ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

For

BULLER DISTRICT COUNCIL
RAMM DATABASE
AND MERIDIAN ENERGY
NZBN: 9429037696863

Prepared by: Tara Gannon

Date audit commenced: 1 November 2023

Date audit report completed: 14 November 2023

Audit report due date: 1 December 2023

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EXECUTIVE SUMMARY

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

The Buller DC RAMM database holds records for Buller DC lights located on the **Buller Electricity Limited (Buller Electricity)** network and at Springs Junction.

Fault, maintenance and upgrade work is completed by Buller Electricity for lights located on the Buller Network, and by WJ Ashton for the Waka Kotahi lights at Springs Junction.

For Buller Electricity lights, the Fulcrum system is used to schedule and manage field work, and staff enter lights details into Fulcrum from the field. Weekly and before the end of each month, Buller Electricity office staff download work completion details from Fulcrum and use this information to update RAMM. The details downloaded include light make and model information, and change dates.

Waka Kotahi is responsible for maintenance of the lights at Springs Junction, and BDC and Buller Electricity rely on Waka Kotahi to inform them of any changes so that RAMM can be updated. The lights at Springs Junction were upgraded from sodium to LED in August 2023, but the changes were not communicated or updated in RAMM until November 2023. Other state highway lights in the area are recorded against Waka Kotahi ICPs and are subject to audits as part of a Waka Kotahi DUML database.

During the audit period there was a change to the interface for the RAMM streetlight module, which included a change to the way in which users determined whether a light was being replaced or removed. This resulted in some lights being accidentally removed instead of replaced, and all affected lights were reinstated before this audit was completed.

A full field audit was conducted on 1 and 2 November 2023 and found that the database was not accurate within ±5%. The field wattage was 74.1% of the database wattage resulting in estimated over submission of 3,152 kWh p.a. The difference was caused by a combination of lights being recorded against BDC ICP numbers which should have been recorded against Waka Kotahi ICP numbers, and some incorrectly recorded lights. The audit found that some of the incorrect data was caused by delays in Waka Kotahi and BDC teams providing changes to streetlight information for update in RAMM, and recommendations have been made for improvement. BDC made corrections to RAMM after the field audit was completed.

Meridian reconciles the DUML load using the UML profile and calculates the submission volumes as the database kW volume based on a monthly wattage report from BDC, multiplied by 11.5 on hours per day and the number of days during the submission period. I found that Meridian's submission data was not always based on the database extracts where Meridian believed that the extracts may be incorrect. Revised submission data will be washed up once change dates and correct submission values are confirmed.

The audit found four non-compliances and makes three recommendations. The future risk rating of 11 indicates that the next audit be completed in 12 months. I have considered this in conjunction with Meridian's comments which indicate corrections have already been made, and agree that the next audit should be completed in a minimum of 12 months on 1 December 2024.

The matters raised are discussed in the table below.

AUDIT SUMMARY

NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Deriving submission information	2.1	11(1) of Schedule 15.3	The field audit found the database was not accurate within ±5% resulting in estimated over submission of 3,152 kWh p.a. Submission information for ICP 0003970474BUE6B has been calculated on November 2022 wattages since November 2022, resulting in potential over submission of 3,029.5 kWh per annum based on the reported database wattages. The data used for submission does not track changes at a daily basis and is provided as a snapshot.	Weak	Low	3	Identified
All load recorded in database	2.5	11(2A) of Schedule 15.3	One additional item of load found in the field of 70 items of load.	Moderate	Low	2	Identified
Database accuracy	3.1	15.2 and 15.37B(b)	The field audit found the database was not accurate within ±5% resulting in estimated over submission of 3,152 kWh p.a.	Weak	Low	3	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 field audit found the database was not accurate within ±5% resulting in estimated over submission of 3,152 kWh p.a. Submission information for ICP 0003970474BUE6B has been calculated on November 2022 wattages since November 2022, resulting in potential over submission of 3,029.5 kWh per annum based on the reported database wattages. The data used for submission does not track changes at a daily basis and is provided as a snapshot.	Weak	Low	3	Identified
Future Risk Rating						11	

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	Description	Response
Tracking of load changes for Waka Kotahi lights at Springs Junction	3.1	Review the process for Waka Kotahi to communicate lamp changes at Springs Junction so that they can be updated in RAMM.	Buller DC have been advised of the recommendation.
Tracking of load changes for unmetered new connections	3.1	Review the process for the planning and project management team to communicate lamp installations so that they can be updated in RAMM.	Buller DC have been advised of the recommendation.

