ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

For

QUEENSTOWN LAKES DISTRICT COUNCIL
AN CONTACT ENERGY

Prepared by: Rebecca Elliot

Date audit commenced: 20 March 2018

Date audit report completed: 22 May 2018

Audit report due date: 31-May-18

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This audit of the Queenstown Lakes District Council (**QLDC**) streetlight 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 QLDC boundary is part of The Power Company network (TPCO), Lakeland (Frankton) and Northlake (Wanaka) embedded networks, and the Aurora Network. QLDC data from Aurora is held in GIS and is submitted to CTCT monthly. QLDC data from TPCO and the embedded networks is held in a database by PowerNet, data is submitted to Contact on a monthly basis. Contact derives submission information from these two sources; PowerNet and Aurora. Contact are working with QLDC to use their RAMM database for submission purposes hence this audit was completed as one audit in anticipation of this.

The future risk rating of 18 indicates that the next audit be completed in six months. Six non-compliances were identified, and one recommendation was raised. 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	Aurora database accuracy is assessed to be 99.3% indicating an estimated over submission of 11,200 kWh per annum. Incorrect ballasts recorded for 786 items of load in the Aurora database, resulting in an estimated under submission of 12,321.84 kWh. PowerNet database accuracy is assessed to be 100.9% indicating a minor estimated under submission of 900 kWh per annum.	Moderate	Medium	4	Investigating
Description and capacity of each item of load	2.4	11(2)(c) of Schedule 15.3	178 items of load with incomplete lamp descriptions. Six items of load recorded with zero wattage. 98 items of load with an invalid light description.	Moderate	Low	2	Investigating
All load recorded in database	2.5	11(2A) and (d) of Schedule 15.3	1 additional item of load found on the Aurora managed DUML database. Some additional items of load found on the PowerNet managed DUML database.	Moderate	Low	2	Investigating

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Tracking of load change	2.6	11(2A) of Schedule 15.3	The tracking of load changes is not being carried out in relation to changing of light type on existing items of load for the PowerNet database. Festive lights not tracked in the Aurora database.	Moderate	Low	2	Investigating
Database accuracy	3.1	15.2 and 15.37B(b)	Aurora database accuracy is assessed to be 99.3% indicating an estimated over submission of 11,200 kWh per annum. Incorrect ballasts recorded for 786 items of load in the Aurora database, resulting in an estimated under submission of 12,321.84 kWh. PowerNet database accuracy is assessed to be 100.9% indicating a minor estimated under submission of 900 kWh per annum.	Moderate	Medium	4	Investigating

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Volume information accuracy	3.2	15.2 and 15.37B(c)	Aurora database accuracy is assessed to be 99.3% indicating an estimated over submission of 11,200 kWh per annum. Incorrect ballasts recorded for 786 items of load in the Aurora database, resulting in an estimated under submission of 12,321.84 kWh. PowerNet database accuracy is assessed to be 100.9% indicating a minor estimated under submission of 900 kWh per annum.	Moderate	Medium	4	Investigating
Future Risk Rating						18	

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	Recommendation	Remedial outcome
Location of each item of load	2.3	Correct incorrect street names.	Investigating

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.

