ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

For

KAPITI RETIREMENT TRUST AND CONTACT ENERGY

Prepared by: Bernie Cross

Date audit commenced: 24 October 2022

Date audit report completed: 16 December 2022

Audit report due date: 1 April 2022

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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.

Database accuracy is described as follows:

Result	Percentage	Comments
The point estimate of R	64.2	Wattage from survey is LOWER than the database wattage by 35.8%.
R_L	49	With a 95% level of confidence, it can be concluded that the error could be between -51% and -2%.
R_H	98	

In absolute terms, total annual consumption is estimated to be 3,100 kWh lower than the DUML database indicates.

All 39 items of load recorded in the spreadsheet were surveyed in the field. The spreadsheet is not considered to be accurate within ±5.0% because:

- six 70W SON lights were recorded with 79W in the spreadsheet, instead of 83W,
- nine L17 LED lights (17W) were recorded as 70W SON in the spreadsheet (83W),
- four L27 LED lights (27W) were recorded as 70W SON in the spreadsheet (83W),
- one L17 LED (17W) was recorded as an 18W twin Fluorescent (36W) in the spreadsheet,
- two 50W LED spotlights (Thorn 50w LED IP65 IK 06) illuminating Sevenoaks signs at entrance were not recorded in the spreadsheet, 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 September 2022 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 (Oct 2022)	Load recorded in database (Oct 2022)	Load identified during field audit (Nov 2022)
Wattage	1,800 W	2,022 W	1,286 W
Annual load based on 11.9 hours per day	7,818.3 kWh	8,782.6 kWh	5,585.7 kWh

Eight non-compliances were identified, and no recommendations were raised. The future risk rating of 22 indicates that the next audit be completed in three months. While the volume impact of the non-compliances is relatively low given the small size of this DUML load, the lack of engagement by Contact Energy in both ensuring regular updates to the light population were requested and received outside of a DUML audit being performed and the delay in arranging for an audit to be undertaken indicates the level of controls around this DUML database is weak. I recommend the next audit should be completed in three 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.	Weak	Low	3	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 ±5.0%. Lamp installation, change, and removal dates are not recorded in the spreadsheet.	None	Low	5	Identified
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
All load recorded in database	2.5	Clause 11(2A) of Schedule 15.3	Two items of load not recorded in the database of the sample of 39 items of load checked.	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	Identified
Audit trail	2.7	11(4) of Schedule 15.3	The spreadsheet does not contain an audit trail.	Strong	Low	1	Identified
Database accuracy	3.1	15.2 and 15.37B(b)	The spreadsheet is not accurate within ±5.0%. Lamp installation, change, and removal dates are not recorded in the spreadsheet.	Weak	Low	3	Identified
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 ±5.0%. Lamp installation, change, and removal dates are not recorded in the spreadsheet.	Weak	Low	3	Identified
Future Risk Rating						22	

