ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

VERITEK

For

DUNEDIN CITY COUNCIL
AND CONTACT ENERGY LIMITED

Prepared by: Tara Gannon

Date audit commenced: 2 May 2019

Date audit report completed: 9 May 2019

Audit report due date: 1 June 2019

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EXECUTIVE SUMMARY

This audit of the **Dunedin City Council (DCC)** 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.

A RAMM database is managed by DCC, who is Contact's customer. Fault, maintenance, new connection and upgrade work is completed by Delta. Delta's staff update RAMM using pocket RAMM in the field, or RAMM in the office. Where there are large capital projects, such as new subdivisions or the upgrade to the Dunedin bus hub, DCC may update some RAMM streetlight records themselves.

A monthly report from the database is provided to Contact, and used to calculate submissions. Contact submits the DUML load as HHR using the HHR profile. On hours are derived using data logger information.

Festive lights are recorded in an Excel spreadsheet and reported to Contact Energy with connection and disconnection dates for the months that they are connected.

There are around 40 LED lights currently in the database. DCC is in the process of negotiating a contract to complete a full LED upgrade. This upgrade project is expected to start within three months of the contract being finalised, and run for 18 months. Database update processes will be confirmed as part of this contract negotiation.

Four non-compliances were identified, and one recommendation was raised. The future risk rating of 14 indicates that the next audit be completed in 12 months. Some of the non-compliances identified were very minor, including the lack of audit trails for the Excel spreadsheet containing festive lights. Based on the comments provided, I recommend that the next audit is completed in 18 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	298 items of load have incorrect gear wattages recorded. Seven disconnected lights were included in the submission data.	Moderate	Medium	4	Identified
All load recorded in database	2.5	11(2A) of Schedule 15.3	One light not recorded in the database.	Strong	Low	1	Identified
Audit trail	2.7	11(4) of Schedule 15.3	Festive lights are recorded in an Excel spreadsheet, which does not have an audit trail.	Weak	Low	3	Investigating
Database accuracy	3.1	15.2 and 15.37B(b)	298 items of load have incorrect gear wattages recorded.	Moderate	Low	2	Identified
Volume information accuracy	3.2	15.2 and 15.37B(c)	298 items of load have incorrect gear wattages recorded. Seven disconnected lights were included in the submission data. ICPs 0000201300DE692 and 0000203111DE93D had RPS HHR profile assigned on the registry instead of HHR.	Moderate	Medium	4	Identified
Future Risk Rating						14	

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
Tracking of load changes	2.6	Tracking of load changes for new subdivisions	Increase the frequency of checks for new lights in subdivisions from twice per year to at least once per month.

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.

