

ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

VERITEK

For

CHRISTCHURCH INTERNATIONAL AIRPORT
LIMITED
AND MERIDIAN ENERGY LIMITED

Prepared by: Rebecca Elliot

Date audit commenced: 3 May 2020

Date audit report completed: 11 May 2020

Audit report due date: 11-May-20

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EXECUTIVE SUMMARY

This audit of the Christchurch International Airport Limited (**CIAL**) 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 largely conducted in accordance with the audit guidelines for DUML audits version 1.1. A field audit was not undertaken due to the restrictions imposed by the Covid-19 lockdown; therefore, the following checks were conducted:

- New connection records were checked for 10 streetlights.
- Results of the 2018 field audit were checked to ensure the database was updated.

The audit found three non-compliances and makes no recommendations.

Database discrepancies not corrected from last audit resulting in an estimated over submission of 1,755kWh per annum.

Overall, Orion has robust controls and management in place.

The future risk rating of 6 indicates that the next audit be completed in 24 months. I agree with this recommendation.

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	Database discrepancies not corrected from last audit resulting in an estimated over submission of 1,755kWh per annum. The data used for submission does not track changes at a daily basis and is provided as a snapshot.	Moderate	Low	2	Identified
Database accuracy	3.1	Clause 15.2 and 15.37B(b)	Database discrepancies not corrected from last audit resulting in an estimated over submission of 1,755kWh per annum.	Moderate	Low	2	Identified
Volume information accuracy	3.2	15.2 and 15.37B(c)	Database discrepancies not corrected from last audit resulting in an estimated over submission of 1,755kWh per annum. 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						6	

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

ISSUES

Subject	Section	Description	Issue

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

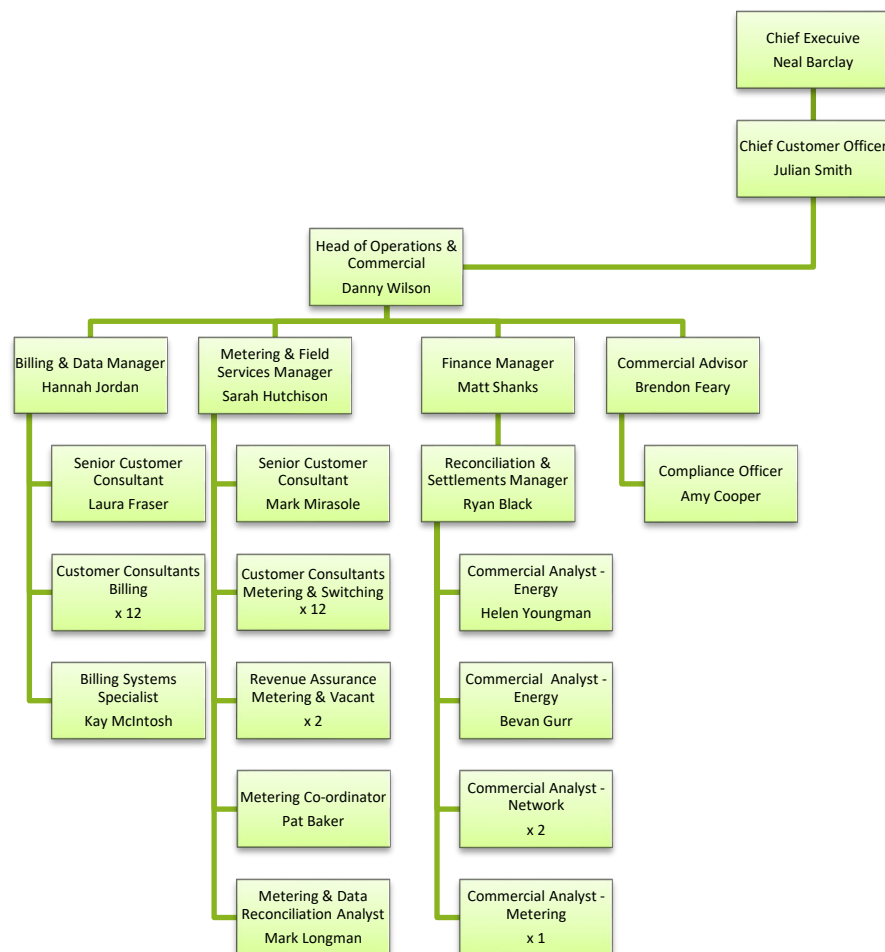
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

