ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

VERITEK

For

MARLBOROUGH LINES LIMITED AND GENESIS ENERGY LIMITED

Prepared by: Rebecca Elliot

Date audit commenced: 7 November 2018

Date audit report completed: 27 November 2018

Audit report due date: 01-Dec-18

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EXECUTIVE SUMMARY

This audit of the 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 Transit NZ (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 275 items of load on 12th & 13th November 2018 and this was found to be within in the database accuracy threshold of +/- 2.5%.

The audit found four non-compliances and makes two recommendation. These mainly relate to the variance found in relation to the submission calculation for the month of October due to the incorrect logger factor and a light count difference. Genesis indicated that revisions will be carried out to correct this.

The future risk rating of 20 indicates that the next audit be completed in three months, but I recommend that as the field database accuracy was high that the matter of the incorrect logger files be addressed during Genesis' next reconciliation participant audit and the next DUML audit be in 12 months. The matters raised are detailed below:

AUDIT SUMMARY

NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Deriving submission information	2.1	11(1) of Schedule 15.3	The variance between the database extract and the monthly report used by Genesis for submission is resulting in an estimated over submission of 22,430 kWh for the month of October due to incorrect logger values and a lamp count difference between the wattage report and the database extract. Ballasts not derived from the database. Festive lighting recorded as connected all year.	Weak	High	9	Identified
Database accuracy	3.1	15.2 and 15.37B(b)	Incorrect ballasts applied in EAM resulting in an estimated annual over submission of 9,978 kWh if these were used for submission. Festive lighting recorded as connected all year.	Moderate	Low	2	Investigating
Volume information accuracy	3.2	15.2 and 15.37B(c)	The variance between the database extract and the monthly report used by Genesis for submission is resulting in an estimated over submission of 22,430 kWh for the month of October due to incorrect logger values and a lamp count difference between the wattage report and the database extract. Ballasts not derived from the database. Festive lighting recorded as connected all year.	Weak	High	9	Identified
					Future Risk Rating	**20**	

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	Action
Database accuracy	3.1	Apply wattage values from within the database.	Genesis were under the impression the information provided was a summary from EAM. Genesis has requested a detailed extraction from Marlborough Lines EAM database for review.

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

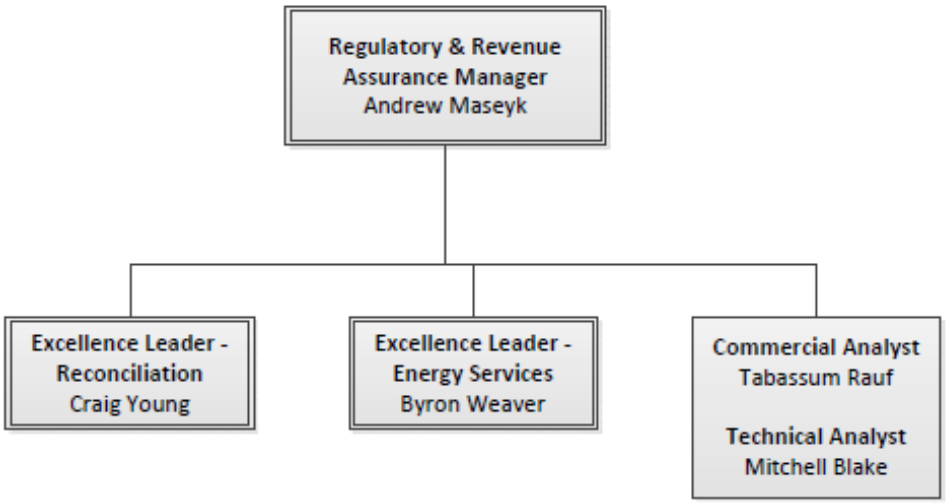
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

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	Title
Rebecca Elliot	Lead Auditor
Debbie Anderson	Supporting Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Craig Young	Excellence Leader - Reconciliation	Genesis Energy
Grace Hawken	Technical Specialist – Reconciliations Team	Genesis Energy
Robert Miller	GIS Operator	Marlborough Lines
Sally King	Asset Records Clerk	Marlborough Lines

1.4. Hardware and Software

The database used by Marlborough Lines is commonly known as "Info EAM". This has been used since October 2015.

