# ELECTRICITY INDUSTRY PARTICIPATION CODE
# DISTRIBUTED UNMETERED LOAD AUDIT REPORT

VERITEK

For

## HOROWHENUA DISTRICT COUNCIL AND CONTACT ENERGY LIMITED NZBN: 9429038549977

Prepared by: Steve Woods

Date audit commenced: 27 September 2021

Date audit report completed: 17 November 2021

Audit report due date: 18 September 2021

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## EXECUTIVE SUMMARY

This audit of the **Horowhenua District Council (HDC)** DUML database and processes was conducted at the request of **Contact Energy Limited (Contact)** 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 scope of the audit encompasses the collection, security and accuracy of the data, including the preparation of submission information.

Streetlight load is determined by wattages held within HDC's RAMM database, and a monthly extract is provided to Contact. New connection, fault, maintenance and upgrade work is completed by Fulton Hogan. All contractors completing work on HDC's streetlights have access to RAMM and update the database using Pocket RAMM from the field.

The accuracy of the database has improved since the last audit and all gear wattages have been aligned to the published standardised wattage table produced by the Electricity Authority.

A field audit of 286 items of load was conducted on 20th October 2021 which found that the database is accurate to within +/- 5%. With a 95% level of confidence, it can be concluded that the error could be between -0.1% and +1.7%.

Contact reconciles this DUML load as follows:

| ICP | Profile | On hours | Wattage |
|---|---|---|---|
| 0016099004EL9CA | DST | Data logger | Monthly extract from the RAMM database |

On 18 June 2019, the Electricity Authority issued a memo clarifying the memo of 2012 that stated that a monthly snapshot was sufficient to calculate submission from, and confirmed 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 monthly report is provided as a snapshot and is non-compliant.

The audit found three non-compliances and makes no recommendations. The future risk rating of five indicates that the next audit be completed in 18 months, and 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 |
|---|---|---|---|---|---|---|---|
| DUML Audit | 1.10 | 16A.26 | Audit not completed within the required timeframe. | Strong | Low | 1 | Cleared |
| Deriving submission information | 2.1 | 11(1) of Schedule 15.3 | The monthly database extract provided 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 monthly database extract provided does not track changes at a daily basis and is provided as a snapshot. | Moderate | Low | 2 | Identified |
| Future Risk Rating | | | | | | 5 | |

| 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.

