

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

For

**KAPITI RETIREMENT TRUST AND CONTACT
ENERGY**

Prepared by: Tara Gannon

Date audit commenced: 21 October 2020

Date audit report completed: 1 March 2021

Audit report due date: 1 December 2020

TABLE OF CONTENTS

Executive summary	3
Audit summary	4
Non-compliances	4
Recommendations	5
Issues 5	
1. Administrative	6
1.1. Exemptions from Obligations to Comply with Code	6
1.2. Structure of Organisation	7
1.3. Persons involved in this audit.....	8
1.4. Hardware and Software	8
1.5. Breaches or Breach Allegations.....	8
1.6. ICP Data	8
1.7. Authorisation Received	8
1.8. Scope of Audit	9
1.9. Summary of previous audit	10
1.10. Distributed unmetered load audits (Clause 16A.26 and 17.295F)	10
1.11. Participants to give access (Clause 16A.4)	11
2. DUML database requirements.....	13
2.1. Deriving submission information (Clause 11(1) of Schedule 15.3)	13
2.2. ICP identifier and items of load (Clause 11(2)(a) and (aa) of Schedule 15.3)	15
2.3. Location of each item of load (Clause 11(2)(b) of Schedule 15.3)	16
2.4. Description and capacity of load (Clause 11(2)(c) and (d) of Schedule 15.3)	16
2.5. All load recorded in database (Clause 11(2A) of Schedule 15.3)	16
2.6. Tracking of load changes (Clause 11(3) of Schedule 15.3)	18
2.7. Audit trail (Clause 11(4) of Schedule 15.3).....	19
3. Accuracy of DUML database	21
3.1. Database accuracy (Clause 15.2 and 15.37B(b))	21
3.2. Volume information accuracy (Clause 15.2 and 15.37B(c))	23
Conclusion	26
Participant response	27

EXECUTIVE SUMMARY

This audit of the **Kapiti Retirement Trust (KRT) DUML 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.

The scope of the audit encompasses the collection, security, and accuracy of the data, including the preparation of submission information.

KRT maintains an Excel spreadsheet of streetlights within its Sevenoaks retirement village. Streetlight installation and maintenance is completed by **Stones Electrical Limited** as a contractor to KRT. Stones Electrical Limited provide invoices for any work they complete, which include the lamp location, description, and wattage details. KRT uses this information to update the Excel spreadsheet.

KRT provides the latest copy of the spreadsheet to Contact Energy on request; they do not routinely send an updated copy when data changes.

All 39 items of load recorded in the spreadsheet were surveyed in the field. The field wattage was 106.23% of the database wattage, indicating that the installed capacity is 6.23% higher than the spreadsheet. The spreadsheet is not considered to be accurate within $\pm 5.0\%$ because:

- 21 70W SON lights were recorded with 79W in the spreadsheet, instead of 83W,
- one twin fluorescent light was recorded with 36W in the spreadsheet, instead of 77W, and
- one L22 LED was recorded as an L21 (21W) in the spreadsheet instead of L22 (22W).

Contact reconciles this DUML load using the RPS profile, based on historical load information provided by KRT and 11.9 burn hours per day. I checked the submission for December 2020 and confirmed that the calculation methodology was correct, but the wattage used to calculate the submissions differed from the load recorded in the database and the load present in the field.

Total	Load used to calculate submission (Dec 2020)	Load recorded in database (Oct 2020)	Load identified during field audit (Oct 2020)
Wattage	1,800 W	2,022 W	2,148 W
Annual load based on 11.9 hours per day	7,818.3 kWh	8,782.6 kWh	9,329.8 kWh

