ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

For

NZTA ELECTRONET AREA AND TRUSTPOWER LIMITED

Prepared by: Rebecca Elliot

Date audit commenced: 25 March 2019

Date audit report completed: 14 May 2019

Audit report due date: 1 June 2019

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EXECUTIVE SUMMARY

This audit of the NZTA ElectroNet area (NZTA) DUML database and processes was conducted at the request of Trustpower Limited (Trustpower) in accordance with clause 15.37B. The purpose of this audit is to verify that the volume information is being calculated accurately, and that profiles have been correctly applied.

The audit was conducted in accordance with the audit guidelines for DUML audits version 1.1.

The ICPs associated with the NZTA load were previously included in the Westland District Council audit, but as these are two different customers this audit has been undertaken separately for the NZTA streetlights on the ElectroNet network.

The Arc GIS database used for submission is managed by ElectroNet, on behalf of Westpower. New connection, fault, and maintenance work is completed by ElectroNet, who update the GIS in the field using Arc GIS collector. ElectroNet provide a monthly report from the database to Trustpower.

The data for the NZTA lights has been provided by NZTA to ElectroNet and this has been uploaded to Arc GIS. No validation has been carried out on this data by ElectroNet. The field audit found a high level of inaccuracy and the database does not fall within the allowable +/-5% variance. I recommend that a full field audit of the NZTA lights is undertaken to correct this.

This audit found five non-compliances and makes two recommendations. The future risk rating of 38 indicates that the next audit be completed in three months. I have considered this in conjunction with Trustpower's comments and I recommend that the next audit be in six months to allow sufficient time for a field audit to correct the database.

The matters raised are detailed below:

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	The database used to prepare submissions contains some inaccurate information. The field data was 92.2% of the database data for the sample checked. This will result in potential over submission of 51,300 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool). 26 items of load with the incorrect wattage recorded. Three items of load with zero or no wattage recorded.	Weak	High	9	Investigating
Description and capacity of load	2.4	11(2)(c) and (d) of Schedule 15.3	Three items of load have missing capacity and/or wattage information.	Weak	Low	2	Investigating
All load recorded in database	2.5	11(2A) of Schedule 15.3	Six additional lights found in the field.	Weak	High	9	Investigating

Subject	Section	Clause	Non- Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Database accuracy	3.1	15.2 and 15.37B(b)	The database used to prepare submissions contains some inaccurate information. The field data was 92.2% of the database data for the sample checked. This will result in potential over submission of 51,300 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool). 26 items of load with the incorrect wattage recorded. Three items of load with zero or no wattage recorded.	Weak	High	9	Investigating
Volume information accuracy	3.2	15.2 and 15.37B(c)	The database used to prepare submissions contains some inaccurate information. The field data was 92.2% of the database data for the sample checked. This will result in potential over submission of 51,300 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool). 26 items of load with the incorrect wattage recorded. Three items of load with zero or no wattage recorded.	Weak	High	9	Investigating
Future Risk Rating						38	

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

RECOMMENDATIONS

Subject	Section	Recommendation
Location of each item of load	2.3	Align items of load with a single street with uniform spelling of street names.
Database accuracy	3.1	Recommend a full field audit is undertaken to correctly record the NZTA lights in the ElectroNet area.

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

The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

Audit commentary

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

1.2. Structure of Organisation

Trustpower provided a copy of their organisational structure.

1.3. Persons involved in this audit

Auditor:

Rebecca Elliot

Veritek Limited

Electricity Authority Approved Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Robbie Diederen	Reconciliation Analyst	Trustpower
Barry Harkerss	Commercial Account Manager	Trustpower
Cary Lancaster	GIS Administrator	ElectroNet
Danielle Sollitt	Asset Systems Cadet	ElectroNet

1.4. Hardware and Software

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

The database back up is in accordance with standard industry procedures. Access to the database is restricted using a login and password.

1.5. Breaches or Breach Allegations

There are no breach allegations relevant to the scope of this audit.

