ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

VERITEK

For

MARLBOROUGH LINES DUML DATABASE AND GENESIS ENERGY LIMITED

Prepared by: Rebecca Elliot

Date audit commenced: 14 October 2021

Date audit report completed: 12 November 2021

Audit report due date: 01-Dec-21

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This audit of **Marlborough Lines Limited's** (**Marlborough Lines**) Unmetered Streetlight 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.

An EAM database is managed by Marlborough Lines on behalf of Marlborough District Council (MDC), Port Marlborough (PMNZ) and NZTA in relation to this load with monthly reporting to Genesis. The field work, asset data capture, and database population is conducted by Marlborough Lines' staff.

The field audit was undertaken of a statistical sample of 470 items of load on 18th and 19th October2021. This found a high level of accuracy and the database accuracy was within the required +/-5%.

The wattage associated with the ICPs 0004450157ML277 and 0004450225ML4AC is higher in the database than that being submitted. This is resulting in an estimated annual under submission 31,968 kWh per annum. I recommend in the report that the differences are investigated.

The Marlborough Lines have robust processes in place for the management of the streetlight database.

The audit found five non-compliances and makes three recommendations. The future risk rating of 15 indicates that the next audit be completed in 12 months. I have considered this in conjunction with the comments provided by Genesis Energy and 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	SST profile incorrectly applied to ICP 0004450157ML277 resulting in the incorrect burn hours being used to calculate submissions. Submitted values do not match the database values resulting in an estimated under submission of 31,968 kWh per annum. The monthly wattage report provided does not track changes on a daily basis and is provided as a snapshot.	Moderate	Medium	4	Identified
All load recorded in the database	2.5	11(2A) of Schedule 15.3	Two additional items of load found in the field of the 470 items of load sampled.	Strong	Low	1	Identified
Tracking of load change	2.6	11(3) of Schedule 15.3	Changes not tracked.	Weak	Low	3	Investigating
Audit trails	2.7	11(4) of Schedule 15.3	Audit trail not visible.	Weak	Low	3	Investigating
Volume information accuracy	3.2	15.2 and 15.37B(c)	SST profile incorrectly applied to ICP 0004450157ML277 resulting in the incorrect burn hours being used to calculate submissions. Submitted values do not match the database values resulting in an estimated under submission of 31,968 kWh per annum. The monthly wattage report provided does not track changes on a daily basis and is provided as a snapshot.	Moderate	Medium	4	Identified

Future Risk Rating	**15**

Future risk rating	0	1-4	5-8	9-15	16-18	19+
Indicative audit frequency	36 months	24 months	18 months	12 months	6 months	3 months

RECOMMENDATIONS

Subject	Section	Description
Deriving submission information	2.1	Investigate the reason for the difference in the kW values found between the monthly report and the database extract provided for the audit.
Location of each item of load	2.3	Correct the GPS co-ordinates to ensure they are accurate.
Database accuracy	3.1	Ensure LED light descriptions contain sufficient information to confirm the correct wattage has been applied.