Seven non-compliances were identified, and no recommendations were raised. The future risk rating of 23 indicates that the next audit be completed in three months. Taking into consideration the low impact of the non-compliances, I recommend the next audit should be completed 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
Participants to give access	1.10	16A.26 and 17.295F	The audit was not completed by the due date.	Moderate	Medium	4	Identified
Participants to give access	1.11	16A.4	Submission information was not provided within 15 business days of the request.	Moderate	Medium	4	Identified
Deriving submission information	2.1	11(1) of Schedule 15.3	Submissions are not calculated using current spreadsheet information. The spreadsheet is not accurate within $\pm 5.0\%$. Lamp installation, change, and removal dates are not recorded in the spreadsheet.	Weak	Low	3	Investigating
ICP identifier and items of load	2.2	11(2)(a) and (aa) of Schedule 15.3	The ICP number is not recorded in the spreadsheet or spreadsheet name.	Moderate	Low	2	Identified
Tracking of load changes	2.6	11(3) of Schedule 15.3	Lamp installation, change, and removal dates are not recorded in the spreadsheet.	Weak	Low	3	Investigating
Audit trail	2.7	11(4) of Schedule 15.3	The spreadsheet does not contain an audit trail.	Strong	Low	1	Investigating
Database accuracy	3.1	15.2 and 15.37B(b)	The spreadsheet is not accurate within $\pm 5.0\%$. Lamp installation, change, and removal dates are not recorded in the spreadsheet.	Weak	Low	3	Investigating
Volume information accuracy	3.2	15.2 and 15.37B(c)	Submissions are not calculated using current spreadsheet information. The spreadsheet is not accurate within $\pm 5.0\%$. Lamp installation, change, and removal dates are not recorded in the spreadsheet.	Weak	Low	3	Investigating
Future Risk Rating						23	

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.

