

ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT



For

BULLER DISTRICT COUNCIL
ELECTRONET DATABASE AND MERIDIAN
ENERGY

NZBN: 9429041899960

Prepared by: Tara Gannon

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Audit report due date: 1 February 2024

TABLE OF CONTENTS

Executive summary	3
Audit summary	4
Non-compliances	4
Recommendations	5
Issues	5
1. Administrative.....	6
1.1. Exemptions from Obligations to Comply with Code	6
1.2. Structure of Organisation.....	6
1.3. Persons involved in this audit.....	7
1.4. Hardware and Software	7
1.5. Breaches or Breach Allegations.....	7
1.6. ICP Data	7
1.7. Authorisation Received	7
1.8. Scope of Audit	8
1.9. Summary of previous audit	9
1.10. Distributed unmetered load audits (Clause 16A.26 and 17.295F).....	9
2. DUML database requirements.....	10
2.1. Deriving submission information (Clause 11(1) of Schedule 15.3)	10
2.2. ICP identifier and items of load (Clause 11(2)(a) and (aa) of Schedule 15.3)	11
2.3. Location of each item of load (Clause 11(2)(b) of Schedule 15.3)	11
2.4. Description and capacity of load (Clause 11(2)(c) and (d) of Schedule 15.3)	12
2.5. All load recorded in database (Clause 11(2A) of Schedule 15.3)	12
2.6. Tracking of load changes (Clause 11(3) of Schedule 15.3).....	14
2.7. Audit trail (Clause 11(4) of Schedule 15.3).....	14
3. Accuracy of DUML database	15
3.1. Database accuracy (Clause 15.2 and 15.37B(b))	15
3.2. Volume information accuracy (Clause 15.2 and 15.37B(c))	17
Conclusion	19
Participant response	19

EXECUTIVE SUMMARY

This audit of the **Buller District Council (BDC) ElectroNet** DUML database and processes was conducted at the request of **Meridian Energy (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 Arc GIS database used for submission is managed by **ElectroNet**, on behalf of **Westpower**. New connection, fault, and maintenance work is completed by ElectroNet, who update the GIS in the field using Field Maps, which is an interface to the Arc GIS. On synchronisation with Field Maps, the Arc GIS produces a list of all changes including the current value held in Arc GIS and the new value from Field Maps. Each change is validated against the expected value and posted to update Arc GIS if correct.

ElectroNet provide a monthly snapshot from Arc GIS at the end of each month, and a list of any changes that occurred during the month. This information is used to update the trader daily unmetered kWh and trader unmetered load details on the registry.

Meridian reconciles this DUML load as NHH using the UML profile. The daily unmetered kWh value recorded on the registry is multiplied by the days the ICP was connected during the reconciliation period to calculate the reconciliation submissions. The registry values are adjusted by Meridian based on the monthly wattage report provided by ElectroNet.

A field audit of all 149 items of load was undertaken on 1 and 2 November 2023 and found that the field wattage was 95.5% of the wattage recorded in the database, and the database is considered to be accurate within $\pm 5\%$.

This audit found four non-compliances (three of which relate to one item of load) and makes no recommendations. The future risk rating of five indicates that the next audit be completed in 24 months. I have considered this in conjunction with Meridian's comments and recommend that the next audit be in 24 months on 1 February 2026.

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	Light number 2816 on Owen St, Punakaiki was an L27 (27W) light but was recorded in the database as L22 (22W) resulting in potential under submission of 64 kWh per annum.	Strong	Low	1	Identified
All load recorded in database	2.5	11(2A) of Schedule 15.3	Two lights were not recorded in the database.	Moderate	Low	2	Identified
Database accuracy	3.1	15.2 and 15.37B(b)	Light number 2816 on Owen St, Punakaiki was an L27 (27W) light but was recorded in the database as L22 (22W) resulting in potential under submission of 64 kWh per annum.	Strong	Low	1	Identified
Volume information accuracy	3.2	15.2 and 15.37B(c)	Light number 2816 on Owen St, Punakaiki was an L27 (27W) light but was recorded in the database as L22 (22W) resulting in potential under submission of 64 kWh per annum.	Strong	Low	1	Identified
Future Risk Rating						5	

