

**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 March 2018

Date audit report completed: 24 May 2018

Audit report due date: 1 June 2018

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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 previous audit was conducted by Trustpower and included the TCC road lighting. This is now a separate audit report because the data is in a different database.

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 future risk rating of 11 indicates that the next audit be completed in 12 months. Non-compliance exists in relation to several of the requirements of the Code and over-submission is occurring of approximately 734 kWh per annum. 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 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.	Moderate	Low	2	Identified
Location of each item of load	2.3	11(2)(b) of Schedule 15.3	One record 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 one lamp 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 23,154 and the database recorded 23,972. The difference indicates over	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
			submission of 3,500 kWh per annum.				
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.	Moderate	Low	2	Identified
Future Risk Rating						11	

Future risk rating	1-3	4-6	7-8	9-17	18-26	27+
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
Delwyn Jeffrey	Commercial and Industrial Billing Manager	Trustpower
Alan Miller	Commercial Account Manager	Trustpower
Michael Jones		TCC P&R

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	320
1000525000PC3F1	Tauranga District Council Parks Streetlights (MTM)	MTM0331	59	7,306
1000525002PC374	Tauranga District Council Parks Streetlights (TGA11)	TGA0111	54	3,780
1000525001PCFB4	Tauranga District Council Parks Streetlights (TGA33)	TGA0331	121	9,562
Total			237	20,968

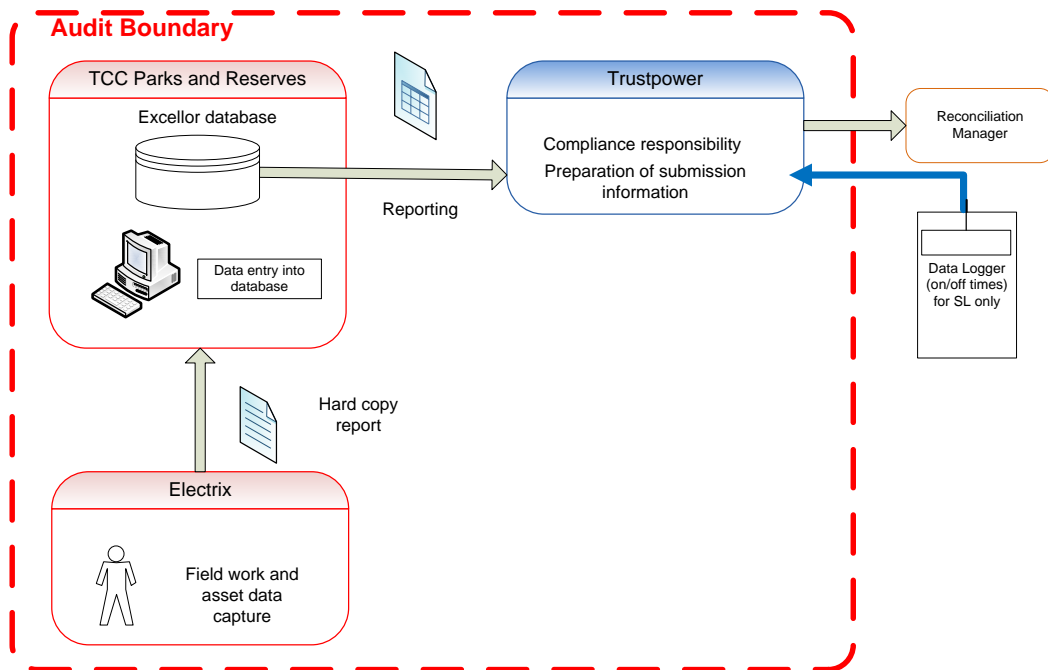
1.7. Authorisation Received

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 **Electrix** 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 2016 by Alan Miller of Trustpower. Three 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
ICP identifiers	2.2	11(2)(a) of schedule 15.3	ICPs not in database and only one ICP for roads for all of Tauranga	Cleared and only related to road lighting
Database Contents	2.6	11(3) of schedule 15.3.	Database not up to date. Total number of streetlights does not match totals send on a monthly spreadsheet	Still existing
Tracking of load changes	2.6	11(3) of schedule 15.3.	Delays in updating database after new lights are lived.	Still existing

Subject	Section	Clause	Recommendation	Status
Description of load type	2.4	11(2)(c) of schedule 15.3	Populate gear wattage in the TAURANGA CITY COUNCIL databases	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 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. Compliance is confirmed.

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:

- 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 April 2018 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 26,891 and the database recorded 27,063. The difference indicates over submission of 734 kWh per annum.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.1 With: 11(1) of Schedule 15.3 From: unknown To: 30-Apr-18	The field audit found a total wattage of 26,891 and the database recorded 27,063. The difference indicates over submission of 734 kWh per annum. Potential impact: Medium Actual impact: Low Audit history: Once 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 734 kWh.		
Actions taken to resolve the issue		Completion date	Remedial action status
TRUS will work with Tauranga City Council to review and correct any anomalies in the database		30/09/18	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	

Validation of new load items to occur when installed	Ongoing	
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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 RAMM 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 RAMM 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. One light at Memorial Park did not have a description and could not be found.

