ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

For

WHANGAREI DISTRICT COUNCIL
AND MERIDIAN ENERGY

Prepared by: Steve Woods

Date audit commenced: 26 July 2022

Date audit report completed: 28 September 2022

Audit report due date: 01 October 2022

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EXECUTIVE SUMMARY

This audit of the **Whangarei District Council** (**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.

This is the first audit of the Whangarei District Council DUML since Meridian became the trader on 1st July 2022.

This audit found six non-compliances and makes no recommendations.

Streetlight load is determined by wattages held within WDC's RAMM database, and a monthly extract is provided to Meridian.

The audit found the database contained 64 items of load with no ICP and 113 items of load with no wattage recorded.

The field audit of 399 items of load could not confirm the database accuracy to be within the acceptable +/-5% accuracy threshold.

Field work is carried out by Currie Electrical, and the database is updated using RAMM Contractor.

The future risk rating of 12 indicates that the next audit be completed in 12 months. I have considered this in conjunction with Meridians and agree with this recommendation. The matters raised are detailed below:

AUDIT SUMMARY

NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Deriving submission information	2.1	11(1) of Schedule 15.3	Database is not confirmed as accurate with a 95% level of confidence as recorded in section 3.1. Five items of load have the incorrect wattage applied in the DUML database which would result in over submission of 170.84 kWh per annum. The data used for submission does not track changes at a daily basis and is provided as a snapshot.	Moderate	Low	2	Identified
ICP identifier	2.2	11(2)(a) and (aa) of Schedule 15.3	64 items of load in the database with no ICP recorded.	Moderate	Low	2	Identified
Description and capacity of load	2.4	11(2)(c) and (d) of Schedule 15.3	113 items of load with no lamp wattage recorded in the database.	Moderate	Low	2	Identified
All load recorded in database	2.5	11(2A) and (d) of Schedule 15.3	21 additional items of load found in the field sample.	Moderate	Low	2	Identified
Database accuracy	3.1	15.2 and 15.37B(b)	Database is not confirmed as accurate with a 95% level of confidence. Five items of load have the incorrect wattage applied in the DUML database which would result in over submission of 170.84 kWh per annum.	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)	Database is not confirmed as accurate with a 95% level of confidence as recorded in section 3.1. Five items of load have the incorrect wattage applied in the DUML database which would result in over submission of 170.84 kWh per annum. The data used for submission does not track changes at a daily basis and is provided as a snapshot.	Moderate	Low	2	Identified
Future Risk Rating						12	

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	Recommendation
		Nil	

ISSUES

Subject	Section	Description	Issue
		Nil	

1. ADMINISTRATIVE

1.1. Exemptions from Obligations to Comply with Code

Code reference

Section 11 of Electricity Industry Act 2010.

