ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

For

WELLINGTON CITY COUNCIL TRAFFIC LIGHTS AND MERIDIAN ENERGY

Prepared by: Rebecca Elliot

Date audit commenced: 29 April 2021

Date audit report completed: 25 May 2021

Audit report due date: 25 May 2021

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EXECUTIVE SUMMARY

This audit of the **Wellington City Council traffic light** 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.

Wellington City Council maintains an Excel spreadsheet of streetlights. Traffic light installation and maintenance is completed by Downer as a contractor.

Wellington City Council's SCATS system is used to determine the wattages. Total wattage is calculated as the sum of wattages for all phases at the location, plus the wattages for routers, CCTV and any other equipment installed. Daily kWh is provided and used by Meridian to calculate reconciliation submissions.

There is a large programme of work associated with the "Let's get Wellington moving" campaign. This may result in some changes to the existing unmetered signals. These are expected to be managed via the excel spreadsheet. Any new signals being installed by the council are planned to be metered supplies.

Meridian reconciles the load for ICP reconciles the load for ICP 0001259560UN5A6 as NHH using the RPS profile. The items of load are connected to multiple NSPs and therefore an ICP is needed for each NSP. I recommend that Meridian work with WCC and Wellington Electricity to correct this.

The audit process included a field audit of all 56 items of load and found 100% accuracy, and the database was found to be compliant.

The audit found three non-compliances. These all relate to the load being connected to multiple NSPs but recorded against only one ICP. The audit risk rating indicates that the next audit be due in 18 months. I have considered this in conjunction with Meridian's comments and the size and impact to the market of this database and I recommend that the next audit be in 24 months time.

The matters raised are detailed 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	All load is reconciled to one ICP, but the load is connected to multiple NSPs which requires an ICP per NSP.	Moderate	Low	2	Identified
ICP identifier and items of load	2.2	11(2)(a) and (aa) of Schedule 15.3	All load is reconciled to one ICP, but the load is connected to multiple NSPs which requires an ICP per NSP.	Moderate	Low	2	Identified
Volume information accuracy	3.2	15.2 and 15.37B(b)	All load is reconciled to one ICP, but the load is connected to multiple NSPs which requires an ICP per NSP.	Moderate	Low	2	Identified
					Future Risk Rating	**6**	

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	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 the audit.

1.2. Structure of Organisation

Not applicable.

1.3. Persons involved in this audit

Auditor:

Rebecca Elliot

Veritek Limited

Electricity Authority Approved Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Tim Kirby	Project Manager Signals	Wellington City Council
Amy Cooper	Compliance Officer	Meridian Energy

1.4. Hardware and Software

Wellington City Council maintains an Excel spreadsheet of streetlights. The spreadsheet is saved on Wellington City Council's network and backed up along with other files on the network according to standard industry procedures. Access to the network is secure.

Systems used by the trader 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)
0001259560UN5A6	Traffic signals	TKR0331	56	13,200

1.7. Authorisation Received

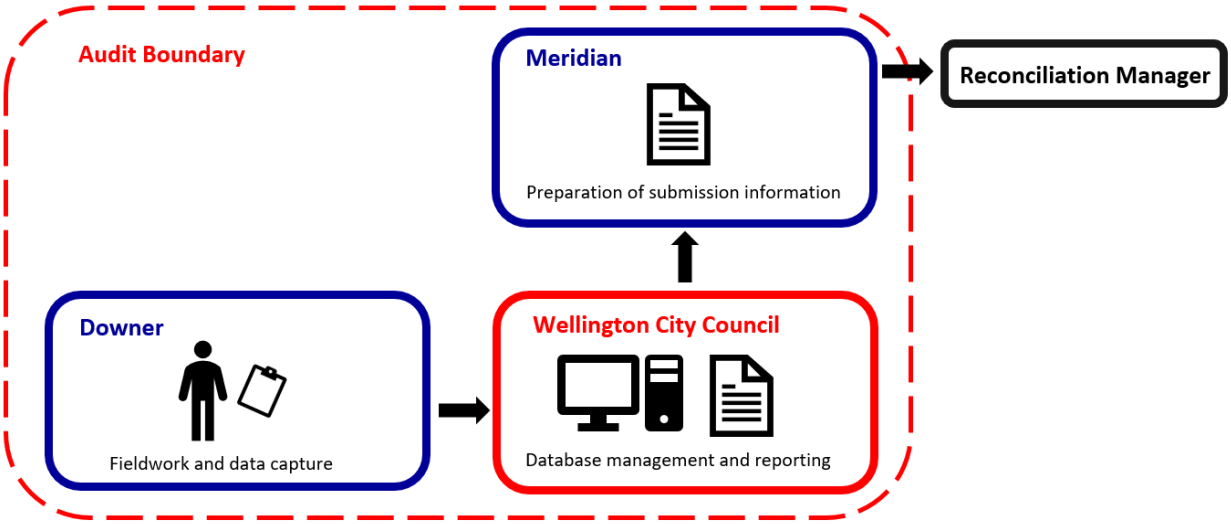
All information was provided directly by Wellington City Council and Meridian.

