ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

For

KAWAKAWA COMMUNITY LIGHTING AND TRUSTPOWER

Prepared by: Rebecca Elliot

Date audit commenced: 19 November 2019

Date audit report completed: 26 November 2019

Audit report due date: 1 December2019

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EXECUTIVE SUMMARY

This audit of the Kawakawa Community Lighting 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 database is held by Trustpower in the form of a spreadsheet with updates provided by the Kawakawa Business Association when changes are made.

The audit found three non-compliances and makes no recommendations.

The non-compliances relate to two main issues:

- the incorrect description and wattage values recorded in the database for five lamps; and
- the database has not been updated with the removal of five lamps due to the demolition of a building.

The database did not meet the database accuracy threshold of +/-5%.

The future risk rating of nine indicates that the next audit be completed in 12 months. I have considered this in conjunction with Trustpower's responses and the small volume of lights associated with the database recommend that the next audit be in 24 months.

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	Database accuracy is estimated as 38% higher than the wattage installed in the field resulting in an over submission of 1,785.53 kWh per annum. The data used for submission does not track changes at a daily basis and is provided as a snapshot.	Weak	Low	3	Identified
Database accuracy	3.1	15.2 and 15.37B(b)	Database accuracy is estimated as 38% higher than the wattage installed in the field resulting in an over submission of 1,785.53 kWh per annum.	Weak	Low	3	Identified
Volume information accuracy	3.2	15.2 and 15.37B(c)	Database accuracy is estimated as 38% higher than the wattage installed in the field resulting in an over submission of 1,785.53 kWh per annum. The data used for submission does not track changes at a daily basis and is provided as a snapshot.	Weak	Low	3	Identified
Future Risk Rating						9	

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	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

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 the relevant organisational structure:

1.3. Persons involved in this audit

Auditor:

Rebecca Elliot

Veritek Limited

Electricity Authority Approved Auditor

Supporting Auditor:

Brett Piskulic

Veritek Limited

Electricity Authority Approved Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Robbie Diederen	Reconciliation Analyst	Trustpower
Richard Dooley		Kawakawa Business Association

1.4. Hardware and Software

The streetlight data is held in an excel spreadsheet. These are backed up in accordance with standard industry procedures. Access to the spreadsheets is restricted by way of user log into the computer drive.

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)
0000911250TE0FB	KAWAKAWA COMMUNITY LIGHTING x 18 RECORDS	KOE1101	STL	21	1,512

The ballast values are included in the wattage totals.

1.7. Authorisation Received

All information was provided directly by Trustpower.