Code related audit information

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

Audit observation

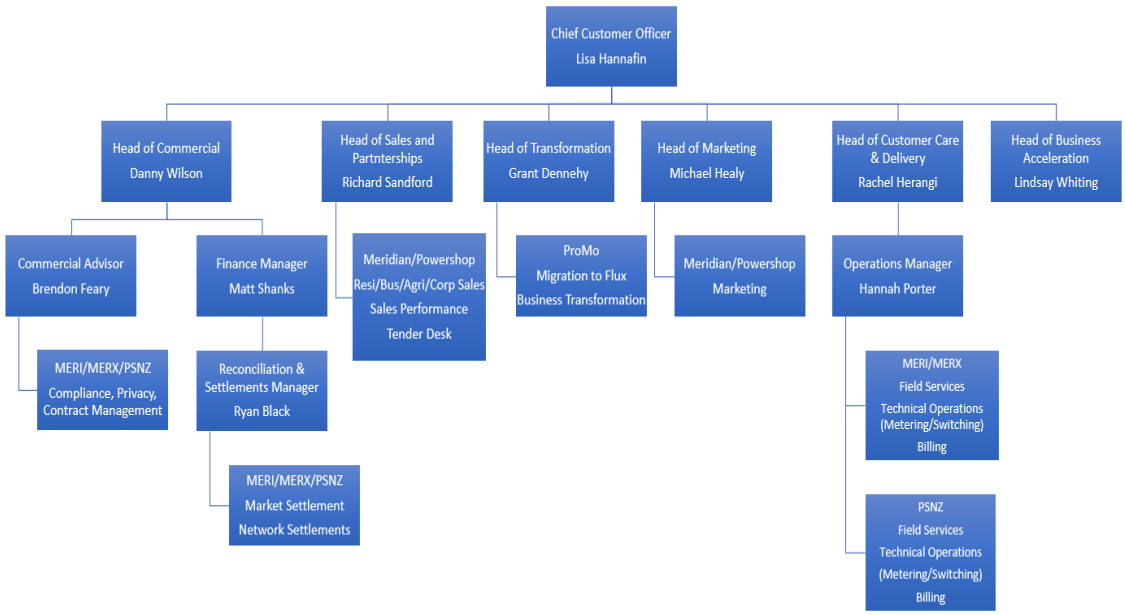
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

Audit commentary

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

1.2. Structure of Organisation

Meridian provided the relevant organisational structure:



1.3. Persons involved in this audit

Auditor:

Steve Woods

Veritek Limited

Electricity Authority Approved Auditor

Supporting Auditor:

Brett Piskulic

Veritek Limited

Electricity Authority Approved Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Melanie Matthews	Quality and Compliance Advisor	Meridian Energy
Musheer Ilahi Khan	Regional Operations Lead	Northland Transportation Alliance
Jin Lin	Street Lighting Services Specialist	Northland Transportation Alliance

1.4. Hardware and Software

The SQL database used for the management of DUML is remotely hosted by thinkproject New Zealand Limited. The database is commonly known as "RAMM" which stands for "Road Assessment and Maintenance Management". The specific data used for DUML is held in the Streetlight tables. thinkproject New Zealand Limited backs up the database and assists with disaster recovery as part of their hosting service.

Access to the database is secure by way of password protection.

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

1.5. Breaches or Breach Allegations

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

1.6. ICP Data

ICP Number	Description	NSP	Profile	Number of items of load	Database wattage (watts)
0000545284NRF73	Streetlights; Whangarei DC; BRB0331, RAMA ROAD, MARSDEN POINT, RUAKAKA 0116	BRB0331	DST	821	26,950.8
0000545289NR028	STREETLIGHTS; Whangarei DC; MPE1101, PUKEATUA ROAD, MAUNGATAPERE 0170	MPE1101	DST	4,902	265,902.3

The ballast values are included in the wattage totals.

1.7. Authorisation Received

All information was provided directly by Meridian and Whangarei District Council.