Future risk rating	1-3	4-6	7-8	9-17	18-26	27+
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

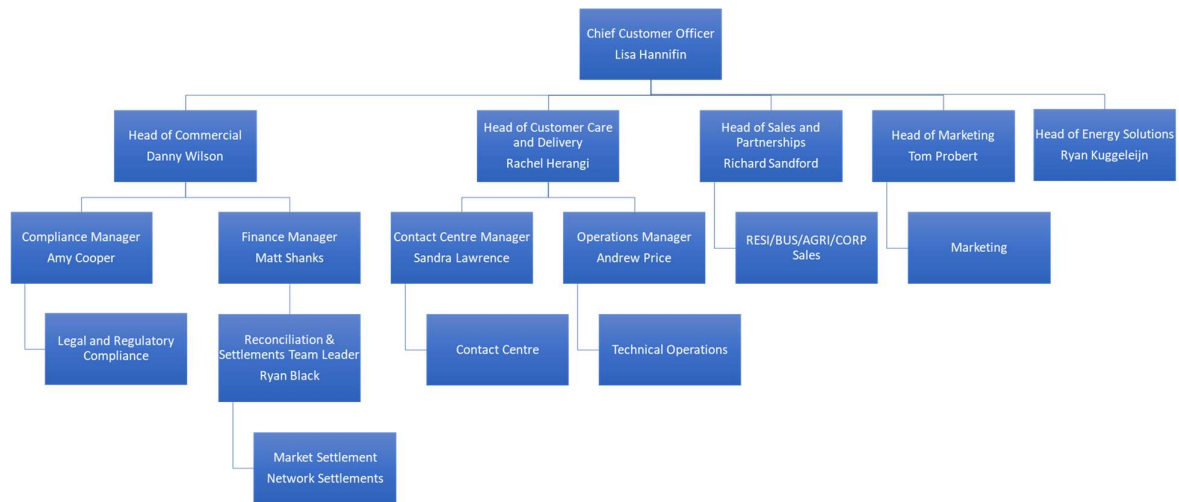
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

Audit commentary

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

1.2. Structure of Organisation

Meridian provided a copy of their organisational structure:



1.3. Persons involved in this audit

Auditor:

Name	Title	Company
Tara Gannon	Auditor	Provera

Other personnel assisting in this audit were:

Name	Title	Company
Chris Busson	GIS Administrator	ElectroNet
Callie Dando	GIS Technician	ElectroNet
Violet Penty	Asset Support Officer	ElectroNet
Melanie Matthews	Quality and Compliance Advisor	Meridian Energy

1.4. Hardware and Software

Arc GIS

The Arc GIS SQL database used for the management of DUML is managed by ElectroNet. Access to the database is restricted using a login and passwords, and daily backups are managed by the IT team.

Meridian systems

Systems used by the trader are assessed as part of their reconciliation participant audit.

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	Database	Number of items of load	Database wattage (watts)
0000950010WPCE4	BDC RFN1102 SL AC	RFN1102	UML	ElectroNet	143	4,563
0000950080WP303	BDC DOB0331 SL AC	DOB0331	UML	ElectroNet	6	171
TOTAL					149	4,734

1.7. Authorisation Received

All information was provided directly by Meridian and ElectroNet.

1.8. Scope of Audit

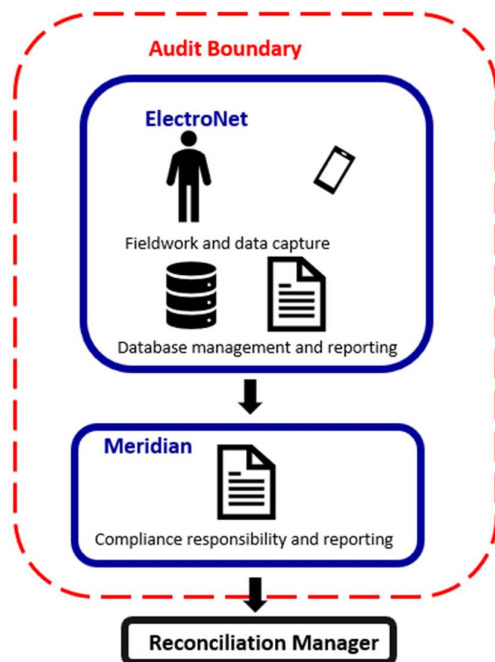
This audit of the BDC DUML database and processes was conducted at the request of Meridian Energy in accordance with clause 15.37B. The purpose of this audit is to verify that the volume information is being calculated accurately, and that profiles have been correctly applied. The audit was conducted in accordance with the audit guidelines for DUML audits version 1.1.