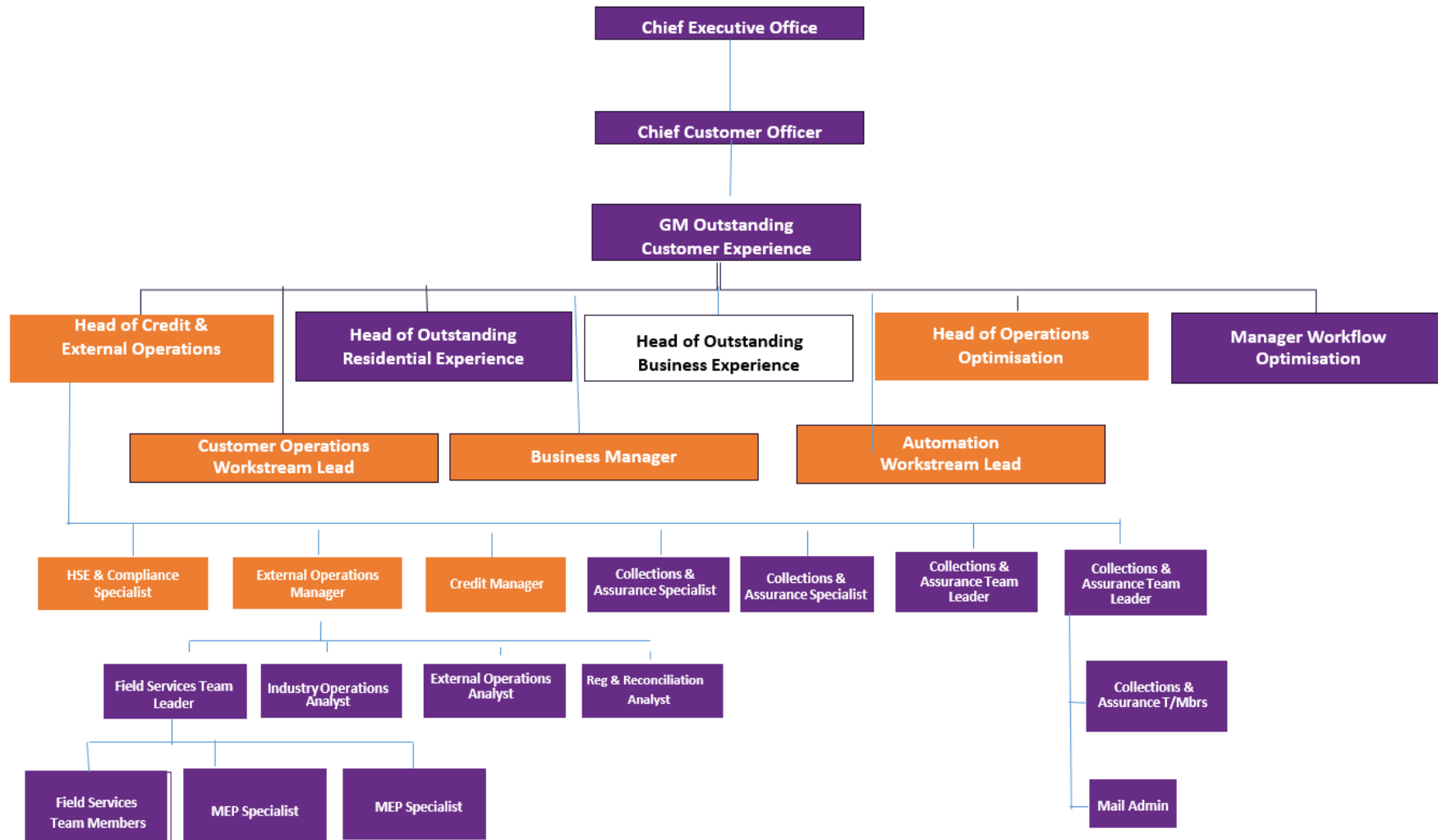
Audit commentary

There is one exemption in place relevant to the scope of this audit, which does not apply for KRT because the submission type is NHH.

Exemption No. 177: Exemption to clause 8(g) of schedule 15.3 of the Electricity Industry Participation Code 2010 ("Code") in respect of providing half-hour ("HHR") submission information instead of non half-hour ("NHH") submission information for distributed unmetered load ("DUML"). This exemption expires at the close of 31 October 2023.

1.2. Structure of Organisation

Contact Energy provided a copy of their organisational structure.



1.3. Persons involved in this audit

Auditor:

Tara Gannon

Veritek Limited

Electricity Authority Approved Auditor

Other personnel assisting in this audit were:

Name	Title	Company
David Blair	Support Services Group Manager	Kapiti Retirement Trust
Bernie Cross	Energy Reconciliation Manager	Contact Energy
Adam Ward	Operations Team Leader (Billing)	Contact Energy
Aaron Wall	Reconciliation Analyst	Contact Energy

1.4. Hardware and Software

The streetlight data is maintained in an Excel spreadsheet. The spreadsheet is saved on KRT's network and backed up along with other files on the network. Access to the network is secure and requires a login and password.

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	Trader	NSP	Profile	Number of items of load	Database wattage (watts)
0015768900ELB35	STREET LIGHTING – MARILYN CLOSE	CTCT	PRM0331	RPS	39	2,022
Total					39	2,022

1.7. Authorisation Received

All information was provided directly by KRT and Contact.

1.8. Scope of Audit

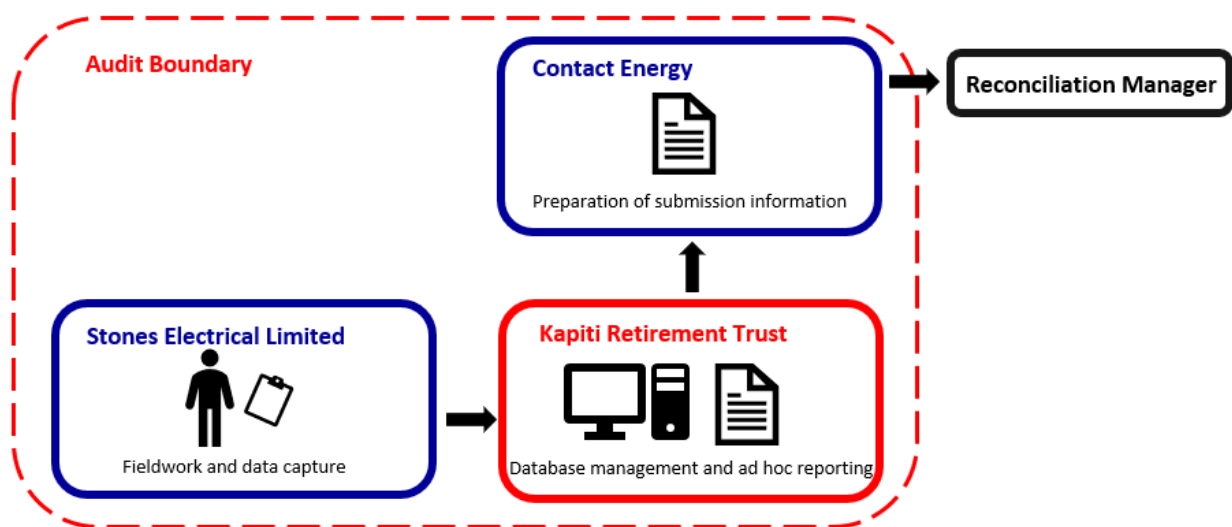
This audit of the KRT DUML database and processes was conducted at the request of Contact, in accordance with clause 15.37B. The purpose of this audit is to verify that the volume information is being calculated accurately, and that profiles have been correctly applied. The audit was conducted in accordance with the audit guidelines for DUML audits version 1.1.

