ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

For

TAURANGA CITY COUNCIL AND TRUSTPOWER LIMITED

Prepared by: Rebecca Elliot

Date audit commenced: 29 September 2020

Date audit report completed: 27 November 2020

Audit report due date: 1 December 2020

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EXECUTIVE SUMMARY

This audit of the **Tauranga City Council (TCC)** 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.

TCC continues to have a growing population resulting in new subdivisions and roading changes to accommodate this. The existing lights in the database have a high level of accuracy, but the field audit found that new lights are not being updated in the database in a timely manner and the data provided for these light fittings is not always accurate. Trustpower, TCC and Powerco are working together to improve this process.

Examination of submission found that of the 12 ICPs the incorrect profile was applied for four, and the incorrect burn hours were applied for five ICPs. The streetlights on five of the ICPs are turned on and off using the CMS system and there is a data logger connected to a sample fitting that records these hours. These are expected to be used for submission but it appears that the new profile has not been communicated within the business so that the existing STL profile has continued to be applied to all ICPs and the burn hours from the network controlled relays have been applied. This is being corrected.

The audit found four non-compliances and makes no recommendations. The future risk rating of 30 indicates that the next audit be completed in three months. I have considered this in conjunction with Trustpower's comments, the time required to affect change and recommend the next audit is undertaken in nine 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	Inaccurate submission due to the incorrect profile being applied for four ICPs and the incorrect burn hours being applied for five ICPs. This is estimated to have resulted in a total under submission of 4,649.86 kWh submission for the month of September 2020. Database accuracy is outside the allowable threshold and indicates a potential under submission of 214,500 kWh per annum due to new items of load are not being added to the database in a timely manner in all instances. One incorrect gear wattage applied of 18W instead of 14W.	High	Weak	9	Identified
All load recorded in database	2.5	11(2A) of Schedule 15.3	45 x additional items of load found in the field which were not recorded in the database.	Moderate	High	6	Identified
Database accuracy	3.1	15.2 and 15.37B(b)	Database accuracy is outside the allowable threshold and indicates a potential under submission of 214,500 kWh per annum due to new items of load are not being added to the database in a timely	Moderate	High	6	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
			manner in all instances. One incorrect gear wattage applied of 18.				
Volume information accuracy	3.2	15.2 and 15.37B(c)	Inaccurate submission due to the incorrect profile being applied for four ICPs and the incorrect burn hours being applied for five ICPs. This is estimated to have resulted in a total under submission of 4,649.86 kWh submission for the month of September 2020. Database accuracy is outside the allowable threshold and indicates a potential under submission of 214,500 kWh per annum due to new items of load are not being added to the database in a timely manner in all instances. One incorrect gear wattage applied of 18W instead of 14W.	High	Weak	9	Identified
					Future Risk Rating	**30**	

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

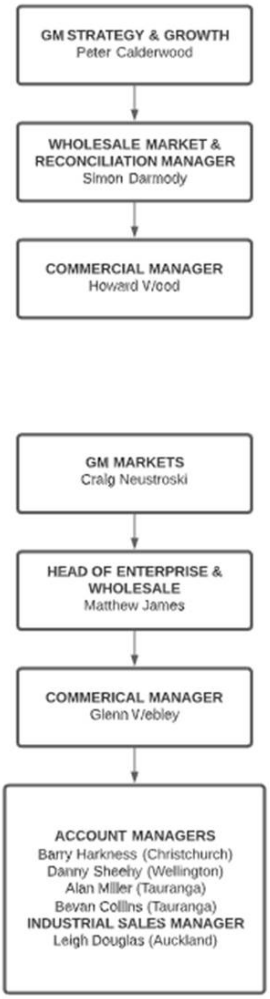
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

Audit commentary

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

1.2. Structure of Organisation

Trustpower provided 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	TCC

1.4. Hardware and Software

The RAMM database used for the management of DUML is managed by TCC.

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

Systems used by the trader to calculate submissions are assessed as part of their reconciliation participant audits.