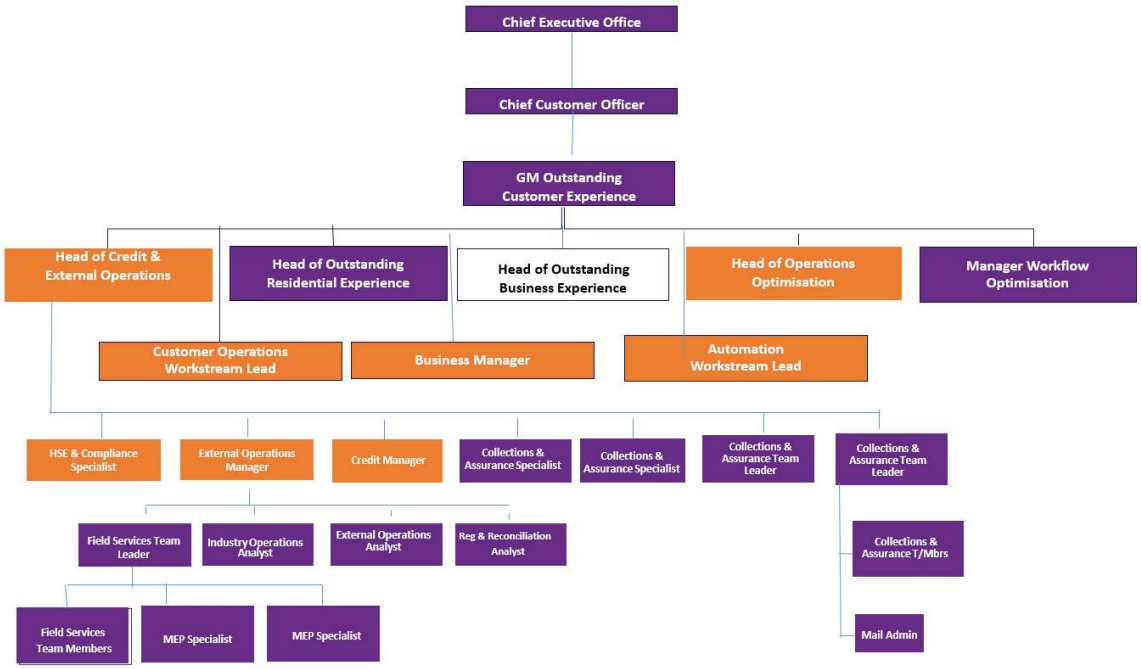
Audit commentary

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 Energy provided a copy of their organisational structure.



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
Allie Jones	External Operations Analyst	Contact Energy
Paul Robson	Field Services Team Member	Contact Energy
Matthew Harris	Capital Delivery	DCC
Simon Smith	Financial Analyst	DCC
Christine Rout	Systems and Information Officer	DCC
Simon Wilson	Systems and Information Team Leader, Transport	DCC
Scot Jefferies	Manager	Aurora Energy

1.4. Hardware and Software

The SQL database used for the management of DUML is remotely hosted by RAMM Software Ltd. The database is commonly known as "RAMM" which stands for "Roading Asset and Maintenance Management". Backup and restoration procedures are in place, and access to the database is restricted using logins and passwords.

Festive lights are recorded in an Excel spreadsheet, and is stored in a network area which can be accessed by all transport staff and some staff from other departments who require access to files in the directory. Backup and restoration procedures are in place for all files saved on the network, and access to the network is restricted using logins and passwords.

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)
0000201300DE692	SDN GXP street lighting	SDN0331	RPS HHR	4,606	570,951

ICP Number	Description	NSP	Profile	Number of items of load	Database wattage (watts)
0000203111DE93D	HWB GXP street lighting	HWB0332	RPS HHR	10,155	1,134,331
0001982460TGA89	DCC STREETLIGHTS ROLLINSONS ROAD	HWB1101	HHR	410	37,710
0001982461TG6CC	DCC STREETLIGHTS SWAMPY RIDGE TRACK	NSY0331	HHR	65	4,757
Total				15,236	1,747,749

1.7. Authorisation Received

All information was provided directly by Contact, DCC, and Aurora.

1.8. Scope of Audit

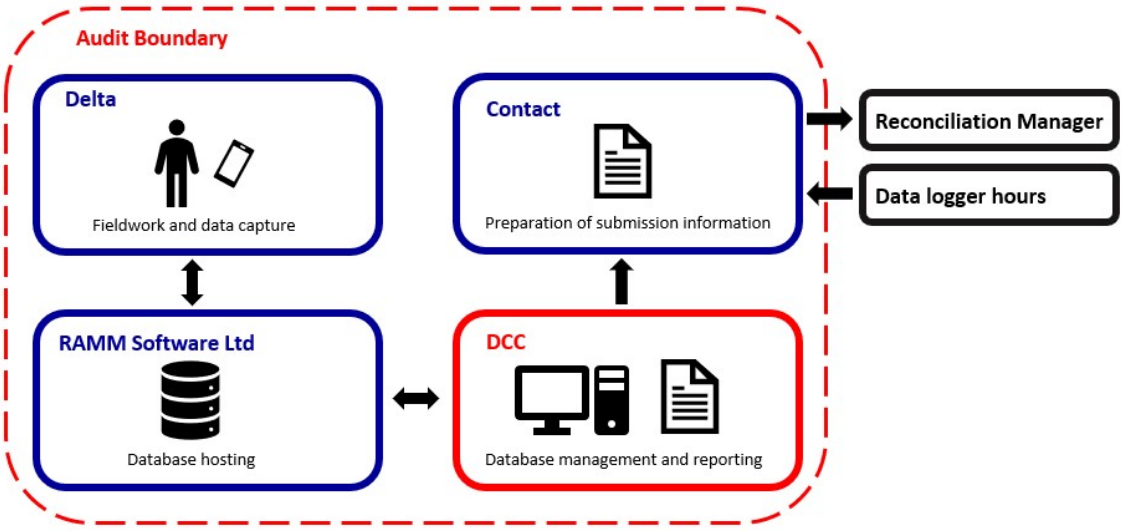
This audit of the DCC DUML database and processes was conducted at the request of Contact, in accordance with clause 15.37B. The purpose of this audit is to verify that the volume information is being calculated accurately, and that profiles have been correctly applied. The audit was conducted in accordance with the audit guidelines for DUML audits version 1.1.