The Arc GIS database used for submission is managed by ElectroNet, on behalf of Westpower. New connection, fault, and maintenance work is completed by ElectroNet, who update the GIS in the field using Field Maps, which is an interface to the Arc GIS. On synchronisation with Field Maps, the Arc GIS produces a list of all changes including the current value held in Arc GIS and the new value from Field Maps. Each change is validated against the expected value and posted to update Arc GIS if correct.

ElectroNet provide a monthly snapshot from Arc GIS at the end of each month, and a list of any changes that occurred during the month. This information is used to updated the trader daily unmetered kWh and trader unmetered load details on the registry.

Meridian reconciles this DUML load as NHH using the UML profile. The daily unmetered kWh value recorded on the registry is multiplied by the days the ICP was connected during the reconciliation period to calculate the reconciliation submissions. The registry values are adjusted by Meridian based on the monthly wattage report provided by ElectroNet.

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.



A field audit of all 149 items of load was undertaken on 1 and 2 November 2023.

1.9. Summary of previous audit

The previous audit was completed by Rebecca Elliot of Veritek in September 2021. The summary table below shows the statuses of the non-compliances raised in the previous audit. Further comment is made in the relevant sections of this report.

Subject	Section	Clause	Non-Compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	The data used for submission does not track changes at a daily basis and is provided as a snapshot.	Cleared, a snapshot and report showing changes during the month is provided.
Volume information accuracy	3.2	15.2 and 15.37B(c)	The data used for submission does not track changes at a daily basis and is provided as a snapshot.	Cleared, a snapshot and report showing changes during the month is provided.

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 Provera to undertake this streetlight audit.

Audit commentary

This audit report confirms that the requirement to conduct an audit has been met for the ElectroNet 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

ElectroNet provide a monthly snapshot from Arc GIS at the end of each month, and a list of any changes that occurred during the month. This information is used to update the trader daily unmetered kWh and trader unmetered load details on the registry, based on the lights being connected for 11.9 hours per day.

Meridian reconciles this DUML load as NHH using the UML profile. The daily unmetered kWh value recorded on the registry is multiplied by the days the ICP was connected during the reconciliation period to calculate the reconciliation submissions. I confirmed that submission data was calculated correctly and consistent with the wattages provided by ElectroNet for ICPs 0000950010WPCE4 and 0000950080WP303.

The field audit found that the database wattage was within $\pm 5\%$ of the actual wattage. Review of make, model, and wattage information for the entire database found one LED light was recorded with an incorrect wattage. Number 2816 on Owen St, Punakaiki was an L27 (27W) light but was recorded in the database as L22 (22W).

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: 28-Aug-23 To: 02-Nov-23	Light number 2816 on Owen St, Punakaiki was an L27 (27W) light but was recorded in the database as L22 (22W) resulting in potential under submission of 64 kWh per annum. Potential impact: Low Actual impact: Low Audit history: Once Controls: Strong Breach risk rating: 1

Audit risk rating	Rationale for audit risk rating		
Low	<p>The controls are rated as strong. The field audit found the database wattage was within $\pm 5\%$ of the survey wattage and the database is deemed to be accurate. Review of consistency of make and model information and wattages found one LED light had an incorrect wattage recorded.</p> <p>The impact on submission is low based on the kWh difference.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
ElectroNet has advised a workorder has been scheduled to inspect all discrepancies and is expected to be completed end of Jan 2024.		31/01/2024	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Meridian Energy will continue to follow up with ElectroNet to ensure the database is corrected.		07/02/2024	

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 databases were checked to confirm an ICP is recorded for each item of load.

