

**ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT**

For

**GREY DISTRICT COUNCIL AND
MERIDIAN ENERGY LIMITED
NZBN: 9429037696863**

Prepared by: Steve Woods

Date audit commenced: 12 October 2022

Date audit report completed: 17 November 2022

Audit report due date: 1 Dec 2022

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EXECUTIVE SUMMARY

This audit of the **Grey District Council (GDC)** DUMML 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 DUMML audits version 1.1.

The five ICPs switched from Pioneer to Meridian on 1 February 2022.

The Arc GIS database used for submission is managed by ElectroNet, on behalf of Westpower. No changes have occurred to systems and processes during the audit period. New connection, fault, and maintenance work is completed by ElectroNet, who update the GIS in the field using Arc GIS collector. ElectroNet provide a monthly report from the database to Meridian.

Meridian reconciles this DUMML load using the DST profile. 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.

I recalculated the submissions for August 2022 for the five ICPs associated with the GDC database using the data logger and database information. I confirmed that the calculation method was correct.

The field audit was undertaken of a statistical sample of 177 items of load on 15th November 2022.

This found that the database is not within the allowable +/-5% accuracy threshold and over submission is likely to be occurring as a result:

- there is a 95% level of confidence that the installed capacity is 1 kW higher than the database,
- in absolute terms, total annual consumption is estimated to be 1,200 kWh higher than the DUMML database indicates, and
- there is a 95% level of confidence that the annual consumption is 2,200 kWh higher than the database indicates.

This audit found five non-compliances, makes one recommendation, and repeats one recommendation. The future risk rating of nine indicates that the next audit be completed in 12 months. I have considered this in conjunction with Meridian's responses and recommend that the next audit be in 12 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	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>	Moderate	Low	2	Identified
Description and capacity of load	2.4	11(2)(c) and (d) of Schedule 15.3	Light type recorded as "Other" for two lamps.	Strong	Low	1	Identified
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.	Moderate	Low	2	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>	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Volume information accuracy	3.2	15.2 and 15.37B(c)	The data used for submission does not track changes at a daily basis and is provided as a snapshot. 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 DUMML database indicates.	Moderate	Low	2	Identified
Future Risk Rating						9	

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
Location of each item of load	2.3	Align items of load with a single street with a uniform format of street names.
Database accuracy	3.1	Ensure LED light descriptions contain sufficient information to confirm the correct wattage has been applied.

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

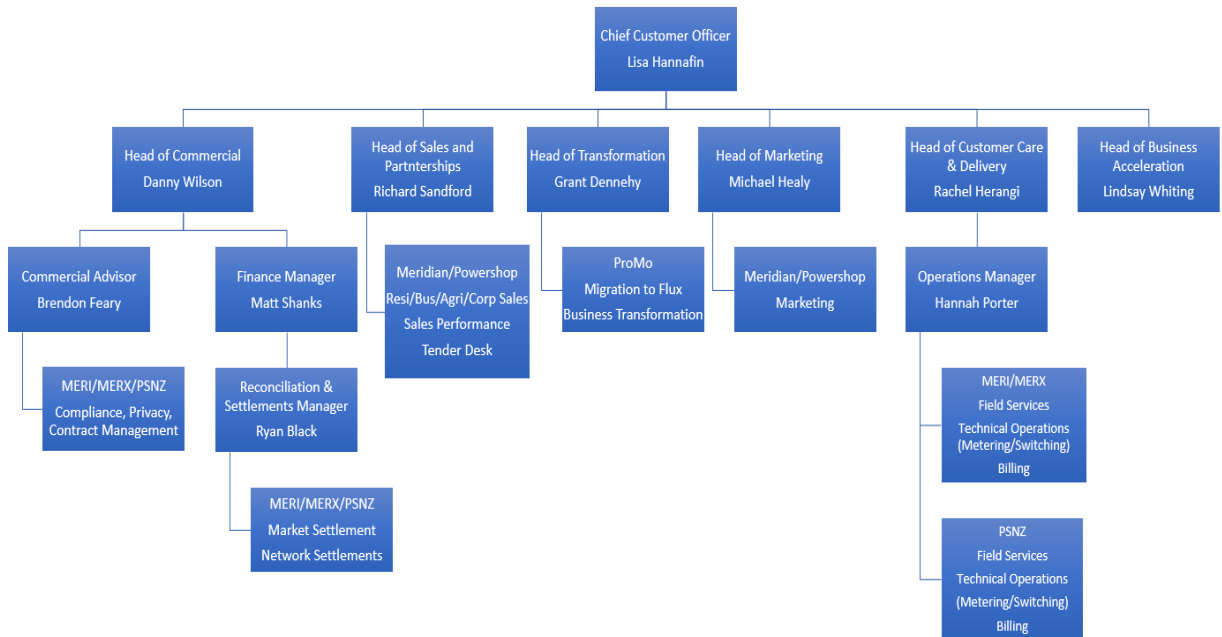
The Electricity Authority’s website was reviewed to identify any exemptions relevant to the scope of this audit.

