

ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

VERITEK

For

WAIROA DISTRICT COUNCIL
AND GENESIS ENERGY

Prepared by: Rebecca Elliot

Date audit commenced: 1 October 2018

Date audit report completed: 23 November 2018

Audit report due date: 01-Dec-18

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EXECUTIVE SUMMARY

This audit of the Wairoa District Council (**WDC**) Unmetered Streetlights 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 Access database is hosted and managed by Eastland and monthly reporting is provided to Genesis.

The audit found five non-compliances and makes two recommendations.

The field audit findings found a high level of accuracy and the database accuracy fell within the accepted variance range. However, I note that there is no formal updating of field changes in place between Eastland and WDC. A recent RAMM database extract was provided by WDC but was found to be less accurate than the Eastland database. Changes are updated as they are discovered by Eastland's field contractors.

The gear wattage is being applied outside of the database and I repeat the last audit's recommendation that this be derived from within the database.

The future risk rating of 11 indicates that the next audit be completed 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	Under submission of approx. 2,191 kWh per annum has occurred due to incorrect wattage and ballasts applied.	Moderate	Low	2	Identified
Description and capacity	2.4	11(2)c of Schedule 15.3	Gear wattage is not recorded in the database.	Strong	Low	1	Investigating
All load recorded in the database	2.5	11(2A) of Schedule 15.3	One additional 27W LED lamp was discovered on Apatu Street.	Weak	Low	3	Investigating
Database accuracy	3.1	15.2 and 15.37B(b)	Under submission of approx. 151 kWh per annum has occurred due to one incorrect lamp wattage.	Weak	Low	3	Investigating
Volume information accuracy	3.2	15.2 and 15.37Bc	Under submission of approx. 2,191 kWh per annum has occurred due to incorrect wattage and ballasts applied.	Moderate	Low	2	Investigating
Future Risk Rating						11	

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
Location of each item of load	2.3	Add Street Name and where possible Street Number into the database to assist with location.	Genesis will make this recommendation to the asset database owner
Load description and capacity	2.4	Add gear wattage to the database.	Genesis will liaise with Eastland to have this populated

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

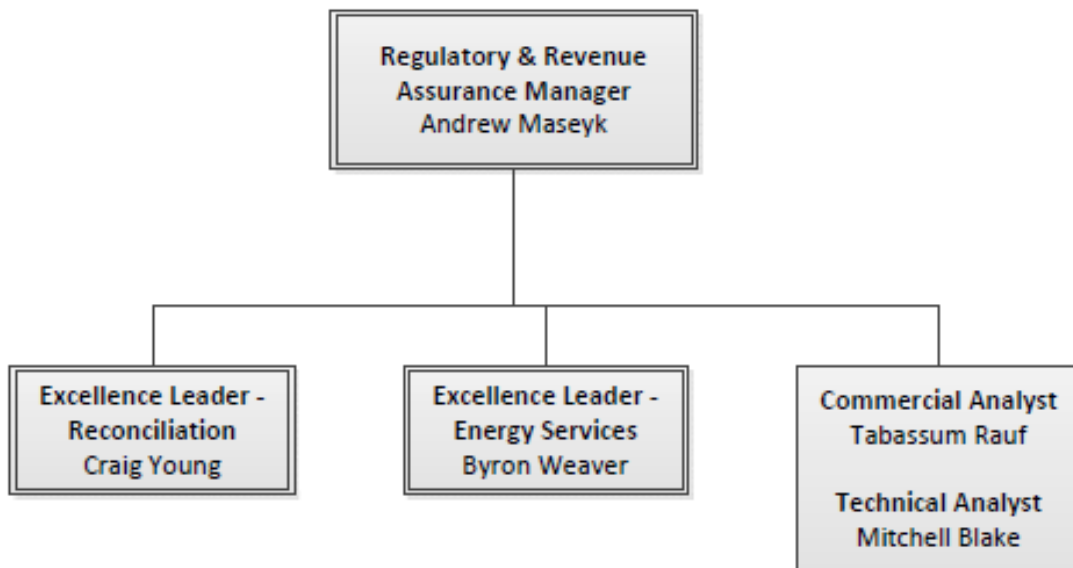
Section 11 of the Electricity Industry Act provides for the Electricity Authority to exempt any participant from compliance with all or any of the clauses.

