ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

VERITEK

For

WAIPA DISTRICT COUNCIL AND MERIDIAN ENERGY

Prepared by: Steve Woods

Date audit commenced: 31 August 2020

Date audit report completed: 27 November 2020

Audit report due date: 30-Nov-20

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This audit of the **Waipa District Council Unmetered Streetlights (WDC)** DUML database and processes was conducted at the request of **Meridian Energy Ltd (Meridian)**, 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.

Waipa DC switched from Genesis to Meridian on 1/07/19.

The audit was conducted in accordance with the audit guidelines for DUML audits version 1.1.

The database is remotely hosted by RAMM Software Ltd and is managed by Waipa DC. Waipa Network conducts the installation fieldwork and maintenance. They provide information on all work carried out back to Waipa DC and this is then loaded into RAMM. Waipa DC provides reporting to Meridian monthly.

The main findings are as follows:

- the field audit confirmed that the database accuracy was within +/-5% and therefore confirmed to be accurate,
- there were 263 wattage and ballast errors found in the database; this equates to an estimated annual under submission of 1,123 kWh (based on 4,271 burn hours from the DUML audit tool) and these are detailed in **section 3.1,**
- 24 items were identified with no ballast figure recorded, which is likely to be correct, therefore there is no impact on settlement, and
- one item of load identified with no lamp wattage or lamp description on Sunline Road.

This audit found five non-compliances and makes one recommendation. The future risk rating of ten indicates that the next audit be completed in 12 months. I agree with this recommendation.

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	Submission is based on a snapshot and does not consider historic adjustments. 263 items of load with an incorrect lamp description, or wattage and ballast combination, resulting in an estimated annual under submission of 1,123 kWh per annum. One item of load with no lamp wattage or sufficient lamp description recorded.	Moderate	Low	2	Identified
Description and capacity of load	2.4	11(2)(d) of Schedule 15.3	One item of load with no lamp wattage or sufficient lamp description recorded.	Moderate	Low	2	Identified
All load recorded in database	2.5	11(2A) of Schedule 15.3	Eight additional items of load were found in the field.	Moderate	Low	2	Identified
Database accuracy	3.1	15.2 and 15.37B(b)	263 items of load with an incorrect lamp description, or wattage and ballast combination, resulting in an estimated annual under submission of 1,123 kWh per annum. One item of load with no lamp wattage or sufficient lamp description recorded.	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Volume information accuracy	3.2	15.2 and 15.37B(c)	Submission is based on a snapshot and does not consider historic adjustments. 263 items of load with an incorrect lamp description, or wattage and ballast combination, resulting in an estimated annual under submission of 1,123 kWh per annum. One item of load with no lamp wattage or sufficient lamp description recorded.	Moderate	Low	2	Identified
Future Risk Rating						10	

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

RECOMMENDATIONS

Subject	Section	Recommendation
Database accuracy	3.1	Review LED light descriptions to include make, model & milliamp figure.