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

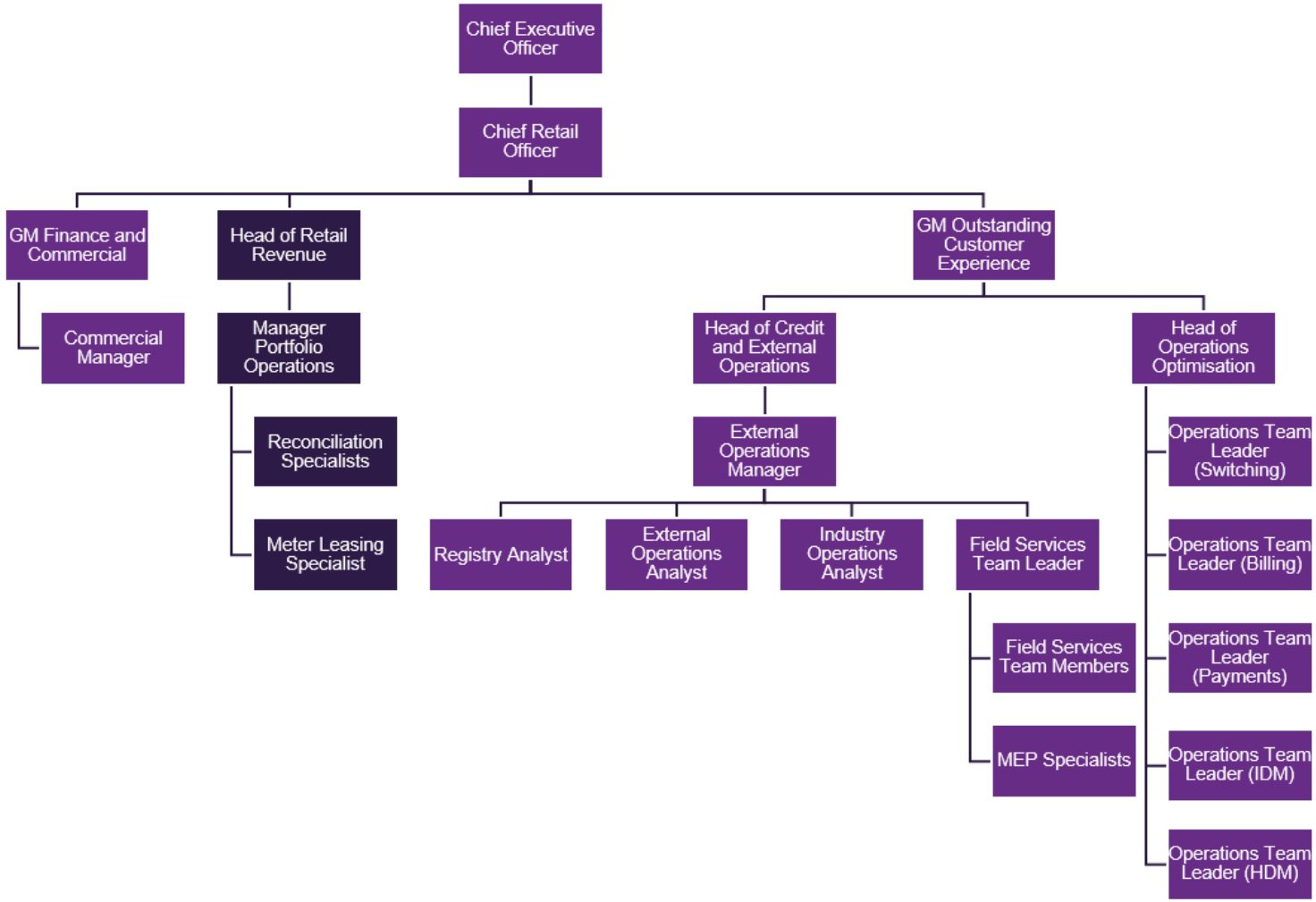
There is one exemption in place relevant to the scope of this audit, which does not apply for KRT because the submission type is NHH.

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.

Contact Organisational Diagram



1.3. Persons involved in this audit

Auditor:

Bernie Cross

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
Aaron Wall	Portfolio Analyst	Contact Energy Ltd
Luke Cartnell-Gollan	Commercials Operations Manager	Simply Energy Ltd