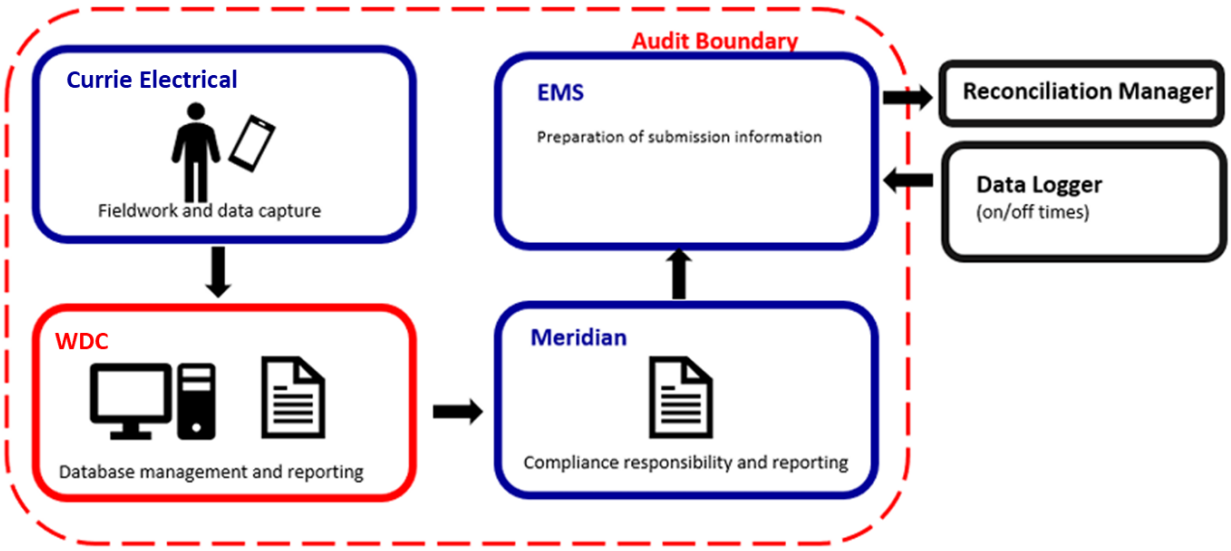
1.8. Scope of Audit

This audit of the **Whangarei District Council (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.

Whangarei District Council Unmetered Streetlights are located on the Northpower network. Meridian reconciles this load using the WDC RAMM streetlight database.

The scope of the audit encompasses the collection, security and accuracy of the data, including the preparation of submission information based on monthly reporting. The diagram below shows the flow of information and the audit boundary for clarity.



The field audit was undertaken of a statistical sample of 399 items of load between 11th and 21st August 2022.

1.9. Summary of previous audit

The previous audit was completed in October 2021 by Steve Woods of Veritek Limited. The current status of that audit's findings is detailed below:

Table of Non-Compliance

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	A discrepancy between the submission volume and the database resulting in an estimated annual over submission of 33,213 kWh. Three items of load have the incorrect wattage applied in the DUML database which would result in over submission of 183.653 kWh per annum. Database is not confirmed as accurate with a 95% level of confidence as recorded in **section 3.1**.	Still existing
All load recorded in database	2.5	11(2A) and (d) of Schedule 15.3	2 additional items of load found in the field sample.	Still existing
Database accuracy	3.1	15.2 and 15.37B(b)	Database is not confirmed as accurate with a 95% level of confidence. Three items of load have the incorrect wattage applied in the DUML database which would result in over submission of 183.653 kWh per annum.	Still existing
Volume information accuracy	3.2	15.2 and 15.37B(c)	A discrepancy between the submission volume and the database resulting in an estimated annual under submission of 33,213 kWh. Three items of load have the incorrect wattage applied in the DUML database which would result in over submission of 183.653 kWh per annum. Database is not confirmed as accurate with a 95% level of confidence as recorded in **section 3.1**.	Still existing

Table of Recommendations

Subject	Section	Recommendation for Improvement	Status
		Nil	

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.

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.

Audit commentary

Meridian reconciles this DUML load using the DST profile.

I compared the database provided to the capacity information Meridian supplied to EMS for the month of August 2022 and I confirm the submission is accurate.

The on and off times are derived from a data logger read by EMS and are used to create a shape file. 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. Compliance was confirmed for both parties.

The field audit against the database quantities found that the database is not confirmed as accurate with a 95% level of confidence as recorded in **section 3.1**.

I checked the wattage being applied in the database and found that five lamps had a discrepancy when compared to the standardised wattage table. The incorrect capacities would result in an estimated over submission of 170.84 kWh per annum (based on annual burn hours of 4,271 as is detailed in the DUML database auditing tool).

On 18 June 2019, the Electricity Authority issued a memo confirming that the code requirement to calculate the correct monthly load must:

- take into account when each item of load was physically installed or removed, and
- wash up volumes must take into account where historical corrections have been made to the DUML load and volumes.

