

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

For

**CHRISTCHURCH CITY COUNCIL
AND MERIDIAN ENERGY
NZBN: 9429037696863**

Prepared by: Steve Woods

Date audit commenced: 17 November 2022

Date audit report completed: 30 November 2022

Audit report due date: 22-Feb-23

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EXECUTIVE SUMMARY

This audit of the **Christchurch City Council (CCC) 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.

The DUML database contains various items of UML that were historically billed against individual ICPs. Unmetered loads were identified by the Christchurch City Council and moved into the Orion database following a verification process to confirm locations, wattages, hours of operation etc.

Meridian reconciles this DUML load using the UML profile and the daily unmetered figures for the ICPs. Meridian Energy receive a monthly wattage report from Orion. This is used to update the daily figure on the registry.

I checked the November 2022 extract provided by Orion against the submission totals on the registry populated by Meridian and found that submission matched the database.

A field audit was undertaken of a statistical sample of 105 items of load on 23rd November 2022. The field audit confirmed the database was accurate.

Orion's fault, maintenance, new connection, and upgrade work is completed by Orion's approved contractors. The contractors provide paperwork to Orion confirming that work is complete, and Orion uses this information to update the database.

This audit did not find any non-compliances and repeats one recommendation. The future risk rating of zero indicates that the next audit be completed in 36 months. I agree with this recommendation.

The matters raised are detailed below:

AUDIT SUMMARY

NON-COMPLIANCES

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

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	Remedial action
Regarding clause 15.2 and 15.37B(b)	3.1	Install logging equipment to confirm the battery charger load for tsunami sirens.	

ISSUES

Subject	Section	Description	Issue
Nil			

1. ADMINISTRATIVE

1.1. Exemptions from Obligations to Comply with Code

Code reference

Section 11 of Electricity Industry Act 2010.

Code related audit information

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

Audit observation

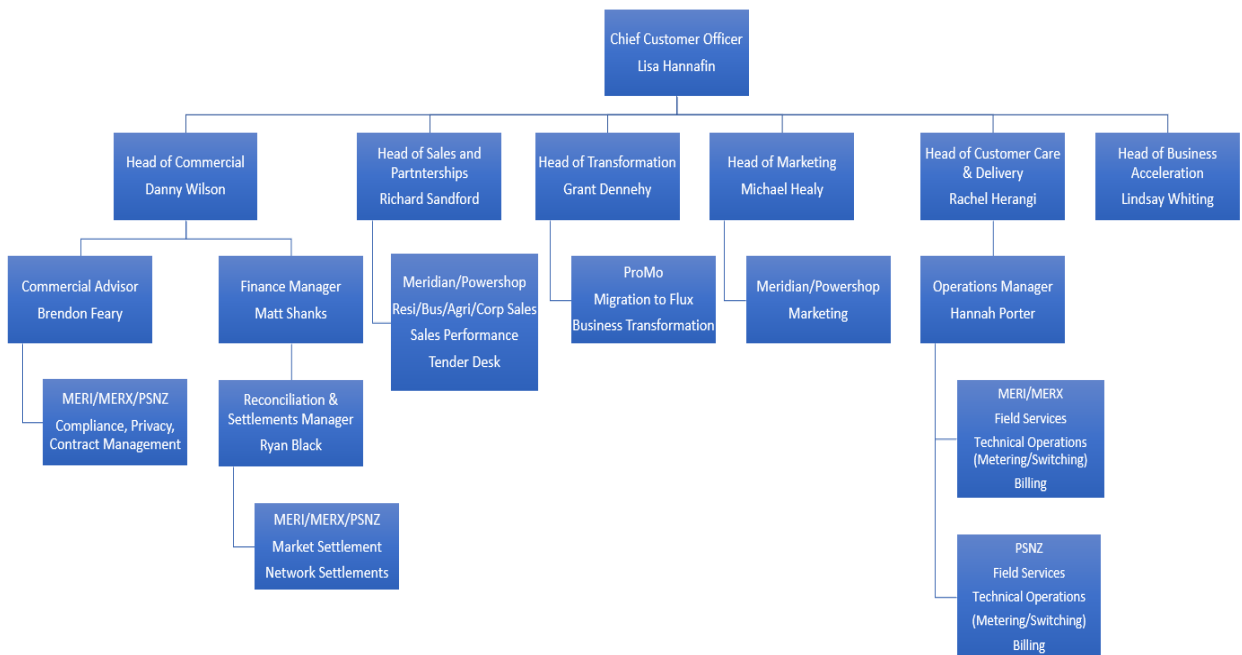
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