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

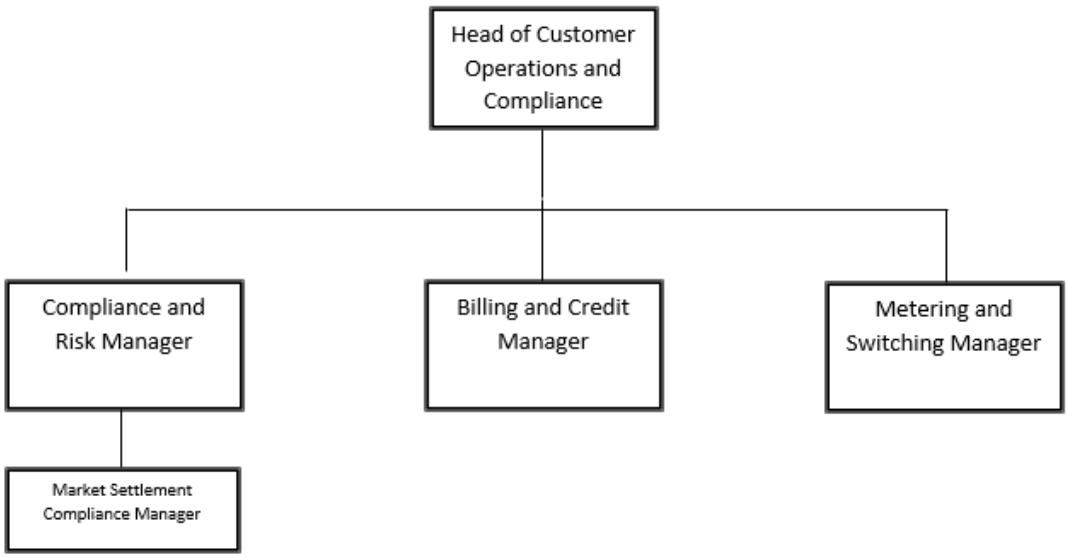
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

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:

Name	Company	Role
Rebecca Elliot	Veritek Limited	Lead Auditor
Claire Stanley	Veritek Limited	Supporting Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Julia Jones	DUML Data & Stakeholder Lead - Market Settlement Compliance	Genesis Energy
Sally King	Asset Records Clerk	Marlborough Lines

1.4. Hardware and Software

The 'Info EAM' database is used for the management of DUML and is managed by Marlborough Lines. The database back up is in accordance with standard industry procedures. Access to the database is restricted using a login and password.

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	Profile	Number of items of load	Database wattage (watts)
0004450225ML4AC	MDC & NZTA	CST	5,260	284,975
0004450157ML277	Port Marlborough	SST	57	9,227
Total			5,317	294,202

These ICPs are in the same area. ICP 0004450157ML277 has the incorrect profile of SST applied. This is recorded as non-compliance in **sections 2.1** and **3.2**.

1.7. Authorisation Received

All information was provided directly by Genesis or Marlborough Lines.