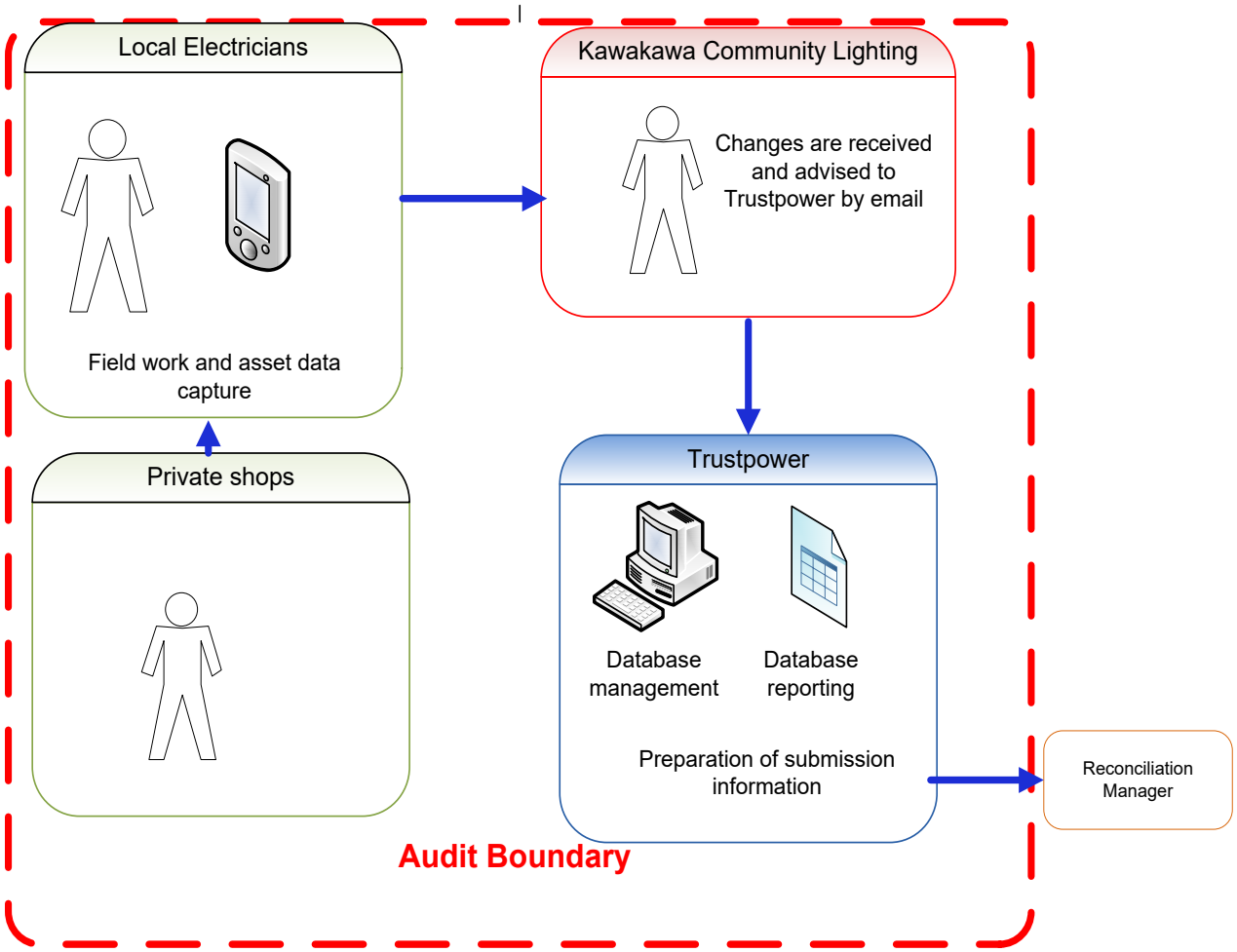
1.8. Scope of Audit

This audit of the Kawakawa Community Lighting DUML database and processes was conducted at the request of 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.

Kawakawa Community Lighting is located on the Top Energy network. The Kawakawa Business Association arranges any required maintenance. Changes are reported to Trustpower to be recorded in the database. The database is used by Trustpower to calculate submission information.

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



The field audit was undertaken of all 21 items of load on 26th November 2019.

1.9. Summary of previous audit

The previous audit was completed in March 2018 by Rebecca Elliot of Veritek Limited. The current status of that audit's findings is detailed below:

Table of Non-Compliance

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	Clause 11.1 of schedule 15.3	Rounded daily kW figure is resulting in an estimated over submission of 1.33%. All 22 items of permanent load have the incorrect ballast applied indicating under submission of 111.05 kWh per annum. Three 6 watt LED festive lights not recorded in the database and "on" period not tracked.	Cleared for rounding, Still existing for incorrect wattages Cleared

Subject	Section	Clause	Non-compliance	Status
All load recorded in database	2.5	Clause 11(2A) of Schedule 15.3	Festive lights not recorded in the database.	Cleared
Tracking of Load Changes	2.6	Clause 11(3) of Schedule 15.3	Tracking of load change not carried out for three 6 watt LED festive lights.	Cleared
Database Accuracy	3.1	Clause 15.2 & 15.37(b)	All 22 items of permanent load have the incorrect ballast applied indicating under submission of 111.05 kWh per annum. Three 6 watt LED festive lights not recorded in the database.	Still existing, Cleared for festive lights not recorded
Volume Information Accuracy	3.2	Clause 15.2 & 15.37(c)	Rounded daily kW figure is resulting in an estimated over submission of 1.33%. All 22 items of permanent load have the incorrect ballast applied indicating under submission of 111.05 kWh per annum. Three 6 watt LED festive lights not recorded in the database and on period not tracked	Cleared for rounding, Still existing incorrect for wattages Cleared

