# ELECTRICITY INDUSTRY PARTICIPATION CODE
# DISTRIBUTED UNMETERED LOAD AUDIT REPORT

VERITEK

For

# CHRISTCHURCH CITY COUNCIL AND CONTACT ENERGY LIMITED

Prepared by: Steve Woods (assisted by Deborah Anderson)

Date audit commenced: 23 April 2018

Date audit report completed: 25 May 2018

Audit report due date: 01-Jun-18

## TABLE OF CONTENTS

## EXECUTIVE SUMMARY

This audit of the Christchurch City Council (**CCC**) 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, which became effective on 1 June 2017.

The CCC boundary is part of both the Orion and Mainpower Networks. Both Orion and Mainpower manage their own databases for CCC. Monthly reporting is supplied to Contact by Orion and Mainpower.

This audit covers the Orion and Mainpower databases.

The audit found four non-compliances and makes two recommendations.

When wattages were checked for alignment with the published standardised wattage table, there were a large number of lamps in the Orion database that are incorrect.

The field audit found a small number of discrepancies in the sample from the Mainpower network.

The Mainpower database accuracy is assessed to be 97.95% indicating an estimated over submission of 1,281 kWh per annum.

The future risk rating of 13 indicates that the next audit be completed in 12 months. The matters raised are detailed below:

## AUDIT SUMMARY

### NON-COMPLIANCES

| Subject | Section | Clause | Non Compliance | Controls | Audit Risk Rating | Breach Risk Rating | Remedial Action |
|---|---|---|---|---|---|---|---|
| Deriving submission information | 2.1 | 11(1) of Schedule 15.3 | The Mainpower database accuracy is assessed to be 97.95% indicating an estimated over submission of 1,281 kWh per annum.<br>The Orion database has nine lamp type and wattage differences, affecting 6,876 lamps with an overall wattage difference of 11.670 kW, which equates to 49,841 kWh per annum under submission | Moderate | Medium | 4 | Identified |
| Description and capacity of load | 2.4 | 11(2)(c) and (d) of Schedule 15.3 | Nine lamp type and wattage differences in the Orion database, affecting 6,876 lamps with an overall wattage difference equating to 49,841 kW per annum under submission<br>One lamp in the Mainpower database has missing make | Moderate | Medium | 4 | Identified |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | and model information and no lamp wattage recorded. | | | | |
| Database accuracy | 3.1 | 15.2 and 15.37B(b) | The Mainpower database accuracy is assessed to be 97.95% indicating an estimated over submission of 1,281 kWh per annum | Strong | Low | 1 | Identified |
| Volume information accuracy | 3.2 | 15.2 and 15.37B(c) | The Mainpower database accuracy is assessed to be 97.95% indicating an estimated over submission of 1,281 kWh per annum.<br>The Orion database has nine lamp type and wattage differences, affecting 6,876 lamps with an overall wattage difference of 11.670 kW, which equates to 49,841 kWh per annum under submission. | Moderate | Medium | 4 | Identified |
| | | | | | **Future Risk Rating** | **13** | |

| **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 |
|---|---|---|---|
| Festive lights | Clause 11(2)(a) and (aa) of Schedule 15.3 | Some Festive lights were found to still be active in the database. | Put a process in place to ensure all Festive Lights are accounted for when status changes advised by Connetics |
| Database accuracy | Clause 15.2 and 15.37B(b) | All lamps on Kainga Road stated to be 125 watt MV could not be confirmed | Check all 125 watt MV lamps to confirm whether they have been replaced by lamps with other wattages |

