ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

For

GREY DISTRICT COUNCIL AND PIONEER ENERGY

Prepared by: Ewa Glowacka

Date audit commenced: 15 May 2019

Date audit report completed: 30 May 2019

Audit report due date: 01-Jun-19

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EXECUTIVE SUMMARY

This distributed unmetered load (DUML) audit was performed at the request of Pioneer Energy (PION) in accordance with clauses 11 of Schedule 15.3 and 15.37B of The Code 2010. The relevant clauses audited are as required by the Distributed unmetered load audit guidelines V 1.1 issued by the Electricity Authority. The purpose of the audit is to verify that the submission volumes submitted by Pioneer Energy are calculated correctly and profiles have been correctly applied.

Pioneer Energy gained DUML ICPs on 01/02/2019. The field audit of the database was conducted on 15 & 16 May 2019.

Distributed Unmetered Load Statistical Sampling Audit Guidelines, published 1/02/19, recommends a sample size of at least N=20 area, though N=15 was nearly sufficient. The area of interest has been divided into three strata: commercial, residential, and small towns. We physically surveyed 18 area units, which we regard as a good representation of street light population on the GDC network. Overall we surveyed 323 lights, which represents nearly 21% of all streetlights in the area. The majority of lights surveyed were allocated to the residential strata which reflects the social network configuration.

The data in the ARC GIS database changes almost every day because of the rollout of LEDs. Since the last audit the percentage of LED lights increased from 40% to 85%. The street light load dropped from 144 kW to 62 kW. Overall the level of compliance is good and ElectroNet manages the database well. The exception is that the pole number recorded in the database did not corresponded with the number in the field for about 40% lights.

There are a number of non-compliances which need to be addressed. Some of them were already identified in the last audit.

This audit found 7 non-compliances and one recommendation. Non-compliances relate to the accuracy of volume information because the incorrect value of the total load is used for calculation.

The date of the next audit is determined by the Electricity Authority and is dependent on the level of compliance during this audit. Table 1 of the Guidelines for Reconciliation Participant audit provides some guidance on this matter. The Future Risk Rating score is 14 which results in an indicative audit frequency of 12 months. We agree with the result.

We thank Pioneer Energy and ElectroNet staff for their full and complete cooperation in this audit. Their response to any request for information or clarification was answered in a timely manner and each time in depth, supporting evidence was provided.

AUDIT SUMMARY

NON-COMPLIANCES

Subject	Section	Clause	Non Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Deriving submission information	2.1	11(1) of Schedule 15.3	Some incorrect values recorded in the DUML load used for reconciliation	Moderate	Low	2	Identified
ICP identifier and items of load	2.2	11(2)(aa) of Schedule 15.3	39 lights did not have ICP identifier assigned	Moderate	Low	2	Identified
Location of each item of the load	2.3	11(2)(b) of Schedule 15.3	Location description of each lights is not reliable, discrepancies between a pole number in the field and in the database; only GPS coordinates give accurate location	Moderate	Low	2	Identified
Description and capacity of load	2.4	11(2)(c)(d) of Schedule 15.3	5 items of load have unknown or blank lamp model, and/or blank lamp wattage	Moderate	Low	2	Identified
All load recorded in database	2.5	11(2A) of Schedule 15.3	4 lamps were not recorded in the database. Festive lights are not recorded.	Moderate	Low	2	Identified
Database accuracy	3.1	15.2 and 15.37B(b)	Some information in the ARC GIS is incorrect or missing.	Moderate	Low	2	Identified
Volume information accuracy	0	15.2	Volumes submitted are not accurate because of some inaccurate information in the database	Moderate	Low	2	Identified
Future Risk Rating						14	

Future risk rating	0	1-4	5-8	9-15	16-18	19+
Indicative audit frequency	36 months	24 months	18 months	12months	6 months	3 months

RECOMMENDATIONS

Subject	Section	Description	Recommendation
			Nil

ISSUES

Subject	Section	Description	Issue
			Nil

1. ADMINISTRATIVE

1.1. Exemptions from Obligations to comply with Code

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.