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

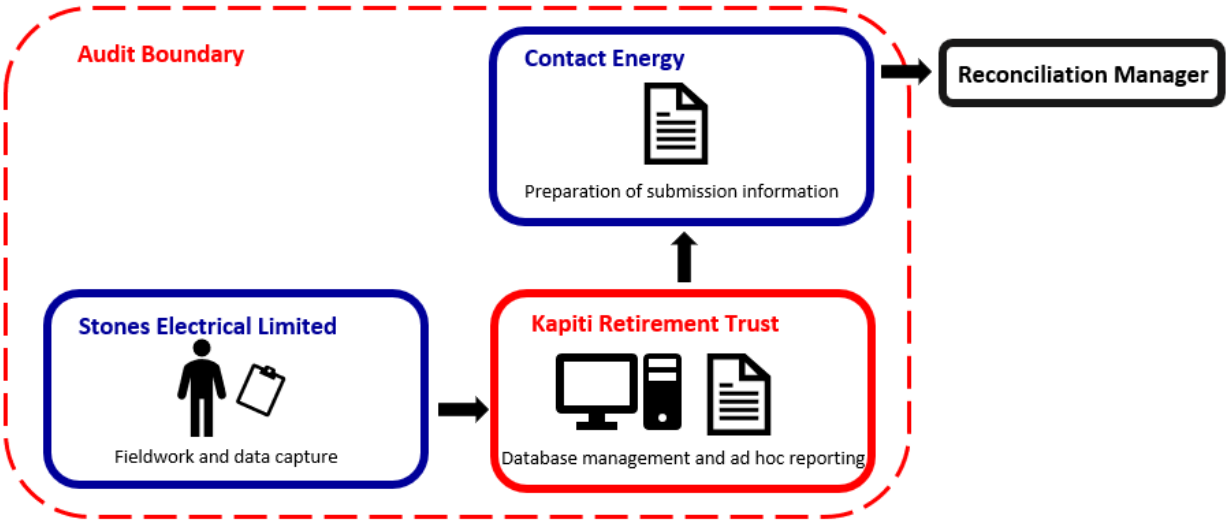
This audit of the KRT DUML database and processes was conducted at the request of Contact, in accordance with clause 15.37B. The purpose of this audit is to verify that the volume information is being calculated accurately, and that profiles have been correctly applied. The audit was conducted in accordance 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 was undertaken of all 39 items of load was undertaken on 14 November 2022.

1.9. Summary of previous audit

The previous audit was undertaken by Tara Gannon of Veritek Limited in March 2021. The summary table below shows the statuses of the eight non-compliances raised in the previous audit. Further comment is made in the relevant sections of this report.

Subject	Section	Clause	Non-compliance	Status
Participants to give access	1.10	16A.26 and 17.295F	The audit was not completed by the due date.	Still existing
Participants to give access	1.11	16A.4	Submission information was not provided within 15 business days of the request.	Cleared
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 ±5.0%. Lamp installation, change, and removal dates are not recorded in the spreadsheet.	Still existing
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.	Still existing
Tracking of load changes	2.6	11(3) of Schedule 15.3	Lamp installation, change, and removal dates are not recorded in the spreadsheet.	Still existing
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 spreadsheet is not accurate within ±5.0%. Lamp installation, change, and removal dates are not recorded in the spreadsheet	Still existing
Volume information accuracy	3.2	Clause 15.2 and 15.37B(c)	Submissions are not calculated using current spreadsheet information. The spreadsheet is not accurate within ±5.0%. Lamp installation, change, and removal dates are not recorded in the spreadsheet.	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

Contact have requested Veritek to undertake this streetlight audit.

Audit commentary

The audit was physically completed by Veritek on 14 November 2022, but the request by Contact for Veritek to conduct this audit and provide a database extract did not occur until October 2022 which was well after the audit due date of April 2022.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 1.10 With: Clause 16A.26 and 17.295F From: 01-Mar-21 To: 14-Nov-22	The audit was not completed by the due date. Potential impact: Low Actual impact: Low Audit history: Twice Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as weak because Contact were not actively monitoring the audit due dates. The audit risk rating is low because though the information was not provided in time for the audit to be completed before its due date, the volume impact relatively small.

Actions taken to resolve the issue	Completion date	Remedial action status
Audit has been finalised	16/12/2022	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
This ICP is switching to Simply Energy 1 January 2023	1/1/2023	

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 10 October 2022.

Audit commentary

Submission data was provided in a timely manner.

