

ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT



For

WATERLOO PARK AND MERIDIAN ENERGY
LIMITED

NZBN: 9429037696863

Prepared by: Steve Woods

Date audit commenced: 28 February 2023

Date audit report completed: 20 March 2023

Audit report due date: 1 May 2023

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EXECUTIVE SUMMARY

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

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

The lights covered by this audit are located in Waterloo Park, which is an industrial park in Islington, Christchurch. The database is managed by Orion. The streetlight data is held in Orion's GIS and an SQL database which interfaces with the GIS.

Meridian reconciles this DUML load using the UML profile and the daily unmetered figures for the ICP. The profile changed from DST to UML on 1 August 2022.

Meridian Energy receive a monthly wattage report from Orion. This is used to update the daily figure on the registry.

I checked the March 2023 extract provided by Orion against the submission totals on the registry populated by Meridian and found that submission matched the database.

A full field audit of all 76 items of load was undertaken on 2nd March 2023, and did not find any additional items. Four incorrect wattages were identified. The database was within the allowable +/-5% accuracy threshold.

This audit found two non-compliances and makes no recommendations. The future risk rating of four indicates that the next audit be completed in 24 months. I have considered this in conjunction with Meridian's comments and recommend that the next audit be in 24 months.

The matters raised are detailed below:

AUDIT SUMMARY

NON-COMPLIANCES

Subject	Section	Clause	Non- Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Deriving submission information	2.1	11(1) of Schedule 15.3	The data used for submission does not track changes at a daily basis and is provided as a snapshot.	Moderate	Low	2	Identified
Volume information accuracy	3.2	15.2 and 15.37B(c)	The data used for submission does not track changes at a daily basis and is provided as a snapshot.	Moderate	Low	2	Identified
Future Risk Rating						4	

Future risk rating	0	1-4	5-8	9-15	16-18	19+
Indicative audit frequency	36 months	24 months	18 months	12 months	6 months	3 months

RECOMMENDATIONS

Subject	Section	Recommendation
		Nil

ISSUES

Subject	Section	Description	Issue
		Nil	

1. ADMINISTRATIVE

1.1. Exemptions from Obligations to Comply with Code

Code reference

Section 11 of Electricity Industry Act 2010.

Code related audit information

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

Audit observation

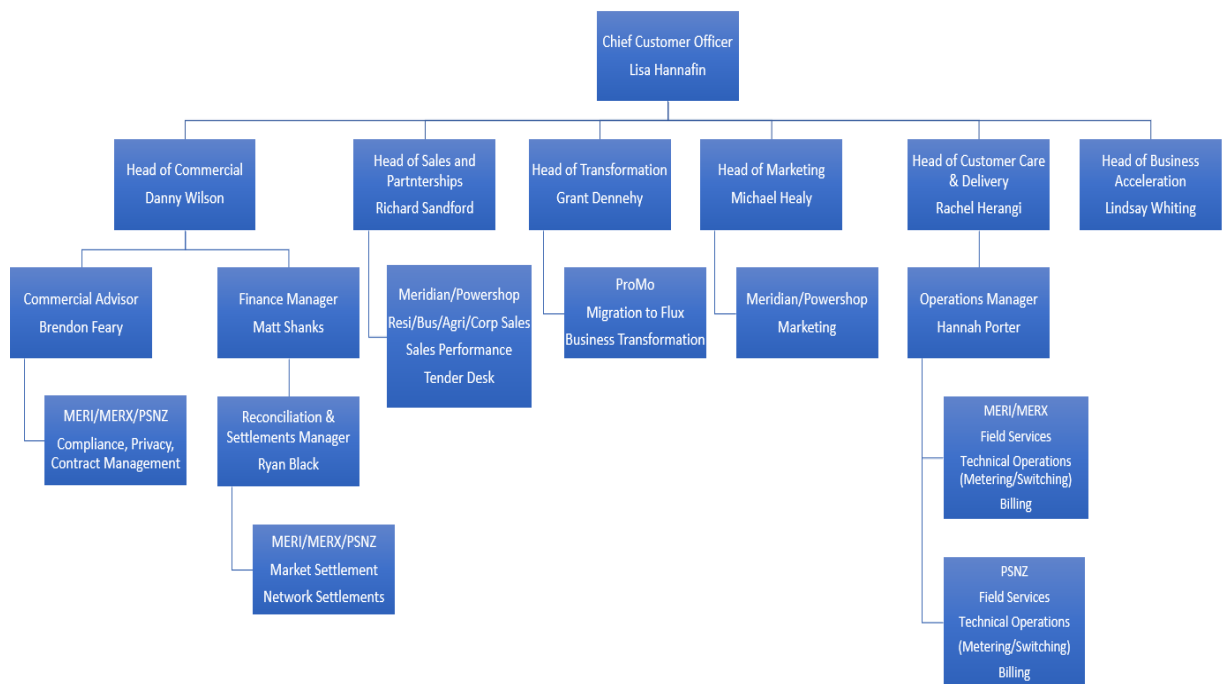
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

Audit commentary

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

1.2. Structure of Organisation

Meridian provided a copy of their organisational structure.