1.6. ICP Data

ICP Number	Description	NSP	Profile	Number of items of load	Database wattage (watts)
0000950100WPF4D	NZTA Westcoast	DOB0331	STL	147	35,961
0000950111WP9A5	NZTA Westcoast	GYM0661	STL	231	63,354
0000950112WP565	NZTA Westcoast	HKK0661	STL	196	28,038
0000950113WP920	NZTA Westcoast	KUM0661	STL	44	6,053
0000950114WP4EA	NZTA Westcoast	OTI0111	STL	3	355
0000950115WP8AF	NZTA Westcoast	RFN1101	STL	94	9,870
0000950116WP46F	NZTA Westcoast	RFN1102	STL	52	10,867
			Total	**767**	**154,498**

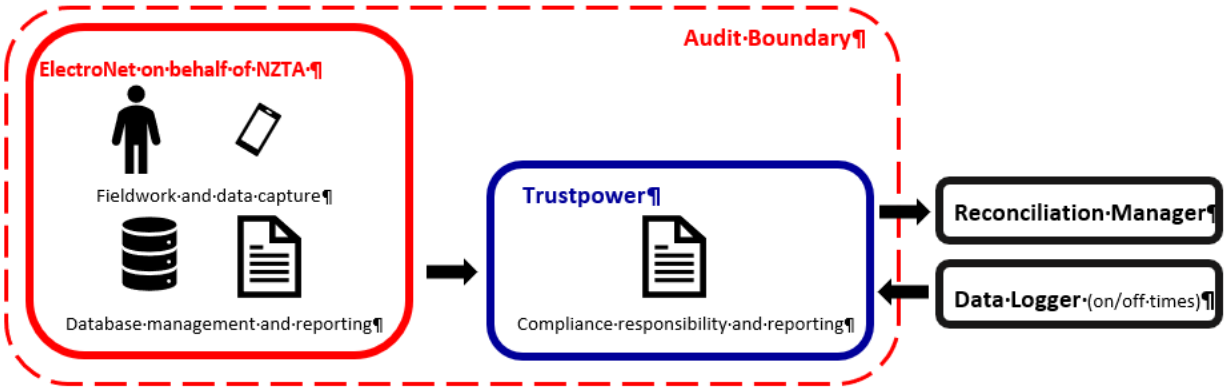
1.7. Authorisation Received

All information was provided directly by Trustpower and ElectroNet.

1.8. Scope of Audit

The Arc GIS database used for submission is managed by ElectroNet, on behalf of Westpower. New connection, fault, and maintenance work is completed by ElectroNet, who update the GIS in the field using Arc GIS collector. ElectroNet provide a monthly report from the database to Trustpower.

The scope of the audit encompasses the collection, security and accuracy of the data, including the preparation of submission information based on the database reporting. The diagram below shows the audit boundary for clarity.



A field audit of a statistical sample of 127 items of load was undertaken on 10-12 April 2019. The sample was selected from three strata:

- North
- South
- Urban.

1.9. Summary of previous audit

The previous audit was completed in May 2018 by Tara Gannon of Veritek Limited. This audit was combined with Westland District Council. Five non-compliances were identified, and no recommendations were made. The current status of the non-compliances in relation to the NZTA lights are detailed below.

Table of Non-Compliance

Subject	Section	Clause	Non-Compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	The database used to prepare submissions contains some inaccurate information.	Still existing
Description and capacity of load	2.4	11(2)(c) and (d) of Schedule 15.3	17 items of load have missing capacity and/or wattage information.	Still existing

Subject	Section	Clause	Non-Compliance	Status
All load recorded in database	2.5	11(2A) of Schedule 15.3	Festive lights are not recorded in the database.	N/A to this audit and is addressed in the Westland DC audit
Database accuracy	3.1	15.2 and 15.37B(b)	The database used to prepare submissions contains some inaccurate information.	Still existing
Volume information accuracy	3.2	15.2 and 15.37B(c)	The database used to prepare submissions contains some inaccurate information.	Still existing

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 three 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

Trustpower have requested Veritek to undertake this streetlight audit.

Audit commentary

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

Audit outcome

Compliant

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 for calculation of consumption was examined.

Audit commentary

Trustpower reconciles this DUML load using the STL profile. The on and off times are derived from data logger information.

I recalculated the submissions for March 2019 for the seven ICPs associated with the NZTA database using the data logger and database information. I confirmed that the calculation method was correct.