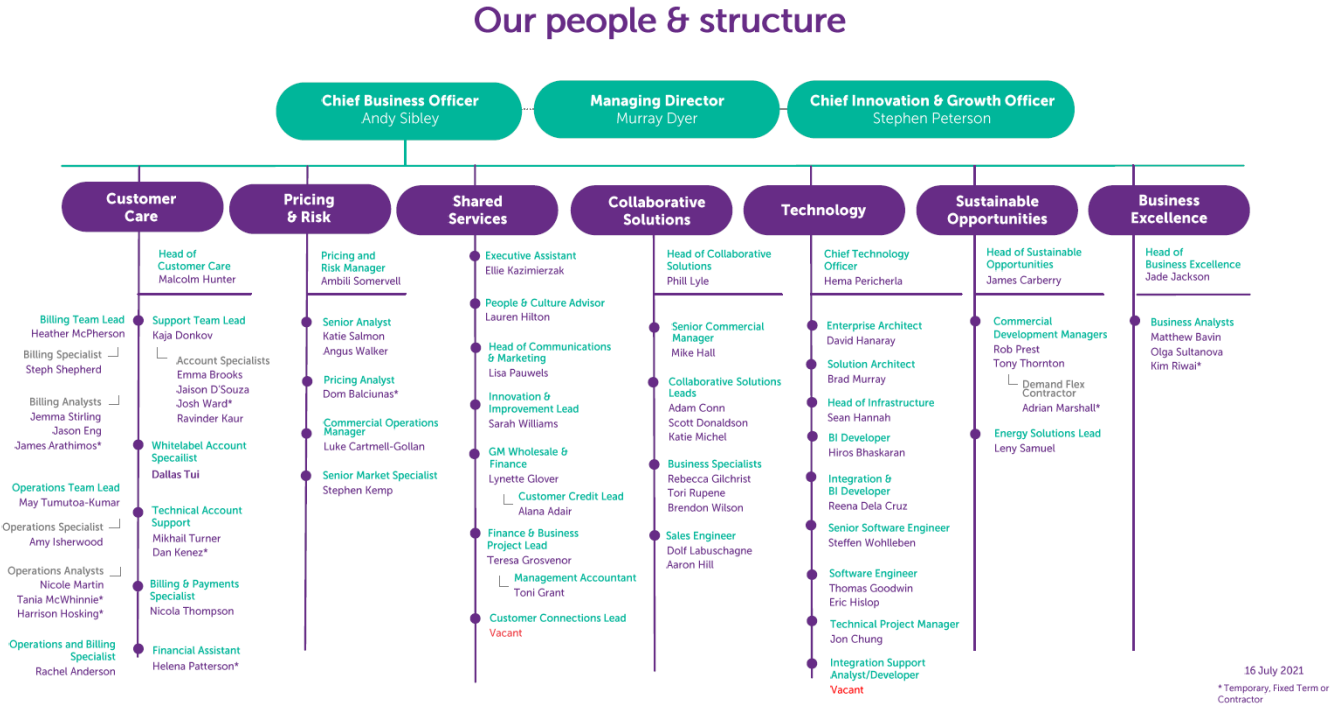
#### Audit commentary

There is one exemption in place relevant to the scope of this audit:

Exemption No. 177: Exemption to clause 8(g) of schedule 15.3 of the Electricity Industry Participation Code 2010 ("Code") in respect of providing half-hour ("HHR") submission information instead of non-half-hour ("NHH") submission information for distributed unmetered load ("DUML"). This exemption expires at the close of 31 October 2023.

### 1.2. Structure of Organisation

Contact provided a copy of their organisational structure:



## 1.3. Persons involved in this audit

Auditors:

| Name | Title |
|---|---|
| Steve Woods | Lead Auditor |
| Brett Piskulic | Supporting Auditor |

Other personnel assisting in this audit were:

| Name | Title | Company |
|---|---|---|
| Brent Tucker | Roading Operations Team Leader | Horowhenua District Council |
| Luke Cartmell-Gollan | Commercial Operations Manager | Contact Energy |

## 1.4. Hardware and Software

The SQL database used for the management of DUML is remotely hosted by thinkproject New Zealand Limited. The database is commonly known as "RAMM" which stands for "Road Assessment and Maintenance Management". The specific data used for DUML is held in the Streetlight tables. thinkproject New Zealand Limited backs up the database and assists with disaster recovery as part of their hosting service.

Access to the database is secure by way of password protection.

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 | Profile | Number of items of load | Database wattage (watts) |
|---|---|---|---|---|---|
| 0016099004EL9CA | HDC - STREETLIGHTS | MHO0331 | DST | 2,569 | 83,657 |

## 1.7. Authorisation Received

All information was provided directly by Contact or HDC.

