ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

VERITEK

For

CENTRAL OTAGO DISTRICT COUNCIL RAMM DATABASE AND CONTACT ENERGY NZBN: 9429038549977

Prepared by: Steve Woods

Date audit commenced: 11 January 2022

Date audit report completed: 8 February 2022

Audit report due date: 01-Mar-22

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This audit of the **Central Otago District Council (CODC)** Unmetered Streetlights DUML RAMM database and processes was conducted at the request of **Contact Energy Limited (Contact)**, 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.

This audit includes all streetlights for CODC load as recorded in RAMM.

The database is remotely hosted by thinkproject New Zealand Ltd. Contact reconciles this DUML load using the DST profile. This is managed by Contact Energy's subsidiary Simply Energy and is submitted against the CTCS participant identifier.

CODC's contractor for streetlight installation and maintenance is Delta.

The field audit was undertaken of a statistical sample of 194 items of load in CODC the area on the 28th January 2022. This found that the database is within the allowable +/-5% accuracy.

The total volume submitted to the Reconciliation Manager is based on a monthly database report derived from RAMM, and the "burn time" which is sourced from data loggers. The methodology is compliant.

I checked the submission calculation provided by Contact for December 2021 and it matches the database.

The previous audit report noted that CODC have no central management system in place and no plans to install one, but the fittings have fixed dimming for all Betacom lights (1,714 items of load or 83% of all lights) installed on their network. This was part of the night sky initiative in the area. The lights reduce their power consumption to 60% between the hours of midnight to 5am year-round. Currently this is not reflected in the submission volumes. This will be resulting in an estimated annual over submission of 25,000 kWh. New ICPs have been created and it is intended that submission will occur against the new ICPs, using the dimming profile that has recently been approved by the Authority. These will be applied once golden meters can be installed, then the volumes will reflect the dimming. This project is still progressing, and it is expected that the appropriate agreements will be in place and metering installed to support this in the next few months.

The audit found five non-compliances and makes one recommendation. The future risk rating of 14 indicates that the next audit be completed in 12 months. I have considered this in conjunction with Contacts' comments and recommend that the next audit is in 12 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	Over submission of an estimated 25,000 kWh per annum due to the hard-wired dimming LED lamps for 83% of the total lamps installed. Three lamps with incorrect ballast applied resulting in very minor over submission.	Moderate	Medium	4	Identified
ICP identifier and items of load	2.2	Clause 11(2)(a) and (aa) of Schedule 15.3	The ICP is not recorded in the database for 16 items of load.	Moderate	Low	2	Identified
All load recorded in database	2.5	11(2A) of Schedule 15.3	Four additional lights found in the field.	Moderate	Low	2	Identified
Database accuracy	3.1	15.2 and 15.37B(b)	Three lamps with incorrect ballast applied resulting in very minor over submission.	Moderate	Low	2	Identified
Volume information accuracy	3.2	15.2 and 15.37B(c)	Over submission of an estimated 25,000 kWh per annum due to the hard-wired dimming LED lamps for 83% of the total lamps installed. Three lamps with incorrect ballast applied resulting in very minor over submission	Moderate	Medium	4	Identified
					Future Risk Rating	**14**	

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	Recommendation	Action
Location of each item of load	2.3	Liaise with CODC to obtain better address information to ensure the lights are locatable where GPS co-ordinates are not recorded.	CODC will complete a review of the addresses held in RAMM and look to update and provide further info where required.