Audit commentary

An ICP number is recorded for each item 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 databases were checked to confirm the location is recorded for all items of load.

Audit commentary

GPS coordinates and a location description are recorded in the database. All items of load have GPS coordinates 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.

Audit commentary

The database contains fields for "lighttype" which shows the light type and light wattage if different from total wattage including gear, and a "wattage" which shows the total wattage. All lights have both fields populated and there are no missing or invalid zero wattages recorded. The accuracy of recorded wattages 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

A field audit of all 149 items of load was undertaken on 1 and 2 November 2023.

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
Blackwater Rd - Waiuta	3	3	-	3	3 x L22s are recorded in the database as 70W SON.
Colville Close - Punakaiki	1	1		1	1 x L22 is recorded in the database as 50W SON.
Owen St - Punakaiki	2	2	-	1	Number 2816 has a L27 which is recorded in the database as an L22.
Reefton Roller Park - Reefton	6	7	+1	3	The database recorded one 250W MV, one 50W SON and one 125 MV which were not found at the park. Two spotlights and two halogen lights connected to one pole were not recorded in the database.
Ramsay St - Blacks Point	2	3	+1	-	One L22 outside 57 Ramsay Street, Blacks Point is not recorded in the database.
Total	149	151	+2	8	

Audit outcome

Non-compliant

Non-compliance	Description
<p>Audit Ref: 2.5</p> <p>With: Clause 11(2A) of Schedule 15.3</p> <p>From: 01-Nov-23</p> <p>To: 02-Nov-23</p>	<p>Two lights were not recorded in the database.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: None</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p>
Audit risk rating	Rationale for audit risk rating
Low	<p>The controls are rated as moderate, because most items of load are correctly recorded but there is some room for improvement.</p> <p>The impact is assessed to be low because two items of load were missing from the database.</p>

Actions taken to resolve the issue	Completion date	Remedial action status
ElectroNet has advised a workorder has been scheduled to inspect all discrepancies and is expected to be completed end of Jan 2024.	31/01/2024	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
Meridian Energy will continue to follow up with ElectroNet to ensure the database is corrected.	07/02/2024	

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 databases was examined.

Audit commentary

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

Audit outcome

Compliant

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

Code reference

Clause 11(4) of Schedule 15.3

Code related audit information

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

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

Audit observation

The database was checked for audit trails.

Audit commentary

The database has a complete and compliant audit trail.

Audit outcome

Compliant

3. ACCURACY OF DUML DATABASE

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

Code reference

Clause 15.2 and 15.37B(b)

Code related audit information

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

Audit observation

A field audit of all 149 items of load was undertaken on 1 and 2 November 2023 to determine database accuracy.

Wattages were checked for alignment with the published standardised wattage table produced by the Electricity Authority or LED light specifications where available against the DUML database.

The process to manage changes made in the field being updated in the database was examined.

Audit commentary

Database accuracy

A field audit of all 149 items of load was undertaken on 1 and 2 November 2023 and found that the field wattage was 95.5% of the wattage recorded in the database, and the database is considered to be accurate within $\pm 5\%$.

Lamp description and capacity accuracy

The database contains fields for "lighttype" which shows the light type and light wattage if different from total wattage including gear, and a "wattage" which shows the total wattage. All lights have both fields populated and there are no missing or invalid zero wattages recorded.

All non LED lights had wattages consistent with expected values.

The 135 LED lights only have a "lighttype" of LED recorded and a total wattage, making it difficult to verify whether the wattages are reasonable. ElectroNet is investigating upgrading its system, and as part of this process will consider recording make and model information for LED lights. I checked all the LED lights in the field to determine whether the details recorded were correct and found that only one LED (number 2816 on Owen St, Punakaiki) had an incorrect wattage recorded; it was an L27 (27W) light but was recorded in the database as L22 (22W).

Change management process findings

New connection, fault, and maintenance work is completed by ElectroNet, who update the GIS in the field using Field Maps, which is an interface to the Arc GIS. On synchronisation with Field Maps, the Arc GIS produces a list of all changes including the current value held in Arc GIS and the new value from Field Maps. Each change is validated against the expected value by ElectroNet office staff and posted to update Arc GIS if correct. Any issues or discrepancies are queried with the field technician to confirm the correct values.

