ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

For

STRATFORD DISTRICT COUNCIL AND GENESIS ENERGY LIMITED

Prepared by: Tara Gannon

Date audit commenced: 20 March 2019

Date audit report completed: 29 April 2019

Audit report due date: 31 May 2019

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This audit of the **Stratford District Council (SDC)** DUML database and processes was conducted at the request of **Genesis Energy Limited (Genesis)** 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.

A RAMM database is held by SDC, who is Genesis' customer. NPE Tech are responsible for fault, maintenance, and upgrade work for streetlights, and maintain the database.

A monthly report from the database is provided to Genesis, and used to calculate submissions. Genesis submits the DUML load as NHH using the NST profile. On hours are derived using data from the Astronomical Society.

Five non-compliances were identified, and one recommendation was raised. The future risk rating of 23 indicates that the next audit be completed in three months.

Most of the non-compliances relate to the wattages which are incorrectly recorded in the database. SDC has indicated that they intend to resolve these. Based on this, and the comments provided, I recommend an audit period of at least nine months to allow processes to be improved and errors corrected before the next audit.

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 database contains some inaccurate data.	Weak	Medium	6	Investigating
Description and capacity of load	2.4	11(2)(c) and (d) of Schedule 15.3	One light has a missing lamp model, lamp wattage and gear wattage. 21 lights have invalid blank or zero total wattages recorded.	Moderate	Low	2	Investigating
All load recorded in database	2.5	11(2A) of Schedule 15.3	One 24W LED was missing from the database. Festive and decorative lights are not recorded in the database.	Weak	Low	3	Investigating
Database accuracy	3.1	15.2 and 15.37B(b)	The database contains some inaccurate data.	Weak	Medium	6	Investigating
Volume information accuracy	3.2	15.2 and 15.37B(c)	The database contains some inaccurate data.	Weak	Medium	6	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
All load recorded in database	2.5	Festive lights	Confirm the wattages for festive and decorative lights, and update RAMM. Communicate on and off dates for festive and decorative lights to Genesis.

ISSUES

Subject	Section	Description	Issue
		Nil	

1. ADMINISTRATIVE

1.1. Exemptions from Obligations to Comply with Code

Code reference

Section 11 of Electricity Industry Act 2010.

Code related audit information

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

Audit observation

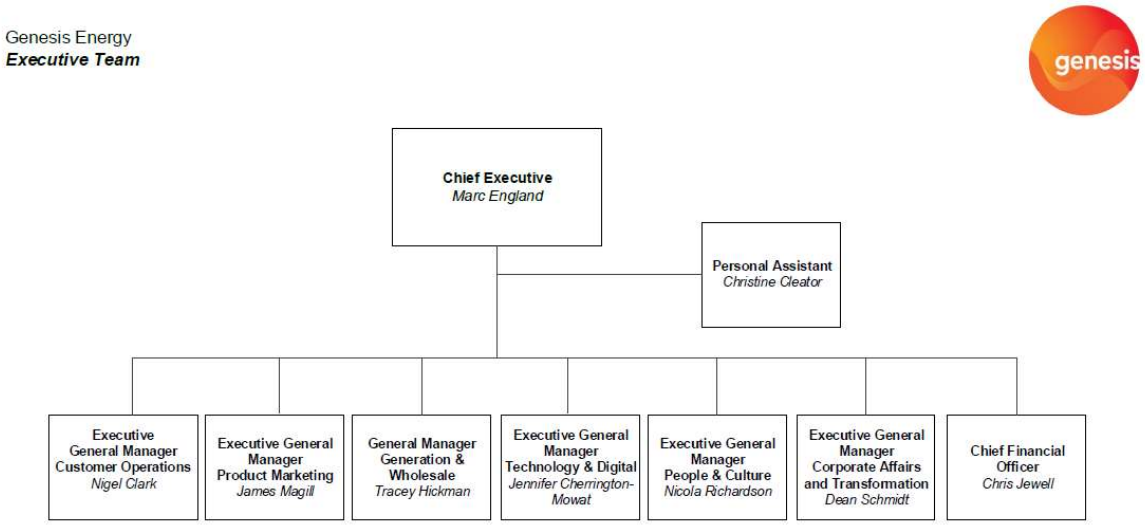
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

