ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

For

KAIPARA DISTRICT COUNCIL
AND GENESIS ENERGY

Prepared by: Steve Woods

Date audit commenced: 15 January 2021

Date audit report completed: 1 April 2021

Audit report due date: 1 April 2021

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EXECUTIVE SUMMARY

This audit of the **Kaipara District Council (KDC)** 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.

This audit found three non-compliances and makes one recommendation.

Streetlight load is determined by wattages held within KDC's RAMM database, and a monthly extract is provided to Genesis. Analysis of the February 2021 submission information found a discrepancy between the submission volume and the database resulting in an estimated annual over submission of 13,054.7kWh.

There is currently no maintenance contract in place for the KDC streetlights. Field work is carried out by Northpower on a reactive basis with like for like replacement of faulty or damaged lights only. There was a tender process underway at the time of the audit and a maintenance contract is planned to be put in place in April 2021.

There are 18 lamps with incorrect gear wattages recorded in the database. The incorrect capacities will be resulting in an estimated minor under submission of 768.78 kWh per annum (based on annual burn hours of 4,271 as is detailed in the DUML database auditing tool).

There are 797 LED lights with incorrect wattage applied indicating over submission of 3,744.39 kWh per annum (based on annual burn hours of 4,271 as is detailed in the DUML database auditing tool).

The field audit of 210 items of load could not confirm the database accuracy to be within the acceptable +/-5% accuracy threshold.

The future risk rating of nine indicates that the next audit be completed in 12 months. I have considered this in conjunction with Genesis' comments and recommend and I believe 12 months is appropriate.

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	A discrepancy between the submission volume and the database resulting in an estimated annual over submission of 13,054.7kWh. Database is not confirmed as accurate with a 95% level of confidence. 18 items of permanent load have the incorrect ballast applied indicating a minor under submission of 768.78 kWh per annum. 797 LED lights with incorrect wattage applied indicating over submission of 3,744.39 kWh per annum.	Moderate	Medium	4	Identified
Database accuracy	3.1	15.2 and 15.37B(b)	Database is not confirmed as accurate with a 95% level of confidence. 18 items of permanent load have the incorrect ballast applied indicating under submission of 768.78 kWh per annum. 797 LED lights with incorrect wattage applied indicating over submission of 3,744.39 kWh per annum.	Moderate	Medium	4	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Volume information accuracy	3.2	15.2 and 15.37B(c)	A discrepancy between the submission volume and the database resulting in an estimated annual over submission of 13,054.7kWh. Database is not confirmed as accurate with a 95% level of confidence. 18 items of permanent load have the incorrect ballast applied indicating under submission of 768.78 kWh per annum. 797 LED lights with incorrect wattage applied indicating over submission of 3,744.39 kWh per annum.	Moderate	Medium	4	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	Confirm LED light wattages by obtaining manufacturers specifications.