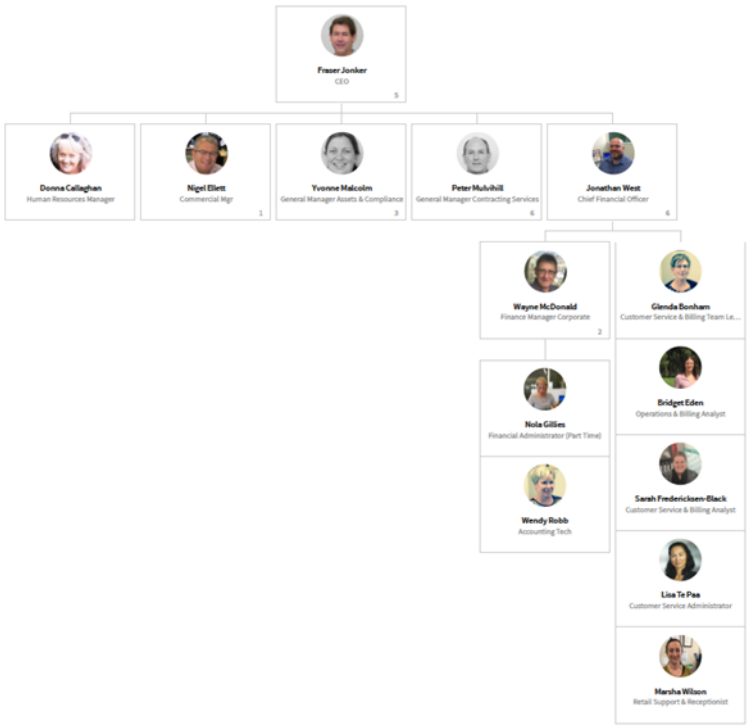
Audit observation

Pioneer Energy does not have any exemptions granted to exempt them from compliance with all or any of the clauses.

Audit commentary

There are no exemptions in place relevant to the scope of this audit.

1.2. Structure of Organisation



1.3. Persons involved in this audit

Name	Title	Company
Cary Lancaster	GIS Administrator	ElectroNet
Terry Hughes	Network Manger - Lines	ElectroNet
Daniella Sollitt	Asset System Cadet	ElectroNet
Sarah Fredericksen-Black	Customer service & Business Analyst	Pioneer Energy
Bridget Eden	Customer service & Business Analyst	Pioneer Energy
Ewa Glowacka	Electricity Authority Approved Auditor	TEG & Associates

1.4. Hardware and Software

The Arc GIS SQL database is used for the management of Grey District Council DUML . The Database is managed by ElectroNet.

1.5. Breaches or Breach Allegations

No breach or breach allegations were noted in relation to the scope of this audit.

1.6. ICP Data

The table below shows the number of streetlights and wattage as of 13th May 2019.

ICP	Description	NSP	Profile	Number of items of load	Database wattage [W]
0000950020WPB1C	GDC GYM0661 SL AC	GYM0661	DST	182	5,141
0000950040WP4EC	GDC GYM0661 SL AC	GYM0661	DST	938	41,909
0000950090WP9AE	GDC DOB0331 SL AC	DOB0331	DST	372	12,493
0000950091WP5EB	GDC KUM0331 SL AC	KUM0661	DST	21	1,325
0000950092WP92B	GDC RFN1102 SL AC	RFN1102	DST	4	200
			Total	1,517	61,068