Subject	Section	Description	Response
Approval for new connections to existing DUML ICPs	3.1	Ensure that approval is obtained from Meridian before new unmetered load is connected to existing DUML ICPs.	Buller DC have been advised of the recommendation. Meridian is currently reviewing the DUML New Connection process to ensure that all parties involved are liaised with during the process.

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

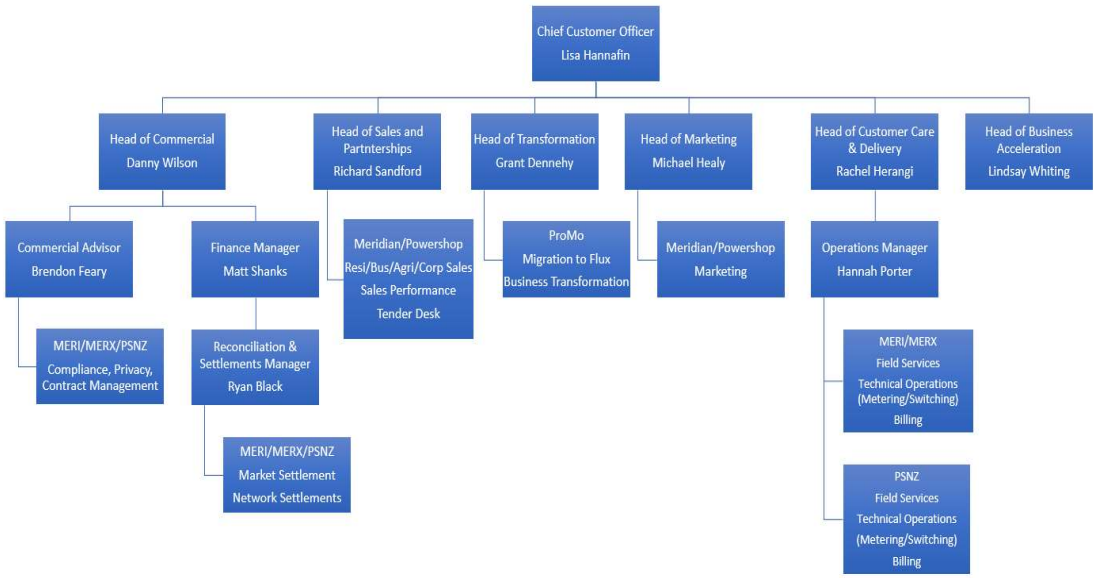
Section 11 of the Electricity Industry Act provides for the Electricity Authority to exempt any participant from compliance with all or any of the clauses.

Audit commentary

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

1.2. Structure of Organisation

Meridian provided a copy of their organisational structure:



1.3. Persons involved in this audit

Auditor:

Name	Title	
Tara Gannon	Auditor	Provera

Other personnel assisting in this audit were:

Name	Title	Company
Martin Dobson	Coordinator Asset Information	Buller District Council
Melanie Matthews	Quality and Compliance Advisor	Meridian Energy
Jordon Kane	Energy Data Analyst	Meridian Energy

1.4. Hardware and Software

Fulcrum

Fulcrum is a cloud based field data collection system used for street light information. Automated disaster recovery and backup is in place. Access to Fulcrum is restricted using logins and passwords, with multiple layers of authentication.