KRT maintains an Excel spreadsheet of streetlights within its Sevenoaks retirement village. Streetlight installation and maintenance is completed by Stones Electrical Limited as a contractor to KRT. Stones Electrical Limited provide invoices for any work they complete, which include the lamp location, description, and wattage details. KRT uses this information to update the Excel spreadsheet.

KRT provides the latest copy of the spreadsheet to Contact Energy on request; they do not routinely send an updated copy when data changes.

Contact reconciles this DUML load using the RPS profile, based on historical load information provided by KRT and 11.9 burn hours per day.

The scope of the audit encompasses the collection, security, and accuracy of the data, including the preparation of submission information based on the database reporting. The diagram below shows the audit boundary for clarity.



The field audit of all 39 items of load was undertaken on 21 October 2020.

1.9. Summary of previous audit

The previous audit was undertaken by Tara Gannon of Veritek Limited in March 2018. The summary table below shows the statuses of the five non-compliances raised in the previous audit. Further comment is made in the relevant sections of this report.

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	The database used to prepare submissions contains some inaccurate information.	Still existing
Description and capacity of load	2.4	Clause 11(2)(c) and (d) of Schedule 15.3	Three poles with more than one lamp installed had an incorrect total wattage recorded.	Cleared
Audit trail	2.7	Clause 11(4) of Schedule 15.3	The database does not contain an audit trail.	Still existing
Database accuracy	3.1	Clause 15.2 and 15.37B(b)	The database used to prepare submissions contains some inaccurate information.	Still existing
Volume information accuracy	3.2	Clause 15.2 and 15.37B(c)	The database used to prepare submissions contains some inaccurate information.	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 3 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

The audit was physically completed by Veritek on 21 October 2020, but report completion was delayed until Contact Energy provided submission information on 16 February 2021.

Audit outcome

Compliant

Non-compliance	Description		
Audit Ref: 1.10 With: Clause 16A.26 and 17.295F From: 16-Sep-20 To: 16-Feb-21	The audit was not completed by the due date. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 4		
Audit risk rating	Rationale for audit risk rating		
Medium	The controls are rated as moderate because only one data item was provided late. The audit risk rating is medium because the information was not provided in time for the audit to be completed before its due date.		
Actions taken to resolve the issue		Completion date	Remedial action status
Contact Energy will ensure that their audits are completed in a timely manner		30/11/2021	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Contact Energy will work with the customer to ensure that Audits are completed in a timely manner		30/11/2021	

1.11. Participants to give access (Clause 16A.4)

Code reference

Clause 16A.4

Code related audit information

(1) A participant must give the Authority or an auditor full access to all information that may be required for the purposes of carrying out an audit.

(2) The participant must provide the information—

(a) at no charge; and

(b) no later than 15 business days after receiving a request for the information from the Authority or an auditor, as the case may be.

Audit observation

The code requires that information requested by the auditor be provided within 15 business days of the request. Veritek requested submission data for ICP 0015768900ELB35 from Contact on 16 September 2020 but the data was not provided until 16 February 2021.

Audit commentary

Submission data was not provided in a timely manner.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 1.11 With: Clause 16A.4 From: 16-Sep-20 To: 16-Feb-21	Submission information was not provided within 15 business days of the request. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 4		
Audit risk rating	Rationale for audit risk rating		
Medium	The controls are rated as moderate because only one data item was provided late. The audit risk rating is medium because the information was not provided in time for the audit to be completed before its due date.		
Actions taken to resolve the issue		Completion date	Remedial action status
Contact Energy will complete their obligations in the required timeframe		30/11/2021	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Contact Energy will ensure they meet their regulatory obligations		30/11/2021	

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 spreadsheet was checked for accuracy.

Audit commentary

Contact reconciles this DUML load using the RPS profile, based on historical load information provided by KRT and 11.9 burn hours per day.