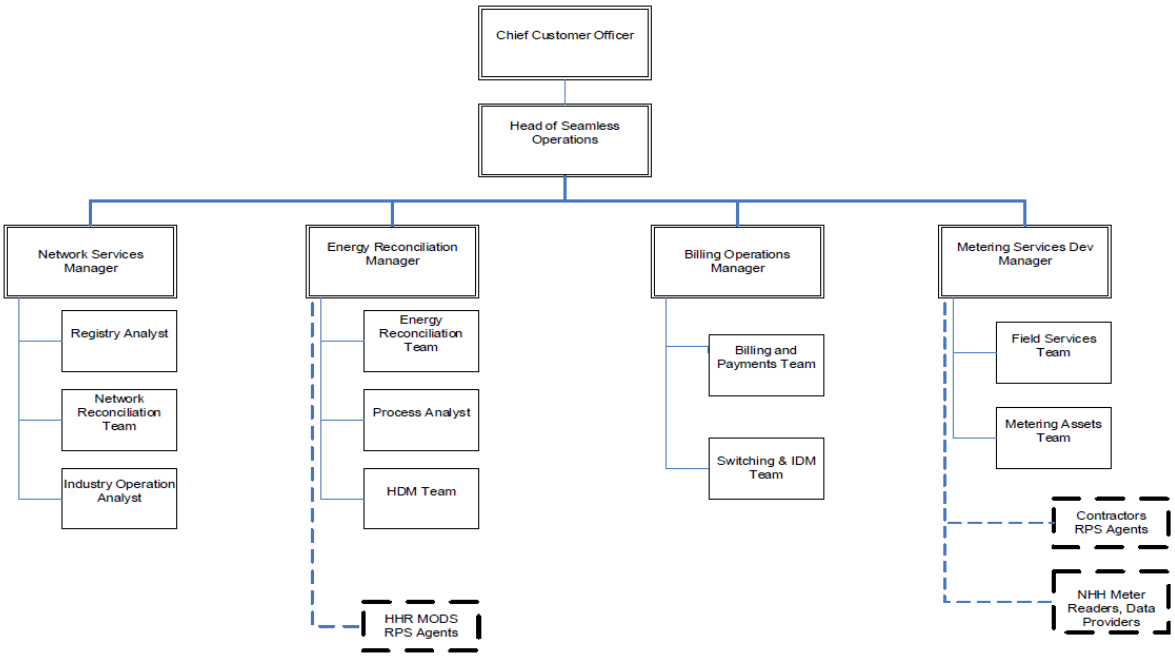
Audit commentary

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:

Rebecca Elliot

Veritek Limited

Electricity Authority Approved Auditor

Name	Title	Company
Alaister Marshall	Customer and Metering Services Manager	PowerNet
Bernie Cross	Energy Reconciliation Manager	Contact Energy
Richard Starkey	Commercial Development Manager	Aurora
Neville Hopkins	Assets System Team	Aurora
Suzanne Fraser	Contracts co-ordinator	Delta
Simeon Dwyer	Network Billing Analyst	Aurora

1.4. Hardware and Software

The GIS database used for the management of DUML is managed by Aurora. The PowerNet managed data is stored in a SQL database.

Both databases are backed up is in accordance with standard industry procedures. Access to the databases is secure by way of password protection.

1.5. Breaches or Breach Allegations

There are no breach allegations relevant to the scope of this audit.

1.6. ICP Data

ICP Number	Description	NSP	Number of items of load	Database wattage (watts)
0000950000LN0EC	Franklin	FKN0331	187	20,362
0000990001LN819	QLDC lights Lakeview subdivision	NLK0111	27	783
0008801006TP2A7	KINGSTON	NMA0331	41	891
0000480064CEA92	CROMWELL GXP	CML0331	2,014	193,997
0000027637CE36B	FRANKTON GXP	FKN0331	1,808	161,714

