ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

VERITEK

For

GORE DISTRICT COUNCIL AND MERIDIAN ENERGY

NZBN: 9429037696863

Prepared by: Steve Woods

Date audit commenced: 3 May 2022

Date audit report completed: 30 May 2022

Audit report due date: 08-Jun-22

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EXECUTIVE SUMMARY

This audit of the **Gore District Council (GDC)** 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.

ICP 0008801007TPEE2 switched from Pioneer to Meridian on 1 January 2021 and is now included in this audit. Some of the errors found in the previous audit for ICP 0008801007TPEE2 were still present in this audit.

The database is remotely hosted by thinkproject Ltd. GDC provide a monthly report to Meridian of this database. Meridian reconciles this DUML load using the DST profile.

The field work and asset data capture are conducted by PowerNet using Pocket RAMM.

The field audit was undertaken of a statistical sample of 228 items of load on 26th May 2022. This found that the database is not within the allowable +/-5% accuracy threshold and under submission is likely to be occurring as a result:

- in absolute terms the installed capacity is estimated to be 4 kW higher than the database indicates,
- there is a 95% level of confidence that the installed capacity is between 2 kW and 7 kW higher than the database,
- in absolute terms, total annual consumption is estimated to be 15,300 kWh higher than the DUML database indicates, and
- there is a 95% level of confidence that the annual consumption is between 7,100 kWh and 28,200 kWh p.a. higher than the database indicates.

171 lamps with incorrect wattage are recorded in RAMM which will result in an estimated under submission of 37,704 kWh per annum (based on 4271 hours per annum).

This audit found four non-compliances and makes two recommendations. The future risk rating of 29 indicates that the next audit be completed in three months. I have considered this in conjunction with Meridian's comments and recommend that the next audit be in six 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	Clause 11(1) of Schedule 15.3	In absolute terms, total annual consumption is estimated to be 15,300 kWh higher than the DUML database indicates. 171 lamps not recorded correctly in the database, resulting in approximately 37,704 kWh of under submission. The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.	Weak	High	9	Identified
All load recorded in database	2.5	11(2A) of Schedule 15.3	Three additional items of load found in the field of 222 items of load sampled.	Moderate	Low	2	Identified
Database accuracy	3.1	Clause 15.2 and 15.37B(b)	In absolute terms, total annual consumption is estimated to be 15,300 kWh higher than the DUML database indicates. 171 lamps not recorded correctly in the database, resulting in approximately 37,704 kWh of under submission.	Weak	High	9	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Volume information accuracy	3.2	Clause 15.2 and 15.37B(c)	In absolute terms, total annual consumption is estimated to be 15,300 kWh higher than the DUML database indicates. 171 lamps not recorded correctly in the database, resulting in approximately 37,704 kWh of under submission. The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.	Weak	High	9	Identified
Future Risk Rating						29	

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	Update RAMM with the correct fluorescent lamp model and LED lamp values. Investigate and confirm the wattage for the Fairy lights is recorded accurately in RAMM.

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. Persons involved in this audit

Auditor:

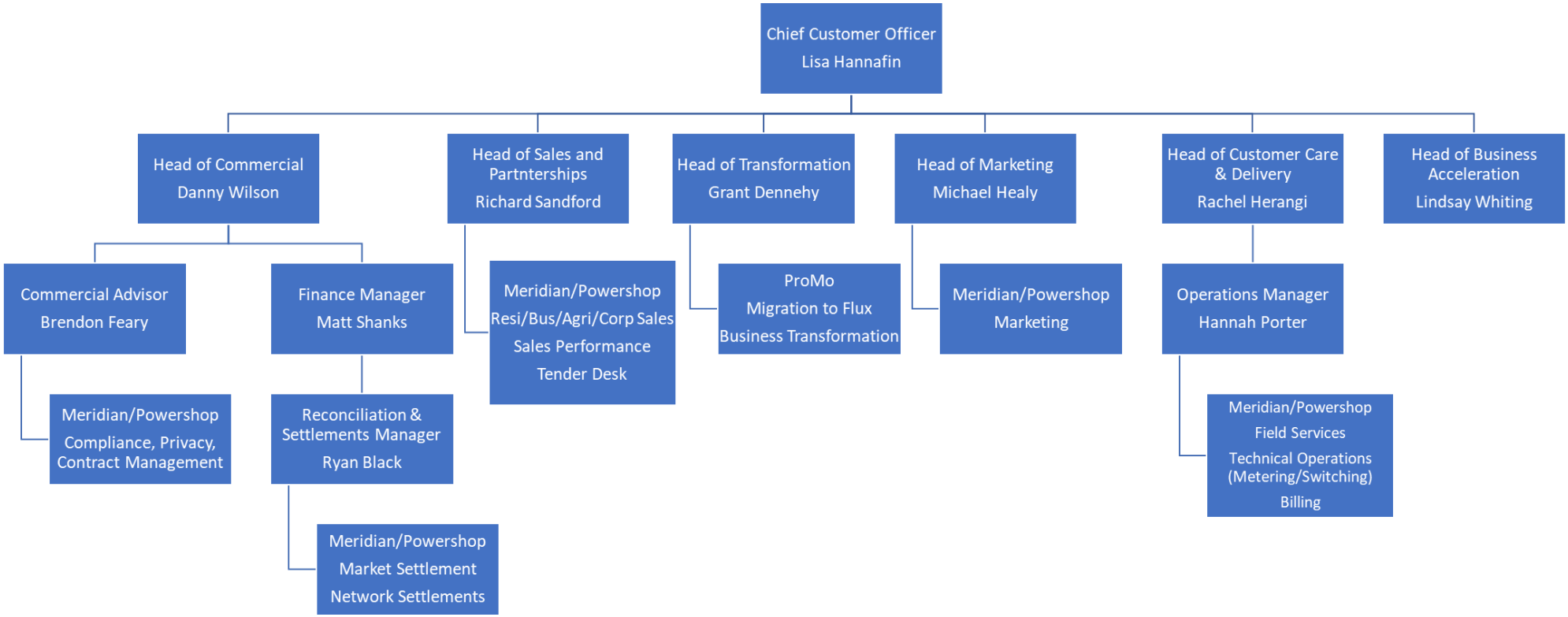
Name	Title	Company
Steve Woods	Lead Auditor	Veritek
Claire Stanley	Supporting Auditor	Veritek

Other personnel assisting in this audit were:

Name	Title	Company
Murray Hasler	Senior Roading Operations Officer	Gore District Council
Claire-Louise Bode	Senior Asset Manager	WSP NZ
Daniel Lau	Energy Data Analyst	Meridian Energy
Melanie Mathews	Quality and Compliance Advisor	Meridian Energy

1.3. Structure of Organisation

Meridian provided a copy of their organisational structure:



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 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	Number of items of load	Database wattage (watts)
0008801002TP3AD	GDC LIGHTS - URBAN	GOR0331	174	4,176
0008801019TP7D4	GDC LIGHTS - NZTA	GOR0331	336	65,855
0008801020TPE7D	GDC LIGHTS - URBAN	GOR0331	44	1,028
0008801007TPEE2	GDC LIGHTS - URBAN	GOR0331	1,135	29,996
Total			**1,689**	**101,055**