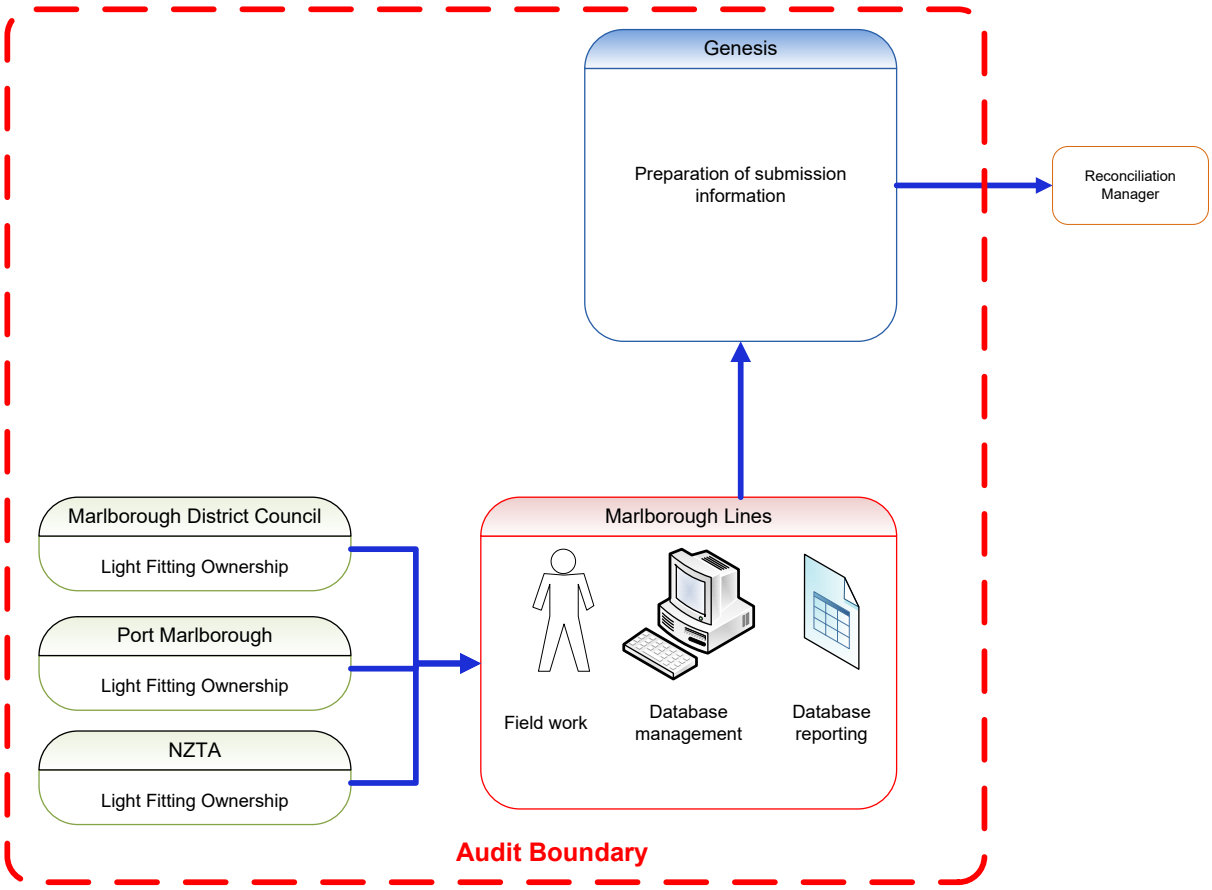
1.8. Scope of Audit

This audit of the Marlborough Lines 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.

Marlborough Lines manage the installation, maintenance and database management of the DUML for MDC, NZTA and PMNZ. Reporting is provided to Genesis on a monthly basis. 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 470 items of load on 18th and 19th October2021.

1.9. Summary of previous audit

I reviewed the last audit report undertaken by Rebecca Elliot of Veritek Limited in November 2020. The table below records the current status of those findings.

Table of Non-Compliance

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	Submitted values do not match the database values resulting in an estimated over submission of 1,104 kWh per annum. The monthly wattage report provided does not track changes at a daily basis and is provided as a snapshot.	Still existing for different value Still existing
All load recorded in the database	2.5	11(2A) of Schedule 15.3	One additional item of load found in the field.	Still existing for a different lamp
Tracking of load change	2.6	11(3) of Schedule 15.3	Changes not tracked.	Still existing
Audit trails	2.7	11(4) of Schedule 15.3	Audit trail not visible.	Still existing
Volume information accuracy	3.2	15.2 and 15.37B(c)	Submitted values do not match the database values resulting in an estimated over submission of 1,104 kWh per annum. The monthly wattage report provided does not track changes at a daily basis and is provided as a snapshot.	Still existing for different value Still existing

Table of Recommendations

Subject	Section	Recommendation for Improvement	Status
Deriving submission	2.1	Remove ICP 0004450225ML4AC from the non-streetlight items of load recorded in the database.	Cleared
		Check the number of items of load between the database and the values being sent to Genesis.	Cleared
Database accuracy	3.1	Ensure LED light descriptions contain sufficient information 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 within the required timeframe.

Audit outcome

Compliant

2. DUML DATABASE REQUIREMENTS

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

Code reference

Clause 11(1) of Schedule 15.3

Code related audit information

The retailer must ensure the:

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

Audit observation

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

Audit commentary

The profile for ICP 0004450225ML4AC was corrected to the CST profile and was backdated to 1 April 2017. ICP 0004450157ML277 is reconciled with the SST profile. This is the incorrect profile and needs to be backdated. This will be resulting in the incorrect burn hours being used to calculate submission and is recorded as non-compliance below.