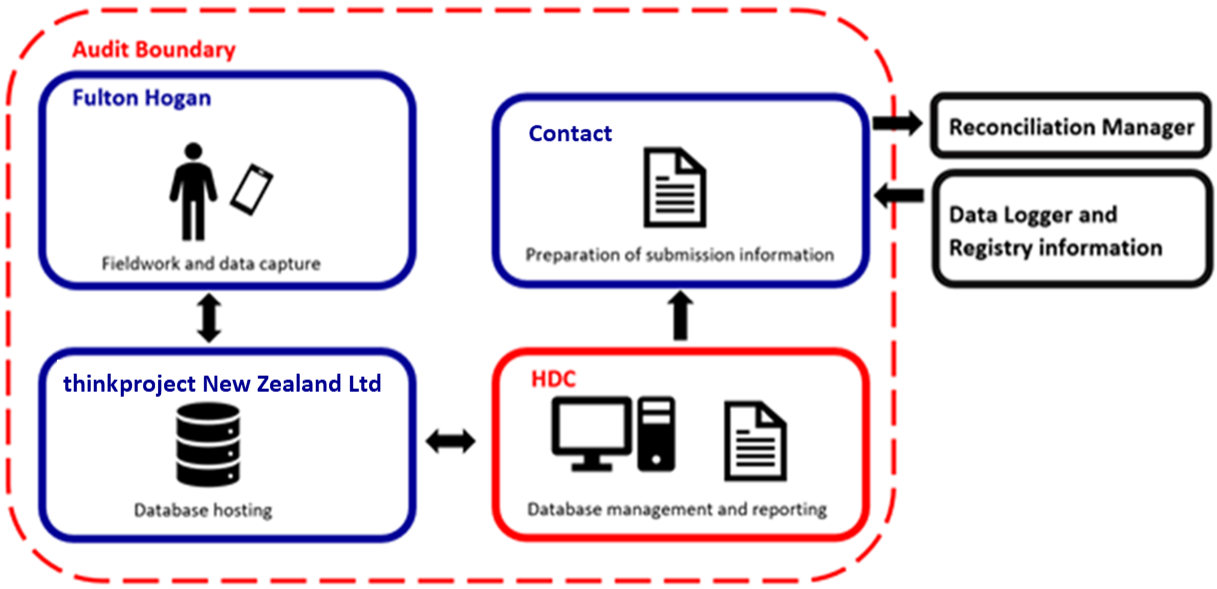
## 1.8. Scope of Audit

This audit of the HDC DUML database and processes was conducted at the request of Contact 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.

Streetlight load is determined by wattages held within HDC's RAMM database, and a monthly extract is provided to Contact. New connection, fault, maintenance and upgrade work is completed by Fulton Hogan. All contractors completing work on HDC's streetlights have access to RAMM and update the database using Pocket RAMM from the field.

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 field audit was undertaken of a statistical sample of 286 items of load on 20th October 2021.

## 1.9. Summary of previous audit

The previous audit of this database was undertaken by Rebecca Elliot of Veritek Limited in December 2020. Four non-compliances were identified, and no recommendations were made. The current statuses of the non-compliances are detailed below.

Table of non-compliances

| Subject | Section | Clause | Non-compliance | Status |
|---|---|---|---|---|
| DUML Audit | 1.10 | 16A.26 | Audit not completed within the required timeframe. | Cleared |
| Deriving submission information | 2.1 | 11(1) of Schedule 15.3 | The database is not confirmed as accurate with a 95% level of confidence resulting in an estimated 10,300 kWh of under submission per annum.<br>The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.<br>17 items of load had invalid gear wattages for their lamp model description, resulting in an estimated under submission of 111 kWh p.a. | Cleared<br>Still existing<br>Cleared |
| Database accuracy | 3.1 | 15.2 and 15.37B(b) | The database is not confirmed as accurate with a 95% level of confidence resulting in an estimated 10,300 kWh of under submission per annum.<br>17 items of load had invalid gear wattages for their lamp model description, resulting in an estimated under submission of 111 kWh p.a. | Cleared<br>Cleared |
| Volume information accuracy | 3.2 | 15.2 and 15.37B(c) | The database is not confirmed as accurate with a 95% level of confidence resulting in an estimated 10,300 kWh of under submission per annum.<br>The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.<br>17 items of load had invalid gear wattages for their lamp model description, resulting in an estimated under submission of 111 kWh p.a. | Cleared<br>Still existing<br>Cleared |

Table of recommendations

| Subject | Section | Recommendation | Status |
|---|---|---|---|
| | | Nil | |

## 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

Contact 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. However, the audit was not completed within the required timeframe as a database extract was not able to be obtained within time to complete the audit by the due date.

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 1.10<br>With: Clause 16A.26<br><br><br><br>From: 18-Sep-21<br>To: 05-Nov-21 | Audit not completed within the required timeframe.<br>Potential impact: Low<br>Actual impact: Low<br>Audit history: None<br>Controls: Strong<br>Breach risk rating: 1 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **Low** | The controls are rated as strong, as Contact are reliant on the database provider to supply the data and in this case the delay caused this report to be late.<br>The impact is assessed to be low, as this has no direct impact on reconciliation. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| NB: Large part of the delay was caused by the Horowhenua DC requiring staff to work from home during COVID level 2 and staff being unable to run a complete dataset via their remote login to RAMM to send to Veritek by the required timeline. | | Cleared |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| | | |

## 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 and the application of profiles was checked. The database was checked for accuracy.