All new connections, including lights in new subdivisions, are completed by ElectroNet and light details are captured at the time the connection is completed. A process workflow in the Maximo system is used to manage all new connections. Maximo tasks are normally allocated to a work group rather than individual, and key tasks are escalated within Maximo if not completed within specified timeframes. Once the installation job is complete, a work task is created for the GIS team to check the Arc GIS database is up to date.

The faults process is used to identify any lamps requiring maintenance.

LED upgrade

135 of the 149 lights in the database are LEDs. The remaining non-LED lights will be upgraded to LED as they fail. There are no plans to dim LED lights, or use a central management system.

Festive lights

Festive lights are not used on the Buller DC network.

Private lights

ElectroNet confirmed that all unmetered private lights have an ICP number recorded, either as a stand alone unmetered ICP, or as unmetered load connected to an existing metered ICP. None of the private lights are connected to DUML ICP numbers.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 28-Aug-23 To: 02-Nov-23	Light number 2816 on Owen St, Punakaiki was an L27 (27W) light but was recorded in the database as L22 (22W) resulting in potential under submission of 64 kWh per annum. Potential impact: Low Actual impact: Low Audit history: Once Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are rated as strong. The field audit found the database wattage was within ±5% of the survey wattage and the database is deemed to be accurate. Review of consistency of make and model information and wattages found one LED light had an incorrect wattage recorded. The impact on submission is low based on the kWh difference.		
Actions taken to resolve the issue		Completion date	Remedial action status
ElectroNet has advised a workorder has been scheduled to inspect all discrepancies and is expected to be completed end of Jan 2024.		31/01/2024	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Meridian Energy will continue to follow up with ElectroNet to ensure the database is corrected.		07/02/2024	

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

ElectroNet provide a monthly snapshot from Arc GIS at the end of each month, and a list of any changes that occurred during the month. This information is used to update the trader daily unmetered kWh and trader unmetered load details on the registry, based on the lights being connected for 11.9 hours per day.

Meridian reconciles this DUML load as NHH using the UML profile. The daily unmetered kWh value recorded on the registry is multiplied by the days the ICP was connected during the reconciliation period to calculate the reconciliation submissions. I confirmed that submission data was calculated correctly and consistent with the wattages provided by ElectroNet for ICPs 0000950010WPCE4 and 0000950080WP303.

The field audit found that the database wattage was within $\pm 5\%$ of the actual wattage. Review of make, model, and wattage information for the entire database found one LED light was recorded with an incorrect wattage. Number 2816 on Owen St, Punakaiki was an L27 (27W) light but was recorded in the database as L22 (22W).

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: 28-Aug-23 To: 02-Nov-23	Light number 2816 on Owen St, Punakaiki was an L27 (27W) light but was recorded in the database as L22 (22W) resulting in potential under submission of 64 kWh per annum. Potential impact: Low Actual impact: Low Audit history: Once Controls: Strong Breach risk rating: 1

Audit risk rating	Rationale for audit risk rating		
Low	<p>The controls are rated as strong. The field audit found the database wattage was within $\pm 5\%$ of the survey wattage and the database is deemed to be accurate. Review of consistency of make and model information and wattages found one LED light had an incorrect wattage recorded.</p> <p>The impact on submission is low based on the kWh difference.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
ElectroNet has advised a workorder has been scheduled to inspect all discrepancies and is expected to be completed end of Jan 2024.		31/01/2024	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Meridian Energy will continue to follow up with ElectroNet to ensure the database is corrected.		07/02/2024	

CONCLUSION

A field audit of all 149 items of load was undertaken on 1 and 2 November 2023 and found that the field wattage was 95.5% of the wattage recorded in the database, and the database is considered to be accurate within $\pm 5\%$.

This audit found four non-compliances (three of which relate to one item of load) and makes no recommendations. The future risk rating of five indicates that the next audit be completed in 24 months. I have considered this in conjunction with Meridian's comments and recommend that the next audit be in 24 months on 1 February 2026.

PARTICIPANT RESPONSE

Meridian has reviewed this report and their comments are made within its body.