1.7. Authorisation Received

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

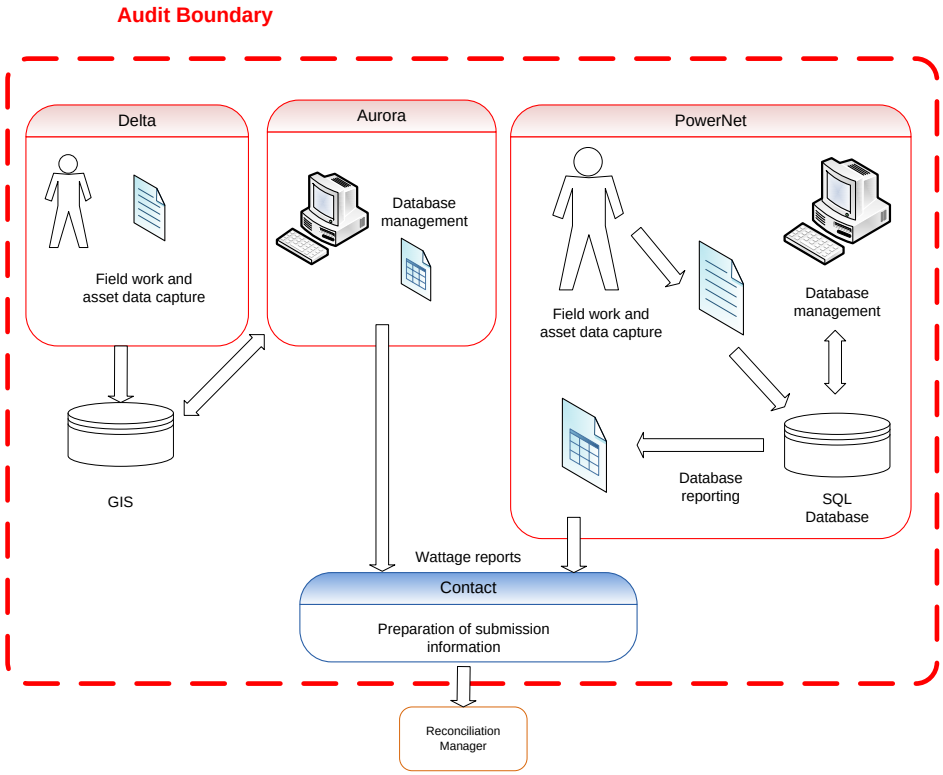
1.8. Scope of Audit

This audit of the Queenstown Lakes District Council (**QLDC**) streetlight 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 QLDC boundary is part of The Power Company network (TPCO), Lakeland (Frankton) and Northlake (Wanaka) embedded networks, and the Aurora Network. QLDC data is currently managed by the PowerNet and Aurora networks. QLDC data from Aurora is held in GIS and is submitted to CTCT monthly. QLDC data from TPCO and the embedded networks are held in a database by PowerNet, data is submitted to Contact on a monthly basis. Contact derives submission information from these two sources; PowerNet and Aurora.

The scope of the audit encompasses the collection, security and accuracy of the data, including the preparation of submission information based on the monthly reporting. The diagram below shows the flow of information and the audit boundary for clarity.



The audit was carried out at Aurora's premises in Cromwell on 21st March 2018. The field audit was undertaken of 266 lights for the Aurora managed data and 115 lights for the PowerNet managed data. Both were selected using the statistical sampling methodology.

1.9. Summary of previous audit

Contact provided a copy of the previous audit report for this DUML load, conducted in March 2017 by Allie Jones of Contact Energy. Two non-compliances were found. The current status of these are detailed below:

Subject	Section	Clause	Non-compliance	Status
Incorrect Submission	2.1	Clause 11 (1) of Schedule 15.3	Incorrect submission information for Delta ICP 0000480064CEA92.	Still existing
Incorrect Submission Information	2.1	Clause 11 (1) of Schedule 15.3	Incorrect submission information for both Delta and PowerNet.	Still existing
Capacity of each item of load in kW	2.2.4	Clause 11 (2) (d) of Schedule 15.3	PowerNet adjustment for ballast (multiplier) is incorrect.	Cleared for PowerNet but is recorded for Aurora database
Tracking of load changes	2.3	Clause 11 (3) of Schedule 15.3	Tracking of load changes for PowerNet and Delta.	Still existing

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 has requested Veritek to undertake this streetlight audit

Audit commentary

This audit report confirms that the requirement to conduct an audit has been met for this database within the required timeframe

Audit outcome

Compliant

2. DUML DATABASE REQUIREMENTS

2.1. Deriving submission information (Clause 11(1) of Schedule 15.3)

Code reference

Clause 11(1) of Schedule 15.3

Code related audit information

The retailer must ensure the:

- *DUML database is up to date*
- *methodology for deriving submission information complies with Schedule 15.5.*

Audit observation

The process for calculation of consumption was examined and the database was checked for accuracy.

Audit commentary

Contact reconciles this DUML load using the HHR profile, in accordance with exemption number 177. This exemption is discussed further in **section 1.1**. The registry shows HHR RPS profile but should show HHR. Contact usually manually corrects the profiles on business day four each month, but the corrections in recent months were missed due to a staff member being on leave. This is recorded as non-compliance below. Submissions are based on the database information, with on and off times derived from data logger information.

I recalculated the submissions for February using the data logger and database information. I confirmed that the calculation method was correct. All figures matched with the exception of ICP 0000990001LN819 (Northlake subdivision). As detailed in **section 3.1**, the volume of lights recorded in the monthly wattage report provided to Contact is double the number of the lights provided in the database extract for the field audit, suggesting that the missing lights in the field audit have been added since the data extract was provided and therefore Contact's volumes are correct.

