

ELECTRICITY INDUSTRY PARTICIPATION CODE  
DISTRIBUTED UNMETERED LOAD AUDIT REPORT



For

GREY DISTRICT COUNCIL AND  
MERIDIAN ENERGY LIMITED  
NZBN: 9429037696863

Prepared by: Tara Gannon

Date audit commenced: 28 August 2023

Date audit report completed: 15 November 2023

Audit report due date: 1 December 2023

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## EXECUTIVE SUMMARY

This audit of the **Grey 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.

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 snapshot from Arc GIS at the end of each month, and a list of any changes that occurred during the month.

Meridian submits the DUML load as NHH using the DST profile. ElectroNet's wattage reports are used to determine the kW value to be applied for submission for the month. Meridian supplies **EMS** with the kW capacity information and EMS calculates the kWh figure from the kW provided by Meridian and the on hours from the data logger, and includes this in the relevant AV080 file. This process was audited during Meridian's reconciliation participant audit and the EMS agent audit, and the submission checked was correct.

A field audit of a statistical sample of 152 items of load was undertaken on 1 and 2 November 2023, which found that wattage from the survey was higher than the database wattage by 5.9%, resulting in potential under submission of 12,200 kWh per annum.

This audit found four non-compliances, makes four recommendations. The future risk rating of 14 indicates that the next audit be completed in 12 months. I have considered this in conjunction with Meridian's responses agree that the next audit should be due in 12 months on 1 December 2024.

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	The field audit found the database was not accurate within ±5% resulting in estimated under submission of 12,200 kWh p.a.	Moderate	Medium	4	Identified
All load recorded in database	2.5	11(2A) of Schedule 15.3	Eight additional lights found in the field from the 152 lights sampled.	Moderate	Low	2	Identified
Database accuracy	3.1	15.2 and 15.37B(b)	The field audit found the database was not accurate within ±5% resulting in estimated under submission of 12,200 kWh p.a.  Six items of load have incorrect street names recorded.	Moderate	Medium	4	Identified
Volume information accuracy	3.2	15.2 and 15.37B(c)	The field audit found the database was not accurate within ±5% resulting in estimated under submission of 12,200 kWh p.a.	Moderate	Medium	4	Identified
Future Risk Rating						14	

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

### RECOMMENDATIONS

Subject	Section	Recommendation	Participant comments
Check the wattages for sign numbers 80803 and 80814	3.1	Check the wattages for sign numbers 80803 and 80814 and update the database if necessary.	Work has been scheduled to inspect all discrepancies and is expected to be completed by end of Jan 2024.

Subject	Section	Recommendation	Participant comments
Check the ICP numbers for light numbers 80800 and 60795	3.1	Check the ICP numbers for light numbers 80800 and 60795 and update the database if necessary.	Grey DC has advised that the database has now been corrected.
Consistency of street names	3.1	Review street names to ensure that one street name description is applied for each street.	Grey DC has advised that this is something that they would like to implement in the future.
Street name corrections for lights in the Marsden Park Subdivision	3.1	Correct the street names for lights in the Marsden Park Subdivision.	Grey DC has advised that the database has now been corrected.

## 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

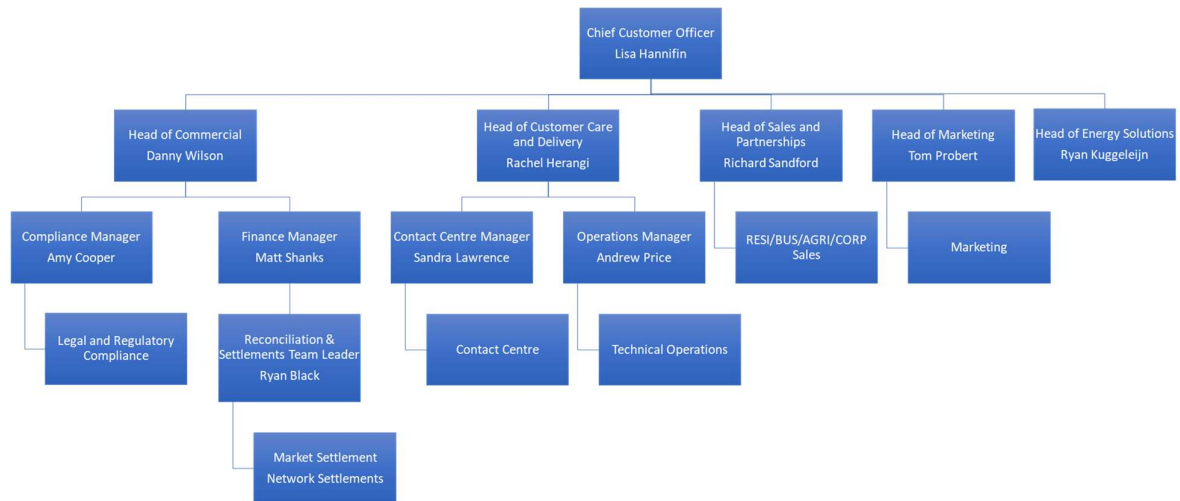
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

#### Audit commentary

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

### 1.2. Structure of Organisation

Meridian provided 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 were assessed as part of their reconciliation participant audit.