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

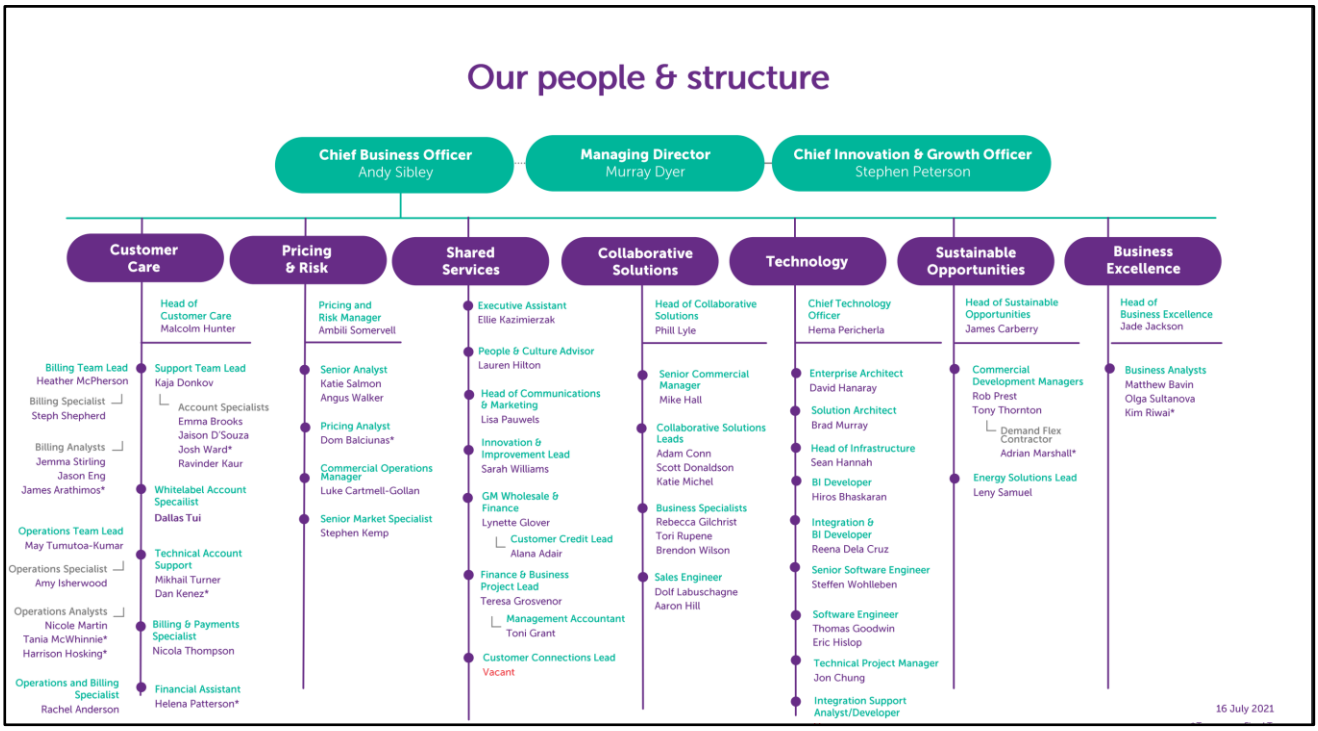
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

Audit commentary

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

1.2. Structure of Organisation

Contact provided a copy of their organisational structure.



1.3. Persons involved in this audit

Name	Company	Role
Steve Woods	Veritek Limited	Lead Auditor
Claire Stanley	Veritek Limited	Supporting Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Luke Cartmell-Gollan	Commercial Operations Manager	Contact Energy
James McCallum	Roading Manager	Central Otago DC
Pardeep Brar	Roading Asset Engineer	Central Otago DC

1.4. Hardware and Software

The SQL database used for the management of DUML is remotely hosted by thinkproject New Zealand Limited. The database is commonly known as "RAMM" which stands for "Road Assessment and Maintenance Management". The specific data used for DUML is held in the Streetlight tables. thinkproject New Zealand Limited backs up the database and assists with disaster recovery as part of their hosting service.

Access to the database is secure by way of password protection.

Systems used by the trader and their agent 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	Description	Profile	Number of items of load	Database wattage (watts)
0000481144CEF63	CROMWELL GXP	DST	291	17,895
0000002553CE07F	CLYDE GXP	DST	98	4,846
0001982630TG886	NASEBY GXP	DST	42	3,405
0000510662CEEB3*	CLYDE GXP	RPS	818	14,932
0001982631TG4C3	NASEBY GXP	RPS	187	3,413
0000510663CE2F6*	CROMWELL GXP	RPS	714	1,037
Blank ICP			16	348
		TOTAL	**2,166**	**59,876**

*Note two ICPs that have been created are recorded in the database but are not being used currently for submission, they are identified as 'reconciled elsewhere'. ICP 0001982631TG4C3 was previously identified as 'reconciled elsewhere', this was updated to "active" on 1 April 2021 as requested by Powernet, however all volumes are reported against ICP 0000481144CEF63.

These ICP's are expected to be used once the new approved streetlight profile can be used. This is discussed further in **section 2.1**.