Audit commentary

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

1.2. Structure of Organisation

Genesis provided the relevant organisational structure:



1.3. Persons involved in this audit

Auditor:

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
Jason Grout	Network GIS and Data Manager	Eastland

1.4. Hardware and Software

The database used for reporting is an Access database hosted and managed by Eastland. Eastland performs a nightly server backup, and on a fortnightly basis a tape backup is performed which is stored off-site. These are periodically restored to check readability. A mirrored server also exists in a separate building.

1.5. Breaches or Breach Allegations

There are no breach allegations relevant to the scope of this audit.

1.6. ICP Data

WDC has a large number of ICPs associated with it as there is an ICP per circuit.

ICP Number	Description	NSP	Profile	Number of items of load Sept 2018	Database wattage (watts) Sept 2018
000090126WW009	Wairoa DC	TUI1101	NST	1	82
000090257WWA12	Wairoa DC	TUI1101	NST	1	114
0000905471WWF37	Wairoa DC	TUI1101	NST	4	250
000090480WW0D9	Wairoa DC	TUI1101	NST	4	163
000090778WWD9C	Wairoa DC	TUI1101	NST	3	342
000090788WWD8B	Wairoa DC	TUI1101	NST	1	82
000091017WW310	Wairoa DC	TUI1101	NST	3	528
000092085WWE92	Wairoa DC	TUI1101	NST	1	82
000093406WWAB9	Wairoa DC	TUI1101	NST	8	1117
0000901502WW92E	Wairoa DC	TUI1101	NST	2	196
0000901641WW448	Wairoa DC	TUI1101	NST	3	255
0000902361WWFE8	Wairoa DC	TUI1101	NST	1	114
0000902851WWA0E	Wairoa DC	TUI1101	NST	5	505
0000903712WWAC4	Wairoa DC	TUI1101	NST	6	468
0000903861WWC56	Wairoa DC	TUI1101	NST	9	866
0000904511WW863	Wairoa DC	TUI1101	NST	8	706
0000906083WW144	Wairoa DC	TUI1101	NST	1	27
0000908111WWFE2	Wairoa DC	TUI1101	NST	4	456
0000908702WWF89	Wairoa DC	TUI1101	NST	5	442