#### EMS

Systems used by EMS to calculate submission information were assessed as part of their agent 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	Number of items of load	Database wattage (watts)
0000950020WPB1C	GDC GYM0661 SL AC	GYM0661	DST	209	5,138
0000950040WP4EC	GDC GYM0661 SL AC	GYM0661	DST	972	32,159
0000950090WP9AE	GDC DOB0331 SL AC	DOB0331	DST	420	10,333.5
0000950091WP5EB	GDC KUM0661 SL AC	KUM0661	DST	27	624
0000950092WP92B	GDC RFN1102 SL AC	RFN1102	DST	4	103
<b>Total</b>				<b>1,628</b>	<b>48,414</b>

### 1.7. Authorisation Received

All information was provided directly by Meridian and ElectroNet.

### 1.8. Scope of Audit

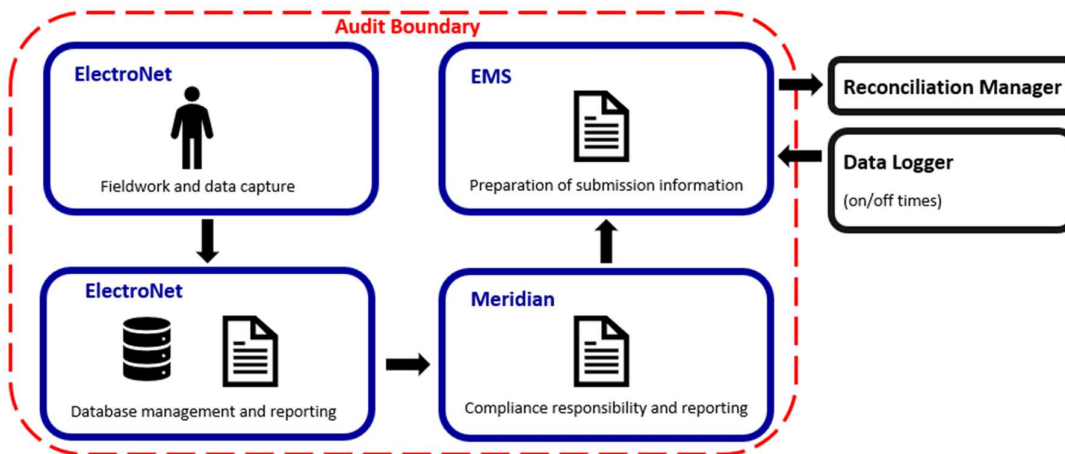
This audit of the GDC DUML database and processes was conducted at the request of Meridian Energy in accordance with clause 15.37B. The purpose of this audit is to verify that the volume information is being calculated accurately, and that profiles have been correctly applied. The audit was conducted 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 snapshot from Arc GIS at the end of each month, and a list of any changes that occurred during the month.

Meridian submits the DUML load as NHH using the DST profile. ElectroNet provides Meridian with a database extract snapshot, which they use to determine the kW value to be applied for submission for the month. Meridian supplies EMS with the kW capacity information and EMS calculates the kWh figure from the kW provided by Meridian and the on hours from the data logger, and includes this in the relevant AV080 file.

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 a statistical sample of 152 items of load was undertaken on 1 and 2 November 2023.



## 1.9. Summary of previous audit

The previous audit was completed in November 2022 by Steve Woods of Veritek Limited. The summary table below shows the statuses of the non-compliances and recommendations raised in the previous audit. Further comment is made in the relevant sections of this report.