The total volume submitted to the Reconciliation Manager is based on a monthly database report derived from the Marlborough Lines EAM database and the "burn time" which is sourced from data loggers. The methodology is compliant.

I checked the submission values for September 2021 and found a difference:

ICPs	Fittings number from Sept 2021 submission	Fittings number from database extract	Differences	kWh value submitted	Calculated kWh value from database	kWh Differences
0004450225ML4AC	5,262	5,260	2	102,903	104,858	1,995
0004450157ML277	55	57	-2	2,686	3,395	709
Total month kWh over submission						2,664

This difference appears to be due to the kW values being provided to Genesis in the monthly report and that contained in the database extract provided for the audit and not the difference in light counts. This will be resulting in an estimated annual under submission of 31,968 kWh (assuming the difference for the month of September and multiplying it by 12). I recommend that this is investigated. This is recorded as non-compliance below.

Description	Recommendation	Audited party comment	Remedial action
Deriving submission information	Investigate the reason for the difference in the kW values found between the monthly report and the database extract provided for the audit.	Genesis has been using the summation details provided by Marlborough DC when reconciling the volumes. This has now been changed to using the raw data provided in order to calculate actual volumes used.	Identified

As recommended in the last audit the 60 items of load recorded for ICP 0004450225ML4AC that relate to items of load that are not streetlight assets and have no wattage value associated have been removed from the database.

The field audit indicated that the database was within the allowable +/-5% variance threshold and is therefore deemed to be accurate. This is discussed in **section 3.1**.

The current monthly report is provided as a snapshot and this practice is non-compliant. The database contains a "Commission date". When a wattage is changed in the database due to a physical change or a correction, only the record present at the time the report is run is recorded, not the historical information showing dates of changes is provided. Marlborough Lines have advised there has been no change to this.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 Clause 11(1) of Schedule 15.3 From: 24-Oct-20 To: 14-Oct-21	SST profile incorrectly applied to ICP 0004450157ML277 resulting in the incorrect burn hours being used to calculate submissions. Submitted values do not match the database values resulting in an estimated under submission of 31,968 kWh per annum. The monthly wattage report provided does not track changes on a daily basis and is provided as a snapshot. 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 processes to manage change capture most changes. The impact is assessed to be medium based on the submission values detailed above.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis has been using the summation details provided by Marlborough DC when reconciling the volumes. This has now been changed to using the raw data provided in order to calculate actual volumes used and is currently in the process of reviewing the consumption submitted in the last 14 months.	01/01/2022	Identified
Genesis has discussed with council the importance of tracking of change which will increase the database accuracy level.	01/06/2022	
Regarding the profile of SST that was incorrectly assigned to ICP 0004450157ML277, this has now been rectified and updated to CST and backdated to Genesis gain date of the 01/ 04/2017.	01/01/2022	
Preventative actions taken to ensure no further issue will occur	**Completion date**	
Genesis will continue to develop tracking of change requirements with the council to enable compliance to be achieved.	Continuous improvement	

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

Code reference

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

Code related audit information

The DUML database must contain:

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

Audit observation

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

Audit commentary

All items of load have 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 street address and GPS co-ordinates for all but 186 items of load. The field audit found that some of the GPS co-ordinates are not precise in all instances e.g., one light is in the ocean but there were sufficient physical address details to make these locatable. All items of load have sufficient address details to meet the requirements of this clause.

Description	Recommendation	Audited party comment	Remedial action
Location of each item of load	Correct the GPS co-ordinates to ensure they are accurate.	Genesis has discussed the results of the audit with the council and the importance of accuracy with GPS co-ordinates.	Identified

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 it contained a field for lamp type and wattage capacity and included any ballast or gear wattage, and that each item of load had a value recorded in these fields.

Audit commentary

The database contains fields for fitting type and lamp type in addition to a nominal lamp wattage and circuit wattage fields and all were populated for each item of load.