ICP Number	Description	NSP	Profile	Number of items of load Sept 2018	Database wattage (watts) Sept 2018
0000908991WWAA5	Wairoa DC	TUI1101	NST	18	2345
0000911581WW845	Wairoa DC	TUI1101	NST	4	359
0000911731WW0F0	Wairoa DC	TUI1101	NST	1	168
0000912961WWC13	Wairoa DC	TUI1101	NST	6	1008
0000918181WW8E4	Wairoa DC	TUI1101	NST	1	82
0000921782WWFAE	Wairoa DC	TUI1101	NST	1	82
0000924841WWCAE	Wairoa DC	TUI1101	NST	14	1390
0000925762WW394	Wairoa DC	TUI1101	NST	1	168
0000926782WWBCE	Wairoa DC	TUI1101	NST	10	1680
0000927432WWBDF	Wairoa DC	TUI1101	NST	1	82
0000928081WW0CC	Wairoa DC	TUI1101	NST	6	437
0000928661WWC70	Wairoa DC	TUI1101	NST	5	410
0000928691WWC67	Wairoa DC	TUI1101	NST	1	82
0000928921WW1DA	Wairoa DC	TUI1101	NST	4	273
0000929521WWC76	Wairoa DC	TUI1101	NST	7	918
0000932781WW96F	Wairoa DC	TUI1101	NST	1	82
0009073201WWF67	Wairoa DC	TUI1101	NST	9	715
0009157081WWB0B	Wairoa DC	TUI1101	NST	65	5165
0009801013WWDCO	Wairoa DC	TUI1101	NST	87	9847
0009808027WW792	Wairoa DC	TUI1101	NST	68	7215
0009808075WWFIF	Wairoa DC	TUI1101	NST	39	4629
0009823003WWDE0	Wairoa DC	TUI1101	NST	24	2064
0009902090WW2C6	Wairoa DC	TUI1101	NST	8	914
0009902111WW2CD	Wairoa DC	TUI1101	NST	5	300
0009903047WW3EE	Wairoa DC	TUI1101	NST	3	136
0009904020WW5B4	Wairoa DC	TUI1101	NST	4	328
0009912999WWD7F	Wairoa DC	TUI1101	NST	32	2770
0009921062WW979	Wairoa DC	TUI1101	NST	27	3020
0009926066WWC13	Wairoa DC	TUI1101	NST	2	196
0009927025WW3D6	Wairoa DC	TUI1101	NST	36	3530
0009928081WW3A3	Wairoa DC	TUI1101	NST	5	840
0009930036WW93A	Wairoa DC	TUI1101	NST	2	196
0090632461WW70	Wairoa DC	TUI1101	NST	6	382
0098080213WWA56	Wairoa DC	TUI1101	NST	41	7026
0099070331WWDA7	Wairoa DC	TUI1101	NST	7	638
0099070831WWEA9	Wairoa DC	TUI1101	NST	17	1650
0099081281WW22D	Wairoa DC	TUI1101	NST	20	1671
0099090101WWD25	Wairoa DC	TUI1101	NST	9	770
0099180751WWFA6	Wairoa DC	TUI1101	NST	15	1115
0099180971WW4F8	Wairoa DC	TUI1101	NST	45	2823

ICP Number	Description	NSP	Profile	Number of items of load Sept 2018	Database wattage (watts) Sept 2018
0099191182WW163	Wairoa DC	TUI1101	NST	15	1422
0099200151WWA31	Wairoa DC	TUI1101	NST	7	574
0099200271WW467	Wairoa DC	TUI1101	NST	25	2187
0099200991WWDD3	Wairoa DC	TUI1101	NST	52	4029
0099201301WW99E	Wairoa DC	TUI1101	NST	6	469
0099210911WW78	Wairoa DC	TUI1101	NST	19	1448
0099230201WW16	Wairoa DC	TUI1101	NST	12	1153
0000009006WWF3C	S/LIGHTS MAHIA-PIRIPUA	TUI1101	NST	3	246

I note that the total wattage recorded in the database excludes ballast but as detailed in **section 2.1**, this is added to the monthly wattage report sent by Eastland.

1.7. Authorisation Received

All information was provided directly by Genesis or Eastland.