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 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 September 2022 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 (Oct 2022)	Load recorded in database (Oct 2022)	Load identified during field audit (Nov 2022)
Wattage	1,800 W	2,022 W	1,286 W
Annual load based on 11.9 hours per day	7,818.3 kWh	8,782.6 kWh	5,585.7 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)
Six 70W SON lights were recorded with 79W in the spreadsheet, instead of 83W. Under submission of 104.2 kWh p.a. Nine L17 LED lights (17W) were recorded as 70W SON in the spreadsheet (83W). Under submission of 2580 kWh p.a. Four L27 LED lights (27W) were recorded as 70W SON in the spreadsheet (83W). Under submission of 972.9 kWh p.a. One L17 LED (17W) was recorded as an 18W twin Fluorescent (36W) in the spreadsheet. Under submission of 82.5 kWh p.a. One L22 LED (22W) was recorded as a 21W L21 LED - 4.27 kWh pa. Two 50W LED spotlights (Thorn 50w LED IP65 IK 06) illuminating Sevenoaks signs at entrance were not recorded in the spreadsheet. Under submission of 434.4 kWh p.a.	3,101.07 kWh of over submission (this indicates a net over submission of 35% of the database annual load).

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 do not routinely send an updated copy when data changes. KRT provides the latest copy of the spreadsheet to Contact Energy on request. Contact Energy have not requested an updated copy of the spreadsheet during this audit period. 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: 01-Mar-21 To: 14-Nov-22	Submissions are not calculated using current spreadsheet information. The spreadsheet is not accurate within ±5.0%. Lamp installation, change, and removal dates are not recorded in the spreadsheet. Potential impact: Low Actual impact: Low Audit history: Twice Controls: None Breach risk rating: 5
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as none, because no attempt was made to request or receive an updated spreadsheet from KRT since the last DUML audit. The impact is low: • the wattage differences could result in estimated under reporting of approximately 4,069.8 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
Updated information has now been received and will be used in submission going forward	1/11/2022	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
This ICP is switching to Simply Energy 1 January 2023, who will engage KRT to put in place a new database management and reporting process.	1/1/2023	

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 spreadsheet was checked to confirm an 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: 01-Mar-21 To: 14-Nov-22	The ICP number is not recorded in the spreadsheet or spreadsheet name. Potential impact: Low Actual impact: Low Audit history: Once 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
This ICP is switching to Simply Energy 1 January 2023, who will engage KRT to put in place a new database management and reporting process.	1/1/2023	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
This ICP is switching to Simply Energy 1 January 2023, who will engage KRT to put in place a new database management and reporting process.	1/1/2023	

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

Audit observation

A field audit of all 39 items of load was undertaken on 14 November 2022.

Audit commentary

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

- six 70W SON lights were recorded with 79W in the spreadsheet, instead of 83W,
- nine L17 LED lights (17W) were recorded as 70W SON in the spreadsheet (83W),
- four L27 LED lights (27W) were recorded as 70W SON in the spreadsheet (83W),
- one L17 LED (17W) was recorded as an 18W twin Fluorescent (36W) in the spreadsheet,
- two 50W LED spotlights (Thorn 50w LED IP65 IK 06) illuminating Sevenoaks signs at entrance were not recorded in the spreadsheet, 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
5 Lloyd Place	1	1	-	1	L17 LED light (17W) were recorded as 70W SON
10 Lloyd Place	1	1	-	1	L17 LED light (17W) were recorded as 70W SON
3 Marilyn Close	1	1	-	1	L17 LED (17W) was recorded as an 18W twin Fluorescent (36W)
2 Marilyn Close	1	1	-	1	L17 LED light (17W) were recorded as 70W SON
Nth carpark island Marilyn Close	1	1	-	1	L17 LED light (17W) were recorded as 70W SON
4 Sevenoaks Court	1	1	-	1	L17 LED light (17W) were recorded as 70W SON
Opposite 14 Sevenoaks Court	1	1	-	1	L17 LED light (17W) were recorded as 70W SON

