ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

Provera

For

NEW PLYMOUTH DISTRICT COUNCIL AND CONTACT ENERGY LIMITED

NZBN: 9429038549977

Prepared by: Tara Gannon

Date audit commenced: 2 October 2023

Date audit report completed: 14 November 2023

Audit report due date: 1 December 2023

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EXECUTIVE SUMMARY

This audit of the **New Plymouth District Council (NPDC)** 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. HDC is supplied under Contact's CTCS participant code, and **Simply Energy** manages registry, switching, and submission data for CTCS as Contact's agent.

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.

NPDC maintains a RAMM database. New connection, fault, maintenance, and upgrade work is completed by **NPE Tech**. Staff update the database from the field using Pocket RAMM, and NPE Tech administrative staff complete some data entry and validation. **Power Solutions** downloads the database information monthly, and validates the database for completeness and reasonableness including checks that lamp wattages, gear wattages and ICP numbers are valid and populated. Power Solutions prepares a monthly summary report for Simply Energy which includes the quantity of items of load, lamp wattage, gear wattage and total wattage for each ICP. The summary report also specifies whether festive lights are connected, and the festive light wattage if applicable.

Simply Energy reconciles the DUML load using the DST profile as Contact's agent, and calculates the submission volumes based on the monthly wattages reported by Power Solutions and data logger on and off times.

The field audit was undertaken of a statistical sample of 302 items of load on 2 and 3 October 2023, which found field wattage was 94.6% of the database wattage for the sample, and database accuracy was just outside the allowable ±5% threshold. Analysis of all items of load connected to DUML ICPs found almost all lights had correct wattages recorded.

The future risk rating of 20 indicates that the next audit be completed in three months. I have considered this in conjunction with Contact's comments which indicate that the issues will be resolved and the potential kWh impact of the wattage differences, and recommend the next audit be completed in 9 months on 1 September 2024.

The matters raised are detailed below:

AUDIT SUMMARY

NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Deriving submission information	2.1	11(1) of Schedule 15.3	The field audit found that the database was not accurate within ±5%, causing potential over submission of 66,400 kWh p.a. 130 AEC - ITALO 2 STAN1 4.5-7M are recorded with 94W but should have 88W, causing potential over submission of 3,331.4 kWh p.a. Five items of load had incorrect ICPs recorded and were corrected during the audit. Submissions are based on a database snapshot, and daily changes are not taken into account.	Moderate	High	6	Identified
All load recorded in database	2.5	11(2A) of Schedule 15.3	Seven lights on Matai St, Inglewood were not recorded in the database.	Moderate	Low	2	Identified
Database accuracy	3.1	15.2 and 15.37B(b)	The field audit found that the database was not accurate within ±5%, causing potential over submission of 66,400 kWh p.a. 130 AEC - ITALO 2 STAN1 4.5-7M are recorded with 94W but should have 88W, causing potential over submission of 3,331.4 kWh p.a. Five items of load had incorrect ICPs recorded and were corrected during the audit.	Moderate	High	6	Identified
Volume information accuracy	3.2	15.2 and 15.37B(c)	The field audit found that the database was not accurate within ±5%, causing potential over submission of 66,400 kWh p.a. 130 AEC - ITALO 2 STAN1 4.5-7M are recorded with 94W but should have 88W, causing potential over submission of 3,331.4 kWh p.a. Five items of load had incorrect ICPs recorded and were corrected during the audit. Submissions are based on a database snapshot, and daily changes are not taken into account.	Moderate	High	6	Identified
Future Risk Rating						20	

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
		Nil

ISSUES

Subject	Section	Description	Issue
		Nil	

1. ADMINISTRATIVE

1.1. Exemptions from Obligations to Comply with Code

Code reference

Section 11 of Electricity Industry Act 2010.

Code related audit information

Section 11 of the Electricity Industry Act provides for the Electricity Authority to exempt any participant from compliance with all or any of the clauses.