1.8. Scope of Audit

Wellington City Council maintains an Excel spreadsheet of streetlights. Traffic light installation and maintenance is completed by Downer as a contractor.

If any information changes, the spreadsheet is updated, and a copy is provided to Meridian. New installations and changes are rare, and none have been made during the audit 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 audit was conducted in accordance with the audit guidelines for DUML audits version 1.1.

The field audit was undertaken of all 56 items of load on 11 May 2021.

1.9. Summary of previous audit

The previous audit was completed in March 2018 by Tara Gannon of Veritek Limited. Compliance was confirmed.

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 the load for ICP 0001259560UN5A6 as NHH using the RPS profile.

Wellington City Council's SCATS system is used to determine the wattages. At each location, lanterns are grouped by phase. For each phase, the lantern wattage is calculated by averaging the SCATS wattage for the red and green lanterns, because they are on most of the time. For pedestrian crossings, a usage factor is applied in addition to the SCATS wattages to account for how frequently they are used.

Total wattage is calculated as the sum of wattages for all phases at the location, plus the wattages for routers, CCTV and any other equipment installed. Daily kWh is provided and used by Meridian to calculate reconciliation submissions.

As detailed in **section 2.2**, the items of load in the database are all associated with one ICP, but they are connected to multiple NSPs. There is unmetered load in Miramar, Karori, Johnsonville and the central city. The code requires that there be an ICP per NSP for all distributed unmetered load. This is recorded as non-compliance below.

The database accuracy is confirmed to be within the allowable +/-5% threshold. This is discussed further in **section 3.1**.

I checked the submission for April 2021 and confirmed the calculation method was correct.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: unknown To: 24-May-21	All load is reconciled to one ICP, but the load is connected to multiple NSPs which requires an ICP per NSP. Potential impact: Low Actual impact: None Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate, as they are sufficient to mitigate the risk most of the time but there is room for improvement. The impact is assessed to be low as there is no direct impact on submission.

Actions taken to resolve the issue	Completion date	Remedial action status
We will work with WCC and Wellington Electricity to have additional ICPs created for each NSP the load is connected to.	31 July 2021	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

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 is recorded for each item of load.

Audit commentary

The items of load in the database are all associated with one ICP but they are connected to multiple NSPs. There is unmetered load in Miramar, Karori, Johnsonville and the central city. The code requires that there be an ICP per NSP for all distributed unmetered load. The Wellington Electricity network is currently settled to one balancing group so this has no impact on reconciliation, but they are reviewing the balancing area requirement for the region. I recommend that Meridian work with WCC to get an ICP per NSP created.

Recommendation	Description	Audited party comment	Remedial action
Regarding: Clause 11(2)(a) and (aa) of Schedule 15.3	Liaise with WCC and Wellington Electricity to ensure there is an ICP per NSP.	We will work with WCC and Wellington Electricity to have additional ICPs created for each NSP the load is connected to.	Identified

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.2 With: Clause 11(2)(a) and (aa) of Schedule 15.3 From: unknown To: 24-May-21	All load is reconciled to one ICP, but the load is connected to multiple NSPs which requires an ICP per NSP. Potential impact: Low Actual impact: None Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate, as they are sufficient to mitigate the risk most of the time but there is room for improvement. The impact is assessed to be low as there is no direct impact on submission.