## 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.

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

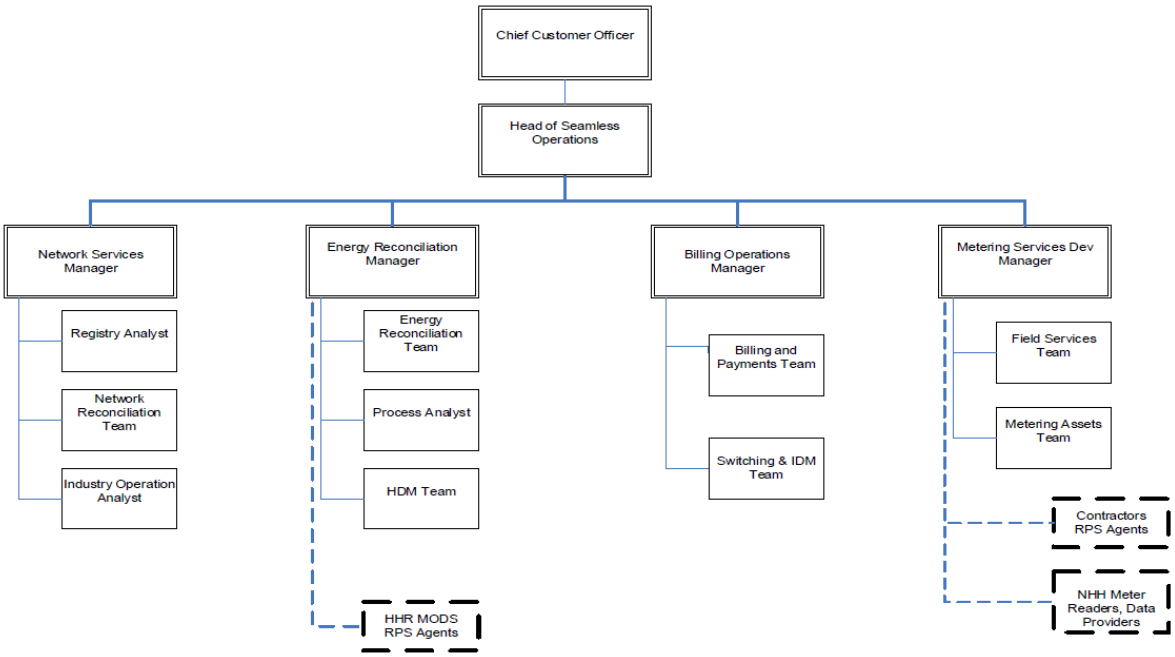
- Exemption No. 177. Exemption to clause 8(g) of schedule 15.3 of the Electricity Industry Participation Code 2010 ("Code") in respect of providing half-hour ("HHR") submission information instead of non-half-hour ("NHH") submission information for distributed unmetered load ("DUML"). This exemption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

### Audit commentary

Compliance is confirmed.

## 1.2. Structure of Organisation

Contact Energy provided a copy of their organisational structure.



## 1.3. Persons involved in this audit

Auditor:

**Steve Woods**

**Veritek Limited**

**Electricity Authority Approved Auditor**

Other personnel assisting in this audit were:

| Name | Title | Company |
|---|---|---|
| Bernie Cross | Energy Reconciliation Manager | Contact Energy |
| Penny Lawrence | Operations Services | Orion |
| Sarah Barnes | Regulatory Manager | Mainpower |
| Neil O'Loughlin | Surveyor/Pricing Co-ordinator | Mainpower |
| Joel Hung | Commercial Analyst | Mainpower |

## 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.

Mainpower maintains an Access database 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) |
|---|---|---|---|---|
| 0007102593RN8D3 | Orion_CCC GXP street light ICP | HHR | 13784 | 1,718,780 |
| 0007102594RN519 | Orion_CCC GXP street light ICP | HHR | 3653 | 447,043 |
| 0007102595RN95C | Orion_CCC GXP street light ICP | HHR | 22564 | 3,104,801 |
| 0000366681MPA69 | Mainpower - KAI0111 Riverlea Estate Dr | HHR | 20 | 1,660 |
| 0000366751MPE2F | Mainpower - KAI0111 Street Lights | HHR | 101 | 12,596 |

## 1.7. Authorisation Received

All information was provided directly by Contact, Orion or Mainpower.

## 1.8. Scope of Audit

This audit of the CCC 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, which became effective on 1 June 2017.