Audit observation

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

Audit commentary

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

1.2. Persons involved in this audit

Auditor:

Tara Gannon

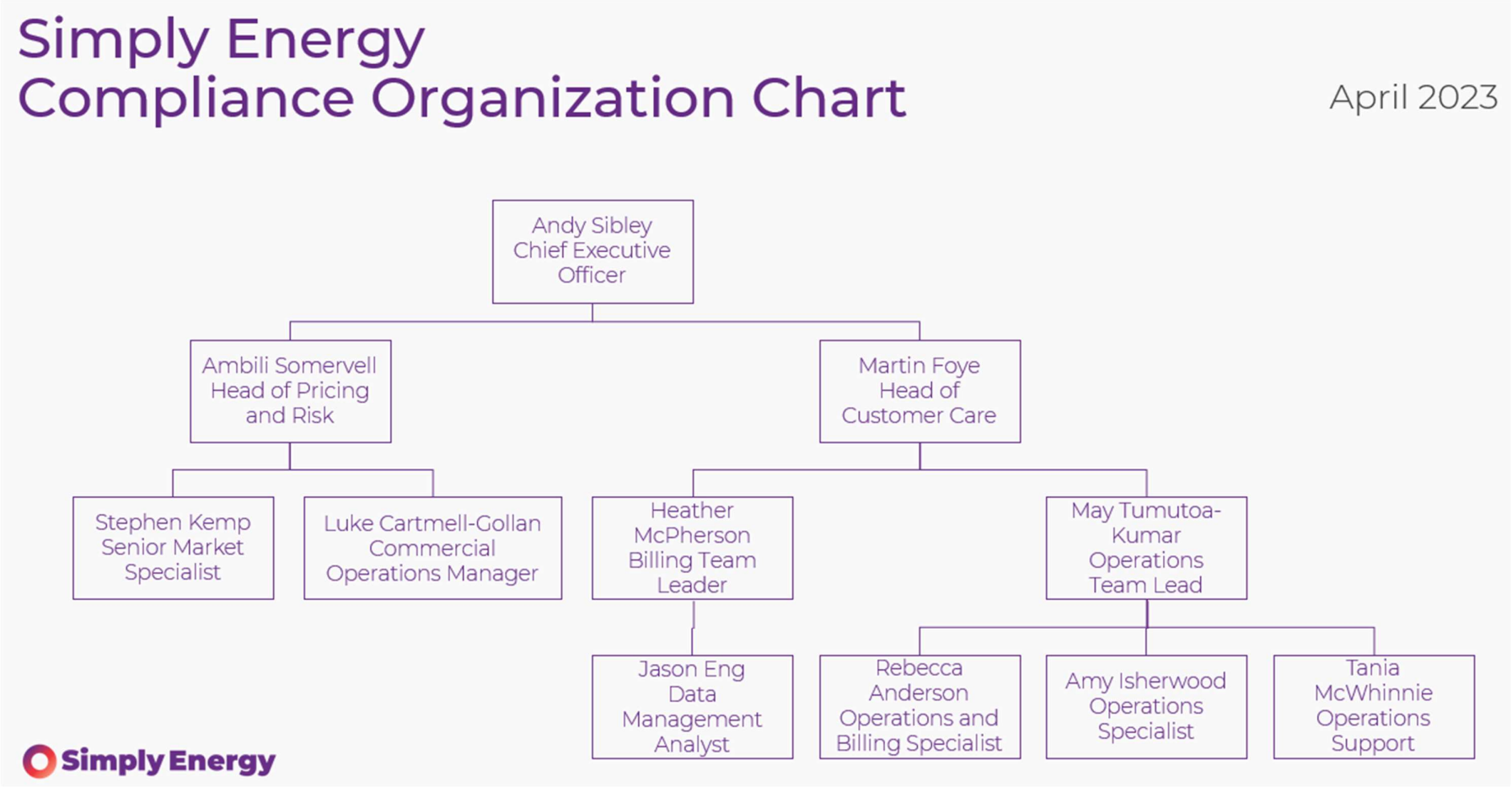
Veritek Limited

Electricity Authority Approved Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Dallas Tui	White Label Account Specialist	Simply Energy
Edwin de Beun	Projects Engineer Electrical Inspector	Power Solutions Ltd
Kevin Munisamy	Senior Contracts Manager Transportation	New Plymouth District Council

1.3. Structure of Organisation



1.4. Hardware and Software

RAMM

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.