Audit commentary

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

1.2. Structure of Organisation

Meridian provided the relevant organisational structure:



1.3. Persons involved in this audit

Auditors:

Name	Title	Company
Steve Woods	Auditor	Veritek
Claire Stanley	Supporting Auditor	Veritek

Other personnel assisting in this audit were:

Name	Title	Company
Penny Lawrence	Operations Services	Orion
Helen Youngman	Energy Data Analyst	Meridian Energy
Amy Cooper	Compliance Officer	Meridian Energy

1.4. Hardware and Software

Orion use a purpose-built Oracle Streetlighting/DUML database for the management of the DUML information. Backup and restoration procedures are in place, and access to the Orion network (including the database) is restricted using logins and passwords.

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

1.5. Breaches or Breach Allegations

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

1.6. ICP Data

ICP Number	Description	NSP	Number of items of load	Database wattage (watts)
0007186942RNC7D	CCC Other DUML ICP	BRY0661	122	36.18
0007186944RNDF2	CCC Other DUML ICP	ISL0661	36	17.63
0007186943RN038*	CCC Other DUML ICP	ISL0331	1	0.58
Total				54.39

*ICP 0007186943RN038 had a different ICP assigned in the previous audit, this has now been corrected.

1.7. Authorisation Received

All information was provided directly by Meridian, and Orion.

1.8. Scope of Audit

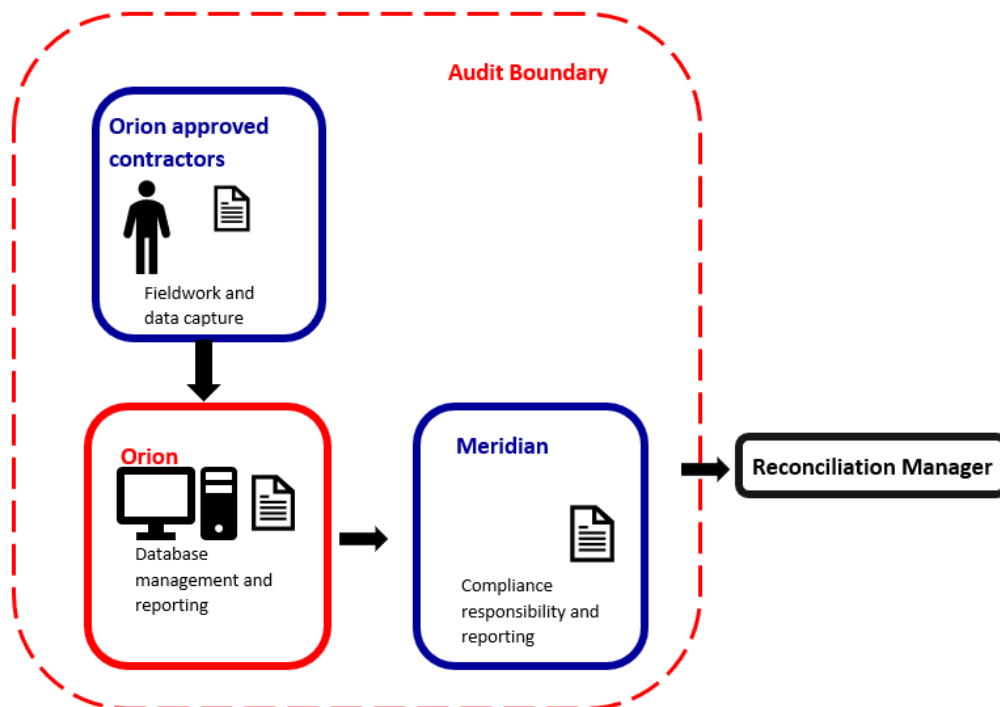
This audit of the CCC DUML database and processes was conducted at the request of Meridian in accordance with clause 15.37B. The purpose of this audit is to verify that the volume information is being calculated accurately, and that profiles have been correctly applied.