ISSUES

Subject	Section	Description	Issue

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

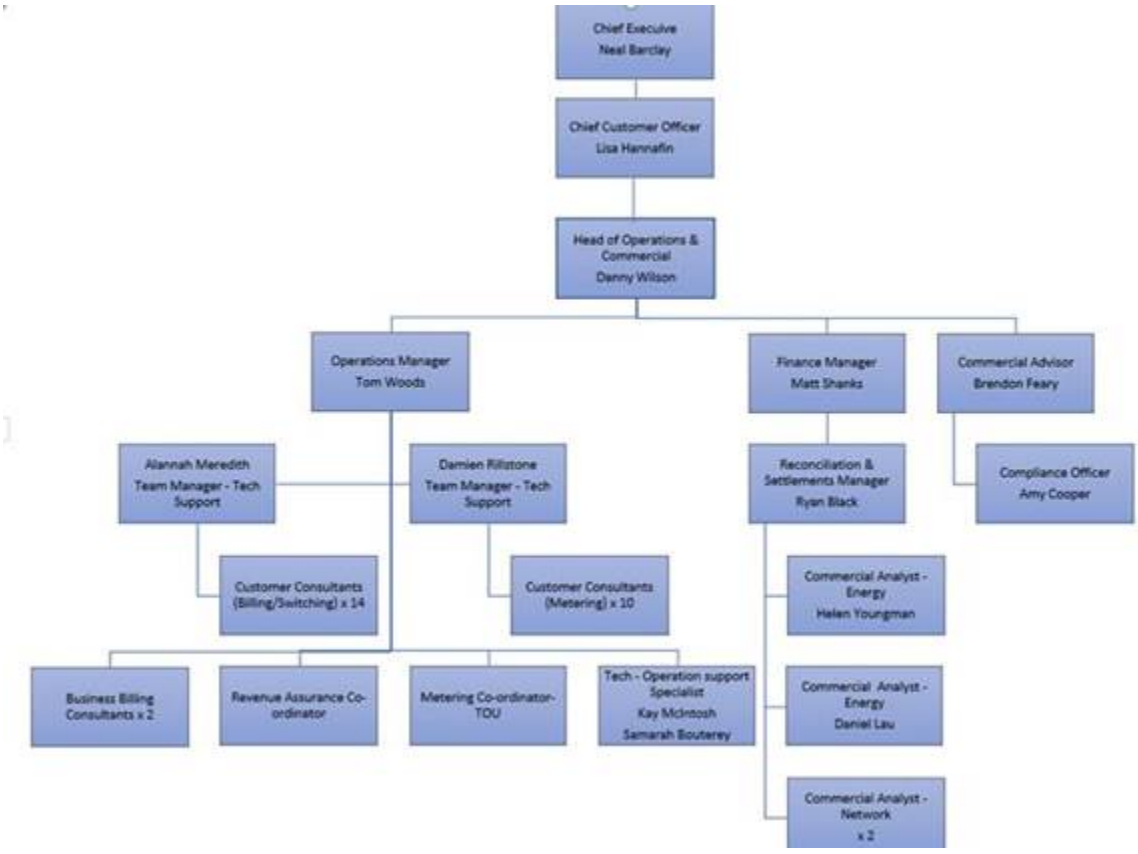
Section 11 of the Electricity Industry Act provides for the Electricity Authority to exempt any participant from compliance with all or any of the clauses.

Audit commentary

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

1.2. Structure of Organisation

Meridian provided the relevant organisational structure:



1.3. Persons involved in this audit

Auditors:

Name	Company	Role
Steve Woods	Veritek Limited	Lead Auditor
Claire Stanley	Veritek Limited	Supporting Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Emma Good	Asset Information Officer - Road Corridor	Waipa District Council
Helen Youngman	Energy Data Analyst	Meridian Energy
Amy Cooper	Compliance Officer	Meridian Energy

1.4. Hardware and Software

Section 1.8 shows that the SQL database used for the management of DUML is remotely hosted by RAMM Software Ltd. The database is commonly known as "RAMM" which stands for "Roading Asset and Maintenance Management". The specific module used for DUML is called RAMM Contractor.

Database back-up is in accordance with standard industry procedures. Access to the database is secure by way of password protection.

Systems used by the trader and their agent to calculate submissions are assessed as part of their reconciliation participant audits.

1.5. Breaches or Breach Allegations

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

1.6. ICP Data

ICP Number	Description	NSP	Profile	Number of items of load	Database wattage (watts)
0000400319WA4CA	Waipa DC TMU0111 S/L	TMU0111	DST	2,181	80,282
0000806500WA13E	Waipa DC CBG0111 S/L	CBG0111	DST	2,667	120,067
0000041292WEDF7	Waipa District Council - Tamahere	HAM0331	DST	87	5,870

0000041294WEC78	Oaklands Drive	OAK0111	DST	50	3,001
Total				4,985	209,220

1.7. Authorisation Received

All information was provided directly by Meridian or WDC.