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)
0000001002UHFFF	Tuihana	GRE0111	STL	49	4,394
0000001100UH67E	Tuihana -LED CMS	GRE0111	STL	77	1,1771
0001264711UNDB5	Tauranga District Council Streetlights (TGA11)	TGA0111	STL	1,484	205,124
1000559933PC0F9	Tauranga District Council Streetlights (KMO)	KMO0331	STL	706	85,857
1000559934PCD33	Tauranga District Council Streetlights (TGA33)	TGA0331	STL	2,203	317,004

ICP Number	Description	NSP	Profile	Number of items of load	Database wattage (watts)
1000559935PC176	Tauranga District Council Streetlights (MTM)	MTM0331	STL	1,728	219,792
1000581494PC175	Tauranga District Council Streetlights (MTM)- LED- CMS	TGA0111	CMS	1,466	37,657
1000581495PCD30	Tauranga District Council Streetlights (TGA33)- LED - CMS	TGA0331	CMS	1,720	39,608
1000581497PCDB5	Tauranga District Council Streetlights (KMO)- LED- CMS	KMO0331	CMS	948	23,102
1000581498PC26B	Tauranga District Council Streetlights (MTM)-LED-CMS	MTM0331	CMS	1,041	24,563
1000583119PCD21	Tauranga District Council Streetlights (TMI)	TMI0331	UML	1,681	154,320
1000583125PC9C7	Tauranga District Council Streetlights (TMI) -LED-CMS	TMI0331	UML	673	15,761
Total				**13,844**	**1,142,287**

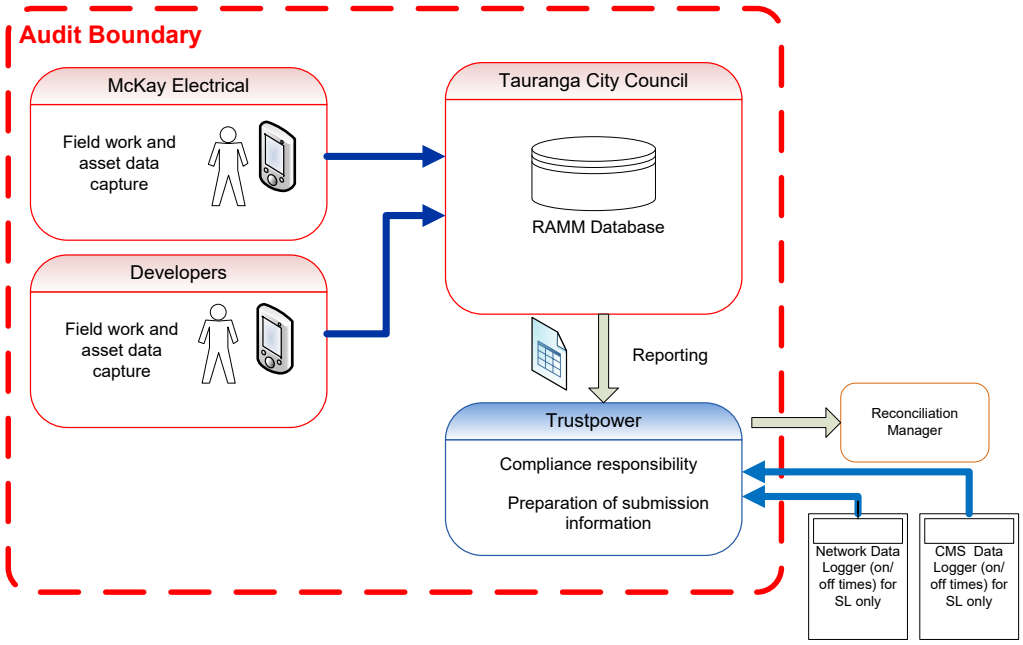
1.7. Authorisation Received

All information was provided directly by Trustpower and TCC.

1.8. Scope of Audit

The database used for submission is managed by TCC. The field work and asset data capture is conducted by McKay Electrical and they update the TCC RAMM database using "Pocket RAMM". 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 carried out of 351 items of load on November 5th, 2020.

1.9. Summary of previous audit

The previous audit was completed in December 2018 by Steve Woods of Veritek. Five non-compliances were identified, and no recommendations were made. The table below shows the current status of the issues raised.