1.7. Authorisation Received

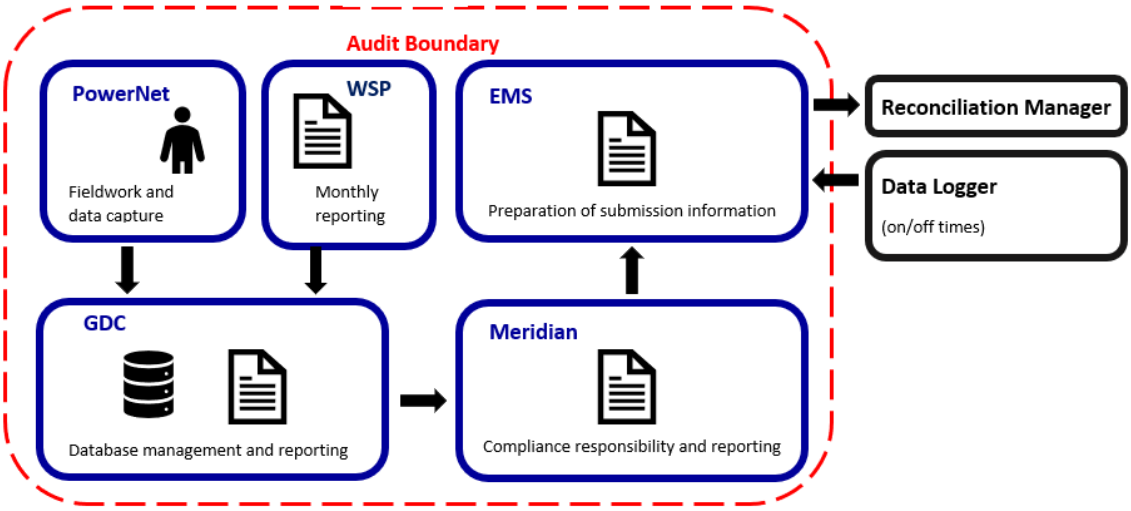
All information was provided directly by Meridian, WSP and GDC.

1.8. Scope of Audit

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.

Field work is conducted by PowerNet as a contractor.

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



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

The field audit was undertaken of a statistical sample of 228 items of load on 26th May 2022.

1.9. Summary of previous audit

The previous audit was completed in December 2020 by Steve Woods of Veritek Limited. Three non-compliances were identified, and no recommendations were made. The current statuses of the non-compliances recorded are detailed below.

Table of Non-Compliance

Subject	Section	Clause	Non-Compliance	Status
Deriving submission information	2.1	Clause 11(1) of Schedule 15.3	In absolute terms, total annual consumption is estimated to be 8,000 kWh lower than the DUML database indicates.	Still existing
Database accuracy	3.1	Clause 15.2 and 15.37B(b)	In absolute terms, total annual consumption is estimated to be 8,000 kWh lower than the DUML database indicates.	Still existing
Volume information accuracy	3.2	Clause 15.2 and 15.37B(c)	In absolute terms, total annual consumption is estimated to be 8,000 kWh lower than the DUML database indicates.	Still existing

ICP 0008801007TPEE2 switched from Pioneer to Meridian on 1 January 2021 and is now included in this audit. The table below lists the non-compliances from the audit conducted for this ICP in November 2020.

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 121.7% of the database for the sample checked indicating a potential under submission of approximately 27,800 kWh per annum. Festive lighting and decorative lighting in the park beside Medway Road not recorded in RAMM and therefore not reconciled. Estimated potential under submission of 29,508 kWh per annum due to incorrect lamp wattage and ballasts being used.	Still existing Still existing
All load recorded in the database	2.5	11(2A) of Schedule 15.3	5 additional lights found in the field. Festive lighting and decorative lighting in the park beside Medway Road not recorded in RAMM.	Still existing for different lights
Database accuracy	3.1	15.2 and 15.37B(b)	The database accuracy is assessed to be 121.7% of the database for the sample checked indicating a potential under submission of approximately 27,800 kWh per annum. Festive lighting and decorative lighting in the park beside Medway Road not recorded in RAMM. Estimated potential under submission of 29,508 kWh per annum due to incorrect lamp wattage and ballasts being used.	Still existing Still existing
Volume information accuracy	3.2	15.2 and 15.37B(c)	The database accuracy is assessed to be 121.7% of the database for the sample checked indicating a potential under submission of approximately 27,800 kWh per annum. Festive lighting and decorative lighting in the park beside Medway Road not recorded in RAMM and therefore not reconciled. Estimated potential under submission of 29,508 kWh per annum due to incorrect lamp wattage and ballasts being used.	Still existing Still existing

Table of Recommendations

Subject	Section	Non-Compliance	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 and the application of profiles was checked. The database was checked for 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 April 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 found that the database was not within the allowable +/-5% accuracy threshold. In absolute terms, total annual consumption is estimated to be 15,300 kWh higher than the DUML database indicates.

