ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

For

TAURANGA CITY COUNCIL PARKS AND RESERVES AND TRUSTPOWER LIMITED

Prepared by: Rebecca Elliot

Date audit commenced: 22 October 2020

Date audit report completed: 23 November 2020

Audit report due date: 1 December 2020

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EXECUTIVE SUMMARY

This audit of the Tauranga City Council Parks and Reserves (TCC P&R) 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 used for submission is called Accela and is managed by TCC P&R. The field work and asset data capture are conducted by McKay Electrical and they provide hard copy updates to TCC P&R. Reporting is provided to Trustpower on a monthly basis.

A full field audit was undertaken, and a small number of differences were found. The database accuracy was confirmed to be within the allowable threshold and is therefore deemed to be accurate.

Examination of the database found that changes made in the Accela database can only be applied from the day of being changed and not the date of light install. As a snapshot of the database is used for submission this currently has no impact on reconciliation.

The last audit indicated that these items of load were being migrated to the RAMM database. This has been further evaluated and it has been decided that Accela will continue to be the repository for these lights.

The audit found four non-compliances and one recommendation is made. The future risk rating of 11 indicates that the next audit be completed in 12 months. I have considered this along with the materiality of the non-compliances found and recommend that the next audit be in 18 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 does not track changes from the effective date. Submission is based on a snapshot of the database at the end of the month and does not consider historic adjustments or the fact that lights can be livened before they are entered into the database.	Moderate	Low	2	Investigating
Tracking of load change	2.6	11(3) of Schedule 15.3	Database does not track changes from the effective date.	None	Low	5	Investigating
Database accuracy	3.1	15.2 and 15.37B(b)	3x 50W HPS lights with no ballast recorded resulting an estimated very minor under submission of 128kWh per annum. 20 metered items of load recorded against the unmetered ICP.	Moderate	Low	2	Identified
Volume information accuracy	3.2	15.2 and 15.37B(c)	Database does not track changes from the effective date. Submission is based on a snapshot of the database at the end of the month and does not consider historic adjustments or the fact that lights can be livened before they are entered into the database.	Moderate	Low	2	Investigating
Future Risk Rating						11	

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	Clause	Recommendation
Location of each item of load	2.3	11(2)(b) of Schedule 15.3	Include GPS coordinates in the database to assist with light location

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

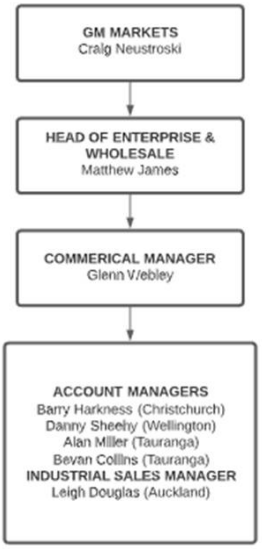
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

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
Alan Miller	Commercial Account Manager	Trustpower
Michael Jones	Traffic Systems Engineer	Tauranga City Council
Nick Stewart	Asset Management Analyst Developer	Tauranga City Council

1.4. Hardware and Software

The Accela database used for the management of DUML is managed by TCC P&R.

The database back up is in accordance with standard industry procedures. Access to the database is secure by way of password protection.

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	Number of items of load	Database wattage (watts)
1000525003PCF31	Tauranga District Council Parks Streetlights (KMO)	KMO0331	3	179
1000525000PC3F1	Tauranga District Council Parks Streetlights (MTM)	MTM0331	188	11,015
1000525002PC374	Tauranga District Council Parks Streetlights (TGA11)	TGA0111	55	3,994
1000525001PCFB4	Tauranga District Council Parks Streetlights (TGA33)	TGA0331	145	7,435
Total			**391**	**22,623**

I note that the volume of lights recorded in this audit are higher than the last. This is because the previous audit did not include in the lamp count items of load with multiple heads. The wattage was correctly recorded.

