ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

For

OTOROHANGA DISTRICT COUNCIL
AND GENESIS ENERGY LIMITED

Prepared by: Steve Woods

Date audit commenced: 3 October 2023

Date audit report completed: 30 October 2023

Audit report due date: 1 December 2023

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EXECUTIVE SUMMARY

This audit of the **Otorohanga District Council (ODC)** 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. The scope of the audit encompasses the collection, security, and accuracy of the data, including the preparation of submission information.

A RAMM database is held by ODC, who is the customer of Genesis. RATA (Waikato Regional Asset Technical Accord) provides technical support for RAMM road asset information as a shared service across the Waikato region.

The process for deriving submission information was confirmed as accurate.

The field audit found minor database discrepancies, and the overall accuracy is as follows:

Result	Percentage	Comments
The point estimate of R	99.8	Wattage from survey is lower than the database wattage by 0.2%
R_L	92.8	With a 95% level of confidence, it can be concluded that the error could be between -7.2% and +7.2%
R_H	107.2	

This result indicates that the variability of the sample results across the strata could mean that the true wattage (installed in the field) could be between 7.2% lower to 7.2% higher than the wattage recorded in the DUML database. Non-compliance is recorded because the potential error is greater than 5.0%.

There are a small number of minor database accuracy issues identified, as follows:

- ten NZTA lights being submitted by both ODC and NZTA resulting in 5,700 kWh of over submission,
- some decorative and festive lights are not recorded accurately in the database, and
- three private lights are no longer recorded in the database, leading to under submission of 1,563 kWh per annum.

The audit found four non-compliances and makes two recommendations. The future risk rating of eight indicates that the next audit be completed in 18 months. I agree with this recommendation.

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 is not confirmed as accurate with a 95% level of confidence resulting in an estimated annual over submission of 2,800 kWh. Ten NZTA lights being submitted by both ODC and NZTA resulting in 5,700 kWh of over submission. Some decorative and festive lights are not recorded accurately in the database. Submission is based on a snapshot and does not consider historic adjustments.	Moderate	Low	2	Identified
All load recorded in database	2.5	11(2A) of Schedule 15.3	Some decorative and festive lights are not recorded in the database. Three private lights are not recorded in the database.	Moderate	Low	2	Identified
Database accuracy	3.1	15.2 and 15.37B(b)	The database is not confirmed as accurate with a 95% level of confidence resulting in an estimated annual over submission of 2,800 kWh. Ten NZTA lights being submitted by both ODC and NZTA resulting in 5,700 kWh of over submission. Some decorative and festive lights are not recorded accurately in the database. Three private lights are not recorded in the database.	Moderate	Low	2	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)	The database is not confirmed as accurate with a 95% level of confidence resulting in an estimated annual over submission of 2,800 kWh. Ten NZTA lights being submitted by both ODC and NZTA resulting in 5,700 kWh of over submission. Some decorative and festive lights are not recorded accurately in the database. Submission is based on a snapshot and does not consider historic adjustments.	Moderate	Low	2	Identified
Future Risk Rating						8	

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
Deriving submission information	2.1	Identify all unmetered festive and decorative lights, confirm their wattages, and update RAMM.
Database Accuracy	3.1	Review and document the new connection process to ensure the database is updated accurately and in a timely manner.