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	Under submission of approx. 81.3 kWh per annum has occurred due to three incorrect ballast wattages.	Still existing
Capacity of load	2.4	11(2)(b) of Schedule 15.3	Discrepancies in the database as follows: • two 250-watt SON records had the incorrect ballast wattage, one had 20 and one had 18 when they should be 28, and • one 60-watt cosmopolis had 5 instead of 6 for ballast wattage.	Cleared

Subject	Section	Clause	Non-compliance	Status
All load recorded in database	2.5	11(2A) of Schedule 15.3	The field audit identified three lamps which were not recorded in the database.	Still existing
Database accuracy	3.1	15.2 and 15.37B(b)	Under submission of approx. 81.3 kWh per annum has occurred due to three incorrect ballast wattages.	Still existing
Volume information accuracy	3.2	15.2 and 15.37B(c)	Under submission of approx. 81.3 kWh per annum has occurred due to three incorrect ballast wattages.	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.

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 for six ICPs, the CMS profile for four ICPS and the UNM profile for two ICPs. The submissions were checked and found to be correct for the six ICPs with the STL profile applied but some inaccuracies were found with the four ICPs with the CMS profile applied as detailed in the table below:

ICP	Registry profile	Submitted profile	Sept 2020 CMS burn hours	Sept 2020 STL burn hours applied	kWh submission variance for Sept 2020	Comments
1000581494PC175	CMS	STL	381.20	348.15	1,244.57	Incorrect profile and burn hours
1000581495PCD30	CMS	CMS	381.20	348.15	1,309.05	Correct profile but incorrect burn hours
1000581497PCDB5	CMS	STL	381.20	348.15	763.53	Incorrect profile and burn hours
1000581498PC26B	CMS	STL	381.20	348.15	811.80	Incorrect profile and burn hours
TOTAL					4,128.95	

CMS profile

The load for these items of load are switched by the TCC Central Management System (Street Vision) and the on and off times are used to create the shape file. These are collected from a data storage device used to record the on/off times from a sample fitting. Therefore, the submissions for these lights have had the incorrect burn hours applied for all four ICPs and three of the ICPs have been incorrectly submitted with the STL profile. This has resulted in 4,128.95 kWh of under submission for the month of September 2020. It is not possible to estimate the annual impact of this on submission as the lights have been added to the CMS ICP progressively.

UNM Profile

The submission was checked for the two ICPs with the UML profile applied and found that the load was correctly submitted for ICP 1000583119PCD21. Trustpower are updating the profile for this ICP to STL going forward. For ICP 1000583125PC9C7, this is also switched on and off by the central management system and therefore should have the CMS profile applied and the incorrect burn hours have been applied resulting in an estimated 520.91 kWh of under submission for the month of September 2020. It is not possible to estimate the annual impact of this on submission as the lights have been added to the CMS ICP progressively.

There is some inaccurate data within the database used to calculate submissions. This is recorded as non-compliance and discussed in **section 3.1** and **3.2**.

Changes made to lights during the month are taken into account and applied from the date of the light change. Additions to the database are added effective from the date of the light installation.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: 26-Nov-18 To: 23-Oct-20	Inaccurate submission due to the incorrect profile being applied for four ICPs and the incorrect burn hours being applied for five ICPs. This is estimated to have resulted in a total under submission of 4,649.86 kWh submission for the month of September 2020. Database accuracy is outside the allowable threshold and indicates a potential under submission of 214,500 kWh per annum due to new items of load are not being added to the database in a timely manner in all instances. One incorrect gear wattage applied of 18W instead of 14W. Potential impact: High Actual impact: High Audit history: Multiple times Controls: Weak Breach risk rating: 9
Audit risk rating	**Rationale for audit risk rating**
High	Controls are rated as weak for two reasons. The incorrect profile and burn hours have been used for submission for four/five ICPs and the updates to the database are not being made in a timely manner. The impact is rated as high due to the estimated submission inaccuracies found.

Actions taken to resolve the issue	Completion date	Remedial action status
The correct profiles have now been applied. The difference between profiles was minor. With regard to updates not been made in a timely manner. This is being actively worked on and the delays are of a short duration, therefore we believe the potential annual discrepancies is overinflated as it appears to be calculated as if they changes are never captured.	01/01/2021	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Working with customer to ensure all changes are captured in a timely manner	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 RAMM database was checked to confirm an ICP is recorded for each item of load.

Audit commentary

An ICP is recorded for all but 13 items of load. These have all since been populated as part of BAU and were missing due to timing.