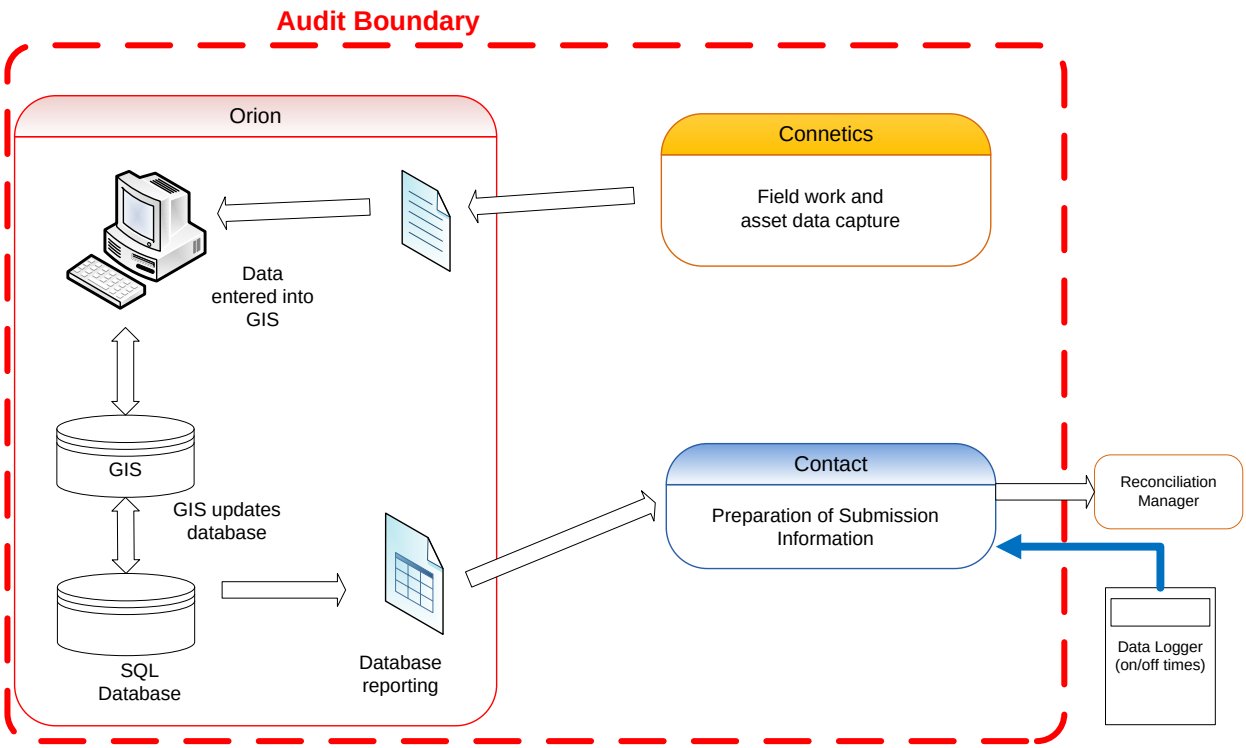
The scope of the audit encompasses the collection, security and accuracy of the data, including the preparation of submission information based on the database reporting.

The CCC boundary is part of both the Orion and Mainpower Networks. Both Orion and Mainpower manage their own databases for CCC. Monthly reporting is supplied to Contact by Orion and Mainpower.

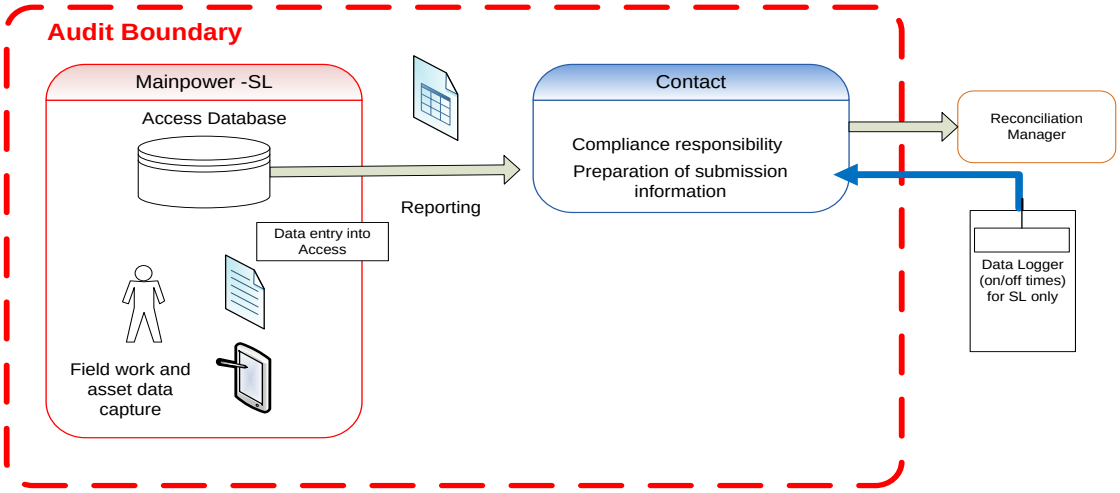
This audit covers the Orion and Mainpower databases.

