

ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT



For

MARLBOROUGH DISTRICT COUNCIL
AND MERCURY ENERGY LIMITED
NZBN: 9429037705305

Prepared by: Tara Gannon

Date audit commenced: 13 July 2023

Date audit report completed: 15 August 2023

Audit report due date: 1 October 2023

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EXECUTIVE SUMMARY

This audit of the **Marlborough District Council (MDC)** Unmetered Streetlight DUML database and processes was conducted at the request of **Mercury Energy Limited (Mercury)**, 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.

DUML ICPs 0004450225ML4AC and 0004450157ML277 switched from Genesis Energy to Mercury effective from 1 April 2023.

The Info EAM database is managed by **Marlborough Lines** on behalf of MDC. Marlborough Lines is responsible for the installation, maintenance, and removal of streetlighting in the MDC region. Data is collected from the field using an iPad for most new connections, and paper based forms for maintenance and new connections in remote areas. iPad information is saved to OneDrive and paper based forms are returned following weekly maintenance. The Customer Works Design Estimator updates Info EAM as soon as possible once the information is received, and applies the date that the field work was completed.

Mercury reconciles this DUML load using the HHR profile. Mercury were granted exemption No. 233, which allowed them to provide half-hour (“HHR”) submission information instead of non-half-hour (“NHH”) submission information for distributed unmetered load (“DUML”). Clause 8(g) of Schedule 15.3 of the Code, which the exemption related to was removed from the Code in 2018, therefore the exemption is no longer valid. Mercury is planning to apply for a new profile which will allow them to continue to submit the DUML load as HHR.

Marlborough Lines provides a monthly report from the database to Mercury, which includes the daily wattages applied for submission. On hours are derived using data logger information.

A field audit of a statistical sample of 273 items of load from the database was undertaken, and accuracy was within the $\pm 5\%$ accuracy threshold. The database is therefore deemed to be accurate.

The audit found four non-compliances and made no recommendations. The future risk rating of seven indicates that the next audit be completed in 18 months. I have considered this in conjunction with Mercury’s comments 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	Mercury applies the HHR profile for submission of the DUML load. One lamp had a missing circuit wattage, and five lamps had incorrect circuit wattages.	Moderate	Low	2	
All load recorded in the database	2.5	11(2A) of Schedule 15.3	One 13W LED light (SL11649) has no circuit wattage recorded.	Strong	Low	1	
Database accuracy	3.1	15.2 and 15.37B(b)	One lamp had a missing circuit wattage, and five lamps had incorrect circuit wattages. Five lamps had incorrect nominal wattages. Three poles had an incorrect number of lamps. Four lamps had a missing fitting type. Two lamps had an incorrect fitting type.	Moderate	Low	2	
Volume information accuracy	3.2	15.2 and 15.37B(c)	Mercury applies the HHR profile for submission of the DUML load. One lamp had a missing circuit wattage, and five lamps had incorrect circuit wattages.	Moderate	Low	2	
Future Risk Rating						7	

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
		Nil

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

Current code exemptions were reviewed on the Electricity Authority website.

Audit commentary

Mercury were granted exemption No. 233, which allowed them to provide half-hour (“HHR”) submission information instead of non-half-hour (“NHH”) submission information for distributed unmetered load (“DUML”). Clause 8(g) of Schedule 15.3 of the Code, which the exemption related to was removed from the Code in 2018, therefore the exemption is no longer valid.

Mercury currently submits the DUML load as HHR, which is non-compliant with Clause 8(5) of Schedule 15.3 of the Code, because the DUML load does not meet the requirements for use of the HHR profile:

For any unmetered load at an ICP for which it is responsible, regardless of the category of any metering installation at the ICP, a reconciliation participant must provide non half hour submission information to the reconciliation manager unless—