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

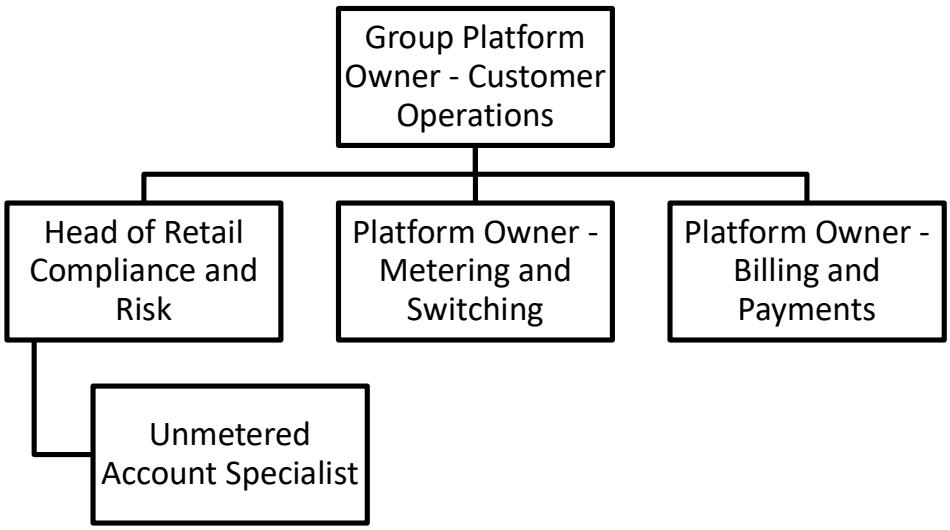
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

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:

Steve Woods

Veritek Limited

Electricity Authority Approved Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Alysha Majury	Unmetered Account Specialist	Genesis Energy
Emma Good	Manager Assets & Technical Support	Otorohonga District Council

1.4. Hardware and Software

The SQL database used for the management of DUML is remotely hosted by thinkproject New Zealand Ltd. The database is commonly known as "RAMM" which stands for "Roading Asset and Maintenance Management".

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)
0000400332WA74B	Te Kawa	TMU0111	NST	3	66
0000400337WAA04	OPARAU/AOTEA S/LTS	TMU0111	NST	10	220
0000400341WAED6	Kawhia	TMU0111	NST	109	2,459
0001111170WMD3F	State Highway Urban	HTI0331	NST	10	1,340
0008807415WMBD6	Local Authority Streetlights	HTI0331	NST	397	8,721
Total				**673**	**12,806**

The previous audit report recorded that the NZTA lights were also recorded in the NZTA Waikato database and were therefore being submitted twice. These were largely removed during the audit period, but there

are still ten in the database, which are also in the NZTA database. This is discussed further in **sections 2.1**, **3.1** and **3.2**.

1.7. Authorisation Received

All information was provided directly by Genesis and ODC.

1.8. Scope of Audit

This audit of the ODC 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.

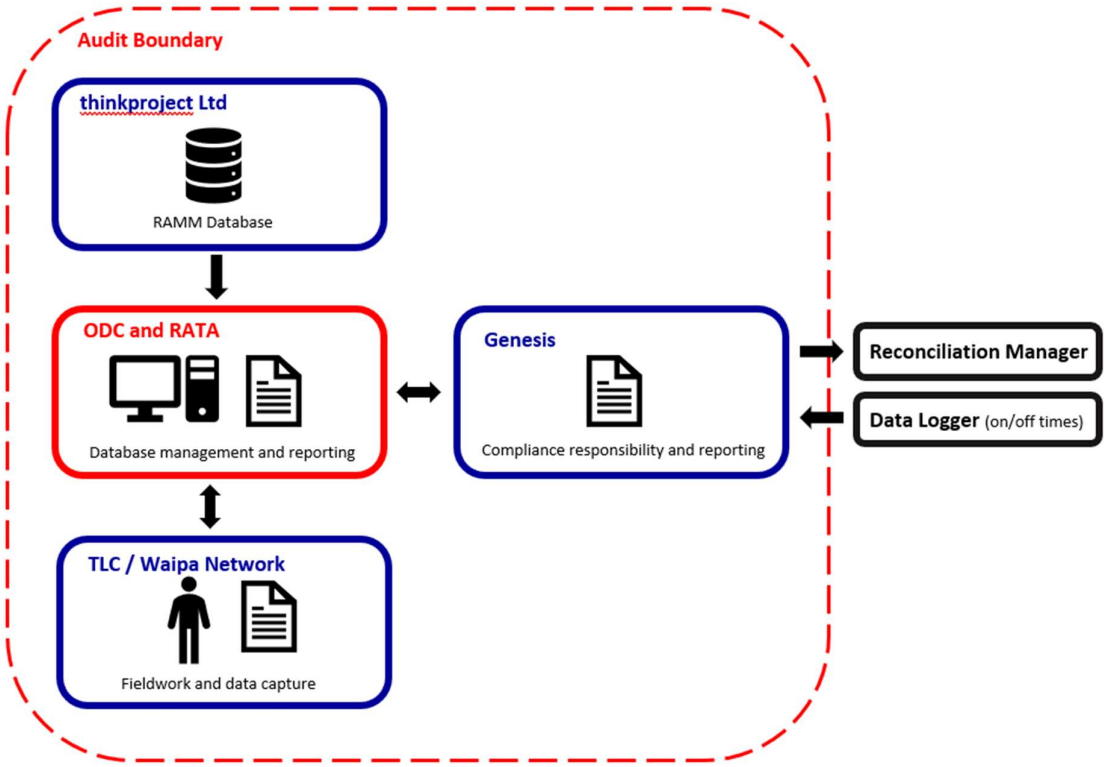
A RAMM database is held by ODC, who is the customer of Genesis. RATA (Waikato Regional Asset Technical Accord) provides technical support for RAMM road asset information as a shared service across the Waikato region.