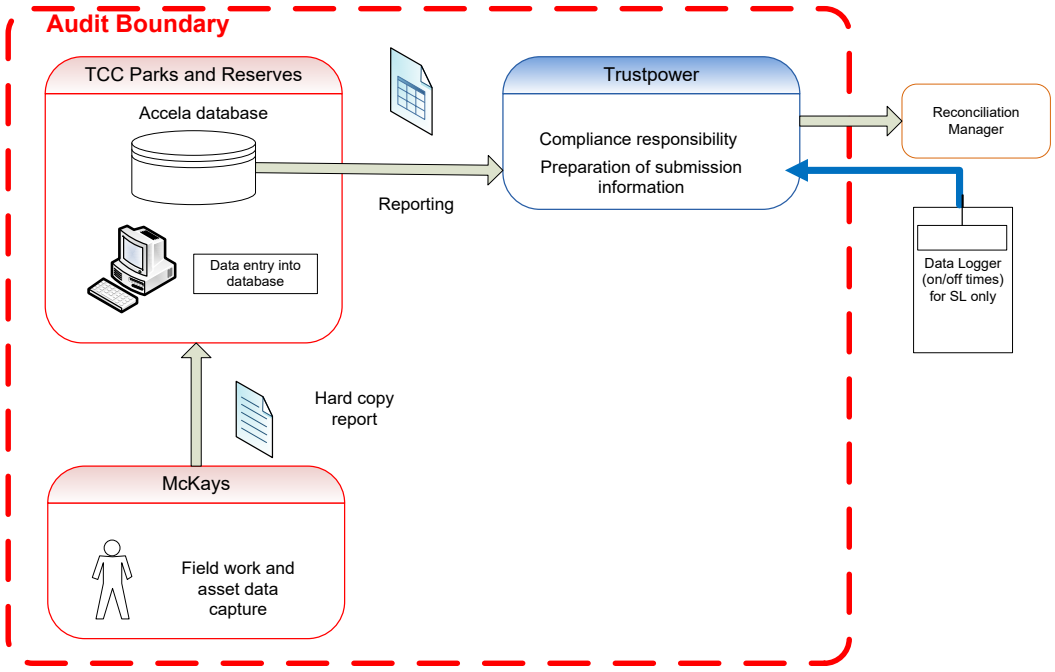
1.7. Authorisation Received

All information was provided directly by Trustpower and TCC P&R.

1.8. Scope of Audit

The database used for submission is called Accela and is managed by TCC P&R. The field work and asset data capture is conducted by McKay Electrical and they provide hard copy updates to TCC P&R. Reporting is provided to Trustpower on a monthly basis.

The diagram below shows the current flow of information and the audit boundary for clarity.



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

The field audit was undertaken of the complete database on Friday November 6th, 2020.

1.9. Summary of previous audit

The previous audit was completed in December 2019 by Steve Woods of Veritek Limited. Five non-compliances were identified, and one recommendation was made. The statuses of the non-compliances and recommendations are described below.

Table of Non-compliance

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	The field audit found a total wattage of 19,551 and the database recorded 21,324. The difference indicates over submission of 7,572 kWh per annum. Submission is based on a snapshot of the database at the end of the month and does not consider historic adjustments or the fact that lights can be livened before they are entered into the database	Cleared Still existing
Location of each item of load	2.3	11(2)(b) of Schedule 15.3	Two records without a location description	Cleared
Capacity of load	2.4	11(2)(b) of Schedule 15.3	Gear wattage not recorded in the database	Cleared
All load recorded in database	2.5	11(2A) of Schedule 15.3	The field audit identified three lamps which was not recorded in the database	Cleared
Database accuracy	3.1	15.2 and 15.37B(b)	The field audit found a total wattage of 19,551 and the database recorded 21,324. The difference indicates over submission of 7,572 kWh per annum. Two records do not have a location description	Cleared Cleared

Table of Recommendations

Subject	Section	Clause	Recommendation	Status
Location of each item of load	2.3	11(2)(b) of Schedule 15.3	Include GPS coordinates in the database to assist with light location	Cleared

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 DUML 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 September 2020 using the data logger and database information. I confirmed that the calculation method and result was correct. I found a difference of 20 items of load for ICP 1000525000PC3F1 between the database extract provided for the audit and that provided to Trustpower at the end of September. This was investigated and found that these lights are on metered circuits and are not included in the monthly wattage report and therefore submission is correct. The incorrect ICP applied to metered items of load is recorded as non-compliance in **section 3.1**.