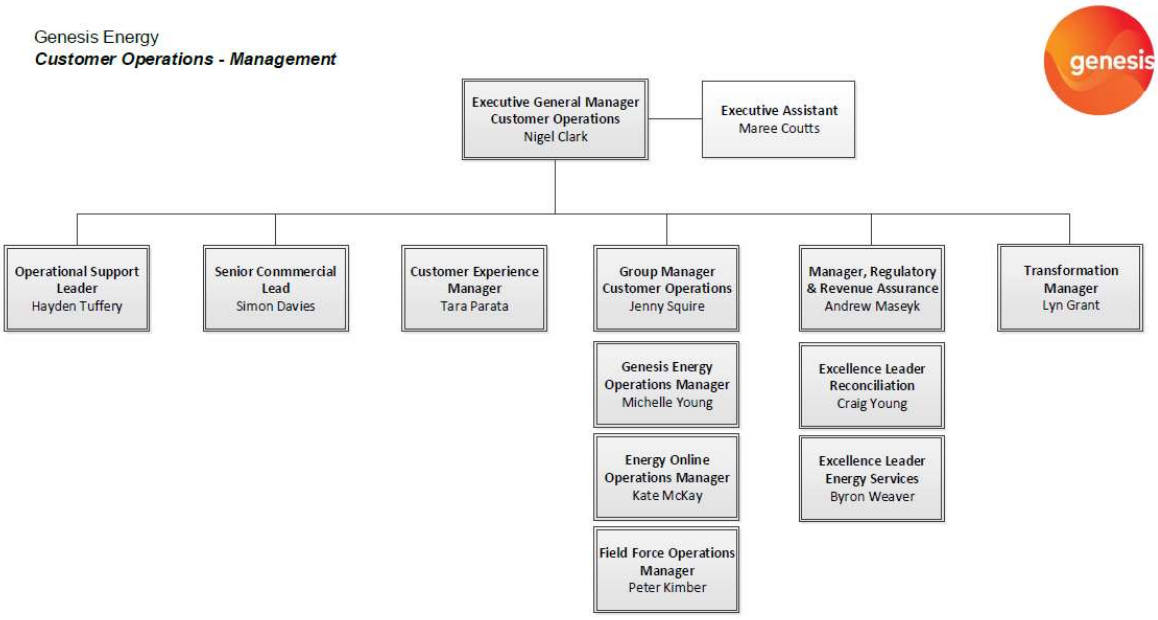
Audit commentary

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

1.2. Structure of Organisation

Genesis 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
Steve Bowden	Roading Asset Manager	Stratford District Council
Craig Young	Excellence Leader - Reconciliation	Genesis Energy
Grace Hawken	Technical Specialist - Reconciliation Team	Genesis Energy

1.4. Hardware and Software

The SQL database used for the management of DUML is remotely hosted by RAMM Software Ltd. The database is commonly known as “RAMM” which stands for “Roading Asset and Maintenance Management”.

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

1.5. Breaches or Breach Allegations

There are no breach allegations relevant to the scope of this audit.

1.6. ICP Data

ICP Number	Description	NSP	Profile	Number of items of load	Database wattage (watts)
0080012045PC49C	CARRIAGEWAY LIGHTING	SFD0331	NST	180	23,863
0089352004PCE32	DRAWING 9807	SFD0331	NST	750	27,116
0089352001PC37D	UNDER VERANDA LIGHTS - ROMEO STREET	SFD0331	NST	199	8,839
			Total	1,129	59,818

ICP 1000544328PCC4B is included in the database, but has only one light connected and is submitted as standard unmetered load. It is excluded from the scope of this audit.

1.7. Authorisation Received

All information was provided directly by Genesis and SDC.