The current data used is a snapshot and this practice is non-compliant.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: 01-Nov-21 To: 05-Aug-22	Database is not confirmed as accurate with a 95% level of confidence as recorded in section 3.1. Five items of load have the incorrect wattage applied in the DUML database which would result in over submission of 170.84 kWh per annum. The data used for submission does not track changes at a daily basis and is provided as a snapshot. Potential impact: Medium Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate as RAMM is being used for submission purposes, but the inaccuracies found indicate that the database is not as up to date as was expected. The impact is assessed to be low due to the estimated kWh volume variances.

Actions taken to resolve the issue	Completion date	Remedial action status
WDC has been advised of the inaccuracies and it has been requested for them to be corrected. We have assessed our processes and tools to account for historic lamp installations and changes to the database at a daily level. There are checks in place comparing month to month data to identify any changes. These are accounted for in monthly submission. Meridian will continue to work with WDC to request that monthly data extracts include the detail of changes.	01/04/2023 01/04/2023	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Meridian will continue to follow up with WDC to complete the required corrections and to maintain the install updates and changes to the database.	01/12/2022	

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

Code reference

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

Code related audit information

The DUML database must contain:

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

- *the items of load associated with the ICP identifier.*

Audit observation

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

Audit commentary

There are 64 items of load which do not have an ICP recorded. WDC were unable to confirm to whether these items of load are metered or unmetered.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.2 With: Clause 11(2)(a) and (aa) of Schedule 15.3 From: unknown To: 05-Aug-22	64 items of load in the database with no ICP recorded. Potential impact: High 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 due to the volume of lights with no ICP recorded. The impact is assessed to be low due to the potential impact on submission.

Actions taken to resolve the issue	Completion date	Remedial action status
WDC has been advised of the inaccuracies and it has been requested for them to be corrected.	01/04/2023	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Meridian will continue to follow up with WDC to complete the required corrections and to maintain the install updates and changes to the database.	01/12/2022	

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

Code reference

Clause 11(2)(b) of Schedule 15.3

Code related audit information

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

Audit observation

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

Audit commentary

The database contains fields for the road name, location number, pole ID, and GPS coordinates.

GPS coordinates are populated for all except 95 lights, the location information is sufficient to locate all items of load.

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.

Audit commentary

There are five fields in the database which record the Lamp description information as follows, two "Light Make" fields and "Light Model", "Lamp Make" and "Lamp Model" fields. These fields are populated for all except 113 items of load. The 113 items of load do not have lamp wattage recorded, 48 of these are also recorded in **section 2.2** as they do not have an ICP identifier recorded

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.4 With: Clause 11(2)(c) and (d) of Schedule 15.3 From: unknown To: 05-Aug-22	113 items of load with no lamp wattage recorded in the database. Potential impact: High 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 due to the volume of lights with no lamp wattage recorded. The impact is assessed to be low due to the impact on submission.

Actions taken to resolve the issue	Completion date	Remedial action status
WDC has been advised of the inaccuracies and it has been requested for them to be corrected.	01/04/2023	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Meridian will continue to follow up with WDC to complete the required corrections and to maintain the install updates and changes to the database.	01/12/2022	

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 399 items of load between 11th and 21st August 2022.

Audit commentary

The field audit discrepancies found are detailed in the table below.

Street	Database count	Field count	Light count differences	Wattage recorded incorrectly	Comments
Sycamore Dr	5	7	+2	-	2x additional 19.9W LEDs found in the field.
Ridgeway Dr	18	19	+1	-	1x additional 19.9W LED found in the field.
Maui Pl	1	6	+5	-	5x additional 30W LEDs found in the field.
Maddendale Pl	1	1	-	1	1x incorrect wattage- 19.9W LED found in the field recorded as a 30W LED in the database.
Vine St	12	13	+1, -1	1	1x 112W LED light not found in the field. 1x no wattage recorded and 72W LED found in field. 1x additional 100WMH lamp found in field.
Halifax Dr	1	9	+8	-	8x additional 19.9W LED found in the field.
Breton Dr	3	7	+4	-	4x additional 30W LEDs found in the field.
Haven Pl	1	1	-	1	1x no wattage recorded and 19.9W LED found in field.