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

Auditors:

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

Other personnel assisting in this audit were:

Name	Title	Company
Chris Busson	GIS Administrator	ElectroNet
Callie Dando	GIS Technician	ElectroNet
Violet Penty	Asset Support Officer	ElectroNet

1.4. Hardware and Software

The Arc GIS SQL database used for the management of DUMML is managed by ElectroNet.

The database back up is in accordance with standard industry procedures. Access to the database is restricted using a login and password.

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

1.5. Breaches or Breach Allegations

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

1.6. ICP Data

ICP Number	Description	NSP	Profile	Number of items of load	Database wattage (watts)
0000950020WPB1C	GDC GYM0661 SL AC	GYM0661	DST	209	5,133
0000950040WP4EC	GDC GYM0661 SL AC	GYM0661	DST	974	32,358
0000950090WP9AE	GDC DOB0331 SL AC	DOB0331	DST	414	10,196
0000950091WP5EB	GDC KUM0661 SL AC	KUM0661	DST	27	624
0000950092WP92B	GDC RFN1102 SL AC	RFN1102	DST	4	103
Total				1,628	48,414

1.7. Authorisation Received

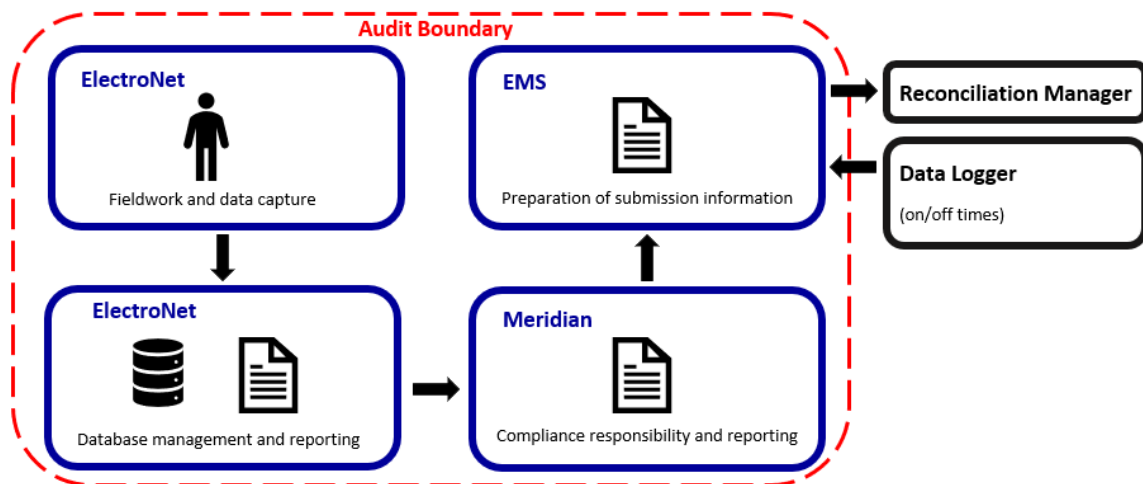
All information was provided directly by Meridian and ElectroNet.

1.8. Scope of Audit

This audit of the GDC DUMML 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 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 Arc GIS collector. ElectroNet provide a monthly report from the database to Meridian.

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 177 items of load was undertaken on 15th November 2022.