There is some inaccurate data within the databases used to calculate submissions. This is recorded as non-compliance and discussed in **3.1** and **3.2**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: 11(1) of Schedule 15.3 From: 01-Apr-17 To: 30-Apr-18	Aurora database accuracy is assessed to be 99.3% indicating an estimated over submission of 11,200 kWh per annum. Incorrect ballasts recorded for 786 items of load in the Aurora database, resulting in an estimated under submission of 12,321.84 kWh. PowerNet database accuracy is assessed to be 100.9% indicating a minor estimated under submission of 900 kWh per annum. Potential impact: Medium Actual impact: Medium Audit history: None Controls: Moderate Breach risk rating: 4
Audit risk rating	**Rationale for audit risk rating**
Medium	The controls are rated as moderate, as they are sufficient to ensure that most database information is recorded correctly for the majority of the QLDC load. The impact is assessed to be medium due to the kWh volumes.

Actions taken to resolve the issue	Completion date	Remedial action status
Contact will engage with QLDC to transition The DUML database from The respective distributor's databases covering their specific regions to the QLDC RAMM database. This will allow Contact and QLDC to then investigate and address the database accuracy issues in a more effective and timely manner. It will take some time to transition across to the QLDC RAMM and begin develop processes between QLDC and Contact in identifying and resolving exceptions.	Dec 2018	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
No comment provided		

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 PowerNet and Aurora Energy databases were checked to confirm an ICP is recorded for each item of load.

Audit commentary

All items of load had an ICP recorded as required by this clause.

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 PowerNet and Aurora Energy databases were checked to confirm the location is recorded for all items of load.

Audit commentary

Aurora Energy's Database

The Aurora database contains the Global Positioning System (GPS) for all items of load which meets the requirements of this clause. The street name is not correct in all instances and I recommend that the street names are corrected.

Description	Recommendation	Audited party comment	Remedial action
Location of each item of load	Correct incorrect street names.	Contact will engage with QLDC to transition The DUML database from the respective distributor's databases covering their specific regions to the QLDC RAMM database. This will allow Contact and QLDC to then investigate and address the database accuracy issues in a more effective and timely manner. It will take some time to transition across to the QLDC RAMM and begin develop processes between QLDC and Contact in identifying and resolving exceptions.	Investigating

PowerNet Database

The PowerNet database contains the street address for all items of load.

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 it contained a field for lamp type and wattage capacity and included any ballast or gear wattage.

Audit commentary

Aurora Energy's Database

The Aurora database contains three fields for wattage, firstly the manufacturers rated wattage, secondly the "gear wattage" and "capacity" which is the total wattage. The gear wattage is expected to be a calculated figure which accounts for any variation from the input wattage and includes losses associated with ballasts. Examination of the database found 178 items of load that had an incomplete light type recorded. This is recorded as non-compliance.

Light description	Quantity
Accessory light	13
Beacon light	2
Convenience light	1
Festoon Lighting	7
Floodlight	1
Halogen spot	1
LED Lighting	53
Monument light, or ped cross, no beacons	1
Pedestrian crossing beacon with floodlights	2
Remote siren or Irrigation control	2
Street name illuminator or Bollard	73
Unknown UNK	22
Grand Total	178

Six of the "Unknown UNK" have a zero wattage.

I also found 98 items of load with an invalid lights description of 60W Metal halide. This is recorded as non-compliance. The accuracy of the ballasts applied is discussed in **section 3.1**.

PowerNet Database

The PowerNet database contains the lamp type, a lamp rating and the total wattage is recorded.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.4 With: Clause 11(2)(c) and (d) of Schedule 15.3 From: 01-Apr-17 To: 30-Apr-18	178 items of load with incomplete lamp descriptions. Six items of load recorded with zero wattage. 98 items of load with an invalid light description. Potential impact: Low Actual impact: Low Audit history: Multiple Controls: Moderate Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate as the data is correct for 93% of the Aurora load. The impact is assessed to be low, as the items all have a wattage value with the exception of six items of load.