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:

Rebecca Elliot

Brett Piskulic – Supporting Auditor

Veritek Limited

Electricity Authority Approved Auditors

Other personnel assisting in this audit were:

Name	Title	Company
Amy Cooper	Compliance Officer	Meridian Energy
Helen Youngman	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	Profile	Number of items of load	Database wattage (watts)
0007131634RNDC9	Ref Orion_CIA GXP street light ICP	DST	206	19,420

1.7. Authorisation Received

All information was provided directly by Meridian or Orion.

1.8. Scope of Audit

This audit of the CIAL DUMML 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 largely conducted in accordance with the audit guidelines for DUMML audits version 1.1. A field audit was not undertaken due to the restrictions imposed by the Covid-19 lockdown; therefore, the following checks were conducted:

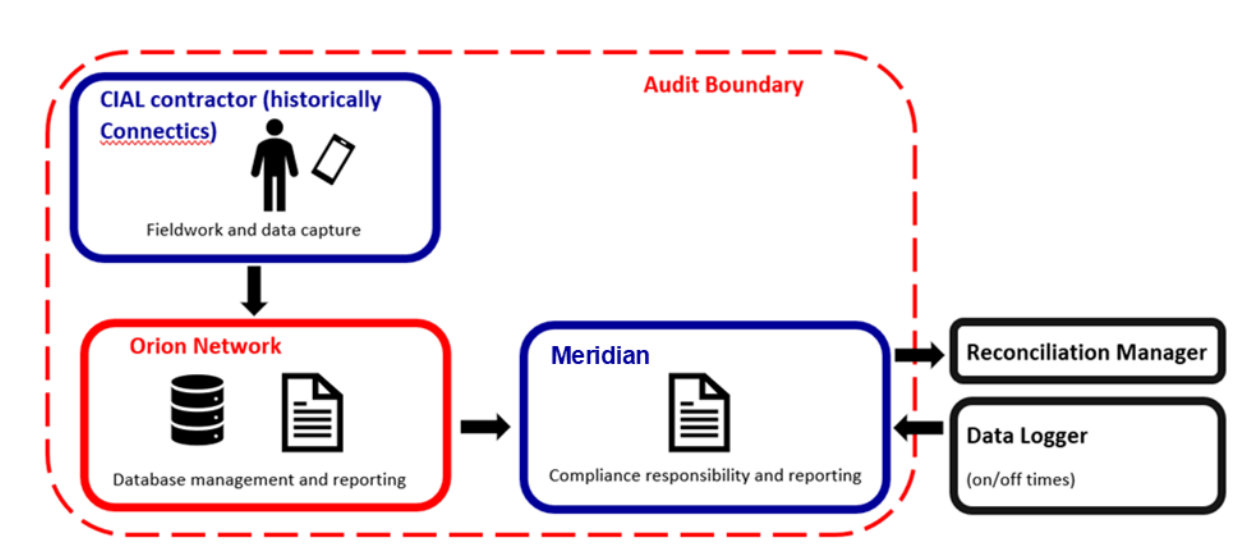
- New connection records were checked for 10 streetlights.
- Results of the 2018 field audit were checked to ensure the database was updated.

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 CIAL boundary is part of the Orion Network. Orion manage their database for CIAL. Monthly reporting is supplied to Meridian by Orion.

This audit covers the Orion database.

The diagrams below show the audit boundaries for clarity.