171 lamps with incorrect wattage are recorded in RAMM which will result in an estimated under submission of 37,704 kWh per annum (based on 4271 hours per annum).

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: 05-Nov-20 To: 03-May-22	In absolute terms, total annual consumption is estimated to be 15,300 kWh higher than the DUML database indicates. 171 lamps not recorded correctly in the database, resulting in approximately 37,704 kWh of under submission. The monthly database extract provided 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: Weak Breach risk rating: 9
Audit risk rating	**Rationale for audit risk rating**
High	The controls are rated as weak because historic errors have not been corrected. The impact is assessed to be high, based on the kWh differences described above.

Actions taken to resolve the issue	Completion date	Remedial action status
Meridian has advised Gore District Council of the inaccuracies and have requested for them to be corrected. We are considering how we can redesign our processes to incorporate the calculation of volumes at a daily level rather than a monthly snapshot	8/9/2022 Ongoing	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Meridian will continue to follow up with Gore District Council to complete the required corrections and to maintain the install updates and changes to the database.	8/9/2022	

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

An ICP is recorded for 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 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, pole numbers and Global Positioning System (GPS) coordinates for each item of load and users in the office and field can view these locations on a mapping system. The location is populated for 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 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 model which records the lamp wattage and secondly the gear wattage, which represents ballast losses. The lamp notes field records the total wattage for the lamp including wattage and ballast.

The accuracy of the lamp wattages and ballasts is discussed in **section 3.1.**

Audit outcome

Compliant

2.5. All load recorded in database (Clause 11(2A) of Schedule 15.3)

Code reference

Clause 11(2A) of Schedule 15.3

Code related audit information

The retailer must ensure that each item of DUML for which it is responsible is recorded in this database.

Audit observation

The field audit was undertaken of a statistical sample of 228 items of load on 26th May 2022.

Audit commentary

The field audit discrepancies are detailed in the table below:

Street/Area	Database Count	Field Count	Lamp no. difference	No of incorrect lamp wattage	Comments
BROUGHTON ST	36	37	+1		1 additional 130W LED not recorded in the database but located in the field
KANA ST	33	33		2	1 x 24W LED recorded in the database but 1 x 85W LED located in the field 1 x 24W LED recorded in the database but 1 x 130W LED located in the field
RAILWAY ST	1	2	+1		1 additional 24W LED not recorded in the database but located in the field
WAIMEA ST	13	14	+1		1 additional 24W LED not recorded in the database but located in the field
TOTALS	**1689**	**1692**	**+3**	**2**	

Three additional items of load found in the field of 222 items of load sampled.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.5 With: Clause 11(2A) of Schedule 15.3 From: 05-Nov-20 To: 03-May-22	Three additional items of load found in the field of 222 items of load sampled. 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 because they ensure most information is accurate. The impact is assessed to be low due to the small number of additional lights found in the field in relation to the overall count of the items of load.

Actions taken to resolve the issue	Completion date	Remedial action status
Meridian has advised Gore District Council of the inaccuracies and have requested for them to be corrected.	8/9/2022	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Meridian will continue to follow up with Gore District Council to complete the required corrections and to maintain the install updates and changes to the database.	8/9/2022	

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.

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 RAMM database was checked for audit trails.

Audit commentary

RAMM records audit trail information of changes made.

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	Gore District Council region
Strata	The database contains items of load in Gore district area. The processes for the management of GDC items of load are the same, but I decided to place the items of load into three strata of a similar size, as follows: 1. A -I, 2. J – MA, and 3. MC – W.
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 28 sub-units.
Total items of load	228 items of load were checked.

