ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

For

SOUTH TARANAKI DISTRICT COUNCIL AND GENESIS ENERGY LIMITED

Prepared by: Rebecca Elliot

Date audit commenced: 28 April 2021

Date audit report completed: 14 June 2021

Audit report due date: 1 December 2020

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EXECUTIVE SUMMARY

This audit of the **South Taranaki District Council (STDC)** 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 STDC, who is Genesis' customer. Opus manages the database. 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 logger.

Seven non-compliances were identified, and one recommendation is made. The future risk rating of 12 indicates that the next audit be completed in 12 months. I have considered this in conjunction with Genesis' comments and recommend that the next audit be in 18 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
Distributed unmetered load audits	1.10	16A.26	Audit not completed within the required timeframe.	Strong	Low	1	Cleared
Deriving submission information	2.1	11(1) of Schedule 15.3)	Database is not confirmed as accurate with a 95% level of confidence. In absolute terms, total annual consumption is estimated to be 8,700 kWh higher than the DUML database indicates. 537 items of load do not have a gear wattage recorded in the database. Adjusted wattages (including the correct gear wattage) are applied to the monthly extract to RAMM prior to submission. The data used for submission does not track changes at a daily basis and is provided as a snapshot.	Moderate	Low	2	Identified
ICP identifier and items of load	2.2	11(2) (a) & (aa) of Schedule 15.3	Two lights with no ICP resulting in an estimated under submission of 1,571.73 kWh per annum.	Moderate	Low	2	Cleared
Description and capacity of load	2.4	11(2)(c) and (d) of Schedule 15.3	537 items of load do not have a gear wattage recorded in the database. Adjusted wattages (including the correct gear wattage) are applied to the monthly extract to RAMM prior to submission.	Moderate	Low	2	Identified
All load recorded in database	2.5	11(2A) of Schedule 15.3	Seven LED lamps not recorded in the database.	Strong	Low	1	Investigating

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Database accuracy	3.1	15.2 and 15.37B(b)	Database is not confirmed as accurate with a 95% level of confidence. In absolute terms, total annual consumption is estimated to be 8,700 kWh higher than the DUML database indicates.	Moderate	Low	2	Identified
Volume information accuracy	3.2	15.2 and 15.37B(c)	Database is not confirmed as accurate with a 95% level of confidence. In absolute terms, total annual consumption is estimated to be 8,700 kWh higher than the DUML database indicates. 537 items of load do not have a gear wattage recorded in the database. Adjusted wattages (including the correct gear wattage) are applied to the monthly extract to RAMM prior to submission. The data used for submission does not track changes at a daily basis and is provided as a snapshot.	Moderate	Low	2	Identified
Future Risk Rating						12	

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
Database Accuracy	3.1	Conduct further investigation to establish the actual input wattage for the Orangetek Terraled Mini 18 LEDs used by STDC.

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

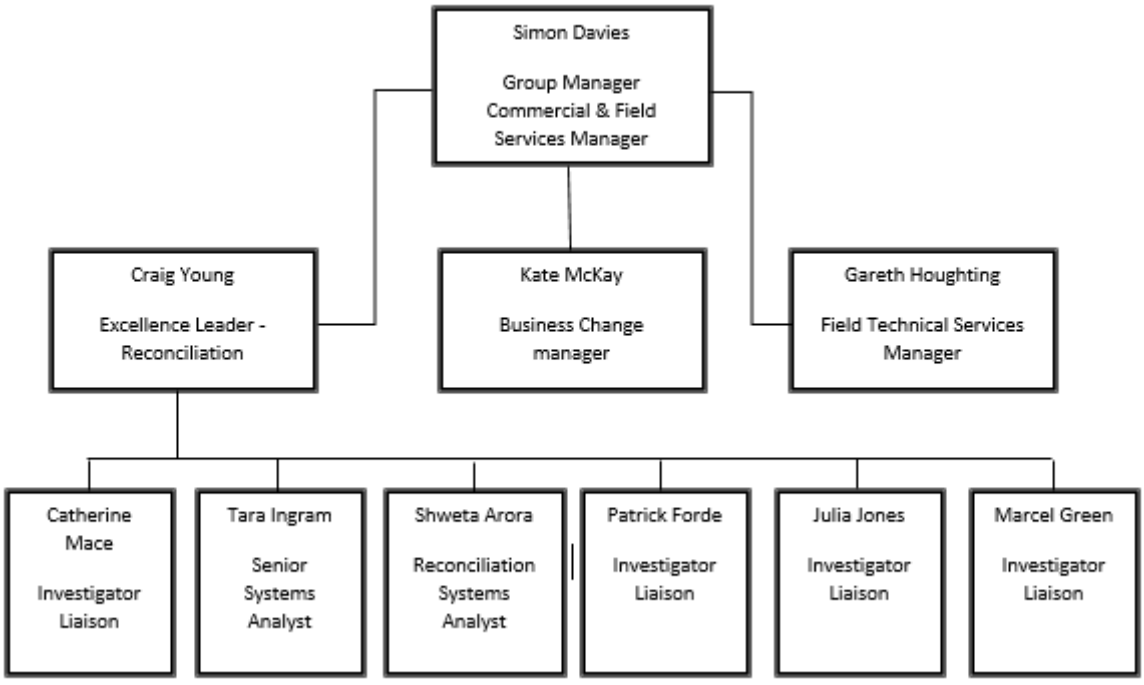
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