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

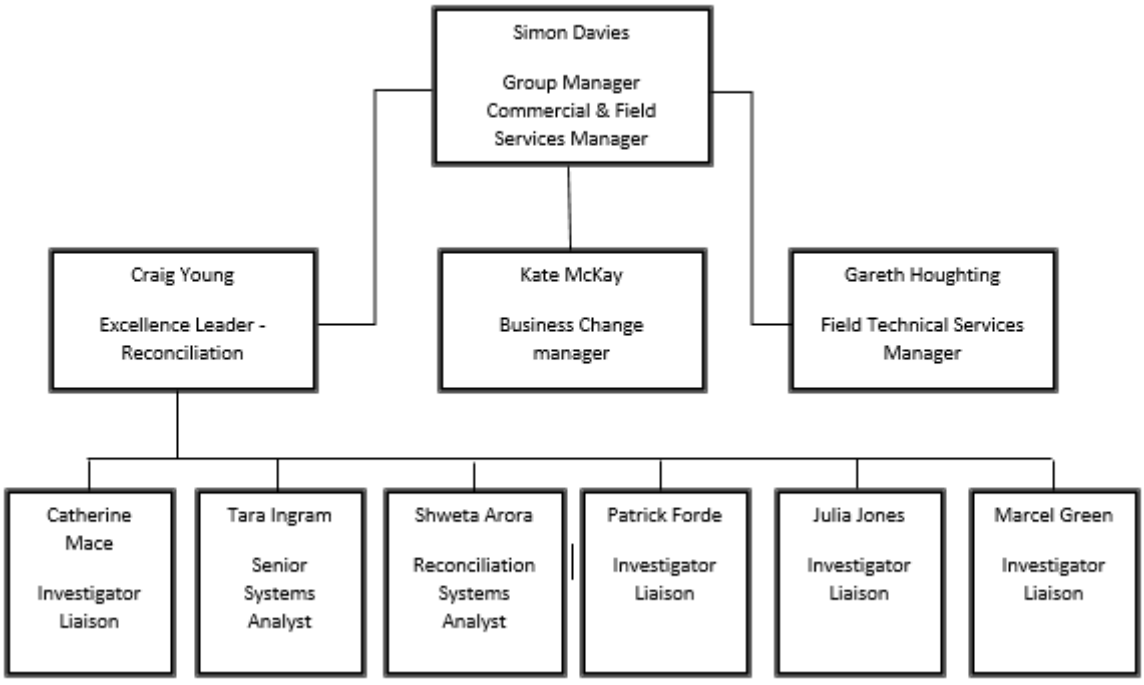
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

Audit commentary

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

1.2. Structure of Organisation

Genesis provided the relevant organisational structure:



1.3. Persons involved in this audit

Auditor:

Steve Woods

Veritek Limited

Electricity Authority Approved Auditor

Supporting Auditor:

Brett Piskulic

Veritek Limited

Electricity Authority Approved Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Craig Young	Excellence Leader - Reconciliation	Genesis Energy
Karen Ruskin	Asset Systems Technician	Kaipara District Council
Musheer Khan	Regional Operations Lead	Northland Transportation Alliance

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". The specific module used for DUML is called RAMM Contractor.

The database is backed-up 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)
0000545278NRC7A	Streetlights; Kaipara District Council	MPE1101	NST	561	28,902
0000545280NRE79	Streetlights; Kaipara District Council	MTO0331	NST	622	21,819
			TOTAL	1,183	50,721

The ballast values are included in the wattage totals.

1.7. Authorisation Received

All information was provided directly by Genesis and KDC.

1.8. Scope of Audit

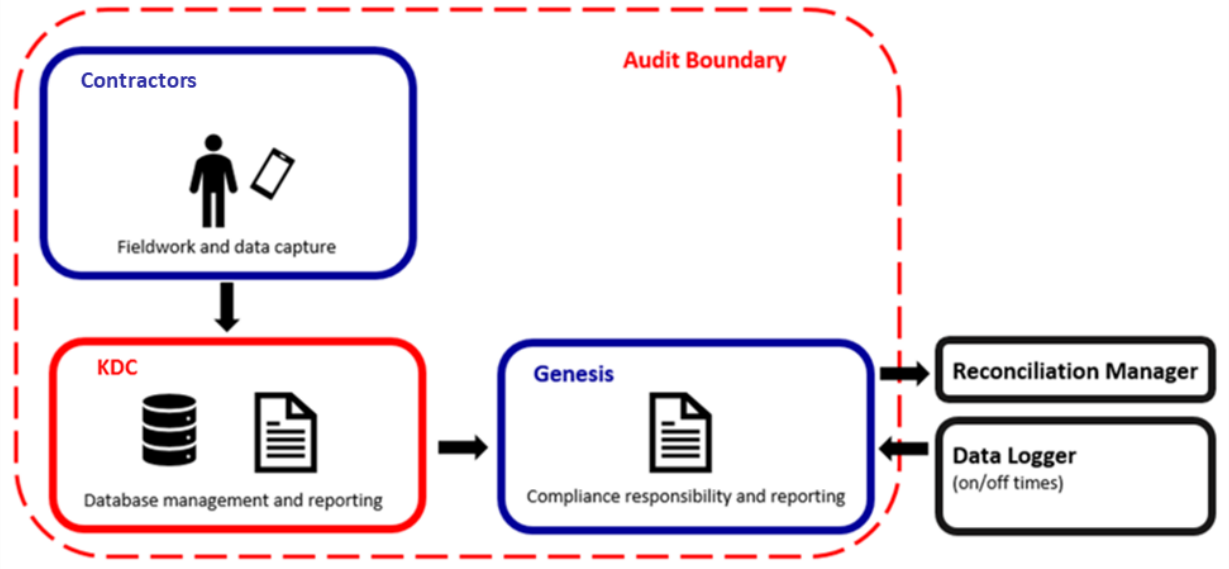
This audit of the **Kaipara District Council (KDC)** DUML database and processes was conducted at the request of **Genesis Energy Limited (Genesis)** in accordance with clause 15.37B. The purpose of this audit is to verify that the volume information is being calculated accurately, and that profiles have been correctly applied.

