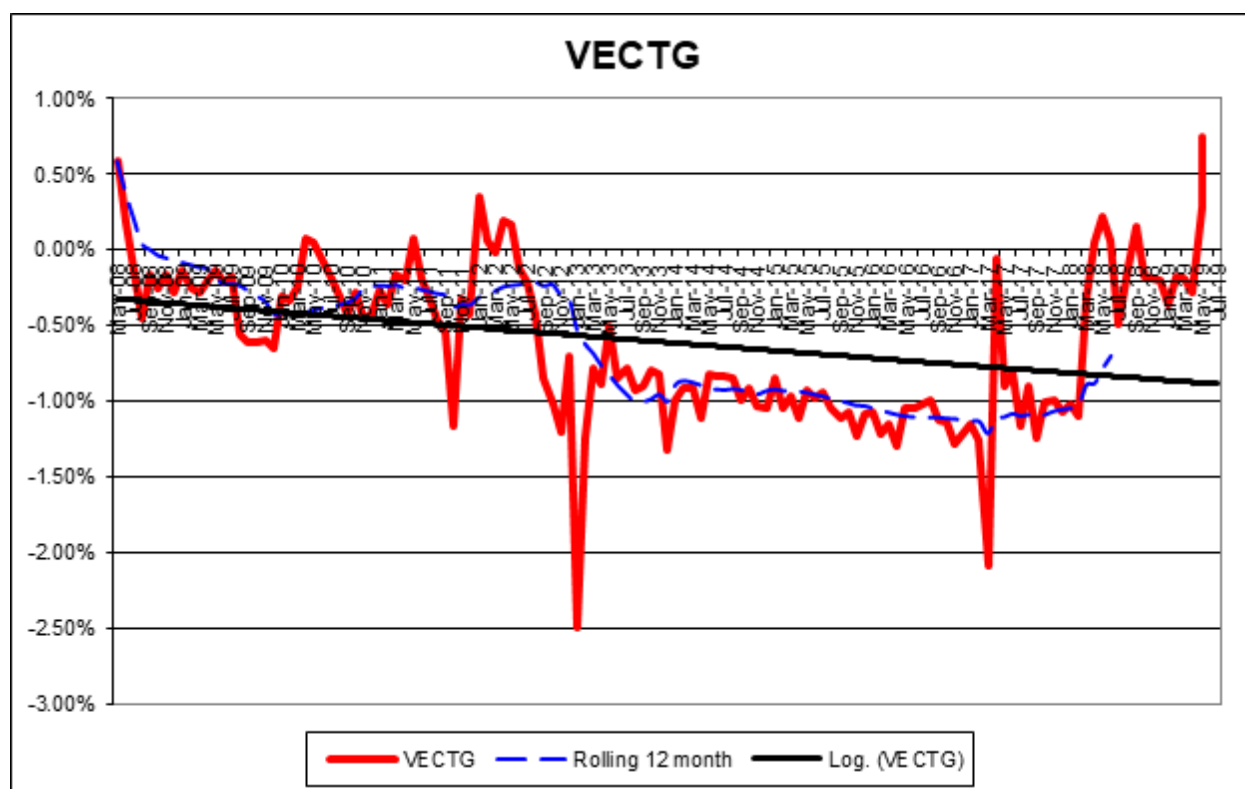
Audit observation

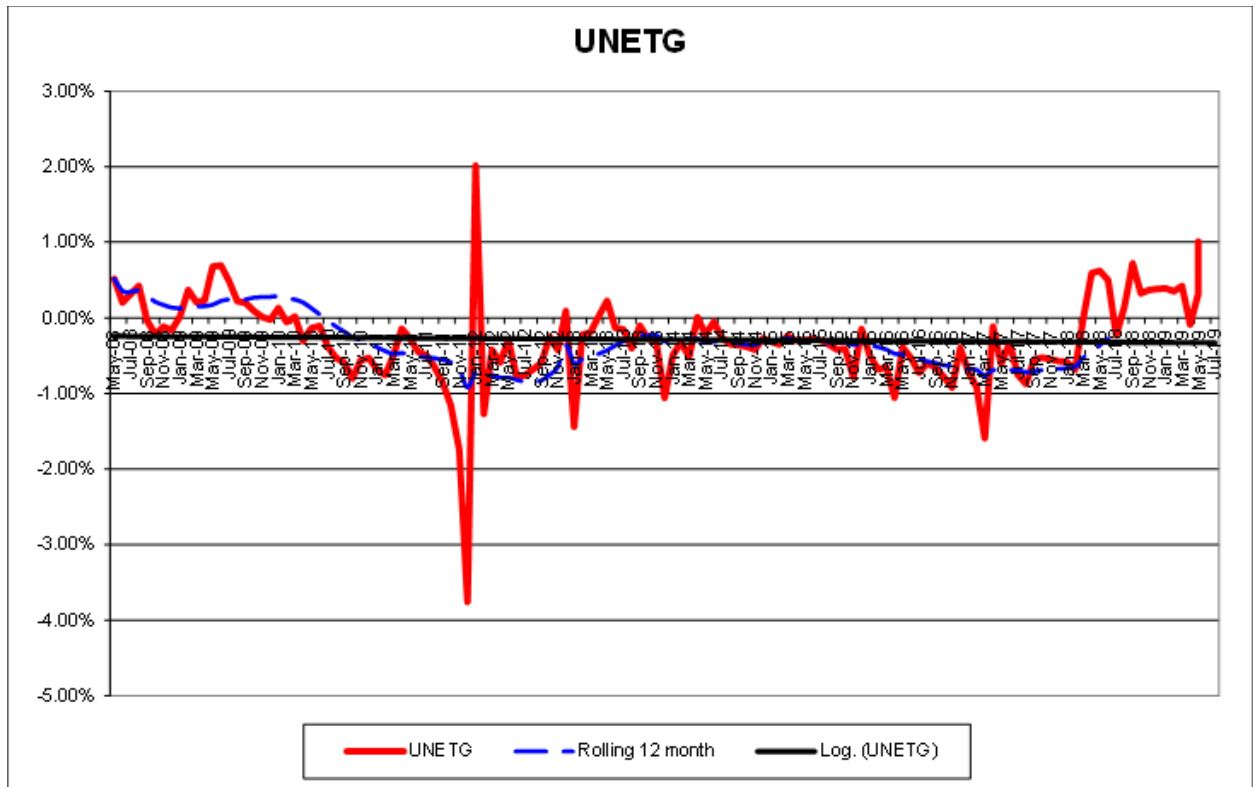
The “Guidelines on the calculation and the use of loss factors for reconciliation purposes” was published on 26 June 2018. I have assessed EA Networks’ process and compliance against the guideline’s recommended thresholds.

I reviewed the documentation relating to the loss factor review methodology.

Audit commentary

The EA provided the following UFE graphs for the VECT and UNET networks:





Both are within the +/- 1% threshold. I note that the VECT loss factors are tracking down towards the -1% but the reconciliation losses (in red) indicate that this is expected to trend back towards zero as the revised loss factor changes flow through.

Vector have a loss factor methodology in place and loss factors are reviewed in October each year.

I have recommended in **section 3.15**, that the consumption loss factor for the one ICP (0001442868UN4DC) with the unique loss factor of "RLDV" applied be reviewed to ensure that the consumption loss factor is accurate. Prior to the embedded generation for this site being recorded on the registry the consumption loss factor was 1.0208 (VECW4) but the consumption loss factor for the RLDV loss factor code is 1.

Audit outcome

Compliant

CONCLUSION

This audit found 15 non-compliances and makes nine recommendations. Whilst there is an increase in the number of non-compliances found in this audit, I note that all but three have a low audit risk rating and the controls in all but four instances are rated as either moderate or strong.

Vector have made improvements to their discrepancy reporting during the audit period. I have recommended that the audit compliance report be used to assist in the identification of potential discrepancies. This audit identified a number of opportunities to improve the accuracy and timeliness of information being populated to the registry which improve overall compliance. Resource constraints can at times hinder Vector's ability to correct errors in a timely fashion.

Vector are reviewing the initial electrical connection date capture and the decommissioning processes as they recognise that the trader's involvement in these processes is not producing the desired outcome. This is discussed further in **sections 3.5 and 4.11**.