Marlborough Lines confirmed that the database back-up is in accordance with standard industry procedures, which includes servers at two locations with backup tapes rotated between the different premises. Access to the database is secure by way of password protection.

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	SST	5,148	289,778
0004450157ML277	Port Marlborough	SST	57	9,466
Total			5,205	299,244

1.7. Authorisation Received

All information was provided directly by Genesis or Marlborough Lines.

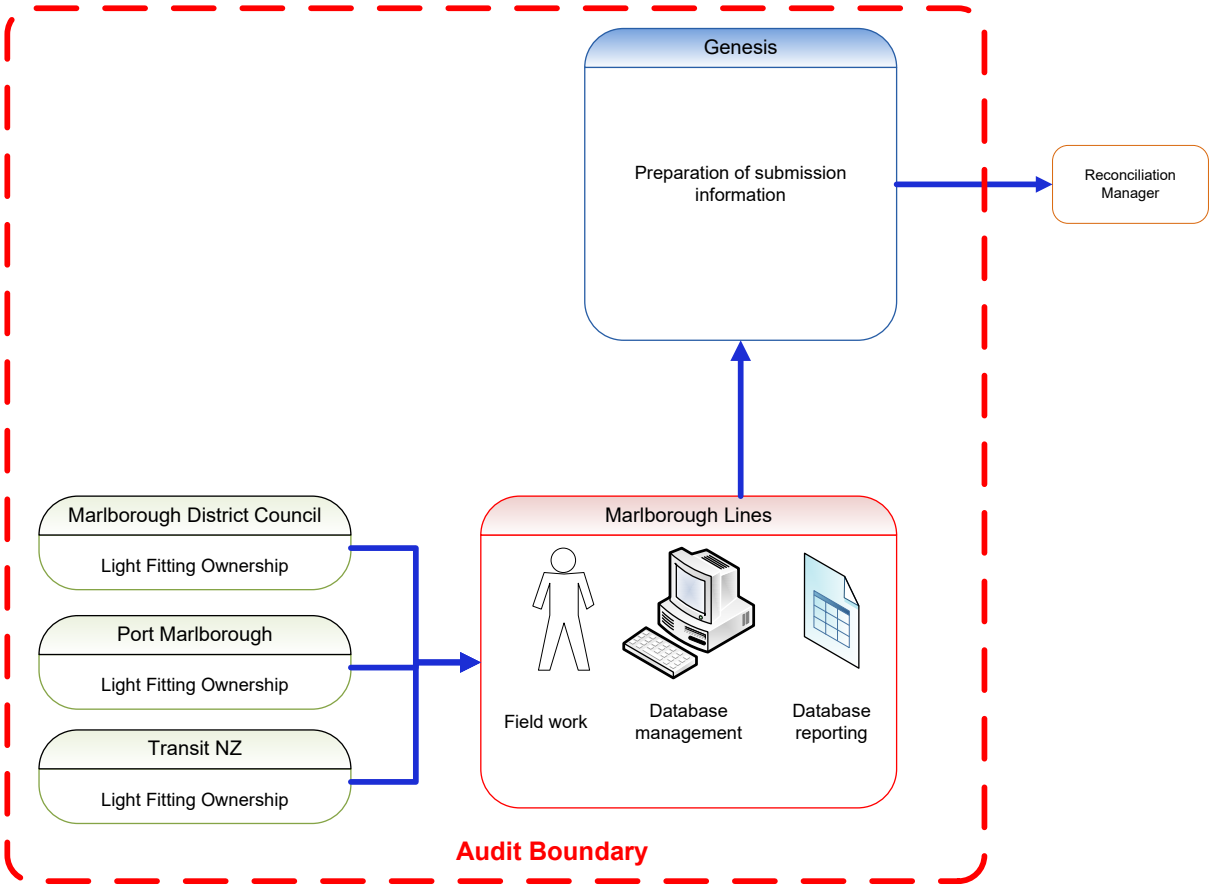
1.8. Scope of Audit

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 275 items of load on 12th & 13th November 2018.