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

Kaipara District Council Unmetered Streetlights are located on the Northpower network. Genesis reconciles this load using the KDC RAMM streetlight database.

The scope of the audit encompasses the collection, security and accuracy of the data, including the preparation of submission information based on monthly reporting which are provided intermittently. The diagram below shows the flow of information and the audit boundary for clarity.

Field work is carried out by Northpower on a reactive basis with like for like replacement of faulty or damaged lights.



The field audit was undertaken of a statistical sample of 210 items of load on 22nd February 2021.

1.9. Summary of previous audit

The previous audit was completed in November 2019 by Rebecca Elliot of Veritek Limited. The current status of that audit's findings is detailed below:

Table of Non-Compliance

Subject	Section	Clause	Non-compliance	Status
DUML Audit	1.10	16A.26(1)(b) of Part 16A	Audit not completed within the required timeframe.	Cleared
Deriving submission information	2.1	11(1) of Schedule 15.3	18 items of permanent load have the incorrect ballast applied indicating under submission of 768.78 kWh per annum. The data used for submission does not track changes at a daily basis and is provided as a snapshot.	Still existing for incorrect ballast Cleared
All load recorded in database	2.5	11(2A) and (d) of Schedule 15.3	One additional lamp found in the field.	Cleared
Database accuracy	3.1	15.2 and 15.37B(b)	18 items of permanent load have the incorrect ballast applied indicating under submission of 768.78 kWh per annum.	Still existing
Volume information accuracy	3.2	15.2 and 15.37B(c)	18 items of permanent load have the incorrect ballast applied indicating under submission of 768.78 kWh per annum. The data used for submission does not track changes at a daily basis and is provided as a snapshot.	Still existing for incorrect ballasts Cleared

Table of Recommendations

Subject	Section	Recommendation for Improvement	Status
Database Accuracy	3.1	Update database with lamp description details to confirm the correct wattage has been applied.	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 been met for this database.

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

Genesis reconciles this DUML load using the NST profile.

Genesis is reconciling the load using the KDC RAMM streetlight database. The total volume submitted to the Reconciliation Manager is based on the most recently received database report provided by KDC.

I compared the submission volumes with the load recorded in the database extract provided for this audit in February 2021 against the volumes submitted by Genesis. The following variances were found:

ICPs	Fittings number from February submission	Fittings number from 19th Feb database extract	Difference	kWh value submitted	Calculated kWh value from database	kWh difference
0000545278NRC7A	570	561	9	8,365.68	8,731.73	366.05 under submission
0000545280NRE79	622	622	0	6,034.45	6,591.85	557.40 under submission
					Total	923.44 under submission

Annualised this will result in an estimated annual under submission of 13,054.7 kWh.

Genesis advised that the submission data used for February was estimated using the January data as the February data had not been received in time. Genesis advised they will carry out revisions once the February data is received.