Street	Database count	Field count	Count difference	Wattage difference	Comments
Opposite 24 Sevenoaks Court	1	1	-	1	L27 LED light (27W) were recorded as 70W SON
29 Sevenoaks Court	1	1	-	1	L17 LED light (17W) were recorded as 70W SON
1 Grantham Court	1	1	-	1	L27 LED light (27W) were recorded as 70W SON
12 Grantham Court	1	1	-	1	L27 LED light (27W) were recorded as 70W SON
25 Grantham Court	1	1	-	1	L27 LED light (27W) were recorded as 70W SON
End carpark Grantham Court	2	2	-	1	L17 LED light (17W) were recorded as 70W SON
Entrance Sign LH Lodge Drive		1	1		50W LED spotlights (Thorn 50w LED IP65 IK 06) illuminating Sevenoaks signs at entrance were not recorded in the spreadsheet
Entrance Sign RH Lodge Drive		1	1		50W LED spotlights (Thorn 50w LED IP65 IK 06) illuminating Sevenoaks signs at entrance were not recorded in the spreadsheet
9 Lloyd Place	1	1	-	1	70W SON recorded as 79W not 83W
2 Rotary Place	1	1	-	1	70W SON recorded as 79W not 83W
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
Opposite 1 Sevenoaks Court	1	1	-	1	70W SON recorded as 79W not 83W
End carpark Grantham Court	1	1	-	1	70W SON recorded as 79W not 83W
6 Florence Way	1	1	-	1	70W SON recorded as 79W not 83W
Kauri Carpark Lodge Drive	1	1		1	L22 recorded as L21 21W not L22 22W
Total	**39**	**41**	**2**	**21**	

This clause relates to lights in the field not recorded in the database. Two additional items of load were found in the field. This is recorded as non-compliance below. The accuracy of the database is detailed in **section 3.1**

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.5 With: Clause 11(2A) of Schedule 15.3 From: 01-Mar-21 To: 14-Nov-22	Two items of load not recorded in the database of the sample of 39 items of load checked. 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 as Contact has not requested an updated spreadsheet from KRT since the last audit. The impact on settlement and participants is minor; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Updated records are now being used in submission	1/11/2022	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
This ICP is switching to Simply Energy 1 January 2023, who will engage KRT to put in place a new database management and reporting process.	1/1/2023	

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 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: 01-Mar-21 To: 14-Nov-22	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 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
This ICP is switching to Simply Energy 1 January 2023, who will engage KRT to put in place a new database management and reporting process.	1/1/2023	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
This ICP is switching to Simply Energy 1 January 2023, who will engage KRT to put in place a new database management and reporting process.	1/1/2023	

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: 01-Mar-21 To: 14-Nov-22	The spreadsheet does not contain an audit trail. Potential impact: Low Actual impact: Low Audit history: Twice 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
This ICP is switching to Simply Energy 1 January 2023, who will engage KRT to put in place a new database management and reporting process.	1/1/2023	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
This ICP is switching to Simply Energy 1 January 2023, who will engage KRT to put in place a new database management and reporting process.	1/1/2023	

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 2022, 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

A field audit was conducted of a statistical sample of 39 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	64.2	Wattage from survey is LOWER than the database wattage by 35.8%.
R_L	49	With a 95% level of confidence, it can be concluded that the error could be between -51% and -2%.
R_H	98	

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 C applies.

The conclusion from Scenario C is that the variability of the sample results across the strata means that the true wattage (installed in the field) could be between -51% and -2% lower 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 31 kW lower than the database indicates.

There is a 95% level of confidence that the installed capacity is between zero to 10 kW lower than the database.

In absolute terms, total annual consumption is estimated to be 3,100 kWh lower than the DUML database indicates.

There is a 95% level of confidence that the annual consumption is between 4,400 kWh p.a. to 200 kWh p.a. lower 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**, 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:

- six 70W SON lights were recorded with 79W in the spreadsheet, instead of 83W.

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 33 LEDs and seven 70W sodium lights.

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: 01-Mar-21 To: 14-Nov-22	Database is not confirmed as accurate with a 95% level of confidence resulting in an estimated under submission of 3,100 kWh p.a. Lamp installation, change, and removal dates are not recorded in the spreadsheet. Potential impact: Low Actual impact: Low Audit history: Twice 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: • the wattage differences could result in estimated over reporting of approximately 3,100 kWh per annum (35% of current database load) 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
This ICP is switching to Simply Energy 1 January 2023, who will engage KRT to put in place a new database management and reporting process.	1/1/2023	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
This ICP is switching to Simply Energy 1 January 2023, who will engage KRT to put in place a new database management and reporting process.	1/1/2023	

