ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

For

BULLER DISTRICT COUNCIL AND MERIDIAN ENERGY

Prepared by: Tara Gannon

Date audit commenced: 3 May 2018

Date audit report completed: 14 May 2018

Audit report due date: 1 June 2018

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EXECUTIVE SUMMARY

This audit of the Buller District Council (BDC) 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, which became effective on 1 June 2017.

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 The daily unmetered kWh matches the databases for ElectroNet and Network Tasman but is likely to be out of date for Buller Electricity.

I was unable to obtain a copy of the Buller Electricity database as part of this audit, as it was in the process of being updated. Because of this, the compliance of the Buller Electricity database was unable to be fully assessed, and it was excluded from the field audit. BDC and Buller Electricity advised that they are reviewing the database to confirm:

- which items of load are unmetered and determine the correct ICP numbers
- map GPS coordinates from Buller Electricity's GIS against each item of load; and
- check and update lamp descriptions and wattages.

Once the correct values are confirmed, a file will be provided to RAMM to bulk update the database. I recommend that once this is complete and accuracy is confirmed, a report from the database should be provided to Meridian monthly and used for submission.

The future risk rating of 44 indicates that the next audit be completed in three months. Eight non-compliances were identified, and two recommendations were raised. Most of the non-compliances and both the recommendations relate to the Buller Electricity database, which requires some updates and is not currently used for submission. I recommend that the next audit should be carried out after the bulk updates to correct the database have been completed.

The matters raised are detailed below:

AUDIT SUMMARY

NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Distributed unmetered load audits	1.10	16A.26 and 17.295F	The Buller Electricity database was not provided and could not be fully audited.	Weak	Medium	6	Identified
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.	Weak	Medium	6	Identified
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.	Moderate	Medium	4	Identified
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.	Moderate	Medium	4	Identified
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.	Weak	Medium	6	Identified
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.	Weak	Medium	6	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Database accuracy	3.1	15.2 and 15.37B(b)	The ElectroNet and Buller Electricity databases contain some incorrect and missing information.	Weak	Medium	6	Identified
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.	Weak	Medium	6	Identified
Future Risk Rating						44	

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
Deriving submission information	2.1	Database reporting	Once the accuracy of the Buller Electricity database is confirmed, monthly reports from the database should be provided and used for submission.
Tracking of load changes	2.6	Database reporting	Ensure that all database changes are processed prior to providing database reports to Meridian.

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

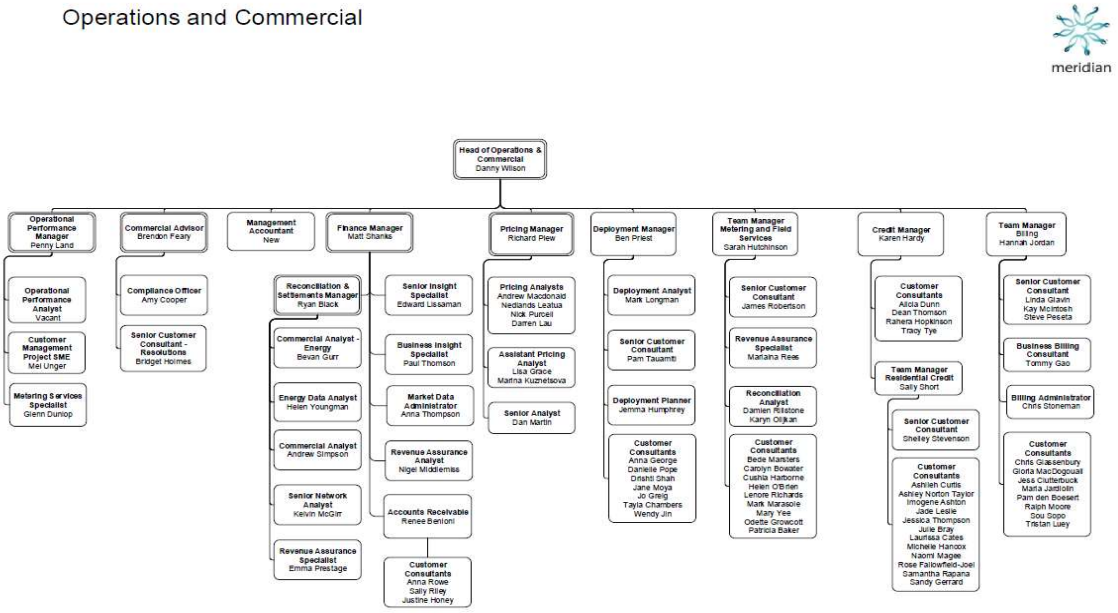
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