Street	Database count	Field count	Light count differences	Wattage recorded incorrectly	Comments
Clark St (Hikurangi)	3	3	-	1	1x incorrect wattage- 3x 19.9W LEDs recorded in database, 2x 19.9W LEDs and 1x 25W LED found in field.
Grand Total	**399**	**419**	**20 (+21, -1)**	**4**	

This clause relates to lights in the field that are not recorded in the database. I found an additional 21 lamps in the field that were not recorded in the database. The database accuracy is discussed in **section 3.1**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.5 With: Clause 11(2A) and (d) of Schedule 15.3 From: unknown To: 21-Aug-22	21 additional items of load found in the field sample. Potential impact: High 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 due to the volume of additional lights found in the field. The impact is assessed to be low due to the low number of differences found in the field and total estimated kWh difference detailed in **section 3.1**.

Actions taken to resolve the issue	Completion date	Remedial action status
WDC has been advised of the inaccuracies and it has been requested for them to be corrected.	01/04/2023	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Meridian will continue to follow up with WDC to complete the required corrections and to maintain the install updates and changes to the database.	01/12/2022	

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

RAMM contains a complete audit trail of all additions and changes with operator ID 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	Whangarei District Council area
Strata	The database contains items of load in the Whangarei area. The area has two distinct sub regions of Whangarei urban and rural. The processes for the management of all WDC items of load are the same, but I decided to place the items of load into four strata: 1. Road names A-H, 2. Road names I-N, 3. Road names O-Ri, and 4. Road names Ro-Z.
Area units	I created a pivot table of the roads, and I used a random number generator in a spreadsheet to select a total of 61 sub-units.
Total items of load	399 items of load were checked.

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

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

Audit commentary

A field audit was conducted of a statistical sample of 399 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	103.7%	Wattage from survey is higher than the database wattage by 3.7%
R_L	101%	With a 95% level of confidence, it can be concluded that the error could be between +1% and +9.3%
R_H	109.3%	

These results were categorised in accordance with the "Distributed Unmetered Load Statistical Sampling Audit Guideline", effective from 1 February 2019 and the table below shows that Scenario C (detailed below) applies.

The conclusion from Scenario C is that the variability of the sample results across the strata means that the true wattage (installed in the field) could be between 1% and 9.3% higher than the wattage recorded in the DUML database. Non-compliance is recorded because the potential error is greater than 5.0%.

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

There is a 95% level of confidence that the installed capacity is up to 2 kW higher than the database.

In absolute terms, total annual consumption is estimated to be 2,600 kWh higher than the DUML database indicates.

There is a 95% level of confidence that the annual consumption is between 700 kWh p.a. to 6,600 kWh p.a. higher than the database indicates.

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

Lamp description and capacity accuracy

I checked the wattage being applied in the database and found that five lamps had a discrepancy when compared to the standardised wattage table. This is detailed in the table below:

Lamp Type	Database Total Lamp Wattage	EA Standardised Total Wattage	Variance	Database Quantity	Estimated Annual kWh effect on consumption
70w SON	80	83	-3	2	-25.626
150w SON	164	168	-4	1	-17.084
250w SON	263	278	-15	2	-128.130
Total estimated annual effect on submission					-170.84

The incorrect capacities would result in an estimated over submission of 170.84 kWh per annum (based on annual burn hours of 4,271 as is detailed in the DUML database auditing tool).

Address accuracy

The field audit did not identify any location discrepancies.

Change management process findings

The RAMM database used for submission is managed by WDC. The streetlight contractor Currie Electrical update the database using RAMM Contractor.