Trader systems

Systems used by Simply Energy are assessed as part of the Contact Energy reconciliation participant audit.

EMS

Systems used by EMS to calculate submission information assessed as part of their agent audit.

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	ICP status	NSP	Profile	Number of items of load	Database wattage (watts)
0008807417WMB53	STREETLIGHTS NEW PLYMOUTH DISTRICT COUNCIL TONGAPORUTU	2,0	HTI0331	DST	6	126
1000542569PC16D	NPDC ROADING SL - TARAHUA ROAD	2,0	CST0331	DST	6,828	229,391.8
1000542572PC514	NPDC ROADING SL - WAITARA ROAD	2,0	HUI0331	DST	2,011	59,288.5
1000542575PC8DE	NPDC ROADING SL - EAST ROAD	2,0	SFD0331	DST	3	63
Total					**8,848**	**288,869.3**

1.7. Authorisation Received

All information was provided directly by Simply Energy, Power Solutions, or NPDC.

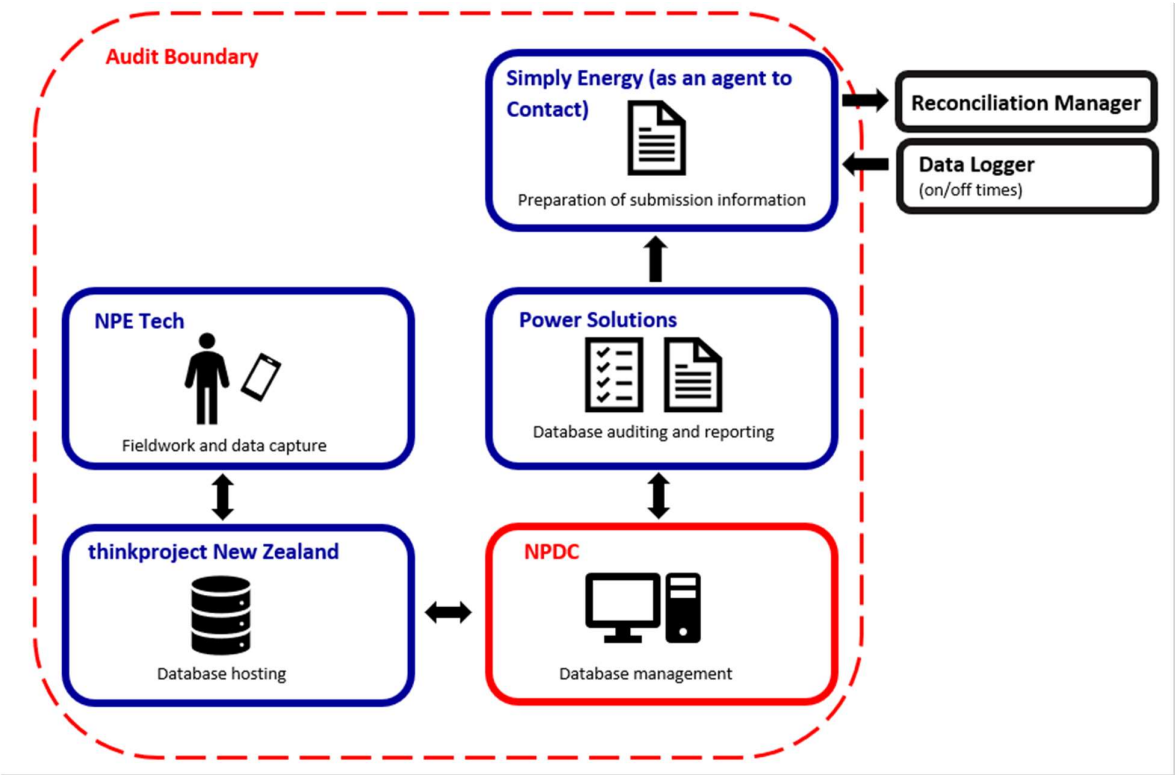
1.8. Scope of Audit

This audit of the NPDC 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.