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:

Tara Gannon

Veritek Limited

Electricity Authority Approved Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Martin Dobson	Asset Engineer	Buller District Council
Kim Mclaughlin	Administrator	Buller Electricity
Cary Lancaster	GIS Administrator	ElectroNet
Amy Cooper	Compliance Officer	Meridian Energy
Helen Youngman	Energy Data Analyst	Meridian Energy
Wendy Hartshorne	Registry Compliance Manager/Revenue Protection Officer	Network Tasman
Rebecca Elliot	Director	Veritek Limited

1.4. Hardware and Software

ElectroNet Database (0000950010WPCE4 and 0000950080WP303)

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

Network Tasman Database (0000090008NT5BE)

Network Tasman manage the Buller DC street lights in their access database and GIS. Their audit confirms that their backup and restoration procedures are in accordance with normal industry protocols.

Buller Electricity Database (0003970474BUE6B)

Buller Electricity maintains metered and unmetered streetlight information in a RAMM database. RAMM backup 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
0000090008NT5BE	BULLER CC STREETLIGHTING MURCHISON GXP	MCH0111	RPS	Network Tasman	9	1,427
0003970474BUE6B	DUML Streetlights Database Location Unknown	ORO1102	RPS	BDC	est. 100*	est. 8,300*
				Total excluding BDC estimate	**149**	**13,991**
				Total including BDC estimate	**249**	**22,291**

1.7. Authorisation Received

All information was provided directly by Meridian, BDC, Buller Electricity, ElectroNet, and Network Tasman.

* *A copy of the BDC database was not provided. Buller Electricity estimates that there are approximately 100 70W lights installed.*

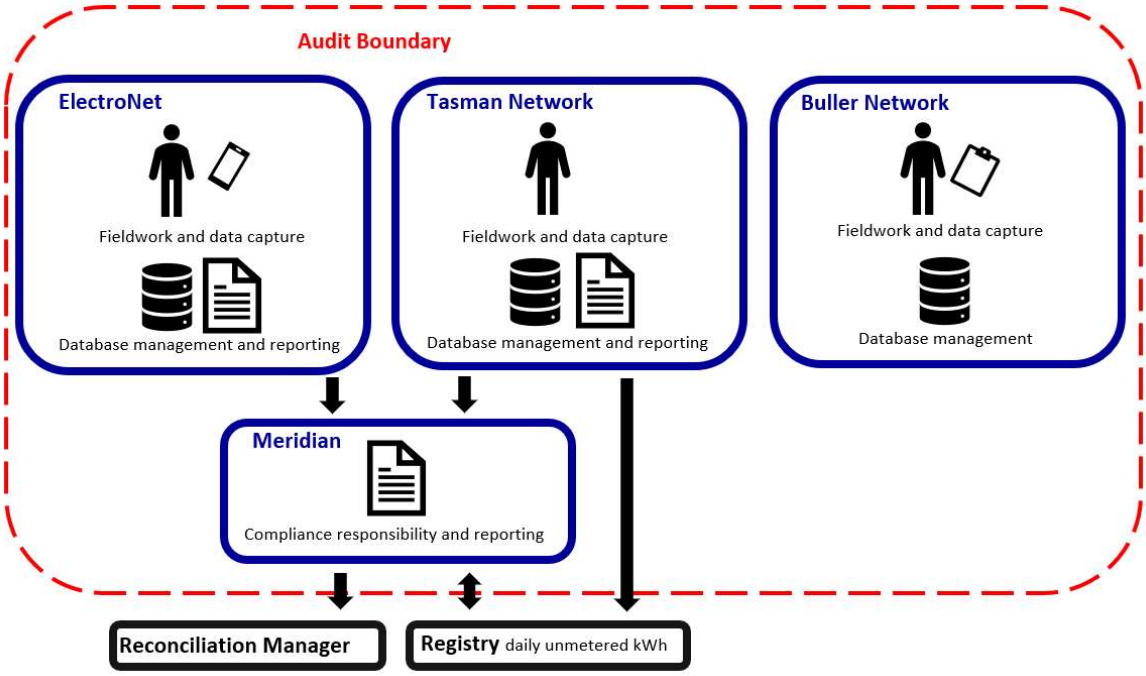
1.8. Scope of Audit

BDC is responsible for streetlights within the Buller region connected to Network Tasman, Buller Electricity and the Westpower Network. The streetlights 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 their 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 are metered.