New connections are managed by the relevant networks.

Maintenance is undertaken on a job-by-job basis with the work being issued to either The Lines Company or Waipa Network depending on which network the lights are located. Outage patrols continue to be undertaken by ODC every six months.

A monthly report from the database is provided to Genesis by ODC. Genesis reconciles the DUML load as NHH using the NST profile, and on and off times are derived from data logger information.

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



The field audit was undertaken of a statistical sample of 161 items of load on October 3rd, 2023.

1.9. Summary of previous audit

The previous audit was completed in October 2022 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
Deriving submission information	2.1	11(1) of Schedule 15.3	Festive lights are included throughout the year resulting in an estimated annual over submission of 812 kWh. Some decorative and festive lights are not recorded in the database. Submission is based on a snapshot and does not consider historic adjustments.	Cleared Still existing Still existing
All load recorded in database	2.5	11(2A) of Schedule 15.3	One additional item of load found in the field. Some decorative and festive lights are not recorded in the database.	Still existing

Subject	Section	Clause	Non-compliance	Status
Database accuracy	3.1	15.2 and 15.37B(b)	Incorrect ICP recorded against 128 items of load that are now being reconciled against the Waka Kotahi RAMM database.	Mostly cleared.
			Festive lights are included throughout the year resulting in an estimated annual over submission of 812 kWh.	Still existing
			Some decorative and festive lights are not recorded in the database.	Still existing
Volume information accuracy	3.2	15.2 and 15.37B(c)	Festive lights are included throughout the year resulting in an estimated annual over submission of 812 kWh.	Cleared
			Some decorative and festive lights are not recorded in the database.	Still existing
			Submission is based on a snapshot and does not consider historic adjustments.	Still existing

Table of Recommendations

Subject	Section	Recommendation	
Deriving submission information	2.1	Identify all unmetered festive and decorative lights, confirm their wattages, and update RAMM. Confirm connection status and if festive lights, when they are connected and then disconnected.	Still existing
Database Accuracy	3.1	Investigate if ICP 0001111170WMD3F is still required as the remaining items of load could be moved to ODC ICP 0008807415WMBD6.	In progress
		Review the change management process to ensure that changes made in the field are updated in the database.	Cleared
		Review the new street light connection process with ODC and the networks to ensure that acceptance of additional load and subsequently the date of electrical connection is notified.	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 within the required timeframe.

Audit outcome

Compliant

2. DUML DATABASE REQUIREMENTS

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

Code reference

Clause 11(1) of Schedule 15.3

Code related audit information

The retailer must ensure the:

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

Audit observation

The process for calculation of consumption was examined and database accuracy assessed.

Audit commentary

Genesis reconciles the DUML load as NHH using the NST profile. A RAMM extract is sent each month. On and off times are derived from a data logger.