The maintenance contract with Currie Electrical requires quarterly night inspections and 6-monthly day inspections of all lights.

The processes for new lamp connections were examined. "As-built" plans are expected to be submitted to WDC as part of this process. The new lights are recorded in the database from the date of vesting as advised by the installation contractor. WDC conducts a site audit to confirm the accuracy of the details recorded in RAMM.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 01-Nov-21 To: 05-Aug-22	Database is not confirmed as accurate with a 95% level of confidence. Five items of load have the incorrect wattage applied in the DUML database which would result in over submission of 170.84 kWh per annum. Potential impact: Medium Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate, as they are sufficient to mitigate the risk most of the time but there is room for improvement. The impact is assessed to be low due to the estimated kWh volume variances.

Actions taken to resolve the issue	Completion date	Remedial action status
WDC has been advised of the inaccuracies and it has been requested for them to be corrected.	01/04/2023	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Meridian will continue to follow up with WDC to complete the required corrections and to maintain the install updates and changes to the database.	01/12/2022	

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 all ICPs have 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.

I compared the database provided to the capacity information Meridian supplied to EMS for the month of August 2022 and I confirm the submission is accurate.

The on and off times are derived from a data logger read by EMS and are used to create a shape file. 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. Compliance was confirmed for both parties.

The field audit against the database quantities found that the database is not confirmed as accurate with a 95% level of confidence as recorded in **section 3.1**.

I checked the wattage being applied in the database and found that five lamps had a discrepancy when compared to the standardised wattage table. The incorrect capacities would result in an estimated over submission of 170.84 kWh per annum (based on annual burn hours of 4,271 as is detailed in the DUML database auditing tool).

On 18 June 2019, the Electricity Authority issued a memo confirming that the code requirement to calculate the correct monthly load must:

- take into account when each item of load was physically installed or removed, and
- wash up volumes must take into account where historical corrections have been made to the DUML load and volumes.

The current data used is a snapshot and this practice is non-compliant.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: 01-Nov-21 To: 05-Aug-22	Database is not confirmed as accurate with a 95% level of confidence as recorded in section 3.1. Five items of load have the incorrect wattage applied in the DUML database which would result in over submission of 170.84 kWh per annum. The data used for submission does not track changes at a daily basis and is provided as a snapshot. Potential impact: Medium Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**

Low	The controls are rated as moderate as RAMM is being used for submission purposes, but the inaccuracies found indicate that the database is not as up to date as expected. The impact is assessed to be low due to the estimated kWh volume variances.

Actions taken to resolve the issue	**Completion date**	**Remedial action status**
WDC has been advised of the inaccuracies and it has been requested for them to be corrected.	01/04/2023	Identified
We have assessed our processes and tools to account for historic lamp installations and changes to the database at a daily level. There are checks in place comparing month to month data to identify any changes. These are accounted for in monthly submission. Meridian will continue to work with WDC to request that monthly data extracts include the detail of changes.	01/04/2023	
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Meridian will continue to follow up with WDC to complete the required corrections and to maintain the install updates and changes to the database.	01/12/2022	

CONCLUSION

This audit found four non-compliances and makes no recommendations.

This is the first audit of the Whangarei District Council DUML since Meridian became the trader on 1st July 2022.

This audit found six non-compliances and makes no recommendations.

Streetlight load is determined by wattages held within WDC's RAMM database, and a monthly extract is provided to Meridian.

The audit found the database contained 64 items of load with no ICP and 113 items of load with no wattage recorded.

The field audit of 399 items of load could not confirm the database accuracy to be within the acceptable +/-5% accuracy threshold.

Field work is carried out by Currie Electrical, and the database is updated using RAMM Contractor.

The future risk rating of 12 indicates that the next audit be completed in 12 months. I have considered this in conjunction with Meridians and agree with this recommendation. The matters raised are detailed below:

PARTICIPANT RESPONSE

No response provided.