The area of unmetered load was examined and identified that:

- this is not captured well for new connections;
- a high number of errors for the sample checked due to the incorrect selection of unmetered load type when the unmetered load was identified;
- the recommended format is not used making it difficult for traders to confirm the correct load; and
- that there may be some historical distributed unmetered load that has more than one NSP associated with the items of load.

I recommend that the Electricity Authority's recommended format is adopted and that unmetered load details are captured at the time of the new connection application.

Vector have continued to make good progress in reducing the volume of ICPs with addresses that are not readily locatable.

The issue of mismatched ICPs between Gentrack and the registry identified in the last audit has been resolved. A new report has been created to identify potentially mis-mapped ICPs and this is reviewed as part of BAU. The audit compliance report has identified more potentially mis-mapped ICPs. Vector intend to use this report to ensure that ICPs are correctly mapped.

I thank Justine and the team for their assistance during the audit.

The indicative audit frequency table indicates the next audit should be in three months. I have considered this in conjunction with Vector's responses and recommend that the next audit be in nine months.

PARTICIPANT RESPONSE

Vector thank Rebecca for her assistance with the audit and recommendations provided. We are committed to improving our processes and reducing the timeframe taken to complete updates.

We believe the proposed change to the warranted persons process will have a good impact on the initial electrical connection date issues and remove several the noted non-compliances.

The addition of the new audit compliance report now available in the registry will make identification of problem areas easier to fix on a regular basis.

While we understand the current risk rating indicates a need for a further audit in 3 months, Vector would appreciate consideration being given for the corrections that have already been implemented and timeframe to implement further preventative actions noted.