1.9. Summary of previous audit

Genesis provided a copy of the last audit report undertaken by Rebecca Elliot of Veritek Limited in May 2018. The table below records the findings.

Table of Non-Compliance

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	Clause 11.1 of schedule 15.3	Accuracy ratio is 93.9% indicating over submission of 136,100 kWh per annum. 1,049 items of load with the incorrect ballast applied indicating over submission of 17,923.25 kWh per annum. Combined estimated over submission of 154,023.25kWh over submitted per annum.	Cleared Still existing

Subject	Section	Clause	Non-compliance	Status
ICP Identifier	2.2	11(2)(a) of Schedule 15.3	ICPs not recorded against each item of load.	Cleared
Location of each item of load	2.3	11(2)(b) of Schedule 15.3	490 items of load not locatable.	Cleared
All Load recorded in the Database	2.5	11(2A) of Schedule 15.3	Two lights found in the field not recorded in the database.	Cleared
Tracking of Load Changes	2.6	Clause 11(3) of Schedule 15.3	Festive lighting recorded as connected all year.	Still existing refer **section 3.1**
Database Accuracy	3.1	Clause 15.2 & 15.37(b)	Accuracy ratio is 93.9% indicating over submission of 136,100 kWh per annum. 1,049 items of load with the incorrect ballast applied indicating over submission of 17,923.25 kWh per annum. Combined estimated over submission of 154,023.25kWh over submitted per annum.	Cleared Still Existing
Volume Information Accuracy	3.2	Clause 15.2 & 15.37(c)	Accuracy ratio is 93.9% indicating over submission of 136,100 kWh per annum. 1,049 items of load with the incorrect ballast applied indicating over submission of 17,923.25 kWh per annum. Combined estimated over submission of 154,023.25kWh over submitted per annum.	Cleared Still Existing

Table of Recommendations

Subject	Section	Clause	Recommendation for Improvement	Status
Tracking of load change	2.6	11(3) of schedule 15.3	Conduct a field audit to confirm new lights installed match the “as builts” submitted.	Cleared

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

Genesis reconciles this DUML load using the SST profile.

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 October 2018 and found variances for both ICPs:

ICPs	Fittings number from Oct submission	Fittings number from database extract	Differences	kWh value submitted	Calculated kWh value from database	Differences
0004450225ML4AC	5088	5148	60	119,891	97,670	22,221
0004450157ML277	57	57	0	5,144	3,115	2,209
Total month kWh over submission						22,430

The variances are due to two reasons:

1. There is a light volume difference for ICP 0004450225ML4AC for the month of October. The volume difference is greater than I would expect for it to be a timing issue between the month end report and when the database extract was provided for this audit on 23/10/18.
2. The logger hours applied to calculate the submissions were different. Genesis have investigated this and advised that they have unintentionally aggregated the kWh and kVarh consumption resulting in over submission to the market. The customer has been billed correctly. Genesis have advised they will be revising the volumes submitted to the market for the previous 14 months to correct this. This is recorded as non-compliance in **section 3.2** and below.

The ballasts recorded in EAM are not used and Marlborough Lines add the ballasts outside of the database as part of the monthly wattage report sent to Genesis. The ballast values used in the monthly report were confirmed to be correct. This is discussed in **sections 2.4, 3.1** and **3.2**.