1.7. Authorisation Received

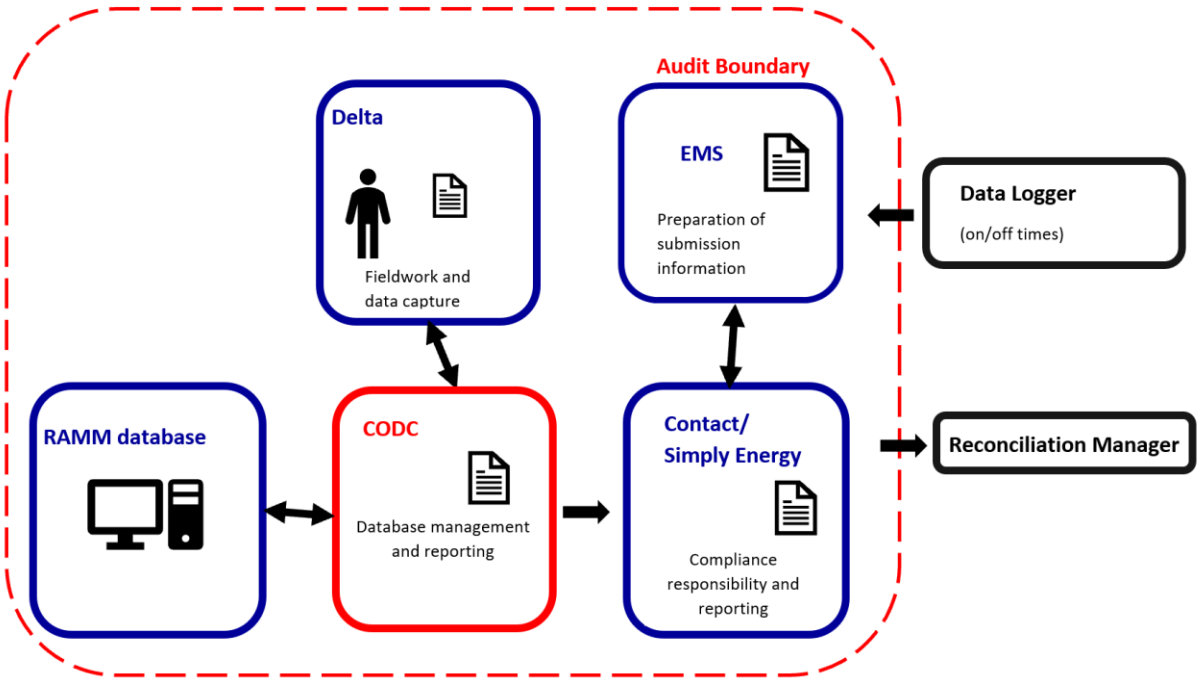
All information was provided directly by Contact or CODC.

1.8. Scope of Audit

This audit of the CODC DUML RAMM database and processes was conducted at the request of Contact, 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.

This audit includes all streetlights for CODC load as recorded in RAMM.

The RAMM database is managed by CODC and is remotely hosted by thinkproject New Zealand Limited. The field work is carried out by Delta. The asset data capture and database population are conducted by CODC. The scope of the audit encompasses the collection, security and accuracy of the data, including the preparation of submission information. The diagram below shows the audit boundary for clarity.



The field audit was carried out on 28th January 2022. The field audit was undertaken of 194 items of load.

1.9. Summary of previous audit

The previous audit was completed in July 2021 by Rebecca Elliot of Veritek Limited. The current status of that audit's findings is detailed below:

Table of Non-Compliance

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	Over submission of an estimated 25,000 kWh per annum due to the hard-wired dimming LED lamps for 83% of the total lamps installed.	Still existing
			The data used for submission does not track changes at a daily basis and is provided as a snapshot.	Cleared
			Database is not confirmed as accurate with a 95% level of confidence, resulting in over submission of 5,600 kWh per annum.	Cleared
			One 70W HPS lamp with no ballast applied.	Cleared
Location of each item of load	2.3	11(2)(b) of Schedule 15.3	1 item of load without GPS coordinates or street number.	Cleared