RAMM

The SQL database used for the management of DUML is remotely hosted by thinkproject New Zealand Limited. The database is commonly known as "RAMM" which stands for "Road Assessment and Maintenance Management". The specific data used for DUML is held in the Streetlight tables. thinkproject New Zealand Limited backs up the database and assists with disaster recovery as part of their hosting service.

Access to RAMM is restricted using logins and passwords.

Meridian systems

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

1.5. Breaches or Breach Allegations

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

1.6. ICP Data

ICP Number	Description	NSP	Profile	Number of items of load	Database wattage (watts)
0003970474BUE6B	DUML Streetlights	ORO1102	UML	65	1,505
0000090008NT5BE	BULLER CC STREETLIGHTING MURCHISON GXP	MCH0111	UML	9	1,342
TOTAL				**74**	**2,847**

1.7. Authorisation Received

All information was provided directly by Meridian and Buller District Council.

1.8. Scope of Audit

This audit of the BDC's RAMM database and processes was conducted at the request of 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.

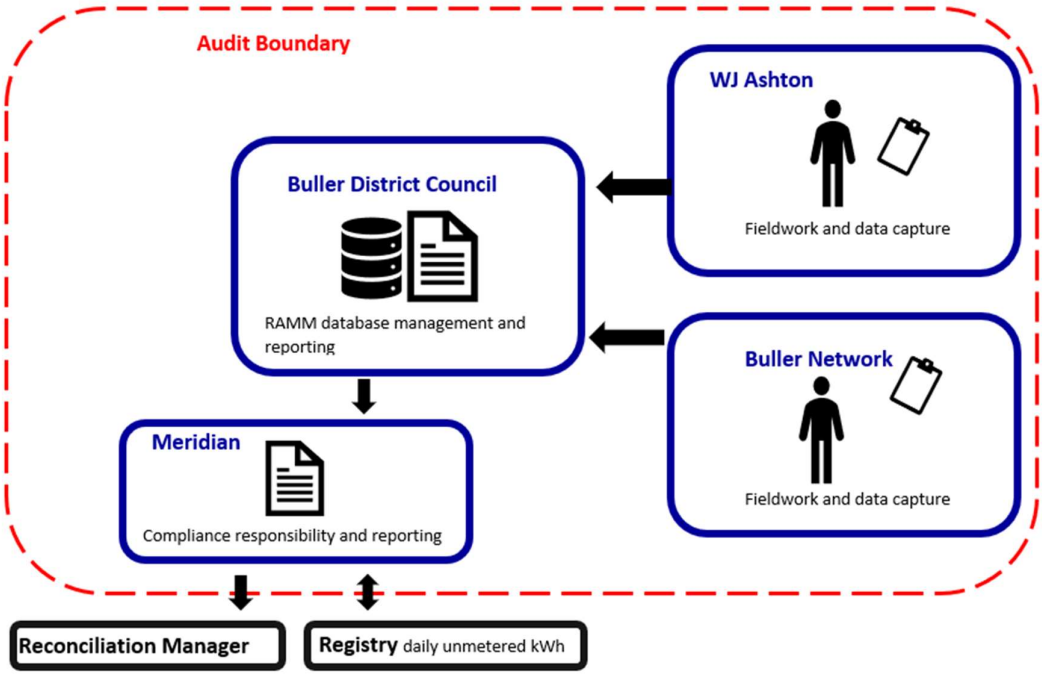
Fault, maintenance and upgrade work is completed by Buller Electricity for lights located on the Buller Network, and by WJ Ashton for the Waka Kotahi lights at Springs Junction.

For Buller Electricity lights, the Fulcrum system is used to schedule and manage field work, and staff enter lights details into Fulcrum from the field. Weekly and before the end of each month, Buller Electricity office staff download work completion details from Fulcrum and use this information to update RAMM. The details downloaded include light make and model information, and change dates.

Waka Kotahi is responsible for maintenance of the lights at Springs Junction, and BDC and Buller Electricity rely on Waka Kotahi to inform them of any changes so that RAMM can be updated. The lights at Springs Junction were upgraded from sodium to LED in August 2023, but the changes were not communicated or updated in RAMM until November 2023.