As detailed in **sections 2.5** and **3.1**, festive lighting recorded as connected all year. I was unable to determine the specific impact on reconciliation, but the volume of lights associated with this is small.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 Clause 11(1) of Schedule 15.3 From: 06-May-18 To: 23-Oct-18	The variance between the database extract and the monthly report used by Genesis for submission is resulting in an estimated over submission of 22,430 kWh for the month of October due to incorrect logger values and a lamp count difference between the wattage report and the database extract. Ballasts not derived from the database. Festive lighting recorded as connected all year. Potential impact: High Actual impact: High Audit history: Once Controls: Weak Breach risk rating: 9
Audit risk rating	**Rationale for audit risk rating**
High	The controls are rated as moderate because they are sufficient to ensure that lamp information is correctly recorded most of the time, but there are still some errors. The impact is assessed to be high, based on the kWh differences described above.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis use the logger values to do the calculation and produce a TOU file which is loaded into Gentrack as part of the billing process. The logger information (hours) are correct. The issue was when the settlement process was run for this time-based pricing account, the aggregation process used both kWh & KVar values which was the cause of the over submission. This process error was realised when reviewing the sites information for the auditor.	23/11/2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis has corrected an auto process to ensure that kVar data is no longer aggregated as part of the settlement process. This was setup in error and has now been rectified. The data has been historically correct for revision periods. This also was not picked up by the distributor.	23/11/2018	

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

Code reference

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

Code related audit information

The DUML database must contain:

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

Audit observation

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

Audit commentary

All items of load have an ICP recorded against them.

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 databases were checked to confirm the location is recorded for all items of load.

Audit commentary

The database contains a description field which contains detailed directions for the location of the lamps. The vicinity field that was found to be missing in the previous audit has been imported. All items of load had sufficient detail to be able to locate them. It is intended to import GPS co-ordinates into EAM. There is currently no timeframe for this body of work.

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 additional to a nominal lamp wattage and circuit wattage fields and all were populated for each item of load. The ballasts recorded in EAM are not used for submission and Marlborough Lines add the ballasts outside of the database as part of the monthly wattage report sent to Genesis. The accuracy of the ballast wattages used for submission are discussed in **section 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 275 items of load on 12th & 13th November 2018.

Audit commentary

The field audit findings for the sample of lamps are detailed in the table below:

Street/Area	Database Count	Field Count	Lamp no. difference	No of incorrect lamp wattage	Comments
MDC Urban					
Evesham Lane	3	3			
Hyde Place	4	4			
Kinross St	53	53			
McLauchlan St	33	33			
Meehan St	10	10			
Opawa St	13	13			
Purkiss St	15	15			
Rifle Range Road	22	22			
Sequioa Pl	2	2			
Windsor Close	15	15			
Havelock/Renwick					
Agincourt St	2	2			
Clyde St	8	8			
McAllister Pl	5	4	-1		1 x 28W LED duplicated in the database
McIsaac Pl	2	2			

Street/Area	Database Count	Field Count	Lamp no. difference	No of incorrect lamp wattage	Comments
Nicholson St	3	3			
Old Coach Road	2	2			
Picton					
Garden Tce	7	7			
George St	4	4			
Kakapo Rise	3	3			
Lagoon Rd	1	1			
Market St	8	8			
Otago St	8	7	-1		1 x 28W LED duplicated in the database
Waitohi Pl	2	2			
Webster Place	4	4			
MDC Rural					
Ashford Grove	4	4			
Edgewater Place	1	1			
Hammerichs Rd	2	2			
Isobel Pl	3	3			
Jacksons Rd	1	1			
Moenui Road	4	4			
O'Dwyers Road	1	1			
Pipitea Dr	2	2			
Rarangi Beach Rd	15	15		1	1 x 104W and not 149W stated
Shoreline Place	2	2			
Wairau Bar Road	4	4			
Wakamarina Rd	1	1			
NZTA/Port					
Long Valler Rd SW Corner	1	1			
Middle Renwick Road	2	0	-2		2 x 75W lamps removed
Rapuara Rd	3	3			
Grand Total	**275**	**272**	**-4**	**1**	

The field audit found one lamp wattage discrepancy and three roads that have a different count. The accuracy of the database is discussed in **section 3.1.**

This clause relates to lights in the field not recorded in the database. There were no additional lights found in the field.