Actions taken to resolve the issue	Completion date	Remedial action status
We will work with WCC and Wellington Electricity to have additional ICPs created for each NSP the load is connected to.	31 July 2021	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	

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

All items of load had street address information recorded.

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 database groups lanterns into phases and includes the SCATS wattages for each group. Each phase is treated as a separate item of load.

The database includes descriptions and wattages for other equipment installed.

The database lists assumptions regarding the wattages.

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 of all items of load was undertaken. A sample of wattage data was checked against SCATS.

Audit commentary

The database lists lantern groups and other equipment installed at each location. To verify that all load was recorded. I checked all locations and confirmed that items of load were present as described in the database. There have been no changes to the calculation of wattage since the last audit. I reviewed one example and confirmed that wattage calculations were correct.

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 ability of the database to track changes was assessed and the process for tracking of changes in the database was examined.

Audit commentary

A new tab is created in the spreadsheet when any changes occur with the date of the change recorded.

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 excel spreadsheet contains an audit trail. The audit trail includes the date, and a description of the before and after values. The users name is recorded in each tab.

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 audit findings were used to determine if the information contained in the database is complete and accurate.

A sample of wattage data was checked against SCATS.

Audit commentary

Database Accuracy

All items of load were confirmed in the field. The wattage router had not been added to the database for the Seatoun Tunnel signals. This has been corrected. The database accuracy is confirmed to be within the allowable +/-5% threshold. Compliance is confirmed.

To verify that all load was recorded I checked all locations and confirmed that items of load were present as described in the database. There have been no changes to the calculation of wattage since the last audit. I reviewed one example and confirmed that wattage calculations were correct.

Change Management

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

All maintenance and new connections are requested by Wellington City Council.

Where maintenance is completed, Wellington City Council updates the database if changes are required once they have confirmed the work is complete. In most cases, maintenance does not result in changes to the database.

There is a large programme of work associated with the “Let’s get Wellington moving” campaign. This may result in some changes to the existing unmetered signals. These are expected to be managed via the excel spreadsheet. Any new signals being installed by the council are planned to be metered supplies. The new connections referenced in the last audit at Miramar Wharf/Shelly Bay Rd and Seatoun Tunnel/Ferry Road have now been completed and the wattages were added to the database from the date of electrical connection.

Lamp outages are monitored in real time using the SCATS system.

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 against the submitted figure to confirm accuracy.

Audit commentary

Meridian reconciles the load for ICP 0001259560UN5A6 as NHH using the RPS profile.

Wellington City Council's SCATS system is used to determine the wattages. At each location, lanterns are grouped by phase. For each phase, the lantern wattage is calculated by averaging the SCATS wattage for the red and green lanterns, because they are on most of the time. For pedestrian crossings, a usage factor is applied in addition to the SCATS wattages to account for how frequently they are used.

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I checked the submission for April 2021 and confirmed the calculation method was correct.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: unknown To: 24-May-21	All load is reconciled to one ICP, but the load is connected to multiple NSPs which requires an ICP per NSP. Potential impact: Low Actual impact: None Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate, as they are sufficient to mitigate the risk most of the time but there is room for improvement. The impact is assessed to be low as there is no direct impact on submission.

Actions taken to resolve the issue	Completion date	Remedial action status
We will work with WCC and Wellington Electricity to have additional ICPs created for each NSP the load is connected to.	31 July 2021	Identified
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CONCLUSION

Wellington City Council maintains an Excel spreadsheet of streetlights. Traffic light installation and maintenance is completed by Downer as a contractor.

Wellington City Council's SCATS system is used to determine the wattages. Total wattage is calculated as the sum of wattages for all phases at the location, plus the wattages for routers, CCTV and any other equipment installed. Daily kWh is provided and used by Meridian to calculate reconciliation submissions.

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PARTICIPANT RESPONSE

This report was reviewed by Meridian. Their responses are contained in the body of the report and no further comments were provided.