1.7. Authorisation Received

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

1.8. Scope of Audit

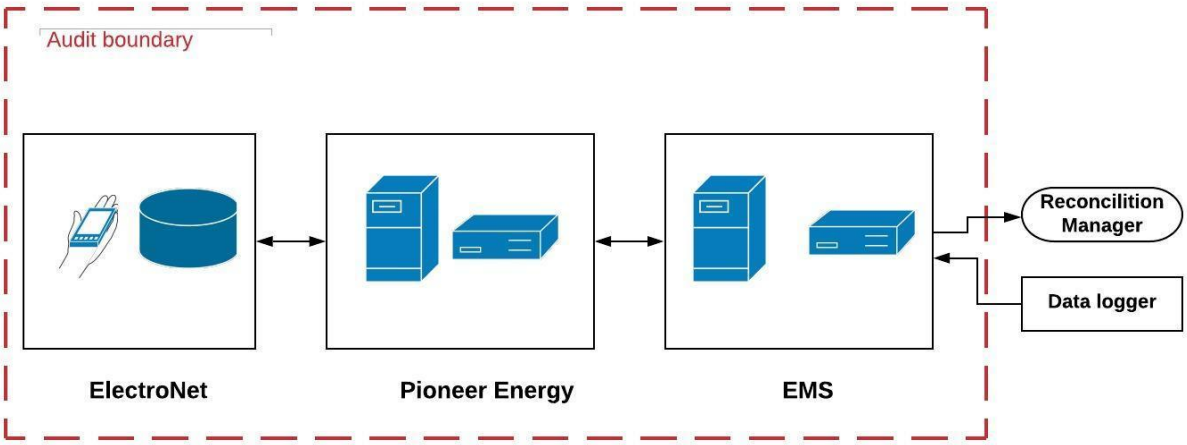
This reconciliation participant audit was performed at the request of Pioneer Energy to encompass the Authority's request in accordance with clauses 11 of Schedule 15.3 and 15.37B of The Code 2010 to assure compliance with the Electricity Industry Participation Code 2010.

The physical audit was carried out in Greymouth, on 15&16 May 2019.

The scope of the audit was to assess if the database contains, at a minimum, the following information:

(a) each ICP identifier for which the retailer is responsible, and to which distributed unmetered load is electrically connected; and
(aa) the item or items of distributed unmetered load associated with each ICP identifier; and
(b) the location of each item; and
(c) a description of load type for each item, including any assumptions made in the assessment of its capacity; and
(d) the capacity of each item in watts.

The diagram below shows the flow of information and the audit boundary



1.9. Summary of previous audit

The previous audit of these streetlights was conducted on 14/05/2018 for Genesis Energy. The following non-compliances were identified.

Subject	Section	Clause	Non Compliance	Comments
Deriving submission information	2.1	11(1) of Schedule 15.3	The database used to prepare submissions contains some inaccurate information. March 2018 initial submissions for ICPs 0000950040WP4EC, 0000950090WP9AE and 0000950020WPB1C were based on the daily average burn hours for February 2018, resulting in under submission of 3,169 kWh. ICPs 0000950091WP5EB and 0000950092WP92B became active effective from 01/02/2018 on 11/04/2018. No consumption was reported for the February and March 2018 initial submissions	Still exists
Description and capacity of load	2.4	11(2)(c) of Schedule 15.3	Nine items of load have unknown or blank lamp model, and/or blank lamp wattage	Still exists
All load	2.5	11(2A) of	One lamp was not recorded in the	Still exists

recorded in database		Schedule 15.3	database. Festive lights are not recorded in the database.	
Volume information accuracy	0	15.2 and 15.37 B(b)	The database used to prepare submissions contains some inaccurate information.	Still exists

1.10. Distributed unmetered load audits (Clause 16A.26 and 17.295F)

Code reference

Clause 16A.26 and 17.295F

Code related audit information

Retailers must ensure that DUML database audits are completed:

1. *by 1 June 2018 (for DUML that existed prior to 1 June 2017)*
2. *within 3 months of submission to the reconciliation manager (for new DUML)*
3. *within the timeframe specified by the Authority for DUML that has been audited since 1 June 2017.*

Audit observation

The physical audit was conducted in May'18 on request of Pioneer Energy by Veritek.

Audit commentary

This audit report confirms that the requirement to conduct an audit of this database has been met within the required timeframe.