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**.

As noted in **section 3.1**, I checked the ballasts being applied and found that 18 lamps had a discrepancy when compared to the standardised wattage table. The incorrect capacities will be resulting in an estimated minor under submission of 768.78 kWh per annum (based on annual burn hours of 4,271 as is detailed in the DUML database auditing tool).

As noted in **section 3.1**, there are 797 LED lights with incorrect wattage applied indicating over submission of 3,744.39 kWh per annum (based on annual burn hours of 4,271 as is detailed in the DUML database auditing tool).

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.

KDC provides a monthly report of changes made along with the monthly wattage report. Genesis then accounts for changes which have happened in each month on a daily basis.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: 26-Nov-19 To: 19-Feb-21	A discrepancy between the submission volume and the database resulting in an estimated annual over submission of 13,054.7kWh. Database is not confirmed as accurate with a 95% level of confidence. 18 items of permanent load have the incorrect ballast applied indicating a minor under submission of 768.78 kWh per annum. 797 LED lights with incorrect wattage applied indicating over submission of 3,744.39 kWh per annum. Potential impact: Medium Actual impact: Medium Audit history: Once Controls: Moderate Breach risk rating: 4
Audit risk rating	**Rationale for audit risk rating**
Medium	The controls are rated as moderate as they will mitigate risk most of the time but there is room for errors to occur. The impact is assessed to be medium due to the kWh volumes.

Actions taken to resolve the issue	Completion date	Remedial action status
The 797 assets with incorrect gear wattages were not detected in the previous audits, therefore Genesis and the council were none the wiser and under the impression that the wattages applied were accurate. The extent of this, has the misperception of inadequate database management. Genesis will work with the council to make the necessary corrective actions. And ask the council to review lamp specifications to confirm lamp properties in the database.	01/07/20201	Identified

Preventative actions taken to ensure no further issues will occur	Completion date	
Genesis will liaise with the council to have the necessary corrections made.	30/04/2021	

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 the correct ICP was recorded against each item of load.

Audit commentary

All items of load had an ICP 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 fields for the road name, location number, pole ID, and GPS coordinates.

GPS coordinates are populated for all except two items 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 fields for lamp make and model. There are three fields which record lamp wattage, gear wattage and total wattage including gear and lamp wattage.

The accuracy of lamp descriptions, wattages and ballasts is recorded 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 210 items of load on 22nd February 2021.

Audit commentary

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

Street	Database count	Field count	Light count differences	Wattage recorded incorrectly	Comments
Sunset Drive	13	13	-	1	1 x 70W HPS recorded as 28w LED in the database.
Kahu Drive	9	9	-	9	9 x 21W LED recorded as 0w 200W Solar Panel Kingson Galaway in the database

All lights checked during the field survey were present in the database. Wattage differences are recorded as non-compliance in **section 3.1**.

Audit outcome

Compliant

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

Code reference

Clause 11(3) of Schedule 15.3

Code related audit information

The 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. The change management process and the compliance of the database reporting provided to Genesis is detailed in **sections 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 KDC RAMM database has an 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

A database extract was provided, 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	Kaipara District Council area
Strata	The database contains the KDC items of load in two ICPs in the Kaipara region area. The processes for the management of all KDC items of load are the same, but I decided to place the items of load into four strata: 1. Dargaville (streets A-M), Poutu and Ruawai, 2. Dargaville (streets N-Z), Aranga, Mangatu, Pukehuia and Tangowahine, 3. Mangawhai, and 4. Kaiwaka, Matakohe and Maungaturoto.
Area units	I created a pivot table of the roads and I used a random number generator in a spreadsheet to select a total of 41 sub-units (roads).
Total items of load	210 items of load were checked.

Wattages were checked for alignment with the published standardised wattage table produced by the Electricity Authority or LED light specifications as available against the RAMM database.

Audit commentary

Field Audit Findings

A field audit was conducted of a statistical sample of 210 items of load. The "database auditing tool" was used to analyse the results, which are shown in the table below.