**Audit commentary**

Contact reconciles this DUML load as follows:

| ICP | Profile | On hours | Wattage |
|---|---|---|---|
| 0016099004EL9CA | DST | Data logger | Monthly extract from the RAMM database. The database is not confirmed as accurate with a 95% level of confidence as recorded in **section 3.1**. |

I checked the submission data for June 2021 and found the load for 0016099004EL9CA had been correctly calculated based on the data logger and monthly extract information.

The field audit against the database quantities found that the database is accurate to within +/- 5%. With a 95% level of confidence, it can be concluded that the error could be between -0.1% and +1.7%.

On 18 June 2019, the Electricity Authority issued a memo clarifying the memo of 2012 that stated that a monthly snapshot was sufficient to calculate submission from, and confirmed 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 monthly report is provided as a snapshot and this practice is non-compliant.

**Audit outcome**

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 2.1<br>With: Clause 11(1) of Schedule 15.3<br><br><br><br><br>From: 01-Dec-19<br>To: 20-Oct-21 | The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.<br><br>Potential impact: Low<br>Actual impact: Low<br>Audit history: Multiple times<br>Controls: Moderate<br>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.<br>The impact is assessed to be low, based on the low number of changes which occur in the database. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| | | Identified |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| Horowhenua DC will now actively advise on changes to their asset schedule during the month along with their monthly snapshot. Combined with he previous months snapshot this will enable us to submit a daily capacity value. | 30/11/2021 | |

## 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 an ICP assigned.

### 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 fields for the road name, location number, pole number, and GPS coordinates.

GPS coordinates are populated for all except 12 items of load. The 12 items of load without GPS coordinates are contain sufficient address information to allow them to be located.

The accuracy of locations is discussed in **section 3.1**.

**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 light type and wattage capacity,
- wattage capacities include any ballast or gear wattage, and
- each item of load has a light type, light wattage, and gear wattage recorded.

**Audit commentary**

The database contains the lamp make and model, lamp wattage and gear wattage.

All items of load have a lamp model, lamp wattage, and gear wattage populated. No lamp or gear wattages were invalidly recorded as zero.

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 DUML for which it is responsible is recorded in this database.*

**Audit observation**

The field audit was completed of a statistical sample of 286 items of load on 20th October 2021. The sample was selected from four strata as follows:

1. road names A-E,
2. road names F-M,
3. road names N-R, and
4. road names S-Z.

**Audit commentary**

The field audit discrepancies are detailed in the table below:

| Street | Database count | Field count | Light count difference | Wattage recorded incorrectly | Comments |
|---|---|---|---|---|---|
| Road names S-Z | | | | | |
| SHEFFIELD STREET | 9 | 9 | - | 1 | One 27W LED recorded in the database 22W LED. |
| SIGNAL STREET | 6 | 5 | -1 | - | Six 22W LED were recorded in the database. Five 22W LED were found in the field. |
| TAWA STREET (TOKO) | 4 | 4 | - | 1 | One 22W and three 35W LEDs were recorded in the database. Two 22W LED and two 35W LEDs were found in the field. |
| **Grand Total** | **286** | **285** | -1 | **2** | |

There was one lamp not found in the field that was recorded in the database. Two lamps were found to have different wattages in the field than what was recorded in the database. All lights checked during the field survey were present in the database. The database accuracy 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 RAMM database functionality achieves compliance with the code.

The change management process and the compliance of the database reporting provided to Contact 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 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 database has a complete audit trail.