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 fields for GPS coordinates, the nearest street address including the distance from the end of the road. This data is complete and accurate; there are no blanks, and the field audit confirmed the accuracy of location information.

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 RAMM 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 fields for lamp description, wattage and gear wattage. The entire database was checked, and all were populated. The accuracy of these are discussed 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

A field audit of a statistical sample of 351 items of load recorded in the RAMM database was undertaken. The total population was divided into four strata detailed in **section 3.1**.

Audit commentary

The field audit findings are detailed in the table below.

Wattages for lamps found in the street 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
ASHLEY PLACE - lights actually on Kopukairoa Boulevard	3	9	+6	3	6x additional 34W LED found in the field 3x 34W LED recorded as 28W LED
CHADWICK ROAD SERVICE LANE (RP952 RHS)	5	5	-	1	1x 150W HPS recorded as 100W incandescent lamp
GOLF ROAD	18	18	-	1	1x 117W LED recorded as 100W HPS
HILLS VIEW DR	15	15	-	10	10 x 34w LED recorded as 28W LED
MATAKOKIRI DRIVE	1	32	+31		2 x additional 250W HPS found in the field 29 x additional 78W LED found in the field- NB these are being added manually to the monthly report.
ST JOHN STREET	9	9	-	1	1x 150W HPS recorded as 70W HPS
TAURIKURA DRIVE/PARAONE KOIKOI DRIVE RAB	6	7	+1		1x additional 250W HPS found in the field
UNION DRIVE	16	23	+7		7x additional 28W LED found in the field
Total	**351**		**45**	**16**	

I found 45 more lamps in the field than recorded in the database. The discrepancies found were all in new subdivisions. It appears that there is a delay from the time the items of load are livened and getting these added to the database. TCC are aware of this and are working with Trustpower and Powerco to ensure that the required information is provided ASAP. The additional lights are recorded as non-compliance.

I note that the 30 additional lights found on Matakoriki Drive are being manually added to the monthly report by TCC.

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

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.5 With: Clause 11(2A) of Schedule 15.3 From: 26-Nov-18 To: 23-Oct-20	45 x additional items of load found in the field which were not recorded in the database. Potential impact: High Actual impact: High Audit history: Three times Controls: Moderate Breach risk rating: 6
Audit risk rating	**Rationale for audit risk rating**
High	The controls are rated as moderate as there is room for improvement for the adding of new load. The impact is rated as high due to the estimated volume of under submission for new lights missing from the database.

Actions taken to resolve the issue	Completion date	Remedial action status
TCC is investigating all the discrepancies in the field Audit and will be updating the Database using the correct dates. All load will be submitted form the correct livening dates.	01/01/2021	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We have instigated a new process with Powerco the party responsible auditing the contractors who are livening the lights without the approval of us or the TCC. This should reduce the occurrence of such livening. The delay does not have a material impact on the submission as the lights are usually picked up within a few weeks of being livened and data submitted from the correct dates.	01/02/2021	

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 TCC database was examined.

Audit commentary

The RAMM 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 RAMM 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

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

Plan Item	Comments
Area of interest	Tauranga City Council region
Strata	The database contains items of load in the Tauranga City area. The processes for the management of all TCC items of load are the same, but I decided to place the items of load into four strata, as follows: 1. A to D, 2. E to L, 3. M to Q, and 4. R to Z
Area units	I created a pivot table of the roads in each area and I used a random number generator in a spreadsheet to select a total of 55 sub-units.
Total items of load	351 items of load were checked.

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

A field audit was conducted of a statistical sample of 351 items of load. The "database auditing tool" was used to analyse the results, which are shown in the table below.

Result	Percentage	Comments
The point estimate of R	116.3	Wattage from survey was found to be accurate
R_L	102.8	With a 95% level of confidence it can be concluded that the error could be between 2.8% and 92.8%
R_H	192.8	

The additional lights found in Matakoriki Drive are being added manually to the monthly report therefore I have rerun the results with these removed to get a more accurate picture of the database accuracy as detailed:

Result	Percentage	Comments
The point estimate of R	104.4	Wattage from survey was found to be accurate
R_L	101.7	With a 95% level of confidence it can be concluded that the error could be between1.7% and 12.6%
R_H	112.6	

These results were categorised in accordance with the "Distributed Unmetered Load Statistical Sampling Audit Guideline", effective from 01/02/19. The table below shows that Scenario B (detailed below) applies.