Result	Percentage	Comments
The point estimate of R	104.8	Wattage from survey is lower than the database wattage by 0.9%
R_L	100	With a 95% level of confidence, it can be concluded that the error could be between 0% and 33.8%
R_H	133.8	

These results were categorised in accordance with the "Distributed Unmetered Load Statistical Sampling Audit Guideline", effective from 1 February 2019 and the table below shows that Scenario C (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 be up to 33.8% 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 lower than the capacity indicated by the database.

There is a 95% level of confidence that the installed capacity is up to 17 kW higher than the database.

In absolute terms, total annual consumption is estimated to be 10,300 kWh higher than the DUML database indicates.

There is a 95% level of confidence that the annual consumption is up to 73,200 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 and ballast accuracy findings

I checked the ballasts being applied and found that 18 lamps had a discrepancy when compared to the standardised wattage table. This is detailed in the table below:

Lamp Type	Database Total Lamp Wattage	EA Standardised Total Wattage	Variance (watts)	Database Quantity	Estimated Annual kWh effect on consumption
250W HPSV Lamp	268	278	-10	15	-640.65 kWh
250W MH Lamp	268	278	-10	3	-128.13 kWh
Total estimated annual effect on submission					- 768.78 kWh

The incorrect capacities will be resulting in an estimated under submission of 768.78 kWh per annum (based on annual burn hours of 4,271 as is detailed in the DUML database auditing tool).

I reviewed the LED light descriptions to confirm if the wattages applied were correct. The most common LED light used is the AEC I-Tron Zero STA4.49-2M with 797 of this type recorded in the database. The wattage applied in the database is 21 watts. KDC provided a manufacturers specification document which indicates that the correct wattage for these lights is 19.9 watts. The incorrect wattage will be resulting in an estimated over submission of 3,744.39 kWh per annum (based on annual burn hours of 4,271 as is detailed in the DUML database auditing tool).

I recommend that all LED light specifications are checked to confirm the correct wattage has been applied.

Recommendation	Description	Audited party comment	Remedial action
Database Accuracy	Confirm LED light wattages by obtaining manufacturers specifications.	Will request the Councils new contracted party to confirm lamp specifications.	Investigating

Change management process findings

The RAMM database used for submission is managed by KDC. The processes to track load changes due to faults and maintenance were examined. There is currently no maintenance contract in place for the KDC streetlights. Field work is carried out by Northpower on a reactive basis with like for like replacement of faulty or damaged lights only. There was a tender process underway at the time of the audit and a maintenance contract is planned to be put in place in April 2021.

The processes for new lamp connections were examined. KDC accept responsibility of these assets upon the 224C being issued. “As-built” plans are expected to be submitted to KDC as part of this process. The electrical connection of new streetlights is controlled by Northpower and KDC are not advised of when this occurs. The new lights are recorded in the database from the date of vesting. This will be resulting in no submission occurring for the period between electrical connection and vesting of the assets to council, however, there have not been any new subdivisions added during the audit period.

There are no festive lights connected to the unmetered streetlight circuits. Private lights are not held in the database.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 26-Nov-19 To: 19-Feb-21	Database is not confirmed as accurate with a 95% level of confidence. 18 items of permanent load have the incorrect ballast applied indicating under submission of 768.78 kWh per annum. 797 LED lights with incorrect wattage applied indicating over submission of 3,744.39 kWh per annum. Potential impact: Medium Actual impact: Medium Audit history: Multiple times Controls: Moderate Breach risk rating: 4
Audit risk rating	**Rationale for audit risk rating**
Medium	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 medium due to the impact on submission.