I compared the August 2023 extract to the submission information and found submission was correct.

As recorded in **Section 3.1**, The database is not confirmed as accurate with a 95% level of confidence resulting in an estimated annual over submission of 2,800 kWh.

As mentioned in **section 1.6**, there are ten NZTA lights still in the database, which are also in the NZTA database. This is resulting in over submission of approximately 5,700 kWh per annum.

The previous audit found that festive lights are included in the database and submission was occurring for each month regardless of whether the lights were on or not. Genesis is now excluding these for the periods they are not connected.

As reported in the last two audits, some other festive and decorative lights are not recorded in the database; and are therefore excluded from submission information:

- during the 2020 field audit, five LED strings of festive lights were located on Jervois Street, Kawhia which were not recorded in the database; I confirmed these have now been added to the database, and
- the 2019 audit found that decorative lights in the redwood trees on Maniapoto Street, Otorohanga were not recorded in the database; these lights are thought to have been donated to the community by The Lines Company and a 150W HPS light has been added to the database to account for these lights, but this is not accurate as there are many lights, therefore an unknown amount of under submission will be occurring and I recommend this matter is investigated.

I repeat the last audit's recommendation to get these added to the database.

Recommendation	Description	Audited party comment	Remedial action
Festive and decorative lights	Identify all unmetered festive and decorative lights, confirm their wattages, and update RAMM.	The lights are due to be replaced and are currently not in use. To be updated at time of light changes in the coming future. Tracking of changes process to be implemented to capture these and all changes moving forward.	Identified

On 18 June 2019, the Electricity Authority issued a memo clarifying the memo of 2012 that stated that a monthly snapshot was sufficient to calculate submission from, and confirmed the code requirement to calculate the correct monthly load must:

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

The current monthly report is provided as a snapshot and is non-compliant. Genesis completes revision submissions where corrections are required. Genesis is working to develop event-based calculations, which will enable accurate volume calculations where lamps change part way through a month.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: 01-Nov-22 To: 14-Oct-23	The database is not confirmed as accurate with a 95% level of confidence resulting in an estimated annual over submission of 2,800 kWh. Ten NZTA lights being submitted by both ODC and NZTA resulting in 5,700 kWh of over submission. Some decorative and festive lights are not recorded accurately in the database. Submission is based on a snapshot and does not consider historic adjustments. Potential impact: High Actual impact: Low Audit history: Multiple times previously Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate but there is room for improvement. The impact is assessed to be low based on the kWh impact to the market.

Actions taken to resolve the issue	Completion date	Remedial action status
The 10 NZTA lights identified have been updated in ODC system to show ownership as NZTA. Decorative lights are not currently in use and the lights are due to be changed out and wattage confirmed at this time.	1/02/2024	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis is working with ODC about implementing tracking of changes in the field moving forward to capture these changes.	1/02/2024	

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

Code reference

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

Code related audit information

The DUML database must contain:

- *each ICP identifier for which the retailer is responsible for the DUML,*
- *the items of load associated with the ICP identifier.*

Audit observation

The database was checked to confirm an ICP is recorded for each item of load.

Audit commentary

All items of load had an ICP recorded as required by this clause. The accuracy of these is discussed in **section 3.1**.

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 road names, displacements, and Global Positioning System (GPS) coordinates.

GPS coordinates are populated for 533 of the 543 items of load, and the remaining items have sufficient location information to enable them to be readily located.

Audit outcome

Compliant

2.4. Description and capacity of load (Clause 11(2)(c) and (d) of Schedule 15.3)

Code reference

Clause 11(2)(c) and (d) of Schedule 15.3

Code related audit information

The DUML database must contain:

- *a description of load type for each item of load and any assumptions regarding the capacity,*
- *the capacity of each item in watts.*

Audit observation

The database was checked to confirm that:

- it contained a field for light type and wattage capacity,
- wattage capacities include any ballast or gear wattage, and
- each item of load has a light type, light wattage, and gear wattage recorded.