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 October 2022. 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 October 2022 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 (Oct 2022)	Load recorded in database (Oct 2022)	Load identified during field audit (Nov 2022)
Wattage	1,800 W	2,022 W	1,286 W
Annual load based on 11.9 hours per day	7,818.3 kWh	8,782.6 kWh	5,585.7 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)
Six 70W SON lights were recorded with 79W in the spreadsheet, instead of 83W. Under submission of 104.2 kWh p.a. Nine L17 LED lights (17W) were recorded as 70W SON in the spreadsheet (83W). Under submission of 2580 kWh p.a. Four L27 LED lights (27W) were recorded as 70W SON in the spreadsheet (83W). Under submission of 972.9 kWh p.a. One L17 LED (17W) was recorded as an 18W twin Fluorescent (36W) in the spreadsheet. Under submission of 82.5 kWh p.a. One L22 LED (22W) was recorded as a 21W L21 LED - 4.27 kWh pa. Two 50W LED spotlights (Thorn 50w LED IP65 IK 06) illuminating Sevenoaks signs at entrance were not recorded in the spreadsheet. Under submission of 434.4 kWh p.a.	3,101.07 kWh of over submission (this indicates a net over submission of 35% of the database annual load).

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: 01-Mar-21 To: 14-Nov-22	Submissions are not calculated using current spreadsheet information. Database is not confirmed as accurate with a 95% level of confidence resulting in an estimated under submission of 3,100 kWh p.a. Lamp installation, change, and removal dates are not recorded in the spreadsheet. Potential impact: Low Actual impact: Low Audit history: Twice 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: • the wattage differences could result in estimated over reporting of approximately 3,100 kWh per annum (35% of current database load) 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
Updated records have now been received and are being used in submission	1/11/2022	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
This ICP is switching to Simply Energy 1 January 2023, who will engage KRT to put in place a new database management and reporting process.	1/1/2023	

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.

Database accuracy is described as follows:

Result	**Percentage**	**Comments**
The point estimate of R	64.2	Wattage from survey is LOWER than the database wattage by 35.8%.
R_L	49	With a 95% level of confidence, it can be concluded that the error could be between -51% and -2%.
R_H	98	

In absolute terms, total annual consumption is estimated to be 3,100 kWh lower than the DUML database indicates.

All 39 items of load recorded in the spreadsheet were surveyed in the field. The spreadsheet is not considered to be accurate within ±5.0% because:

- six 70W SON lights were recorded with 79W in the spreadsheet, instead of 83W,
- nine L17 LED lights (17W) were recorded as 70W SON in the spreadsheet (83W),
- four L27 LED lights (27W) were recorded as 70W SON in the spreadsheet (83W),
- one L17 LED (17W) was recorded as an 18W twin Fluorescent (36W) in the spreadsheet,
- two 50W LED spotlights (Thorn 50w LED IP65 IK 06) illuminating Sevenoaks signs at entrance were not recorded in the spreadsheet, 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 October 2022 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.