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

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



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

The field audit was undertaken of 80 items of load on 3 May 2018. Including:

- the entire Network Tasman database
- a statistical sample of 71 items of load from the ElectroNet database.

I was unable to obtain a copy of the Buller Electricity database as part of this audit. The compliance of the Buller Electricity database was unable to be fully assessed, and it was excluded from the field audit.

1.9. Summary of previous audit

The previous audit was completed in December 2016 by Rebecca Elliot of Veritek Limited. Two non-compliances were identified, and eight recommendations were made. The statuses of the non-compliances and recommendations are described below.

Subject	Section	Clause	Non-compliance	Status
Deriving submission	2.1	11(1) of schedule 15.3	Over submission of an estimated annual volume of 6,025 kWh per month	Cleared for ElectroNet. Still existing for Buller Electricity. Refer to **section 2.1**.
Database contents	2.2	11(2) of schedule 15.3	Database not used for the ICPs on the Westpower and Buller Electricity	Cleared for ElectroNet. Still existing for Buller Electricity. Refer to **sections 2.1** and **3.2**.

Subject	Section	Clause	Recommendation	Status
Data transmission	1.9	20 of schedule 15.2	A monthly password protected report be provided from ElectroNet and Buller DC RAMM database ASAP.	Cleared for ElectroNet. Still existing for Buller Electricity. Refer to **sections 2.1** and **3.2**.
Deriving submission	2.1	11(1) of schedule 15.3	Use the streetlight databases from ElectroNet and Buller DC be used to derive submission ASAP.	Cleared for ElectroNet. Still existing for Buller Electricity. Refer to **sections 2.1** and **3.2**.
ICP Identifier	2.2.1	11(2)(a)of schedule 15.3	Record the correct ICP against all of the unmetered lights on the Buller Electricity and "metered" against all those that are metered	Underway. Buller DC and Buller Electricity are reviewing and cleansing the RAMM database. Refer to **section 2.2**.

Subject	Section	Clause	Recommendation	Status
Location information	2.2.2	11(2)(b) of schedule 15.3	Update RAMM GIS with the GPS co-ordinates from the Buller Electricity GIS.	Underway. Buller DC and Buller Electricity are reviewing and cleansing the RAMM database. Refer to **section 2.3**.
Capacity of each item of load	2.2.4	11(2)(d) of schedule 15.3	Correct the gear wattage/ballast figures in ElectroNet's database using the Veritek wattage table.	Cleared. All ballast wattages populated were correct in the ElectroNet database. Refer to **section 3.1**.
Capacity of each item of load	2.2.4	11(2)(d) of schedule 15.3	Populate RAMM with the gear wattage/ballast using the Veritek wattage table.	Underway. Buller DC and Buller Electricity are reviewing and cleansing the RAMM database. Refer to **section 2.4**.
Tracking of load changes	2.3	11(2)(d) of schedule 15.3	Review change management process for changes on the Westpower Network (ElectroNet).	Cleared. Refer to **section 2.6**.
Tracking of load changes	2.3	11(2)(d) of schedule 15.3	Full field audit of all unmetered streetlights on the Buller Electricity be undertaken before RAMM is used for submission.	Underway. Buller DC and Buller Electricity are reviewing and cleansing the RAMM database.

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

ElectroNet Database (0000950010WPCE4 and 0000950080WP303)

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

Network Tasman Database (0000090008NT5BE)

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

Buller Electricity Database (0003970474BUE6B)

The Buller Electricity database was not provided and was unable to be audited. This is recorded as non-compliance below.