1.9. Summary of previous audit

The previous audit was completed in May 2020 by Rebecca Elliot 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	The data used for submission does not track changes at a daily basis and is provided as a snapshot.	Still existing
			The database was not within the +/-5% accuracy threshold. In absolute terms, total annual consumption is estimated to be 3,100 kWh higher than the DUML database indicates.	Still existing
Description and capacity of load	2.4	11(2)(c) and (d) of Schedule 15.3	Light type recorded as 'Other' for two lamps	Still existing
All load recorded in database	2.5	11(2A) of Schedule 15.3	Three additional lights found in the field.	Still existing for additional lights
Database accuracy	3.1	15.2 and 15.37B(b)	The database was not within the +/-5% accuracy threshold. In absolute terms, total annual consumption is estimated to be 3,100 kWh higher than the DUML database indicates.	Still existing
			Light type recorded as 'Other' for two lamps.	Still existing
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.	Still existing
			The database was not within the +/-5% accuracy threshold. In absolute terms, total annual consumption is estimated to be 3,100 kWh higher than the DUML database indicates.	Still existing

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.	Not adopted

1.10. Distributed unmetered load audits (Clause 16A.26 and 17.295F)

Code reference

Clause 16A.26 and 17.295F

Code related audit information

Retailers must ensure that DUML database audits are completed:

- 1. by 1 June 2018 (for DUML that existed prior to 1 June 2017)*
- 2. within three months of submission to the reconciliation manager (for new DUML)*
- 3. within the timeframe specified by the Authority for DUML that has been audited since 1 June 2017.*

Audit observation

Meridian have requested Veritek to undertake this streetlight audit.

Audit commentary

This audit report confirms that the requirement to conduct an audit has been met for this database within the required timeframe.

Audit outcome

Compliant

2. DUMML 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:

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

Audit observation

The process for calculation of consumption was examined.

Audit commentary

This clause requires that the distributed unmetered load database must satisfy the requirements of schedule 15.5 regarding the methodology for deriving submission information.

A monthly report from the database is provided to Meridian and is used to calculate submissions. Meridian submits the DUMML load as NHH using the DST profile. 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.

The capacities supplied to EMS for August 2022 were checked and confirmed to be accurate.

The field audit found that the database was outside the allowable +/-5% accuracy threshold. This indicates that total annual consumption is estimated to be 1,200 kWh higher than the DUMML database indicates.

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 DUMML 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: 17-Aug-21 To: 12-Oct-22	The data used for submission does not track changes at a daily basis and is provided as a snapshot. 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 DUMML database indicates. Potential impact: Low Actual impact: Low Audit history: Multiple times previously Controls: Moderate Breach risk rating:2		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as moderate, as they are sufficient to mitigate the risk most of the time but there is room for improvement. The impact on settlement and participants is minor; therefore, the audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status
Meridian has advised of the inaccuracies identified and comments are in the relevant sections.		24/11/2022	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
We have assessed our processes and tools to account for historic lamp installations and changes to the database at a daily level. There are checks in place comparing month to month data to identify any material changes and confirm details for these. These are accounted for in monthly submission.		Ongoing	

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 DUMML database must contain:

- *each ICP identifier for which the retailer is responsible for the DUMML*
- *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.

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 DUMML database must contain the location of each DUMML item.

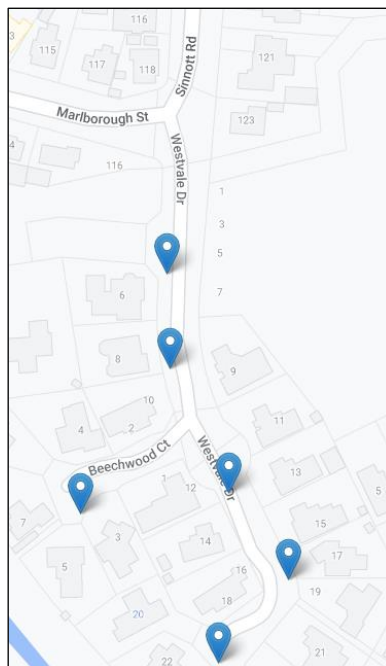
Audit observation

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

Audit commentary

All items of load have a GPS location recorded, and all but 19 items of load also have a street address recorded. There are a number of spelling errors and inconsistencies in the addresses e.g., Tasman St is recorded in the Greymouth zone and also Karoro zone, the street address for Keith Rd is also recorded as and “Kieth Road”, and Westvale Drive Entrance is recorded as “Westvalle Drive Entrance”.