The conclusion from Scenario B is that the variability of the sample results across the strata means that the true wattage (installed in the field) could be between 1.7% and 12.7% higher than the wattage recorded in the DUML database. Non-compliance is recorded because the potential error is greater than 5.0%.

In absolute terms the installed capacity is estimated to be 50 kW more than the database indicates.

There is a 95% level of confidence that the installed capacity is between 19 kW to 142 kW higher than the database.

In absolute terms, total annual consumption is estimated to be 214,500 kWh higher than the DUML database indicates.

There is a 95% level of confidence that the annual consumption is between 82,600 and 606,400 kWh p.a. higher than the database indicates.

Scenario	Description
A - **Good accuracy, good precision**	This scenario applies if: (a) R_H is less than 1.05; and (b) R_L is greater than 0.95 The conclusion from this scenario is that: (a) the best available estimate indicates that the database is accurate within +/- 5 %; and (b) this is the best outcome.
B - **Poor accuracy, demonstrated with statistical significance**	This scenario applies if: (a) the point estimate of R is less than 0.95 or greater than 1.05 (b) as a result, either R_L is less than 0.95 or R_H is greater than 1.05. There is evidence to support this finding. In statistical terms, the inaccuracy is statistically significant at the 95% level
C - **Poor precision**	This scenario applies if: (a) the point estimate of R is between 0.95 and 1.05 (b) R_L is less than 0.95 and/or R_H is greater than 1.05 The conclusion from this scenario is that the best available estimate is not precise enough to conclude that the database is accurate within +/- 5 %

Light description and capacity accuracy

As discussed in **section 2.4**, all lights have a lamp and gear wattage recorded. Lamp and gear wattages were compared to the expected values. All were correct with one exception. One 100W HPS light was recorded with the incorrect gear wattage of 18W applied when it should be 14W. This has since been corrected. Overall accuracy was very high. This is recorded as non-compliance below.

ICP number accuracy

As detailed in **section 2.2**, an ICP is recorded for all but 13 items of load. These have all since been populated as part of BAU and were missing due to timing. Compliance is confirmed.

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.

The field audit found that new streetlights are not being added to the database in a timely manner. The process was discussed. and it appears that there is a delay from the time the items of load are livened and getting these added to the database. TCC are aware of this and are working with Trustpower and Powerco to ensure that the required information is provided ASAP.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 26-Nov-18 To: 21-Oct-20	Database accuracy is outside the allowable threshold and indicates a potential under submission of 214,500 kWh per annum due to new items of load are not being added to the database in a timely manner in all instances. One incorrect gear wattage applied of 18. Potential impact: High Actual impact: High Audit history: Multiple times Controls: Moderate Breach risk rating: 6
Audit risk rating	**Rationale for audit risk rating**
High	Controls are rated as moderate as there is room for improvement to capture new streetlights in a more timely manner. The impact is rated as high due to the estimated volume of under submission.

Actions taken to resolve the issue	Completion date	Remedial action status
We have instigated a new process with Powerco the party responsible auditing the contractors who are livening the lights without the approval of us or the TCC. This should reduce the occurrence of such livening. The delay does not have a material impact on the submission as the lights are usually picked up within a few weeks of being livened and data submitted from the correct dates.	01/02/2021	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We have instigated a new process with Powerco the party responsible auditing the contractors who are livening the lights without the approval of us or the TCC. This should reduce the occurrence of such livening. The delay does not have a material impact on the submission as the lights are usually picked up within a few weeks of being livened and data submitted from the correct dates.	01/02/2021	

3.2. Volume information accuracy (Clause 15.2 and 15.37B(c))

Code reference

Clause 15.2 and 15.37B(c)

Code related audit information

The audit must verify that:

- *volume information for the DUML is being calculated accurately*
- *profiles for DUML have been correctly applied.*

Audit observation

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

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

Audit commentary

Trustpower reconciles this DUML load using the STL profile for six ICPs, the CMS profile for four ICPS and the UNM profile for two ICPs. The submissions were checked and found to be correct for the six ICPs with the STL profile applied but some inaccuracies were found with the four ICPs with the CMS profile applied as detailed in the table below:

ICP	Registry profile	Submitted profile	Sept 2020 CMS burn hours	Sept 2020 STL burn hours applied	kWh submission variance for Sept 2020	Comments
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TOTAL					4,128.95	

The load for these items of load are switched by the TCC Central Management System (Street Vision) and the on and off times are used to create the shape file. These are collected from a data storage device used to record the on/off times from a sample fitting. Therefore, the submissions for these lights have had the incorrect burn hours applied for all four ICPs and three of the ICPs have been incorrectly submitted with the STL profile. This has resulted in 4,128.95 kWh of under submission for the month of September 2020. It is not possible to estimate the annual impact of this on submission as the lights have been added to the CMS ICP progressively.

<u>UNM Profile</u>

The submission was checked for the two ICPs with the UML profile applied and found that the load was correctly submitted for ICP 1000583119PCD21. Trustpower are updating the profile for this ICP to STL going forward. For ICP 1000583125PC9C7, this is also switched on and off by the central management system and therefore should have the CMS profile applied and the incorrect burn hours have been applied resulting in an estimated 520.91 kWh of under submission for the month of September 2020. It is not possible to estimate the annual impact of this on submission as the lights have been added to the CMS ICP progressively.

There is some inaccurate data within the database used to calculate submissions. This is recorded as non-compliance and discussed in **section 3.1** and **3.2**.

Changes made to lights during the month are applied from the date of the light change. Additions to the database are added effective from the date of the light installation.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: 26-Nov-18 To: 23-Oct-20	Inaccurate submission due to the incorrect profile being applied for four ICPs and the incorrect burn hours being applied for five ICPs. This is estimated to have resulted in a total under submission of 4,649.86 kWh submission for the month of September 2020. Database accuracy is outside the allowable threshold and indicates a potential under submission of 214,500 kWh per annum due to new items of load are not being added to the database in a timely manner in all instances. One incorrect gear wattage applied of 18W instead of 14W. Potential impact: High Actual impact: High Audit history: Multiple times Controls: Weak Breach risk rating: 9
Audit risk rating	**Rationale for audit risk rating**
High	Controls are rated as weak for two reasons. The incorrect profile and burn hours have been used for submission for four/five ICPs and the updates to the database are not being made in a timely manner. The impact is rated as high due to the estimated submission inaccuracies found.

Actions taken to resolve the issue	Completion date	Remedial action status
The correct profiles have now been applied. The difference between profiles was minor	01/12/2020	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We have included this profile in the same process as all our other Profiles to ensure it is part of our separate profile Audit.	01/01/2020	

CONCLUSION

TCC continues to have a growing population resulting in new subdivisions and roading changes to accommodate this. The existing lights in the database have a high level of accuracy, but the field audit found that new lights are not being updated in the database in a timely manner and the data provided for these light fittings is not always accurate. Trustpower, TCC and Powerco are working together to improve this process.

Examination of submission found that of the 12 ICPs the incorrect profile was applied for four, and the incorrect burn hours were applied for five ICPs. The streetlights on five of the ICPs are turned on and off using the CMS system and there is a data logger connected to a sample fitting that records these hours. These are expected to be used for submission but it appears that the new profile has not been communicated within the business so that the existing STL profile have continued to be applied to all ICPs and the burn hours from the network controlled relays have been applied. Trustpower will process revisions to correct this

The audit found four non-compliances and makes no recommendations. The future risk rating of 30 indicates that the next audit be completed in three months. I have considered this in conjunction with Trustpower's comments, the time required to affect change and recommend the next audit is undertaken in nine months.

PARTICIPANT RESPONSE

Our new process involving Powerco and its approved livening agents means that Us and TCC will receive livening information from Powerco and its contractors within a few days of any new lights being livened with the date and location of the livening. This will be operational with the Powerco contractor by 01/02/2021. This will reduce the issues we have in managing new subdivisions.

With regard to the CMS profile. We have included steps to ensure that all our systems are updated, and checks put in place to minimise human error when new profiles are added. This was a one of error and did not have a material impact on data being submitted on an annual basis.

Overall TCC has robust processes in place for managing the database and have shown that they are proactive in putting in place solutions to overcome issues reported in previous Audits. We do not believe that the Audit score of 30 reflects the actually operational performance of this DUML database.