Subject	Section	Clause	Non-compliance	Status
Description and capacity of load	2.4	11(2)(c) of Schedule 15.3	39 items of load with no lamp description recorded. One item of load with no ballast value recorded resulting in a very minor amount of under submission.	Cleared Cleared
All load recorded in database	2.5	11(2A) of Schedule 15.3	Five additional lights found in the field.	Still existing for different lamps
Database accuracy	3.1	15.2 and 15.37B(b)	Database is not confirmed as accurate with a 95% level of confidence, resulting in over submission of 5,600 kWh per annum. One 70W HPS lamp with no ballast applied. 39 items of load with unknown lamp type. One item of load without GPS coordinates and street number. New lights not recorded from date of installation. Three ICPs recorded in the database with lamps associated but not being used for submission.	Cleared Cleared Cleared Cleared Cleared Cleared
Volume information accuracy	3.2	15.2 and 15.37B(c)	Over submission of an estimated 25,000 kWh per annum due to the hard-wired dimming LED lamps for 83% of the total lamps installed. The data used for submission does not track changes at a daily basis and is provided as a snapshot. Database is not confirmed as accurate with a 95% level of confidence, resulting in over submission of 5,600 kWh per annum. One 70W HPS lamp with no ballast applied.	Still existing Cleared Cleared 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

Contact have requested Veritek to undertake this streetlight audit.

Audit commentary

This audit report confirms that the requirement to conduct an audit has been met for this database.

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 and the application of profiles was checked. The database was checked for accuracy.

Audit commentary

Contact reconciles this DUML load using the DST profile. I checked the submission calculation provided by Contact for November 2021 and it matches the database.

Simply Energy on behalf of Contact send the monthly kW values to EMS. EMS prepare the submission file using the data logger hours to determine the burn hours and the file is then sent to Contact who submit the data under the CTCS code.

The total volume submitted to the Reconciliation Manager is based on a monthly database report derived from RAMM and the "burn time" which is sourced from data loggers. The methodology is compliant.

Examination of the database found the wattages applied for a small number of lights had the incorrect wattage applied resulting in an estimated very minor over submission of 179 kWh as detailed in **section 3.1**.

The previous audit report noted that CODC have no central management system in place and no plans to install one, but the fittings have fixed dimming for all Betacom lights (1,714 items of load or 83% of all lights) installed on their network. This was part of the night sky initiative in the area. The lights reduce their power consumption to 60% between the hours of midnight to 5am year-round. Currently this is not reflected in the submission volumes. This will be resulting in an estimated annual over submission of 25,000 kWh. New ICPs have been created and it is intended that submission will occur against the new ICPs, using the dimming profile that has recently been approved by the Authority. These will be applied once golden meters can be installed, then the volumes will reflect the dimming. This project is still progressing, and it is expected that the appropriate agreements will be in place and metering installed to support this in the next few months.

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

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

The current monthly report is provided as a snapshot and additional reporting is provided to Contact with any changes during the period and this tracks the changes at a daily level. Revisions are completed where corrections are required.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: 19-Jul-21 To: 11-Jan-22	Over submission of an estimated 25,000 kWh per annum due to the hard-wired dimming LED lamps for 83% of the total lamps installed. Three lamps with incorrect ballast applied resulting in very minor over submission. Potential impact: Medium Actual impact: Medium Audit history: Three times previously Controls: Moderate Breach risk rating: 4
Audit risk rating	**Rationale for audit risk rating**
Medium	The controls are rated as moderate as a new streetlight profile has been approved by the Electricity Authority and this is expected to be used in the near future. The impact is assessed to be medium, based on the kWh differences described above.

Actions taken to resolve the issue	Completion date	Remedial action status
Lamps with suspected incorrect ballast values will be reviewed and corrected where required (or further information provided to auditors) Issues related to dimming will be able to be corrected once participants are approved to use the new profiles approved by the EA	31/3/2022 30/6/2022	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

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 was recorded against each item of load.

Audit commentary

All items of load have an ICP recorded against them, except 16 items that are blank for the ICP.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.2 Clause 11(2)(a) & (aa) of Schedule 15.3 From: 19-Jul-21 To: 11-Jan-22	The ICP is not recorded in the database for 16 items of load. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate as the ICP is recorded for all but 16 items of load. The impact is assessed to be low due to the impact on submission.