1.3. Persons involved in this audit

Auditors:

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

Other personnel assisting in this audit were:

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

1.4. Hardware and Software

Orion use a purpose-built Oracle system for the management of the DUML information. 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	Number of items of load	Database wattage (watts)
0007174608RN59A	Ref Orion Waterloo Business Park Street Lighting ICP	ISL0331	UML	76	3,769

1.7. Authorisation Received

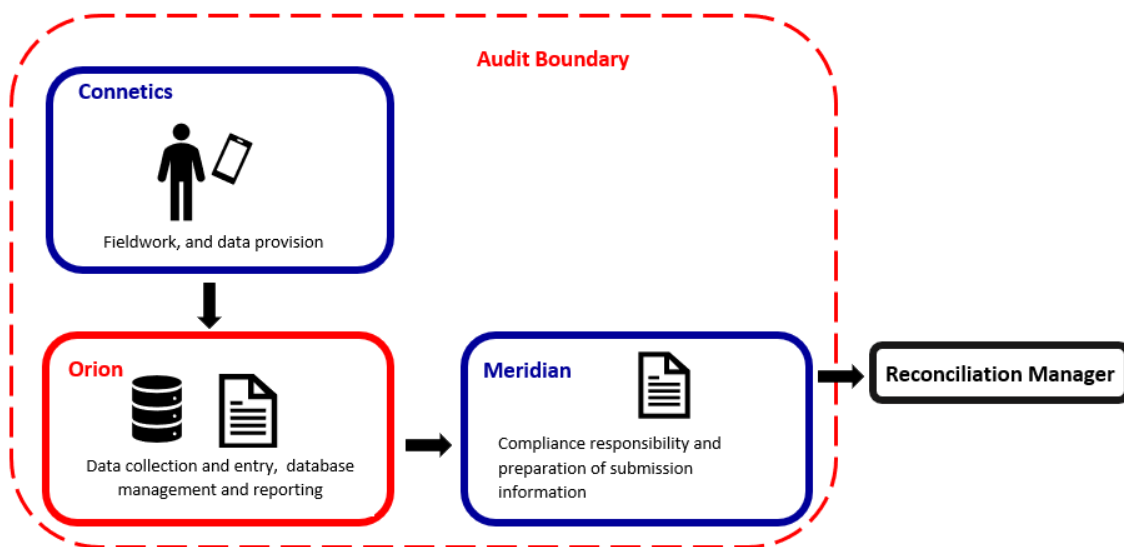
All information was provided directly by Meridian and Orion.

1.8. Scope of Audit

The lights covered by this audit are located in Waterloo Park, which is an industrial park in Islington, Christchurch. The database is managed by Orion. The streetlight data is held in Orion's GIS and an SQL database, which interfaces with the GIS. Orion provide a monthly report from the database to Meridian.

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

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.



1.9. Summary of previous audit

The previous audit was completed in May 2022 by Steve Woods of Veritek Limited. Four non-compliances were identified, and no recommendations were made. The current status of the non-compliances is detailed below.

Table of Non-Compliance

Subject	Section	Clause	Non-Compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	The data used for submission does not track changes at a daily basis and is provided as a snapshot. Database accuracy of 82% indicating estimated under submission of 3,118 kWh per annum.	Still existing Cleared
All load recorded in database	2.5	11(2A) of Schedule 15.3	Twelve additional lights found in the field.	Cleared
Database accuracy	3.1	15.2 and 15.37B(b)	The database has inaccuracies resulting in an over submission of 3,118 kWh per annum.	Cleared
Volume information accuracy	3.2	15.2 and 15.37B(c)	The data used for submission does not track changes at a daily basis and is provided as a snapshot. Database accuracy of 82% indicating estimated under submission of 3,118 kWh per annum.	Still existing Cleared

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

Code reference

Clause 16A.26 and 17.295F

Code related audit information

Retailers must ensure that DUML database audits are completed:

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

Audit observation

Meridian have requested Veritek to undertake this streetlight audit.

Audit commentary

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

Audit outcome

Compliant

2. 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 ICP. The profile changed from DST to UML on 1 August 2022.

Meridian Energy receive a monthly wattage report from Orion. This is used to update the daily figure on the registry.

I checked the March 2023 extract provided by Orion against the submission totals on the registry populated by Meridian and found that submission matched the database.

A full field audit was undertaken and found four lamps with incorrect wattages. The database was within the allowable +/-5% accuracy threshold.

On 18 June 2019, the Electricity Authority issued a memo confirming that the code requirement to calculate the correct monthly load must:

- take into account when each item of load was physically installed or removed, and
- wash up volumes must take into account where historical corrections have been made to the DUML load and volumes.