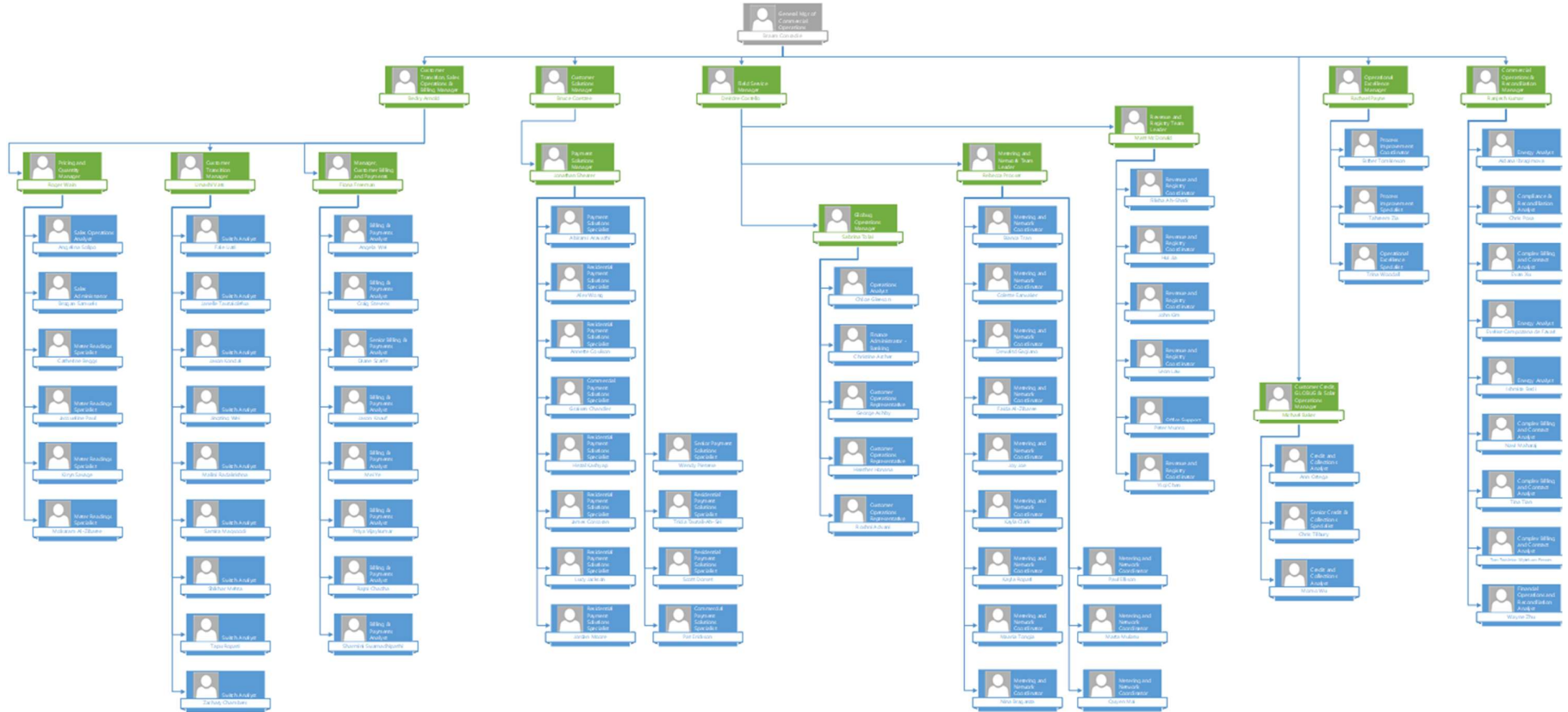
(a) the Authority has approved a profile for the unmetered load that allows the reconciliation participant to provide half hour submission information to the reconciliation manager for the unmetered load; and

(b) the reconciliation participant provides half hour submission information in accordance with the profile.

Mercury is planning to apply for a new profile which will allow them to continue to submit the DUML load as HHR.