Audit outcome

ElectroNet	Compliant
Network Tasman	Compliant
Buller Electricity	Non-compliant

Non-compliance	Description
Audit Ref: 1.10 With: Clause 16A.26 and 17.295F To: 31-May-18	The Buller Electricity database was not provided and could not be fully audited. Potential impact: Medium Actual impact: Unknown Audit history: None Controls: Weak Breach risk rating: 6
Audit risk rating	**Rationale for audit risk rating**
Medium	Controls are rated as weak, because the database was not provided. The potential impact is assessed to be medium. It is estimated that the database contains 100 70W SON lights with an estimated wattage of 8,300 and annual consumption of 35,449 kWh. The audit risk rating is assessed to be medium, because database accuracy could not be determined for Buller Electricity and submissions are not based on the database information.

Actions taken to resolve the issue	Completion date	Remedial action status
We are working to confirm with Buller DC a timeframe by which their database validation and update is likely to be completed. Once validation has been completed we will arrange an audit to confirm accuracy. Once the accuracy of the database has been confirmed we will arrange monthly reporting to calculate submissions going forward. Historic submissions will be revised, based on the validated information where necessary	30 June 2018 01 Mar 2019 TBC TBC	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above	As above	

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.

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. This process was examined during Meridian's reconciliation participant audit completed in September 2017.

ElectroNet Database (0000950010WPCE4 and 0000950080WP303)

The daily unmetered kWh value recorded on the registry is calculated from the database information and historic burn hours. I confirmed that the registry values were consistent with the database information for February 2018.

ICP Number	Profile	No of items of load	Database wattage	Unmetered Load Details - Trader	Daily Unmetered kWh
0000950010WPCE4	RPS	134	12.198 kW	12.198KW;11.9HRS; 134 FITTINGS	145.16 kWh
0000950080WP303	RPS	6	0.366 kW	0.366KW;11.9HRS; 6 FITTINGS	4.36 kWh

One item of load did not have a lamp type or wattage recorded. This is recorded as non-compliance below, and discussed further in **sections 2.4** and **3.1**.

Network Tasman Database (0000090008NT5BE)

The daily unmetered kWh value recorded on the registry is calculated from the database information and historic burn hours. I confirmed that the registry values were consistent with the database information for February 2018.

ICP Number	Profile	No of items of load	Database wattage	Unmetered Load Details - Trader	Daily Unmetered kWh
0000090008NT5BE	RPS	9	1.427 kW or 1427 W	1427;11.5; INTERSECTION SH7 AND SH65	16.41 kWh

No inaccurate information was found in the database, and compliance is confirmed.

Buller Electricity Database (0003970474BUE6B)

The daily unmetered kWh value on the registry and used for submission (134 kWh) is historic and has not changed since it was originally entered on 07/05/2008.

No reports from the database are provided to Meridian. The database is estimated to contain approximately 100 70W sodium lights. I estimate the annual consumption would be approximately 35,449 kWh, and the daily consumption 97 kWh (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool).

BDC and Buller Electricity confirmed that there was some missing and incorrect information in the database. This is recorded as non-compliance and discussed in **sections 2.2, 2.3, 2.4**, and **3.1**.

Once database accuracy is confirmed, I recommend that monthly reports from the database should be provided to Meridian and used for submission.

Description	Recommendation	Audited party comment	Remedial action
Deriving submission information	Once the accuracy of the Buller Electricity database is confirmed, monthly reports from the database should be provided and used for submission.	See comments for section 1.10	Identified

Audit outcome

ElectroNet	Non-compliant
Network Tasman	Compliant
Buller Electricity	Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: unknown To: 07-May-18	The ElectroNet and Buller Electricity databases contain some incorrect and missing information. The Buller Electricity database is not used to create submission information. Potential impact: Medium Actual impact: Unknown Audit history: Once previously Controls: Weak Breach risk rating: 6
Audit risk rating	**Rationale for audit risk rating**
Medium	The controls are rated as weak, because they are not sufficient to ensure that submission information is correct for all the databases. The overall impact is unknown, as the correct total wattage for the Buller Electricity database could not be confirmed. The audit risk rating is assessed to be medium, because database accuracy could not be determined for Buller Electricity and submissions are not based on the database information. The impact for ElectroNet is expected to be low.

Actions taken to resolve the issue	Completion date	Remedial action status
Buller - We are working to confirm with Buller DC a timeframe by which their database validation and update will be completed so that this can be used for calculation of submission information. Electronet – Electronet have advised they will validate the missing information next time they have contractors in the area and update their database.	30 June 2018 30 June 2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above	As above	

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

ElectroNet Database (0000950010WPCE4 and 0000950080WP303)

An ICP number is recorded for each item of load. Compliance is confirmed.