**Table of Non-Compliance**

Subject	Section	Clause	Non-Compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	<p>The data used for submission does not track changes at a daily basis and is provided as a snapshot.</p> <p>The database was not within the +/-5% accuracy threshold. In absolute terms, total annual consumption is estimated to be 1,200 kWh higher than the DUML database indicates.</p>	<p>Cleared.</p> <p>Still existing.</p>
Description and capacity of load	2.4	11(2)(c) and (d) of Schedule 15.3	Light type recorded as "Other" for two lamps.	Cleared. Sufficient description information is available to identify these lights as 40W illuminated signs. A recommendation is raised in <b>section 3.1</b> to confirm the wattages.
All load recorded in database	2.5	11(2A) of Schedule 15.3	Six additional lights found in the field from the 177 lights sampled.	Identified.
Database accuracy	3.1	15.2 and 15.37B(b)	<p>The database was not within the +/-5% accuracy threshold. In absolute terms, total annual consumption is estimated to be 1,200 kWh higher than the DUML database indicates.</p> <p>Light type recorded as "Other" for two lamps.</p>	Still existing.
Volume information accuracy	3.2	15.2 and 15.37B(c)	<p>The data used for submission does not track changes at a daily basis and is provided as a snapshot.</p> <p>The database was not within the +/-5% accuracy threshold. In absolute terms, total annual consumption is estimated to be 1,200 kWh higher than the DUML database indicates.</p>	<p>Cleared.</p> <p>Still existing.</p>

## Recommendations

Subject	Section	Recommendation	Status
Location of each item of load	2.3	Align items of load with a single street with a uniform format of street names.	Re-raised in <b>section 3.1</b> .
Database accuracy	3.1	Ensure LED light descriptions contain sufficient information to confirm the correct wattage has been applied.	Addition of LED makes and models will be considered if the system is upgraded in the future.

### 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 this database within the required timeframe.

#### Audit outcome

Compliant

## 2. DUML DATABASE REQUIREMENTS

### 2.1. Deriving submission information (Clause 11(1) of Schedule 15.3)

#### Code reference

Clause 11(1) of Schedule 15.3

#### Code related audit information

The retailer must ensure the:

- DUML database is up to date,
- methodology for deriving submission information complies with Schedule 15.5.

#### Audit observation

The process for calculation of consumption was examined and the application of profiles was checked. The database was checked for accuracy.

#### Audit commentary

Meridian reconciles the DUML load using the DST profile.

ElectroNet provide a snapshot from Arc GIS at the end of each month, and a list of any changes that occurred during the month. Meridian uses this information to determine the kW value to be applied for submission. Meridian supplies EMS with the kW capacity information, and EMS calculates the kWh figure from the kW provided by Meridian and the on hours from the data logger, and includes this in the relevant AV080 file. This process was audited during Meridian's reconciliation participant audit and the EMS agent audit. The capacities supplied to EMS for June 2023 were checked and confirmed to be accurate. There were no changes to unmetered load during the submission month checked.

The field audit found that the database was not accurate within  $\pm 5\%$ . Wattage from the survey is higher than the database wattage by 5.9%, resulting in potential under submission of 12,200 kWh.

#### 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	The field audit found the database was not accurate within $\pm 5\%$ resulting in estimated under submission of 12,200 kWh p.a.  Potential impact: Medium  Actual impact: Medium  Audit history: Multiple times  Controls: Moderate  Breach risk rating:4
Audit risk rating	Rationale for audit risk rating
<b>Medium</b>	Controls are rated as moderate. The field audit found that the lights installed had a wattage which was 105.9% of the database wattage, and was just outside the $\pm 5\%$ accuracy threshold.  The impact on settlement is medium based on the kWh difference.

Actions taken to resolve the issue	Completion date	Remedial action status
Grey DC have been advised of the discrepancies. Work has been scheduled to inspect all discrepancies and is expected to be completed by 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 the council to ensure the database is corrected.	7/02/2024	

## 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 database was checked to confirm an ICP is recorded for each item of load.

### Audit commentary

All items of load have an ICP number recorded. The accuracy of the recorded ICP numbers is discussed in **section 3.1**.

### 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

A location description and GPS coordinates are recorded in the database. All items of load have GPS coordinates recorded, and all but 19 items of load also have a location description recorded. The accuracy of recorded addresses is discussed in **section 3.1**.

### 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 light type and wattage capacity,
- wattage capacities include any ballast or gear wattage, and
- each item of load has a light type, light wattage, and gear wattage recorded.

### 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 lamp descriptions and 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 a statistical sample of 152 items of load was undertaken on 1 and 2 November 2023.

### Audit commentary

The field audit discrepancies are detailed in the table below:

Street Name	Database count	Field count	Light count difference	Wattage recorded incorrectly	Comments
BRUNNER ST - GREYMOOUTH	4	4	-	1	Number 00608 is recorded as an L22 LED in the database but is a spotlight.