The diagrams below show the audit boundaries for clarity.

Orion Database




Mainpower Database




The field audit was undertaken of a statistical sample of 405 items of load on 24 – 25th April 2018.

### 1.9. Summary of previous audit

Contact provided a copy of the last audit report undertaken by Allie Jones of Contact Energy, completed in August 2017. The table below records the findings.

## Table of Non-Compliance

| Subject | Section | Clause | Non compliance | Status |
|---|---|---|---|---|
| Tracking of Load | 2.3 | Clause 11 (3) of Schedule 15.3 | Some Tracking of Load Changes not updated in a timely manner in Orion database | Cleared |

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

**Code reference**

*Clause 16A.26 and 17.295F*

**Code related audit information**

*Retailers must ensure that DUML database audits are completed:*

1. *by 1 June 2018 (for DUML that existed prior to 1 June 2017)*
2. *within 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**

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 the Orion and Mainpower databases within the required timeframe. Compliance is confirmed.

## 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 using the HHR profile.

I checked the March 2018 extract provided by Orion against the submission totals supplied by Contact and found that submission matched the database.

I also checked the March 2018 extract provided by Mainpower against the submission totals supplied by Contact and found that submission matched the database.

The methodology for deriving submission information is compliant but there is some inaccurate data within the Mainpower database used to calculate submissions. This is recorded as non-compliance and discussed in **section 3.1** and **3.2**.

**Audit outcome**

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 3.1<br>With: Clause 11(1) of Schedule 15.3<br><br>From: 01-Apr-17<br>To: 30-Apr-18 | The Mainpower database accuracy is assessed to be 97.95% indicating an estimated over submission of 1,281 kWh per annum.<br>The Orion database has nine lamp type and wattage differences, affecting 6,876 lamps with an overall wattage difference of 11.670 kW, which equates to 49,841 kWh per annum under submission.<br>Potential impact: Medium<br>Actual impact: Medium<br>Audit history: Once<br>Controls: Moderate<br>Breach risk rating: 4 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **Medium** | The controls are rated as moderate, because they are sufficient to ensure that changes to the database are correctly recorded most of the time.<br>The impact is assessed to be medium, based on the kWh differences described above. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| Contact will work with Orion and Mainpower to get the DUML database's updated with these correct values and attributes | Dec 2018 | 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 databases were checked to confirm the correct ICP was recorded against each item of load.

**Audit commentary**

All Orion and Mainpower items of load have an ICP recorded against them.

**Audit outcome**

Compliant

### 2.3. Location of each item of load (Clause 11(2)(b) of Schedule 15.3)

**Code reference**

*Clause 11(2)(b) of Schedule 15.3*

**Code related audit information**

*The DUML database must contain the location of each DUML item.*

**Audit observation**

The databases were 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 152 records that do not have a Street number, but in the majority of cases that is not possible, and in all cases there is GPS information.

The Mainpower database contains a field for the nearest street address and there are GPS coordinates. There is one record that does not have a lot number, but that record does have a street name and GPS coordinates available. There are 13 records without GPS coordinates, which makes them more difficult to locate, but they do have lot numbers and street address 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 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 databases were checked to confirm that they 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. Wattages were checked for alignment with the published standardised wattage table produced by the Electricity Authority.