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

The unmetered load is managed by Orion and the data is held in their DUML database, on behalf of CCC, who is Meridian's customer.

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 diagrams below show the audit boundaries for clarity.

Orion's fault, maintenance, new connection and upgrade work is completed by Orion's approved contractors. The contractors provide paperwork to Orion confirming that work is complete, and Orion uses this information to update the database.



1.9. Summary of previous audit

The previous audit was conducted for in May 2022 by Steve Woods of Veritek Ltd. The findings are shown in the table below.

Subject	Section	Clause	Non-Compliance	Status
Distributed unmetered load audits	1.10	16A.26 and 17.295F	DUML audit conducted late.	Cleared

RECOMMENDATIONS

Subject	Section	Description	Status
Tsunami wattage reporting	3.1	Install logging equipment to confirm the battery charger load for tsunami sirens.	Still existing

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

Audit observation

Meridian have requested Veritek to undertake this streetlight audit.

Audit commentary

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

Audit outcome

Compliant

2. 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 UML profile and the daily unmetered figures for the ICPs. Meridian Energy receive a monthly wattage report from Orion. This is used to update the daily figure on the registry.

I checked the November 2022 extract provided by Orion against the submission totals on the registry populated by Meridian and found that submission matched the database.

The full field audit found that the database had 100% accuracy rate. The field audit confirmed that the database accuracy is within the allowable +/-5% threshold and is therefore considered compliant.

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 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 a GXP recorded against them and this maps to the ICP.

Audit outcome

Compliant

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

Code reference

Clause 11(2)(b) of Schedule 15.3

Code related audit information

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

Audit observation

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

Audit commentary

The database contains fields for the street name, number, and GPS coordinates. All fields are recorded except for the GPS coordinates for one item of load which had sufficient detail to locate it.

Audit outcome

Compliant

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

Code reference

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

Code related audit information

The DUMML database must contain:

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

Audit observation

The database was checked to confirm that it contained a field for load type and wattage capacity.

Audit commentary

The database contains the lamp type field, this is populated with type of load, and corresponds to the wattage capacity for each type of load. The accuracy of the recorded wattages is discussed in **section 3.1**.

Audit outcome

Compliant

2.5. All load recorded in database (Clause 11(2A) of Schedule 15.3)

Code reference

Clause 11(2A) of Schedule 15.3

Code related audit information

The retailer must ensure that each item of DUMML for which it is responsible is recorded in this database.

Audit observation

A field audit was undertaken of a statistical sample of 105 items of load on 23rd November 2022. The sample was selected from three strata, as follows:

- Irrigation,
- Pumps, and
- Tsunami Sirens.

Audit commentary

The field audit found did not find any additional items of load in the field or any discrepancies.

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 database was examined.

Audit commentary

The database functionality achieves compliance with the code.

Audit outcome

Compliant

2.7. Audit trail (Clause 11(4) of Schedule 15.3)

Code reference

Clause 11(4) of Schedule 15.3

Code related audit information

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

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

Audit observation

The databases were checked for audit trails.

Audit commentary

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

Audit outcome

Compliant

3. ACCURACY OF DUMML 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 DUMML database is complete and accurate.

Audit observation

A full field audit was undertaken.