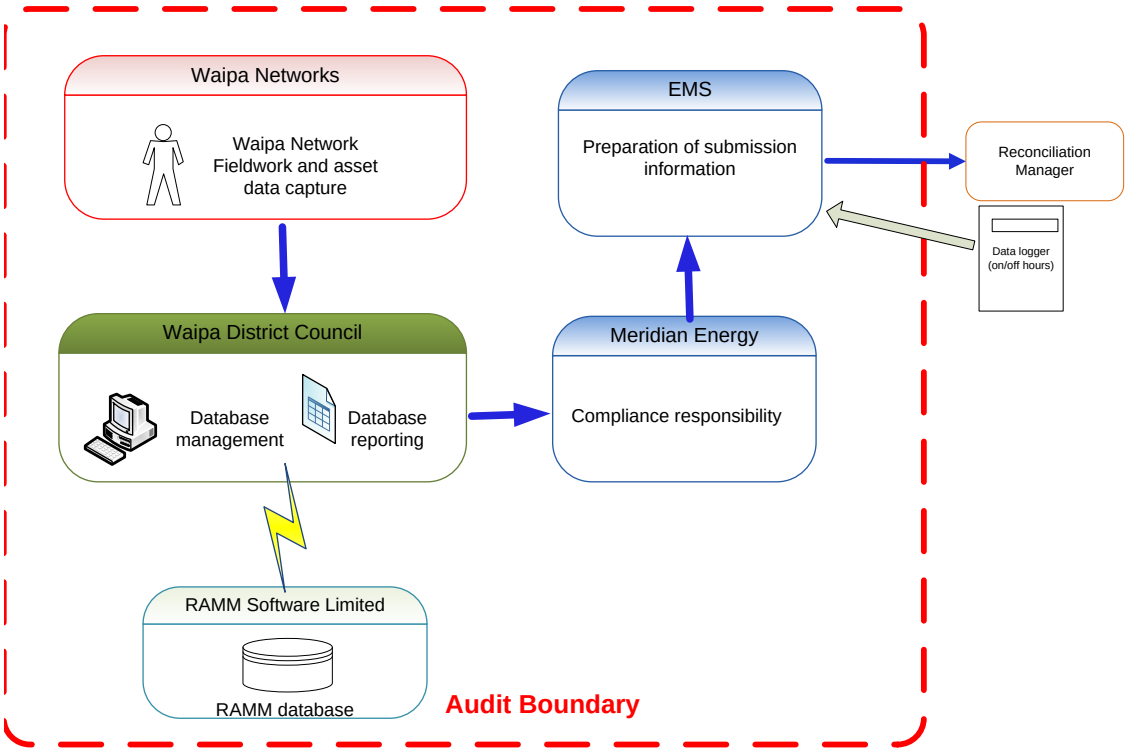
1.8. Scope of Audit

This audit of the **Waipa District Council Unmetered Streetlights (WDC)** DUML database and processes was conducted at the request of **Meridian Energy Limited (Meridian)**, 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 database is remotely hosted by RAMM Software Ltd and is managed by Waipa DC. Waipa Network conducts the installation fieldwork and maintenance. They provide information on all work carried out back to Waipa DC and this is then loaded into RAMM. Waipa DC provides reporting to Meridian 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 contents. The diagram below shows the audit boundary for clarity.



The field audit was undertaken of a statistical sample of 298 items of load on 22nd October 2020.

1.9. Summary of previous audit

Table of Non-Compliance

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	134 items of load with an incorrect lamp description and wattage combination. 219 items of load with the incorrect ballast applied resulting in an estimated minor over submission of 820 kWh per annum. 38 items of load with missing lamp information.	Still existing
ICP Identifier	2.2	11(2)(a) and (aa) of Schedule 15.3	Four items of load have with no ICP recorded.	Cleared
Description and capacity of load	2.4	11(2)(d) of Schedule 15.3	35 items of with no ballast figure recorded. Three items of load have with no wattage recorded.	Still existing
Database accuracy	3.1	15.2 and 15.37B(b)	134 items of load with an incorrect lamp description and wattage combination. 219 items of load with the incorrect ballast applied resulting in an estimated minor over submission of 820 kWh per annum. 38 items of load with missing lamp information.	Still existing
Volume information accuracy	3.2	15.2 and 15.37B(c)	134 items of load with an incorrect lamp description and wattage combination. 219 items of load with the incorrect ballast applied resulting in an estimated minor over submission of 820 kWh per annum. 38 items of load with missing lamp information.	Still existing

Table of Recommendations

Subject	Section	Recommendation for Improvement	Status
Tracking of load change	2.6	Review process to ensure lights are not included in monthly reporting to Genesis until they are energised.	Cleared
Database accuracy	3.1	Review LED light descriptions to include make, model & milliamp figure.	Repeated

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

Meridian 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

Meridian reconciles this DUML load using the DST profile. The total volume submitted to the Reconciliation Manager is based on a monthly database report derived from RAMM and the "burn time" which is sourced from data loggers installed on the WEL and Waipa networks. Meridian supplies EMS with the capacity information and EMS calculates the kWh figure for each ICP and includes this in the relevant AV080 file. This process was audited during Meridian's reconciliation participant audit and EMS' agent audit.