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

Auditors:

Name	Company	Role
Rebecca Elliot	Veritek Limited	Lead Auditor
Brett Piskulic	Veritek Limited	Supporting Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Vincent Lim	Roading Manager	South Taranaki District Council
Craig Young	Excellence Leader - Reconciliation	Genesis Energy
Julia Jones	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.

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	NSP	Profile	Number of items of load	Database wattage (watts)
1000543586PC5A9	South Taranaki District Council NZTA (HAW)	HWA0331	NST	234	21,934
1000543527PC1F3	South Taranaki District Council NZTA (HAW)	HWA0331	NST	1,307	34,608
1000543587PC9EC	NPL - South Taranaki District Council NZTA (NPL))	CST0331	NST	122	12,627
1000543529PC268	South Taranaki District Council Streetlights (NPL)	CST0331	NST	295	7,597
1000543528PCE2D	South Taranaki District Council Streetlights (SFD)	SFD0331	NST	307	8,045
1000543589PCA77	South Taranaki District Council NZTA (SFD)	SFD0331	NST	49	4,634
1000543590PCE8B	South Taranaki District Council NZTA (WVY)	WVY0111	NST	126	12,926
1000543526PCDB6	South Taranaki District Council Streetlights (WVY)	WVY0111	NST	353	7,898
			Total	**2,795**	**110,317**

The database also includes three lights connected to ICP 0042251397PC0FC which are treated as standard unmetered load. This ICP is excluded from the scope of this distributed unmetered load audit.

1.7. Authorisation Received

All information was provided directly by Genesis and STDC.

