

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

For

**WELLINGTON CITY COUNCIL TRAFFIC
LIGHTS AND MERIDIAN ENERGY**

Prepared by: Tara Gannon

Date audit commenced: 13 March 2018

Date audit report completed: 29 March 2018

Audit report due date: 1 June 2018

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EXECUTIVE SUMMARY

This audit of the Wellington City Council traffic light DUMML 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 DUMML audits version 1.1, which became effective on 1 June 2017.

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.

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

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.

AUDIT SUMMARY

NON-COMPLIANCES

| Subject | Section | Clause | Non Compliance | Controls | Audit Risk Rating | Breach Risk Rating | Remedial Action |
|--------------------|---------|--------|----------------|----------|-------------------|--------------------|-----------------|
| | | | Nil | | | | |
| Future Risk Rating | | | | | | 0 | |

| | | | | | | |
|-----------------------------------|-----------|-----------|-----------|-----------|----------|----------|
| 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 |
|---------|---------|-------------|----------------|
| | | 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:

Tara Gannon

Veritek Limited

Electricity Authority Approved Auditor

Other personnel assisting in this audit were:

| Name | Title | Company |
|----------------|------------------------------|-------------------------|
| John Price | Snr Traffic Engineer-Signals | Wellington City Council |
| Helen Youngman | Energy Data Analyst | Meridian Energy |
| 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.

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

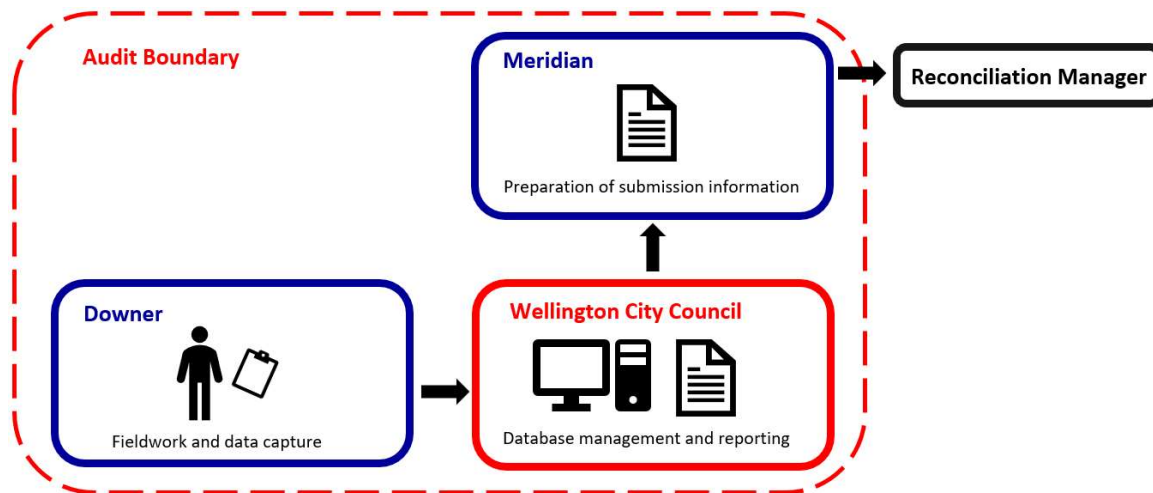
All information was provided directly by Wellington City Council and Meridian.

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, with a maximum of two changes per annum over the past 11 years.

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 13 March 2018.

1.9. Summary of previous audit

The previous audit was completed in March 2017 by Tara Gannon of Veritek Limited. One non-compliance was identified, and two recommendations were raised. The statuses of the non-compliance and recommendations are described below.

| Subject | Section | Clause | Non-compliance | Status |
|---------------|---------|------------------------|--|---|
| Tracking Load | 2.3 | 11(3) of Schedule 15.3 | Changes are no longer being tracked within the Wellington Electricity database | Cleared. The Wellington Electricity database is not used for submission. |

| Subject | Section | Clause | Recommendation | Status |
|---------------------|---------|------------------------|---|---|
| Deriving Submission | 2.1 | 11 of Schedule 15.3 | Use the RAMM database for reconciliation ASAP | Cleared. Meridian now uses Wellington City Council's spreadsheet for reconciliation. |
| Tracking Load | 2.3 | 11(3) of Schedule 15.3 | Track changes in RAMM | Cleared. Meridian now uses Wellington City Council's spreadsheet for reconciliation. |

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. Compliance is confirmed.

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.

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.

I checked the submission for February 2018 and confirmed the calculation method was correct.

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 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 relate to one ICP, and the ICP number is recorded in the database.

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

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 a sample of 12 vehicle lantern groups in the database against SCATS and confirmed that they were correct.
- I checked all locations to confirm that items of load were present as described in the database.