Actions taken to resolve the issue	Completion date	Remedial action status
Contact will engage with QLDC to transition The DUML database from The respective distributor's databases covering their specific regions to the QLDC RAMM database. This will allow Contact and QLDC to then investigate and address the database accuracy issues in a more effective and timely manner. It will take some time to transition across to the QLDC RAMM and begin develop processes between QLDC and Contact in identifying and resolving exceptions.	Dec 2018	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
No comment provided		

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 266 items of load on the Aurora managed DUML load and 44 on the Frankton and Kingston PowerNet managed DUML load. A 100% audit was undertaken of the new PowerNet embedded Northlake subdivision. The field audit was undertaken on 21-23 March 2018 for all databases.

Audit commentary

Aurora Energy's Database

The field audit findings for the Aurora network are detailed in the table below:

Street	Database count	Field count	Light count differences	Wattage recorded incorrectly	Comments
Urban					
Adelaide Street	4	4			
Aeolus Place	3	3			
Alpha Close	2	2			
Angelo Drive	2	2			
Anglesea Street	1	1			
Argyle Place	3	3			
Atherton Place	2	2			
Balmoral Drive	2	2			
Bernard Road	4	4			
Bracken Street	5	5			
Bridesdale Drive	12	12			
Brunswick Street	11	10	-1	2	1 less 60W MH found in the field 2 incorrect lamp wattages recorded
Coromandel Street	5	5			
Cotter Avenue	14	14			
Diamond Lane	3	3			
Dispute Way	1	1			
Duke Street	7	8	1		1 additional 70W HPS found in the field

Street	Database count	Field count	Light count differences	Wattage recorded incorrectly	Comments
Dunmore Street	10	10			
Eden Close	2	2			
Evening Star Road	5	5			
Glengyle Way	4	4			
Hanley Lane	3	3			
Hay Street	2	2			
Hobart Street	4	4			
Industrial Place	8	8			
Kingston Street	4	4			
Lake Avenue	8	8			
Lindsay Place	3	3			
Longwood Place	2	2			
Manchester Place	2	2			
Morrows Mead	1	1			
Mulberry Lane	1	1			
Nancy Lane	1	1			
Parkhill Avenue	3	3			
Pearce Place	2	2			
Redwood Lane	1	1			
Ryalls Way	3	3			
Shanahan Lane	3	3			
Southberg Avenue	1	1			
Stone Street	19	19			
Thorn Crescent	3	3			
Vanda Place	1	1			

Street	Database count	Field count	Light count differences	Wattage recorded incorrectly	Comments
Veint Crescent	5	5			
Widgeon Place	4	4			
Winders Street	2	2			
Rural					
Bell Street	7	7			
Hewson Crescent	12	12			
Makarora-Lake Hawea Road	1	1			
Malaghans Road	3	3			
Paradise Place	4	4			
Timsfield Drive	4	4			
New					
Morning Star Terrace	14	15	1		1 additional 70W SON found in the field
Lakeside Road	32	24	-8		8 lights of various wattage not found
Peak View Ridge	1	1			
Grand Total	266	259	9		

The Aurora field audit found two additional items of load in the field. This is recorded as non-compliance below.

PowerNet Database

The field audit findings for the PowerNet network are detailed in the tables below:

Street	Database count	Field count	Light count differences	Wattage recorded incorrectly	Comments
Kingston Town					
Cornwall Street	3	2	-1		1x LED missing from the field
Gloucester Street	2	2			
Huntingdon Street	1	1			

Street	Database count	Field count	Light count differences	Wattage recorded incorrectly	Comments
Huntingdon Street @ railway line	1	1			
Oxford Street	2	6	4		4x extra LED found in the field
Frankton -Lakelands embedded network					
Banbury Terrace	8	9	1		1x extra LED found in the field
Cheltenham Rd	9	9		3	3x incorrect wattage recorded
Coventry Cres	4	3	-1		1x LED missing from the field
Marston Rd	6	7	1	1	1x extra LED found in the field 1 x incorrect wattage recorded
Peppercorn Tce	3	3			
Violet Way	5	4	-1		1x LED missing from the field
Grand Total	44	47	9		

The field audit found six additional lamps in the field. This is recorded as non-compliance below.