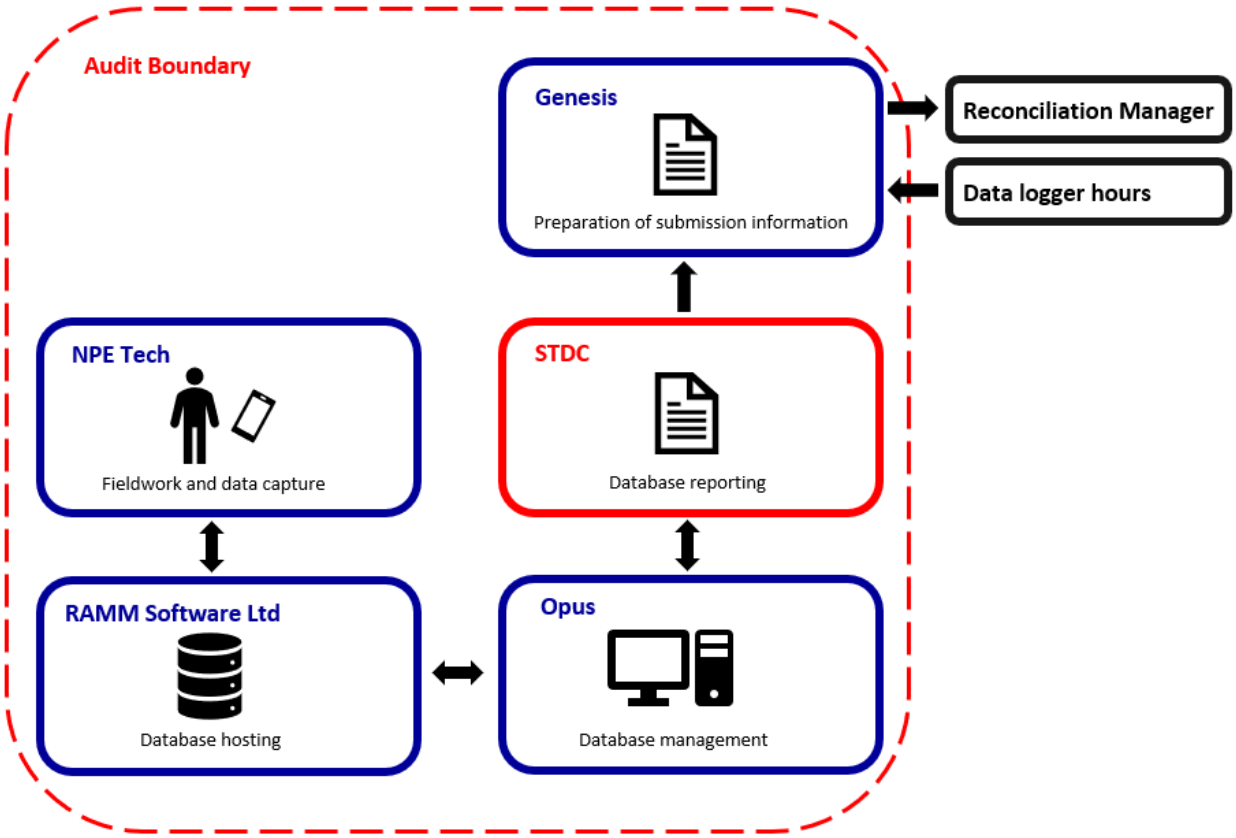
1.8. Scope of Audit

This audit of the STDC 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 STDC, who is Genesis' customer. Opus manages the database. 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 loggers.

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 audit was conducted in accordance with the audit guidelines for DUML audits version 1.1.

The field audit was undertaken of a statistical sample of 243 items of load on 12 May 2021.

1.9. Summary of previous audit

The previous audit was completed in April 2019 by Tara Gannon of Veritek Limited. Four non-compliances were identified. The statuses of the non-compliances and recommendation are described below.

Table of Non-compliance

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3)	2,464 items of load do not have a gear wattage recorded in the database. Adjusted wattages (including the correct gear wattage) are applied to the monthly extract to RAMM prior to submission. All items of load in the extract have a lamp model, lamp wattage, and adjusted wattage including gear wattage recorded.	Still existing
Description and capacity of load	2.4	11(2)(c) and (d) of Schedule 15.3	2,464 items of load do not have a gear wattage recorded in the database. Adjusted wattages (including the correct gear wattage) are applied to the monthly extract to RAMM prior to submission. All items of load in the extract have a lamp model, lamp wattage, and adjusted wattage including gear wattage recorded.	Still existing
All load recorded in database	2.5	11(2A) of Schedule 15.3	One 70W SON lamp was missing from the database.	Cleared
Volume information accuracy	3.2	15.2 and 15.37B(c)	2,464 items of load do not have a gear wattage recorded in the database. Adjusted wattages (including the correct gear wattage) are applied to the monthly extract to RAMM prior to submission. All items of load in the extract have a lamp model, lamp wattage, and adjusted wattage including gear wattage recorded.	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

Genesis have requested Veritek to undertake this streetlight audit.

Audit commentary

This audit report confirms that the requirement to conduct an audit has not been met for this database. Genesis was unable to complete this audit by the required timeframe as a database extract was not able to be obtained within time to complete the audit by the due date.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 1.10 With: Clause 16A(1)(b) of Part 16A & 17.295F From: 01-Dec-20 To: 12-May-21	Audit not completed within the required timeframe. Potential impact: Low Actual impact: Low Audit history: None Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as strong, as Genesis are reliant on the database provider to supply the data and in this case their delay caused this report to be late. The impact is assessed to be low, as this has no direct impact on reconciliation.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis has engaged with the customer to reiterate the importance of the data delivery and the expected delivery timeframes.	01/06/2021	Cleared
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis continue to send reminders to all customers prior to month end.		

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.

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 logger information for all eight ICPs.

I checked the April 2021 submission data for all eight ICPs, and compliance is confirmed.

I checked the field audit against the database quantities found that the database is not confirmed as accurate with a 95% level of confidence. This will be resulting in an estimated under submission of 8,700 kWh p.a. This is detailed in **section 3.1**.