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

On 20th September 2012 the Authority sent a memo to Retailers and auditors advising that tracking of load changes at a daily level was not required as long as the database contained an audit trail. I have interpreted this to mean that the production of a monthly "snapshot" report is sufficient to achieve compliance.

The database tracks additions and removals as required by this clause.

The new connections process remains the same as was recorded last audit - 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, and this is used to populate the database. Lighting for new subdivisions is updated as soon as the subdivision is energised. The notification period for streetlighting appears to be within approx. one month based on a sample checked during the audit. Light numbers are assigned based on "as builts" in the database but are marked as NYI "not yet in service". Actual locations are recorded once the final "as built" is received. Marlborough Lines have adopted the last audits recommendation and carry out field checks to confirm that the "as builts" reflect what has been installed in the field.

The processes were reviewed for ensuring that changes in the field are notified through to Marlborough Lines. A database check is included as part of the lamp replacement process. The job sheet comes directly from the EAM database and requires the field crew to indicate if any discrepancies are found and need to be updated. I sighted a sample of job sheets during the audit which confirmed the process. Daily updates are made to EAM, with the worse case being by the end of the week and always by the end of the month.

The LED rollout project is well underway. All non-state highways are complete. There are approx. 600 state highway lights that are still in the design phase which are expected to be completed in the first half of 2019. LED lights are CMS ready but there are no plans to implement a CMS. During the roll-out there are at least weekly updates to EAM with all installations completed during the month updated within that month. There is currently working being done on a mobile app for EAM to enable field staff to update job details directly into the database. This is not yet live but will improve the speed to update the database.

Night outage patrols in high volume areas are every three months. State Highways are divided into 4 groups with rolling monthly patrols. Patrols are undertaken by Marlborough Lines and results processed into EAM.

There are 35 non-metered Private Lights in EAM on individual ICP's. I sighted a monthly report that was sent to the relevant Retailers advising of load.

Christmas lighting in Blenheim remains unchanged from previous audits. Christmas lights are in the form of decorative festoon lights with white lamps during the year and coloured lamps during the Christmas season. Some of the festoons are on all year round and others are only connected during the Christmas season. I recommend the underlying processes are examined to ensure all Christmas lighting is appropriately recorded for the period it is on. I also recommend this opportunity is used to confirm the accuracy of the festoon lighting quantities. I was unable to determine which items of load are only connected for part of the year, therefore I cannot calculate the submission impact, but it was indicated that the volume of lights in this category is small. Non-compliance is recorded in relation to the festive lighting being submitted as connected all year but part of it is only connected during the Christmas period. This is recorded as non-compliance in **sections 2.1, 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

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 area has four distinct sub regions of Marlborough urban and rural, NZTA and PMNZ. The processes for the management of MDC, NZTA and PMNZ items of load are the same, but I decided to place the items of load into five strata, as follows: 1. Blenheim 2. Havelock\Renwick 3. Picton 4. MDC Rural 5. NZTA/ Port.
Area units	I gridded a geographical map for each population group and then selected 23 blocks containing 39 roads proportionally across the different strata.
Total items of load	275 items of load were checked.

Wattages were checked for alignment with the published standardised wattage table produced by the Electricity Authority.

Audit commentary

A statistical sample of 275 items of load found that the field data was 98.2% of the database data for the sample checked. This is within the required database accuracy of 2.5%+/-. The statistical sampling tool reported with 95% confidence the precision of the sample was 6.1% and the true load in the field will be between 93.9% to 100% of the load recorded in the database. The sample is not sufficiently precise to be able to determine the database accuracy but indicates that the database is likely to be accurate.

The tool indicated that there is potentially 22,800 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool) of over submission. The statistical sampling tool reported with 95% confidence that there is a potential estimated submission variance range of between 77,500 kWh over submission and zero under submission.