Audit commentary

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

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 161 items of load on October 3rd, 2023. The sample was selected from three relatively similar sized strata:

1. Non Otorohanga,
2. ODC streets A-L, and
3. ODC streets M-W,

Audit commentary

The field audit discrepancies are detailed in the table below:

Discrepancy	Quantity
Lights in the field not in the database	0
Lights in the database not in the field	3
Incorrect wattages	4
NZTA light also in NZTA database	1

A detailed spreadsheet of findings was provided to Otorohanga DC and Genesis.

The field audit did not identify any additional lights.

The 2019 audit found that decorative lights in the redwood trees on Maniapoto Street, Otorohanga were not recorded in the database. These lights are thought to have been donated to the community by The Lines Company. A 150W HPS light has been added to the database to account for these lights, but this is not accurate as there are many lights, therefore an unknown amount of under submission will be occurring.

I have repeated the recommendation made in **section 2.1** to identify all unmetered festive and decorative lights, confirm their wattages, and update RAMM.

Three private lights were recorded in the database during previous audits. The private lights were paid for by ODC and had the correct ICP number assigned which ensured that they were included in reconciliation submissions for Genesis as part of the DUML load. These lights have been removed from the database, but still appear to be installed in the field. Genesis has a responsibility to ensure this load is recorded against different ICPs if they wish to have them removed from the database. This is recorded as non-compliance.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.5 With: Clause 11(2A) of Schedule 15.3 From: unknown To: 14-Oct-23	Some decorative and festive lights are not recorded in the database. Three private lights are not recorded in the database. Potential impact: Low Actual impact: Low Audit history: Multiple times previously Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate overall as the controls in place mitigate risk most of the time but there is opportunity for improvement. The impact is assessed to be low, as the kWh impact on reconciliation is expected to be small.

Actions taken to resolve the issue	Completion date	Remedial action status
Decorative lights are not currently in use and the lights are due to be changed out and wattage confirmed at this time. The three private lights are under investigation	01/02/2024	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis is working with ODC about implementing tracking of changes in the field moving forward to capture these changes.	01/02/2024	

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

Code reference

Clause 11(3) of Schedule 15.3

Code related audit information

The DUML database must track additions and removals in a manner that allows the total load (in kW) to be retrospectively derived for any given day.

Audit observation

The process for tracking of changes in the database was examined.

Audit commentary

The RAMM database functionality achieves compliance with the code.

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 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

Submissions from Genesis are based on a monthly extract from the RAMM database. A RAMM database extract was provided for August 2023, and I assessed the accuracy of this by using the DUML Statistical Sampling Guideline. The table below shows the survey plan.

Plan Item	Comments
Area of interest	Otorohanga district
Strata	The database contains items of load in the Otorohanga area, recorded against five ICPs. The processes for the management of ODC items of load are the same, but I decided to place the items of load into three relatively similar sized strata: 1. Non Otorohanga, 2. ODC streets A-L, and 3. ODC streets M-W.
Area units	I created a pivot table of the roads in each area, and I used a random number generator in a spreadsheet to select a total of 34 sub-units or 30% of the database wattage.
Total items of load	161 items of load were checked.

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

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

Audit commentary

Field audit findings

A field audit was conducted of a statistical sample of 161 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	95.1	Wattage from survey is lower than the database wattage by 4.9%
R_L	91.2	With a 95% level of confidence, it can be concluded that the error could be between -8.8% and -0.6%
R_H	99.4	

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 could mean that the true wattage (installed in the field) could be between 8.8% lower to 0.6% lower than the wattage recorded in the DUML database. Non-compliance is recorded because the potential error is greater than 5.0%.

- In absolute terms the installed capacity is estimated to be 1.0 kW lower than the database indicates.
- There is a 95% level of confidence that the installed capacity is between 1.0 kW lower and 0 kW lower than the database.
- In absolute terms, total annual consumption is estimated to be 2,800 kWh lower than the DUML database indicates.
- There is a 95% level of confidence that the annual consumption is between 4,900 kWh lower to 300 kWh p.a. lower than the database indicates.