Street Name	Database count	Field count	Light count difference	Wattage recorded incorrectly	Comments
PUKETAHI STREET - GREYMOUTH	12	19	+7	-	Five bollard lights on the Puketahi Street edge of the carpark are not recorded in the database.  Number 01298 has two L22 lights connected but only one is recorded in the database.  One L22 light at the rear of the Greymouth DC parking area is missing from the database.
REID STREET - BLAKETOWN	19	20	+1	-	One L22 light near the corner of Steer Ave and Reid St is not recorded in the database.
STEER AVE - BLAKETOWN	4	4	-	1	Number 60849 is recorded as LED-22 in the database but is LED-58.
<b>Grand total</b>	<b>152</b>	<b>160</b>	<b>+8</b>	<b>2</b>	

There were eight additional items of load found in the field. This is recorded as a non-compliance. The database accuracy is discussed in **section 3.1**.

#### Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.5 With: Clause 11(2A) of Schedule 15.3  From: 01-Nov-23 To: 02-Nov-23	Eight additional lights found in the field from the 152 lights sampled.  Potential impact: Low Actual impact: Low Audit history: Twice previously Controls: Moderate Breach risk rating: 2
Audit risk rating	Rationale for audit risk rating
<b>Low</b>	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 based on the number and wattage of the additional lights found.

Actions taken to resolve the issue	Completion date	Remedial action status
Grey DC have been advised of the discrepancies. Work has been scheduled to inspect all discrepancies and is expected to be completed by 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 the council to ensure the database is corrected.	7/02/2024	

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

### Audit observation

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

### Audit commentary

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

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

### Audit observation

The database was checked for audit trails.

### Audit commentary

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

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	Grey DC streetlights
Strata	The database contains 1,632 items of load in the Grey DC region. The management process is the same for all lights. I created two strata: <ol style="list-style-type: none"> <li>1. Location blank – Koe, and</li> <li>2. Location Kor – Z.</li> </ol>
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 96 sub-units.
Total items of load	152 items of load were checked, making up 8% of the total database wattage.

Wattages were checked for alignment with the published standardised wattage table produced by the Electricity Authority, and the manufacturer's specifications or in the case of LED lights against the LED light specification.

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

##### Audit commentary

##### Database accuracy

A field audit of a statistical sample of 152 items of load was undertaken on 1 and 2 November 2023. 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	105.9	Wattage from the survey is higher than the database wattage by 5.9%
R <sub>L</sub>	101.4	With a 95% level of confidence, it can be concluded that the error could be between +1.4% and +15.5%
R <sub>H</sub>	115.5	

These results were categorised in accordance with the "Distributed Unmetered Load Statistical Sampling Audit Guideline", effective from 1 February 2019. The table below shows that Scenario B (detailed below) applies. The conclusion from Scenario B is that the database is not accurate within ±5%.

- In absolute terms the true wattage is estimated to be 3 kW higher than the database.



- There is a 95% level of confidence that the installed capacity is 1 to 7 kW higher than the database.
- In absolute terms, total annual consumption is estimated to be 12,200 kWh higher than the DUML database indicates.
- There is a 95% level of confidence that the annual consumption is 3,000 to 31,900 kWh higher than the database indicates.

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

#### 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.

The 1,628 LED lights only have a "lighttype" of LED recorded and a total wattage (25 different wattages are recorded), 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 was unable to confirm the correct wattage for two signs. ElectroNet believes that the wattages are correct, but will confirm and update the wattages in the database if necessary.

number	location	structure	lighttype	wattage
80803	Marsden Heights Sign Illumination	On Ground	OTHER	40
80814	Ridgeway Drive, Sign Illumination	On Ground	OTHER	40

Recommendation	Description	Audited party comment	Remedial action
Check the wattages for sign numbers 80803 and 80814	Check the wattages for sign numbers 80803 and 80814 and update the database if necessary.	Work has been scheduled to inspect all discrepancies and is expected to be completed by end of Jan 2024.	Identified

### 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

Two of the lights in the database are non-LED and will be upgraded. There are no plans to dim LED lights, or use a central management system.

### 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.

### Festive lights

Permanent festive lights are recorded in the database. No temporary festive lights are used in the Greymouth area.

### ICP number accuracy

All items of load have an ICP number recorded. I checked for street names which had items of load connected to more than one NSP. Most of the affected streets were long rural roads and the ICP numbers appeared reasonable based on the items' proximity to NSPs, and/or the same street name was recorded in different areas. The following lights may have an incorrect ICP assigned and ElectroNet will confirm the correct value and update the database if necessary.