Actions taken to resolve the issue	Completion date	Remedial action status
The 797 assets with incorrect gear wattages were not detected in the previous audits, therefore Genesis and the council were none the wiser and under the impression that the wattages applied were accurate. The extent of this, has the misperception of inadequate database management. Genesis will work with the council to make the necessary corrective actions. And ask the council to review lamp specifications to confirm lamp properties in the database.	01/07/20201	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis will liaise with the council to have the necessary corrections made.	30/04/2021	

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

Code reference

Clause 15.2 and 15.37B(c)

Code related audit information

The audit must verify that:

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

Audit observation

The submission was checked for accuracy for 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

Genesis reconciles this DUML load using the NST profile.

The total volume submitted to the Reconciliation Manager is based on the most recently received database report provided by KDC. As detailed in **section 2.1**, the database extract did not match the volumes submitted by Genesis resulting in an over submission of 923.44 kWh for the month of February 2021. Annualised this will result in an estimated annual over submission of 13,054.7 kWh.

As noted in **section 3.1**, there are 18 lamps with incorrect gear wattages recorded in the database. The incorrect capacities will be resulting in an estimated under submission of 768.78 kWh per annum (based on annual burn hours of 4,271 as is detailed in the DUML database auditing tool).

As noted in **section 3.1**, there are 797 LED lights with incorrect wattage applied indicating over submission of 3,744.39 kWh per annum (based on annual burn hours of 4,271 as is detailed in the DUML database auditing tool).

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**.

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.

KDC provides a monthly report of changes made along with the monthly wattage report. Genesis then accounts for changes which have happened in each month on a daily basis.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: 26-Nov-19 To: 19-Feb-21	A discrepancy between the submission volume and the database resulting in an estimated annual over submission of 13,054.7kWh. Database is not confirmed as accurate with a 95% level of confidence. 18 items of permanent load have the incorrect ballast applied indicating under submission of 768.78 kWh per annum. 797 LED lights with incorrect wattage applied indicating over submission of 3,744.39 kWh per annum. Potential impact: Medium Actual impact: Medium Audit history: Multiple times Controls: Moderate Breach risk rating: 4
Audit risk rating	**Rationale for audit risk rating**
Medium	The controls are rated as moderate as they will mitigate risk most of the time but there is room for errors to occur. The impact is assessed to be medium due to the kWh volumes.

Actions taken to resolve the issue	Completion date	Remedial action status
The 797 assets with incorrect gear wattages were not detected in the previous audits, therefore Genesis and the council were none the wiser and under the impression that the wattages applied were accurate. The extent of this, has the misperception of inadequate database management. Genesis will work with the council to make the necessary corrective actions. And ask the council to review lamp specifications to confirm lamp properties in the database.	01/07/20201	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis will liaise with the council to have the necessary corrections made.	30/04/2021	

CONCLUSION

This audit found three non-compliances and makes one recommendation.

Streetlight load is determined by wattages held within KDC's RAMM database, and a monthly extract is provided to Genesis. Analysis of the February 2021 submission information found a discrepancy between the submission volume and the database resulting in an estimated annual over submission of 13,054.7kWh.

There is currently no maintenance contract in place for the KDC streetlights. Field work is currently carried out by Northpower on a reactive basis with like for like replacement of faulty or damaged lights only. There was a tender process underway at the time of the audit and a maintenance contract is planned to be put in place in April 2021.

There are 18 lamps with incorrect gear wattages recorded in the database. The incorrect capacities will be resulting in an estimated minor under submission of 768.78 kWh per annum (based on annual burn hours of 4,271 as is detailed in the DUML database auditing tool).

There are 797 LED lights with incorrect wattage applied indicating over submission of 3,744.39 kWh per annum (based on annual burn hours of 4,271 as is detailed in the DUML database auditing tool).

The field audit of 210 items of load could not confirm the database accuracy to be within the acceptable +/-5% accuracy threshold.

The future risk rating of nine indicates that the next audit be completed in 12 months. I have considered this in conjunction with Genesis' comments and recommend and I believe 12 months is appropriate.

PARTICIPANT RESPONSE

Genesis has work with Kaipara District Council over its ownership and have previously been audited on the database where it has only seen very minor discrepancies. Genesis will work with the council in reassessing the AEC I-Tron LED's potential wattage output.