Meridian reconciles this DUML load using the UML profile and calculates the submission volumes as the database kW volume based on a monthly wattage report from BDC, multiplied by 11.5 on hours per day and the number of days during the submission period.

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 field audit was undertaken of all 74 unmetered load items recorded in the RAMM database on 1 and 2 November 2023.

1.9. Summary of previous audit

Meridian provided a copy of the last audit report undertaken by Steve Woods of Veritek Limited in October 2022. The current status of the non-compliances found in the last audit are detailed below:

Table of Non-Compliances

Subject	Section	Clause	Non-Compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	The field audit found a 14% error rate resulting in an estimated annual over submission of 2,558 kWh. The data used for submission does not track changes at a daily basis and is provided as a snapshot.	Still existing
All load recorded in database	2.5	11(2A) of Schedule 15.3	Three additional items of load found in the field of 71 items of load sampled.	Still existing
Database accuracy	3.1	15.2 and 15.37B(b)	The field audit found a 14% error rate resulting in an estimated annual over submission of 2,558 kWh. One lamp not recorded correctly in the database, resulting in approximately 59.80 kWh p.a. of over submission.	Still existing

Subject	Section	Clause	Non-Compliance	Status
Volume information accuracy	3.2	15.2 and 15.37B(c)	The field audit found a 14% error rate resulting in an estimated annual over submission of 2,558 kWh. The data used for submission does not track changes at a daily basis and is provided as a snapshot.	Still existing

Recommendations

Subject	Section	Description	Action
ICP identifier and items of load	2.2	Investigate the lights in Sunderland St recorded against ICP 0003970396BUB56 and update accordingly.	Adopted. This issue has been investigated and resolved with all lights on Sunderland Street now recorded against ICP 0003970474BUE6B.
Database accuracy	3.1	Incorrect light model of GL700 recorded for lights with LED wattage.	Resolved. Pole ID 1409 had a light model of GL700 but is recorded as a L22 (22W) LED. GL700 is normally associated with 70W sodium lights, and the other L22 lights had a light model of 520B 22 Watt LED (47 lights), 500 (one light) or 520 (one light). BDC confirmed that this was a Waka Kotahi light which should be recorded under a Waka Kotahi ICP number, and has removed it from the 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:

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

Audit observation

Meridian have requested Provera to undertake this streetlight audit.

Audit commentary

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

Audit outcome

Compliant

2. DUML DATABASE REQUIREMENTS

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

Code reference

Clause 11(1) of Schedule 15.3

Code related audit information

The retailer must ensure the:

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

Audit observation

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

Audit commentary

Meridian reconciles this DUML load using the UML profile and calculates the submission volumes as the database kW volume based on a monthly wattage report from BDC, multiplied by 11.5 on hours per day and the number of days during the submission period.

During the audit period, the kW volumes reported by BDC have decreased as LED upgrades were completed. There was also a change to the interface for the RAMM streetlight module, which included a change to the way in which users determined whether a light was being replaced or removed. This resulted in some lights being accidentally removed instead of replaced. All affected lights were reinstated before this audit was completed.

I checked Meridian's submission data and found that the calculation method was correct, but for ICP 0003970474BUE6B the wattage applied was not consistent with the database extract.

ICP	Comment
0000090008NT5BE	Submissions were consistent with the database extract information.
0003970474BUE6B	Submissions have been based on 33.91 kWh per day since November 2022, although the load has decreased over time to a current level of 17.31 kWh per day (1.505 kW x 11.5 hours per day). This could result in potential over submission of 3,029.5 kWh per annum based on the reported database wattages. Meridian noticed the decrease in load and were not sure whether it was valid, and queried it with BDC. They continued to conservatively submit the higher volume while they waited for confirmation of whether the lower volume was correct. Once the correct change dates are confirmed, revised submission information will be washed up.