The field audit found a total wattage of 22,306 and the database recorded a total wattage of 22,623. The difference of 317W and indicates an estimated over submission of 1,354 kWh per annum. This is an improvement from the over submission of 7,572 kWh per annum reported on the last audit. This represents an error rate of 1.4% which is within the +/-5% threshold and therefore the database is confirmed to be accurate.

The database does not allow changes to be loaded for the date of is recorded as non-compliance below and in **section 2.6**.

Submission is based on a snapshot of the database at the end of the month and does not consider historic adjustments or the fact that lights can be livened before they are entered into the database.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: 11(1) of Schedule 15.3 From: 26-Nov-19 To: 22-Oct-20	Database does not track changes from the effective date. Submission is based on a snapshot of the database at the end of the month and does not consider historic adjustments or the fact that lights can be livened before they are entered into the database. Potential impact: Low Actual impact: Low Audit history: Three times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Changes are made when required but cannot be applied for the correct date and some errors in the field indicate that the information is not always being updated in the database therefore controls are rated as moderate overall. Overall, the database accuracy is high therefore the audit risk rating is assessed to be low.

Actions taken to resolve the issue	Completion date	Remedial action status
Working with customer to look at getting changes applied at the actual date they occur	On going	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Working with customer to look at getting changes applied at the actual date they occur	On going	

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

An ICP is recorded for each item of load. The accuracy of the ICP applied is discussed in **section 3.1**.

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 a field for the park or reserve and another field with a description. The items of load are also recorded in the GIS and access was provided to enable an accurate plot of these lights for the field audit. Therefore, the recommendation made in the last audit that the GPS coordinates be added to the database is not required.

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 has been updated during the audit period and now contains a field for gear wattage and lamp wattage. All were confirmed as correct.

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

A field audit of all 391 items of load recorded in the database was undertaken.

Audit commentary

The field audit findings are detailed in the table below.

Wattages for lamps found in the field but not the database were based on lamp label information where available and estimated based on physical characteristics and other surrounding lamps where unlabelled.

Address	Database Count	Field Count	Count differences	Wattage differences	Comments
Macville Park	3	3		1	1x 70W HPS found recorded as 67W LED
Memorial Park	59	59		4	2 x 29W LED recorded as 27W LED 1x 27W LED recorded as 70W HPS 1x 27W LED recorded as 53W LED
Mt Maunganui Beachside Holiday Park	1	1		1	1 x 57W LED recorded as 150W HPS
Mt Maunganui Main Beach	22	22		3	1 x 100W HPS recorded as 150W HPS 2x 57W LED est recorded as 150W HPS
Tauranga & Wharepai Domains	21	21		12	10x 14W fluoro lights recorded as 10W LED 2x 15W LED recorded as 20W LED
The Strand Reclamation	24	24		4	4 x 150W HPS recorded as 100W HPS
Yatton Park	6	4	-2		2x garden lights not present in the field

This clause relates to items of load in the field not recorded in the database. No additional lights were found in the field.

The lamp wattage differences are recorded as non-compliance 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 ability of the database to track changes was assessed and the process for tracking of changes in the database was examined.

Audit commentary

Examination of the database found that changes made in the Accela database can only be applied from the day of being changed and not the date of light install. This is recorded as non-compliance.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.6 With: Clause 11(3) of Schedule 15.3 From: 26-Nov-19 To: 22-Oct-20	Database does not track changes from the effective date. Potential impact: Low Actual impact: Low Audit history: None Controls: None Breach risk rating: 5
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as none as the database functionality prevents the loading of changes to the database for the date of install and changes can only be from the date the change is loaded. The audit risk rating is low as the number of lights in the database is small so any impact to reconciliation will be low.

Actions taken to resolve the issue	Completion date	Remedial action status
Working with customer to look at getting changes applied at the actual date they occur	On going	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Working with customer to look at getting changes applied at the actual date they occur	On going	

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 additions and changes.

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 100% audit was undertaken to determine the database wattage.

Wattages were checked for alignment with the published standardised wattage table produced by the Electricity Authority against the database or in the case of LED lights against the LED light specification.

The change management process and timeliness of database updates was evaluated.

Audit commentary

Field Audit Findings

The field audit found a total wattage of 22,306 and the database recorded a total wattage of 22,623. This is a difference of 317W and indicates an estimated over submission of 1,354 kWh per annum. This is an improvement from the over submission of 7,572 kWh per annum reported on the last audit. This represents an error rate of 1.4% which is within the +/-5% threshold and therefore the database is confirmed to be accurate. The discrepancies found in the field are detailed in **section 2.5**.