The capacities supplied to EMS for August 2020 were checked and confirmed to be the same as the database.

Submission is based on a snapshot of the database at the end of the month and does not consider historic adjustments or the fact that lights can be livened before they are entered into the database.

The field audit indicated that the database was within the allowable +/-5% variance threshold and is therefore deemed to be accurate. There were 263 wattage and ballast errors found in the database. This equates to an estimated annual under submission of 1,123 kWh (based on 4,271 burn hours from the DUML audit tool). These are detailed in **section 3.1**.

There was one item of load with no lamp description or wattage recorded. This is detailed in **section 2.4**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of schedule 15.3 From: 01-Apr-19 To: 31-Aug-20	Submission is based on a snapshot and does not consider historic adjustments. 263 items of load with an incorrect lamp description, or wattage and ballast combination, resulting in an estimated annual under submission of 1,123 kWh per annum. One item of load with no lamp wattage or sufficient lamp description recorded. Potential impact: Low Actual impact: Low Audit history: Twice Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate, because they 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
We will liaise with Waipa DC regarding audit findings and request the invalid lamp descriptions and wattage/ballast information be reviewed and updated	Dec 2020	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We will provide the standardised lamp wattage table to Waipa DC for their reference to ensure correct ballast wattages are applied going forward.	Dec 2020	

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 in RAMM have an ICP number recorded.

Audit outcome

Compliant

2.3. Location of each item of load (Clause 11(2)(b) of Schedule 15.3)

Code reference

Clause 11(2)(b) of Schedule 15.3

Code related audit information

The DUML database must contain the location of each DUML item.

Audit observation

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

Audit commentary

The database contains the nearest street address for all items of load and most have a GPS location recorded.

Audit outcome

Compliant

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

Code reference

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

Code related audit information

The DUML database must contain:

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

Audit observation

The database was checked to confirm that it contained a field for 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 two records for wattage, firstly the lamp wattage and secondly the gear wattage, which represents ballast losses. The lamp description is recorded in the database which meets the requirements of this clause. The database was examined and found:

- 24 items with no ballast figure recorded which
  - as recorded in the last audit there are 23x double 28W fluorescent tubes which are not a standard light type on the standardised wattage table, and research indicates that the ballast for these is likely to be zero, so this is likely to have no impact on reconciliation and I have not recorded non-compliance, and
  - one item of load with no lamp wattage or a sufficient lamp description (recorded as LED light) on Sunline Road.

The accuracy of the description and wattages recorded is discussed in **section 3.1.**

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.4 With: Clause 11(2)(d) of Schedule 15.3 From: 01-Apr-19 To: 31-Aug-20	One item of load with no lamp wattage or sufficient lamp description recorded. 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 and checks in place will find most errors. The impact is assessed to be very minor as only one LED light is missing a wattage being recorded.

Actions taken to resolve the issue	Completion date	Remedial action status
We will liaise with Waipa DC regarding audit findings and request this item of load be reviewed and updated with accurate information.	Dec 2020	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

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 298 items of load.

Audit commentary

The field audit discrepancies are detailed in the table below:

Street	Database count	Field count	Light count differences	Wattage recorded incorrectly	Comments
RAIKES AVE (TE AWAMUTU)	7	11	+4		4 x additional 19W LED lamps were found in the field.
ST KILDA RD	19	16	-3		3 x 19W LED lamps not found in the field.

Street	Database count	Field count	Light count differences	Wattage recorded incorrectly	Comments
MAHOE ST	15	19	+4		4 x additional UVL Amenity lights were found in the field.
SHARPE RD	9	8	-1		1 x 35W LED lamp not found in the field.
Grand Total	**298**	**302**	**12**		

The field audit found eight additional lamps in the field.

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

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.5 With: Clause 11(2A) of Schedule 15.3 From: 01-Apr-19 To: 31-Aug-20	Eight additional items of load were found in the field. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2		
Audit risk rating	**Rationale for audit risk rating**		
Low	The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement. The impact on settlement and participants is minor; therefore, the audit risk rating is low.		
Actions taken to resolve the issue		**Completion date**	**Remedial action status**
We will liaise with Waipa DC regarding audit findings and request the discrepancies found during the field audit are reviewed and the database corrected where required.		Dec 2020	Identified
Preventative actions taken to ensure no further issues will occur		**Completion date**	

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

Code reference

Clause 11(3) of Schedule 15.3

Code related audit information

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

Audit observation

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

Audit commentary

The RAMM database functionality achieves compliance with the code.