There is some inaccurate data within the ElectroNet database used to calculate submissions. This is recorded as non-compliance and discussed in **sections 2.4, 2.5** and **3.1**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: 07-May-18 To: 31-Mar-19	The database used to prepare submissions contains some inaccurate information. The field data was 92.2% of the database data for the sample checked. This will result in potential over submission of 51,300 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool). 26 items of load with the incorrect wattage recorded. Three items of load with zero or no wattage recorded. Potential impact: High Actual impact: High Audit history: Once previously Controls: Weak Breach risk rating: 9
Audit risk rating	**Rationale for audit risk rating**
Medium	Controls are rated as weak as the data used for these lights has not been validated and a high error rate was found in the field audit. The impact is assessed to be high, based on the kWh differences described above.

Actions taken to resolve the issue	Completion date	Remedial action status
To arrange a meeting with NZTA regional Manager to get agreement to pay for a complete field inventory so ElectroNets DB for the NZTA lights can be brought up to standard	30th May	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Once this has been done these errors will be eliminated		

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 database was checked to confirm an ICP is recorded for each item of load.

Audit commentary

All items of load have an ICP number recorded.

Audit outcome

Compliant

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 database was checked to confirm the location is recorded for all items of load.

Audit commentary

All items of load have a GPS location recorded, and most items of load also have a street address recorded. The naming protocol is very fractured, and I recommend that the address fields be reviewed to associate an item of load with a single street rather than the current range of physical address descriptions and street name variances. The GPS co-ordinates provide the detail for the specific location.

Description	Recommendation	Audited party comment	Remedial action
Location of each item of load	Align items of load with a single street with uniform spelling of street names.	By having a field inventory carry out this should sort this problem as well	Investigating

Audit outcome

Compliant

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 database was checked to confirm that it contained a field for lamp type and wattage capacity and included any ballast or gear wattage.

Audit commentary

The database records light type and total wattage, including ballast. The last audit indicated that ElectroNet were planning to split the total wattage into lamp and ballast wattage fields. This has not been progressed.

Three lamps had missing or unknown light type information and/or zero or blank lamp wattage. These were recorded in the previous combined Westland DC audit.

Number	Location	Light Type	Wattage	X	Y
	Main Road, Franz Josef	OTHER		1371592	5193650
Missing Tag	Blank	OTHER		1434031	5269446
Missing Tag	Blank	OTHER		1434003	5269389

This is recorded as non-compliance below. ElectroNet were intending to visit each of these sites to confirm the description and capacity of these items and update the database but this has not been completed during the audit period.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.4 With: Clause 11(2)(c) and (d) of Schedule 15.3 From: 07-May-18 To: 31-Mar-19	Three items of load have missing capacity and/or wattage information. 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	The controls are rated as weak as the data uploaded from RAMM was not verified and the field audit found it has a high level of error. The impact is assessed to be low because only three items of load (0.3%) are affected.

Actions taken to resolve the issue	Completion date	Remedial action status
When the field inventory is completed then anomalies like this are able to be corrected quickly	As soon as agreement is reached from NZTA and ElectroNet can carry out the work	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	

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

A field audit of a statistical sample of 127 items of load was undertaken on 10-12 April 2019. The sample was selected from three strata:

- North
- South
- Urban.

Audit commentary

The field audit discrepancies are detailed in the table below:

Address	Database Count	Field Count	Count differences	Wattage differences	Comments
Coal Creek	4	6	+2		2x extra 250W HPS found in the field
Omotto Road	7	7		7	7x incorrect wattages recorded as 250W HPS in the database but 70W HPS found in the field
SH 6 to Punikaiki	15	17	+2	1	2x extra 250W HPS found in the field 1x incorrect wattage recorded as 50W HPS but 250W HPS found in the field
SH7 Mawheraiti	2	2		2	2x incorrect wattages recorded as 250W HPS in the database but 70W HPS found in the field
SH7 Totara Flat	11	10	-1	10	1x 250W HPS not found in the field 10x incorrect wattages recorded as 250W HPS but 50W HPS found in the field
Main Road Whataroa	13	11	-2		2x 70W HPS not found in the field
Buller Road	7	6	-1		1x 70W HPS not found in the field
Cordon Street	8	8		1	1x incorrect wattage 250W HPS in the field recorded with a total wattage of 280W instead of 278W
Omotto Road	7	7		7	7x incorrect wattages recorded. 5x recorded as 250W HPS in the database but 50W HPS found in the field 2x recorded as 70W HPS in the database but 50W HPS found in the field
Smith Street	13	15	+2		2x extra 250W HPS found in the field

Address	Database Count	Field Count	Count differences	Wattage differences	Comments
GRAND TOTAL	127	129	10	28	

I found six additional lights in the field. This is recorded as non-compliance below.