The accuracy of the ballast wattages used for submission are discussed in **sections 3.1** and **3.2.**

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 470 items of load on 18th and 19th October2021.

Audit commentary

The field audit discrepancies are detailed in the table below:

Street/Area	Database Count	Field Count	Lamp no. difference	No of incorrect lamp wattage	Comments
Easthaven Place	6	6		6	6 x 27W LED recorded in the database but 6 x 33W LED found in the field.
Francis Street	14	14		1	1 x 51W LED recorded in the database but 1 x 28W LED found in the field.
Herbert Street	7	8	+1		1 x additional 28W LED found in the field.
Pitchell Street	8	9	+1		1 x additional 28W LED found in the field.
Wilson Street	6	6		1	1 x 22 W LED recorded in the database but 1 x 28W LED found in the field.
Grand Total	**5,317**	**5,319**	**+2**	**2**	

The field audit found two additional lamps. The accuracy of the database is discussed in **section 3.1.**

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.5 With: Clause 11(2A) of Schedule 15.3 From: 24-Oct-20 To: 14-Oct-21	Two additional items of load found in the field of the 470 items of load sampled. Potential impact: Low Actual impact: Low Audit history: Once Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as strong as Marlborough Lines have robust processes to ensure that changes are tracked, and this is reflected in the high level of accuracy found in the database. The impact is assessed to be low as the database was found to be within the allowable accuracy threshold as detailed in **section 3**.1.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis has discussed the audit findings with the council with the intent the council makes every effort to ensure the exceptions are rectified.	Continuous improvement	Identified
Preventative actions taken to ensure no further issue will occur	**Completion date**	
No comments provided.		

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

As reported in previous audits the EAM database contains a "Commission date". When a wattage is changed in the database due to a physical change or a correction, only the record present at the time the report is run is recorded, and not the historical information showing dates of changes. The audit trail may be able to be retrieved but this is not visible as required by this clause. Marlborough Lines confirm there has been no change to this. This is recorded as non-compliance.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.6 Clause 11(3) of Schedule 15.3 From: 24-Oct-20 To: 14-Oct-21	Changes not tracked. Potential impact: Low Actual impact: Low Audit history: Twice previously Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as weak as whilst the processes for updating the database are robust, it was not proven that the database is able to meet the requirements of the code. The audit risk rating is low as the volume of changes is not high.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis has discussed with council the importance of tracking of change which will increase the database accuracy level.	Continuous improvement	Investigating
Preventative actions taken to ensure no further issue will occur	**Completion date**	
Genesis will continue to develop tracking of change requirements with the council to enable compliance to be achieved.	Continuous improvement	

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

As reported in previous audits the EAM database contains a "Commission date". When a wattage is changed in the database due to a physical change or a correction, only the record present at the time the report is run is recorded, and not the historical information showing dates of changes. The audit trail may be able to be retrieved but this is not visible as required by this clause. Marlborough Lines confirm there has been no change to this. This is recorded as non-compliance.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.7 Clause 11(4) of Schedule 15.3 From: 24-Oct-18 To: 30-Sep-20	Audit trail not visible. Potential impact: Low Actual impact: Low Audit history: Twice previously Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as weak as whilst the processes for updating the database are robust, it was not proven that the database is able to meet the requirements of the code. The audit risk rating is low as the volume of changes is not high.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis has discussed with council the importance of tracking of change which will increase the database accuracy level.	Continuous improvement	Investigating
Preventative actions taken to ensure no further issue will occur	**Completion date**	
Genesis will continue to develop tracking of change requirements with the council to enable compliance to be achieved.	Continuous improvement	

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	Marlborough DC, NZTA & PMNZ
Strata	The database contains items of load in Marlborough area. The processes for the management of MDC, NZTA and PMNZ items of load are the same, so I decided to place the items of load into four strata, as follows: 1. Rural, 2. Road A-H, 3. Road I-O, and 4. Road P-W
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 66 sub-units.
Total items of load	470 items of load were checked.