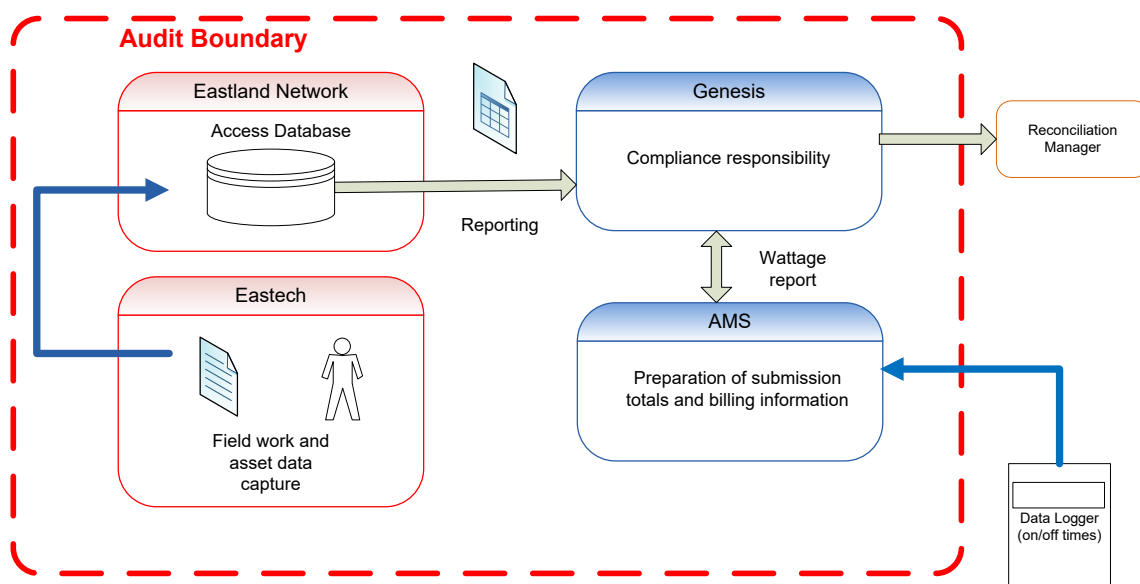
1.8. Scope of Audit

This audit of the WDC DUMML 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 DUMML audits version 1.1.

Eastland data is contained in an Access database and Eastland provides reporting to Genesis on a monthly basis, detailing the total kW per ICP and the on/off times are derived by a data logger interrogated by AMS. Lamp ballast information is not stored in the database, instead is calculated at the time of billing.

The diagram below shows the audit boundary for clarity.



The field audit of 155 items of load was carried out in Wairoa on 8th Oct 2018.

1.9. Summary of previous audit

Genesis provided a copy of the last audit report undertaken by Steve Woods 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	11(1) of Schedule 15.3	The database accuracy is assessed to be 94.1% indicating an estimated over submission of 20,000 kWh per annum.	Cleared
			Under submission of 824 kWh per annum due to two records not having an ICP.	Cleared
			Under submission of approx. 2,400 kWh per annum has occurred due to a ballast wattage difference.	Still Existing
			Process for deriving submission information does not comply with schedule 15.5.	Cleared
ICP identifier	2.2	11(2)(a) of Schedule 15.3	Two records with blank ICP.	Cleared
Description and capacity	2.4	11(2)(c) of Schedule 15.3	70 watt SON lamp should have ballast of 13 watts not 12 watts.	Still Existing but recorded in sections 2.1 & 3.2
Tracking of load changes	2.6	11(3) of Schedule 15.3	Process not in place to track load changes.	Cleared
Database accuracy	3.1	15.2 and 15.37B(b)	The database accuracy is assessed to be 94.1% indicating an estimated over submission of 20,000 kWh per annum.	Cleared
			Under submission of 824 kWh per annum due to two records not having an ICP.	Cleared
			Under submission of approx. 2,400 kWh per annum has occurred due to a ballast wattage difference.	Still Existing but recorded in sections 2.1 & 3.2
Volume information accuracy	3.2	15.2 and 15.37B(c)	The database accuracy is assessed to be 94.1% indicating an estimated over submission of 20,000 kWh per annum.	Cleared
			Under submission of 824 kWh per annum due to two records not having an ICP.	Cleared
			Under submission of approx. 2,400 kWh per annum has occurred due to a ballast wattage difference.	Still existing

Table of Recommendations

Subject	Section	Clause	Recommendation for Improvement	Status
Load description and capacity	2.4		Add lamp description and gear wattage to the database.	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 has 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. Compliance is confirmed

2. DUMML 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:

- *DUMML 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 DUMML load using the NST profile.

I checked the September 2018 extract provided by Eastland against the submission totals supplied by Genesis and found that the kW figures used for submission matched the database.

There is some inaccurate data within the database used to calculate submissions as detailed in the table below. This is recorded as non-compliance and discussed in **sections 3.1** and **3.2**.