A 100% field audit was undertaken of the Northlake subdivision:

Street	Database count	Field count	Light count differences	Wattage recorded incorrectly	Comments
Northlake Subdivision - embedded network (New)					
Allandale Place, Northlake, Wanaka	2	1	-1		1x LED missing from the field
Merivale Ave, Northlake, Wanaka	1	1			
Mt Burke St, Northlake, Wanaka	6	6			
Mt Creighton Cr, Northlake, Wanaka	6	6			
Mt Linton Ave, Northlake, Wanaka	8	11	4		4x extra LED found in the field
Mt Nicholas Ave, Northlake, Wanaka	2	2			

Street	Database count	Field count	Light count differences	Wattage recorded incorrectly	Comments
Outlet Rd	2	12	10		Road not in database
Rocklands Court	0	4	4		Road not in database
Clubden Cres	0	4	4		Road not in database
Glen Dene Cres	0	7	7		Road not in database
Moutere Place	0	1	1		Road not in database
Nokomai Place	0	1	1		Road not in database
Northburn Road	0	4	4		Road not in database
Obelisk St	0	2	2		Road not in database
Grand total	71	109	38	4	

The Northlake field audit found 37 additional items of load in the field. As discussed in **section 2.1**, it appears that some lights have been added to the monthly wattage report and it is possible that some of the lights I have recorded above are not yet electrically connected, therefore I will record some additional items of load below. This is recorded as non-compliance below.

The field audit variances found are also recorded as non-compliance in **section 3.1**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.5 With: Clause 11(2A) and (d) of Schedule 15.3 From: 01-Apr-17 To: 30-Apr-18	Two additional items of load found on the Aurora managed DUML database. Some additional items of load found on the PowerNet managed DUML database. Potential impact: Medium Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate, as they are sufficient to ensure that most database information is recorded correctly for the majority of the QLDC load. The impact is assessed to be low, as detailed in **section 2.1**, the volume difference appears to have been corrected for the Northlake subdivision.

Actions taken to resolve the issue	Completion date	Remedial action status
Contact will engage with QLDC to transition The DUML database from The respective distributor's databases covering their specific regions to the QLDC RAMM database. This will allow Contact and QLDC to then investigate and address the database accuracy issues in a more effective and timely manner. It will take some time to transition across to the QLDC RAMM and begin develop processes between QLDC and Contact in identifying and resolving exceptions.	Dec 2018	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
No comment provided		

2.6. Tracking of load changes (Clause 11(3) of Schedule 15.3)

Code reference

Clause 11(3) of Schedule 15.3

Code related audit information

The DUML database must track additions and removals in a manner that allows the total load (in kW) to be retrospectively derived for any given day.

Audit observation

The process for tracking of changes in the database was examined.

Audit commentary

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

The processes were reviewed for new lamp connections and the tracking of load changes due to faults and maintenance. I note the Contact intend to use QLDC's RAMM database as soon as possible and therefore the tracking of load change will occur in the RAMM database rather than in two separate databases.

Aurora Network database

The database is managed by Aurora and the data is held in their GIS system. Delta Contracting currently carry out all fault and maintenance work. This is expected to go out to tender in the near future. Any changes made in the field are passed to Aurora to update the database.

Currently work packages are provided to Aurora for new developments but these are not passed to the GIS team to load until the work is complete and signed off. This can be sometime after electrical connection has occurred. The new connection process is under review to improve the timeliness and accuracy of the data going into the database.

There is no plan for an LED rollout, but LEDs are sometimes used to replace existing lamps in the field on a reactive basis.

Delta carries out outage patrols for Queenstown Lakes DC.

Festive lighting is used in Queenstown for the winter festival, but these are not tracked in the database. This is recorded as non-compliance below.

PowerNet database

Fault, maintenance and LED upgrade work is completed by PowerNet as a contractor, who maintain their own database. PowerNet also advise QLDC when work is complete, and QLDC will use this information to maintain their own RAMM database.

The PowerNet network has advised QLDC that they are no longer updating their database in relation to the maintenance of lamps. If items of load are removed these will be updated but not if lamp type is changed. Therefore, the tracking load changes is no longer being carried out for all changes. This is recorded as non-compliance below.

No festive lights are connected to the unmetered street light circuits on the PowerNet DUML load.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.6 With: Clause 11(3) of Schedule 15.3 From: 01-Apr-17 To: 30-Apr-18	The tracking of load changes is not being carried out in relation to changing of light type on existing items of load for the PowerNet database. Festive lights not tracked in the Aurora database. Potential impact: Low Actual impact: Low Audit history: Multiple 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 changes to the Aurora database are correctly recorded most of the time and hold the bulk of the DUML load. The impact is assessed to be low due to the kWh volumes.