Review of the database content in **section 2.4** found 537 items of load do not have a gear wattage recorded in the database. Adjusted wattages are applied to the database extract prior to it being sent to Genesis to use for submission. Non-compliance is recorded below, because gear wattages are not up to date within RAMM.

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

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

The current data used is a snapshot and this practice is non-compliant.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: unknown To: 12-May-21	Database is not confirmed as accurate with a 95% level of confidence. In absolute terms, total annual consumption is estimated to be 8,700 kWh higher than the DUML database indicates. 537 items of load do not have a gear wattage recorded in the database. Adjusted wattages (including the correct gear wattage) are applied to the monthly extract to RAMM prior to submission. The data used for submission does not track changes at a daily basis and is provided as a snapshot. Potential impact: Low Actual impact: Low Audit history: Twice Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate, as they are sufficient to mitigate the risk most of the time, but there is room for improvement. The impact is assessed to be low due to the kWh volumes.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis provided feedback to the customer in relation to missing gear wattage values. The reporting from the customer in June for May 2021 has complete Gear wattage values.	01/06/2021	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis continues to provide exception management reporting to the customer.	01/06/2021	

2.2. ICP identifier and items of load (Clause 11(2)(a) and (aa) of Schedule 15.3)

Code reference

Clause 11(2)(a) and (aa) of Schedule 15.3

Code related audit information

The 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 but two items of load had an ICP number recorded.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.2 With: Clause 11(2) (a) & (aa) of Schedule 15.3 From: 19-Feb-21 To: 12-May-21	Two lights with no ICP resulting in an estimated under submission of 1,571.73 kWh per annum. 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 they are sufficient to mitigate the risk most of the time but there is room for improvement. The impact is assessed to be low based on the estimated impact on reconciliation.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis provided feedback to the customer in relation to missing ICP values. The reporting from the customer in June for May 2021 has an ICP reported against each asset. In the event there is a repeat of this issue, it is Genesis's process to adopt the ICP based on the street for allocation purposes.	01/06/2021	Cleared
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis continues to provide exception management reporting to the customer.	01/06/2021	

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

Code reference

Clause 11(2)(b) of Schedule 15.3

Code related audit information

The 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 street names and location numbers for each item of load.

GPS coordinates are recorded for 2,290 (82%) of the 2,797 items of load. The remaining 507 items of load have street name, location number, and pole number information which allows 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 lamp type and wattage capacity and included any ballast or gear wattage.

Audit commentary

Lamp model, lamp wattage, and gear wattage are recorded in the database.

The gear wattage field in RAMM is not used by STDC and does not contain valid data. 537 of the items in the database are not LED lights and are expected to have a non-zero gear wattage.

To ensure that correct gear wattage values are applied, STDC maintains a separate table of adjusted wattages including gear wattages. These adjusted wattages are applied to the RAMM report prior to it being sent to Genesis each month.

I compared the raw database extract, the extract provided to Genesis, and submission data created by Genesis for April 2021, which confirmed that this process is working as intended and the correct adjusted wattages are sent to Genesis and applied for submission.

All items of load have a lamp model, lamp wattage and adjusted wattage including gear wattage recorded in the extract provided to Genesis. The accuracy of the 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: unknown To: 12-May-21	537 items of load do not have a gear wattage recorded in the database. Adjusted wattages (including the correct gear wattage) are applied to the monthly extract to RAMM prior to submission. Potential impact: Low Actual impact: Low Audit history: Once Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate. Although gear wattages are maintained in a separate table and applied prior to sending the database extract to Genesis, they are not recorded in the database itself. There is no impact on submission.

Actions taken to resolve the issue	Completion date	Remedial action status
The customers reporting has been amended to accurately define the gear wattages associated with each asset. I do not believe the customer plans on changing its current process. However, Genesis will discuss whether there is a possibility to help them improve their process to mitigate any further risk.	01/06/2021	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
The reporting provides the correct gear wattages, Genesis has confirmed all gear wattages to be accurate in their May 2021 reporting.		

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 243 items of load on 12 May 2021.

Audit commentary

As recorded in the 2019 audit, the database contains two fields titled model, and in some cases the information contained within them is inconsistent. The second model field is used to determine the lamp wattage. For this reason, I have used the second model field to determine database accuracy.

The following differences were identified during the field audit.