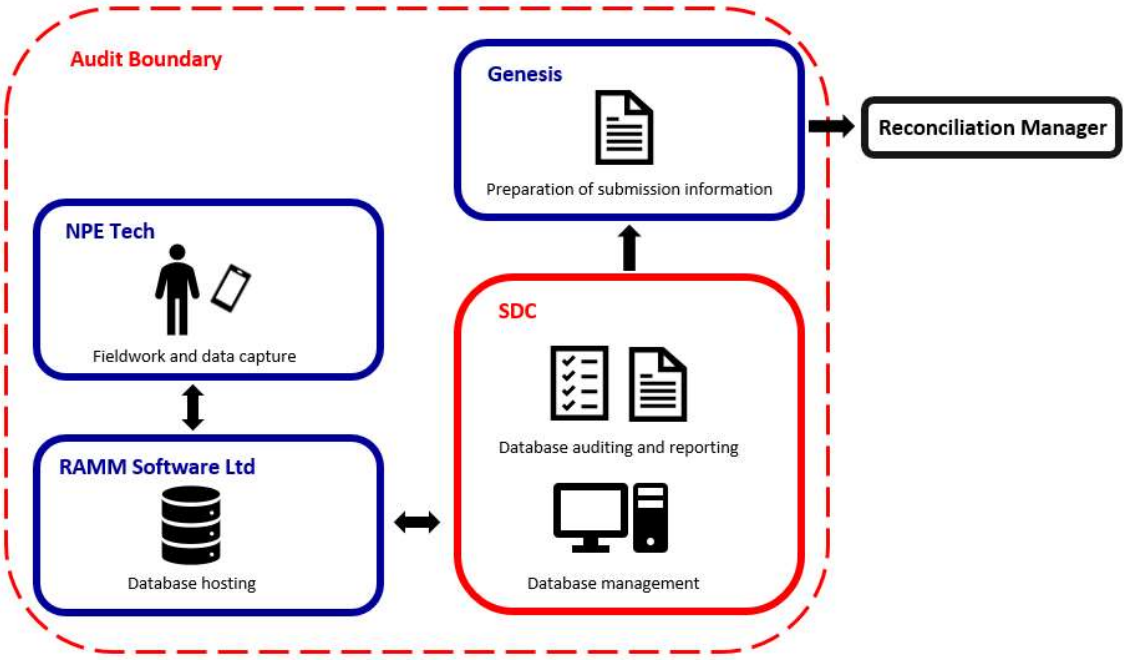
1.8. Scope of Audit

This audit of the SDC DUML database and processes was conducted at the request of Genesis 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.

A RAMM database is held by SDC, who is Genesis' customer. NPE Tech are responsible for fault, maintenance, and upgrade work for streetlights, and maintain the database.

A monthly report from the database is provided to Genesis, and used to calculate submissions. Genesis submits the DUML load as NHH using the NST profile. On hours are derived using data from the Astronomical Society.

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



The field audit was undertaken of a statistical sample of 128 items of load on 8 March 2019.

1.9. Summary of previous audit

The previous audit was completed in March 2018 by Tara Gannon of Veritek Limited. Three non-compliances were identified, and one recommendation was made. The statuses of the non-compliances and recommendation are described below.

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
Database Accuracy	3.1	15.2	The database contains some inaccurate information: 570 lamps have incorrect total wattage recorded. Wattages of festive and decorative lights need to be updated in RAMM. For the sample of 201 lamps checked, ten lamps had incorrect lamp and wattage information recorded.	Still existing
Volume Information Accuracy	3.2	15.2	The database used to prepare submissions contains some inaccurate information.	Still exising

Subject	Section	Clause	Recommendation	Status
Deriving Submission Information	2.1	11(1) of Schedule 15.3	Confirm the correct unmetered load for 1000544328PCC4B. There is a discrepancy between the Registry and SDC's records.	Cleared The database and submission information are consistent.

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

Genesis have requested Veritek to undertake this streetlight audit.

Audit commentary

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

Audit outcome

Compliant

2. DUML DATABASE REQUIREMENTS

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

Code reference

Clause 11(1) of Schedule 15.3

Code related audit information

The retailer must ensure the:

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

Audit observation

The process for calculation of consumption was examined.

Audit commentary

This clause requires that the distributed unmetered load database must satisfy the requirements of schedule 15.5 regarding the methodology for deriving submission information. Genesis reconciles this DUML load as NHH using the NST profile, and on and off times are derived from Astronomical Society data.

I checked the February 2019 submission data for ICP 0080012045PC49C, 0089352004PCE32 and 0089352001PC37D, and compliance is confirmed.

ICP 1000544328PCC4B has one light connected and is settled as standard unmetered load, and is therefore outside the scope of this audit. The connected load is recorded in SDC's database, and the 2018 audit found there was a discrepancy between the wattage recorded on the registry and used for submission, and the wattage recorded in the SDC database. I confirmed that SDC's database has been updated and is now consistent with the value recorded on the registry and applied for submission.