Network Tasman Database (0000090008NT5BE)

An ICP number is recorded for each item of load. Compliance is confirmed.

Buller Electricity Database (0003970474BUE6B)

A copy of the database was not provided; compliance could not be fully assessed.

BDC and Buller Electricity advised that they are reviewing the database to confirm which items of load are unmetered, and determine the correct ICP numbers. Some items of load currently have incorrect or missing ICP numbers.

Once confirmed, ICP numbers will be bulk updated in RAMM. This bulk update will also include corrections to wattages and updates to GPS coordinates and addresses.

Audit outcome

ElectroNet	Compliant
Network Tasman	Compliant
Buller Electricity	Non-compliant

Non-compliance	Description
Audit Ref: 2.2 With: Clause 11(2)(a) and (aa) of Schedule 15.3 From: unknown To: 07-May-18	The Buller Electricity database has some missing and incorrect ICP numbers. Potential impact: Medium Actual impact: Unknown Audit history: None Controls: Moderate Breach risk rating: 4

Audit risk rating	Rationale for audit risk rating
Medium	Controls are rated as moderate as they are expected to be sufficient to ensure most items of load have the correct ICP number populated. The overall impact is unknown, as the correct total wattage for the Buller Electricity database could not be confirmed. The audit risk rating is assessed to be medium, because database accuracy could not be determined for Buller Electricity and submissions are not based on the database information.

Actions taken to resolve the issue	Completion date	Remedial action status
We are working to confirm with Buller DC a timeframe by which their database validation and update will be completed so that this can be used for calculation of submission information.	30 June 2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above	As above	

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

ElectroNet Database (0000950010WPCE4 and 0000950080WP303)

GPS coordinates are recorded for each item of load. Street addresses are also recorded for ten items of load. Compliance is confirmed.

Network Tasman Database (0000090008NT5BE)

A location address is recorded for each item of load. Compliance is confirmed.

Buller Electricity Database (0003970474BUE6B)

A copy of the database was not provided; compliance could not be fully assessed.

The 2016 audit found street addresses were not always accurate, and recommended that RAMM should be updated to include GPS coordinates from the Buller Electricity GIS. GPS coordinates will be bulk updated in RAMM. This bulk update will also include corrections to wattages and ICP numbers.

Audit outcome

ElectroNet	Compliant
Network Tasman	Compliant
Buller Electricity	Non-compliant

Non-compliance	Description
Audit Ref: 2.3 With: Clause 11(2)(b) of Schedule 15.3 From: unknown To: 07-May-18	The Buller Electricity database does not contain adequate location information for all items of load. Potential impact: Medium Actual impact: Unknown Audit history: None Controls: Moderate Breach risk rating: 4
Audit risk rating	**Rationale for audit risk rating**
Medium	Controls are rated as moderate as they are expected to be sufficient to ensure most items of load have correct address information recorded. The overall impact is unknown, as the correct total wattage for the Buller Electricity database could not be confirmed. The audit risk rating is assessed to be medium, because database accuracy could not be determined for Buller Electricity and submissions are not based on the database information.

Actions taken to resolve the issue	Completion date	Remedial action status
We are working to confirm with Buller DC a timeframe by which their database validation and update will be completed so that this can be used for calculation of submission information.	30 June 2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above	As above	

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

ElectroNet Database (0000950010WPCE4 and 0000950080WP303)

A light type description including the light wattage, and total wattage including ballast is recorded in the database. One item of load had a missing light type and ballast, and is recorded as non-compliance below.

Number	Structure	Light Type	X	Y
02255	Telecom Pole		1512620.704	5365705.132

Network Tasman Database (0000090008NT5BE)

Lamp type, lamp wattage and total wattage including ballast is recorded for each item of load. Compliance is confirmed.

Buller Electricity Database (0003970474BUE6B)

A copy of the database was not provided; compliance could not be fully assessed.

BDC and Buller Electricity are aware that some items of load do not have complete and accurate description and load information recorded. Light information is in the process of being checked and will be bulk updated in RAMM. This bulk update will also include corrections to ICP numbers and locations.