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

Light description and capacity accuracy

All items of load had a valid description, lamp wattage and gear wattage.

Lamp and gear wattages were compared to the expected values and confirmed all were correct.

Address accuracy

As discussed in **section 2.3**, all items of load have address information recorded. No inaccurate addresses were identified during the field audit.

ICP number accuracy

As discussed in **section 2.2**, all items of load have an ICP number recorded.

NZTA lights

As mentioned in **section 1.6**, there are ten NZTA lights still in the database, which are also in the NZTA database. This is resulting in over submission of approximately 5,700 kWh per annum.

Change management process findings

ODC use a RAMM database to manage this DUML load. RATA (Waikato Regional Asset Technical Accord) provides technical support for RAMM road asset information as a shared service across the Waikato region.

New connections are managed by the relevant network. Each network has their own process. New subdivisions are rare but there is one due to come on stream this year. I recommend the livening process is reviewed and documented to ensure this subdivision and any future new connections are managed in such a way that the database is populated as soon as practicable and with the correct light install dates. The process should include the following steps:

- distributor requests electrical connection permission from Genesis,
- Genesis requests electrical connection permission from Otorohanga DC,
- distributor electrically connects once approval received,
- distributor notifies Otorohanga DC of electrical connection date, and
- Otorohanga DC updates the database.

Recommendation	Description	Audited party comment	Remedial action
New connection and process	Review and document the new connection process to ensure the database is updated accurately and in a timely manner.	Genesis is working with ODC about implementing tracking of changes in the field moving forward.	Investigating

ODC have completed the LED roll out, and no CMS system is installed or planned.

Festive and decorative lights

The 2019 audit found that decorative lights in the redwood trees on Maniapoto Street, Otorohanga were not recorded in the database. These lights are thought to have been donated to the community by The Lines Company. A 150W HPS light has been added to the database to account for these lights, but this is not accurate as there are many lights, therefore an unknown amount of under submission will be occurring.

Private lights

Three private lights were recorded in the database during previous audits. The private lights were paid for by ODC and had the correct ICP number assigned which ensured that they are included in reconciliation submissions for Genesis as part of the DUML load. These lights have been removed from the database, but still appear to be installed in the field. Genesis has a responsibility to ensure this load is recorded against different ICPs if they wish to have them removed from the database. This is recorded as non-compliance.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 01-Nov-22 To: 14-Oct-23	The database is not confirmed as accurate with a 95% level of confidence resulting in an estimated annual over submission of 2,800 kWh. Ten NZTA lights being submitted by both ODC and NZTA resulting in 5,700 kWh of over submission. Some decorative and festive lights are not recorded accurately in the database. Three private lights are not recorded in the database. Potential impact: High Actual impact: Low Audit history: Multiple times previously Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement. The impact on settlement and participants is minor; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Decorative lights are not currently in use and the lights are due to be changed out and wattage confirmed at this time. The three private lights are under investigation	01/02/2024	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis is working with ODC about implementing tracking of changes in the field moving forward to capture these changes.	01/02/2024	

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

Code reference

Clause 15.2 and 15.37B(c)

Code related audit information

The audit must verify that:

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

Audit observation

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

- checking the registry to confirm that the ICP has the correct profile and submission flag, and
- checking the database extract combined with the on hours against the submitted figure to confirm accuracy.

Audit commentary

Genesis reconciles the DUML load as NHH using the NST profile. A RAMM extract is sent each month. On and off times are derived from a data logger.

I compared the August 2023 extract to the submission information and found submission was correct.

As recorded in **Section 3.1**, The database is not confirmed as accurate with a 95% level of confidence resulting in an estimated annual over submission of 2,800 kWh.

As mentioned in **section 1.6**, there are ten NZTA lights still in the database, which are also in the NZTA database. This is resulting in over submission of approximately 5,700 kWh per annum.

The previous audit found that festive lights are included in the database and submission was occurring for each month regardless of whether the lights were on or not. Genesis is now excluding these for the periods they are not connected.