### 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

Contact' submissions are based on a monthly extract from the RAMM database. A RAMM database extract was provided in September 2021, and I assessed the accuracy of this by using the DUML Statistical Sampling Guideline. The table below shows the survey plan.

| Plan Item | Comments |
|---|---|
| Area of interest | Horowhenua District Council streetlights |
| Strata | The database contains the HDC items of load DUML in the Horowhenua region.<br>The processes for the management of all HDC items of load are the same, but I decided to place the items of load into four strata:<br>1. Road names A-E,<br>2. Road names F-M,<br>3. Road names N-R, and<br>4. Road names S-Z. |
| Area units | I created a pivot table of the roads, and I used a random number generator in a spreadsheet to select a total of 65 sub-units. |
| Total items of load | 286 items of load were checked, making up 10.7% of the database load. |

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

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

#### Audit commentary

**Field audit findings**

A field audit was conducted of a statistical sample of 286 items of load. The "database auditing tool" was used to analyse the results, which are shown in the table below.

| Result | Percentage | Comments |
|---|---|---|
| The point estimate of R | 100.3 | Wattage from survey is higher than the database wattage by 0.3% |
| $R_L$ | 99.9 | With a 95% level of confidence, it can be concluded that the error could be between -0.1% and 1.7% |
| $R_H$ | 101.7 | |

These results were categorised in accordance with the "Distributed Unmetered Load Statistical Sampling Audit Guideline", effective from 1 February 2019 and the table below shows that Scenario A (detailed below) applies.

The conclusion from Scenario A is that the variability of the sample results across the strata means that the true wattage (installed in the field) could be between 0.1% lower and 1.7% higher than the wattage recorded in the DUML database. Compliance is recorded because the potential error is less than ±5.0%.

- In absolute terms, the installed capacity is estimated to be the same as the database indicates.
- There is a 95% level of confidence that the installed capacity is up to 2 kW higher than the database.
- In absolute terms, total annual consumption is estimated to be 1,400 kWh higher than the DUML database indicates.
- There is a 95% level of confidence that the annual consumption is estimated to be between 300 kWh lower and 6,600 kWh higher than the database indicates.

| **Scenario** | **Description** |
|---|---|
| A - **Good accuracy, good precision** | This scenario applies if:<br>(a) $R_H$ is less than 1.05; and<br>(b) $R_L$ is greater than 0.95<br>The conclusion from this scenario is that:<br>(a) the best available estimate indicates that the database is accurate within +/- 5 %; and<br>(b) this is the best outcome. |
| B - **Poor accuracy, demonstrated with statistical significance** | This scenario applies if:<br>(a) the point estimate of R is less than 0.95 or greater than 1.05<br>(b) as a result, either $R_L$ is less than 0.95 or $R_H$ is greater than 1.05.<br>There is evidence to support this finding. In statistical terms, the inaccuracy is statistically significant at the 95% level |
| C - **Poor precision** | This scenario applies if:<br>(a) the point estimate of R is between 0.95 and 1.05<br>(b) $R_L$ is less than 0.95 and/or $R_H$ is greater than 1.05<br>The conclusion from this scenario is that the best available estimate is not precise enough to conclude that the database is accurate within +/- 5 % |

**Light description and capacity accuracy**

As discussed in **section 2.4**, all lights have a lamp and gear wattage recorded.

Lamp and gear wattages were compared to the expected values. No lamp wattage or gear wattage discrepancies were identified.

**Address accuracy**

As discussed in **section 2.3**, all items of load have address information recorded.

**Change management process findings**

New connection, fault, maintenance and upgrade work is completed by Fulton Hogan. Contractors completing work on HDC's streetlights have access to RAMM and update the database using Pocket RAMM from the field.

I walked through the new connection process. New connections are initially recorded in the database as private lights (without an ICP number) and are updated to a valid HDC ICP once they are vested in council. Each new connection application to the Network includes an "as built" plan, and a site check is performed prior to approval. Livening is normally conducted by the developer or the distributor, with updates to the database performed within two weeks.

Weekly and monthly movement analysis is undertaken on the database by HDC, and recent changes made are checked against field invoices.

Outage patrols are completed periodically with the latest completed recently. There is no set schedule for outage patrols. HDC relies on the public to advise of lights which need to be maintained.

The RAMM database records an installation date, which is used to record the date the light is vested in council once this occurs. There is no separate livening date.

Change dates are automatically generated by RAMM when records change but cannot be selected by the user. Changes are normally entered using Pocket RAMM on the date of the change.