Address	Database Count	Field Count	Count differences	Wattage differences	Comments
STDC HAWERA					
BURNSIDE AVE	5	9	4	-	4 x additional 24W LEDs found in the field.
STDC New Plymouth, Stratford, Waverley					
COLEMAN AVE	11	12	1	-	1 x additional 24W LED found in the field.
EGMONT ST (KAPONGA)	16	18	2	-	2 x additional 24W LEDs found in the field.
Total	**243**	**250**	**7**	**-**	

The field audit found seven additional lights which were not recorded in the database, which is recorded as non-compliance below.

Audit outcome

Non-compliant

Non-compliance	**Description**
Audit Ref: 2.5 With: Clause 11(2A) of Schedule 15.3 From: unknown To: 12-May-21	Seven LED lamps not recorded in the database. Potential impact: Low Actual impact: Low Audit history: Twice Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as strong, because seven missing lamps were identified for the sample of 243 lamps checked. The impact is assessed to be low, based on 168W missing from the database.

Actions taken to resolve the issue	**Completion date**	**Remedial action status**
Genesis has noted that only 1 of the 3 roads have had the assets added into the database. Genesis has requested the remaining 3 assets be confirmed and added to the database.	01/07/2021	Investigating
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 database functionality achieves compliance with the code.

Audit outcome

Compliant

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

Code reference

Clause 11(4) of Schedule 15.3

Code related audit information

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

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

Audit observation

The database was checked for audit trails.

Audit commentary

The database has a complete audit trail.

Audit outcome

Compliant

3. ACCURACY OF DUML DATABASE

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

Code reference

Clause 15.2 and 15.37B(b)

Code related audit information

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

Audit observation

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 South Taranaki region
Strata	The database contains 2,797 items of load located in the South Taranaki region. The management process is the same for all lights. I created four strata by owner and region: • NZTA Hawera, • NZTA New Plymouth, Stratford, Waverley, • STDC Hawera, and • STDC New Plymouth, Stratford, Waverley.
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 42 sub-units (roads).
Total items of load	243 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

Field audit findings

A statistical sample of 243 items of load found that the field data was 100.8% of the database data for the sample checked.

Result	Percentage	Comments
The point estimate of R	101.9%	Wattage from survey is higher than the database wattage by 1.9%
R_L	100.4%	With a 95% level of confidence, it can be concluded that the error could be between +0.4% and +7.1%
R_H	107.1%	

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 B (detailed below) 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 mean that the true wattage (installed in the field) could be between 0.4% and 7.1% higher 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 2 kW higher than what the database indicates.

There is a 95% level of confidence that the installed capacity is up to 8 kW higher than the database.

In absolute terms, total annual consumption is estimated to be 8,700 kWh higher than the DUML database indicates.

There is a 95% level of confidence that the annual consumption is between 2,100 kWh and 33,500 kWh p.a. higher than the database indicates.

Scenario	Description
A - **Good accuracy, good precision**	This scenario applies if: (a) R_H is less than 1.05; and (b) R_L is greater than 0.95 The conclusion from this scenario is that: (a) the best available estimate indicates that the database is accurate within +/- 5 %; and (b) this is the best outcome.
B - **Poor accuracy, demonstrated with statistical significance**	This scenario applies if: (a) the point estimate of R is less than 0.95 or greater than 1.05 (b) as a result, either R_L is less than 0.95 or R_H is greater than 1.05. There is evidence to support this finding. In statistical terms, the inaccuracy is statistically significant at the 95% level
C - **Poor precision**	This scenario applies if: (a) the point estimate of R is between 0.95 and 1.05 (b) R_L is less than 0.95 and/or R_H is greater than 1.05 The conclusion from this scenario is that the best available estimate is not precise enough to conclude that the database is accurate within +/- 5 %

Wattage accuracy

The RAMM report containing adjusted wattages was checked against the published standardised wattage table, and manufacturer's specifications where available. My assessment was based on models recorded in the second model field, which determines the wattages recorded and the RAMM extract data provided to Genesis.

No lamp wattage or gear wattage discrepancies were identified.

I checked the wattages recorded for LEDs against both known specifications and specifications supplied by STDC. The majority of LEDs used by STDC are Orangetek Terraled Mini 18 (1,261 installed) and

Orangetek Terraled 24 (675 installed). The database records the wattage of the Orangetek Terraled Mini 18 as 21 watts based on advice of the supplier. Specification sheets supplied by STDC state the wattage as 18 watts. I recommend that further investigation is conducted to establish the actual input wattage for the Orangetek Terraled Mini 18 LEDs used by STDC.