The field audit findings are detailed in the table below. No count differences were identified.

| ID # | Street/s | Properties Served | Field audit differences |
|------|-----------------------|---------------------------------|-------------------------|
| 10 | Aotea | Tranzlink Access | - |
| 15 | Waterloo | Hinemoa (Wharf), Stadium | - |
| 20 | Tinakori | Park, Molesworth, Murphy | - |
| 25 | Murphy | (Near Turnbull) | - |
| 35 | Molesworth | Pipitea | - |
| 46 | Molesworth | Hill, Aitken | - |
| 48 | Mulgrave | Aitken | - |
| 50 | Featherston, Thorndon | Mulgrave, Bus Terminus | - |
| 130 | Whitmore | Featherston | - |
| 166 | Featherston | Waring-Taylor | - |
| 180 | Featherston | Johnston | - |
| 210 | Featherston | Brandon | - |
| 220 | Featherston | Panama | - |
| 240 | Jervois | Grey, Queens Wharf | - |
| 271 | Kelburn | (northern) | - |
| 273 | Kelburn | (southern) | - |
| 285 | Featherston | Grey | - |
| 290 | Featherston | Hunter, Lambton(bus lane) | - |
| 310 | Hunter | Customhouse | - |
| 315 | Jervois | Hunter, Wharves | - |
| 320 | Willis | Lambton, Customhouse, Willeston | - |
| 322 | Victoria | Willeston | - |
| 325 | Jervois | Willeston | - |
| 328 | Victoria | (Near Harris) | - |
| 340 | Jervois | (At Michael Fowler Centre) | - |
| 342 | Cable | (At Michael Fowler Centre) | - |
| 380 | Jervois | Taranaki, Wakefield | - |
| 382 | Cable | Taranaki | - |
| 384 | Cable | Tory | - |
| 386 | Cable | Chaffers | - |
| 388 | Cable | Oriental | - |
| 390 | Wakefield | (At Blair) | - |
| 410 | Victoria | Manners | - |
| 420 | Cuba, Manners | (At Manners Mall) | - |
| 425 | Willis | Dixon | - |
| 450 | Taranaki | Dixon, Courtenay, Manners | - |
| 470 | Kent, Cambridge | Courtenay, Majoribanks | - |
| 635 | Cambridge | (near Basin Reserve) | - |
| 680 | Wallace | Bidwill, Polytech | - |

| ID # | Street/s | Properties Served | Field audit differences |
|------|-----------------|-----------------------------|-------------------------|
| 690 | Adelaide | (Near Drummond) | - |
| 695 | Adelaide | Hospital | - |
| 715 | Adelaide | Hall | - |
| 740 | Riddiford | Constable | - |
| 745 | Constable | Daniell | - |
| 1015 | Johnsonville | near Hawea | - |
| 1020 | Johnsonville | near Bill Cutting | - |
| 1105 | Hutt | Onslow | - |
| 1150 | Ottawa | (near BP Ngaio) | - |
| 1180 | Karori | Parkvale | - |
| 1190 | Karori | Donald | - |
| 1200 | Karori | (Near Marsden Shops) | - |
| 1210 | Karori, Chaytor | Old Karori | - |
| 1220 | Chaytor | Birdwood, Northland Tunnel | - |
| 1325 | Kilbirnie | Evans Bay, Bay | - |
| 1339 | Miramar | Miramar Wharf Shelly Bay Rd | - |
| 1360 | Seatoun | Seatoun Tunnel Ferry Rd | - |

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

Any changes that are made during any given month take effect from the beginning of that month. The information is available which would allow for the total load in kW to be retrospectively derived for any day. On 20 September 2012, the Authority sent a memo to retailers and auditors advising that tracking of load changes at a daily level was not required if the database contained an audit trail. I have interpreted this to mean that the provision of a copy of the monthly report to Meridian is sufficient to achieve compliance.

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

All new connections and maintenance is 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.

- Where new connections occur, locations are added to the database and wattages are included as equipment is installed. At the time of the field audit, two new connections were in progress at Miramar Wharf/Shelly Bey Rd and Seatoun Tunnel/Ferry Road. In both cases records had been added to the database, but no lantern information had been added. The lantern details will be added once the new connections are complete.

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

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

The excel spreadsheet contains an audit trail. The audit trail includes the date, and a description of the before and after values. User is not recorded, but the database is only maintained by John Price.

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

The database was found to be accurate.

To verify that all load was recorded:

- I checked a sample of 12 vehicle lantern groups in the database against SCATS and confirmed that they were correct.
- I checked all locations to confirm that items of load were present as described in the 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
- 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 February 2018 and confirmed the calculation method was correct.

Audit outcome

Compliant

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.

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

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.

PARTICIPANT RESPONSE

Meridian has reviewed this report, and did not wish to provide any comments.