NPDC maintains a RAMM database. New connection, fault, maintenance, and upgrade work is completed by NPE Tech. Staff update the database from the field using Pocket RAMM, and NPE Tech administrative staff complete some data entry and validation. Power Solutions downloads the database information monthly, and validates the database for completeness and reasonableness including checks that lamp wattages, gear wattages and ICP numbers are populated. Power Solutions prepares a monthly summary report for Simply Energy which includes the quantity of items of load, lamp wattage, gear wattage and total wattage for each ICP. The summary report also specifies whether festive lights are connected, and the festive light wattage if applicable.

Simply Energy reconciles the DUML load using the DST profile as Contact's agent, and calculates the submission volumes based on the monthly wattages reported by Power Solutions and data logger on and off times.

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 a statistical sample of 302 items of load on 2 and 3 October 2023.

1.9. Summary of previous audit

The previous audit of this database was undertaken by Tara Gannon in November 2022. The summary table below shows the statuses of the non-compliances, recommendation and issue raised in the previous audit. Further comment is made in the relevant sections of this report.

Table of Non-compliance

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	The field audit found that the best available estimate is not precise enough to conclude that the database is accurate within ±5%.	Still existing
			One item of load had a blank gear wattage, when zero was expected.	Cleared
			Five lights were assigned to incorrect NSPs and corrected during the audit.	Still existing, some lights were assigned to incorrect NSPs and corrections were made during the audit.
			Submission was overstated for ICPs 1000542569PC16D and 1000542572PC514 due to a calculation error in the wattage reports provided by Power Solutions for February 2022 to August 2022. Festive lights were included after they were disconnected totalling 2200 W (estimated over submission of 4,698.1 kWh over six months based on 4,271 hours per annum) and revised submission information will be washed up.	Cleared
			The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.	Still existing
Description and capacity of load	2.4	11(2)(c) and (d) of Schedule 15.3	One item of load had a blank gear wattage, when zero was expected. The gear wattage was updated to zero during the audit.	Cleared. No missing or invalid zero lamp description, lamp wattage or gear wattage information was identified.
All load recorded in database	2.5	11(2A) of Schedule 15.3	Three 21W LEDs in Tauranga Place connected to pole numbers H224, H225 and H226 were not recorded in the database.	Identified
Database accuracy	3.1	15.2 and 15.37B(b)	The field audit found that the best available estimate is not precise enough to conclude that the database is accurate within ±5%.	Still existing
			One blank gear wattage which should have been populated with zero.	Cleared
			Five lights were assigned to incorrect NSPs and corrected during the audit.	Still existing

Subject	Section	Clause	Non-compliance	Status
Volume information accuracy	3.2	15.2 and 15.37B(c)	The field audit found that the best available estimate is not precise enough to conclude that the database is accurate within ±5%.	Still existing
			One item of load had a blank gear wattage, when zero was expected.	Cleared
			Five lights were assigned to incorrect NSPs and corrected during the audit.	Still existing, some lights were assigned to incorrect NSPs and corrections were made during the audit.
			Submission was overstated for ICPs 1000542569PC16D and 1000542572PC514 due to a calculation error in the wattage reports provided by Power Solutions for February 2022 to August 2022. Festive lights were included after they were disconnected totalling 2200 W (estimated over submission of 4,698.1 kWh over six months based on 4,271 hours per annum) and revised submission information will be washed up.	Cleared
			The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.	Still existing

Table of Recommendations

Subject	Section	Recommendation	Status
Database Accuracy	3.1	Confirm the correct lamp and gear wattages for light model ITALO 2 STAN1 4.5-7M and update the database as necessary.	Partially adopted. The lights are confirmed to be 88W and will be updated.

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 Provera to undertake this streetlight audit.