I checked the submission for December 2020 and confirmed that the calculation methodology was correct, but the wattage used to calculate the submissions differed from the load recorded in the database and the load present in the field:

Total	Load used to calculate submission (Dec 2020)	Load recorded in database (Oct 2020)	Load identified during field audit (Oct 2020)
Wattage	1,800 W	2,022 W	2,148 W
Annual load based on 11.9 hours per day	7,818.3 kWh	8,782.6 kWh	9,329.8 kWh

Some inaccurate database information was identified. This inaccurate information does not currently affect submission because it is not used.

Issue	Estimated volume information impact (annual kWh)
21 70W SON lights were recorded with 79W in the spreadsheet, instead of 83W. One twin fluorescent light was recorded with 36W in the spreadsheet, instead of 77W. One L22 LED was recorded as an L21 (21W) in the spreadsheet instead of L22 (22W).	538 kWh of under submission

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.

KRT provides the latest copy of the spreadsheet to Contact Energy on request; they do not routinely send an updated copy when data changes. The spreadsheet is provided as a snapshot and does not contain installation, removal, and change dates. When spreadsheet changes occur, a new copy of the spreadsheet is saved with the change date within its name.

Submission is based on historic database information and is non-compliant.

Audit outcome

Non-compliant

Non-compliance	Description	
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: 21-Oct-20 To: 31-Dec-20	Submissions are not calculated using current spreadsheet information. The spreadsheet is not accurate within $\pm 5.0\%$. Lamp installation, change, and removal dates are not recorded in the spreadsheet. Potential impact: Low Actual impact: Low Audit history: Once Controls: Weak Breach risk rating: 3	
Audit risk rating	Rationale for audit risk rating	
Low	Controls are rated as weak, because they are not sufficient to ensure that data for most lamps is recorded correctly. The impact is low: <ul style="list-style-type: none"> • the wattage differences could result in estimated under reporting of approximately 538 kWh per annum if the current database information was used for submission, • the spreadsheet contains 39 items of load and 2,022W, changes are infrequent, and occur mainly when faulty lights are replaced, and • the difference between the actual wattage found in the field and wattage applied for submission is small. 	
Actions taken to resolve the issue	Completion date	Remedial action status
Contact Energy will work with the customer to ensure that their database is sent to Contact Energy on a regular basis	30/11/2021	Investigating
Preventative actions taken to ensure no further issues will occur	Completion date	
Contact Energy will work with the customer to ensure that their database is sent to Contact Energy on a regular basis	30/11/2021	

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 DUMML database must contain:

- each ICP identifier for which the retailer is responsible for the DUMML
- the items of load associated with the ICP identifier.

Audit observation

The spreadsheet was checked to confirm the correct ICP was recorded against each item of load.

Audit commentary

All items of load in the KRT spreadsheet relate to ICP 0015768900ELB35. The spreadsheet name records that it belongs to KRT, but the ICP number is not recorded within the spreadsheet name or spreadsheet itself.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.2 With: Clause 11(2)(a) and (aa) of Schedule 15.3 From: 06-Oct-20 To: 21-Oct-20	The ICP number is not recorded in the spreadsheet or spreadsheet name. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as moderate and there is not expected to be any impact because the spreadsheet is clearly named, and all items of load relate to ICP 0015768900ELB35.		
Actions taken to resolve the issue		Completion date	Remedial action status
Contact Energy will ensure that that the ICP number is included in the database as well as in the filename of the database		30/11/2021	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Contact Energy to work with the customer to ensure that the ICP number is included in each line of the spreadsheet		30/11/2021	

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 DUMML database must contain the location of each DUMML item.

Audit observation

The spreadsheet was checked to confirm the location is recorded for all items of load.

Audit commentary

All items of load had clear street addresses recorded.

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 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 spreadsheet was checked to confirm that:

- it contained a field for light type and wattage capacity,
- wattage capacities include any ballast or gear wattage, and
- each item of load has a light type, light wattage, and gear wattage recorded.

Audit commentary

A description of the bulb type and maximum wattage (including ballast) are recorded for each item of load. No items of load had missing or zero wattages, or missing bulb descriptions.

The accuracy of the recorded description and wattage information 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 DUMML for which it is responsible is recorded in this database.

Audit observation

A field audit of all 39 items of load was undertaken on 21 October 2020.