Actions taken to resolve the issue	Completion date	Remedial action status
Contact will engage with QLDC to transition The DUML database from The respective distributor's databases covering their specific regions to the QLDC RAMM database. This will allow Contact and QLDC to then investigate and address the database accuracy issues in a more effective and timely manner. It will take some time to transition across to the QLDC RAMM and begin develop processes between QLDC and Contact in identifying and resolving exceptions.	Dec 2018	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
No comment provided		

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 databases were checked for audit trails.

Audit commentary

The databases contain a complete audit trail of all additions and changes.

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.

Aurora Energy's Database

Plan Item	Comments
Area of interest	Queenstown Lakes District excluding the embedded networks and Kingston which are part of the PowerNet Network
Strata	The database contains items of load in Queenstown Lakes District Area. The processes for the management of all QLDC items of load are the same, the population was across three strata: • urban • rural • new.
Area units	I created a pivot table of the roads in each area and I used a random number generator in a spreadsheet to select a total of 54 sub-units.
Total items of load	266 items of load were checked.

PowerNet Database

As detailed in **section 2.5**, a 100% field audit was undertaken of the Northlake embedded network subdivision. The remaining two areas were assessed using a survey plan as detailed below.

Plan Item	Comments
Area of interest	Kingston town and Lakeland and Northlake embedded networks
Strata	The database contains items of load in Kingston, Frankton (Lakelands) and Wanaka (Northlake) areas. The area has three distinct geographical regions. The processes for the management of all PowerNet items of load are the same, but I decided to place the items of load into two strata, as follows: 1. Kingston 2. Lakeland embedded network
Area units	I created a pivot table of the roads in each area and I used a random number generator in a spreadsheet to select a total of 11 sub-units.
Total items of load	44 items of load were checked.

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

Audit commentary

Aurora Energy's Database

The database was found to contain some inaccuracies and missing data.

The field data was 99.3% of the database data for the sample checked. The total wattage recorded in the database for the sample was 25,260 watts. The estimated total wattage found in the field for the sample checked was 25,082 watts, a difference of 178 watts. This will result in an estimated over submission of 11,200 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool).

Wattages for all items of load were checked against the published standardised wattage table produced by the Electricity Authority and found 786 items of load with the incorrect ballast applied. This will be resulting in an estimated under submission of 12,321.84 kWh.

PowerNet's Database

The database was found to contain some inaccuracies and missing data.

The field data of Kingston and Frankton found was 100.9% of the database data for the sample checked. The total wattage recorded in the database for the sample was 2,239 watts. The estimated total wattage found in the field for the sample checked was 2,410 watts, a difference of 171 watts. This will result in a minor estimated under submission of 900 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool).

The 100% audit of the Northlake embedded network subdivision found the database recorded a total wattage of 783 watts. The estimated total wattage found in the field was 1,958 watts, a difference of 1,175 watts. This will result in an estimated under submission of 5,018.43 kWh per annum if this database extract was used for submission (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool). As detailed in **sections 2.1** and **3.2**, Contact's wattage report appears to have some of the missing lights added (I note there is a variance of 18 lights but I may have counted lights that have yet to be connected). Therefore, I have not included the estimated missing volume above in the non-compliance.

The estimated combined annual under submission for the PowerNet database is 5,918.43 kWh.

Wattages for all items of load were checked against the published standardised wattage table produced by the Electricity Authority and found all are LED lights with the correct wattage recorded.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 01-Apr-17 To: 30-Apr-18	Aurora database accuracy is assessed to be 99.3% indicating an estimated over submission of 11,200 kWh per annum. incorrect ballasts recorded for 786 items of load in the Aurora database, resulting in an estimated under submission of 12,321.84 kWh. PowerNet database accuracy is assessed to be 100.9% indicating a minor estimated under submission of 900 kWh per annum. Potential impact: Medium Actual impact: Medium Audit history: None Controls: Moderate Breach risk rating: 4
Audit risk rating	**Rationale for audit risk rating**
Medium	The controls are rated as moderate, as they are sufficient to ensure that most database information is recorded correctly for the majority of the QLDC load. The impact is assessed to be medium due to the kWh volumes.