As reported in the last two audits, some other festive and decorative lights are not recorded in the database; and are therefore excluded from submission information:

- during the 2020 field audit, five LED strings of festive lights were located on Jervois Street, Kawhia which were not recorded in the database; I confirmed these have now been added to the database, and
- the 2019 audit found that decorative lights in the redwood trees on Maniapoto Street, Otorohanga were not recorded in the database; these lights are thought to have been donated to the community by The Lines Company and a 150W HPS light has been added to the database to account for these lights, but this is not accurate as there are many lights, therefore an unknown amount of under submission will be occurring and I recommend this matter is investigated.

In **section 2.1** repeat the last audit's recommendation to get these added to the database.

On 18 June 2019, the Electricity Authority issued a memo clarifying the memo of 2012 that stated that a monthly snapshot was sufficient to calculate submission from, and confirmed the code requirement to calculate the correct monthly load must:

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

The current monthly report is provided as a snapshot and is non-compliant. Genesis completes revision submissions where corrections are required. Genesis is working to develop event-based calculations, which will enable accurate volume calculations where lamps change part way through a month.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: 01-Nov-22 To: 14-Oct-23	The database is not confirmed as accurate with a 95% level of confidence resulting in an estimated annual over submission of 2,800 kWh. Ten NZTA lights being submitted by both ODC and NZTA resulting in 5,700 kWh of over submission. Some decorative and festive lights are not recorded accurately in the database. Submission is based on a snapshot and does not consider historic adjustments. Potential impact: High Actual impact: Low Audit history: Multiple times previously Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate but there is room for improvement. The impact is assessed to be low based on the kWh impact to the market.

Actions taken to resolve the issue	Completion date	Remedial action status
Decorative lights are not currently in use and the lights are due to be changed out and wattage confirmed at this time. The three private lights are under investigation	01/02/2024	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis is working with ODC about implementing tracking of changes in the field moving forward to capture these changes.	01/02/2024	

CONCLUSION

The audit was conducted in accordance with the audit guidelines for DUML audits version 1.1. The scope of the audit encompasses the collection, security, and accuracy of the data, including the preparation of submission information.

A RAMM database is held by ODC, who is the customer of Genesis. RATA (Waikato Regional Asset Technical Accord) provides technical support for RAMM road asset information as a shared service across the Waikato region.

The process for deriving submission information was confirmed as accurate.

The field audit found minor database discrepancies, and the overall accuracy is as follows:

Result	Percentage	Comments
The point estimate of R	99.8	Wattage from survey is lower than the database wattage by 0.2%
R_L	92.8	With a 95% level of confidence, it can be concluded that the error could be between -7.2% and +7.2%
R_H	107.2	

This result indicates that the variability of the sample results across the strata could mean that the true wattage (installed in the field) could be between 7.2% lower to 7.2% higher than the wattage recorded in the DUML database. Non-compliance is recorded because the potential error is greater than 5.0%.

There are a small number of minor database accuracy issues identified, as follows:

- ten NZTA lights being submitted by both ODC and NZTA resulting in 5,700 kWh of over submission,
- some decorative and festive lights are not recorded accurately in the database, and
- three private lights are no longer recorded in the database, leading to under submission of 1,563 kWh per annum.

The audit found four non-compliances and makes two recommendations. The future risk rating of eight indicates that the next audit be completed in 18 months. I agree with this recommendation.

PARTICIPANT RESPONSE

ODC have updated ownership changes in their system for the 10 lights identified in both systems. Ownership has been changed to NZTA in ODC system.

The festive lights are currently not in use and are due for light changes, with the addition of tracking changes in the field this will capture those changes.

Genesis is working with ODC in implementing tracking of changes in the field moving forward. With the tracking of changes this will ensure accurate submissions can be made to Genesis on a monthly basis for the purpose of billing and market submissions.

Genesis agrees to the proposed 18 month audit period which will also allow for the light changes to be made and to implement tracking of changes in the field.