Issue	Volume information impact (annual kWh)
486 x 70W HPS have a ballast added of 12W and not the recommended 13W	2,076 kWh under submission
Incorrect lamp wattage recorded in the database	115 kWh under submission
TOTAL	2,191 kWh under submission

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: 01-Jun-18 To: 26-Sep-18	Under submission of approx. 2,191 kWh per annum has occurred due to incorrect wattage and ballasts applied. 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 processes used to calculate submission are sufficient to mitigate risk most of the time. The impact is assessed to be medium, based on the kWh differences described above.		
Actions taken to resolve the issue		Completion date	Remedial action status
Genesis has reviewed the information provided by Eastland and have found a formula error which is causing the 70w ballast to calculate 12 instead of 13 causing the 2076 kwh annual under submission. Genesis has contacted Eastland to have this amended. Genesis will be making amendments to the reconciliation data to cater for the historical settlement revisions Genesis has requested the 1 incorrect lamp responsible for the 115kwh annually, be corrected in the database.		01/12/2018	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Genesis does analysis on data provided for streetlights and will continue to work alongside their customers to provide accurate information to the market.		01/12/2018	

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 DUMML database must contain:

- *each ICP identifier for which the retailer is responsible for the DUMML*
- *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

The database has the ICP identifier recorded against all items of load.

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 DUMML database must contain the location of each DUMML item.

Audit observation

The database was checked to confirm the location is recorded for all items of load.

Audit commentary

There are 22 items of load that do not have a street location in the database, but the database does contain a unique identifier for each item of load and GPS co-ordinates are present for all items of load. This achieves compliance with this clause.

I recommend that Street Name and where possible Street Number are added to the database to assist with location information.

Recommendation	Description	Audited party comment	Remedial action
Regarding Clause 11(2)(b) of Schedule 15.3	Add Street Name and where possible Street Number into the database to assist with location.	Genesis will make this recommendation to the asset database owner.	Investigating

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 DUMML database must contain:

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

Audit observation

The database was checked to confirm that it contained a field for lamp type and wattage capacity, and included any ballast or gear wattage. Wattages were checked for alignment with the published standardised wattage table produced by the Electricity Authority.

Audit commentary

A field exists in the database for lamp model. I analysed the database and I found the lamp model field is populated for all items of load.

All items of load also have a lamp wattage populated but gear wattage is added during the billing process and not held in the database.

I repeat the previous audit report's recommendation to add the gear wattage to the database to ensure all information is in one location.

Recommendation	Description	Audited party comment	Remedial action
Regarding Clause 11(2)(c) and (d) of Schedule 15.3	Add gear wattage to the database.	Genesis will liaise with Eastland to have this populated	Investigating

The accuracy of ballasts in the database is discussed in **section 3.1**.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.4 With: Clause 11(2)(c) of Schedule 15.3 From: 01-Jun-18 To: 26-Sep-18	Gear wattage is not recorded in the database. Potential impact: Medium Actual impact: Low Audit history: Once Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are recorded as strong because all items in the database have the lamp model and wattage recorded. The impact on settlement is low because submission has not been affected by gear wattages not being held in the database.		
Actions taken to resolve the issue		Completion date	Remedial action status
Genesis will liaise with Eastland to have this populated, genesis currently only receive a summary from Eastland, Genesis will request a detailed data set enabling verification of ballast amendments		01/03/2019	Investigating
Genesis will work with Eastland to have the ballast information populated accurately.		01/03/2019	

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 155 lights using the statistical sampling methodology. The population was divided into the following strata:

- | | | |
|-------|----|------|
| New | 1. | 2018 |
| Rural | 2. | A-G |
| | 3. | H-Z |
| Urban | 4. | A-G |
| | 5. | H-M |
| | 6. | N-Z |

Audit commentary

The field audit findings are detailed in the table below and show some discrepancies.