Wattages for all items of load were checked against the published standardised wattage table produced by the Electricity Authority and found the ballasts recorded in EAM are incorrect as detailed below:

Incorrect ballasts	**Volume information impact (annual kWh)**
2 x CDM M/H 70W lamps have a ballast recorded of 5W instead of 13W.	68 kWh under submission
4 x Double Ended M/H 70W lamps have a ballast recorded of 5W instead of 13W.	137 kWh under submission
E/S (E) Ext Ignitor SON • 61 x 70W have a ballast of 20W instead of 7W (electronic ballast) • 1 x 100W has no ballast instead of 14W	 3,387 kWh over submission 60 kWh under submission
1 x E/S (I) Int Ignitor SON 70W lamp has a ballast recorded of 20W instead of 13W.	30 kWh under submission
E/S MV • 7 x 80W have a ballast of 14W instead of 10W • 2 x 250W has a ballast of 25W instead of 20W	 120 kWh over submission 43 kWh over submission
11 x E/S Reflector SON70W lamp have a ballast recorded of 20W instead of 13W.	329 kWh over submission
E/S Tubular M/H • 1 x 150W have a ballast of 17W instead of 18W • 1 x 400W has a ballast of 24W instead of 38W • 1 x 400W has a ballast of 34W instead of 38W	 4 kWh over submission 60 kWh under submission 17 kWh under submission
10 x Elliptical M/H 100W lamp have no ballast recorded instead of 14W.	598 kWh under submission
1 x Fluoro Tube (2/20 Fluorescent) lamp has a ballast recorded of 18W instead of 10W.	34 kWh over submission
GES Elliptical SON • 5 x 50W have a ballast of 12W instead of 11W. • 114 x 150W has a ballast of 22W instead of 18W. • 30 x 250W has a ballast of 29W instead of 28W.	 21 kWh over submission 1,948 kWh over submission 128 kWh over submission
GES Tubular SON	

Incorrect ballasts	Volume information impact (annual kWh)
• 7 x 70W have a ballast of 20W instead of 13W. • 1 x 150W has a total wattage of 114W instead of 168W. • 1 x 150W has no ballast instead of 18W. • 271 x 150W has a ballast of 22W instead of 18W. • 102 x 250W has a ballast of 29W instead of 28W. • 3 x 400W has a ballast of 34W instead of 38W.	209 kWh over submission 231 kWh under submission 77 kWh under submission 4,630 kWh over submission 436 kWh over submission 51 kWh under submission
TOTAL	9,978 kWh over submission

Marlborough Lines add the ballasts outside of the database. These were checked and confirmed to be correct. The incorrect ballasts recorded in EAM are recorded as non-compliance below and in **sections 2.1** and **3.2**. I recommend that wattage values are corrected and derived from within the database.

Recommendation	Description	Audited party comment	Remedial action
Regarding Clauses 15.2 and 15.37B(b)	Apply wattage values from within the database.	Genesis were under the impression the information provided was a summary from EAM. Genesis has requested a detailed extraction from Marlborough Lines EAM database for review.	Investigating

As detailed in **section 2.6**, Christmas lighting in Blenheim remains unchanged from previous audits. Christmas lights being recorded as connected for the whole year when they are not. I was unable to determine which items of load are only connected for part of the year, therefore I cannot calculate the submission impact, but it was indicated that the volume of lights in this category is small. Non-compliance is recorded in relation to the festive lighting that is recorded as connected all year but is only connected during the Christmas period.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 06-May-18 To: 21-Oct-18	Incorrect ballasts applied in EAM resulting in an estimated annual over submission of 9,978 kWh if these were used for submission. Festive lighting recorded as connected all year. Potential impact: Low Actual impact: Low Audit history: Once Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate as the ballasts are not derived from the database but are being added correctly for reconciliation purposes. The impact is assessed to be low due to the small amount of over submission associated with Christmas lights recorded as connected year round.