The database records the wattage of the Orangetek Terraled 24 as 24 watts which aligns with the specification sheets provided.

Recommendation	Description	Audited party comment	Remedial action
Database Accuracy	Conduct further investigation to establish the actual input wattage for the Orangetek Terraled Mini 18 LEDs used by STDC.	Genesis confirms in the current reporting for May this has been corrected.	Cleared

Change management process findings

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 on a monthly cycle. Outages are also reported by residents within the STDC region and work orders are raised with NPE Tech as required.

There are very few new connections, and none have occurred during the audit period. New subdivisions are rare, and most are rural and do not have street lighting. The STDC streetlight team works closely with the planning team to identify new subdivisions that will have streetlighting and progress with them. NPE Tech are Powerco approved contractors and will normally be responsible for connecting any new streetlighting. As part of the connection process, they will ensure that the lights are entered into RAMM.

STDC's LED upgrade is mostly complete, the remaining non-LED lights are mostly NZTA lights. STDC advised that there are plans in place for the management of the NZTA lights to be handed over to NZTA and the lights will be removed from the STDC database.

All known private lights are metered, and all festive lighting is connected to metered under veranda lights and excluded from the database.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: unknown To: 12-May-21	Database is not confirmed as accurate with a 95% level of confidence. In absolute terms, total annual consumption is estimated to be 8,700 kWh higher than the DUML database indicates. 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 they are sufficient to mitigate the risk most of the time but there is room for improvement. The impact is assessed to be low, based on the kWh difference described above.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis can confirm the model descriptions have been updated and that Genesis has requested the customer to confirm the last 3 missing assets and add as required.	01/07/2021	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

Submission data was checked for accuracy, including:

- 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.

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 logger information for all eight ICPs. The correct profile and submission type is recorded on the registry for each ICP.

I checked the April 2021 submission data for all eight ICPs, and compliance is confirmed.

The field audit against the database quantities found that the database is not confirmed as accurate with a 95% level of confidence. This is detailed in **section 3.1**.

Review of the database content in **section 2.4** found 537 items of load do not have a gear wattage recorded in the database. Adjusted wattages are applied to the database extract prior to it being sent to Genesis to use for submission. Non-compliance is recorded below, because gear wattages are not up to date within RAMM.

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

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

The current data used is a snapshot and this practice is non-compliant.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: unknown To: 12-May-21	Database is not confirmed as accurate with a 95% level of confidence. In absolute terms, total annual consumption is estimated to be 8,700 kWh higher than the DUML database indicates. 537 items of load do not have a gear wattage recorded in the database. Adjusted wattages (including the correct gear wattage) are applied to the monthly extract to RAMM prior to submission. The data used for submission does not track changes at a daily basis and is provided as a snapshot. Potential impact: Low Actual impact: Low Audit history: Twice Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate, as they are sufficient to mitigate the risk most of the time but there is room for improvement. The impact is assessed to be low, based on the kWh difference described above.
Actions taken to resolve the issue	**Completion date** / **Remedial action status**

The customers reporting has been amended to accurately define the gear wattages associated with each asset. I do not believe the customer plans on changing its current process. However, Genesis will discuss whether there is a possibility to help them improve their process to mitigate any further risk.	01/06/2021	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
The reporting provides the correct gear wattages, Genesis has confirmed all gear wattages to be accurate in their May 2021 reporting. Genesis also carries out their own validation and if incorrect, the wattages are corrected prior to billing/settlement processes commencing. Genesis are currently discussing the reporting requiring for change tracking with the customer.		

CONCLUSION

This audit of the **South Taranaki District Council (STDC)** 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 STDC, who is Genesis' customer. Opus manages the database. 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 logger.

Seven non-compliances were identified, and one recommendation is made. The future risk rating of 12 indicates that the next audit be completed in 12 months. I have considered this in conjunction with Genesis' comments and recommend that the next audit be in 18 months.

PARTICIPANT RESPONSE

STDC has already cleared majority of the issues raised in this audit. The last 3 remaining missing assets are to be confirmed and added. Genesis is currently working with the council to provide better reporting which is to include change tracking. Genesis would be seeking an 18 month review period for this database.