Street/Area	Database Count	Field Count	Lamp no. difference	No of incorrect lamp wattage	Comments
New 2018					
Scott Street	3	3	-		
RURAL - A-G					
Bridge Street	11	11	-		
RURAL - H-Z					
Hunter-Brown Street	8	8	-		
River Parade	7	7	-		
SH 2	14	13	-1		1 x 150W HPS lamp not found in the field - opposite Whakaki Lagoon Road.
URBAN - A-G					
Apatu Street	30	31	1		1 x additional 27W LED found in the field.
Bridge Street	1	1	-		
Campbell Street	16	15	-1		1 x 70W HPS lamp not found in the field.
Delhi Street	2	2	-		
URBAN - H-M					
Hedley Place	2	2	-		
Lucknow Street	31	31	-		
Murrae Street	5	5	-		
URBAN - N-Z					
Osler Street	5	5	-		
River Parade	6	6	-		

Street/Area	Database Count	Field Count	Lamp no. difference	No of incorrect lamp wattage	Comments
Rutherford Street	9	9	-		
Scott Street	2	2	-		
Whaanga Street	3	3	-		
Grand Total	155	154	3		

The field audit found three light discrepancies. The accuracy of the database is discussed in **section 3.1**.

This clause relates to lights in the field not recorded in the database. One additional 27W LED was discovered than is in the database. This is recorded as non-compliance below.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.5 With: Clause 11(2A) of Schedule 15.3 From: 01-Jun-18 To: 26-Sep-18	One additional 27W LED lamp was discovered on Apatu Street. Potential impact: Low Actual impact: Low Audit history: None Controls: Weak Breach risk rating: 3		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are rated as weak, because updates to the database are only occurring due to "local knowledge" by Eastland staff, not through a formal update process. The impact is assessed to be low, based on the kWh differences described above.		
Actions taken to resolve the issue		Completion date	Remedial action status
Genesis will need to speak with Eastland as to how they will progress with the tracking of changes.		01/06/2019	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	
Genesis will liaise with Eastland and track their progress with tracking of changes implementation.		01/06/2019	

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 DUMML 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

Any changes that are made during any given month take effect from the beginning of that month. The information is available which would allow for the total load in kW to be retrospectively derived for any day. 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.

All new streetlight circuits are required to be metered; therefore, the tracking of load changes is only relevant to the existing unmetered circuits. Eastland becomes aware of changes occurring due to local knowledge which leads to database updates, but as this happens on a discovery basis this can be sometime after the change has occurred. This is evident in the incorrect lamp count and wattage differences noted in **section 2.5**. The accuracy of the database is discussed in **section 3.1**

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 DUMML 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

Eastland has previously demonstrated a complete audit trail of all additions and changes to the database information.

Audit outcome

Compliant

3. ACCURACY OF DUML DATABASE

3.1. Database accuracy (Clause 15.2 and 15.37B(b))

Code reference

Clause 15.2 and 15.37B(b)

Code related audit information

Audit must verify that the information recorded in the retailer's DUML database is complete and accurate.

Audit observation

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	Wairoa District Council												
Strata	<p>The database contains 866 items of load in the Wairoa District Council area.</p> <p>The processes for the management of items of load are the same, but I decided to place the items of load into six strata, as follows:</p> <table style="margin-left: 40px;"> <tr> <td>New</td> <td>2018</td> </tr> <tr> <td>Rural</td> <td>A – G</td> </tr> <tr> <td>Rural</td> <td>H – Z</td> </tr> <tr> <td>Urban</td> <td>A – G</td> </tr> <tr> <td>Urban</td> <td>H--M</td> </tr> <tr> <td>Urban</td> <td>N – Z</td> </tr> </table>	New	2018	Rural	A – G	Rural	H – Z	Urban	A – G	Urban	H--M	Urban	N – Z
New	2018												
Rural	A – G												
Rural	H – Z												
Urban	A – G												
Urban	H--M												
Urban	N – Z												
Area units	I created a pivot table of the ICP in each area and I used a random number generator in a spreadsheet to select a total of 17 sub-units.												
Total items of load	155 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 155 items of load found that the field data was 99% of the database data for the sample checked. This is within the required threshold of +/- 2/5% accuracy. The statistical sampling tool reported with 95% confidence the precision of the sample was 1.9% and the true load in the field will be between 98.1% to 100% of the load recorded in the database.