Volume inaccuracy is present as follows:

Issue	Estimated volume information impact (annual kWh)
Potential over submission due to database inaccuracy	Potential over submission of 22,900 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool).
468 lights have incorrect total wattages recorded, including one lamp with an unknown make, and 22 lamps with missing or blank gear wattages.	Estimated over submission of 14,349 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool).
Festive and decorative lights are unmetered, but are not recorded in RAMM.	Unknown volume of under recording.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: unknown To: 20-Mar-19	The database contains some inaccurate data. The field data is 91.0% of the database data for the sample checked. This will result in potential over submission of 22,900 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool). 468 items of load have missing or incorrect gear wattages. This will result in potential over submission of 3,430 W or 14,349 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool). Festive and decorative lights are unmetered, but are not recorded in RAMM. Potential impact: Medium Actual impact: Unknown Audit history: Once Controls: Weak Breach risk rating: 6

Audit risk rating	Rationale for audit risk rating
Medium	The controls are rated as weak, because the database contains some inaccurate information. The impact is assessed to be medium based on the kWh differences described above.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis will discuss the audit findings with the council with the intent the council makes every effort to ensure the exceptions are rectified.	01/09/2019	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis will provide exception reporting to the council where exceptions have been identified.	01/06/2019	

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 whether an ICP is recorded for each item of load.

Audit commentary

The analysis found that all items of load had an ICP number recorded.

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 Global Positioning System (GPS) coordinates, addresses, displacements, and location IDs for each item of load.

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 lamp type and wattage capacity and included any ballast or gear wattage.

Audit commentary

The database contains a lamp make model description, lamp wattage and gear wattage (which reflects the total wattage including the lamp and gear wattage).

One item of load has an unknown description and no lamp or gear wattage is populated. SDC intends to check and update the model and wattage information.

Road Name	Light ID	Lamp Make Model	Gear Wattage	Lamp Wattage
SH 3 (2 BROADWAY)	1786	UNK		

A further 21 items of load (1.8%) have an invalid blank or zero gear wattage (which reflects the total wattage including the lamp and gear wattage). SDC confirmed that the lamp make models recorded should be correct, and that the lamp wattage and the missing gear wattages should be corrected.

Road Name	Light ID	Lamp Make Model	Gear Wattage	Lamp Wattage
SH 43 (1 REGAN STREET EAST)	109	PH (70SI, 70 watts)	0	70
SH 43 (1 REGAN STREET EAST)	110	PH (70SI, 70 watts)	0	70
SH 43 (1 REGAN STREET EAST)	118	PH (70SI, 70 watts)	0	70
CELIA STREET (2 WEST)	1777	TERR (T24, 24 watts)		24
CELIA STREET (2 WEST)	1776	TERR (T24, 24 watts)		24
CELIA STREET (2 WEST)	1775	TERR (T24, 24 watts)		24
CELIA STREET (2 WEST)	1785	TERR (T24, 24 watts)		24
CELIA STREET (2 WEST)	1784	TERR (T24, 24 watts)		24
CELIA STREET (2 WEST)	1783	TERR (T24, 24 watts)		24
LYSANDER STREET	1280	TERR (T24, 24 watts)		24
MIRANDA STREET (2 SOUTH)	360	TERR (T24, 24 watts)		24
MIRANDA STREET (2 SOUTH)	367	TERR (T24, 24 watts)		24
PEMBROKE ROAD (1 URBAN)	1630	TERR (T24, 24 watts)		24
PEMBROKE ROAD (1 URBAN)	402	TERR (T24, 24 watts)		24
PEMBROKE ROAD (1 URBAN)	403	TERR (T24, 24 watts)		24
PEMBROKE ROAD (1 URBAN)	1632	TERR (T24, 24 watts)		24
PEMBROKE ROAD (2 RURAL)	1416	TERR (T24, 24 watts)		24
WARWICK ROAD (1 WEST URBAN)	1435	TERR (T24, 24 watts)		24
WARWICK ROAD (1 WEST URBAN)	1436	TERR (T24, 24 watts)		24
WARWICK ROAD (1 WEST URBAN)	1297	TERR (T24, 24 watts)		24