Actions taken to resolve the issue	Completion date	Remedial action status
This issue is the result of a miscommunication. These lights relate to a sub-division that was vested in July 2021 but was not added to the CODC RAMM database as they were within the 1-year defect liability period where all costs are the responsibility of the developer. These lights have now been added to RAMM, effective the vesting date, and submissions will be corrected back to the vesting date via the usual revision cycle for submission.	Ramm corrected 28/2/2022; Submissions corrected by 21/9/2022 (July 2021 14-month revision date)	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Process notes for adding lights to RAMM will be reviewed and re-worded to ensure it is clear that lights are added to RAMM on the vesting date.	31/3/2022	

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 the nearest street address, pole numbers and Global Positioning System (GPS) coordinates for most items of load. 20 items of load do not have GPS coordinates or street number recorded. I recommend that more information is obtained and updated in the database to ensure the lights are easily locatable.

Recommendation	Description	Audited party comment	Remedial action
Location of each item of load	Liaise with CODC to obtain better address information to ensure the lights are easily locatable where GPS co-ordinates are not recorded.	CODC will complete a review of the addresses held in RAMM and look to update and provide further info where required	Identified

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 it contained a field for lamp type and wattage capacity and included any ballast or gear wattage and that each item of load had a value recorded in these fields.

Audit commentary

The database contains the lamp make, model, wattage and the ballast wattage, all were populated.

The last audit identified 39 items of load that had an "unknown" lamp type recorded, and one item of load had no ballast wattage recorded, they have all been updated in the database.

The accuracy of the lamp description, capacity and ballasts recorded is 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

The field audit was undertaken of 194 items of load on 28th January 2022.

Audit commentary

The field audit findings for the sample of lamps was accurate with the exception of the streets detailed in the table below:

Street/Area	Database Count	Field Count	Lamp no. difference	No of incorrect lamp wattage	Comments
BEGG LANE	7	8	+1		1 additional 17W LED not recorded in the database but located in the field
BRANDON ST	12	13	+1		1 additional 17W LED not recorded in the database but located in the field
BUTE ST	8	9	+1		1 additional 17W LED not recorded in the database but located in the field
DUNGANNON ST	11	8	-3		3 x 17W LED recorded in the database but not located in the field
HAZLETT ST	17	18	+1		1 additional 17W LED not recorded in the database but located in the field
QUIGLEY CRESCENT	3	3		1	1 x 27W LED recorded in the database but 1 x 17W LED located in the field
RUSSELL ST	10	10		3	3 x 17W LED recorded in the database but 3 x 35W LED located in the field
WAENGA DR	36	36		3	2 x 75W LED recorded in the database but 2 x 53 LED located in the field 1 x 17W LED recorded in the database but 1 x 27W LED located in the field
Grand Total	**104**	**105**	**7 (+4, -3)**	**7**	

This clause relates to lights in the field that are not recorded in the database. The field audit found four additional lights in the field. This is recorded as a non-compliance below.

The database accuracy 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: 19-Jul-21 To: 11-Jan-22	Four additional lights found in the field. Potential impact: Low Actual impact: Low Audit history: Multiple times previously Controls: Moderate Breach risk rating: 2		
Audit risk rating	**Rationale for audit risk rating**		
Low	The controls are rated as moderate because they ensure most information is accurate. The impact is assessed to be low due to four additional lights found in the field in relation to the overall count of the items of load.		
Actions taken to resolve the issue		**Completion date**	**Remedial action status**
CODC will complete their own field audit on all issues found in table above and will update RAMM where required by adding or removing lights or updating wattages to ensure database is an accurate representation of what is in the field.		31/3/2022	Identified
Preventative actions taken to ensure no further issues will occur		**Completion date**	

2.6. Tracking of load changes (Clause 11(3) of Schedule 15.3)

Code reference

Clause 11(3) of Schedule 15.3

Code related audit information

The DUML database must track additions and removals in a manner that allows the total load (in kW) to be retrospectively derived for any given day.

Audit observation

The process for tracking of changes in the database was examined.

Audit commentary

The 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 database has a complete audit trail.

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 database extract was provided, and I assessed the accuracy of this by using the DUML Statistical Sampling Guideline. The table below shows the survey plan.