Table of Recommendations

Subject	Section	Recommendation for Improvement	Status
		Nil	

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 uses the STL profile. Trustpower derives the hours of operation from Top Energy.

I compared the submission volumes with the load recorded in the database extract provided for this audit in October against the volumes submitted by Trustpower. The database volumes matched the volumes submitted by Trustpower.

The field audit found there were five lamps with incorrect description and wattage applied and five items of load no longer operational in the field due to the demolition of a building. This would result in an estimated over submission of 1,785.53 kWh per annum (based on annual burn hours of 4,271 as is detailed in the DUML database auditing tool).

On 18 June 2019, the Electricity Authority issued a memo confirming that the code requirement to calculate the correct monthly load must:

- take into account when each item of load was physically installed or removed; and
- wash up volumes must take into account where historical corrections have been made to the DUML load and volumes.

The current data used is a snapshot and this practice is non-compliant.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: 16-Feb-18 To: 25-Nov-19	Database accuracy is estimated as 38% higher than the wattage installed in the field resulting in an over submission of 1,785.53 kWh per annum. The data used for submission does not track changes at a daily basis and is provided as a snapshot. Potential impact: Low Actual impact: Low Audit history: Once Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as weak as changes in the database are not being managed as expected. The audit risk rating is assessed to be low due to the kWh volumes.

Actions taken to resolve the issue	Completion date	Remedial action status
Database updated accordingly.	28/11/19	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
No action required.		

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 the correct ICP was recorded against each item of load.

Audit commentary

All items of load had an ICP 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

The database contains Global Positioning System (GPS) coordinates for all of the 21 light fittings. Street address information and business name is recorded for all light fittings.

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 contains a field for lamp type and this is populated appropriately. The database contains three fields for wattage for each address, firstly the lamp wattage, secondly the gear wattage and the third contains the total wattage. All had a value populated.

The accuracy of lamp descriptions, wattages and ballasts is recorded in **section 3.1**.

Audit outcome

Compliant

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

The field audit was undertaken of all items of load on 26th November 2019.

Audit commentary

The field audit discrepancies found are detailed in the table below.

Location	Database count	Field count	Light count differences	Wattage recorded incorrectly	Comments
12 Gillies Street	2	2	-	2	2x incorrect wattage – 36W fluorescent found in the field recorded as a 58W fluorescent in the database.
17 Gillies Street	1	1	-	1	1x incorrect wattage – 36W fluorescent found in the field recorded as a 58W fluorescent in the database.
20 Gillies Street	1	1	-	1	1x incorrect wattage – 36W fluorescent found in the field recorded as a 58W fluorescent in the database.
84 Gillies Street	2	2	-	1	1x incorrect wattage – 36W fluorescent found in the field recorded as a 58W fluorescent in the database.
52 Gillies Street	2	0	-2	-	Double 58W fluorescent no longer in field.

Location	Database count	Field count	Light count differences	Wattage recorded incorrectly	Comments
54 Gillies Street	2	0	-2	-	Double 58W fluorescent no longer in field.
54 Gillies Street	1	0	-1	-	6W festive light no longer in field.
TOTAL	21	17	5	5	

There were five lamps with incorrect description and wattage applied. There were five lamps recorded in the database that are no longer operational in the field due to the demolition of a building.

This clause relates to lights in the field that are not recorded in the database. The database accuracy is discussed in **section 3.1**.

Audit outcome

Compliant

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

The Kawakawa Business Association arranges any required maintenance with local electricians. Changes are reported to Trustpower to be recorded in the database.