Audit commentary

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

Audit outcome

Compliant

2. DUML DATABASE REQUIREMENTS

2.1. Deriving submission information (Clause 11(1) of Schedule 15.3)

Code reference

Clause 11(1) of Schedule 15.3

Code related audit information

The retailer must ensure the:

- *DUML database is up to date,*
- *methodology for deriving submission information complies with Schedule 15.5.*

Audit observation

The process for calculation of consumption was examined and the application of profiles was checked. The database was checked for accuracy.

Audit commentary

Simply Energy reconciles this DUML load using the DST profile.

- Wattages are derived from monthly wattage reports provided by Power Solutions.
- Data logger information and on and off times are derived from data logger information.

I compared the submission information for July 2023 to the monthly wattage report and data logger on hours and confirmed the calculation was correct. Festive lights were not connected and were correctly excluded.

Examination of the database found the following inaccuracies:

Issue	Estimated volume information impact (annual kWh)
The field audit found that the database was not accurate within ±5%.	Over submission of 66,400 kWh p.a.
130 AEC - ITALO 2 STAN1 4.5-7M are recorded with 94W but should have 88W.	Over submission of 3,331 kWh p.a.
Five items of load had incorrect ICPs recorded and were corrected during the audit.	No impact. The NSPs that the ICPs were connected to were located in the same balancing area.

On 18 June 2019, the Electricity Authority issued a memo clarifying the memo of 2012 that stated that a monthly snapshot was sufficient to calculate submission from, and confirmed 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 date that lights are installed or changed is recorded in RAMM. The monthly summary reports provided by Power Solutions are a snapshot at the end of the month and specify whether festive lights are connected, and the festive light wattage if applicable. A separate list is provided showing lamps that have changed during the month, and this could be used to determine daily load. The July 2023 submission checked during this audit was consistent with the snapshot provided by Power Solutions, and did not take daily changes into account.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: 31-Jul-23 To: 03-Oct-23	The field audit found that the database was not accurate within ±5%, causing potential over submission of 66,400 kWh p.a. 130 AEC - ITALO 2 STAN1 4.5-7M are recorded with 94W but should have 88W, causing potential over submission of 3,331.4 kWh p.a. Five items of load had incorrect ICPs recorded and were corrected during the audit. Submissions are based on a database snapshot, and daily changes are not taken into account. Potential impact: High Actual impact: High Audit history: Multiple times Controls: Moderate Breach risk rating: 6
Audit risk rating	**Rationale for audit risk rating**
High	Controls are rated as moderate. The field audit found that the lights installed had a wattage which was 94.6% of the database wattage, and was just outside the ±5% accuracy threshold. The impact is high based on the potential kWh differences identified during the field audit. The incorrect ICP numbers had no impact on submission, because they were connected to NSPs within the same balancing area.

Actions taken to resolve the issue	Completion date	Remedial action status
All discrepancies found will be reviewed and corrected by NPDC where necessary	31/12/2023	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

The analysis found that all items of load had valid ICP numbers recorded against them, except:

ICP group	Count of items	Total wattage	Comment
NZTA ICP	1,106	170,637	These lights are the responsibility of NZTA, and the energy is reconciled and billed under another agreement and captured in an NZTA database. They are listed in the database for completeness.
Private-Carringt	66	4,318.6	These lights are privately owned and not the responsibility of NPDC. They are recorded in the database for completeness so that if a fault is logged for a private light the caller can be advised that the end user needs to arrange the repair. It is expected that private lights will be metered through the customer's installation, or the network should create standard or shared unmetered load as appropriate. No new private lights have been identified during the audit period. Where a new private light is identified, NPE Tech has been instructed to advise Simply Energy who will in turn advise the network so that they can create standard unmetered load and liaise with the retailer for the ICP that the unmetered load is attached to. Once responsibility for the unmetered load is transferred, Simply Energy will provide permission for the existing ICP number to be updated to Private-Carringt or Private-Huirangi in the database as appropriate.
Private-Huirangi	10	466	
Under-Veranda	758	43,264.5	These lights are all on metered circuits and are recorded in the database for completeness.
Not connected	120	9,218	These lights are currently not connected.