Audit outcome

ElectroNet	Non-compliant
Network Tasman	Compliant
Buller Electricity	Non-compliant

Non-compliance	Description
Audit Ref: 2.4 With: Clause 11(2)(c) and (d) of Schedule 15.3 From: unknown To: 07-May-18	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. Potential impact: Medium Actual impact: Unknown Audit history: None Controls: Weak Breach risk rating: 6
Audit risk rating	**Rationale for audit risk rating**
Medium	The controls are rated as weak as they are not expected to be sufficient to ensure most items of load have complete and accurate description and load information recorded. The overall impact is unknown, as the correct total wattage for the Buller Electricity database could not be confirmed. The audit risk rating is assessed to be medium, because database accuracy could not be determined for Buller Electricity and submissions are not based on the database information. The audit risk rating is low for ElectroNet, only one item of load was affected in the ElectroNet database.

Actions taken to resolve the issue	Completion date	Remedial action status
Buller - We are working to confirm with Buller DC a timeframe by which their database validation and update will be completed so that this can be used for calculation of submission information. Electronet – Electronet have advised they will validate the missing information next time they have contractors in the area and update their database.	30 June 2018 30 June 2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above	As above	

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

ElectroNet Database (0000950010WPCE4 and 0000950080WP303)

A field audit of a statistical sample of 71 items of load was undertaken on 3 May 2018.

Network Tasman Database (0000090008NT5BE)

A field audit of all nine items of load was undertaken on 3 May 2018.

Buller Electricity Database (0003970474BUE6B)

Compliance was unable to be assessed, because a copy of the database was not provided.

Audit commentary

The field audit findings are detailed in the tables below.

ElectroNet Database (0000950010WPCE4 and 0000950080WP303)

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

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	-	-	

Address	Database Count	Field Count	Count differences	Wattage differences	Comments
Crampton St, Reefton	9	9	-	-	
Davis St, Reefton	2	2	-	-	
Herald St, Reefton	4	4	-	-	
Munson St, Reefton	4	4	-	-	
Plasket St, Reefton	5	5	-	-	
Shiel St, Reefton	9	9	-	-	
Times St, Reefton	3	3	-	-	
Wicken Pl, Reefton	4	4	-	-	
Total	**71**	**71**	**-**	**-**	

Network Tasman Database (0000090008NT5BE)

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

Address	Database Count	Field Count	Count differences	Wattage differences	Comments
Springs Junction	9	9	-	-	

Buller Electricity Database (0003970474BUE6B)

Compliance was unable to be assessed, because a copy of the database was not provided.

Audit outcome

ElectroNet	Compliant
Network Tasman	Compliant
Buller Electricity	Unable to determine

Non-compliance	Description
Audit Ref: 2.5 With: Clause 11(2A) of Schedule 15.3 From: unknown To: 07-May-18	The Buller Electricity database was not provided and accuracy could not be assessed. Potential impact: Medium Actual impact: Unknown Audit history: Once previously Controls: Weak Breach risk rating: 6
Audit risk rating	**Rationale for audit risk rating**
Medium	The controls are rated as weak, because they are not sufficient to ensure that submission information is correct for all the databases. The overall impact is unknown, as the correct total wattage for the Buller Electricity database could not be confirmed. The audit risk rating is assessed to be medium, because database accuracy could not be determined for Buller Electricity and submissions are not based on the database information.

Actions taken to resolve the issue	Completion date	Remedial action status
Buller - We are working to confirm with Buller DC a timeframe by which their database validation and update will be completed so that this can be used for calculation of submission information. Once complete we will arrange an audit to confirm accuracy.	30 June 2018 01 Mar 2019	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above	As above	

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**.

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

ElectroNet Database (0000950010WPCE4 and 0000950080WP303)

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.

Some lights are being replaced with LEDs as part of regular maintenance, but a large scale LED rollout has not been undertaken.

Compliance is confirmed.

Network Tasman Database (0000090008NT5BE)

Network Tasman's audit reviewed processes for ensuring that changes in the field are notified to Network Tasman. When any new subdivisions are completed an "as built" drawing is supplied, and the GIS and the database are both populated.

All new or altered streetlight connections require a "streetlight advice form" to be supplied to Network Tasman. These connections then follow the "new connections" process, which ensures the livening dates are accurately recorded and populated in the database. These are updated daily in the database. The registry is updated to reflect any changes that have occurred during the previous month.