1.9. Summary of previous audit

Meridian provided a copy of the last audit report undertaken by Steve Woods of Veritek Limited, completed in May 2018 for Contact Energy. The table below records the findings.

Table of Non-Compliance

Subject	Section	Clause	Non compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	The database used to prepare submissions contains some inaccurate information. The database accuracy is assessed to be 96.7% indicating an estimated over submission of 2,242 kWh per annum.	Still existing
Description and capacity of load	2.4	11(2)(c) and (d) of Schedule 15.3	One lamp type has incorrect lamp wattage recorded. Eighteen affected lamps, the expected wattage is 77 and under reporting is 153.8 kWh per annum.	Cleared
Database accuracy	3.1	Clause 15.2 and 15.37B(b)	The database accuracy is assessed to be 96.7% indicating an estimated over submission of 2,242kWh per annum	Still existing
Volume information accuracy	3.2	15.2 and 15.37B(c)	The database used to prepare submissions contains some inaccurate information. The database accuracy is assessed to be 96.7% indicating an estimated over submission of 2,242 kWh per annum.	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 the Orion database within the required timeframe.

Audit outcome

Compliant

2. DUMML DATABASE REQUIREMENTS

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

Code reference

Clause 11(1) of Schedule 15.3

Code related audit information

The retailer must ensure the:

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

Audit observation

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

Audit commentary

Meridian reconciles this DUMML load using the DST profile. The registry shows the DST profile for all of the CIAL DUMML ICP.

Submissions are based on the database information, with on and off times derived from data logger information.

I checked the March 2020 extract provided by Orion against the submission totals supplied by Meridian and found that submission matched the database.

The methodology for deriving submission information is compliant but non-compliance still exists due to inaccurate information in the database used for submission

Database discrepancies not corrected from last audit resulting in an estimated over submission of 1,755 kWh per annum as recorded in **section 3.1**.

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 DUMML 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: 01-Apr-17 To: 05-May-20	Database discrepancies not corrected from last audit resulting in an estimated over submission of 1,755kWh per annum. The data used for submission does not track changes at a daily basis and is provided as a snapshot. Potential impact: Medium Actual impact: Low Audit history: Twice Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement. The impact on settlement and participants is minor; therefore the audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status
We will follow up with Orion regarding correction of the wattage discrepancies identified and wash up historic submissions.		31 May 2020	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Meridian understands Orion's controls for managing the DUML database are generally robust and are adequate to mitigate risk the majority of the time.			

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 the correct ICP was recorded against each item of load.

Audit commentary

All Orion 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 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 Orion database contains fields for the street address and also GPS coordinates. There are 3 records that do not have a Street number but in all cases there is GPS information.

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 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

Orion's database contains the manufacturers rated wattage and the ballast wattage. The extract provided has a field for 'Lamp Type' and an additional table was provided which contained more detail for each lamp type – description, amps, wattage (incl ballast) & lamp type category. The lamp type and wattage was recorded for all items of load.

The accuracy of lamp descriptions, wattages and ballasts is recorded 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

The 2018 field audit was undertaken of the entire database of 156 items of load on 23rd April 2018.

Audit commentary

No additional items of load were identified during the 2018 audit.

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 DUMML 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. The change management process and the compliance of the database reporting provided to Genesis is detailed in **sections 3.1** and **3.2**.

Audit outcome

Compliant

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

Code reference

Clause 11(4) of Schedule 15.3

Code related audit information

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

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

Audit observation

The database was checked for audit trails.

Audit commentary

Orion demonstrated 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

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

The findings of the field audit undertaken during the last audit were reviewed to determine if the database had been updated.

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

Audit commentary

Lamp description and capacity accuracy

The Orion database was found to have no inaccuracies when compared to the published standardised wattage table. In the previous audit there was a discrepancy recorded for 18 fluorescent lamps which has been corrected.

Previous field audit findings

I checked if the database had been updated to reflect the findings of the field audit undertaken during the last audit.