Actions taken to resolve the issue	Completion date	Remedial action status
Contact will engage with QLDC to transition The DUML database from The respective distributor's databases covering their specific regions to the QLDC RAMM database. This will allow Contact and QLDC to then investigate and address the database accuracy issues in a more effective and timely manner. It will take some time to transition across to the QLDC RAMM and begin develop processes between QLDC and Contact in identifying and resolving exceptions.	Dec 2018	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
No comment provided		

3.2. Volume information accuracy (Clause 15.2 and 15.37B(c))

Code reference

Clause 15.2 and 15.37B(c)

Code related audit information

The audit must verify that:

- *volume information for the DUML is being calculated accurately*
- *profiles for DUML have been correctly applied.*

Audit observation

The submission was checked for accuracy for the month the database extract was supplied. This included:

- checking the registry to confirm that all ICPs have the correct profile and submission flag
- checking the database extract 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. This exemption is discussed further in **section 1.1**. The registry shows HHR RPS profile but should show HHR. Contact usually manually corrects the profiles on business day four each month, but the corrections in recent months were missed due to a staff member being on leave. This is recorded as non-compliance below. Submissions are based on the database information, with on and off times derived from data logger information.

I recalculated the submissions for February for using the data logger and database information. I confirmed that the calculation method was correct. All figures matched with the exception of ICP 0000990001LN819 (Northlake subdivision). As detailed in **section 3.1**, the volume of lights recorded in the monthly wattage report provided to Contact is double the number of the lights provided in the database extract for the field audit suggesting that the missing lights in the field audit have been added since the data extract was provided and therefore Contact's volumes are correct.

There is some inaccurate data within the databases used to calculate submissions. This is recorded as non-compliance and discussed in **sections 2.1** and **3.1**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: 01-Apr-17 To: 30-Apr-18	Aurora database accuracy is assessed to be 99.3% indicating an estimated over submission of 11,200 kWh per annum. Incorrect ballasts recorded for 786 items of load in the Aurora database, resulting in an estimated under submission of 12,321.84 kWh. PowerNet database accuracy is assessed to be 100.9% indicating a minor estimated under submission of 900 kWh per annum. Potential impact: Medium Actual impact: Medium Audit history: None Controls: Moderate Breach risk rating: 4
Audit risk rating	**Rationale for audit risk rating**
Medium	The controls are rated as moderate, as they are sufficient to ensure that most database information is recorded correctly for the majority of the QLDC load. The impact is assessed to be medium due to the kWh volumes.

Actions taken to resolve the issue	Completion date	Remedial action status
Contact will engage with QLDC to transition The DUML database from The respective distributor's databases covering their specific regions to the QLDC RAMM database. This will allow Contact and QLDC to then investigate and address the database accuracy issues in a more effective and timely manner. It will take some time to transition across to the QLDC RAMM and begin develop processes between QLDC and Contact in identifying and resolving exceptions.	Dec 2018	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
No comment provided		

CONCLUSION

The QLDC boundary is part of The Power Company network (TPCO), Lakeland (Frankton) and Northlake (Wanaka) embedded networks, and the Aurora Network. QLDC data from Aurora is held in GIS and is submitted to CTCT monthly. QLDC data from TPCO and the embedded networks is held in a database by PowerNet, data is submitted to Contact on a monthly basis. Contact derives submission information from these two sources; PowerNet and Aurora. Contact are working with QLDC to use their RAMM database for submission purposes hence this audit was completed as one audit in anticipation of this.

The future risk rating of 18 indicates that the next audit be completed in six months. Six non-compliances were identified, and one recommendation was raised.

PARTICIPANT RESPONSE

Contact will work with QLDC to transition DUML databases from a distributor function and process to a Council owned and operated process which will allow both parties to effectively begin to address the actual exceptions identified in this audit.

However this will take time and we hope that the audit frequency reflects a more appropriate re audit period than the 6 months based on the future risk rating given the future risk rating of 18 just pushes this DUML database into the 6 month frequency. Contact would suggest a 12 month period would allow QLDC and Contact to transition these processes from the 2 current distributors to QLDC.