1.2. Structure of Organisation

Mercury provided their current organisational structure:



1.3. Persons involved in this audit

Auditor:

Name	Role	Company
Tara Gannon	Auditor	Provera

Other personnel assisting in this audit were:

Name	Title	Company
Chris Posa	Compliance Reconciliation Analyst	Mercury Energy
Jason Null	Contracts	Marlborough Lines
Melissa Sinclair	Billing Analyst	Marlborough Lines
Tracy Roughan	Customer Works Design Estimator	Marlborough Lines

1.4. Hardware and Software

Info EAM

The Info EAM database is used for the management of DUML and is managed by Marlborough Lines. The database is backed up, and access to the database is restricted using a login and password.

Mercury systems

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 - PUBLIC STREETLIGHTING	CST	4,786 ¹	186,921.62
0004450157ML277	Port Marlborough	CST	57	9,227
Total			4,843 ²	196,148.62

¹ 4786 items of load, but 4,904 lamps in total as some database items of load indicate multiple lamps

² 4,843 items of load, but 4,961 lamps in total as some database items of load indicate multiple lamps

The following lights are recorded in the Info EAM database but are outside the scope of this audit:

- 48 lights at RNZAF Woodbourne which are connected to 0004450017ML9D6, and are subject to a separate audit, and
- 54 lights with private as the owner; 35 lights have a valid non-DUML ICP number assigned to them, and 19 lights have no ICP assigned and are confirmed to be metered.

1.7. Authorisation Received

All information was provided directly by Mercury and Marlborough Lines.

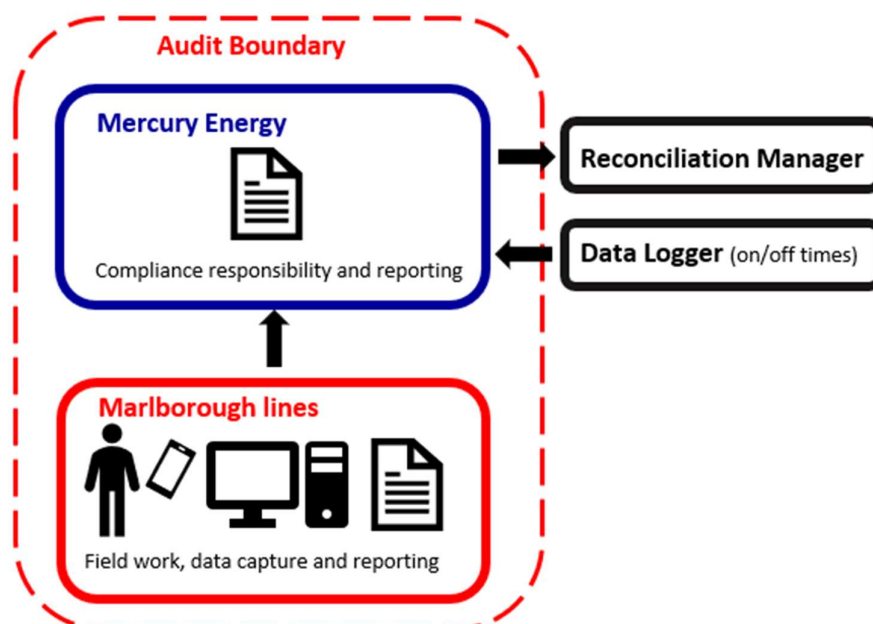
1.8. Scope of Audit

This audit of the Marlborough Lines database and processes was conducted at the request of Mercury, 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 Info EAM database is managed by Marlborough Lines on behalf of MDC. Marlborough Lines is responsible for the installation, maintenance, and removal of streetlighting in the MDC region. Data is collected from the field using an iPad for most new connections, and paper based forms for maintenance and new connections in remote areas. iPad information is saved to OneDrive and paper based forms are returned following weekly maintenance. The Customer Works Design Estimator updates Info EAM as soon as possible once the information is received, and applies the date that the field work was completed.

Mercury reconciles this DUML load using the HHR profile in accordance with exemption 233. This exemption expires on 31 October 2023, and Mercury is planning to request an extension and if that is unsuccessful will apply for a new profile. Marlborough Lines provides a monthly report from the database to Mercury, which includes the daily wattages applied for submission. On hours are derived using 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 273 items of load on 13 July 2023.