Audit outcome

Compliant

2.3. Location of each item of load (Clause 11(2)(b) of Schedule 15.3)

Code reference

Clause 11(2)(b) of Schedule 15.3

Code related audit information

The DUML database must contain the location of each DUML item.

Audit observation

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

Audit commentary

The database contains fields for road names, house numbers, pole numbers and GPS coordinates.

8,658 (97.9%) of the 8,848 lamps connected to settled DUML ICPs have valid GPS coordinates recorded. The other 190 lamps have street addresses and pole numbers recorded allowing them to be located.

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 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

The database contains fields for lamp make and model, lamp wattage and gear wattage.

All items of load connected to settled DUML ICPs have a valid lamp model, a non-zero lamp wattage, and a valid non-zero or zero gear wattage recorded. The accuracy of the recorded wattages 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 a statistical sample of 302 items of load on 2 and 3 October 2023. The sample was selected from four strata, as follows:

1. road names A-Daw,
2. road names De-Leo,
3. road names Les-Pit, and
4. road names Ple-Z.

Audit commentary

The field audit discrepancies are summarised in the table below.

Street	Field count	Database count	Light count difference	Wattage recorded incorrectly	Comments
CYRUS STREET	18	18	-	2	Pole ID N753 has a 70W SON recorded in the database but a 19.5W LED is installed. Pole ID 4090 has a 19.5W LED recorded in the database but a 21W LED is installed.
DISCOVERY PLACE	7	7	-	1	Pole ID 4272 is recorded with a 21W LED in the database but a 19.5W LED is installed.
MATAI ST (SH3)	24	31	+7	12	The database recorded ten x 70W metal halide double ended, 13 x 70W metal Halide, 1 x 50W colour blast LED. The field audit found the east side of the street had six x 70 metal halide, two 50W colour blast LEDs, and ten trees with fairy lights. The west side of the street had five x 70W metal halide and eight trees with fairy lights.
WOODLEIGH STREET	18	17	-1	-	There was no 21W LED light in the location of pole ID 6300 outside 44 Woodleigh St.
Total	**302**	**308**	**8 (+7/-1)**	**15**	

Seven lights at Matai St were located in the field which were not recorded in the database. 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: 02-Oct-23 To: 03-Oct-23	Seven lights on Matai St, Inglewood were not recorded in the database. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate. Most lights were recorded in the database, but the state highway lights on Matai St were changed but not updated. The audit risk rating is assessed to be low based on the kWh differences identified.

Actions taken to resolve the issue	Completion date	Remedial action status
NPDC are working on updating the LED info for these lights	31/12/2023	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 RAMM database has a complete audit trail of all additions and changes to the database information.

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

Simply Energy's submissions are based on a monthly extract from the RAMM database. A RAMM database extract was provided for 31 August 2023, 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	New Plymouth District Council streetlights
Strata	The database contains the NPDC items of load for the DUML ICPs in the New Plymouth Region. The processes for the management of all NPDC items of load are the same, but I decided to place the items of load into four strata: 5. Road names A-Daw, 6. Road names De-Leo, 7. Road names Les-Pit, and 8. Road names Ple-Z.
Area units	I created a pivot table of the roads. I selected one road with some metal halide double ended lights to confirm whether there were two lights connected to the poles, and then used a random number generator in a spreadsheet to select a further 29 sub-units.
Total items of load	302 items of load were checked, making up 3.1% of the total database wattage.

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

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

Audit commentary

Field audit findings

A field audit was conducted of a statistical sample of 302 items of load on 2 and 3 October 2023. 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	94.6	Wattage from survey is lower than the database wattage by 5.4%
R_L	92.0	With a 95% level of confidence, it can be concluded that the error could be between -0.8% and -8.0%.
R_H	99.2	

These results were categorised in accordance with the "Distributed Unmetered Load Statistical Sampling Audit Guideline", effective from 1 February 2019. The table below shows that Scenario B (detailed below) applies. The conclusion from Scenario B is that the variability of the sample results across the strata means that the true wattage (installed in the field) could be between 0.8% lower and 8.0% 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 160 kW higher the database indicates.
- There is a 95% level of confidence that the installed capacity is between 2 and 23 kW lower than the database.
- In absolute terms, total annual consumption is estimated to be 66,400 kWh lower than the DUML database indicates.
- There is a 95% level of confidence that the annual consumption is between 9,800 and 98,500 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

All items of load connected to settled DUML ICPs have a valid lamp model, a non-zero lamp wattage, and a valid non-zero or zero gear wattage recorded.