A RAMM database is managed by DCC, who is Contact's customer. Fault, maintenance, new connection and upgrade work is completed by Delta. Delta's staff update RAMM using pocket RAMM in the field, or RAMM in the office. Where there are large capital projects, such as new subdivisions or the upgrade to the Dunedin bus hub, DCC may update some RAMM streetlight records themselves.

Festive lights are recorded in an Excel spreadsheet and reported to Contact Energy with connection and disconnection dates for the months that they are connected.

A monthly report from the database is provided to Contact, and used to calculate submissions. Contact submits the DUML load as HHR using the HHR profile. On hours are derived using data logger information.

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 boundaries for clarity.



A field audit of a statistical sample of 350 items of load recorded in the database was undertaken on 2 and 3 May 2019.

1.9. Summary of previous audit

Contact provided a copy of the last audit report completed by Steve Woods of Veritek Limited in May 2018. Five non-compliances were identified, and no recommendations were made. The statuses of the non-compliances are described below.

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	Net over submission by 39,453 kWh per annum	Still existing The database was found to be accurate within ±5% but some gear wattage differences still exist.
Description and capacity of load	2.4	11(2)(c) and (d) of Schedule 15.3	Three ballast wattage differences in the database, with an overall wattage difference equating to 7,935 kW per annum over submission	Cleared Some gear wattage differences still exist and are recorded as non-compliance in **section 3.1**.
All load recorded in database	2.5	11(2A) of Schedule 15.3	7 lights not recorded in the database leading to under submission by 2,481 kWh per annum	Still existing One light not recorded in the database was identified.
Database accuracy	3.1	15.2 and 15.37B(b)	The database accuracy is assessed to be 99.5% indicating an estimated over submission of 34,000 kWh per annum	Still existing The database was found to be accurate within ±5% but some gear wattage differences still exist.

Subject	Section	Clause	Non-compliance	Status
Volume information accuracy	3.2	15.2 and 15.37B(c)	Net over submission by 39,453 kWh per annum	Still existing The database was found to be accurate within ±5% but some gear wattage differences still exist.

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 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.

Audit commentary

This clause requires that the distributed unmetered load database must satisfy the requirements of schedule 15.5 regarding the methodology for deriving submission information. Contact reconciles this DUML load as HHR using the HHR profile, in accordance with exemption number 177. This exemption is discussed further in **section 1.1**. On and off times are derived from data logger information.

I checked the February 2019 submission data for ICPs 0000201300DE692, 0000203111DE93D, 0001982460TGA89 and 0001982461TG6CC. I found the calculation was correct, but seven lights listed with an owner of "Private Lighting (Power Off)" on ICPs 0000201300DE692 and 0000203111DE93D were included in the calculation because a wattage is recorded in the database. The total wattage for these lights was 751W, resulting in over submission of 3,208 kWh per annum (based on 4271 hours per annum).