A full field audit was conducted on 1 and 2 November 2023 and found that the database was not accurate within ±5%. The field wattage was 74.1% of the database wattage resulting in estimated over submission of 3,152 kWh p.a. The difference was caused by a combination of lights being recorded against a BDC ICP number which should have been recorded against a Waka Kotahi ICP number, and some incorrectly recorded lights. BDC made corrections to RAMM after the field audit was completed.

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 database extract used for submission is a snap shot and does not account for daily changes to unmetered load.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: 01-Nov-22 To: 02-Nov-23	The field audit found the database was not accurate within ±5% resulting in estimated over submission of 3,152 kWh p.a. Submission information for ICP 0003970474BUE6B has been calculated on November 2022 wattages since November 2022, resulting in potential over submission of 3,029.5 kWh per annum based on the reported database wattages. The data used for submission does not track changes at a daily basis and is provided as a snapshot. Potential impact: Low Actual impact: Low Audit history: Multiple times previously Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as weak because some items of load had incorrect ICP numbers recorded, the database was not accurate within ±5%, and submissions were not consistently calculated based on the database extract information. The impact is assessed to be low based on the estimated volume over submitted.

Actions taken to resolve the issue	Completion date	Remedial action status
Buller DC was advised of the inaccuracies and has since corrected all of them. Meridian will review data where possible to see if any corrections to submission can be made.	Completed 31/01/2024	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 DUML database must contain:

- *each ICP identifier for which the retailer is responsible for the DUML,*
- *the items of load associated with the ICP identifier.*

Audit observation

The database was checked to confirm an ICP was recorded against each item of load.

Audit commentary

All items of load have an ICP recorded against them.

The previous audit found Sunderland Street had items of load connected to more than one ICP. This issue has been investigated and resolved with all lights on Sunderland Street now recorded against ICP 0003970474BUE6B.

Audit outcome

Compliant

2.3. Location of each item of load (Clause 11(2)(b) of Schedule 15.3)

Code reference

Clause 11(2)(b) of Schedule 15.3

Code related audit information

The DUML database must contain the location of each DUML item.

Audit observation

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

Audit commentary

The database contains fields for pole number, road name, house number, opposite number, road side and GPS coordinates. All items of load have GPS coordinates, a pole number and road name recorded.

The previous audit found that GPS coordinates were incorrect for one item of load and this has been corrected.

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 and that each item of load had a value recorded in these fields.

Audit commentary

The RAMM database has fields for light make, light model, lamp model, gear model, lamp wattage and gear wattage. The fields are populated for all items of load, and all wattages were consistent with the lamp model information.

Pole ID 1409 had a light model of GL700 but is recorded as a L22 (22W) LED. GL700 is normally associated with 70W sodium lights, and the other L22 lights had a light model of 520B 22 Watt LED (47 lights), 500 (one light) or 520 (one light). BDC confirmed that this was a Waka Kotahi light which should be recorded under a Waka Kotahi ICP number, and has removed it from the database.

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 was undertaken of the all the unmetered 74 items of load on 1 and 2 November 2023.

Audit commentary

The field audit discrepancies are detailed in the table below:

Street/Area	Data-base Count	Field Count	Lamp no. difference	No of incorrect lamp wattage	Comments
ADDERLEY ST (NORTH)	2	1	-1	-	There is no light present for pole ID 1281 but the database records 1x L22. The light was removed from the database after the field audit.
BEACH RD (CHARLESTON)	1	-	-1	-	Pole ID 1401 was a Waka Kotahi light and should not be recorded against a BDC ICP. The database was corrected after the field audit.
CHARMING CREEK RD	1	1	-	1	Pole ID 1058 has an L22 but is recorded in the database as L27. The database was corrected after the field audit.