1.9. Summary of previous audit

I reviewed the last audit report undertaken by Rebecca Elliot of Veritek Limited in September 2022. 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	A correction has not been made to the estimated under submission of 31,968 kWh per annum identified in the previous audit.	Non-compliance relates to the previous trader's period of supply.
All load recorded in the database	2.5	11(2A) of Schedule 15.3	One additional item of load found in the field of the 401 items of load sampled.	Cleared, no lights missing from the database were identified.
Tracking of load change	2.6	11(3) of Schedule 15.3	Changes not tracked in EAM.	Cleared, changes are tracked at a daily level.
Audit trails	2.7	11(4) of Schedule 15.3	Audit trail not visible in EAM.	Cleared, a compliant audit trail is present.
Volume information accuracy	3.2	15.2 and 15.37B(c)	A correction has not been made to the estimated under submission of 31,968 kWh per annum identified in the previous audit.	Non-compliance relates to the previous trader's period of supply.

Table of Recommendations

Subject	Section	Recommendation for Improvement	Status
Location of each item of load	2.3	Correct the GPS co-ordinates to ensure they are accurate.	Adopted. All GPS locations appear reasonable.
Database accuracy	3.1	Ensure LED light descriptions contain sufficient information to confirm the correct wattage has been applied.	The fitting type generally contains information on the lamp make, model and/or type, and the lamp type specifies the type of lamp (e.g., LED, high pressure sodium, low pressure sodium, fluorescent).

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

Mercury have requested Provera 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

Mercury reconciles this DUML load using the HHR profile in accordance with exemption 233. Mercury were granted exemption No. 233, which allowed them to provide half-hour (“HHR”) submission information instead of non-half-hour (“NHH”) submission information for distributed unmetered load (“DUML”). Clause 8(g) of Schedule 15.3 of the Code, which the exemption related to was removed from the Code in 2018, therefore the exemption is no longer valid. Mercury is planning to apply for a new profile which will allow them to continue to submit the DUML load as HHR.

Wattages are derived from an extract provided each month by MDC. On and off times are derived from a data logger.

I reviewed the submission information for May 2023 and confirmed that the calculation methodology was correct, with wattages based on database extract totals per day, and on hours based on data logger information.

Volume inaccuracy is present in the database as follows, and is described in more detail in **section 3.1**:

Issue	Estimated volume information impact (annual kWh)
One lamp had a missing circuit wattage, and five lamps had incorrect circuit wattages.	Over submission of 131 W or 560 kWh pa.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: 08-Jun-23 To: 31-Jul-23	Mercury applies the HHR profile for submission of the DUML load. One lamp had a missing circuit wattage, and five lamps had incorrect circuit wattages. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2

Audit risk rating	Rationale for audit risk rating		
<p>Low</p>	<p>The controls are recorded as moderate, because data is entered manually into the database and a small number of errors were identified and the Authority, Mercury and approved auditors had not identified that exemption 233 had expired and that corrective action was required.</p> <p>The impact is low because the error could result in over submission of 131 W or 560 kWh pa. The use of an unapproved profile is not expected to have an impact on submission volumes or the accuracy of allocation results.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
We will advise Marlborough DC of the required fixes.		August 2023	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Marlborough DC are aware of the importance of maintaining an accurate database.		Ongoing	

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 which should be connected to DUML ICPs have an ICP recorded. There are 19 metered private lights in the database which validly have no ICP number recorded.

The accuracy of ICP numbers 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 fields for the street light road name, description (which provides a location description), street light vicinity and GPS coordinates.

4,751 of the 4,843 items of load recorded in the database have non-zero GPS coordinates populated. I checked the 92 items of load with zero or blank GPS coordinates and found there was sufficient information in the other location fields to enable them to be located.

Previous audits found that some GPS coordinates were inaccurate. I mapped all 4,751 lights which had GPS coordinates available and found all lights had GPS locations within the Marlborough district apart from SL6962, which was confirmed to be connected to the Marlborough Lines network.