Festive lights are maintained separately in an Excel spreadsheet, and connection dates are provided to Contact so that they can be included in submissions when connected, and excluded when disconnected. Festive lights were not connected in February 2019, and were correctly excluded from the calculation.

The review of database accuracy based on the field audit in **section 3.1** found that the best available estimate indicates that the database is accurate within ±5%.

The review of database wattages in **section 3.1** found 298 items of load had incorrect gear wattages recorded, resulting in potential over submission of 1621W or 6923 kWh per annum (based on 4271 hours per annum).

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 Clause 11(1) of Schedule 15.3 From: unknown To: 01-Feb-19	298 items of load have incorrect gear wattages recorded. Seven disconnected lights were included in the submission data. Potential impact: Low Actual impact: Low Audit history: Twice Controls: Moderate 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 the database is accurate most of the time. The impact is assessed to be medium, based on potential over submission of 1621W or 6923 kWh per annum (based on 4271 hours per annum) for incorrect database wattages, and over submission of 751W or 3,208 kWh per annum (based on 4271 hours per annum) for disconnected lights.

Actions taken to resolve the issue	Completion date	Remedial action status
Contact will work with DCC to ensure that private lights are not associated with an ICP Contact will also work with DCC to ensure their gear wattages are accurate	22/05/2019	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Contact Energy will complete quarterly reviews of the DCC database to ensure all information is accurate	22/05/2019	

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 and festive lights spreadsheet were checked to confirm whether an ICP is recorded for each item of load.

Audit commentary

All items of load in RAMM and the festive lights spreadsheet have an ICP number recorded.

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 and festive lights spreadsheet were checked to confirm the location is recorded for all items of load.

Audit commentary

Street addresses and GPS coordinates are recorded for all 15,236 items of load in RAMM and all 8,680 items of load in the festive lights spreadsheet.

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 and festive lights spreadsheet were checked to confirm they contained a field for lamp type and wattage capacity and included any ballast or gear wattage.

Audit commentary

All lamps in RAMM and the festive lights spreadsheet have a lamp model, lamp wattage and gear wattage recorded. No missing, or invalid zero lamp or gear wattages were identified.

The accuracy of the recorded wattage information 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

A field audit of a statistical sample of 350 items of load recorded in the database was undertaken on 2 and 3 May 2019.

Audit commentary

The following differences were identified during the field audit.

Address	Database Count	Field Count	Count differences	Wattage differences	Comments
Amenity, Park and Private lighting					
STEEP ST - PATH (CEN)	9	8	-1	-	Light IDs 110353 and 118646 (70w SON) were both recorded in the database against pole 15751, but only one light was present. DCC intends to update the database.
Street lighting (street names A-M)					
ARNOLD ST (NORTH)	7	6	-1	-	One 70W SON was recorded in the database but not located on the street. DCC intends to remove this light from the database.
BEACH ST (WC)	22	23	1	-	One 70W SON outside the Waikouaiti Beach Bar and Tavern was not recorded in the database. DCC intends to check the light and add it to the database.
Total	**350**	**349**	**-1**	-	

The field audit found one 70W SON on Beach St, Waikouaiti was missing from the database, which is recorded as non-compliance below. DCC intends to check and resolve all discrepancies identified during the field audit.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.5 With: Clause 11(2A) of Schedule 15.3 From: unknown To: 03-May-19	One light not recorded in the database. Potential impact: Low Actual impact: Low Audit history: Once Controls: Strong Breach risk rating: 1

Audit risk rating	Rationale for audit risk rating		
Low	The controls are rated as strong, because one missing lamp was identified for the sample of 350 lamps checked. The impact is assessed to be low, based on 83W missing from the database.		
Actions taken to resolve the issue		**Completion date**	**Remedial action status**
Contact will work with DCC to ensure they maintain this excellent degree of accuracy in their database		22/05/2019	Identified
Preventative actions taken to ensure no further issues will occur		**Completion date**	
Contact believes that this customer has made an excellent effort in compliance and they understand their responsibilities. With that in mind, we don't believe that any preventative actions are required for 1 light. Furthermore, whilst we accept that this is a technical non compliance we dispute the validity of it and would like the authority to remove this, negligible, non compliance from their final decision		22/05/2019	

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 and festive lights spreadsheet were examined.