2. DUML DATABASE REQUIREMENTS

2.1. Deriving submission information (Clause 11(1) of Schedule 15.3)

Code reference

Clause 11(1) of Schedule 15.3

Code related audit information

The retailer must ensure the:

- *DUML database is up to date*
- *methodology for deriving submission information complies with Schedule 15.5.*

Audit observation

The process of volume calculations by Pioneer Energy was examined.

Audit commentary

At the time of audit Pioneer Energy traded 5 ICPs of streetlights located on the Westpower network. The ICPs switched on 01/02/19.

Volume submissions for streetlights are calculated and submitted by EMS on behalf of Pioneer Energy. Pioneer provided a copy of submission files for the last three months.

We recalculated the submissions for Feb'18 to Aprl'18 using data provided by ElectroNet and data logger information read by EMS. We confirm that the methodology is correct. More details **section 3.2.**

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: 11(1) of Schedule 11.3 From: 01-Feb-19 To: 30-Apr-19	Some incorrect values recorded in the DUML load used for reconciliation Potential impact: Low Actual impact: Low Audit history: Once previously Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are recorded as moderate. They are sufficient to ensure submission information is correct most of the time. There is minor impact on settlement outcomes based on kWh differences described in the report therefore audit risk rating is recorded as low.

Actions taken to resolve the issue	Completion date	Remedial action status
ElectroNet advised to update database. As at 30/05/19 all lights now have an ICP identifier assigned.		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

Work closely with ElectroNet to ensure an ongoing accurate database is maintained		

2.2. ICP identifier and items of load (Clause 11(2)(a) and (aa) of Schedule 15.3)

Code reference

Clause 11(2)(a) and (aa) of Schedule 15.3

Code related audit information

The DUML database must contain:

- *each ICP identifier for which the retailer is responsible for the DUML*
- *the items of load associated with the ICP identifier.*

Audit observation

The GIS Arc database was examined.

Audit commentary

At the time of audit we identified 39 lights which did not have ICP numbers assigned to them . The total load of these ICPs was 1,328 W. All lights are LEDs of 22 W and 58 W. They are located in different areas of Grey District Council. This will be discussed further in **section 3.2**.

By the time this audit report was finalised, ElectroNet assigned ICPs to all lights. ElectroNet provided copy of updated database. Pioneer Energy need to submit washup files.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.2 With: 11(2)(aa) of Schedule 15.3 From: 01-Feb-19 To: 30-Apr-19	39 lights did not have ICP identifier assigned Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are recorded as moderate. There is a need to implement detective type controls. There is minor impact on settlement outcomes based on kWh differences described in the report therefore audit risk rating is recorded as low.

Actions taken to resolve the issue	Completion date	Remedial action status
ElectroNet advised to update database. As at 30/05/19 all lights now have an ICP identifier assigned. Pioneer will submit washup for the volume.		Identified

Preventative actions taken to ensure no further issues will occur	Completion date	
Work closely with ElectroNet to ensure an ongoing accurate database is maintained		

2.3. Location of each item of load (Clause 11(2)(b) of Schedule 15.3)

Code reference

Clause 11(2)(b) of Schedule 15.3

Code related audit information

The DUML database must contain the location of each DUML item.

Audit observation

The GIS Arc database was examined to asses compliance.

Audit commentary

The database was reviewed, and we found some anomalies. All lights have GPS coordinates assigned.

Information stored in the field addresses are not reliable. Some of the same addresses are assigned to a number of ICPs. Each light, with the exception of 21, has a pole number assigned, which is printed on the newly installed LED lights. The list is shown below:

number	location	ICP	light type	zone	wattage	X	Y
Camera Battery	Council Flats McGowan Street	0000950090WP-9AE	LED	Runanga	22	1456085	5304095
Missing Number	Jade Centre	0000950040WP-4EC	LED	Greymouth	58	1452864	5298747
Missing Tag	72 Arney Street	0000950040WP-4EC	LED	Greymouth	58	1452166	5298584
Missing Tag	Dixon Park Garden	0000950040WP-4EC	LED	Greymouth	40	1452438	5297935
Missing Tag	1 Pamela Terrace	0000950020WP-B1C	LED	Paroa	58	1449621	5291893
Missing Tag	23 Mackay Street	0000950040WP-4EC	LED	Greymouth	58	1452662	5298857
Missing Tag	18 Turamaha Street	0000950040WP-4EC	50 SON I	Greymouth	61	1452676	5298334
Missing Tag	6 Pamel Terrace	0000950020WP-B1C	LED	Paroa	58	1449633	5291929
Missing Tag		0000950020WP-B1C	LED	Paroa	22	1450063	5292853
Missing Tag	McKay St Paper Plus	0000950040WP-4EC	LED	Greymouth	58	1452818	5298847
Missing Tag	Tainui Street War Memiorial	0000950040WP-4EC	LED	Greymouth	10	1452550	5297931
Missing Tag	Boundary Street Roundabout, Westland Engineering	0000950040WP-4EC	LED	Greymouth	58	1452602	5298884
Missing Tag	CNR Rutherglen Road & Gilbert Rd	0000950020WP-B1C	LED	Paroa	22	1449611	5291595
Missing Tag	Karoro Beach Estate Sign	0000950040WP-4EC	70 SON	Karoro	83	1450855	5295735
Missing Tag	McGowan Street Runanga Oposite School	0000950090WP-9AE	LED	Runanga	22	1456091	5304423
Missing Tag	Nelson Creek Road	0000950090WP-9AE	40W FLURO	Nelson Creek	50	1477669	5304444
Missing Tag	596 Nelson Creek Road	0000950090WP-9AE	70 SON	Nelson Creek	83	1477937	5304301
Needs Number	Dommett Esplanade and Munro St Cnr	0000950040W	LED	Cobden	22	14526	53005

		P-4EC				04	93
Needs Number	5 Dowling Road	0000950020WP-B1C	LED	Paroa	22	1449691	5291853
Needs to be renumbered (Duplicate)	88 Murray Street	0000950040WP-4EC	LED	Greymouth	22	1452776	5298078
New Number Needed	Cromarty Street	0000950090WP-9AE	LED	Runanga	22	1456498	5304780
na	Marsden Heights Sign Illumination	0000950040WP-4EC	UNKNOWN	Greymouth	40	1452705	5296380
	Ridgeway Drive, Sign Illumination	0000950040WP-4EC	UNKNOWN	Greymouth	40	1452732	5296372
	Shantytown, Rutherglen Rd, Greymouth	0000606334WPB76		Paroa		1450672	5289740
	Dixon Park Garden	0000950020WP-B1C	LED	Greymouth	168	1452438	5297937
	Boundary Street Smiths City Crossing	0000950040WP-4EC	LED	Greymouth	58	1452562	5298826
	Library	0000950040WP-4EC	LED	Greymouth	58	1452763	5298846
	Dixon Park Garden	0000950020WP-B1C	LED	Greymouth	40	1452437	5297935
	6 Gilbert Road	0000950020WP-B1C	LED	Paroa	22	1449637	5291594

During the field audit of 323 lights, we observed that for 40% of them the pole number recorded in the database did not corresponded with the number in the field. Newly installed LED lights have clearly printed the lamp wattage and pole number. It is very useful for auditing purposes as long as this information is transferred to the database. It came to light during the audit that for some lights the new tag number was not transferred to the database. It was disused with ElectroNet and they are investigating the issue.

According to ElectroNet the most reliable information for each light location are GPS coordinates.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.3 With: 11(2)(b) of Schedule 15.3 From: 01-Feb-19 To: 30-Apr-19	Location description of each light is not reliable, discrepancies between a pole number in the field and in the database; only GPS coordinates give accurate location Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are recorded as moderate. There is a need to implement detective type controls. There is minor impact on settlement outcomes based on kWh differences described in the report therefore audit risk rating is recorded as low.