Audit commentary

The following lamps had a wattage recorded in the spreadsheet which differed from the expected wattage:

- 21 70W SON lights were recorded with 79W in the spreadsheet, instead of 83W,
- one twin fluorescent light was recorded with 36W in the spreadsheet, instead of 77W, and
- one L22 LED was recorded as an L21 (21W) in the spreadsheet instead of L22 (22W).

The individual field audit discrepancies are detailed in the table below.

Street	Database count	Field count	Count difference	Wattage difference	Comments
1 Grantham Court	1	1	-	1	70W SON recorded as 79W not 83W
10 Lloyd Place	1	1	-	1	70W SON recorded as 79W not 83W
12 Grantham Court	1	1	-	1	70W SON recorded as 79W not 83W
2 Marilyn Close	1	1	-	1	70W SON recorded as 79W not 83W
2 Rotary Place	1	1	-	1	70W SON recorded as 79W not 83W
25 Grantham Court	1	1	-	1	70W SON recorded as 79W not 83W
29 Sevenoaks Court	1	1	-	1	70W SON recorded as 79W not 83W
4 Sevenoaks Court	1	1	-	1	70W SON recorded as 79W not 83W
5 Lloyd Place	1	1	-	1	70W SON recorded as 79W not 83W
6 Florence Way	1	1	-	1	70W SON recorded as 79W not 83W
9 Grantham Court	1	1	-	1	70W SON recorded as 79W not 83W
9 Lloyd Place	1	1	-	1	70W SON recorded as 79W not 83W
End carpark Grantham Ct	2	2	-	2	Two 70W SON recorded as 79W each not 83W each
Nth carpark island Marilyn Close	1	1	-	1	70W SON recorded as 79W not 83W
Opposite 1 Sevenoaks Ct	1	1	-	1	70W SON recorded as 79W not 83W
Opposite 11 Grantham Ct	1	1	-	1	70W SON recorded as 79W not 83W
Opposite 14 Sevenoaks Ct	1	1	-	1	70W SON recorded as 79W not 83W
Opposite 24 Sevenoaks Ct	1	1	-	1	70W SON recorded as 79W not 83W

Street	Database count	Field count	Count difference	Wattage difference	Comments
Staff carpark by Gas meter Rotary Place	1	1	-	1	70W SON recorded as 79W not 83W
Sth carpark island Marilyn Close	1	1	-	1	70W SON recorded as 79W not 83W
3 Marilyn Close	2	2	-	2	Twin fluoro recorded as 36W not 77W
Kauri Carpark Lodge Drive	1	1	-	1	L22 recorded as L21 21W not L22 22W
Total	39	39	-	24	

Compliance is recorded because no additional items of load were identified in the field. Database accuracy is discussed in **section 3.1**.

Audit outcome

Compliant

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

Code reference

Clause 11(3) of Schedule 15.3

Code related audit information

The 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 spreadsheet was examined.

Audit commentary

KRT maintains an Excel spreadsheet of streetlights. Streetlight installation and maintenance is completed by Stones Electrical Limited as a contractor to KRT. Stones Electrical Limited provide invoices for any work they complete, which includes the lamp location, description, and wattage details. KRT uses this information to update the Excel spreadsheet.

The spreadsheet does not contain fields for installation, removal, and change dates. When spreadsheet changes occur, a new copy of the spreadsheet is saved with the change date within its name.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.6 With: Clause 11(3) of Schedule 15.3 From: 06-Oct-20 To: 21-Oct-20	Lamp installation, change, and removal dates are not recorded in the spreadsheet. Potential impact: Low 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 installation, change and removal dates are not recorded and it is not possible to derive the load in kW for any given day. The impact is low, because the spreadsheet contains 39 items of load and 2,022W. Changes are infrequent, and occur mainly when faulty lights are replaced.		
Actions taken to resolve the issue		Completion date	Remedial action status
Contact Energy will work with the customer to have the database updated		30/11/2021	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	
Contact Energy to work with the customer to ensure that the Installation, change and removal dates are included in each line of the spreadsheet		30/11/2021	

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 spreadsheet was checked for audit trails.

Audit commentary

KRT's Excel spreadsheet of streetlights does not contain an audit trail. When spreadsheet changes occur, a new copy of the spreadsheet is saved with the change date within its name.