Street/Area	Data-base Count	Field Count	Lamp no. difference	No of incorrect lamp wattage	Comments
COLLINS ROAD	1	-	-1	-	Pole ID 1409 was a Waka Kotahi light and should not be recorded against a BDC ICP. The database was corrected after the field audit.
KARAMEA HIGHWAY	2	2	-	1	Pole ID 1210 has an L23 but is recorded in the database as L27. The database was corrected after the field audit.
KEW RD	4	4	-	2	Two L22 lights at pole IDs 308 and 759 are recorded as L27 in the database. The database was corrected after the field audit.
MCINTYRE RD (WEST)	1	-	-1	-	No lights are on McIntyre Road. This is a Waka Kotahi light in a nearby location which should not have been recorded against a BDC ICP, and has now been deleted from the database.
SH 65	2	2	-	2	Two L103 LEDs were recorded in the database as one 150W SON and one 70W SON. The database was corrected after the field audit.
SH 67 GRANITY/TOREA ST	1	1	-	1	Pole ID 1239 has a 70W SON but is recorded in the database as L22. The database was corrected after the field audit.
SH 67 WAIMANGAROA	10	-	-10	-	These are all Waka Kotahi lights and should not be recorded against a BDC ICP. They were removed from the database after the field audit.
SH 67A ACCESSWAY 430	1	-	-1	-	There is no pole present in the location of pole ID 1423. The database was corrected after the field audit.
SH7 SPRINGS JUNCTION	7	8	+1	7	Seven L103 LEDs were recorded in the database as six 150W SON and one 70W SON. One L27 LED outside 7 SH7 was not recorded in the database. The database was corrected after the field audit.

Street/Area	Data-base Count	Field Count	Lamp no. difference	No of incorrect lamp wattage	Comments
SUNDERLAND ST	4	3	-1	-	Pole ID 1223 with an L27 connected was not located on the street. The database was corrected after the field audit.
THE ESPLANADE	1	-	-1	-	Pole ID 489 with an L22 connected was not located on the street. The database was corrected after the field audit.
Total	**74**	**58**	**18 (+1/-17)**	**14**	

One additional item of load was identified during the field audit. Database accuracy is discussed in **section 3.1.**

Audit outcome

Non-compliant

Non-compliance	**Description**
Audit Ref: 2.5 With: Clause 11(2A) of Schedule 15.3 From: 01-Nov-23 To: 02-Nov-23	One additional item of load found in the field of 70 items of load. Potential impact: Low Actual impact: Low Audit history: Twice previously Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate because they ensure most information is accurate. The impact is assessed to be low because one additional item of load was found.

Actions taken to resolve the issue	**Completion date**	**Remedial action status**
Buller DC was advised of the inaccuracies and has since corrected all of them.	Completed	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

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 RAMM 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 RAMM database has a complete audit trail of all additions and changes to the database information.

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 field audit was undertaken of all 74 items of unmetered load items recorded in the RAMM database on 1 and 2 November 2023.

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

The change management process to track changes and timeliness of database updates was evaluated.

Audit commentary

Database accuracy

A full field audit was conducted on 1 and 2 November 2023 and found that the database was not accurate within ±5%. The field wattage was 74.1% of the database wattage resulting in estimated over submission of 3,152 kWh p.a. The difference was caused by a combination of lights being recorded against a BDC ICP number, which should have been recorded against a Waka Kotahi ICP number and some incorrectly recorded lights. The differences are described in **section 2.5**, and BDC have corrected RAMM.

Total	Database	Field survey	Difference
Total wattage	2,847 W	2,109 W	738 W
Total kWh[1]	12,159.54 kWh	9,007.54 kWh	3,152.00 kWh
Total count	74 lights	58 lights	-16 lights

Lamp description and capacity accuracy

Wattages for all items of load were checked against the published standardised wattage table produced by the Electricity Authority or LED light specifications and found to be correct.

Pole ID 1409 had a light model of GL700 but is recorded as a L22 (22W) LED. GL700 is normally associated with 70W sodium lights, and the other L22 lights had a light model of 520B 22 Watt LED (47 lights), 500 (one light) or 520 (one light). BDC confirmed that this was a Waka Kotahi light and has removed it from the database.

Tracking of load changes

Fault, maintenance and upgrade work is completed by Buller Electricity for lights located on the Buller Network, and by WJ Ashton for the Waka Kotahi lights at Springs Junction.