The current data used is a snapshot and this practice is non-compliant.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: 05-Apr-22 To: 28-Feb-23	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: Non Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are rated as moderate, because they are sufficient to ensure that changes to the database are correctly recorded most of the time. The impact is assessed to be low due to the impact on submission.		
Actions taken to resolve the issue		Completion date	Remedial action status
			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.		19/4/2023	

2.2. ICP identifier and items of load (Clause 11(2)(a) and (aa) of Schedule 15.3)

Code reference

Clause 11(2)(a) and (aa) of Schedule 15.3

Code related audit information

The DUMML database must contain:

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

Audit observation

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

Audit commentary

All items of load have an ICP recorded against them.

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 the street name and number of each item of load. The GPS co-ordinates are recorded for each item.

Audit outcome

Compliant

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

Code reference

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

Code related audit information

The DUML database must contain:

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

Audit observation

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

Audit commentary

The assigned lamp ID for each item of load references to a wattage table that contains a total wattage. All of these lights are LED so there is no gear wattage to be added and all items of load had a light type and lamp wattage recorded.

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 full field audit was undertaken of the 76 items of load on 2nd March 2023.

Audit commentary

The field audit discrepancies found are detailed in the table below:

Street/Area	Database Count	Field Count	Lamp no. difference	No of incorrect lamp wattage	Comments
Innovation Road	24	24		3	1 x 58W LED recorded in the database but 1 x 50W LED located in the field 1 x 58W LED recorded in the database but 1 x 56W LED located in the field 1 x 45W LED recorded in the database but 1 x 46W LED located in the field
Islington Ave	17	17		1	1 x 58W LED recorded in the database but 1 x 56W LED located in the field
TOTAL	76	76	-	4	

The field audit did not find any additional items of load found in the field of items of 76 load sampled.

The accuracy of the database is discussed in **section 3.1**.

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 Orion 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

Orion demonstrated 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 of 76 items of load was undertaken 2nd March 2023.

Wattages were checked for alignment with the published standardised wattage table produced by the Electricity Authority or the LED specifications.

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

Audit commentary

Database Accuracy and Lamp accuracy

A full field audit was undertaken and found four lamps with incorrect wattages. The database was within the allowable +/-5% accuracy threshold.

Lamp description and capacity accuracy

The Orion database was found to have no inaccuracies when compared to the published standardised wattage table.

Change management process findings

The processes were reviewed for new lamp connections and the tracking of load changes due to faults and maintenance.

Outage patrols are regularly conducted by Connetics as part of the maintenance programme. They will notify Orion of any differences found. Orion then updates the GIS and database accordingly.

There has been no change to the processes to manage new streetlights. New streetlights require a proposed design to be provided which is then approved by the Orion contract manager. On completion of the work the contractor is required to supply the following documents:

- As-Built - Showing full design including pole and lamp specs,
- LVA – (Low voltage alteration sheet) Outlining Cable size, circuits, cable tests and date of testing etc,
- Test Certs - Lamp ID, Location, Tested, Livened (this date is used in the DB), GPS Co-ords,
- COC - Certificate of Compliance,
- ROI - record of inspection,
- Completion Cert from Contractor notifying Orion of completed works, and
- An Orion Completion Cert issued once all the above is complete.

Once all the above has been received, the As-built/LVA are inputted into GIS and the streetlight database.

Audit outcome

Compliant

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

Code reference

Clause 15.2 and 15.37B(c)

Code related audit information

The audit must verify that:

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

Audit observation

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

- checking the registry to confirm that all ICPs have the correct profile and submission flag, 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 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. The profile changed from DST to UML on 1 August 2022.

I checked the February 2023 extract provided by Orion against the submission totals supplied by Meridian and found that submission matched the database.

A full field audit was undertaken and found four lamps with incorrect wattages. The database was within the allowable +/-5% accuracy threshold.

On 18 June 2019, the Electricity Authority issued a memo confirming that the code requirement to calculate the correct monthly load must:

- take into account when each item of load was physically installed or removed, and
- wash up volumes must take into account where historical corrections have been made to the DUML load and volumes.

The current data used is a snapshot and this practice is non-compliant.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: 05-Apr-22 To: 28-Feb-23	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: Non Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are rated as moderate, because they are sufficient to ensure that changes to the database are correctly recorded most of the time. The impact is assessed to be low due to the impact on submission.		
Actions taken to resolve the issue		Completion date	Remedial action status
			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.		19/4/2023	

CONCLUSION

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

The lights covered by this audit are located in Waterloo Park, which is an industrial park in Islington, Christchurch. The database is managed by Orion. The streetlight data is held in Orion's GIS and an SQL database which interfaces with the GIS.

Meridian reconciles this DUML load using the UML profile and the daily unmetered figures for the ICP. The profile changed from DST to UML on 1 August 2022.

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This audit found two non-compliances and makes no recommendations. The future risk rating of four indicates that the next audit be completed in 24 months. I have considered this in conjunction with Meridian's comments and recommend that the next audit be in 24 months.

PARTICIPANT RESPONSE

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