Road Name	Light ID	Lamp Make Model	Gear Wattage	Lamp Wattage
WARWICK ROAD (2 EAST URBAN)	1558	TERR (T24, 24 watts)		24

The accuracy of recorded lamp and gear wattages is discussed in **section 3.1**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.4 With: Clause 11(2)(c) and (d) of Schedule 15.3 From: 25-Feb-19 To: 25-Feb-19	One light has a missing lamp model, lamp wattage and gear wattage. 21 lights have invalid blank or zero total wattages recorded. 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 because most items of load have model, lamp wattage and gear wattages recorded. The impact is assessed to be low, based on 681W missing for the lamps with a known lamp make and model.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis will discuss the audit findings with the council with the intent the council makes every effort to ensure the exceptions are rectified.	01/09/2019	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis will provide exception reporting to the council where exceptions have been identified.	01/06/2019	

2.5. All load recorded in database (Clause 11(2A) of Schedule 15.3)

Code reference

Clause 11(2A) of Schedule 15.3

Code related audit information

The retailer must ensure that each item of DUML for which it is responsible is recorded in this database.

Audit observation

A field audit of a statistical sample of 128 items was completed on 20 March 2018.

Audit commentary

The following differences were identified during the field audit.

Address	Database Count	Field Count	Count differences	Wattage differences	Comments
0080012045PC-49C					
SH 3 (1 MOUNTAIN ROAD NORTH)	22	22	-	20	Recorded wattage differences only.
SH 43 (2 EAST ROAD)	8	8	-	8	Recorded wattage differences only.
0089352001PC-37D					
REGAN STREET (1 WEST)	2	2	-	2	Recorded wattage differences only.
SH 3 (2 BROADWAY)	7	7	-	7	Recorded wattage differences only.
SH 43 (1 REGAN STREET EAST)	11	9	-2	11	Recorded wattage differences and two under verandah lights were removed on 12/03/18 and are expected to be reinstalled late March 2019.
0089352004PC-E32					
BIRON PLACE	5	5	-	5	Recorded wattage differences only.
ELIZABETH GROVE	4	4	-	1	Recorded wattage differences only.
LYSANDER STREET	4	4	-	2	Recorded wattage differences only.
OBERON STREET	8	8	-	3	Recorded wattage differences only.

Address	Database Count	Field Count	Count differences	Wattage differences	Comments
PAGE STREET	23	24	1	6	One 24W LED on Page St near the corner of Broadway was not recorded in the database. One 24W LED was recorded as 72W LED in the database. Recorded wattage differences.
SEYTON STREET	20	20	-	1	Recorded wattage differences only.
Total	**128**	**127**	**-1**	**66**	

The field audit found one 24W LED on Page Street was missing from the database, which is recorded as non-compliance below.

Festive and decorative lights are connected to the streetlight circuits when operating, but are not recorded in RAMM. The number and wattage of these lights is unknown. This is recorded as non-compliance in **sections 2.1**, **3.1** and **3.2**.

Description	Recommendation	Audited party comment	Remedial action
Festive lights	Confirm the wattages for festive and decorative lights, and update RAMM. Communicate on and off dates for festive and decorative lights to Genesis.	Genesis will be relying on the council to provide accurate data. Genesis can only use the audit process to identify field exceptions and the audit findings to drive corrections to the dataset.	Investigating

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.5 With: Clause 11(2A) of Schedule 15.3 From: unknown To: 20-Mar-19	One 24W LED was missing from the database. Festive and decorative lights are not recorded in the database. 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 festive lights are currently excluded from the database. The impact is expected to be low, because only festive and decorative lights are affected.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis will discuss the audit findings with the council with the intent the council makes every effort to ensure the exceptions are rectified. Genesis will be requesting the addition of festive lighting assets to the dataset.	01/09/2019	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis will provide exception reporting to the council where exceptions have been identified.	01/06/2019	

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

On 20th September 2012 the Authority sent a memo to Retailers and auditors advising that tracking of load changes at a daily level was not required as long as the database contained an audit trail. I have interpreted this to mean that the production of a "snapshot" report is sufficient to achieve compliance. The database tracks additions and removals as required by this clause.

Processes to track changes to the database were reviewed.