Although most lights were eventually found, 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	TRUS will raise with Tauranga City Council	Identified

Non-compliance	Description		
Audit Ref: 2.3 With: Clause 11(2)(b) of Schedule 15.3 From: 19-May-16 To: 30-Apr-18	One record without a location description Potential impact: Low Actual impact: Low Audit history: None 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
TRUS will raise the recommendation for GPS co-ordinates to be included in the database		30/06/18	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
The locations for new items will be validated to ensure they can be found		30/09/18 and ongoing	

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 DUMML 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 by Trustpower. 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: unknown To: 30-Apr-18	Gear wattage not recorded in the database Potential impact: Medium Actual impact: Low Audit history: None 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 Trustpower adds the ballast wattage to ensure submission is correct.		
Actions taken to resolve the issue		Completion date	Remedial action status
TRUS adds ballast to submission data calculation as standard practice, and will work with Tauranga City Council to ensure ballast is added to their database.		30/09/18	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Ballast to be entered into database a standard practice for new items		Ongoing	

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 DURL for which it is responsible is recorded in this database.

Audit observation

A field audit of all 265 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
17 Den Place	4	5	+1		Additional light
Accessway 0259	1	1			
Accessway 0260	1	1			
Blake Park	12	12			
Fergusson Park	12	12			
Gordon Carmichael Reserve	1	1			
Gordon Spratt Reserve	14	14			
Greerton Community Hall Site	2	2			
Greerton Park	7	7			
Lake Taurikura Drainage Reserve	4	4			
Lees Park	1	1			
Macville Park	3	3			
Maora Drainage Reserve	5	5			
Marine Park	4	4			
Matahoroa Reserve	1	1			
McLaren Falls Park	1	1			
Memorial Park	59	58	-1	1	One had no description and could not be located One 70W SON was found to be an LED in the field
Mission Cemetery	3	3			
Morland Fox Park	1	1			
Mount Maunganui Hot Pools: Leased Area	1	1			
Mt Maunganui Beachside Holiday Park	1	1		1	In database as 150SON but found to be LED
Mt Maunganui Main	22	22		2	Two are LED not 150 SON

Address	Database Count	Field Count	Count differences	Wattage differences	Comments
Beach					
Ngakumama Reserve	1	1			
Ngawhetu Reserve	2	2			
Papamoa Domain	11	11			
Parkdale Park	2	2			2 70watt SON in database actually 27 watt LED in field
Pikimai Reserve	4	4			
Selwyn Park	1	1			
Tauranga & Wharepai Domains	24	24			
Te Hikuwai Drainage Reserve	15	15			
The Lakes Escarpment A	5	5			
The Strand Reclamation	31	31			
Waikareao West	1	1			
Waipuna Park	1	1			
Waitaha Reserve	1	1			
Yatton Park	6	4	-2		Could not find these 6
Total	265	255	-2	3	

I found two less lamps in the field than were recorded in the database (net difference). 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 was one more light at 17 Den place than was recorded in the database.

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: unknown To: 30-Apr-18	The field audit identified one lamp which was not recorded in the database. Potential impact: Medium Actual impact: Low Audit history: Once 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 one light		
Actions taken to resolve the issue		Completion date	Remedial action status
TRUS will work with Tauranga City Council to review and correct any anomalies in the database		30/09/18	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Validation of new load items to occur when installed		Ongoing	

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 DUMML 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 when changes occur is sufficient to achieve compliance.

McKay Electrical has the maintenance contract for streetlights and data is entered directly into the database by TCC P&R based on hard copy records.

I did not identify any problems with the tracking of load changes.

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

The field audit found a total wattage of 26,891 and the database recorded 27,063. The difference indicates over submission of 734 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.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: unknown To: 30-Apr-18	The field audit found a total wattage of 26,891 and the database recorded 27,063. The difference indicates over submission of 734 kWh per annum. Potential impact: Medium Actual impact: Low Audit history: Once 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 734 kWh per annum		
Actions taken to resolve the issue		Completion date	Remedial action status
TRUS will work with Tauranga City Council to review and correct any anomalies in the database		30/09/18	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	

Validation of new load items to occur when installed	Ongoing	
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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 April 2018 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 26,891 and the database recorded 27,063. The difference indicates over submission of 734 kWh per annum.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: unknown To: 30-Apr-18	The field audit found a total wattage of 26,891 and the database recorded 27,063. The difference indicates over submission of 734 kWh per annum. Potential impact: Medium Actual impact: Low Audit history: Once 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 734 kWh per annum

Actions taken to resolve the issue	Completion date	Remedial action status
TRUS will work with Tauranga City Council to review and correct any anomalies in the database	30/09/18	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
Validation of new load items to occur when installed	Ongoing	

CONCLUSION

The previous audit was conducted by Trustpower and included the TCC road lighting. This is now a separate audit report because the data is in a different database.

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 future risk rating of 11 indicates that the next audit be completed in 12 months. Non-compliance exists in relation to several of the requirements of the Code and over-submission is occurring of approximately 734 kWh per annum.

PARTICIPANT RESPONSE

Trustpower will work with Tauranga City Council to correct the anomalies in the database.