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, lamp type, number of lamps, nominal lamp wattage and circuit wattage (taking into account the number of lamps, nominal lamp wattage, and gear wattage). The fitting type generally contains information on the lamp make, model and/or type, and the lamp type specifies the type of lamp (e.g., LED, high pressure sodium, low pressure sodium, fluorescent).

All items of load had a lamp type, non-zero nominal lamp wattage and number of lamps recorded. One lamp had a blank circuit wattage, which should have been recorded as 13 W:

Asset	Description	Fitting Type	Lamp Type	Nominal Lamp Wattage (w)	Number of Lamps	Circuit Wattage (w)
SL11649	20 Bond Street	Ibex Mini Stock	LED	13	1	

The accuracy of the wattages used for submission are discussed in **section 3.1**.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.4 With: Clause 11(2)(c) and (d) of Schedule 15.3 From: 08-Jun-23 To: 08-Jun-23	One 13W LED light (SL11649) has no circuit wattage recorded. Potential impact: Low Actual impact: Low Audit history: None Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are strong because only one circuit wattage was missing. The impact is low, because the omission could result in under submission of 55.5 kWh per annum.		
Actions taken to resolve the issue		Completion date	Remedial action status
We will advise Marlborough DC of the required fixes.		August 2023	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Marlborough DC are aware of the importance of maintaining an accurate database.		Ongoing	

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 273 items of load on 13 July 2023. The sample was selected from four strata, as follows:

- road names A to Garden,
- road names Gardiner to Magnolia,
- road names Mahakipawa to Scotston, and
- road names Scott to Z.

Audit commentary

The field audit discrepancies are detailed in the table below:

Street	Database count	Field count	Light count difference	Wattage recorded incorrectly	Comments
Seddon Street	2	2	-	1	Seddon Street SL6963 had an L104 LED light connected but

Street	Database count	Field count	Light count difference	Wattage recorded incorrectly	Comments
					was recorded as an LED 53W in the database.
Nelson Square	1	1	-	1	Nelson Square SL6963 had an L104 LED light connected but was recorded as an LED 53W in the database.
Grand Total	273	273	-	2	

Marlborough Lines confirmed both discrepancies have been corrected in the database.

This clause relates to lights in the field that are not recorded in the database, and the field audit did not find any additional lights in the field for the 273 items of load sampled. Database accuracy is discussed 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

Change and installation dates are recorded in the Info EAM database. The correct date is determined from paperwork returned from the field.

Changes are able to be tracked at a daily level, and Marlborough Lines provides daily kW values to Mercury for submission.

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

Full audit trails are recorded in Info EAM.

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

Mercury's submissions are based on a monthly extract from the database. A database extract was provided in June 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	Marlborough DC and Port Marlborough
Strata	<p>The database contains items of load in MDC area.</p> <p>The processes for the management of all items of load are the same, so I decided to place the items of load into four strata, as follows:</p> <ul style="list-style-type: none"> • road names A to Garden, • road names Gardiner to Magnolia, • road names Mahakipawa to Scotston, and • road names Scott to Z.
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 35 sub-units.
Total items of load	273 items of load were checked, making up 5% of the database wattage.

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 273 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 0.2%
R _L	99.8%	With a 95% level of confidence, it can be concluded that the error could be between -0.2% and +4.5%.
R _H	104.5%	

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 $\pm 5.0\%$.

- 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 estimated to be between zero and 9 kW higher than the database.
- In absolute terms, total annual consumption is estimated to be 3,900 kWh higher than the DUML database indicates.
- There is a 95% level of confidence that the annual consumption matches the database or could be between 1,300 kWh lower and 37,300 kWh higher than the database indicates.

Marlborough Lines confirmed both discrepancies identified during the field audit have been corrected in the database.

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

Light description and capacity accuracy

The database contains fields for fitting type, lamp type, number of lamps, nominal lamp wattage and circuit wattage (taking into account the number of lamps, nominal lamp wattage and gear wattage). The fitting type generally contains information on the lamp make, model and/or type, and the lamp type specifies the type of lamp (e.g., LED, high pressure sodium, low pressure sodium, fluorescent).