Audit commentary

On 20th September 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 "snapshot" report is sufficient to achieve compliance. The database tracks additions and removals as required by this clause.

Processes to track changes were reviewed.

Fault, maintenance, new connection and upgrade work is completed by Delta. Delta's staff update RAMM using pocket RAMM in the field, or RAMM in the office. Where there are large capital projects, such as new subdivisions or the upgrade to the Dunedin bus hub, DCC may update some RAMM streetlight records themselves.

There around 40 LED lights currently in the database. DCC is in the process of negotiating a contract to complete a full LED upgrade. This upgrade project is expected to start within three months of the contract being finalised, and run for 18 months. Database update processes will be confirmed as part of this contract negotiation.

Outage patrols for bus routes are completed monthly, with different parts of the bus routes patrolled each week. Outages are also reported by residents within the DCC region and work orders are raised with Delta as required.

There have been no changes to the new connections process during the audit period. A request for connection is logged with the network and approved by DCC. The circuit is livened once the COC is completed. DCC check the lighting and add the records to RAMM effective from the livening date.

There is sometimes a delay in confirming streetlights have been connected for new subdivisions, because the planning team does not always advise the roading team when connection occurs. The roading team meets with planning twice per year to ensure that any new lights have been captured, with a focus on ensuring RAMM is updated by the end of financial year each June. I checked records for two new subdivisions and confirmed that streetlighting was recorded in RAMM. I recommend that this process is strengthened to ensure that updates for new subdivisions are more timely:

Recommendation	Description	Audited party comment	Remedial action
Tracking of load changes for new subdivisions	Increase the frequency of checks for new lights in subdivisions from twice per year to at least once per month.	Contact will suggest to DCC that they take this consideration on board, as this process displayed that the new subdivisions were present in RAMM from the accurate dates, I don't believe this is a large issue	Investigating

280 private lights are recorded in the database. DCC passes electricity charges to affected customers as part of their rates. If new private lights are identified, DCC collects the light information and updates the database.

Festive lights are maintained in an Excel spreadsheet. Each year, the transport team confirms any additions, deletions or changes to the lights with the events team, and the connection and disconnection dates. The spreadsheet is saved as a new version and updated, then sent to Contact.

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 and festive lights spreadsheet were checked for audit trails.

Audit commentary

RAMM records audit trail information of changes made.

The festive lights spreadsheet does not have an audit trail. Each year, the transport team confirms any additions, deletions or changes to the lights with the events team, and the connection and disconnection dates. The spreadsheet is then saved as a new version and sent to Contact. Changes from year to year can be determined by comparing the versions.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.7 With: Clause 11(4) of Schedule 15.3 From: unknown To: 01-Feb-19	Festive lights are recorded in an Excel spreadsheet, which does not have an audit trail. Potential impact: Low Actual impact: Low Audit history: None Controls: Weak Breach risk rating: 3

Audit risk rating	Rationale for audit risk rating
Low	The controls are rated as weak, because a compliant audit trail does not exist for festive lights. The impact is assessed to be low, because changes typically occur only once each year and can be identified by comparing the database versions.

Actions taken to resolve the issue	Completion date	Remedial action status
Contact Energy will work with DCC to ensure there is an audit trail on this spreadsheet	22/05/2019	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
N/A		

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	Dunedin City Council region
Strata	The database contains items of load in the Dunedin area. The processes for the management of all MDC items of load are the same, and I decided to create four strata: • Amenity, park and private lighting • NZTA • Street lighting (street names A-M) • Street lighting (street names N-Z)
Area units	I created a pivot table of the roads in each stratum, and I used a random number generator in a spreadsheet to select a total of 37 sub-units making up 2% of the total database wattage.
Total items of load	350 items of load were checked.

