

**ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT**

For

**TAURANGA CITY COUNCIL PARKS AND
RESERVES AND TRUSTPOWER LIMITED**

Prepared by: Steve Woods

Date audit commenced: 19 November 2019

Date audit report completed: 29 November 2019

Audit report due date: 1 December 2019

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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, which became effective on 1 June 2017.

The database used for submission is called Excellor 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.

Two main issues were found, as follows:

- 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.

The future risk rating of 11 indicates that the next audit be completed in 12 months. I agree with this recommendation.

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	<p>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.</p> <p>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</p>	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Location of each item of load	2.3	11(2)(b) of Schedule 15.3	Two records without a location description	Strong	Low	1	Identified
Capacity of load	2.4	11(2)(b) of Schedule 15.3	Gear wattage not recorded in the database	Weak	Low	3	Identified
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	Strong	Low	1	Identified
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	Moderate	Low	2	Identified
Volume information accuracy	3.2	15.2 and 15.37B(c)	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 lived before they are entered into the database	Moderate	Low	2	Identified
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:

Steve Woods

Veritek Limited

Electricity Authority Approved Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Robbie Diederer	Reconciliation Analyst	Trustpower
Alan Miller	Commercial Account Manager	Trustpower
Michael Jones	Traffic Systems Engineer	Tauranga City Council

1.4. Hardware and Software

The Excellor 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	318
1000525000PC3F1	Tauranga District Council Parks Streetlights (MTM)	MTM0331	66	7,117
1000525002PC374	Tauranga District Council Parks Streetlights (TGA11)	TGA0111	55	4,289
1000525001PCFB4	Tauranga District Council Parks Streetlights (TGA33)	TGA0331	142	9,600
Total			266	21,324

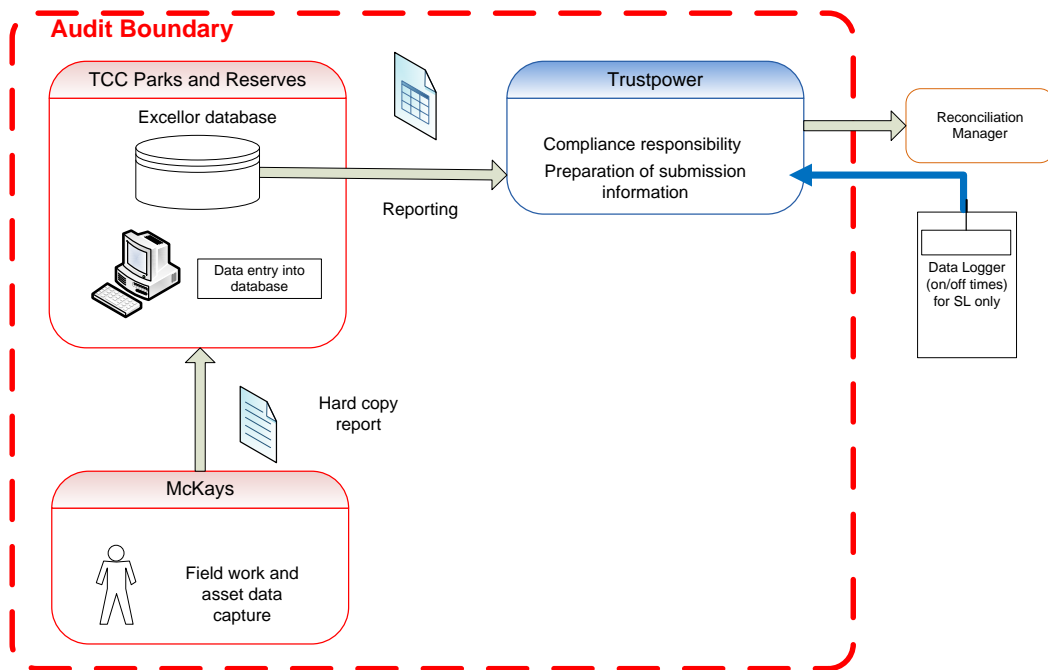
1.7. Authorisation Received

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

1.8. Scope of Audit

The database used for submission is called Excellor 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, which became effective on 1 June 2017

1.9. Summary of previous audit

The previous audit was completed in May 2018 by Steve Woods of Veritek Limited. Six non-compliances were identified, and one recommendation was made. The statuses of the non-compliances and recommendations are described below.