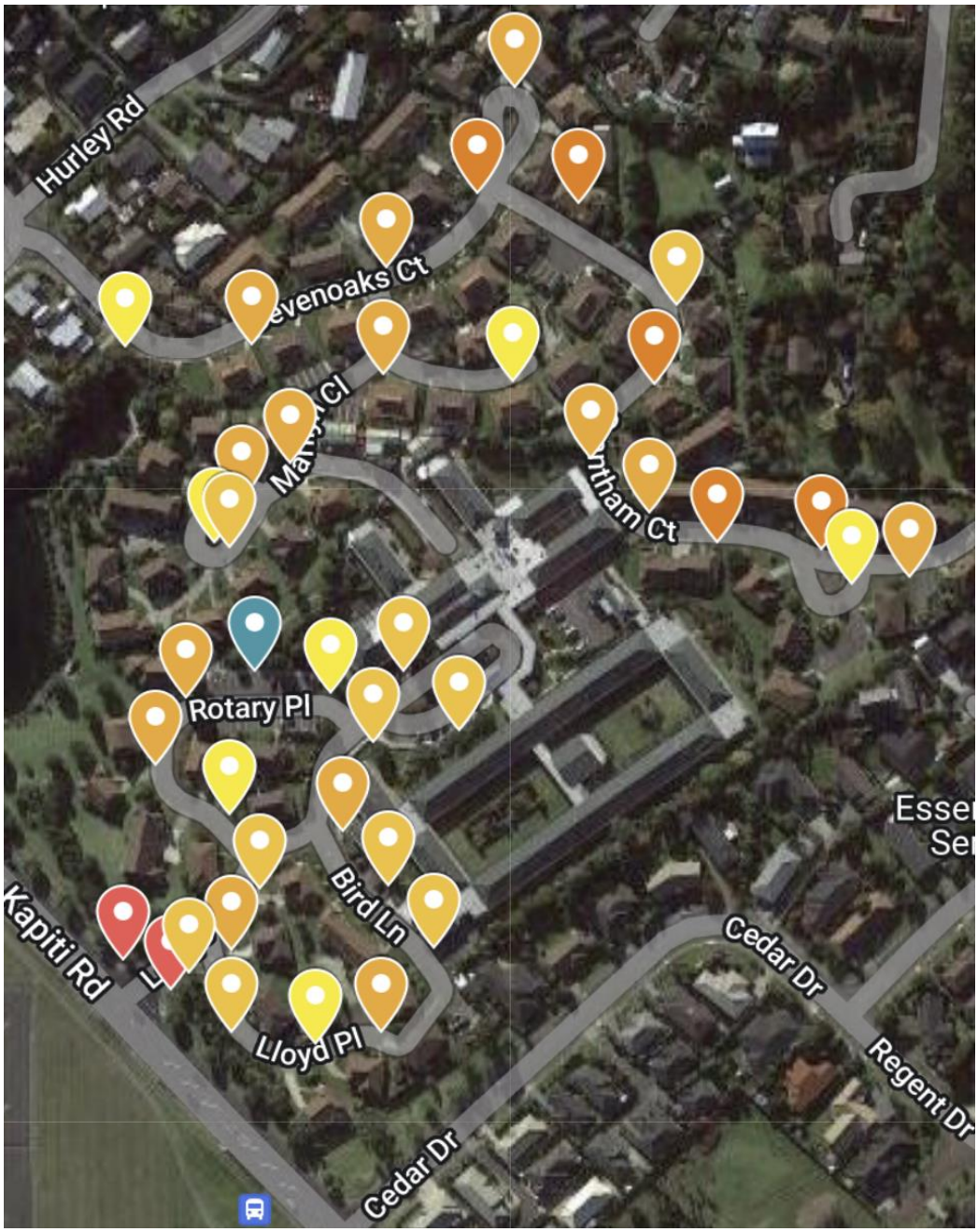
Total	Load used to calculate submission (Oct 2022)	Load recorded in database (Oct 2022)	Load identified during field audit (Nov 2022)
Wattage	1,800 W	2,022 W	1,286 W
Annual load based on 11.9 hours per day	7,818.3 kWh	8,782.6 kWh	5,585.7 kWh

Eight non-compliances were identified, and no recommendations were raised. The future risk rating of 22 indicates that the next audit be completed in three months. While the volume impact of the non-compliances is relatively low given the small size of this DUML load, the lack of engagement by Contact Energy in both ensuring regular updates to the light population were requested and received outside of a DUML audit being performed and the delay in arranging for an audit to be undertaken indicates the level of controls around this DUML database is weak. I recommend the next audit should be completed in three months.

PARTICIPANT RESPONSE

Contact has disestablished their team that managed DUML. This ICP is switching to Simply Energy 1/1/2023 who have a team resourced to manage DUML databases and audits. Simply Energy have engaged with the client to improve the accuracy and completeness of their database and the reporting process to ensure accurate volumes are reconciled in future.

MAP OF IDENTIFIED LIGHTS



Lamp wattages (total Watts

- 17 (14)
- 22 (10)
- 23 (1)
- 27 (5)
- 50 (2)
- 79 (7)