There potentially will be approximately 3,500 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool) of under submission (excluding gear wattage which is not recorded in the database). The statistical sampling tool reported with 95% confidence the estimated impact will be between 6,800 kWh and zero kWh per annum over submission

The database was found to contain one incorrect lamp wattage:

Issue	Volume information impact (annual kWh)
1 x 54W Cree LED has a wattage of 27W and not the expected 54W	115 kWh under submission

As detailed in **section 2.1**, gear wattage is applied outside of the database. The accuracy of this is discussed in **section 3.2**.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 01-Jun-18 To: 26-Sep-18	Under submission of approx. 151 kWh per annum has occurred due to one incorrect lamp wattage. Potential impact: Low Actual impact: Low Audit history: Once Controls: Weak Breach risk rating: 3		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are rated as weak, because updates to the database are only occurring due to "local knowledge" by Eastland staff, not through a formal update process. The impact is assessed to be low, based on the kWh differences described above.		
Actions taken to resolve the issue		Completion date	Remedial action status
Genesis have requested Eastland to review this process, Genesis have yet to have a response from Eastland.		01/03/2019	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	
Genesis is reliant on the network to provide accurate information. Genesis will be working to ensure that Eastland implement a process that meets compliance.		01/03/2019	

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 NST profile.

I checked the September 2018 extract provided by Eastland against the submission totals supplied by Genesis and found that the kW figures used for submission matched the database.

The monthly wattage report from Eastland was found to contain one incorrect gear wattage type when matched to the published standardised wattage table. The 70 watt high pressure sodium ballast is recommended as 13 watts but Eastland applies 12 watts. This is resulting in under submission as detailed in the table below.

There is some inaccurate data within the database used to calculate submissions as detailed in the table below. This is recorded as non-compliance and discussed in **section 2.1** and **3.1**.

Issue	Volume information impact (annual kWh)
486 x 70W HPS have a ballast added of 12W and not the recommended 13W	2,076 kWh under submission
Incorrect lamp wattage recorded in the database	115 kWh under submission
TOTAL	2,191 kWh under submission

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: 01-Apr-17 To: 26-Sep-18	Under submission of approx. 2,191 kWh per annum has occurred due to incorrect wattage and ballasts applied. 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 processes used to calculate submission are sufficient to mitigate risk most of the time. The impact is assessed to be low, based on the kWh differences described above.		
Actions taken to resolve the issue		Completion date	Remedial action status
Genesis has informed Eastland that their calculation process for the ballast ratio is incorrect. Genesis has suggested that they change the "rounddown" function to "roundup" to avoid future reporting issues.		01/01/2019	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	
Genesis have request the actual detailed level information be reported alongside the summary currently being supplied. Genesis will however correct the ratio calculation if found to still be supplied in error. Genesis will also report any dataset issues once detailed level information starts to be supplied.		01/01/2019	

CONCLUSION

The audit found five non-compliances and makes two recommendations.

The field audit findings found a high level of accuracy and the database accuracy fell within the accepted variance range. However, I note that there is no formal updating of field changes in place between Eastland and WDC. A recent RAMM database extract was provided by WDC but was found to be less accurate than the Eastland database. Changes are updated as they are discovered by Eastland's field contractors.

The gear wattage is being applied outside of the database and I repeat the last audit's recommendation that this be derived from within the database.

The future risk rating of 11 indicates that the next audit be completed in 12 months.

PARTICIPANT RESPONSE

Genesis has been working with all parties to help gain dataset accuracies. Genesis believes that the review recommendation is a true reflection of the dataset's current state. Genesis will be targeting 18-24 month's in its next audit report.