The differences found were nine lamp type and wattage differences, affecting 6,876 lamps with an overall wattage difference of 11.670 kW, which equates to 49,841 kWh per annum.

| Lamp Type | Description | Wattage | Lamp Type Category | Orion database | Correct wattage | Lamps affected | wattage difference | total difference |
|---|---|---|---|---|---|---|---|---|
| 14W FF | 14W FF | 14 | Fluorescent | 14W FF | 17.8 | 12 | 3.8 | 45.6 |
| 1*20W FF | 1*20W FF | 30 | Fluorescent | 1*20W FF | 29 | 80 | -1 | -80 |
| 2*20W FF | 2*20W FF | 55 | Fluorescent | 2*20W FF | 50 | 334 | -5 | -1670 |
| EM57 | EM 57 57W CFL | 57 | Fluorescent | EM57 | 62 | 77 | 5 | 385 |
| 2*30W FF | 2*30W FF | 75 | Fluorescent | 2*30W FF | 77 | 6228 | 2 | 12456 |
| 90W LED | 90W LED | 102 | LED | 90W LED | 90 | 35 | -12 | -420 |
| 2*40W FF | 2*40W FF | 90 | Fluorescent | 2*40W FF | 100 | 65 | 10 | 650 |
| 36W FF | 36W FF | 36 | Fluorescent | 36W FF | 42 | 12 | 6 | 72 |
| 58W FF | 58W FF | 58 | Fluorescent | 58W FF | 65 | 33 | 7 | 231 |
| | | | | | | 6,876 | | 11,669.6 |

Mainpower's Access database contains the manufacturers rated wattage and the ballast wattage. There was one lamp that did not contain the required lamp information, this is recorded as a non-compliance below.

| txtSITE | txtLOCATION | StreetPick | AreaPick | ComboTYPENO |
|---|---|---|---|---|
| 10407 | 459 | KAINGA ROAD | KAINGA | |

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 2.4<br>With: Clauses 11(2)(c) and (d) of Schedule 15.3<br><br>From: 01-Apr-17<br>To: 30-Apr-18 | Nine lamp type and wattage differences in the Orion database, affecting 6,876 lamps with an overall wattage difference equating to 49,841 kW per annum under submission<br>One lamp in the Mainpower database has missing make and model information and no lamp wattage recorded.<br>Potential impact: Medium<br>Actual impact: Medium<br>Audit history: None<br>Controls: Moderate<br>Breach risk rating: 4 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **Medium** | The controls are rated as medium because percentage of the database affected is significant.<br>The impact is medium based on the kWh difference of almost 50,000 kWh per annum |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| Contact will work with Orion and Mainpower to get the DUML database's updated with these correct values and attributes | Dec 2018 | Identified |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| | | |

## 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 undertaken of a statistical sample of 405 items of load on 25th and 26th April.

### Audit commentary

The field audit findings for the Orion sample of 354 lamps are detailed in the table below:

| Address | Database Count | Field Count | Count differences | Wattage differences | Comments |
|---|---|---|---|---|---|
| Arran Ct | 4 | 4 | - | - | |
| Barnett Park | 10 | 10 | - | - | |
| Barters Rd by Waterloo Rd | 2 | 2 | - | - | |
| Bayswater Cr | 15 | 15 | - | - | |
| Bradwell Cr | 12 | 12 | - | - | |
| Burnside Cr | 12 | 12 | - | - | |
| Camberwell Pl | 7 | 7 | - | - | |
| Chapter St | 13 | 13 | - | - | |
| Chartwell St | 13 | 13 | - | - | |
| Deepdale St | 8 | 8 | - | - | |
| Doreen St | 8 | 8 | - | - | |
| Dyers Rd opp Maces Rd | 2 | 2 | - | - | |
| Edmonton Rd by Yukon Pl | 1 | 1 | - | - | |
| Evans Pass Rd | 12 | 12 | - | - | |
| Fleete St | 15 | - | 15 | - | Fleete St is inaccessible for Health & Safety reasons. Please confirm these lights are still operating |
| Grosvenor St | 2 | 2 | - | - | |
| Hardwicke St | 8 | 8 | - | - | |
| Idris Rd | 48 | 48 | - | - | |
| Kent Lodge Av | 11 | 11 | - | - | |
| Kilmore St | 53 | 53 | - | - | |
| Kirk Rd opp | 9 | 9 | - | - | |
| Knowles St | 39 | 39 | - | - | |
| Lassiter Gdns | 2 | 2 | - | - | |
| Main North by Nothcote | 2 | 2 | - | - | |
| Merrington Cr | 7 | 7 | - | - | Orion's PL confirmed which lamps were included in the sample |
| Mica Pl by Caleb Pl | 1 | 1 | - | - | |
| Montclare Av | 5 | 5 | - | - | |
| Munro St | 4 | 4 | - | - | Orion's PL confirmed which lamps were included in the sample |
| Newmark St | 6 | 6 | - | - | |
| Queenspark Dr opp | 4 | 4 | - | - | |
| Seneca Pl by Lakewood | 1 | 1 | - | - | |
| The Runway opp | 10 | 10 | - | - | |
| Westmont St | 7 | 7 | - | - | |
| Woodhurst by Regents Park | 1 | 1 | - | - | |
| **Total** | **354** | **339** | **15** | | |

I did not find any incorrect wattages in the Orion field audit. I did not identify any load missing from the database.

