

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

For

**BULLER DISTRICT COUNCIL
ELECTRONET DATABASE AND MERIDIAN
ENERGY**

Prepared by: Rebecca Elliot

Date audit commenced: 8 November 2018

Date audit report completed: 27 November 2018

Audit report due date: 1 December 2018

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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.

BDC is responsible for streetlights within the Buller region connected to Network Tasman, Buller Electricity, and the Westpower Network. The streetlights as follows per network:

- **ElectroNet** records BDC lights connected to the Westpower Network in Inangahua, Reefton, Blacks Point, Ikamatua, Manwhera and Punakaiki in their Arc GIS database.
- **Network Tasman** records nine lights at Springs Junction. These are recorded in the BDC RAMM database.
- **Buller Electricity** records the unmetered BDC lights in the BDC RAMM database. The remainder of the streetlights on the Buller Electricity network are on metered ICPs.

The previous audit included all three databases in the one report. The Network Tasman ICPs and those on the Buller Electricity network are recorded in the BDC's RAMM database. This has been audited separately. This audit relates to the DUML load managed in the ElectroNet database. The last audit recorded compliance for this database's accuracy but the BDC RAMM database was not ready to be audited, causing the short audit period. I have not undertaken a field audit of the ElectroNet database as it was found to be compliant, so this audit repeats the field audit findings from the last. The one item of load found without missing lamp details has been corrected.

Meridian's submissions are based on the unmetered daily kWh recorded on the registry for each ICP. The daily unmetered kWh matches the databases for ElectroNet.

This audit confirmed compliance with the code. The future risk rating of zero indicates that the next audit be completed in 36 months and I agree with this recommendation.

AUDIT SUMMARY

NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
			Nil				
Future Risk Rating						0	

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

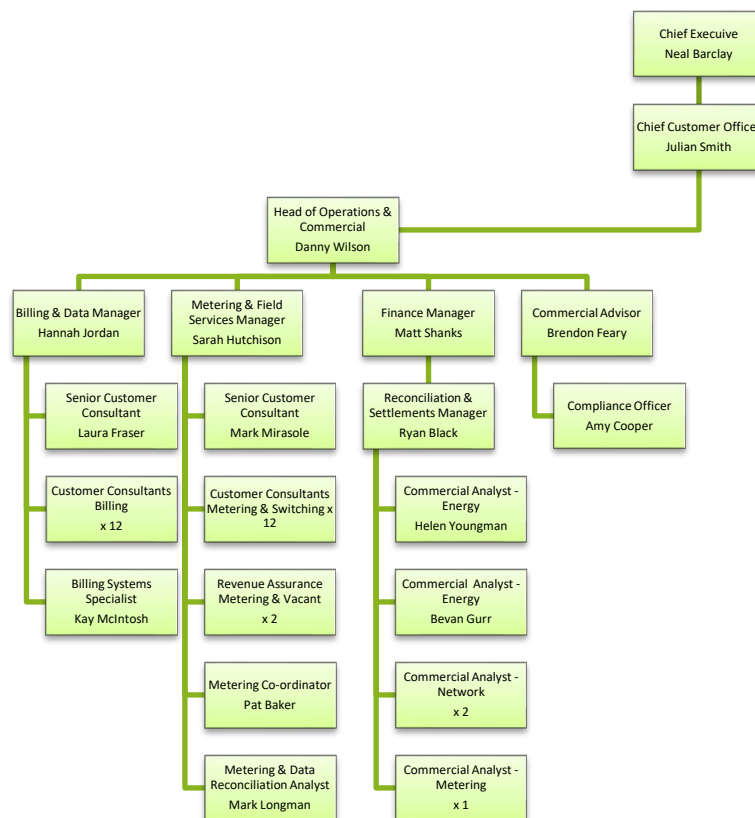
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

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
Rebecca Elliot	Lead Auditor
Debbie Anderson	Supporting Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Martin Dobson	Asset Engineer	Buller District Council
Amy Cooper	Compliance Officer	Meridian Energy
Helen Youngman	Energy Data Analyst	Meridian Energy

1.4. Hardware and Software

ElectroNet maintains streetlight information in the Arc GIS database. Their back up and restoration procedures are in accordance with normal industry protocols.