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

Audit commentary

Field Audit Findings

A field audit was conducted of a statistical sample of 228 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	103.5	Wattage from survey is higher than the database wattage by 3.5%
R_L	101.7	With a 95% level of confidence, it can be concluded that the error could be between 1.7% and 6.5%.
R_H	106.5	

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 1.7% and 6.5%. 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 4 kW higher than the database indicates.

There is a 95% level of confidence that the installed capacity is between 2 kW and 7 kW higher than the database.

In absolute terms, total annual consumption is estimated to be 15,300 kWh higher than the DUML database indicates.

There is a 95% level of confidence that the annual consumption is between 7,100 kWh and 28,200 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

Wattages for all items of load were checked against the published standardised wattage table produced by the Electricity Authority and found the issue is still existing as identified in the previous audits for incorrect under verandah light wattages recorded. It appears that some wattages have been updated since the last audit, however the following discrepancies remain, and I recommend that these are corrected.

Lamp Make	Lamp Model	Database Wattage	Expected wattage	Variance	Database quantity	Estimated annual kW effect on consumption	Comments
Fluorescent	120W	25W	120W	95W	2	190	Lamp wattage recorded incorrectly
Fluorescent	15W	25W	15W	-10W	1	-10	Lamp wattage recorded incorrectly
Fluorescent	2x 28W	25W	36W	11W	2	22	Lamp wattage recorded incorrectly
Fluorescent	2x 31.5W	25W	74W	49W	8	392	Lamp wattage recorded incorrectly
Fluorescent	2x 36W	25W	72W	47W	102	4794	Lamp wattage recorded incorrectly
Fluorescent	2x 40W	25W	80W	19W	19	361	Lamp wattage recorded incorrectly
Fluorescent	2x 58W	25W	116W	91W	31	2821	Lamp wattage recorded incorrectly
LED Lamps	2 x 30W LED	25W	60W	35W	2	70	Lamp wattage recorded incorrectly
LED Lamps	58 W LED	25W	58W	33W	1	33	Lamp wattage recorded incorrectly
LED Lamps	70 W LED	25W	70W	45W	1	45	Lamp wattage recorded incorrectly
LED Lamps	80 W LED	25W	80W	55W	2	110	Lamp wattage recorded incorrectly
TOTALS					**171**	**8,828**	

This will result in an estimated under submission of 37,704 kWh per annum (based on 4271 hours per annum). This is recorded as non-compliance below.

Ten items of load are identified as Fairy Lights in the database, and the wattage recorded in the lamp notes appears to be high. These have been added to the database since the last audit. I recommend these are investigated to ensure the wattage is recorded accurately.

Lamp Make	Lamp Model	Lamp Notes	Gear Notes
LED Lamps	blank	148	Fairy Lights
LED Lamps	blank	214	Fairy Lights
LED Lamps	blank	608	Fairy Lights
LED Lamps	blank	164	Fairy Lights
LED Lamps	blank	324	Fairy Lights
LED Lamps	blank	120	Fairy Lights
LED Lamps	blank	180	Fairy Lights
LED Lamps	blank	656	Fairy Lights
LED Lamps	blank	328	Fairy Lights
LED Lamps	blank	156	Fairy Lights

Recommendation	Description	Audited party comment	Remedial action
Database accuracy	Update RAMM with the correct fluorescent lamp model and LED lamp values. Investigate and confirm the wattage for the Fairy lights is recorded accurately in RAMM.	Meridian has advised Gore District Council of the inaccuracies and have requested to investigate the wattage of the fairly lights. Meridian has requested for RAMM to be corrected.	Identified

NZTA lighting

NZTA lighting is included in the database and was checked as part of the field audit.

Change management process findings

The processes were reviewed for new lamp connections and the tracking of load changes due to faults and maintenance.