For Buller Electricity lights, the Fulcrum system is used to schedule and manage field work, and staff enter lights details into Fulcrum from the field. Weekly and before the end of each month, Buller

[1] Based on 4,271 hours per annum

Electricity office staff download work completion details from Fulcrum and use this information to update RAMM. The details downloaded include light make and model information, and change dates.

Waka Kotahi is responsible for maintenance of the lights at Springs Junction, and BDC and Buller Electricity rely on Waka Kotahi to inform them of any changes so that RAMM can be updated. The lights at Springs Junction were upgraded from sodium to LED in August 2023, but the changes were not communicated or updated in RAMM until November 2023. Other state highway lights in the area are recorded against Waka Kotahi ICPs and are subject to audits as part of a Waka Kotahi DUML database.

New connections most commonly occur when new subdivisions are created. The process is managed by the planning and project management team, who are expected to notify the asset information team when streetlights are connected, but this does not always occur promptly. BDC advised that there have been instances where newly connected streetlights have been discovered during maintenance instead of through the notification process. These streetlights were connected to metered ICPs, and it has not affected the accuracy of the DUML load.

Buller Electricity connects streetlights and records them in RAMM. They ensure approval is obtained from the trader if a new ICP is created, but not if load is added to an existing streetlight circuit. Buller Electricity is revising this process and will email Meridian for approval where new load is connected to an existing ICP.

Recommendation	Description	Audited party comment	Remedial action
Tracking of load changes for Waka Kotahi lights at Springs Junction	Review the process for Waka Kotahi to communicate lamp changes at Springs Junction so that they can be updated in RAMM.	Buller DC have been advised of the recommendation.	Investigating
Tracking of load changes for unmetered new connections	Review the process for the planning and project management team to communicate lamp installations so that they can be updated in RAMM.	Buller DC have been advised of the recommendation.	Investigating
Approval for new connections to existing DUML ICPs	Ensure that approval is obtained from Meridian before new unmetered load is connected to existing DUML ICPs.	Buller DC have been advised of the recommendation. Meridian is currently reviewing the DUML New Connection process to ensure that all parties involved are liaised with during the process.	Investigating

The faults process is used to identify any lamps requiring maintenance. Outage patrols are conducted on an ad hoc basis, as part of fault and maintenance work.

LED upgrade

LED upgrades have been completed for all lights, including the Waka Kotahi lights at Springs Junction. BDC does not plan to use dimming or a central management system.

Private lights

All private lights which BDC is aware of are connected to their own metered ICPs.

Festive lights

Christmas lights in the Buller district are connected to metered circuits. Currently they are only in the Palmerston Street area.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 01-Nov-23 To: 02-Nov-23	The field audit found the database was not accurate within ±5% resulting in estimated over submission of 3,152 kWh p.a. Potential impact: Low Actual impact: Low Audit history: Three times Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as weak because some items of load had incorrect ICP numbers recorded, and the database was not accurate within ±5%. The impact is assessed to be low based on the estimated volume over submitted.

Actions taken to resolve the issue	Completion date	Remedial action status
Buller DC was advised of the inaccuracies and has since corrected all of them. Meridian will review data where possible to see if any corrections to submission can be made.	Completed 31/01/2024	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

3.2. Volume information accuracy (Clause 15.2 and 15.37B(c))

Code reference

Clause 15.2 and 15.37B(c)

Code related audit information

The audit must verify that:

- *volume information for the DUML is being calculated accurately,*
- *profiles for DUML have been correctly applied.*

Audit observation

The submission was checked for accuracy for the month the database extract was supplied. This included:

- checking the registry to confirm that the ICP has the correct profile and submission flag, and
- checking the database extract combined with the burn hours against the submitted figure to confirm accuracy.

Audit commentary

Meridian reconciles this DUML load using the UML profile and calculates the submission volumes as the database kW volume based on a monthly wattage report from BDC, multiplied by 11.5 on hours per day and the number of days during the submission period.