Wattages were checked for alignment with published standardised wattage specifications. Supporting information was also provided by the Christchurch City Council.

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

Audit commentary

A field audit was undertaken of a statistical sample of 105 items of load that included Tsunami sirens, Irrigation and Pumps on 23rd November 2022.

The calculations for wattages were provided by Orion and checked against the DUMML database for the irrigation controllers, sewer pumps and tsunami sirens.

The previous audit identified that the tsunami sirens run on batteries and the unmetered load is for the battery chargers. The battery chargers are 100 watts, and it is assumed they will be "charging" for 10% of the time, or 15% for the larger ones. This assumption may be too high because once the batteries are charged, the load required to keep them charged will be quite small. Orion has suggested that loggers are placed at each of the two types of chargers to confirm the loads. This has not yet been actioned. The recommendation remains for visibility.

Recommendation	Description	Audited party comment	Remedial action
Regarding clause 15.2 and 15.37B(b)	Install logging equipment to confirm the battery charger load for tsunami sirens.	We are continuing to work with Orion and the council to implement this recommendation.	Investigating

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

Database accuracy

The field audit did not find any errors and confirmed that the database accuracy is within the allowable +/-5% threshold and is therefore considered compliant.

Change management process findings

There has not been any change to the fault, maintenance, new connection and upgrade work processes that are completed by Orion's approved contractors. The contractors provide paperwork to Orion confirming that work is complete, and Orion uses this information to update the DUMML database and GIS. New Connections are very rare, and the last new connections were a number of years ago post-earthquake to install the sewer pumps.

Upon receipt, paperwork is checked for completeness and accuracy and any issues are followed up with the contractor. The information is sent to the GIS team so that the GIS can be updated, and then returned

to the connections team to update the DUML database from the date the change or new connection was effective. Once data entry is complete, the values loaded are checked against the paperwork provided.

All jobs are tracked using job numbers by the connections team as part of the works management process. Late paperwork from contractors, and late updates by the GIS team are followed up. A checklist is followed to ensure that all steps in the process are completed.

Orion's approved contractors have access to a web based version of the DUML database in the field and advise Orion's connections team if they notice any discrepancies in the data recorded. Orion's operation team acts on these notifications and checks and updates the data where necessary.

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 process for calculation of consumption was examined.

Audit commentary

Meridian reconciles this DUML load using the UML profile and the daily unmetered figures for the ICPs. Meridian Energy receive a monthly wattage report from Orion. This is used to update the daily figure on the registry.

I checked the November 2022 extract provided by Orion against the submission totals on the registry populated by Meridian and found that submission matched the database.

The full field audit found that the database had 100% accuracy rate. The field audit confirmed that the database accuracy is within the allowable +/-5% threshold and is therefore considered compliant.

Audit outcome

Compliant

CONCLUSION

The audit was conducted in accordance with the audit guidelines for DUML audits version 1.1, which became effective on 1 June 2017.

The DUML database contains various items of UML that were historically billed against individual ICPs. Unmetered loads were identified by the Christchurch City Council and moved into the Orion database following a verification process to confirm its location, wattage, hours of operation etc.

Meridian reconciles this DUML load using the UML profile and the daily unmetered figures for the ICPs. Meridian Energy receive a monthly wattage report from Orion. This is used to update the daily figure on the registry.

I checked the November 2022 extract provided by Orion against the submission totals on the registry populated by Meridian and found that submission matched the database.

A field audit was undertaken of a statistical sample of 105 items of load on 23rd November 2022. The field audit found confirmed the database was accurate.

Orion's fault, maintenance, new connection, and upgrade work is completed by Orion's approved contractors. The contractors provide paperwork to Orion confirming that work is complete, and Orion uses this information to update the database.

This audit did not find any non-compliances and repeats one recommendation. The future risk rating of zero indicates that the next audit be completed in 36 months. I agree with this recommendation.

PARTICIPANT RESPONSE

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