Six lights are recorded in the database as Marsden Park Subdivision, the coordinates map to Westvale Drive and Beechwood Court, as noted below. The street names should be updated accordingly in the database.



In previous audits it was recommended that the address fields be reviewed to associate an item of load with a single street rather than the current range of physical address descriptions and street name variances. This hasn't been actioned and I have repeated the recommendation below to maintain visibility.

Description	Recommendation	Audited party comment	Remedial action
Location of each item of load	Align items of load with a single street with a uniform format of street names.	Meridian has advised the council of the recommendations and will consider implementing them in the future.	Investigating

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 DUMML 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

A description of each light is recorded in the light type field, and total wattage which includes ballast. All items of load have a light type and wattage populated. Two items of load have light type of "Other" recorded, therefore the details cannot be confirmed. This is recorded as non-compliance.

The accuracy of the lamp description, capacity and ballasts recorded is discussed in **section 3.1**.

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

The database records light type and total wattage, including ballast. With the exception of six lamps, all lamps are now LED.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.4 With: Clause 11(2)(c) and (d) of Schedule 15.3 From: 17-Aug-21 To: 12-Oct-22	Light type recorded as "Other" for two lamps. 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 recorded as strong because they mitigate risk to an acceptable level. The impact is assessed to be low because only two items of load are affected.		
Actions taken to resolve the issue		Completion date	Remedial action status
Meridian has advised Grey DC of the inaccuracies and requested them to be corrected.		24/11/2022	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Meridian will follow up with Grey DC regarding the inaccuracies and corrections.		01/03/2023	

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 177 items of load was undertaken on 15th November 2022.

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
RUTHERGLEN RD 121 BRIDGE	13	13		1	1 x 22W LED recorded in the database but 1 x 27W LED located in the field
Shakespeare Street	33	33		4	4 x 32W LED recorded in the database but 4 x

Street Name	Database count	Field count	Light count difference	Wattage recorded incorrectly	Comments
					51W LED located in the field
Ward St	10	15	+5		5 x additional 22W LEDs located in the field
Pitt St	10	11	+1		1 additional 22W LED located in the field
Grand total	1628	1637	6	5	

There were six 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: 17-Aug-21 To: 12-Oct-22	Six additional lights found in the field from the 177 lights sampled. Potential impact: Low Actual impact: Low Audit history: Once Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as moderate, as they are sufficient to mitigate the risk most of the time but there is room for improvement The impact is assessed to be low due to the number of additional lights found.		
Actions taken to resolve the issue		Completion date	Remedial action status
Meridian has advised Grey DC of the inaccuracies and requested them to be corrected.		24/11/2022	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Meridian will follow up with Grey DC regarding the inaccuracies and corrections.		01/03/2023	

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 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 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 1,628 items of load in the Grey DC region. The management process is the same for all lights. I created three strata: <ol style="list-style-type: none"> 1. Rural North 2. Rural South, and 3. Urban
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 75 sub-units.
Total items of load	177 items of load were checked

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 was conducted of a statistical sample of 177 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	104.9	Wattage from the survey is higher than the database wattage by 4.9%
R _L	100.0	With a 95% level of confidence, it can be concluded that the error could be 9.0%
R _H	109.0	

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 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 9.0% higher than the wattage recorded in the DUMML database. Non-compliance is recorded because the potential error is greater than 5.0%.

There is a 95% level of confidence that the installed capacity is 1 kW higher than the database.

In absolute terms, total annual consumption is estimated to be 1,200 kWh higher than the DUMML database indicates.

There is a 95% level of confidence that the annual consumption is 2,200 kWh higher than the database indicates.

Scenario	Description
A - Good accuracy, good precision	<p>This scenario applies if:</p> <p>(a) R_H is less than 1.05; and</p> <p>(b) R_L 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 R_L is less than 0.95 or R_H 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) R_L is less than 0.95 and/or R_H 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 was checked against the published standardised wattage table, and manufacturer's specifications where available.