Actions taken to resolve the issue	Completion date	Remedial action status
Audit has found that the "database" has incorrect ballasts populated, however it also states that the information provided to Genesis was correct. Although the database has an over submission estimation based on incorrect ballasts in the database, these are not used, over submission based on ballast is not what is happening in the market. The Christmas lights are not provided in the summaries all year round and are not included in out of season settlements, albeit present in the EAM database. Which also refers to section 2.1/3.2 Genesis will work with Marl Lines to correct the "EAM database"	01/02/2019	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis were under the impression the information provided was a summary from EAM. Genesis has requested a detailed extraction from Marlborough Lines EAM database for review.	01/02/2019	

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
- checking the database extract combined with the burn hours against the submitted figure to confirm accuracy.

Audit commentary

Genesis reconciles this DUML load using the SST profile.

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.

As detailed in **section 2.1**, I checked the submission values for October 2018 and found over submission is occurring due to two factors:

1. There is a light volume difference for ICP 0004450225ML4AC. The volume difference is greater than I would expect for it to be a timing issue between the month end report and when the database extract was provided on 23/10/18.
2. The logger hours applied to calculate the submissions were different. Genesis have investigated this and advised the they have unintentionally aggregated the kWh and kVarh consumption resulting in over submission to the market. The customer has been billed correctly. Genesis have advised they will be revising the volumes submitted to the market for the previous 14 months to correct this. This is recorded as non-compliance in **section 2.1** and below.

The ballasts recorded in EAM are not used and Marlborough Lines add the ballasts outside of the database as part of the monthly wattage report sent to Genesis. The ballast values used were confirmed to be correct. This is discussed in **sections 2.1, 2.4** and **3.1**.

As detailed in **sections 2.5** and **3.1**, festive lighting is recorded as connected all year. I was unable to determine the specific impact on reconciliation, but the volume of lights associated with this is small.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 Clause 15.2 and 15.37B(c) From: 06-May-18 To: 21-Oct-18	The variance between the database extract and the monthly report used by Genesis for submission is resulting in an estimated over submission of 22,430 kWh for the month of October due to incorrect logger values and a lamp count difference between the wattage report and the database extract. Ballasts not derived from the database. Festive lighting recorded as connected all year. Potential impact: High Actual impact: High Audit history: Once Controls: Weak Breach risk rating: 6
Audit risk rating	**Rationale for audit risk rating**
High	The controls are rated as weak as the logger error was only found as a result of this audit. The impact is assessed to be high, based on the kWh differences described above.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis has corrected an auto process to ensure that kVar data is no longer aggregated as part of the settlement process. This was setup in error and has now been rectified. The data has been historically correct for revision periods. This also was not picked up by the distributor.	23/11/2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis will introduce customer billing v settlement reporting by ICP to capture any potential future errors in setup, for these time-based priced accounts.	01/03/2019	

CONCLUSION

An EAM database is managed by Marlborough Lines on behalf of Marlborough District Council (MDC), Port Marlborough (PMNZ) and Transit NZ (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 275 items of load on 12th & 13th November 2018 and this was found to be within in the database accuracy threshold of +/- 2.5%.

The audit found four non-compliances and makes two recommendation. These mainly relate to the variance found in relation to the submission calculation for the month of October due to the incorrect logger factor and a light count difference. Genesis indicated that revisions will be carried out to correct this.

The future risk rating of 20 indicates that the next audit be completed in three months, but I recommend that as the field database accuracy was high that the matter of the incorrect logger files be addressed during Genesis' next reconciliation participant audit and the next DUML audit be in 12 months.

PARTICIPANT RESPONSE

Genesis were under the assumption the information provided by Marlborough was that from the asset database, although the lamp information was, it seems that the ballast wasn't. Albeit correct. This hasn't affected the settlement process; however, the error does still reside in the database, which Genesis will investigate and work with Marlborough lines to have corrected. The over settlement was a set up error and is the only instance of this. This has now been corrected and will also correct historical revisions periods through the washup process.

Genesis will introduce a time-based billing v settlement report to ensure settlement volumes are correct. Marlborough lines have made extensive efforts to clear previous existing non-compliances, Genesis supports the auditors recommendation of 12 month review period.