The change management process and the compliance of the database reporting provided to Meridian is detailed in **sections 3.1** and **3.2**.

Audit outcome

Compliant

2.7. Audit trail (Clause 11(4) of Schedule 15.3)

Code reference

Clause 11(4) of Schedule 15.3

Code related audit information

The DUML database must incorporate an audit trail of all additions and changes that identify:

- *the before and after values for changes*
- *the date and time of the change or addition*
- *the person who made the addition or change to the database.*

Audit observation

The database was checked for audit trails.

Audit commentary

The RAMM database has 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	Te Awamutu and surrounds
Strata	The database contains items of load in Waipa District Council area. The processes for the management of WDC items of load are the same, but I decided to place the items of load into four strata, as follows: 1. Waipa A-G, 2. Waipa H-O, 3. Waipa P-Z, and 4. UVL/WEL
Area units	I created a pivot table of the roads in each area and I used a random number generator in a spreadsheet to select a total of 44 sub-units.
Total items of load	298 items of load were checked.

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

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

Audit commentary

Database accuracy based on the field audit

A field audit was conducted of a statistical sample of 298 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	101.1	Wattage from survey is higher than the database wattage by 1.1%
R_L	98.8	With a 95% level of confidence it can be concluded that the error could be between -1.2% and +4.6%
R_H	104.6	

These results were categorised in accordance with the "Distributed Unmetered Load Statistical Sampling Audit Guideline", effective from 01/02/19. The table below shows that Scenario A (detailed below) applies, and the best available estimate indicates that the database is accurate within ± 5.0%.

- In absolute terms the installed capacity is estimated to be 10 kW higher than the database indicates.
- There is a 95% level of confidence that the installed capacity is between 2 kW lower to 10 kW higher than the database.
- In absolute terms, total annual consumption is estimated to be 10,000 kWh higher than the DUML database indicates.
- There is a 95% level of confidence that the annual consumption is between 10,700 kWh p.a. lower to 41,500 kWh p.a. higher than the database indicates.

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

Lamp description and capacity accuracy

Wattage accuracy

The database contains two records for wattage, firstly the lamp wattage and secondly the gear wattage, which represents ballast losses.

The following gear wattage discrepancies were identified:

Model	Lamp and Gear wattage recorded (W)	Lamp and Gear wattage expected (W)	Quantity	Gear wattage difference (W)	Comments
Mercury Vapour 70W	84	90	1	+10	There is no 70W Mercury Vapour lamp, so this is assumed to be an 80W MV
Metal Halide 200W	214	278	4	+256	There is no 200W Metal Halide lamp therefore this is assumed to be 250W MH
Metal Halide (decorative) 60W	74	74	90	No impact	There is no 60W Metal Halide lamp, but the lamp wattage and ballast applied indicates this should be High Pressure Sodium
Metal Halide (decorative) 90W	104	114	23	+230	There is no 90W Metal Halide lamp therefore this is assumed to be a should be 100W MH
Sodium Low Pressure (Decorative) 70W	84	83	1	-1	There is no 70W low pressure sodium lamp- this was checked on google and confirmed to be a high-pressure sodium light
Metal Halide 70W	84	83	9	-9	Incorrect ballast applied
Metal Halide (decorative) 70W	84	83	11	-11	Incorrect ballast applied
Sodium Nitrate 50W	64	61	3	-9	Incorrect ballast applied
Sodium Nitrate 70W	84	83	13	-13	Incorrect ballast applied
Sodium Nitrate (Decorative) 70W	84	83	190	-190	Incorrect ballast applied
TOTAL DIFFERENCE IN WATTS				263	

There were 263 wattage and ballast errors found in the database. This equates to an estimated annual under submission of 1,123 kWh (based on 4,271 burn hours from the DUML audit tool). These are detailed in **section 3.1.**

As reported in **section 2.4:**

- one item of load with no lamp wattage or a sufficient lamp description (recorded as LED light) on Sunline Road.

It was noted in the last audit that while there were no apparent LED lamp wattage errors. The trader has changed during the audit period and I have repeated the recommendation made in that audit, that the LED light descriptions be updated to include the make, model, milliamp figure so that the wattage can be confirmed.