One lamp which was not found in the 2018 field audit which has now been removed from the database.

There were eight discrepancies found in the field which have not been addressed as detailed in the following table:

Address	Database Count	Field Count	Count differences	Wattage differences	Comments
Memorial Av	2	2	-	-74	2 x 145 W LEDs in place and not the 2 x 182 W LEDs specified
Peter Leeming Dr	20	20	-	-263	3 x 145 W and 1 x 147 W LEDs in place (582 W) and not the 2 x 182 W, 1 x 203 W LEDs or 1 x 250 W HPS specified (845 W)
Richard Pearse Rd	6	6	-	-37	1 x 145 W LED in place and not the 1 x 182 W LED specified
Ron Guthrey Rd	24	24	-	-37	1 x 145 W LED in place and not the 1 x 182 W LED specified
Total	52	52	-	-411W	

This will result in estimated over submission of 1,755kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool).

Change management process findings

Orion’s processes were reviewed for new lamp connections and the tracking of load changes due to faults and maintenance. CIAL are responsible for the Network maintenance at CIAL and they can choose their own contractor licensed to work on the Orion Network. Outage patrols are conducted on a regular basis. lamp outages are notified to CIAL and work requests are passed to their contractor.

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, Lived (this date is used in DB), GPS Co-ords,

COC - Certificate of Compliance,

ROI - record of inspection,

Completion Cert from Contractor notifying Orion of completed works, and

Orion Completion Cert issued once all the above is complete

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

I checked the new connection documentation for a sample of 10 streetlights and confirmed that the database information matched the as built drawings and streetlight test results.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 01-Apr-17 To: 05-May-20	Database discrepancies not corrected from last audit resulting in an estimated over submission of 1,755kWh per annum. Potential impact: Low Actual impact: Low Audit history: Twice 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, but there are still some errors. The impact is assessed to be low, based on the kWh differences described above.		
Actions taken to resolve the issue		Completion date	Remedial action status
We will follow up with Orion regarding correction of the wattage discrepancies identified and wash up historic submissions.		31 May 2020	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Meridian understands Orion’s controls for managing the DUML database are generally robust and are adequate to mitigate risk the majority of the time..			

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
- 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 DST profile, submissions are based on the database information, with on and off times derived from data logger information.

I checked the submissions for March 2020, and I confirmed that the calculation method and total was correct.

Database discrepancies not corrected from last audit resulting in an estimated over submission of 1,755 kWh per annum as recorded in **section 3.1**.

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: 15.2 and 15.37B(c) From: 01-Apr-17 To: 05-May-20	Database discrepancies not corrected from last audit resulting in an estimated over submission of 1,755kWh per annum. The data used for submission does not track changes at a daily basis and is provided as a snapshot. Potential impact: Medium Actual impact: Low Audit history: Twice Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement. The impact on settlement and participants is minor; therefore the audit risk rating is low.		
Actions taken to resolve the issue		Completion date	Remedial action status
We will follow up with Orion regarding correction of the wattage discrepancies identified and wash up historic submissions.		31 May 2020	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Meridian understands Orion's controls for managing the DUMML database are generally robust and are adequate to mitigate risk the majority of the time.			

CONCLUSION

The audit was largely conducted in accordance with the audit guidelines for DUMML audits version 1.1. A field audit was not undertaken due to the restrictions imposed by the Covid-19 lockdown; therefore, the following checks were conducted:

- New connection records were checked for 10 streetlights.
- Results of the 2018 field audit were checked to ensure the database was updated.

The audit found three non-compliances and makes no recommendations.

Database discrepancies not corrected from last audit resulting in an estimated over submission of 1,755kWh per annum.

Overall, Orion has robust controls and management in place.

The future risk rating of 6 indicates that the next audit be completed in 24 months. I agree with this recommendation.

PARTICIPANT RESPONSE

Meridian has reviewed this audit. Their comments are recorded in the body of the report. No further comments were provided.