Festive lights are not used in the Springs Junction area, and there are no private lights.

Compliance is confirmed.

Buller Electricity Database (0003970474BUE6B)

Buller Electricity are responsible for completing all new connections and maintenance on the Buller Electricity network. Paper forms are completed in the field, and returned to the office to be entered into the RAMM database by Buller Electricity's Administrator. Changes are infrequent and the RAMM database is normally updated monthly. Updates can be delayed depending on the administrator's other

workload. Once database accuracy is confirmed and regular reports are provided to Meridian, I recommend that Buller Electricity should ensure the database is up to date before providing the reports to Meridian at the end of each month.

Description	Recommendation	Audited party comment	Remedial action
Tracking of load changes	Ensure that all database changes are processed prior to providing database reports to Meridian.	The process for maintaining the database will be agreed with Buller DC as part of our discussions with them.	Investigating

New subdivisions are rare, and any new lights are normally requested by BDC.

Buller Electricity and BDC are not aware of any unmetered private lights on the network.

Festive lights are used in Karamea and are metered.

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

Audit outcome

ElectroNet	Compliant
Network Tasman	Compliant
Buller Electricity	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 databases were checked for audit trails.

Audit commentary

ElectroNet Database (0000950010WPCE4 and 0000950080WP303)

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.

Network Tasman Database (0000090008NT5BE)

During their audit, Network Tasman demonstrated a complete audit trail of all additions and changes to the database information.

Buller Electricity Database (0003970474BUE6B)

The RAMM database contains a complete audit trail.

Audit outcome

ElectroNet	Compliant
Network Tasman	Compliant
Buller Electricity	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

ElectroNet Database (0000950010WPCE4 and 0000950080WP303)

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 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.

Network Tasman Database (0000090008NT5BE)

A field audit of all nine items of load was undertaken.

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 region
Strata	The database contains items of load in the Springs Junction area. 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	All items of load in the database were checked.
Total items of load	Nine items of load were checked.

Wattages for all items of load were checked against the published standardised wattage tables produced by the Electricity Authority.

Buller Electricity Database (0003970474BUE6B)

Compliance was unable to be fully assessed, because a copy of the database was not provided.

Audit commentary

ElectroNet Database (0000950010WPCE4 and 0000950080WP303)

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

One item of load did not have a lamp type or wattage recorded, and is discussed in **section 2.4**.

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.

Network Tasman Database (0000090008NT5BE)

The field audit found 100% database accuracy.

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.

Compliance is confirmed.

Buller Electricity Database (0003970474BUE6B)

Compliance was unable to be fully assessed, because a copy of the database was not provided.

Buller Electricity is aware that some items of load do not have complete and accurate description and load information, ICP numbers and locations recorded. Light information is in the process of being checked and will be bulk updated in RAMM.

Audit outcome

ElectroNet	Non-compliant
Network Tasman	Compliant
Buller Electricity	Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: unknown To: 07-May-18	The ElectroNet and Buller Electricity databases contain some incorrect and missing information. Potential impact: Medium Actual impact: Unknown Audit history: Once previously Controls: Weak Breach risk rating: 6
Audit risk rating	**Rationale for audit risk rating**
Medium	The controls are rated as weak, because they are not sufficient to ensure that information is correct for all the databases. The overall impact is unknown, as the correct total wattage for the Buller Electricity database could not be confirmed. The audit risk rating is assessed to be medium, because database accuracy could not be determined for Buller Electricity and submissions are not based on the database information. The audit risk rating is low for ElectroNet, only one item of load was affected in the ElectroNet database.

Actions taken to resolve the issue	Completion date	Remedial action status
Buller - We are working to confirm with Buller DC a timeframe by which their database validation and update will be completed so that this can be used for calculation of submission information. Electronet – Electronet have advised they will validate the missing information next time they have contractors in the area and update their database.	30 June 2018 30 June 2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above	As above	

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. This process was examined during Meridian's reconciliation participant audit completed in September 2017.

ElectroNet Database (0000950010WPCE4 and 0000950080WP303)

The daily unmetered kWh value recorded on the registry is calculated from the database information and historic burn hours. I confirmed that the registry values were consistent with the database information for February 2018.