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	RPS	ElectroNet	134	12,198
0000950080WP303	BDC DOB0331 SL AC	DOB0331	RPS	ElectroNet	6	366
TOTAL					149	13,991

1.7. Authorisation Received

All information was provided directly by Meridian, BDC and ElectroNet.

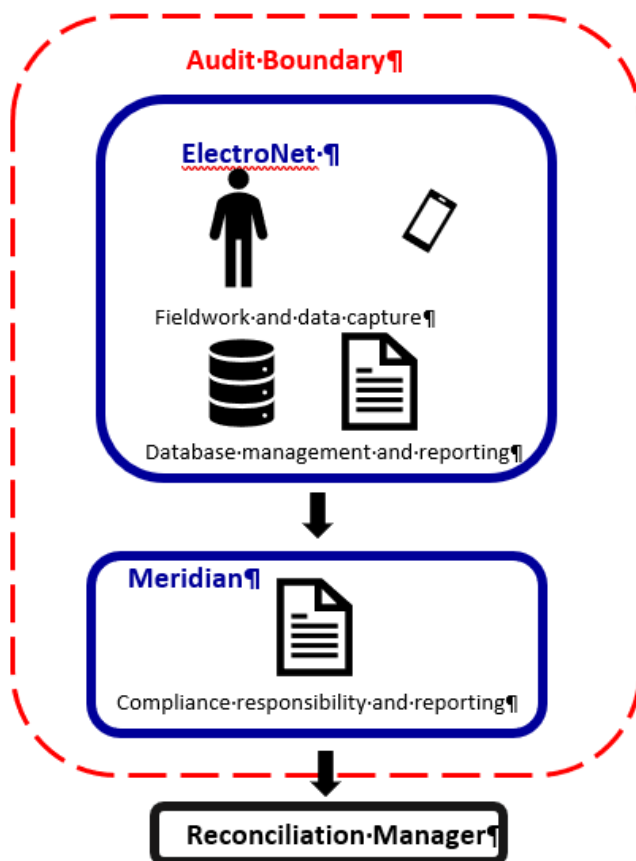
1.8. Scope of Audit

BDC is responsible for streetlights within the Buller region connected to Network Tasman, Buller Electricity, and the Westpower Network. The streetlights as follows per network:

- **ElectroNet** records BDC lights connected to the Westpower Network in Inangahua, Reefton, Blacks Point, Ikamatua, Manwherawaiti and Punakaiki in their Arc GIS database.
- **Network Tasman** records nine lights at Springs Junction. These are recorded in the BDC RAMM database.
- **Buller Electricity** records the unmetered BDC lights in the BDC RAMM database. The remainder of the streetlights on the Buller Electricity network are on metered ICPs. Meridian's submissions are based on the unmetered daily kWh recorded on the registry for each ICP.

The previous audit included all three databases in the one report. The Network Tasman ICPs and those on the Buller Electricity network are recorded in the BDC's RAMM database. This has been audited separately. This audit relates to the DUML load managed in the ElectroNet database.

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



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

The field audit from the audit undertaken on 3 May 2018 of 71 items of load.