Wattages for all items of load were checked against the published standardised wattage tables produced by the Electricity Authority and Veritek, or the manufacturer's specifications.

Audit commentary

Database accuracy based on the field audit

A small number of differences were identified during the field audit. The individual discrepancies are discussed in **section 2.5**.

The field data was 99.8% of the database data for the sample checked. The statistical sampling tool reported with 95% confidence the precision of the sample was 1.6%, and the true load in the field will be between 98.9% to 100.5% of the load recorded in the database. The best available estimate indicates that the database is accurate within ±5%.

The tool indicated that there is potentially 15,700 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool) of over submission. The statistical sampling tool reported with 95% confidence that there is a potential estimated submission variance range of between 35,300

under submission and 80,300 kwh over submission, but as the accuracy is within the 5% threshold compliance is recorded.

Wattage accuracy

Wattages for all items of load were checked against the published standardised wattage tables produced by the Electricity Authority and Veritek, or the manufacturer's specifications.

The following gear wattage discrepancies were identified, and DCC intends to update their records:

Model	Gear wattage recorded (W)	Gear wattage expected (W)	Quantity	Gear wattage difference (W)
Halogen 300W	25	0	6	-150
High Pressure Sodium 150W	13	18	1	5
High Pressure Sodium 150W	28	18	1	-10
High Pressure Sodium 250W	18	28	1	10
Incandescent 100W	14	0	31	-434
Incandescent 20W	2	0	176	-352
Incandescent 60W	12	0	40	-480
Metal Halide 45W	10	5	42	-210
Total			**298**	**-1621**

Specifications could not be located to verify the lamp and gear wattages applied for the following lamp types. DCC advised that these are historic values and are believed to be correct.

Model	Lamp wattage recorded (W)	Gear wattage recorded (W)	Quantity	Comment
Compact Fluorescent	52	38	8	Confirmed lamp wattage but not gear
Compact Fluorescent	72	5	1	
Compact Fluorescent	72	12	1	
High Pressure Sodium	45	7	1	
High Pressure Sodium	1000	120	4	Confirmed lamp wattage but not gear

All Festive lights are listed as individual LEDs, and the correct wattages are recorded in the Festive lights spreadsheet.

Additional Chokes

Historically, additional chokes have been installed in some streetlights to help minimise ripple signal propagation issues. The DCC area still has some older high frequency ripple plant (1050Hz) and signal propagation issues are more prevalent than with more modern lower frequency ripple plant. Aurora advised that new and existing GL500 and GL600 lanterns on the Aurora network have chokes fitted.

RAMM does not contain wattages for these additional chokes. Aurora confirmed that additional chokes are installed for GL500 and GL600 lanterns, but I was unable to confirm the wattages associated with the chokes before the audit report was finalised. There are 9,291 GL 500 lamps, and 2,745 GL 600 lamps installed. It is expected that the upcoming LED rollout will resolve this matter.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: unknown To: 01-Feb-19	298 items of load have incorrect gear wattages recorded. Potential impact: Low Actual impact: Low Audit history: Twice Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate, because they are sufficient to ensure that the database is accurate most of the time. The impact is assessed to be medium, based on potential over submission of 1621W or 6923 kWh per annum (based on 4271 hours per annum).

Actions taken to resolve the issue	Completion date	Remedial action status
Contact will work with DCC to ensure this is accurate	22/05/2019	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Contact will complete quarterly database checks to ensure DCC is maintaining database accuracy	22/05/2019	

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 burn hours against the submitted figure to confirm accuracy.

Audit commentary

This clause requires that the distributed unmetered load database must satisfy the requirements of schedule 15.5 regarding the methodology for deriving submission information. Contact reconciles this DUML load as HHR using the HHR profile, in accordance with exemption number 177. This exemption is discussed further in **section 1.1**. On and off times are derived from data logger information.

Two ICPs had the RPS HHR profile assigned on the registry instead of HHR; this is recorded as non-compliance below. The other two ICPs had correct profiles assigned.