Lamp and gear wattages for items of load connected to DUML ICPs were checked for alignment with the published standardised wattage table produced by the Electricity Authority or the LED light specification. I found the following discrepancies:

ICP group	Lamp model	Quantity	Recorded lamp wattage	Correct lamp wattage	Wattage difference
1000542572PC514	AEC - ITALO 2 STAN1 4.5-7M	130	94 W	88 W	780 W

ICP number accuracy

I found all items of load had valid ICP numbers recorded against them, except where the items of load were the responsibility of another party, were connected to a metered circuit, or were disconnected. These items of load are discussed further in **section 2.2.**

I checked for streets with items of load connected to more than one settled ICP and NSP. Only Tarata Road genuinely had lights connected to more than one ICP and NSP, because it is a long rural road with lights connected to different ICPs and NSPs at each end. The other affected lights with incorrect ICPs were updated during the audit. There was no impact on submission because all the ICPs were connected to NSPs within the same balancing area.

Street	CST0331	HUI0331	SFD0331	Total	Comment
TARATA ROAD		2	2	4	Correct, as the lights are at opposite ends of a rural road.
HENWOOD ROAD	9	1		10	HUI0331 Pole ID 11039 updated to CST0331 during the audit.
NELSON STREET	1	21		22	CST0331 Pole ID 5722 updated to HUI0331 during the audit.
WEST QUAY	2	51		53	CST0331 Pole ID 9373 x 2 updated to HUI0331 during the audit.
WHAKAPAKI STREET	1	11		12	CST0331 Pole ID 10188 updated to HUI0331 during the audit.

Festive lights

Festive lights have been added to the RAMM database under ICPs 1000542569PC16D and 1000542572PC514, and are included in the database extract provided to Simply Energy when they are connected.

Change management process findings

NPDC maintains a RAMM database. New connection, fault, maintenance, and upgrade work is completed by NPE Tech. Staff update the database from the field using Pocket RAMM, and NPE Tech administrative staff complete some data entry and validation. Power Solutions downloads the database information monthly, and validates the database for completeness and reasonableness including checks that lamp wattages, gear wattages and ICP numbers are valid and populated.

The process for new connections remains unchanged. NPDC is only responsible once the subdivision is "vested" in council. As soon as the electrical certificate is provided and the subdivision is complete, NPDC's development engineers check the lights and then advise NPE Tech to update the database. Development engineers regularly check new developments to monitor compliance and progress, which can help them to identify when streetlights are connected. In some cases, there may be a small delay between lights being connected and added to the database. NPDC notes that most subdivisions have less than 12 lights, and larger subdivisions are completed in stages, so the impact of any delays is minimal.

Night outage patrols are conducted fortnightly for main roads, state highways and some local roads. The faults process is used to identify outages for other lights.

LED upgrades

The LED upgrade project has been completed. Any remaining non-LED lights will be replaced through maintenance processes as they fail.

NPDC is considering use of a central management system (CMS), and is currently investigating options before making a presentation to councillors. It is hoped that use of a CMS will improve timeliness of streetlights being turned on and off, and give better control. If the project is approved, NPDC plans to trial a small number of circuits in 2024 and will consider installation of golden meters to verify the CMS data. NPDC will keep Contact informed of any planned changes, to ensure that submission is handled correctly.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 31-Aug-23 To: 03-Oct-23	The field audit found that the database was not accurate within ±5%, causing potential over submission of 66,400 kWh p.a. 130 AEC - ITALO 2 STAN1 4.5-7M are recorded with 94W but should have 88W, causing potential over submission of 3,331.4 kWh p.a. Five items of load had incorrect ICPs recorded and were corrected during the audit. Potential impact: High Actual impact: High Audit history: Multiple times Controls: Moderate Breach risk rating: 6
Audit risk rating	**Rationale for audit risk rating**
High	Controls are rated as moderate. The field audit found that the lights installed had a wattage which was 94.6% of the database wattage, and was just outside the ±5% accuracy threshold. The impact is high based on the potential kWh differences identified during the field audit. The incorrect ICP numbers had no impact on submission, because they were connected to NSPs within the same balancing area.