Lamp description and capacity accuracy

There were no lamp description and capacity discrepancies found.

ICP accuracy

There are 20 metered items of load are recorded against the unmetered ICP1000525000PC3F1. They are excluded from submission so there is no effect on reconciliation. This is recorded as non-compliance.

Location accuracy

The database contains fields for the street address and also GPS coordinates.

Change management process findings

McKay Electrical has the maintenance contract for streetlights and data is entered directly into the RAMM database via pocket RAMM. McKay Electrical submits Service Orders immediately after the work has been completed and this is in turn checked by Tauranga City Council to validate the claims. It doesn't appear that changes due to major roadworks are being populated in a timely fashion.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 26-Nov-19 To: 22-Oct-20	20 metered items of load recorded against the unmetered ICP. Potential impact: Low Actual impact: Low Audit history: Three times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate, because they are sufficient to ensure that database is kept up to date for the majority of the load. Overall, the database accuracy is high therefore the audit risk rating is assessed to be low.

Actions taken to resolve the issue	Completion date	Remedial action status
Duml database has been updated The 20 lights have been corrected	01/12/2020	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Minor issue which has now been updated The 20 lights have been corrected	01/12/2020	

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
- 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 September 2020 using the data logger and database information. I confirmed that the calculation method and result was correct. I found a difference of 20 items of load for ICP 1000525000PC3F1 between the database extract provided for the audit and that provided to Trustpower at the end of September. This was investigated and found that these lights are on metered circuits and are not included in the monthly wattage report and therefore submission is correct. The incorrect ICP applied to metered items of load is recorded as non-compliance in **section 3.1**.

The field audit found a total wattage of 22,306 and the database recorded a total wattage of 22,623. The difference of 317W and indicates an estimated over submission of 1,354 kWh per annum. This is an improvement from the over submission of 7,572 kWh per annum reported on the last audit. This represents an error rate of 1.4% which is within the +/-5% threshold and therefore the database is confirmed to be accurate.

The database does not allow changes to be loaded for the date of is recorded as non-compliance below and in **section 2.6**.

Submission is based on a snapshot of the database at the end of the month and does not consider historic adjustments or the fact that lights can be livened before they are entered into the database.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: 26-Nov-19 To: 22-Oct-20	Database does not track changes from the effective date. Submission is based on a snapshot of the database at the end of the month and does not consider historic adjustments or the fact that lights can be livened before they are entered into the database. Potential impact: Low Actual impact: Low Audit history: Three times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Changes are made when required but cannot be applied for the correct date and some errors in the field indicate that the information is not always being updated in the database therefore controls are rated as moderate overall. Overall, the database accuracy is high therefore the audit risk rating is assessed to be low.

Actions taken to resolve the issue	Completion date	Remedial action status
Working with customer to look at getting changes applied at the actual date they occur	On going	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Working with customer to look at getting changes applied at the actual date they occur	On going	

CONCLUSION

The database used for submission is called Accela and is managed by TCC P&R. The field work and asset data capture are conducted by McKay Electrical and they provide hard copy updates to TCC P&R. Reporting is provided to Trustpower on a monthly basis.

A full field audit was undertaken, and a small number of differences were found. The database accuracy was confirmed to be within the allowable threshold and is therefore deemed to be accurate.

Examination of the database found that changes made in the Accela database can only be applied from the day of being changed and not the date of light install. As a snapshot of the database is used for submission this currently has no impact on reconciliation.

The last audit indicated that these items of load were being migrated to the RAMM database. This has been further evaluated and it has been decided that Accela will continue to be the repository for these lights.

The audit found four non-compliances and XX recommendations. The future risk rating of 11 indicates that the next audit be completed in 12 months. I have considered this along with the materiality of the non-compliances found and recommend that the next audit be in 18 months.

PARTICIPANT RESPONSE

We agree with the overall findings of the Audit that the database is being actively and competently managed. No material issues that have impacted data submission have been found. The database is not large and we are working with the customer to investigate a cost effective method of capturing and recording changes on the day they occur instead of the day the database is updated.