Recommendation	**Description**	**Audited party comment**	**Remedial action**

Regarding: Clause 11(3) of Schedule 15.3	Review LED light descriptions to include make, model & milliamp figure.	We will raise this issue again with the council.	Identified

NZTA lighting

NZTA lights are not included in the load recorded by WDC. These are managed by NZTA directly.

Private lights

No private lights are recorded in the database.

ICP accuracy

All items of load have the correct ICP recorded.

Location accuracy

The location details were found to be accurate.

Change management process findings

Processes to track changes to the database were reviewed.

Waipa Network provide Waipa DC with the information via the NZTA smartphone mobile road application for both upgrades and new streetlight connections. Waipa DC then load this into RAMM.

For all new connections, an "as built" are required to be submitted to council before connection can occur. These are added to RAMM once the lights have been confirmed as connected by the Waipa DC Engineers.

Outage patrols are controlled by Waipa Networks. Any issues identified in the field are fed back to the Contracts team to schedule work, this is all managed in RAMM.

There are no festive lights connected to the streetlight circuits.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 01-Apr-19 To: 31-Aug-20	263 items of load with an incorrect lamp description, or wattage and ballast combination, resulting in an estimated annual under submission of 1,123 kWh per annum. One item of load with no lamp wattage or sufficient lamp description recorded. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate and checks in place will find most errors. 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
We will liaise with Waipa DC regarding audit findings and request the invalid lamp descriptions and wattage/ballast information be reviewed and updated	Dec 2020	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We will provide the standardised lamp wattage table to Waipa DC for their reference to ensure correct ballast wattages are applied going forward.	Dec 2020	

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

Meridian reconciles this DUML load using the DST profile. The total volume submitted to the Reconciliation Manager is based on a monthly database report derived from RAMM and the "burn time" which is sourced from data loggers installed on the WEL and Waipa networks. Meridian supplies EMS with the capacity information and EMS calculates the kWh figure for each ICP and includes this in the relevant AV080 file. This process was audited during Meridian's reconciliation participant audit and EMS' agent audit.

The capacities supplied to EMS for August 2020 were checked and confirmed to be the same as the database.

Submission is based on a snapshot of the database at the end of the month and does not consider historic adjustments or the fact that lights can be livened before they are entered into the database.

There were 263 wattage and ballast errors found in the database. This equates to an estimated annual under submission of 1,123 kWh (based on 4,271 burn hours from the DUML audit tool). These are detailed in **section 3.1.**

There was one item of load with no lamp description or wattage recorded. This is detailed in **section 2.4**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: 01-Apr-19 To: 31-Aug-20	Submission is based on a snapshot and does not consider historic adjustments. 263 items of load with an incorrect lamp description, or wattage and ballast combination, resulting in an estimated annual under submission of 1,123 kWh per annum. One item of load with no lamp wattage or sufficient lamp description recorded. Potential impact: Low Actual impact: Low Audit history: Twice Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement. The impact on settlement and participants is minor. Therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
We will liaise with Waipa DC regarding audit findings and request the invalid lamp descriptions and wattage/ballast information be reviewed and updated	Dec 2020	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
We will provide the standardised lamp wattage table to Waipa DC for there reference to ensure correct ballast wattages are applied going forward.	Dec 2020	

CONCLUSION

Waipa DC switched from Genesis to Meridian on 1/07/19.

The audit was conducted in accordance with the audit guidelines for DUML audits version 1.1.

The database is remotely hosted by RAMM Software Ltd and is managed by Waipa DC. Waipa Network conducts the installation fieldwork and maintenance. They provide information on all work carried out back to Waipa DC and this is then loaded into RAMM. Waipa DC provides reporting to Meridian monthly.

The main findings are as follows:

- the field audit confirmed that the database accuracy was within +/-5% and therefore confirmed to be accurate,
- there were 263 wattage and ballast errors found in the database; this equates to an estimated annual under submission of 1,123 kWh (based on 4,271 burn hours from the DUML audit tool) and these are detailed in **section 3.1,**
- 24 items were identified with no ballast figure recorded, which is likely to be correct, therefore there is no impact on settlement, and
- one item of load identified with no lamp wattage or lamp description on Sunline Road.

This audit found five non-compliances and no recommendations are made. The future risk rating of ten indicates that the next audit be completed in 12 months. I agree with this recommendation.

PARTICIPANT RESPONSE