Actions taken to resolve the issue	Completion date	Remedial action status
NPDC will review and correct discrepancies where necessary	31/12/2023	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 on hours against the submitted figure to confirm accuracy.

Audit commentary

Simply Energy reconciles this DUML load using the DST profile.

- Wattages are derived from monthly wattage reports provided by Power Solutions.
- Data logger information and on and off times are derived from data logger information.

I compared the submission information for July 2023 to the monthly wattage report and data logger on hours and confirmed the calculation was correct. Festive lights were not connected and were correctly excluded.

Examination of the database found the following inaccuracies:

Issue	Estimated volume information impact (annual kWh)
The field audit found that the database was not accurate within ±5%.	Over submission of 66,400 kWh p.a.
130 AEC - ITALO 2 STAN1 4.5-7M are recorded with 94W but should have 88W.	Over submission of 3,331 kWh p.a.
Five items of load had incorrect ICPs recorded and were corrected during the audit.	No impact. The NSPs that the ICPs were connected to were located in the same balancing area.

On 18 June 2019, the Electricity Authority issued a memo clarifying the memo of 2012 that stated that a monthly snapshot was sufficient to calculate submission from, and confirmed 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 date that lights are installed or changed is recorded in RAMM. The monthly summary reports provided by Power Solutions are a snapshot at the end of the month and specify whether festive lights are connected, and the festive light wattage if applicable. A separate list is provided showing lamps that have changed during the month, and this could be used to determine daily load. The July 2023

submission checked during this audit was consistent with the snapshot provided by Power Solutions, and did not take daily changes into account.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: 31-Jul-23 To: 03-Oct-23	The field audit found that the database was not accurate within ±5%, causing potential over submission of 66,400 kWh p.a. 130 AEC - ITALO 2 STAN1 4.5-7M are recorded with 94W but should have 88W, causing potential over submission of 3,331.4 kWh p.a. Five items of load had incorrect ICPs recorded and were corrected during the audit. Submissions are based on a database snapshot, and daily changes are not taken into account. Potential impact: High Actual impact: High Audit history: Multiple times Controls: Moderate Breach risk rating: 6
Audit risk rating	**Rationale for audit risk rating**
High	Controls are rated as moderate. The field audit found that the lights installed had a wattage which was 94.6% of the database wattage, and was just outside the ±5% accuracy threshold. The impact is high based on the potential kWh differences identified during the field audit. The incorrect ICP numbers had no impact on submission, because they were connected to NSPs within the same balancing area.

Actions taken to resolve the issue	Completion date	Remedial action status
NPDC will review and correct discrepancies where necessary	31/12/2023	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

CONCLUSION

Simply Energy reconciles the DUML load using the DST profile as Contact's agent, and calculates the submission volumes based on the monthly wattages reported by Power Solutions and data logger on and off times. The sample of submission data checked was found to be accurate and consistent with the database extracts provided by Power Solutions.

The field audit was undertaken of a statistical sample of 302 items of load on 2 and 3 October 2023, which found field wattage was 94.6% of the database wattage for the sample, and database accuracy was just outside the allowable ±5% threshold. Analysis of all items of load connected to DUML ICPs found almost all lights had correct wattages recorded.

The future risk rating of 20 indicates that the next audit be completed in three months. I have considered this in conjunction with Contact's comments which indicate that the issues will be resolved and the potential kWh impact of the wattage differences, and recommend the next audit be completed in 9 months on 1 September 2024.

PARTICIPANT RESPONSE

New Plymouth DC have committed to working through the non-compliances and we expect this to be reflected in the next audit.