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 23,154 and the database recorded 23,972. The difference indicates over submission of 3,500 kWh per annum.	Still existing
Location of each item of load	2.3	11(2)(b) of Schedule 15.3	One record without a location description	Still existing
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 one lamp which was not recorded in the database	Still existing
Database accuracy	3.1	15.2 and 15.37B(b)	The field audit found a total wattage of 23,154 and the database recorded 23,972. The difference indicates over submission of 3,500 kWh per annum.	Still existing
Deriving submission information	3.2	15.2 and 15.37B(c)	The field audit found a total wattage of 23,154 and the database recorded 23,972. The difference indicates over submission of 3,500 kWh per annum.	Still existing

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	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 DUMML database audits are completed:

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

Audit observation

Trustpower have requested Veritek to undertake this DUMML audit.

Audit commentary

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

2. DUMML 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:

- DUMML 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 DUMML load using the STL profile. The on and off times are derived from data logger information.

I recalculated the submissions for October 2019 using the data logger and database information. I confirmed that the calculation method and result was correct.

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.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: 11(1) of Schedule 15.3 From: 01-May-18 To: 26-Nov-19	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. Potential impact: Medium Actual impact: Low Audit history: Twice 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 lamp details are correct most of the time The impact is rated as low because the impact on settlement of the database inaccuracy is 7,572 kWh.

Actions taken to resolve the issue	Completion date	Remedial action status
Tga City Council are in the process of shifting this database into Ramm. Once this is completed the contractor will be able update all lamps and locations and bring the database upto date.	Proposed date of completion 31 March.	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
Once the database has been switched over to Ramm this will maintain compliance.	31 March	

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.

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. Two lights do not have descriptions.

I recommend GPS coordinates are used to improve the ease of location.

Audit outcome

Non-compliant

Recommendation	Description	Audited party comment	Remedial action
Regarding Clause 11(2)(b) of Schedule 15.3	Include GPS coordinates in the database to assist with light location	Once lights are entered into RAMM this will be rectified.	Identified

Non-compliance	Description		
Audit Ref: 2.3 With: Clause 11(2)(b) of Schedule 15.3 From: 01-May-18 To: 26-Nov-19	Two records without a location description Potential impact: Low Actual impact: Low Audit history: Once Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are recorded as strong because they mitigate risk most of the time. The impact on settlement and participants is minor; therefore the audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status
Tga City Council are in the process of shifting this database into Ramm. Once this is completed the contractor will be able update all lamps and locations and bring the database upto date.		Proposed date of completion 31 March.	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Once the database has been switched over to Ramm this will maintain compliance.		31 March	

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 wattage, and these were confirmed as correct in relation to the description. None of the records contained gear wattage, which is added as part of the reporting. Whilst the gear wattages used are correct, this clause requires it to be in the database.

Audit outcome

Non-compliant

Non-compliance	Description	
Audit Ref: 2.4 With: Clause 11(2)(b) of Schedule 15.3 From: 01-May-18 To: 26-Nov-19	Gear wattage not recorded in the database Potential impact: Medium 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 because the gear wattage data is not present at all The impact is rated as low because of the low numbers and because the ballast wattage is correctly added ensure submission is correct.	
Actions taken to resolve the issue	Completion date	Remedial action status
Tga City Council are in the process of shifting this database into Ramm. Once this is completed the contractor will be able update all lamps and locations and bring the database upto date.	Proposed date of completion 31 March.	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
Once the database has been switched over to Ramm this will maintain compliance.	31 March	