ICP Number	Profile	No of items of load	Database wattage	Unmetered Load Details - Trader	Daily Unmetered kWh
0000950010WPCE4	RPS	134	12.198 kW	12.198KW;11.9HRS; 134 FITTINGS	145.16 kWh
0000950080WP303	RPS	6	0.366 kW	0.366KW;11.9HRS; 6 FITTINGS	4.36 kWh

One item of load did not have a lamp type or wattage recorded. This is recorded as non-compliance below, and discussed further in **sections 2.4** and **3.1**.

Network Tasman Database (0000090008NT5BE)

The daily unmetered kWh value recorded on the registry is calculated from the database information and historic burn hours. I confirmed that the registry values were consistent with the database information for February 2018.

ICP Number	Profile	No of items of load	Database wattage	Unmetered Load Details - Trader	Daily Unmetered kWh
0000090008NT5BE	RPS	9	1.427 kW or 1427 W	1427;11.5; INTERSECTION SH7 AND SH65	16.41 kWh

No inaccurate information was found in the database, and compliance is confirmed.

Buller Electricity Database (0003970474BUE6B)

The daily unmetered kWh value on the registry and used for submission (134 kWh) is historic and has not changed since it was originally entered on 07/05/2008.

No reports from the database are provided to Meridian. The database is estimated to contain approximately 100 70W sodium lights. I estimate the annual consumption would be approximately 35,449 kWh, and the daily consumption 97 kWh (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool).

BDC and Buller Electricity confirmed that there was some missing and incorrect information in the database. This is recorded as non-compliance and discussed in **sections 2.2, 2.3, 2.4**, and **3.1**.

Audit outcome

ElectroNet	Non-compliant
Network Tasman	Compliant
Buller Electricity	Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: unknown To: 07-May-18	The ElectroNet and Buller Electricity databases contain some incorrect and missing information. The Buller Electricity database is not used to create submission information. Potential impact: Medium Actual impact: Unknown Audit history: Once previously Controls: Weak Breach risk rating: 6
Audit risk rating	**Rationale for audit risk rating**
Medium	The controls are rated as weak, because they are not sufficient to ensure that submission information is correct for all the databases. The overall impact is unknown, as the correct total wattage for the Buller Electricity database could not be confirmed. The audit risk rating is assessed to be medium, because database accuracy could not be determined for Buller Electricity and submissions are not based on the database information. The impact for ElectroNet is expected to be low.

Actions taken to resolve the issue	Completion date	Remedial action status
Buller - We are working to confirm with Buller DC a timeframe by which their database validation and update will be completed so that this can be used for calculation of submission information. Electronet – Electronet have advised they will validate the missing information next time they have contractors in the area and update their database.	30 June 2018 30 June 2018	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
As above	As above	

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 daily unmetered kWh matches the databases for ElectroNet and Network Tasman but is likely to be out of date for Buller Electricity.

I was unable to obtain a copy of the Buller Electricity database as part of this audit, as it was in the process of being updated. Because of this, the compliance of the Buller Electricity database was unable to be fully assessed, and it was excluded from the field audit. BDC and Buller Electricity advised that they are reviewing the database to confirm:

- which items of load are unmetered and determine the correct ICP numbers
- map GPS coordinates from Buller Electricity's GIS against each item of load; and
- check and update lamp descriptions and wattages.

Once the correct values are confirmed, a file will be provided to RAMM to bulk update the database. I recommend that once this is complete and accuracy is confirmed, a report from the database should be provided to Meridian monthly and used for submission.

The future risk rating of 44 indicates that the next audit be completed in three months. Eight non-compliances were identified, and two recommendations were raised. Most of the non-compliances and both the recommendations relate to the Buller Electricity database, which requires some updates and is not currently used for submission. I recommend that the next audit should be carried out after the bulk updates to correct the database have been completed.

PARTICIPANT RESPONSE

At the time of writing we have been unable to confirm with Buller DC a date by which they intend to have streetlight information on the Buller Network validated and updated in their database.

We understand there are a relatively small number of unmetered streetlights (around 100) and all are of the same lamp type. We also understand staff at the council have a number of competing priorities to manage.

Given this we have estimated the timeframes for corrective actions based on what we believe is reasonable for the update of database information to be completed (end of this calendar year).

We will continue our efforts to agree some firm dates with Buller DC and will update the Authority if any of the dates provided in this report are no longer reasonable.