Plan Item	Comments
Area of interest	Central Otago District Council area
Strata	The database contains items of load in the Central Otago district area. The area has two distinct sub regions of urban and rural. The processes for the management of all CODC items of load are the same, but I decided to place the items of load into three strata: 1. street name A – E, 2. street name F – O, and 3. street Name P - Z
Area units	I created a pivot table of the roads, and I used a random number generator in a spreadsheet to select a total of 47 sub-units.
Total items of load	194 items of load were checked.

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

The process to manage changes made in the field being updated in the database was examined.

Audit commentary

Database accuracy based on the field audit

A field audit was conducted of a statistical sample of 194 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	100.5	Wattage from survey is higher than the database wattage by 0.5%
R_L	96.9	With a 95% level of confidence, it can be concluded that the error could be between -3.1% and 4.5%.
R_H	104.5	

These results were categorised in accordance with the "Distributed Unmetered Load Statistical Sampling Audit Guideline", effective from 1 February 2019 and the table below shows that Scenario A (detailed below) applies.

The conclusion from Scenario A is that the variability of the sample results across the strata means that the true wattage (installed in the field) could be between -3.1% lower and 4.5% higher than the wattage recorded in the DUML database. Compliance is recorded because the potential error is less than 5.0%.

In absolute terms the installed capacity is estimated to be the same as the database indicates.

There is a 95% level of confidence that the installed capacity is between 2 kW lower to 3 kW higher than the database.

In absolute terms, total annual consumption is estimated to be 1,300 kWh higher than the DUML database indicates.

There is a 95% level of confidence that the annual consumption is between -8,000 kWh p.a. lower to 11,600 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 %

Lamp description and capacity accuracy

As detailed in **section 2.4**, I checked the wattages being applied in the database and found the following errors.

Lamp Make	Database gear wattage	Correct gear wattage	Quantity	Total difference
Metal Halide*	18	11	2	14
Mercury Vapour	25	20	1	5
		Total	3	19

*Check if lamp should be Mercury Vapour, 125 W is not valid for Metal Halide.

The incorrect wattage will be resulting in an estimated very minor over submission of 81 kWh per annum (based on annual burn hours of 4,271 as is detailed in the DUML database auditing tool).

Two lamps had an incorrect light model description applied, all other details for the lamp appeared to be correct.

Light Model	Make and model	Wattage
BRP711 LED23/NW 4000K Optic-DWP	Mercury Vapour	125
Mini-Stork 3000K 2550Lumen	HPS	70

ICP location

As discussed in **section 2.3**, 20 items of load do not have GPS coordinates or street number recorded.

Change management process findings

The field contractor is Delta for all fault and maintenance work. Delta are issued a Service Request for reactive work. The RAMM database is updated by the CODC staff with any changes.

As the majority of lights are now LED, outage patrols are no longer undertaken, lamp outages are predominately notified to CODC by residents, and Delta will be issued a Service Request to resolve.

The new subdivision process requires developers to install LED lights. These must be selected from the approved LED light types specified by NZTA. CODC accept responsibility of these assets upon the 224C being issued. "As-built" plans are expected to be submitted to CODC as part of this process. Currently it can take up to three months post the 224C being issued before the "as built" plans are provided. Additional reporting is provided by CODC to Contact with these changes, this tracks the changes at a daily level. Revisions are completed where corrections are required.

There are no festive lights connected to the unmetered streetlight circuits. Private lights are not held in the database.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 19-Jul-21 To: 11-Jan-22	Three lamps with incorrect ballast applied resulting in very minor over submission. Potential impact: Low Actual impact: Low Audit history: Three times previously Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate, because field audit indicated the controls are robust but there is room for errors to occur. The impact is assessed to be low due to the kWh impact.

Actions taken to resolve the issue	Completion date	Remedial action status
CODC will review findings and paperwork and complete a field audit if required and update where required.	31/3/2022	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

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 the ICP has 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

Contact reconciles this DUML load using the DST profile. I checked the submission calculation provided by Contact for November 2021 and it matches the database.

Simply Energy on behalf of Contact send the monthly kW values to EMS. EMS prepare the submission file using the data logger hours to determine the burn hours and the file is then sent to Contact who submit the data under the CTCS code.

The total volume submitted to the Reconciliation Manager is based on a monthly database report derived from RAMM and the "burn time" which is sourced from data loggers. The methodology is compliant.