Actions taken to resolve the issue	Completion date	Remedial action status
Pioneer to follow up on ElectroNet investigations regarding database accuracy of field addresses		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Work closely with ElectroNet to ensure an ongoing accurate database is maintained		

2.4. Description and capacity of load (Clause 11(2)(c) and (d) of Schedule 15.3)

Code reference

Clause 11(2)(c) and (d) of Schedule 15.3

Code related audit information

The DUML database must contain:

- *a description of load type for each item of load and any assumptions regarding the capacity*
- *the capacity of each item in watts.*

Audit observation

The GIS Arc database was examined to asses compliance.

Audit commentary

The review of the database covered "light type" and "wattage" fields. We found the following lights for which no light type and/or wattage, were populated.

number	location	ICP	light type	zone	wattage	X	Y
	Ridgeway Drive, Sign Illumination	0000950040WP-4EC	UNKNOWN	Greymouth	40	1452732	5296372
	Shantytown, Rutherglen Rd, Greymouth	0000606334WPB76		Paroa		1450672	5289740
00301	Back of ASB Bank Greymouth	0000950040WP-4EC				1452737	5298817
01305	7 Rutherglen Road	0000950020WP-B1C		Paroa	145	1449542	5291692
na	Marsden Heights Sign Illumination	0000950040WP-4EC	UNKNOWN	Greymouth	40	1452705	5296380

The last audit identified 9 items of load with light type, description and/or wattage information missing. We checked all items in the database and confirm that for 5 of those items information was updated.

Audit outcome

Non-compliant

Non-compliance	Description

Audit Ref: 2.4 With: 11(2)(c)(d) of Schedule 15.3 From: 01-Feb-19 To: 30-Apr-19	5 items of load have unknown or blank lamp model, and/or blank lamp wattage Potential impact: Low Actual impact: Low Audit history: Twice previously Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are recorded as moderate. There is a need to implement detective type controls. There is minor impact on settlement outcomes based on kWh differences described in the report therefore audit risk rating is recorded as low.

Actions taken to resolve the issue	**Completion date**	**Remedial action status**
Pioneer to follow up on ElectroNet investigations regarding database accuracy		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Work closely with ElectroNet to ensure an ongoing accurate database is maintained		

2.5. All load recorded in database (Clause 11(2A) of Schedule 15.3)

Code reference

Clause 11(2A) of Schedule 15.3

Code related audit information

The retailer must ensure that each item of DUML for which it is responsible is recorded in this database.

Audit observation

We conducted a field audit of a statistical sample of 323 items of load. The audit was conducted on 15 & 16 May'19.

Audit commentary

The field audit findings are shown below:

Address	Database count	Lights found	Difference	Wattage found	Wattage record in dbase [W]	Difference [W]
Domain Terrace	9	9	0	198	198	0
Tasman St	26	26	0	826	821	5
Cowper St	17	18	1	540	579	-39
Water walk	24	25	1	771	677	94
Turumaha	12	12	0	829	603	226

Herbert St	12	12	0	696	806	-110
Taunui Street (CBD)	15	15	0	678	678	0
Shakespeare St	31	31	0	2174	2098	76
Alexander St	19	19	0	744	744	0
Marlborough Street	16	17	1	557	474	83
Ridgeway	8	8	0	621	621	0
Nelson Quay	13	13	0	286	286	0
Ward St	23	23	0	516	547	-31
Boddytown	20	20	0	405	400	5
Dobson	24	24	0	581	589	-8
Kaiata	32	33	1	856	834	22
Korua	10	10	0	220	220	0
Koe	12	12	0	264	264	0
Total	323	327	4	11712	11389	323

The physical audit found 4 lamps more in the field than was recorded in the database.

Festive lights are used but not recorded in the database. It was identified as non-compliance in the last audit.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.5 With: 11(2A) of Schedule 11.3 From: 01-Feb-19 To: 30-Apr-19	4 lamps were not recorded in the database. Festive lights are not recorded. Potential impact: Low Actual impact: Low Audit history: Twice previously Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are recorded as moderate. There is a need to implement detective type controls. There is minor impact on settlement outcomes based on kWh differences and lack of reconciliation of festive lights, which are used only in Christmas time. Audit risk rating is recorded as low.