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

Audit commentary

Database accuracy

A field audit was conducted of a statistical sample of 470 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	100.5%	Wattage from survey is higher than the database wattage by 0.5%
R_L	99.9%	With a 95% level of confidence, it can be concluded that the error could be up to +1.0%
R_H	101.5%	

These results were categorised in accordance with the "Distributed Unmetered Load Statistical Sampling Audit Guideline", effective from 1 February 2019. The table below shows that Scenario A (detailed below) applies, and the best available estimate indicates that the database is accurate within ± 5.0%.

In absolute terms the installed capacity is estimated to be 1 kW higher than the database indicates.

There is a 95% level of confidence that the installed capacity is between 0 and 4 kW higher than the database.

In absolute terms, total annual consumption is estimated to be 6,100 kWh higher than the DUML database indicates.

There is a 95% level of confidence that the annual consumption is between -1,200 and 18,600 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 %

Lamp Wattages and Descriptions

Wattages for all items of load were checked against the published standardised wattage table produced by the Electricity Authority and found the lamp wattage including the ballast recorded in EAM are correct.

As reported in the last audit there are more than 30 different LED light types recorded in the database. The light descriptions are insufficient to confirm the correct wattage has been applied. "As-builts" were examined as part of the field audit undertaken and this confirmed that the light descriptions provided confirmed the correct wattage had been applied, but these details have not been updated in the database. I repeat the last audit's recommendation that the full light descriptions be included in the database.

Recommendation	Description	Audited party comment	Remedial action
Database accuracy	Ensure LED light descriptions contain sufficient information to confirm the correct wattage has been applied.	Genesis has discussed the results of the audit with the council and the importance of accuracy of lamp description to ensure correct wattage is applied.	Identified

NZTA lighting

NZTA lights are included in the load recorded by Marlborough DC.

Location accuracy

The location details were found to be accurate.

Change Management

The processes were reviewed for new lamp connections and the tracking of load changes due to faults and maintenance.

Marlborough Lines is the contractor for installation and maintenance of all lighting. When new subdivisions or upgrades are conducted, an "as-built" plan is provided. Lighting for new subdivisions is updated as soon as the subdivision is electrically connected and the "commissioning date" is used as the start date. Marlborough Lines carry out random field checks to confirm that the 'as built' reflects what has been installed in the field.

The fieldwork is now done on a laptop in the field, rather than paperwork, the technician is provided with access to all relevant information for the lamp and location details in the field. The work order comes directly from the EAM database and requires the field technician to indicate if any discrepancies are found in the field and provide the correct information. The updates in EAM are completed manually on a daily basis, and all updates are completed by the end of the month.

As detailed above the LED light descriptions are not sufficient to determine the correct wattage is recorded and I repeat the last audit's recommendation that the full light description is used from the "as-built" drawings to update the database.

The current monthly report is provided as a snapshot and this practice is non-compliant and this is recorded as non-compliance in **sections 2.1** and **3.2**. The database contains a "Commission date". When a wattage is changed in the database due to a physical change or a correction, only the record present at the time the report is run is recorded, not the historical information showing dates of changes is provided. Marlborough Lines confirm there has been no change to this.

The LED rollout project is complete the remaining lights will be replaced as they fail with LED's, there is no funding available currently for the NZTA lights.

Outage patrols are undertaken by Marlborough Lines on request.

Audit outcome

Compliant

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 burn hours against the submitted figure to confirm accuracy.

Audit commentary

The profile for ICP 0004450225ML4AC was corrected to the CST profile and was backdated to 1 April 2017. ICP 0004450157ML277 is reconciled with the SST profile. This is the incorrect profile and needs to be backdated. This will be resulting in the incorrect burn hours being used to calculate submission and is recorded as non-compliance below.

The total volume submitted to the Reconciliation Manager is based on a monthly database report derived from the Marlborough Lines EAM database and the "burn time" which is sourced from data loggers. The methodology is compliant.