1.9. Summary of previous audit

Meridian provided a copy of the last audit report undertaken by Tara Gannon of Veritek Limited in May 2018. The previous audit was undertaken for all the databases associated with BDC. The current status of the non-compliances found in the last audit in relation to the BDC ElectroNet database are detailed below:

Table of Non-Compliance

Subject	Section	Clause	Non-Compliance	Status
Distributed unmetered load audits	1.10	16A.26 and 17.295F	The Buller Electricity database was not provided and could not be fully audited.	N/A
Deriving submission information	2.1	11(1) of Schedule 15.3	The ElectroNet and Buller Electricity databases contain some incorrect and missing information. The Buller Electricity database is not used to create submission information.	Cleared N/A
ICP identifier and items of load	2.2	11(2)(a) and (aa) of Schedule 15.3	The Buller Electricity database has some missing and incorrect ICP numbers.	N/A
Location of each item of load	2.3	11(2)(b) of Schedule 15.3	The Buller Electricity database does not contain adequate location information for all items of load.	N/A
Description and capacity of load	2.4	11(2)(c) and (d) of Schedule 15.3	One item of load in the ElectroNet database does not have a light type or wattage recorded. Some items of load in the Buller Electricity database do not have complete and accurate description and load information recorded.	Cleared N/A
All load recorded in database	2.5	Clause 11(2A) of Schedule 15.3	The Buller Electricity database was not provided, and accuracy could not be assessed.	N/A
Database accuracy	3.1	15.2 and 15.37B(b)	The ElectroNet and Buller Electricity databases contain some incorrect and missing information.	Cleared
Volume information accuracy	3.2	15.2 and 15.37B(c)	The ElectroNet and Buller Electricity databases contain some incorrect and missing information. The Buller Electricity database is not used to create submission information.	Cleared N/A

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 the ElectroNet 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

Meridian reconciles this DUMML load using the RPS profile. . The registry values are adjusted by Meridian based on the monthly wattage report provided by ElectroNet. I checked the values being submitted and confirmed the calculations are correct.

The database was found to be accurate.

Audit outcome

Compliant

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 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 are recorded for each item of load. Street addresses are also recorded for ten items of load.

Audit outcome

Compliant

2.4. Description and capacity of load (Clause 11(2)(c) and (d) of Schedule 15.3)

Code reference

Clause 11(2)(c) and (d) of Schedule 15.3

Code related audit information

The DUML database must contain:

- *a description of load type for each item of load and any assumptions regarding the capacity*
- *the capacity of each item in watts.*

Audit observation

The database was checked to confirm that it contained a field for lamp type and wattage capacity and included any ballast or gear wattage.

Audit commentary

A light type description including the light wattage, and total wattage including ballast is recorded in the database for all items of load. The missing value for the one item of load found in the last audit has been corrected.

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 71 items of load was undertaken on 3 May 2018.

Audit commentary

The field audit findings are detailed in the tables below.

Address	Database Count	Field Count	Count differences	Wattage differences	Comments
Auld St, Blacks Point	2	2	-	-	
High St, Blacks Point	1	1	-	-	
Ramsay St, Blacks Point	2	2	-	-	
Inwoods Rd, Inangahua	1	1	-	-	
Bridge St, Reefton	7	7	-	-	
Broadway, Reefton	5	5	-	-	
Caples St, Reefton	2	2	-	-	
Cavell St, Reefton	3	3	-	-	
Church St, Reefton	6	6	-	-	
Conlon St, Reefton	2	2	-	-	
Crampton St, Reefton	9	9	-	-	
Davis St, Reefton	2	2	-	-	
Herald St, Reefton	4	4	-	-	
Munson St, Reefton	4	4	-	-	

Address	Database Count	Field Count	Count differences	Wattage differences	Comments
Plasket St, Reefton	5	5	-	-	
Shiel St, Reefton	9	9	-	-	
Times St, Reefton	3	3	-	-	
Wicken Pl, Reefton	4	4	-	-	
Total	71	71	-	-	

The database matched the lamps found in the field; compliance is confirmed.

Audit outcome

Compliant

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

Any changes that are made during any given month take effect from the beginning of that month. The information is available which would allow for the total load in kW to be retrospectively derived for any day. On 20 September 2012, the Authority sent a memo to retailers and auditors advising that tracking of load changes at a daily level was not required if the database contained an audit trail. Audit trails are discussed in **section 2.7**.