Fault, maintenance and upgrade work is completed by NPE Tech. The RAMM database is either updated in the field using PDAs, or paper records are provided to the NPE Tech administration staff who update the database. NPE Tech are responsible for validating any work completed in RAMM.

Outage patrols are completed by NPE Tech every three months. Outages are also reported by residents within the SDC region and work orders are raised with NPE Tech as required.

New connections are infrequent, and none have occurred in the past three years. In the event of a new connection, the SDC roading team works closely with the planning team to identify new subdivisions that will have streetlighting. The roading team approves any proposed streetlights, and the developer is responsible for installation and advising SDC once the work is complete. SDC then updates RAMM.

SDC's LED road lighting upgrade project is now complete. There still some non-LED lights, most are either decorative lights in new subdivisions or NZTA lights. SDC is investigating whether the decorative lights can be upgraded to LEDs.

There are no private lights recorded in the database, and SDC confirmed that they are not aware of any private streetlights in the SDC region.

Festive and decorative lights are connected to the streetlight circuits when operating, but are not recorded in RAMM. The number and wattage of these lights is unknown. This is recorded as non-compliance in **section 2.1**, **3.1** and **3.2**.

Audit outcome

Compliant

2.7. Audit trail (Clause 11(4) of Schedule 15.3)

Code reference

Clause 11(4) of Schedule 15.3

Code related audit information

The DUML database must incorporate an audit trail of all additions and changes that identify:

- *the before and after values for changes*
- *the date and time of the change or addition*
- *the person who made the addition or change to the database*

Audit observation

The database was checked for audit trails.

Audit commentary

The database has a complete audit trail.

Audit outcome

Compliant

3. ACCURACY OF DUML DATABASE

3.1. Database accuracy (Clause 15.2 and 15.37B(b))

Code reference

Clause 15.2 and 15.37B(b)

Code related audit information

Audit must verify that the information recorded in the retailer's DUML database is complete and accurate.

Audit observation

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

Plan Item	Comments
Area of interest	Streetlights in the Stratford region
Strata	The database contains 1,129 NZTA items of load located in the Stratford region. All lights in the database have the same owner, and the management process is the same. I created three strata: • 0080012045PC49C • 0089352004PCE32 • 0089352001PC37D.
Area units	I created a pivot table of the roads in each stratum, and I used a random number generator in a spreadsheet to select a total of 15 sub-units making up 10% of the total database wattage.
Total items of load	128 items of load were checked.

Wattages for all items of load were checked against the published standardised wattage tables produced by the Electricity Authority, and the manufacturer's specifications.

Audit commentary

Database accuracy based on the field audit

The database was found to contain some inaccuracies and missing data. The field audit found:

- two lamps recorded in the database but missing from the field;
- one lamp was present in the field but missing from the database; and
- 66 wattage differences.

The field data was 91.0% of the database data for the sample checked. This is not within the required database accuracy of ±5%. The statistical sampling tool reported with 95% confidence the precision of the sample was 13.3%, and the true load in the field will be between 84.5% to 97.8% of the load recorded in the database. The sample is not sufficiently precise to be able to determine the database accuracy but indicates that the database is likely to be over reporting the kW value.

The tool indicated that there is potentially 22,900 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool) of over submission. The statistical sampling tool reported

with 95% confidence that there is a potential estimated over submission variance range of between 5,600 kWh and 39,700 kWh per annum.

Wattage accuracy

The database was checked against the published standardised wattage table, and manufacturer's specifications where available.

Lamp make model descriptions were recorded for 1,128 or the 1,129 items of load. Where a known lamp make model description was recorded, the lamp wattage was consistent with it.

The gear wattage field records the total wattage for each item of load, including lamp and gear wattage. Some errors in the gear wattage field have resulted in incorrect total wattages being reported for the 468 lights shown in red below, including the lamp with an unknown make and model described above. The 22 lamps with missing or blank gear wattages are also recorded as non-compliance in **section 2.4**.

	Gear wattage								
Lamp Make Model	0	24	44	81	110	168	278	Blank	Expected
GO (500, 70 watts)			1						83
PH (100S, 100 watts)					4				111
PH (150I, 150 watts)				1		69			168
PH (250H, 250 watts)			2	1		1	21		278
PH (40, 40 watts)			199						50
PH (70SI, 70 watts)	3	2		118					83
TERR (T24, 24 watts)		571		116				18	24
TERR (T72, 72 watts)		1							72
UNK								1	unknown

This will result in potential over recording of 3,430 W or 14,349 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool).