The field audit findings for the Mainpower sample of 51 lamps are detailed in the table below:

| Address | Database Count | Field Count | Count differences | Wattage recorded incorrectly | Comments |
|---|---|---|---|---|---|
| Cawood St/Tce | 3 | 3 | - | 3 | * 2 lamps specified as 125MV are actually 70 SON<br>* 1 lamp specified as 110 SON is either a 70 or 100 SON |
| Kianga Road | 48 | 48 | - | 22 | There is one 100W light at the end of the road, the rest look like 70 SON |
| **Total** | **51** | **51** | **0** | **25** | |

I found 25 lamps with incorrect wattages in the Mainpower field audit. These differences are recorded as non-compliance in **section 3.1**. I did not identify any load missing from the database.

**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**

For Orion - the processes were reviewed for new lamp connections and the tracking of load changes due to faults and maintenance. Connetics is the maintenance contractor for CCC region. Outage patrols are conducted on a regular basis. Lamp outages are also notified to CCC by residents and work requests are made to Connetics personnel.

New subdivisions require a proposed plan to be provided and an “as built” plan once the development is complete. The Council has an acceptance process for new subdivisions. Once installed, the receipt of this information is passed to Orion, for the entire project, and processed within the month that it is received. Orion update the status as at the day of livening.

There are festive lights in the Orion database, denoted with a ‘miscellaneous’ status, which are connected for a period each year. Orion rely on Connetics to advise when the lights are activated and again when they are turned off. This usage is included in the monthly reporting to Contact. Two lights were found to have been missed in Connetics advisory, these have since been corrected to have ceased

with an effective date of 18/01/2018. This has now been updated in the database so Contact can revise its submission for the affected periods.

CCC have begun installing Streetlighting on the LV network (Smart Lights). These lights are connected directly to the LV network and bypassing the Streetlighting network. These each have photocells. Currently there is no way to accurately record the correct usage for these lights. These lights are in the database but reported separately, assigned to a separate ICP per GXP.

| Recommendation | Description | Audited party comment | Remedial action |
|---|---|---|---|
| Clause 11(2)(a) and (aa) of Schedule 15.3 | Put a process in place to ensure all Festive Lights are accounted for when status changes advised by Connetics | From P Lawrence, Orion, 26/4/18 "Connetics had left off that particular circuit in their LVA.<br>I have requested that they include it going forward" | Identified |

For Mainpower - 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.

Monthly "outage patrols" are conducted by Mainpower and the process is used to identify any incorrect wattage and location issues that may exist.

For new subdivisions, the technician provides a form per light and these are signed at the time of data entry to confirm database population. There is also a check against the design. Information is entered into the database immediately on receipt, without having to wait for other departments to process their information. The new subdivision part of the field audit confirmed 100% accuracy for the sample selected.

There are some festive lights connected each year and this is reported separately to Contact for inclusion in submission information.

On September 20th 2012, the Authority sent a memo to Retailers and auditors advising that tracking of load changes at a daily level was not required as long as the database contained an audit trail. I have interpreted this to mean that the production of a monthly "snapshot" report is sufficient to achieve compliance.

**Audit outcome**

Compliant

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

### Code reference

*Clause 11(4) of Schedule 15.3*

### Code related audit information

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

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

### Audit observation

The database was checked for audit trails.

### Audit commentary

Orion demonstrated a complete audit trail of all additions and changes to the database information.

Mainpower's database does have full audit trail functionality, this has been viewed and verified.