It is possible to determine the information required to be recorded in the audit trail:

- the change date and time can be determined by the spreadsheet's file name, and the date and time the file is saved,
- the spreadsheet is maintained by one person (Support Services Group Manager KRT), and
- before and after values can be determined by comparing the new version of the spreadsheet to the previous version.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.7 With: Clause 11(4) of Schedule 15.3 From: 06-Oct-20 To: 21-Oct-20	The spreadsheet does not contain an audit trail. Potential impact: Low Actual impact: Low Audit history: Once Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as strong and the impact as low, because all the information required to meet the audit trail requirements is available, although it is not formally recorded within the spreadsheet.		
Actions taken to resolve the issue		Completion date	Remedial action status
Contact will investigate this the customer possible methods to include an appropriate method to apply an audit trail within the spreadsheet 'Database'		30/11/2021	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	

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

Contact reconciles this DUML load using the RPS profile, based on historical load information provided by KRT and 11.9 burn hours per day.

A spreadsheet extract was provided in October 2020 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	Kapiti Retirement Village
Strata	The spreadsheet contains 39 items of load connected to ICP 0015768900ELB35 at KRT's Sevenoaks retirement village. All 39 items of load were checked.
Area units	Not applicable, all 39 items of load were checked.
Total items of load	All 39 items of load were checked.

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

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

Audit commentary

Field audit findings

All 39 items of load recorded in the spreadsheet were surveyed in the field. The field wattage was 106.23% of the spreadsheet wattage, indicating that the installed capacity is 6.23% higher than the spreadsheet. The following exceptions were identified:

- 21 SON lamps and one twin fluorescent lamp had the correct descriptions, but unexpected wattages recorded,
- one twin fluorescent light was recorded with 36W in the spreadsheet, instead of 77W, and
- one LED lamp had an incorrect wattage and description recorded.

The spreadsheet is not considered to be accurate within $\pm 5.0\%$.

Light description and capacity accuracy

As discussed in **section 2.4**, a description of the bulb type and maximum wattage (including ballast) are recorded for all items of load. Wattages were checked against the published standardised wattage table produced by the Electricity Authority and the following exceptions were identified:

- 21 70W SON lights were recorded with 79W in the spreadsheet, instead of 83W, and
- one twin fluorescent light was recorded with 36W in the spreadsheet, instead of 77W.

Change management process

KRT maintains an Excel spreadsheet of streetlights within its Sevenoaks retirement village. Streetlight installation and maintenance is completed by Stones Electrical Limited as a contractor to KRT. Stones Electrical Limited provide invoices for any work they complete, which include the lamp location, description, and wattage details.

KRT uses this information to update the Excel spreadsheet. The spreadsheet does not contain installation, removal, and change dates. When spreadsheet changes occur, a new copy of the spreadsheet is saved with the change date within its name. KRT provides an updated copy of the spreadsheet to Contact Energy on request; they do not routinely send an updated copy when data changes.

New connections are rare. As the existing sodium and fluorescent lights fail, they are replaced with LEDs. There are currently 16 LEDs, 21 70W sodium lights, and one twin fluorescent light.

Formal outage patrols do not occur; outages are normally promptly reported by residents.

Festive and private lights

KRT does not have any festive or private unmetered lights.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 06-Oct-20 To: 21-Oct-20	The spreadsheet is not accurate within $\pm 5.0\%$. Lamp installation, change, and removal dates are not recorded in the spreadsheet. Potential impact: Low Actual impact: Low Audit history: Once Controls: Weak Breach risk rating: 3		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as weak, because they are not sufficient to ensure that data for most lamps is recorded correctly. The impact is low: <ul style="list-style-type: none"> the wattage differences could result in estimated under reporting of approximately 538 kWh per annum if the current database information was used for submission, and the spreadsheet contains 39 items of load and 2,022W, changes are infrequent, and occur mainly when faulty lights are replaced. 		
Actions taken to resolve the issue		Completion date	Remedial action status
Contact Energy will work with the customer to have the database updated		30/11/2021	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	
Contact Energy to work with the customer to ensure that the wattage is correct and the Installation, change and removal dates are included in each line of the spreadsheet		30/11/2021	

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 December 2020. 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 on hours against the submitted figure to confirm accuracy.

Audit commentary

Contact reconciles this DUML load using the RPS profile, based on historical load information provided by KRT and 11.9 burn hours per day. The correct profile is recorded on the registry.