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

There are no outage patrol processes in place. Lights are maintained across the District on a reactive basis.

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 office staff validate the data and post it to the database after the field devices are synchronised to the main database. This process is described further in **section 2.7**.

Most new connections relate to network extensions, new subdivisions are rare. When new subdivisions are created, Westpower ensures that the installation is compliant and provides approval for connection.

A process workflow in the Maximo system is used to manage all new connections, and includes a step to update GIS information. 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. Tasks can be reassigned as necessary. 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.

ElectroNet is not aware of any unmetered private lights on the network.

Festive lights are not used on the Westpower Network portion of the BDC region.

BDC intends to upgrade its lights to LEDs, but does not intend to use a centralised management system or dimming.

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

ElectroNet demonstrated a complete audit trail of all additions and changes to the database information.

ElectroNet staff take a copy of the GIS database into the field on a device, and modify, add and delete data as required when tasks are completed. When the device is synchronised, the new records are inserted into the main database.

Staff in the office post and reconcile the data. This process involves:

- an automatic comparison between the original data in the device and the current data in the GIS, to determine whether changes to the main database have occurred since the device was last synchronised; if changes have occurred, an exception is created for manual investigation
- a manual check of the changed data to confirm it is correct and reasonable.

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	BDC Electronet network DUML lights region
Strata	The database contains items of load in BDC area connected to the Westpower Network. The processes for the management of all items of load are the same, and I decided to create one strata for all lights.
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 18 sub-units.
Total items of load	71 items of load were checked.

Wattages for all items of load were checked against the published standardised wattage tables produced by the Electricity Authority and Veritek, or the manufacturer's specifications.

Audit commentary

The field audit found 100% database accuracy for the sample checked.

Wattages for all items of load were checked against the published standardised wattage tables produced by the Electricity Authority and Veritek, or the manufacturer's specifications and found to be accurate.

Audit outcome

Compliant

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
- checking the database extract combined with the burn hours against the submitted figure to confirm accuracy.

Audit commentary

Meridian reconciles this DUML load using the RPS 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. I checked the values being submitted and confirmed the calculations are correct.

The database was found to be accurate.

Audit outcome

Compliant

CONCLUSION

BDC is responsible for streetlights within the Buller region connected to Network Tasman, Buller Electricity, and the Westpower Network. The streetlights are maintained in three separate databases:

- **ElectroNet** records BDC lights connected to the Westpower Network in Inangahua, Reefton, Blacks Point, Ikamatua, and Punakaiki in their Arc GIS database.
- **Network Tasman** records nine lights at Springs Junction in their GIS database.
- **Buller Electricity** records the remaining unmetered BDC lights in a RAMM database. This includes all the streetlights south of the Buller Bridge and one unmetered street light at Beach Road, Fairdown north of Westport. The remainder of the streetlights on the Buller Electricity network are metered.

Meridian's submissions are based on the unmetered daily kWh recorded on the registry for each ICP. The previous audit included all three databases in the one report. The Network Tasman ICPs and those on the Buller Electricity network are recorded in the BDC's RAMM database. This has been audited separately. This audit relates to the DUML load managed in the ElectroNet database. The last audit recorded compliance for this database's accuracy but the BDC RAMM database was not ready to be audited, causing the short audit period. I have not undertaken a field audit of the ElectroNet database as it was found to be compliant, so this audit repeats the field audit findings from the last. The one item of load found without missing lamp details has been corrected.

Meridian's submissions are based on the unmetered daily kWh recorded on the registry for each ICP. The daily unmetered kWh matches the databases for ElectroNet.

This audit confirmed compliance with the code. The future risk rating of zero indicates that the next audit be completed in 36 months and I agree with this recommendation.

PARTICIPANT RESPONSE

Meridian have reviewed this report and no further comments were provided.