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 266 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
Tauranga & Wharepai Domains	12	12	-	12	10 x 14W Fluoro recorded as 10W LED 2 x 15W LED recorded as 20W LED
Pikimai Reserve	3	3	-	1	1 x 23W LED recorded as 90W LED
The Strand Reclamation	31	31	-	2	2 x 150W HPS recorded as 114W MH
Gordon Carmichael Reserve	1	2	+1	-	1 x additional 150W HPS found
Yatton Park	6	4	-2	-	4 lights not 6
Mt Maunganui Beachside Holiday Park	1	1	-	1	1 x LED recorded as 150W HPS
Memorial Park	59	59	-	10	22 x LED recorded as HPS 1 x 150W HPS recorded as 114W MH 1 x additional 400W HPS 1 x 70W HPS not found
Te Hikuwai Drainage Reserve	14	13	-1	-	1 x 150W HPS not found
Blake Park	12	13	+1	2	1 x 116W LED not found 2 x additional 23W LED 2 x 23W LED recorded as 150W HPS
Mt Maunganui Main Beach	22	22	-	1	1 x 67W LED recorded as 150W HPS

This clause relates to items of load in the field not recorded in the database, so the only non-compliance for this clause is that there were three additional lights found.

The lamp wattage differences are recorded as non-compliance in **section 3.1**.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.5 With: Clause 11(2A) of Schedule 15.3 From: 01-May-18 To: 26-Nov-19	The field audit identified three lamps which was not recorded in the database. Potential impact: Medium Actual impact: Low Audit history: Twice previously Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are rated as strong, as they are sufficient to ensure that most database information is recorded correctly. The impact is rated as low because the impact on settlement is minor for three lights		
Actions taken to resolve the issue		Completion date	Remedial action status
Tga City Council are in the process of shifting this database into Ramm. Once this is completed the contractor will be able update all lamps and locations and bring the database upto date.		Proposed date 31 March	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Once the database has been switched over to Ramm this will maintain compliance.		31 March	

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

The database functionality achieves compliance with the code.

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 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.

Audit commentary

The database was found to contain some inaccuracies and missing data.

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.

Wattages for all items of load were checked against the published standardised wattage table produced by the Electricity Authority and found to be correct.

Two records do not have a location description, as recorded in Section 2.3.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 01-May-18 To: 26-Nov-19	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. Potential impact: Medium Actual impact: Low Audit history: Twice 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 lamp details are correct most of the time The impact is rated as low because the impact on settlement of the database inaccuracy is approximately 7,572 kWh per annum		
Actions taken to resolve the issue		Completion date	Remedial action status

Tga City Council are in the process of shifting this database into Ramm. Once this is completed the contractor will be able update all lamps and locations and bring the database upto date.	Proposed date for completion 31 March	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
Once the database has been switched over to Ramm this will maintain compliance.	31 March	

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 October 2019 using the data logger and database information. I confirmed that the calculation method and result was correct.

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.

Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 3.2</p> <p>With: Clause 15.2 and 15.37B(c)</p> <p>From: unknown</p> <p>To: 30-Apr-18</p>	<p>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.</p> <p>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 lived before they are entered into the database.</p> <p>Potential impact: Medium</p> <p>Actual impact: Low</p> <p>Audit history: Twice</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p>		
Audit risk rating	Rationale for audit risk rating		
<p>Low</p>	<p>The controls are rated as moderate, because they are sufficient to ensure that lamp details are correct most of the time</p> <p>The impact is rated as low because the impact on settlement of the database inaccuracy is 7,572 kWh.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>Tga City Council are in the process of shifting this database into Ramm. Once this is completed the contractor will be able update all lamps and locations and bring the database upto date.</p>		<p>Proposed date for completion 31 March</p>	<p>Identified</p>
Preventative actions taken to ensure no further issues will occur		Completion date	
<p>Once the database has been switched over to Ramm this will maintain compliance.</p>		<p>31 March</p>	

CONCLUSION

The database used for submission is called Excellor 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.

Two main issues were found, as follows:

- 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.

The future risk rating of 11 indicates that the next audit be completed in 12 months. I agree with this recommendation.

PARTICIPANT RESPONSE

As identified in the responses above the existing Database and process around it were the root cause of most of the issues. Tauranga City Council have undertaken to shift the data into a RAMM database in line with existing Tauranga City Council Streetlight Data bases. This will mean that the same complaint processes and Council systems will be applied to all Park and Reserve lighting.