Actions taken to resolve the issue	Completion date	Remedial action status
Pioneer to follow up with ElectroNet regarding adding festive lights to the database		Identified

Preventative actions taken to ensure no further issues will occur	Completion date	
Work closely with ElectroNet to ensure an ongoing accurate database is maintained		

2.6. Tracking of load changes (Clause 11(3) of Schedule 15.3)

Code reference

Clause 11(3) of Schedule 15.3

Code related audit information

The DUML database must track additions and removals in a manner that allows the total load (in kW) to be retrospectively derived for any given day.

Audit observation

The database was examined to asses if tracking of changes is compliant.

Audit commentary

The installation of new lights and maintenance of existing lights is undertaken by ElectroNet. ElectroNet also maintain the ARC GIS database on behalf of Westpower. On a monthly basis load data is provided to Pioneer Energy. The information in the database allows them to calculate, retrospectively, the total load in kW for any day. On 20/9/12, the Authority sent a memo to traders advising that tracking of load changes at a daily level was not required if the database contained an audit trail.

Any changes to the lights during the months are recorded by ElectroNet staff in the field every few days and uploaded to a holding database. ElectroNet staff thoroughly validates data and, when accepted, posts it to the database.

The validation process consist of:

- an automatic comparison between the original data in the device and the current data in the GIS, to determine whether changes to the main database have occurred since the device was last synchronised; if changes have occurred, an exception is created for manual investigation
- a manual check of the changed data to confirm it is correct and reasonable.

New subdivisions are rare on the Westpower network. Festive lights are used but not recorded in the database. Any new connections are managed using the Maximo system. It is a well manged process audited during the distributor audit.

Audit outcome

Compliant

2.7. Audit trail (Clause 11(4) of Schedule 15.3)

Code reference

Clause 11(4) of Schedule 15.3

Code related audit information

The DUML database must incorporate an audit trail of all additions and changes that identify:

- *the before and after values for changes*
- *the date and time of the change or addition*

- *the person who made the addition or change to the database*

Audit observation

The database was examined to assess if the audit trail is compliant.

Audit commentary

During the audit ElectroNet demonstrated a complete audit trail of all additions and changes to the database information. Since the last audit, ElectroNet has undertaken a large scale LED rollout. As of mid-May'19, 85.3% of lights Installed on the GDC network are LEDs.

ElectroNet staff take an electronic copy of the Arc GIS database into the field on a device, and modify, add and delete lights as LED lights replace existing ones. Devices used in the field are synchronised with the main database.
As described in **section 2.6**, office staff post and reconcile the data.

Audit outcome

Compliant

3. ACCURACY OF DUML DATABASE

3.1. Database accuracy (Clause 15.2 and 15.37B(b))

Code reference

Clause 15.2 and 15.37B(b)

Code related audit information

Audit must verify that the information recorded in the retailer's DUML database is complete and accurate.

Audit observation

Distributed Unmetered Load Statistical Sampling Audit Guidelines, published 1/02/19, were used to determine the database accuracy. We selected three types of stratum; commercial, residential and small town.

Strata	Area units	Number of lights
Commercial	3	49
Residential	15	219
Small town	2	57

The wattage of all items were checked against the manufacturer's specification (LED) and the published standardised wattage table published by the Authority.