During the audit period, the kW volumes reported by BDC have decreased as LED upgrades were completed. There was also a change to the interface for the RAMM streetlight module, which included a change to the way in which users determined whether a light was being replaced or removed. This resulted in some lights being accidentally removed instead of replaced, and all affected lights were reinstated before this audit was completed.

I checked Meridian's submission data and found that the calculation method was correct, but for ICP 0003970474BUE6B the wattage applied was not consistent with the database extract.

ICP	Comment
0000090008NT5BE	Submissions were consistent with the database extract information.
0003970474BUE6B	Submissions have been based on 33.91 kWh per day since November 2022, although the load has decreased over time to a current level of 17.31 kWh per day (1.505 kW x 11.5 hours per day). This could result in potential over submission of 3,029.5 kWh per annum based on the reported database wattages. Meridian noticed the decrease in load and were not sure whether it was valid, and queried it with BDC. They continued to conservatively submit the higher volume while they waited for confirmation of whether the lower volume was correct. Once the correct change dates are confirmed, revised submission information will be washed up.

A full field audit was conducted on 1 and 2 November 2023 and found that the database was not accurate within ±5%. The field wattage was 74.1% of the database wattage resulting in estimated over submission of 3,152 kWh p.a. The difference was caused by a combination of lights being recorded against a BDC ICP number which should have been recorded against a Waka Kotahi ICP number, and some incorrectly recorded lights. BDC made corrections to RAMM after the field audit was completed.

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 database extract used for submission is a snap shot and does not account for daily changes to unmetered load.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: 01-Nov-22 To: 02-Nov-23	The field audit found the database was not accurate within ±5% resulting in estimated over submission of 3,152 kWh p.a. Submission information for ICP 0003970474BUE6B has been calculated on November 2022 wattages since November 2022, resulting in potential over submission of 3,029.5 kWh per annum based on the reported database wattages. The data used for submission does not track changes at a daily basis and is provided as a snapshot. Potential impact: Low Actual impact: Low Audit history: Multiple times previously Controls: Weak Breach risk rating: 3
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as weak because some items of load had incorrect ICP numbers recorded, the database was not accurate within ±5%, and submissions were not consistently calculated based on the database extract information. The impact is assessed to be low based on the estimated volume over submitted.

Actions taken to resolve the issue	Completion date	Remedial action status
Buller DC was advised of the inaccuracies and has since corrected all of them. Meridian will review data where possible to see if any corrections to submission can be made.	Completed 31/01/2024	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	

CONCLUSION

The Buller DC RAMM database holds records for Buller DC lights located on the Buller Electricity network and at Springs Junction. Meridian reconciles this DUML load using the UML profile and calculates the submission volumes as the database kW volume based on a monthly wattage report from BDC, multiplied by 11.5 on hours per day and the number of days during the submission period.

A full field audit was conducted on 1 and 2 November 2023 and found that the database was not accurate within ±5%. The field wattage was 74.1% of the database wattage resulting in estimated over submission of 3,152 kWh p.a. The difference was caused by a combination of lights being recorded against BDC ICP numbers which should have been recorded against Waka Kotahi ICP numbers, and some incorrectly recorded lights. The audit found that some of the incorrect data was caused by delays in Waka Kotahi and BDC teams providing changes to streetlight information for update in RAMM, and recommendations have been made for improvement. BDC made corrections to RAMM after the field audit was completed.

Meridian reconciles the DUML load using the UML profile and calculates the submission volumes as the database kW volume based on a monthly wattage report from BDC, multiplied by 11.5 on hours per day and the number of days during the submission period. I found that Meridian's submission data was not always based on the database extracts where Meridian believed that the extracts may be incorrect. Revised submission data will be washed up once change dates and correct submission values are confirmed.

The audit found four non-compliances and makes three recommendations. The future risk rating of 11 indicates that the next audit be completed in 12 months. I have considered this in conjunction with Meridian's comments which indicate corrections have already been made, and agree that the next audit should be completed in a minimum of 12 months on 1 December 2024.

Participant response

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