ICP Number	Profile on 09/05/19	Submission type on 09/05/19
0000201300DE692	RPS HHR	HHR
0000203111DE93D	RPS HHR	HHR
0001982460TGA89	HHR	HHR
0001982461TG6CC	HHR	HHR

I checked the February 2019 submission data for ICPs 0000201300DE692, 0000203111DE93D, 0001982460TGA89 and 0001982461TG6CC. I found the calculation was correct, but seven lights listed with an owner of "Private Lighting (Power Off)" on ICPs 0000201300DE692 and 0000203111DE93D were included in the calculation in error because a wattage is recorded in the database. The total wattage for these lights was 751W, resulting in over submission of 3,208 kWh per annum (based on 4271 hours per annum).

Festive lights are maintained separately in an Excel spreadsheet, and connection dates are provided to Contact so that they can be included in submissions when connected, and excluded when disconnected. Festive lights were not connected in February 2019, and were correctly excluded from the calculation.

The review of database accuracy based on the field audit in **section 3.1** found that the best available estimate indicates that the database is accurate within ±5%.

The review of database wattages in **section 3.1** found 298 items of load had incorrect gear wattages recorded, resulting in potential over submission of 1621W or 6923 kWh per annum (based on 4271 hours per annum).

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 Clause 15.2 and 15.37B(c) From: unknown To: 09-May-19	298 items of load have incorrect gear wattages recorded. Seven disconnected lights were included in the submission data. ICPs 0000201300DE692 and 0000203111DE93D had RPS HHR profile assigned on the registry instead of HHR. Potential impact: Low Actual impact: Low Audit history: Twice Controls: Moderate 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 the database is accurate most of the time. The impact is assessed to be medium, based on potential over submission of 1621W or 6923 kWh per annum (based on 4271 hours per annum) for incorrect database wattages, and over submission of 751W or 3,208 kWh per annum (based on 4271 hours per annum) for disconnected lights. The impact of the inaccurate profiles is low. Volumes are submitted as HHR with the correct profiles applied.

Actions taken to resolve the issue	Completion date	Remedial action status
Contact will work with DCC to ensure that private lights are not associated with an ICP Contact will also work with DCC to ensure their gear wattages are accurate Contact are waiting on Internal approval to apply changes to their system to ensure that the correct profile is on the Regsitry	22/05/2019	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Contact Energy will complete quarterly reviews of the DCC database to ensure all information is accurate	22/05/2019	

CONCLUSION

A RAMM database is managed by DCC, who is Contact's customer. Fault, maintenance, new connection and upgrade work is completed by Delta. Delta's staff update RAMM using pocket RAMM in the field, or RAMM in the office. Where there are large capital projects, such as new subdivisions or the upgrade to the Dunedin bus hub, DCC may update some RAMM streetlight records themselves.

A monthly report from the database is provided to Contact, and used to calculate submissions. Contact submits the DUML load as HHR using the HHR profile. On hours are derived using data logger information.

Festive lights are recorded in an Excel spreadsheet and reported to Contact Energy with connection and disconnection dates for the months that they are connected.

There around 40 LED lights currently in the database. DCC is in the process of negotiating a contract to complete a full LED upgrade. This upgrade project is expected to start within three months of the contract being finalised, and run for 18 months. Database update processes will be confirmed as part of this contract negotiation.

Four non-compliances were identified, and one recommendation was raised. The future risk rating of 14 indicates that the next audit be completed in 12 months. Some of the non-compliances identified were very minor, including the lack of audit trails for the Excel spreadsheet containing festive lights. Based on the comments provided, I recommend that the next audit is completed in 18 months.

PARTICIPANT RESPONSE

Contact believes that DCC is doing an excellent job of working on their compliance. It a short period of time, they have taken over the provision of a DUML database by creating their own from scratch. They have worked with Contact Energy to ensure that they are complying with the code.

We would like to ask the authority to take that into consideration when deciding on the period of compliance for this customer.

We believe some of the results of this audit are harshly judging this council and would like it reflected that we don't necessarily agree with all non compliance.