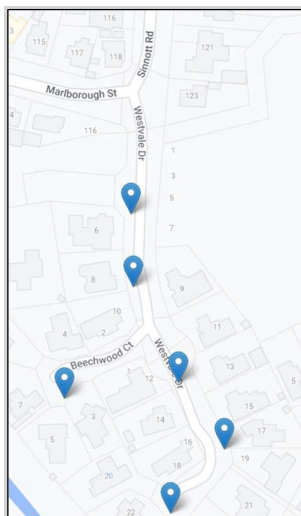
number	location	structure
80800	Arnold Valley Rd	0000950040WP-4EC GYM0661 is assigned but the other 21 lights have 0000950090WP-9AE DOB0331.
60795	Firth St	0000950090WP-9AE DOB0331 is assigned but the other 11 lights have 0000950040WP-4EC GYM0661.

Recommendation	Description	Audited party comment	Remedial action
Check the ICP numbers for light numbers 80800 and 60795	Check the ICP numbers for light numbers 80800 and 60795 and update the database if necessary.	Grey DC has advised that the database has now been corrected.	Identified

### Address accuracy

All items of load have GPS coordinates recorded, allowing them to be readily located. I rechecked addressing issues identified during the previous audit:

- the same street is sometimes recorded with different street names (e.g., Shakepeare St, Shakespare St, Shakespear Street, Shakespeare Street, Shakespere Street); ElectroNet plans to review their database addressing and make addresses consistent, and
- six lights are recorded in the database as Marsden Park Subdivision, the coordinates map to Westvale Drive and Beechwood Court, as noted below; ElectroNet plans to update the addresses in the database.



Recommendation	Description	Audited party comment	Remedial action
Consistency of street names	Review street names to ensure that one street name description is applied for each street.	Grey DC has advised that this is something that they would like to implement in the future.	Investigating
Street name corrections for lights in the Marsden Park Subdivision	Correct the street names for lights in the Marsden Park Subdivision.	Grey DC has advised that the database has now been corrected.	Identified

### 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	The field audit found the database was not accurate within $\pm 5\%$ resulting in estimated under submission of 12,200 kWh p.a. Six items of load have incorrect street names recorded. Potential impact: Medium Actual impact: Medium Audit history: Multiple times Controls: Moderate Breach risk rating:4		
Audit risk rating	Rationale for audit risk rating		
<b>Medium</b>	Controls are rated as moderate. The field audit found that the lights installed had a wattage which was 105.9% of the database wattage, and was just outside the $\pm 5\%$ accuracy threshold. The impact on settlement is medium based on the kWh difference. The incorrect street names have no impact on settlement, and the GPS coordinates are correct.		
Actions taken to resolve the issue		Completion date	Remedial action status
Grey DC has advised that the street names have now been corrected in the database.		Completed	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	

### 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 the DUML load using the DST profile.

ElectroNet provide a snapshot from Arc GIS at the end of each month, and a list of any changes that occurred during the month. Meridian uses this information to determine the kW value to be applied for submission. Meridian supplies EMS with the kW capacity information, and EMS calculates the kWh figure from the kW provided by Meridian and the on hours from the data logger, and includes this in the relevant AV080 file. This process was audited during Meridian’s reconciliation participant audit and the EMS agent audit. The capacities supplied to EMS for June 2023 were checked and confirmed to be accurate. There were no changes to unmetered load during the submission month checked.

The field audit found that the database was not accurate within ±5%. Wattage from the survey is higher than the database wattage by 5.9%, resulting in potential under submission of 12,200 kWh.

**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	The field audit found the database was not accurate within ±5% resulting in estimated under submission of 12,200 kWh p.a.  Potential impact: Medium  Actual impact: Medium  Audit history: Multiple times  Controls: Moderate  Breach risk rating:4		
Audit risk rating	Rationale for audit risk rating		
<b>Medium</b>	Controls are rated as moderate. The field audit found that the lights installed had a wattage which was 105.9% of the database wattage and was just outside the ±5% accuracy threshold.  The impact on settlement is medium based on the kWh difference.		
Actions taken to resolve the issue		Completion date	Remedial action status
Grey DC have been advised of the discrepancies. Work has been scheduled to inspect all discrepancies and is expected to be completed by 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 the council to ensure the database is corrected.		7/02/2024	

## CONCLUSION

A field audit of a statistical sample of 152 items of load was undertaken on 1 and 2 November 2023, which found that wattage from the survey was higher than the database wattage by 5.9%, resulting in potential under submission of 12,200 kWh per annum.

Most database information was found to be complete and accurate, and some minor recommendations have been raised to check some data which may be incorrect and make street names consistent.

This audit found four non-compliances, makes four recommendations. The future risk rating of 14 indicates that the next audit be completed in 12 months. I have considered this in conjunction with Meridian's responses agree that the next audit should be due in 12 months on 1 December 2024.

## PARTICIPANT RESPONSE

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