The accuracy of the database is detailed in **section 3.1**.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.5 With: Clause 11(2A) of Schedule 15.3 From: 07-May-18 To: 01-Apr-19	Six additional lights found in the field. Potential impact: High Actual impact: High Audit history: Once previously Controls: Weak Breach risk rating: 9		
Audit risk rating	**Rationale for audit risk rating**		
High	Controls are rated as weak as the data used for these lights has not been validated and a high error rate was found in the field audit. The impact is high due to the kWh variance indicated in **section 3.1**.		
Actions taken to resolve the issue		**Completion date**	**Remedial action status**
A field inventory would correct all these errors		A field inventory would correct all these errors	Investigating
Preventative actions taken to ensure no further issues will occur		**Completion date**	

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 process for tracking of changes in the database was examined.

Audit commentary

Any changes that are made during any given month take effect from the beginning of that month. The information is available which would allow for the total load in kW to be retrospectively derived for any day. On 20 September 2012, the Authority sent a memo to retailers and auditors advising that tracking of load changes at a daily level was not required if the database contained an audit trail. I have interpreted this to mean that the provision of a copy of the report to Trustpower each month is sufficient to achieve compliance.

The database tracks additions and removals as required by this clause.

There have been no new connections for NZTA in the ElectroNet area but the process to manage these is the same as in place for Westland District Council. New connection, fault, and maintenance work is completed by ElectroNet, who update the GIS in the field using Arc GIS collector. ElectroNet office staff validate the data and post it to the database after the field devices are synchronised to the main database. This process is described further in **section 2.7**.

A process workflow in the Maximo system is used to manage all new connections and includes a step to update GIS information. Maximo tasks are normally allocated to a work group rather than individual, and key tasks are escalated within Maximo if not completed within specified timeframes. Tasks can be reassigned as necessary. Once the installation job is complete, a work task is created for the GIS team to check the Arc GIS database is up to date.

ElectroNet completes periodic outage patrols. When any field work required is completed, the database is updated if necessary.

ElectroNet are not aware of any plans to roll out LED lights for NZTA on the ElectroNet network.

There are no private or festive lights associated with the NZTA lights.

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 checked for audit trails.

Audit commentary

ElectroNet demonstrated a complete audit trail of all additions and changes to the database information.

ElectroNet staff take a copy of the GIS database into the field on a device, and modify, add and delete data as required when tasks are completed. When the device is synchronised, the new records are inserted into the main database.

Staff in the office post and reconcile the data. This process involves:

- 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; and
- a manual check of the changed data to confirm it is correct and reasonable.

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

The DUML Statistical Sampling Guideline was used to determine the database accuracy. The table below shows the survey plan.

Plan Item	Comments
Area of interest	NZTA Westland region
Strata	The database contains the NZTA items of load in Westland area. The processes for the management of all WDC items of load are the same. I created three geographical strata: • North • South • Urban.
Area units	I created a pivot table of the roads based on the strata and I used a random number generator in a spreadsheet to select a total of 21 sub-units or 15% of the database wattage.
Total items of load	127 items of load were checked.

Wattages for all items of load were checked against the published standardised wattage tables produced by the Electricity Authority.

Audit commentary

The field data was 92.2% of the database data for the sample checked. This is not within the required database accuracy of ±5%. The statistical sampling tool reported with 95% confidence the precision of the sample was 75.1%, and the true load in the field will be between 59.3% to 134.4% of the load recorded in the database. The sample variance is indicative of the number of discrepancies found in the field audit of over and under recording of lights. It indicates that the database is likely to be over reporting the total wattage. This is recorded as non-compliance.

The tool indicated that there is potentially 51,300 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool) of over submission. The statistical sampling tool reported with 95% confidence the possible impact will be between 268,600 kWh of over submission and 227,000 per annum of under submission.

ElectroNet have uploaded the data for these lights from the data provided by NZTA from their RAMM database. This appears to have a low level of accuracy based on the field audit findings above. ElectroNet did not check the accuracy of this data when it was received, and I recommend that a full field audit is undertaken to address this.