Festive and decorative lights are connected to the streetlight circuits when operating, but are not recorded in RAMM. The number and wattage of these lights is unknown.

SDC intends to resolve these wattage differences.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: unknown To: 20-Mar-19	The database contains some inaccurate data. The field data is 91.0% of the database data for the sample checked. This will result in potential over submission of 22,900 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool). 468 items of load have missing or incorrect gear wattages. This will result in potential over recording of 3,430 W or 14,349 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool). Festive and decorative lights are unmetered, but are not recorded in RAMM. Potential impact: Medium Actual impact: Unknown Audit history: Once Controls: Weak Breach risk rating: 6

Audit risk rating	Rationale for audit risk rating
Medium	The controls are rated as weak, because they are not sufficient to ensure that database wattage is accurate. The impact is assessed to be medium based on the wattage differences described above.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis will discuss the audit findings with the council with the intent the council makes every effort to ensure the exceptions are rectified.	01/09/2019	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis will provide exception reporting to the council where exceptions have been identified.	01/06/2019	

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

Code reference

Clause 15.2 and 15.37B(c)

Code related audit information

The audit must verify that:

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

Audit observation

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

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

Audit commentary

This clause requires that the distributed unmetered load database must satisfy the requirements of schedule 15.5 regarding the methodology for deriving submission information. Genesis reconciles this DUML load as NHH using the NST profile, and on and off times are derived from Astronomical Society data. The correct profile and submission type is recorded on the registry for all three ICPs.

I checked the February 2019 submission data for ICP 0080012045PC49C, 0089352004PCE32 and 0089352001PC37D, and compliance is confirmed.

Volume inaccuracy is present as follows:

Issue	Estimated volume information impact (annual kWh)
Potential over submission due to database inaccuracy identified during the field audit	Potential over submission of 22,900 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool).
468 lights have incorrect total wattages recorded, including one lamp with an unknown make, and 22 lamps with missing or blank gear wattages.	Estimated over submission of 14,349 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool).
Festive and decorative lights are unmetered, but are not recorded in RAMM.	Unknown volume of under recording.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: unknown To: 20-Mar-19	The database contains some inaccurate data. The field data is 91.0% of the database data for the sample checked. This will result in potential over submission of 22,900 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool). 468 items of load have missing or incorrect gear wattages. This will result in potential over submission of 3,430 W or 14,349 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool). Festive and decorative lights are unmetered, but are not recorded in RAMM. Potential impact: Low Actual impact: Unknown Audit history: Once Controls: Weak Breach risk rating: 6

Audit risk rating	Rationale for audit risk rating
Medium	The controls are rated as weak, because the database contains some inaccurate information and is not used for submission. The impact is assessed to be medium based on the kWh differences described above.

Actions taken to resolve the issue	Completion date	Remedial action status
As per 2.1, 3.1 - Genesis will discuss the audit findings with the council with the intent the council makes every effort to ensure the exceptions are rectified.	01/09/2019	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis will provide exception reporting to the council where exceptions have been identified.	01/06/2019	

CONCLUSION

A RAMM database is held by SDC, who is Genesis' customer. NPE Tech are responsible for fault, maintenance, and upgrade work for streetlights, and maintain the database.

A monthly report from the database is provided to Genesis, and used to calculate submissions. Genesis submits the DUML load as NHH using the NST profile. On hours are derived using data from the Astronomical Society.

Five non-compliances were identified, and one recommendation was raised. The future risk rating of 23 indicates that the next audit be completed in three months.

Most of the non-compliances relate to the wattages which are incorrectly recorded in the database. SDC has indicated that they intend to resolve these. Based on this, and the comments provided, I recommend an audit period of at least nine months to allow processes to be improved and errors corrected before the next audit.

PARTICIPANT RESPONSE

Genesis will discuss the measures to be taken to rectify the dataset to meet the compliance requirements. The customer is negatively impacted due to the potential over calculated volumes that will potentially arise from the inaccuracies in the dataset. Genesis will be requesting a 6 -9 month review period to enable the council to do their due diligence and make the necessary corrections and inclusion of asset information.