I checked the calculation of the circuit wattage, which is expected to be made up of the nominal lamp wattage (w) + gear wattage (if any) x number of lamps and found the exceptions in red below:

Asset	Fitting Type	Lamp Type	Nominal Lamp Wattage (w)	Number of Lamps	Circuit Wattage (w)	Exceptions
SL11649	Ibex Mini Stock	LED	13	1		Circuit wattage should be 13 W.
SL10931	Hunza	LED	17	1	52	Nominal lamp wattage should be 52 W.
SL10932	Hunza	LED	17	1	52	
SL10934	Hunza	LED	17	1	52	
SL10933	Hunza	LED	17	1	52	
SL10943	Hunza	LED	17	1	52	Nominal lamp wattage and circuit wattage should be 20 W.
SL11797		LED	24	1	52	Fitting type should be ground mount, and circuit wattage should be 24 W.
SL11798		LED	24	1	52	
SL11799		LED	24	1	52	
SL11800		LED	24	1	52	
SL10929	Pillar/Bollard	LED	23	2	23	The number of lamps should be 1.
SL10939	Pillar/Bollard	LED	23	2	23	
SL10927	Pillar/Bollard	LED	23	2	23	
Total circuit wattage difference					Over submission of 131 W or 560 kWh pa	

I compared the fitting type and lamp type against the nominal lamp wattage, to determine whether they were reasonable and valid. The following lights had incorrect descriptions:

Fitting Type	Lamp Type	Nominal Lamp Wattage (w)	Number of Lamps	Comment
LEDWAY	LED	12	1	Wattage is correct, but description should be updated to ground light.
LEDWAY	LED	9	2	Wattage is correct, but description should be updated to Kendalier.

The following lights are under investigation by Marlborough Lines to confirm the correct wattages:

Fitting Type	Lamp Type	Nominal Lamp Wattage (w)	Number of Lamps	Comment
LEDWAY	LED	23	2	Marlborough Lines is investigating to confirm the correct wattage.
SLTFT42	LED	30	3	Marlborough Lines is investigating to confirm the correct wattage for these lights which are possibly LEDWAY 23W.
Teceo 1	LED	128	5	Marlborough Lines is investigating to confirm the correct wattage for these lights.

ICP number accuracy

NZTA lights have been removed from the database and added to a separate database. The five lights with NZTA listed as the owner recorded against MDC ICPs are correctly recorded because MDC is responsible for the lights.

Address accuracy

Addresses were checked and confirmed to be locatable. No address accuracy issues were identified.

Change Management

Marlborough Lines is responsible for the installation, maintenance, and removal of streetlighting in the MDC region. Data is collected from the field using an iPad for most new connections, and paper based forms for maintenance and new connections in remote areas. iPad information is saved to OneDrive and paper based forms are returned following weekly maintenance. The Customer Works Design Estimator updates Info EAM as soon as possible once the information is received, and applies the date that the field work was completed.

For new connections, a new asset is created in Info EAM as part of issuing the work request. The pole details, light details and installation date are entered once completion paperwork is received. Marlborough Lines carry out field checks to confirm that the “as-built” reflects what has been installed in the field. If a developer’s contractor has completed the connection, an inspection is always completed.

Outage patrols are undertaken by Marlborough Lines on request. MDC relies on the public to advise of lights which need to be maintained.

LED upgrade

The LED rollout project is complete, and the remaining lights will be replaced as they fail with LEDs. There are no plans to use dimming.

Private lights

The database records 54 lights with private as the owner:

- 35 lights have a valid non-DUML ICP number assigned to them, and
- 19 lights have no ICP assigned and are confirmed to be metered.

Festive lights

No festive lights are connected in the MDC region.