I checked the submission values for September 2021 and found a difference:

ICPs	Fittings number from Sept 2021 submission	Fittings number from database extract	Differences	kWh value submitted	Calculated kWh value from database	kWh Differences
0004450225ML4AC	5,262	5,260	2	102,903	104,858	1,995
0004450157ML277	55	57	-2	2,686	3,395	709
Total month kWh over submission						2,664

This difference appears to be due to the kW values being provided to Genesis in the monthly report and that contained in the database extract provided for the audit and not the difference in light counts. This will be resulting in an estimated annual under submission of 31,968 kWh. I recommend in **section 2.1**, that this is investigated. This is recorded as non-compliance below.

As recommended in the last audit the 60 items of load recorded for ICP 0004450225ML4AC that relate to items of load that are not streetlight assets and have no wattage value associated have been removed from the database.

The field audit indicated that the database was within the allowable +/-5% variance threshold and is therefore deemed to be accurate. This is discussed in **section 3.1**.

The current monthly report is provided as a snapshot and this practice is non-compliant. The database contains a "Commission date". When a wattage is changed in the database due to a physical change or a correction, only the record present at the time the report is run is recorded, not the historical information showing dates of changes is provided. Marlborough Lines have advised there has been no change to this.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 Clause 15.2 and 15.37B(c) From: 24-Oct-20 To: 14-Oct-21	SST profile incorrectly applied to ICP 0004450157ML277 resulting in the incorrect burn hours being used to calculate submissions. Submitted values do not match the database values resulting in an estimated under submission of 31,968 kWh per annum. The monthly wattage report provided does not track changes on a daily basis and is provided as a snapshot. 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 processes to manage change capture most changes. The impact is assessed to be medium based on the submission values detailed above.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis has been using the summation details provided by Marlborough DC when reconciling the volumes. This has now been changed to using the raw data provided in order to calculate actual volumes used and is currently in the process of reviewing the consumption submitted in the last 14 months.	01/01/2022	Identified
Regarding the profile of SST that was incorrectly assigned to ICP 0004450157ML277, this has now been rectified and updated to CST and backdated to Genesis gain date of the 01/ 04/2017.	01/01/2022	
Genesis has discussed with the council the importance of tracking of change which will increase the database accuracy level.	01/06/2022	
Preventative actions taken to ensure no further issue will occur	**Completion date**	
Genesis will continue to develop tracking of change requirements with the council to enable compliance to be achieved.		

CONCLUSION

An EAM database is managed by Marlborough Lines on behalf of Marlborough District Council (MDC), Port Marlborough (PMNZ) and NZTA in relation to this load with monthly reporting to Genesis. The field work, asset data capture, and database population is conducted by Marlborough Lines' staff.

The field audit was undertaken of a statistical sample of 470 items of load on 18th and 19th October2021. This found a high level of accuracy and the database accuracy was within the required +/-5%. The wattage associated with the ICPs 0004450157ML277 and 0004450225ML4AC is higher in the database than that being submitted. This is resulting in an estimated annual under submission 31,968 kWh per annum. I recommend in the report that the differences are investigated.

The Marlborough Lines have robust processes in place for the management of the streetlight database

The audit found five non-compliances and makes three recommendations. The future risk rating of 15 indicates that the next audit be completed in 12 months. I have considered this in conjunction with the comments provided by Genesis Energy and I agree with this recommendation.

PARTICIPANT RESPONSE

Genesis has been using the summation details provided by Marlborough DC when reconciling the volumes. This has now been changed to using the raw data provided in order to calculate actual volumes used and is currently in the process of reviewing the consumption submitted in the last 14 months. In regard to the profile that was incorrectly allocated to ICP 0004450157ML277 of SST, this has now been corrected to CST with an effective date of 01/ 04/2017.

Genesis will provide exception reporting to the council where exceptions have been identified. Genesis will continue to develop tracking of change requirements with the council to enable compliance to be achieved.