Audit commentary

We identified the following inaccuracies in the Arc GIS database:

- The field audit found 4 lamps which were not recorded in the database.
- The total wattage recorded in the database of surveyed streetlights was 11,712 W. The total wattage in the field was 11,897 W. The difference was 135 W. It will result in an over-submission of 576.6 kWh (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool)
- The wattage of all items was checked against the manufacture's specification (LED) and the published standardised wattage table published by the Authority. We found it correct. The database does not allow to see the separate fields of the lamp and ballast wattage fields, we can only see the total wattage. It still allows us to assess if correct values were used.
- We identified 39 ICPs which do not have ICP identifiers assigned (**section 2.2**). . The total load of these ICPs was 1,328 W, which translates to an under-submission of 5,671 kWh per annum (based on annual burn hours of 4,271, as detailed in the DUML database auditing tool).
- We identified 5 items of load with light type, description and/or wattage information missing (**section 2.4**).
- We found one light with light type 160MBFU, for which usage is recorded as 180W, but the expected wattage is 175W. It will result in an over-submission of 21.35 kWh per annum. It was calculated on annual burn hours of 4,271 as detailed in the DUML database auditing tool.

According to the DUML_database_auditing_tool_v01_04 provided by the Authority the point estimated of R is 102.1%. "In absolute terms, total annual consumption is estimated to be 5.6 MWh higher than the DUML database indicates"

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: 15.2 and 15.37B(b) From: 01-Feb-19 To: 30-Apr-19	The ARC GIS contains some incorrect information and some information is missing. Potential impact: Low Actual impact: Low Audit history: Once previously Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are recorded as moderate. There is a need to implement detective type controls. There is minor impact on settlement outcomes based on kWh differences described in the report therefore audit risk rating is recorded as low.

Actions taken to resolve the issue	Completion date	Remedial action status
Pioneer to follow up on ElectroNet investigations regarding database accuracy		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Work closely with ElectroNet to ensure an ongoing accurate database is maintained		

3.2. Volume information accuracy (Clause 15.2 and 15.37B(c))

Code reference

Clause 15.2 and 15.37B(c)

Code related audit information

The audit must verify that:

- *volume information for the DUML is being calculated accurately*
- *profiles for DUML have been correctly applied.*

Audit observation

Volume information for the DUML is calculated and submitted by EMS. The process was examined.

Audit commentary

The process of volume submissions consists of the following steps.

- ElectroNet provides a snapshot of the database to Pioneer Energy at the end of each month
- Load information (W) per ICPs are passed to EMS

- EMS reads a logger and create a profile, which is submitted to the RM
- EMS creates NNHVOLS for the DUML ICPs; DST profile is used as per the registry record

We stepped through calculation for Feb to Mar'19 and found them correct.

ICP	GXP	Feb	Mar	April	Feb	Mar	April
		kW	kW	kW	kWh	kWh	kWh
0000950020WPB1C	GYM0661	8.9535	8.9835	5.43			
0000950040WP4EC	GYM0661	70.4791	70.357	45.852	4796.96	6964.77	7115.0
0000950090WP9AE	DOB0331	18.981	18.981	15.082	1136.24	1652.3	1689.9
0000950091WP5EB	KUM0661	1.409	1.409	1.325	84.28	122.76	125.1
0000950092WP92B	RFN1102	0.2	0.2	0.2	12.04	17.36	17.7
No icp		0.584	0.584	0.774	0	0	0

As it was described in **section 3.1** because of anomalies in the database some small volumes are not reconciled. The table above shows that volumes for "no icps" lights volumes are not submitted.

There is not much difference between DUML load in Feb and Mar'19. It was discussed with ElectroNet, who commented that the LED rollout ramped up late March, employing to two crew most of April.

It was discussed with ElectroNet and as of 30/05/19, all lights have ICP identifier assigned.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: 15.2 From: 01-Feb-19 To: 30-Apr-19	Volumes submitted are not accurate because of some inaccurate information in the database Potential impact: Low Actual impact: Low Audit history: Once previously Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate because there are some improvements that can be made to them. There is minor impact on settlement outcomes based on kWh differences described in the report therefore audit risk rating is recorded as low.

Actions taken to resolve the issue	Completion date	Remedial action status
ElectroNet advised to update database. As at 30/05/19 all lights now have an ICP identifier assigned.		Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

Work closely with ElectroNet to ensure an ongoing accurate database is maintained		

CONCLUSION

PARTICIPANT RESPONSE

Nothing further to add.