Audit outcome

Non-compliant

Non-compliance	Description	
<p>Audit Ref: 3.1</p> <p>With: Clause 15.2 and 15.37B(b)</p> <p>From: 08-Jun-23</p> <p>To: 31-Jul-23</p>	<p>One lamp had a missing circuit wattage, and five lamps had incorrect circuit wattages.</p> <p>Five lamps had incorrect nominal wattages.</p> <p>Three poles had an incorrect number of lamps.</p> <p>Four lamps had a missing fitting type.</p> <p>Two lamps had an incorrect fitting type.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: None</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p>	
Audit risk rating	Rationale for audit risk rating	
Low	<p>The controls are recorded as moderate, because data is entered manually into the database and a small number of errors were identified.</p> <p>The impact is low because the missing and incorrect circuit wattages could result in over submission of 131 W or 560 kWh pa. The incorrect or missing nominal wattages, numbers of lamps and fitting types have no impact on submission.</p>	
Actions taken to resolve the issue	Completion date	Remedial action status
We will advise Marlborough DC of the required fixes.	August 2023	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
Marlborough DC are aware of the importance of maintaining an accurate database.	Ongoing	

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

Mercury reconciles this DUML load using the HHR profile in accordance with exemption 233. Mercury were granted exemption No. 233, which allowed them to provide half-hour (“HHR”) submission information instead of non-half-hour (“NHH”) submission information for distributed unmetered load (“DUML”). Clause 8(g) of Schedule 15.3 of the Code, which the exemption related to was removed from the Code in 2018, therefore the exemption is no longer valid. Mercury is planning to apply for a new profile which will allow them to continue to submit the DUML load as HHR.

Wattages are derived from an extract provided each month by MDC. On and off times are derived from a data logger.

I reviewed the submission information for May 2023 and confirmed that the calculation methodology was correct, with wattages based on database extract totals per day, and on hours based on data logger information.

Volume inaccuracy is present in the database as follows, and is described in more detail in **section 3.1**:

Issue	Estimated volume information impact (annual kWh)
One lamp had a missing circuit wattage, and five lamps had incorrect circuit wattages.	Over submission of 131 W or 560 kWh pa.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 Clause 15.2 and 15.37B(c) From: 08-Jun-23 To: 31-Jul-23	Mercury applies the HHR profile for submission of the DUML load. One lamp had a missing circuit wattage, and five lamps had incorrect circuit wattages. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	Rationale for audit risk rating
Low	The controls are recorded as moderate, because data is entered manually into the database and a small number of errors were identified and the Authority, Mercury and approved auditors had not identified that exemption 233 had expired and that corrective action was required. The impact is low because the error could result in over submission of 131 W or 560 kWh pa. The use of an unapproved profile is not expected to have an impact on submission volumes or the accuracy of allocation results.

Actions taken to resolve the issue	Completion date	Remedial action status
<p>We are in discussions with the Electricity Authority regarding the HHR issue.</p> <p>We will advise Marlborough DC of the required fixes.</p>	<p>Ongoing</p> <p>August 2023</p>	Investigating
Preventative actions taken to ensure no further issues will occur	Completion date	
<p>Marlborough DC are aware of the importance of maintaining an accurate database.</p>	<p>Ongoing</p>	

CONCLUSION

Mercury reconciles this DUML load using the HHR profile. Mercury were granted exemption No. 233, which allowed them to provide half-hour (“HHR”) submission information instead of non-half-hour (“NHH”) submission information for distributed unmetered load (“DUML”). Clause 8(g) of Schedule 15.3 of the Code, which the exemption related to was removed from the Code in 2018, therefore the exemption is no longer valid. Mercury is planning to apply for a new profile which will allow them to continue to submit the DUML load as HHR.

Marlborough Lines provides a monthly report from the database to Mercury, which includes the daily wattages applied for submission. On hours are derived using data logger information.

A field audit of a statistical sample of 273 items of load from the database was undertaken, and accuracy was within the $\pm 5\%$ accuracy threshold. The database is therefore deemed to be accurate.

The audit found four non-compliances and made no recommendations. The future risk rating of seven indicates that the next audit be completed in 18 months. I have considered this in conjunction with Mercury’s comments and agree with this recommendation.

PARTICIPANT RESPONSE

Mercury have reviewed this report and their comments are made within its body.