Description	Recommendation	Audited party comment	Remedial action
Database accuracy	Recommend a full field audit is undertaken to correctly record the NZTA lights in the ElectroNet area.	This will be carried out as soon as agreement is reached with NZTA and ElectroNet can carry it out	Investigating

The database records the total wattage for each item load. Wattages for all items of load were checked against the published standardised wattage tables produced by the Electricity Authority. All were correct with the exception 26 items of load:

- 26 x 250 HPS recorded with a total wattage of 280W but this should be 278W

As detailed in **section 2.4**, there are three items of load recorded in the database have missing capacity and/or wattage information.

This is an improvement on the large volume of lights found in the last audit with incorrect wattages applied. The 29 items of load with incorrect or missing wattages are recorded as non-compliance below.

The last audit detailed items of load with duplicate streetlight numbers and address locations. Each of these has a unique GPS address and are separate items of load. Compliance is confirmed.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 07-May-18 To: 31-Mar-19	The database contains some inaccurate data. The field data was 92.2% of the database data for the sample checked. This will result in potential over submission of 51,300 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool). 26 items of load with the incorrect wattage recorded Three items of load with zero or no wattage recorded. Potential impact: High Actual impact: High Audit history: Once previously Controls: Weak Breach risk rating: 9
Audit risk rating	**Rationale for audit risk rating**
High	Controls are rated as weak as the data used for these lights has not been validated and a high error rate was found in the field audit. The impact is assessed to be high, based on the kWh differences described above.

Actions taken to resolve the issue	Completion date	Remedial action status
When the field inventory is carried out then will sort out these problems		Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	

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

The submission was checked for accuracy for the month the database extract was supplied. This included:

- checking the registry to confirm that all ICPs have the correct profile and submission flag; and
- checking the database extract combined with the burn hours against the submitted figure to confirm accuracy.

Audit commentary

Trustpower reconciles this DUML load using the STL profile. The on and off times are derived from data logger information.

I recalculated the submissions for March 2019 for the seven ICPs associated with the NZTA database using the data logger and database information. I confirmed that the calculation method was correct.

There is some inaccurate data within the ElectroNet database used to calculate submissions. This is recorded as non-compliance and discussed in **sections 2.4, 2.5** and **3.1**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: 07-May-18 To: 31-Mar-19	The database used to prepare submissions contains some inaccurate information. The field data was 92.2% of the database data for the sample checked. This will result in potential over submission of 51,300 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool). 26 items of load with the incorrect wattage recorded. Three items of load with zero or no wattage recorded. Potential impact: High Actual impact: High Audit history: Once previously Controls: Weak Breach risk rating: 9
Audit risk rating	**Rationale for audit risk rating**
Medium	Controls are rated as weak as the data used for these lights has not been validated and a high error rate was found in the field audit. The impact is assessed to be high, based on the kWh differences described above.

Actions taken to resolve the issue	Completion date	Remedial action status
To get agreement from NZTA to fund the field inventory which will give ElectroNet all the correct information they need to set up a complete and accurate DB. We know from experience ElectroNet's system are accurate and robust and well maintained	ASAP	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	

CONCLUSION

The ICPs associated with the NZTA load were previously included in the Westland District Council audit, but as these are two different customers this audit has been undertaken separately for the NZTA streetlights on the ElectroNet network.

The Arc GIS database used for submission is managed by ElectroNet, on behalf of Westpower. New connection, fault, and maintenance work is completed by ElectroNet, who update the GIS in the field using Arc GIS collector. ElectroNet provide a monthly report from the database to Trustpower.

The data for the NZTA lights has been provided by NZTA to ElectroNet and this has been uploaded to Arc GIS. No validation has been carried out on this data by ElectroNet. The field audit found a high level of inaccuracy and the database does not fall within the allowable +/-5% variance. I recommend that a full field audit of the NZTA lights is undertaken to correct this.

This audit found five non-compliances and makes two recommendations. The future risk rating of 38 indicates that the next audit be completed in three months. I have considered this in conjunction with Trustpower's comments and I recommend that the next audit be in six months to allow sufficient time for a field audit to correct the database.

PARTICIPANT RESPONSE

Trustpower have reviewed this report and their comments are recorded in the body of the report. No further comments were provided.