**Festive lights**

The database contains Christmas lighting, which is connected in late November/early December and disconnected in mid-January. These items of load have "Festive Lighting" recorded as the ICP group and are excluded from submissions when they are disconnected. HDC notifies Contact of the date of connection and disconnection in the relevant monthly reports and adds them to the correct ICP group for this period. Contact includes these lights for submissions during the period in which they are switched on.

**Private lights**

Private lights are recorded in the database with "Private" as the ICP group. They are recorded in the database for completeness only. HDC does not have responsibility for maintaining private lights and does not expect to be billed for them. End users are not billed for electricity consumption for private lights by HDC. These are expected to be billed either as standard unmetered load or shared unmetered load. The details for these lights were provided to Powerco some years ago and have been addressed within the Powerco Distributor audit.

**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 the ICP has the correct profile and submission flag, and
- checking the database extract combined with the on hours against the submitted figure to confirm accuracy.

### Audit commentary

Contact reconciles this DUML load using the DST profile for 0016099004EL9CA. The correct profile and submission type is recorded on the registry.

Contact reconciles this DUML load as follows:

| ICP | Profile | On hours | Wattage |
|---|---|---|---|
| 0016099004EL9CA | DST | Data logger | Monthly extract from the RAMM database. The database is confirmed as accurate with a 95% level of confidence as recorded in **section 3.1**. |

I checked the submission data for June 2021 and found the load for 0016099004EL9CA had been correctly calculated based on the data logger and monthly extract information.

The field audit against the database quantities found that the database is accurate to within +/- 5%. With a 95% level of confidence, it can be concluded that the error could be between -0.1% and +1.7%.

On 18 June 2019, the Electricity Authority issued a memo clarifying the memo of 2012 that stated that a monthly snapshot was sufficient to calculate submission from, and confirmed 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 monthly report is provided as a snapshot and this practice is non-compliant.

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 3.2<br>With: Clause 15.2 and 15.37B(c)<br><br><br><br><br>From: 01-Dec-19<br>To: 20-Oct-21 | The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.<br><br>Potential impact: Low<br>Actual impact: Low<br>Audit history: Multiple times<br>Controls: Moderate<br>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.<br>The impact is assessed to be low, based on the low number of changes which occur in the database. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| | | Identified |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| Horowhenua DC will now actively advise on changes to their asset schedule during the month along with their monthly snapshot. Combined with he previous months snapshot this will enable us to submit a daily capacity value. | 30/11/2021 | |

## CONCLUSION

Streetlight load is determined by wattages held within HDC's RAMM database, and a monthly extract is provided to Contact. New connection, fault, maintenance and upgrade work is completed by Fulton Hogan. All contractors completing work on HDC's streetlights have access to RAMM and update the database using Pocket RAMM from the field.

The accuracy of the database has improved since the last audit and all gear wattages have been aligned to the published standardised wattage table produced by the Electricity Authority.

A field audit of 286 items of load was conducted on 20th October 2021 which found that the database is accurate to within +/- 5%. With a 95% level of confidence, it can be concluded that the error could be between -0.1% and +1.7%.

Contact reconciles this DUML load as follows:

| ICP | Profile | On hours | Wattage |
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On 18 June 2019, the Electricity Authority issued a memo clarifying the memo of 2012 that stated that a monthly snapshot was sufficient to calculate submission from, and confirmed 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 monthly report is provided as a snapshot and is non-compliant.

The audit found three non-compliances and makes no recommendations. The future risk rating of five indicates that the next audit be completed in 18 months, and I agree with this recommendation.

## PARTICIPANT RESPONSE

Horowhenua DC acknowledge they were late submitting data to Veritek which had a snowball effect around scheduling and timelines that ultimately resulted in a late submission. There were however extenuating circumstances as key staff were unable to go into the office to run the reports required due to the Council's policy that staff work from home during Level 2. We do not anticipate this will be a recurring issue into the future. The only other issue relates to providing a monthly snapshot only – the database has been relatively static since the LED roll out, however we will change this to report on any changes to the exact date moving forward.