The change management process and the compliance of the database reporting provided to Trustpower is detailed in **sections 3.1** and **3.2**.

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

The database contains a complete audit trail of all changes to the database information.

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

A field audit of all load items was conducted to determine the database accuracy.

Wattages were checked for alignment with the published standardised wattage table produced by the Electricity Authority.

Audit commentary

Field Audit Findings

The field audit found five lamps with incorrect description and wattages applied. There were five lamps recorded in the database that are no longer operational in the field due to the demolition of a building.

Database accuracy is estimated as 38% higher than the wattage installed in the field resulting in an estimated over submission of 1,785.53 kWh per annum (based on annual burn hours of 4,271 as is detailed in the DUML database auditing tool). This is greater than the +/-5% of the allowable threshold and is recorded as non-compliance below.

Wattage and ballast accuracy findings

I checked the ballasts being applied and found that there were no discrepancies when compared to the standardised wattage table.

Change management process findings

The Kawakawa Business Association arranges any required maintenance with local electricians. Changes are reported to Trustpower to be recorded in the database. As detailed in the field audit findings there were five lamps removed from the field due to demolition of a building. This change was notified in September 2019 but has not been updated in the database.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 16-Feb-18 To: 25-Nov-19	Database accuracy is estimated as 38% higher than the wattage installed in the field resulting in an over submission of 1,785.53 kWh per annum. Potential impact: Low Actual impact: Low Audit history: Three times Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as weak as changes in the database are not being managed as expected. The impact is assessed to be low due to the estimated impact on submission.

Actions taken to resolve the issue	Completion date	Remedial action status
Database updated accordingly.	28/11/19	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
nil		

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 uses the STL profile. Trustpower derives the hours of operation from Top Energy. I checked the calculation for the month of October and confirmed that the submission matched the database.

The field audit found there were five lamps with incorrect description and wattage applied and five items of load no longer operational in the field due to the demolition of a building. This would result in an estimated over submission of 1,785.53 kWh per annum (based on annual burn hours of 4,271 as is detailed in the DUML database auditing tool).

On 18 June 2019, the Electricity Authority issued a memo confirming that the code requirement to calculate the correct monthly load must:

- take into account when each item of load was physically installed or removed; and
- wash up volumes must take into account where historical corrections have been made to the DUML load and volumes.

The current data used is a snapshot and this practice is non-compliant.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: 16-Feb-18 To: 25-Nov-19	Database accuracy is estimated as 38% higher than the wattage installed in the field resulting in an over submission of 1,785.53 kWh per annum. The data used for submission does not track changes at a daily basis and is provided as a snapshot. Potential impact: Low Actual impact: Low Audit history: Three times Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as weak as changes in the database are not being managed as expected. The audit risk rating is low as the errors are all minor in volume.

Actions taken to resolve the issue	Completion date	Remedial action status
Database updated accordingly.	Date	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
NIL		

CONCLUSION

The audit found three non-compliances and makes no recommendations.

The non-compliances relate to two main issues:

- the incorrect description and wattage values recorded in the database for five lamps; and
- the database has not been updated with the removal of five lamps due to the demolition of a building.

The database did not meet the database accuracy threshold of +/-5%.

T The future risk rating of nine indicates that the next audit be completed in 12 months. I have considered this in conjunction with Trustpower's responses and the small volume of lights associated with the database recommend that the next audit be in 24 months.

PARTICIPANT RESPONSE

We have actioned the errors that were identified during the field audit. These are now cleared.

We would raise the following point with the EA and ask them for advice on how to resolve such issues. We have approached TOP Energy to see if we would be permitted to allocate each of the Under-veranda lights to the associated ICP for the building, that is responsible for that part of the veranda. This request has been rejected by the network. This is a good example of how a DUML, with its high compliance cost, is not the appropriate method for managing unmetered load on such a small scale. We would ask that the EA investigate how the rules can be changed to allow for a more appropriate allocation of this load to be put in place.