Examination of the database found the wattages applied for a small number of lights had the incorrect wattage applied resulting in an estimated very minor over submission of 179 kWh as detailed in **section 3.1**.

The previous audit report noted that CODC have no central management system in place and no plans to install one, but the fittings have fixed dimming for all Betacom lights (1,714 items of load or 83% of all lights) installed on their network. This was part of the night sky initiative in the area. The lights reduce their power consumption to 60% between the hours of midnight to 5am year-round. Currently this is not reflected in the submission volumes. This will be resulting in an estimated annual over submission of 25,000 kWh. New ICPs have been created and it is intended that submission will occur against the new ICPs, using the dimming profile that has recently been approved by the Authority. These will be applied once golden meters can be installed, then the volumes will reflect the dimming. This project is still progressing, and it is expected that the appropriate agreements will be in place and metering installed to support this in the next few months.

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

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

The current monthly report is provided as a snapshot and additional reporting is provided to Contact with any changes during the period and this tracks the changes at a daily level. Revisions are completed where corrections are required.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 Clause 15.2 and 15.37B(c) From: 19-Jul-21 To: 11-Jan-22	Over submission of an estimated 25,000 kWh per annum due to the hard-wired dimming LED lamps for 83% of the total lamps installed. Three lamps with incorrect ballast applied resulting in very minor over submission. Potential impact: Medium Actual impact: Medium Audit history: Three times previously Controls: Moderate Breach risk rating: 4
Audit risk rating	**Rationale for audit risk rating**
Medium	The controls are rated as moderate as a new streetlight profile has been approved by the Electricity Authority and this is expected to be used in the near future. The impact is assessed to be medium, based on the kWh differences described above.

Actions taken to resolve the issue	Completion date	Remedial action status
CODC will review ballast findings and paperwork and complete a field audit if required and update where required. Issues related to dimming will be able to be corrected once participants are approved to use the new profiles approved by the EA	31/3/2022 30/6/2022	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

CONCLUSION

This audit includes all streetlight for CODC load as recorded in RAMM.

The database is remotely hosted by thinkproject New Zealand Ltd. Contact reconciles this DUML load using the DST profile. This is managed by Contact Energy's subsidiary Simply Energy and is submitted against the CTCS participant identifier.

CODC's contractor for streetlight installation and maintenance is Delta.

The field audit was undertaken of a statistical sample of 194 items of load in CODC the area on the 28th January 2022. This found that the database is within the allowable +/-5% accuracy.

The total volume submitted to the Reconciliation Manager is based on a monthly database report derived from RAMM, and the "burn time" which is sourced from data loggers. The methodology is compliant.

I checked the submission calculation provided by Contact for December 2021 and it matches the database.

The previous audit report noted that CODC have no central management system in place and no plans to install one, but the fittings have fixed dimming for all Betacom lights (1,714 items of load or 83% of all lights) installed on their network. This was part of the night sky initiative in the area. The lights reduce their power consumption to 60% between the hours of midnight to 5am year-round. Currently this is not reflected in the submission volumes. This will be resulting in an estimated annual over submission of 25,000 kWh. New ICPs have been created and it is intended that submission will occur against the new ICPs, using the dimming profile that has recently been approved by the Authority. These will be applied once golden meters can be installed, then the volumes will reflect the dimming. This project is still progressing, and it is expected that the appropriate agreements will be in place and metering installed to support this in the next few months.

The audit found five non-compliances and makes one recommendation. The future risk rating of 14 indicates that the next audit be completed in 12 months. I have considered this in conjunction with Contacts' comments and recommend that the next audit is in 12 months.

PARTICIPANT RESPONSE

Not reconciling the accurate dimmed load and profile has been the primary source of non-compliance points for the Council in the last 2 audits. The Authority has approved new profiles that will allow for this to happen in future, but as yet we have not got the ability to use those profiles while Local Government NZ and their commercial arm, Equip, work thorough how use of these profiles will be managed.

Our understanding is that the Authority has previously provided a verbal commitment to the Council, and their consultants Smart Power, that they would not continue to be penalised for this non-compliance in the form of shorter audit timelines. This did not happen in the last audit, and we would like to highlight that as a consideration for the Authority when they are deciding the timeline for the Council's next audit.

All other issues will be resolved within the next month and where required, historic submission will be corrected via the existing revision process with the reconciliation manager.