GDC have not had any new subdivisions completed during the audit period. GDC advise there will be some new subdivisions in the future that are currently under development.

The fault and maintenance work continues to be undertaken by PowerNet contracting division. PowerNet provide GDC with details of all changes made in the field and these are updated in RAMM.

No private lights have been identified in the GDC database.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 05-Nov-20 To: 03-May-22	In absolute terms, total annual consumption is estimated to be 15,300 kWh higher than the DUML database indicates. 171 lamps not recorded correctly in the database, resulting in approximately 37,704 kWh of under submission. Potential impact: High Actual impact: High Audit history: Multiple times previously Controls: Weak Breach risk rating: 9
Audit risk rating	**Rationale for audit risk rating**
High	The controls are rated as weak because historic errors have not been corrected. The impact is assessed to be high, based on the kWh differences described above.

Actions taken to resolve the issue	Completion date	Remedial action status
Meridian has advised Gore District Council of the inaccuracies and have requested for them to be corrected.	8/9/2022	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Meridian will continue to follow up with Gore District Council to complete the required corrections and to maintain the install updates and changes to the database.	8/9/2022	

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 the ICP has the correct profile and submission flag, and
- checking the database extract, 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 April 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 found that the database was not within the allowable +/-5% accuracy threshold. In absolute terms, total annual consumption is estimated to be 15,300 kWh higher than the DUML database indicates.

171 lamps with incorrect wattage are recorded in RAMM which will result in an estimated under submission of 37,704 kWh per annum (based on 4271 hours per annum).

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: 05-Nov-20 To: 03-May-22	In absolute terms, total annual consumption is estimated to be 15,300 kWh higher than the DUML database indicates. 171 lamps not recorded correctly in the database, resulting in approximately 37,704 kWh of under submission. The monthly database extract provided 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: Weak Breach risk rating: 9
Audit risk rating	**Rationale for audit risk rating**
High	The controls are rated as weak because historic errors have not been corrected. The impact is assessed to be high, based on the kWh differences described above.

Actions taken to resolve the issue	Completion date	Remedial action status
Meridian has advised Gore District Council of the inaccuracies and have requested for them to be corrected. We are considering how we can redesign our processes to incorporate the calculation of volumes at a daily level rather than a monthly snapshot	8/9/2022 Ongoing	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Meridian will continue to follow up with Gore District Council to complete the required corrections and to maintain the install updates and changes to the database.	8/9/2022	

CONCLUSION

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

ICP 0008801007TPEE2 switched from Pioneer to Meridian on 1 January 2021 and is now included in this audit. Some of the errors found in the previous audit for ICP 0008801007TPEE2 were still present in this audit.

The database is remotely hosted by thinkproject Ltd. GDC provide a monthly report to Meridian of this database. Meridian reconciles this DUML load using the DST profile.

The field work and asset data capture are conducted by PowerNet using Pocket RAMM.

The field audit was undertaken of a statistical sample of 228 items of load on 26th May 2022. This found that the database is not within the allowable +/-5% accuracy threshold and under submission is likely to be occurring as a result:

- in absolute terms the installed capacity is estimated to be 4 kW higher than the database indicates,
- there is a 95% level of confidence that the installed capacity is between 2 kW and 7 kW higher than the database,
- in absolute terms, total annual consumption is estimated to be 15,300 kWh higher than the DUML database indicates, and
- there is a 95% level of confidence that the annual consumption is between 7,100 kWh and 28,200 kWh p.a. higher than the database indicates.

171 lamps with incorrect wattage are recorded in RAMM which will result in an estimated under submission of 37,704 kWh per annum (based on 4271 hours per annum).

This audit found four non-compliances and makes two recommendations. The future risk rating of 29 six indicates that the next audit be completed in three months. I have considered this in conjunction with Meridian's comments and recommend that the next audit be in six months.

PARTICIPANT RESPONSE

Meridian has reviewed this report and their comments are contained within the report.