There are more than 25 different LED light wattages recorded in the database. The light descriptions are insufficient to confirm the correct wattage has been applied. I recommend that the full light descriptions be included in the database.

Recommendation	Description	Audited party comment	Remedial action
Database accuracy	Ensure LED light descriptions contain sufficient information to confirm the correct wattage has been applied.	Meridian has advised the council of the recommendations and will consider implementing them in the future.	Investigating

As discussed in **section 2.4**, all lights have a lamp and gear wattage recorded. Two items of load have light type of “Other” recorded, therefore the details cannot be confirmed. This is recorded as non-compliance below.

Change management process findings

There have been no changes to the processes in place during the audit period. 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, they have a snapshot of the database on an iPad and capture changes in the field. The ElectroNet office staff validate the data and post it to the database after the field devices are synchronised to the main database.

Most new connections relate to network extensions, and new subdivisions are rare. Westpower follow the new connections process for new streetlights.

Permanent festive lights are recorded in the database.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 17-Aug-21 To: 12-Oct-22	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 DUMML database indicates. Light type recorded as “Other” for two lamps. Potential impact: Low Actual impact: Low Audit history: Multiple times previously Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as moderate, as they are sufficient to mitigate the risk most of the time but there is room for improvement. The impact on settlement and participants is minor; therefore, the audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status
Meridian has advised Grey DC of the inaccuracies and requested them to be corrected.		24/11/2022	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Meridian will follow up with Grey DC regarding the inaccuracies and corrections.		01/03/2023	

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

A monthly report from the database is provided to Meridian and is used to calculate submissions. Meridian submits the DUML load as NHH using the DST profile. 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.

The capacities supplied to EMS for August 2022 were checked and confirmed to be accurate.

The field audit found that the database was outside the allowable +/-5% accuracy threshold. This indicates that total annual consumption is estimated to be 1,200 kWh higher than the DUML database indicates.

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		
<p>Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c)</p> <p>From: 17-Aug-21 To: 12-Oct-22</p>	<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>Potential impact: Low Actual impact: Low Audit history: Multiple times previously Controls: Moderate Breach risk rating: 2</p>		
Audit risk rating	Rationale for audit risk rating		
<p>Low</p>	<p>Controls are rated as moderate, as they are sufficient to mitigate the risk most of the time but there is room for improvement.</p> <p>The impact on settlement and participants is minor; therefore, the audit risk rating is low.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>Meridian has advised of the inaccuracies identified and comments are in the relevant sections.</p>		<p>24/11/2022</p>	<p>Identified</p>
Preventative actions taken to ensure no further issues will occur		Completion date	
<p>We have assessed our processes and tools to account for historic lamp installations and changes to the database at a daily level. There are checks in place comparing month to month data to identify any material changes and confirm details for these. These are accounted for in monthly submission.</p>		<p>Ongoing</p>	

CONCLUSION

This audit of the **Grey District Council (GDC)** DUMML 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 DUMML audits version 1.1.

The five ICPs switched from Pioneer to Meridian on 1 February 2022.

The Arc GIS database used for submission is managed by ElectroNet, on behalf of Westpower. No changes have occurred to systems and processes during the audit period. New connection, fault, and maintenance work is completed by ElectroNet, who update the GIS in the field using Arc GIS collector. ElectroNet provide a monthly report from the database to Meridian.

Meridian reconciles this DUMML load using the DST profile. 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.

I recalculated the submissions for August 2022 for the five ICPs associated with the GDC database using the data logger and database information. I confirmed that the calculation method was correct.

The field audit was undertaken of a statistical sample of 177 items of load on 15th November 2022.

This found that the database is not within the allowable +/-5% accuracy threshold and over submission is likely to be occurring as a result:

- there is a 95% level of confidence that the installed capacity is 1 kW higher than the database,
- in absolute terms, total annual consumption is estimated to be 1,200 kWh higher than the DUMML database indicates, and
- there is a 95% level of confidence that the annual consumption is 2,200 kWh higher than the database indicates.

This audit found five non-compliances, makes one recommendation and repeats one recommendation. The future risk rating of nine indicates that the next audit be completed in 12 months. I have considered this in conjunction with Meridian's responses and recommend that the next audit be in 12 months.

PARTICIPANT RESPONSE

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