### 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 DUML Statistical Sampling Guideline was used to determine the database accuracy. The table below shows the survey plan.

| Plan Item | Comments |
|---|---|
| Area of interest | Christchurch City Council Street Lights |
| Strata | The databases contain 44,168 items of load in Christchurch City Council area.<br>(Orion 44,047 & Mainpower 121)<br>The processes for the management of all CCC items of load is the same. The databases have been treated as two strata for all lights.<br>• Orion database<br>• Mainpower database |
| Area units | I created a pivot table of the roads in each database and used a random number generator in each spreadsheet to select a total of 37 subunits. |
| Total items of load | 405 items of load were checked.<br>Orion database 354<br>Mainpower database 51 |

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

**Audit commentary**

The Orion database was found to contain some inaccuracies when matched to the published standardised wattage table, and the manufacturer's specifications where they were not included in the standardised wattage table. These are recorded as a non-compliance in **section 2.4**.

The Orion field audit found zero lamp type or wattage differences.

The field data was 100% of the Orion database data for the sample checked. The total wattage recorded in the database for the sample was 43,357 watts. The total wattage found in the field for the sample checked was 43,357 watts, a difference of zero watts. This will result no submission difference (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool).

The Mainpower database was found to contain one inaccuracy when matched to the published standardised wattage table, as covered in section **2.4**.

The Mainpower field audit found three lamps with type and wattage differences.

- One lamp as mentioned above
- Two lamps specified as 125MV are actually 70SON
- One lamp specified as 110 SON is either a 70 or 100 SON.

A further 21 lamps specified as 125MV could be 70SON, incorrectly recorded as 125watt MV. I recommend these are all checked to confirm whether they have been replaced with other lower wattage lamps.

| Recommendation | Description | Audited party comment | Remedial action |
|---|---|---|---|
| Clause 15.2 and 15.37B(b) | Check all 125 watt MV lamps to confirm whether they have been replaced with other lamp types | | Identified |

The field data was 97.95% of the database data for the sample checked. This will result in estimated over submission of 1,281 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool).

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 3.1<br>With: Clause 15.2 and 15.37B(b)<br><br>From: 01-Apr-17<br>To: 30-Apr-18 | The Mainpower database accuracy is assessed to be 97.95% indicating an estimated over submission of 1,281 kWh per annum<br>Potential impact: Low<br>Actual impact: Low<br>Audit history: Once<br>Controls: Moderate<br>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.<br>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 |
|---|---|---|
| Contact will work with Orion Mainpower to get the DUML database updated with these correct values and attributes | Dec 2018 | Identified |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| | | |

## 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

Contact reconciles this DUML load using the HHR profile, in accordance with exemption number 177 discussed in **section 1.1**.

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

I checked the March 2018 extract provided by Orion against the submission totals supplied by Contact and found that submission matched the database.

I also checked the March 2018 extract provided by Mainpower against the submission totals supplied by Contact and found that submission matched the database.

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 3.2<br>Clause 15.2 and 15.37B(c)<br><br>From: 01-Apr-17<br>To: 30-Apr-18 | The Mainpower database accuracy is assessed to be 97.95% indicating an estimated over submission of 1,281 kWh per annum.<br>The Orion database has nine lamp type and wattage differences, affecting 6,876 lamps with an overall wattage difference of 11.670 kW, which equates to 49,841 kWh per annum under submission.<br>Potential impact: Medium<br>Actual impact: Medium<br>Audit history: None<br>Controls: Moderate<br>Breach risk rating: 4 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **Medium** | The controls are rated as moderate, because they are sufficient to ensure that lamp information is correctly recorded most of the time but there are still some errors.<br>The impact is assessed to be medium, based on the kWh differences described above. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| Contact will work with Orion and Mainpower to get the DUML database's updated with these correct values and attributes | Dec 2018 | Identified |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| | | |

## CONCLUSION

The CCC boundary is part of both the Orion and Mainpower Networks. Both Orion and Mainpower manage their own databases for CCC. Monthly reporting is supplied to Contact by Orion and Mainpower.

This audit covers the Orion and Mainpower databases.

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.

Mainpower maintains an Access database for the management of the DUML information. Backup and restoration procedures are in accordance with normal industry protocols.

The field audit was undertaken of a statistical sample of 405 items of load on 25th and 26th April.

The audit found four non-compliances and makes two recommendations.

The future risk rating of 13 indicates that the next audit be completed in 12 months.

PARTICIPANT RESPONSE