I checked the submission for December 2020 and confirmed that the calculation methodology was correct. The wattage used to calculate the submissions differed from the load recorded in the database and the load present in the field:

Total	Load used to calculate submission (Dec 2020)	Load recorded in database (Oct 2020)	Load identified during field audit (Oct 2020)
Wattage	1,800 W	2,022 W	2,148 W
Annual load based on 11.9 hours per day	7,818.3 kWh	8,782.6 kWh	9,329.8 kWh

Some inaccurate database information was identified. This inaccurate information does not currently affect submission because it is not used.

Issue	Estimated volume information impact (annual kWh)
21 70W SON lights were recorded with 79W in the spreadsheet, instead of 83W. One twin fluorescent light was recorded with 36W in the spreadsheet, instead of 77W. One L22 LED was recorded as an L21 (21W) in the spreadsheet instead of L22 (22W).	538 kWh of under submission

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.

KRT provides the latest copy of the spreadsheet to Contact Energy on request; they do not routinely send an updated copy when data changes. The spreadsheet is provided as a snapshot and does not contain installation, removal, and change dates. When spreadsheet changes occur, a new copy of the spreadsheet is saved with the change date within its name.

Submission is based on historic database information and is non-compliant.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: 21-Oct-20 To: 31-Dec-20	Submissions are not calculated using current spreadsheet information. The spreadsheet is not accurate within $\pm 5.0\%$. Lamp installation, change, and removal dates are not recorded in the spreadsheet. Potential impact: Low Actual impact: Low Audit history: Once Controls: Weak Breach risk rating: 3		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as weak, because they are not sufficient to ensure that data for most lamps is recorded correctly. The impact is low: <ul style="list-style-type: none"> • the wattage differences could result in estimated under reporting of approximately 538 kWh per annum if the current database information was used for submission, • the spreadsheet contains 39 items of load and 2,022W, changes are infrequent, and occur mainly when faulty lights are replaced, and • the difference between the actual wattage found in the field and wattage applied for submission is small. 		
Actions taken to resolve the issue		Completion date	Remedial action status
Contact Energy will work with the customer to have the database updated		30/11/2021	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	
Contact Energy to work with the customer to ensure that the wattage is correct and the Installation, change and removal dates are included in each line of the spreadsheet		30/11/2021	

CONCLUSION

KRT maintains an Excel spreadsheet of streetlights within its Sevenoaks retirement village. Streetlight installation and maintenance is completed by Stones Electrical Limited as a contractor to KRT. Stones Electrical Limited provide invoices for any work they complete, which include the lamp location, description, and wattage details. KRT uses this information to update the Excel spreadsheet.

KRT provides the latest copy of the spreadsheet to Contact Energy on request; they do not routinely send an updated copy when data changes.

All 39 items of load recorded in the spreadsheet were surveyed in the field. The field wattage was 106.23% of the database wattage, indicating that the installed capacity is 6.23% higher than the spreadsheet. The spreadsheet is not considered to be accurate within $\pm 5.0\%$ because:

- 21 70W SON lights were recorded with 79W in the spreadsheet, instead of 83W,
- one twin fluorescent light was recorded with 36W in the spreadsheet, instead of 77W, and
- one L22 LED was recorded as an L21 (21W) in the spreadsheet instead of L22 (22W).

Contact reconciles this DUMML load using the RPS profile, based on historical load information provided by KRT and 11.9 burn hours per day. I checked the submission for December 2020 and confirmed that the calculation methodology was correct, but the wattage used to calculate the submissions differed from the load recorded in the database and the load present in the field.

Total	Load used to calculate submission (Dec 2020)	Load recorded in database (Oct 2020)	Load identified during field audit (Oct 2020)
Wattage	1,800 W	2,022 W	2,148 W
Annual load based on 11.9 hours per day	7,818.3 kWh	8,782.6 kWh	9,329.8 kWh

Seven non-compliances were identified, and no recommendations were raised. The future risk rating of 23 indicates that the next audit be completed in three months. Taking into consideration the low impact of the non-compliances, I recommend the next audit should be completed in 12 months.

PARTICIPANT RESPONSE

Contact Energy has reviewed this report and their comments are recorded in the body of the report. No further comments were provided.