

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

For

**OTOROHANGA DISTRICT COUNCIL  
AND GENESIS ENERGY LIMITED  
NZBN:9429037706609**

Prepared by: Rebecca Elliot

Date audit commenced: 10 October 2022

Date audit report completed: 25 November 2022

Audit report due date: 1 December 2022

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## EXECUTIVE SUMMARY

This audit of the **Otorohanga District Council (ODC)** DUMML database and processes was conducted at the request of **Genesis Energy Limited (Genesis)** in accordance with clause 15.37B. The purpose of this audit is to verify that the volume information is being calculated accurately, and that profiles have been correctly applied.

The audit was conducted in accordance with the audit guidelines for DUMML audits version 1.1. The scope of the audit encompasses the collection, security, and accuracy of the data, including the preparation of submission information.

A RAMM database is held by ODC, who is Genesis' customer. RATA (Waikato Regional Asset Technical Accord) provides technical support for RAMM road asset information as a shared service across the Waikato region.

A monthly report from the database was being provided by ODC to Genesis but due to staff changes this has not occurred every month. RATA have undertaken to provide a monthly wattage report until ODC has in house staff available to do this. If no report is received, then the latest report is used. I compared the submission values for October 2022 against the database extract provided and found they matched. I checked the kWh calculation using the logger hours and confirmed the calculation was correct.

The last audit found that the Waka Kotahi lights reconciled in this database were also being reconciled by NZTA in their RAMM database. Genesis have corrected this, and corrections have been carried out back to April 2022, when the Waka Kotahi RAMM database commenced being used for submission. I reviewed these to confirm this.

The Waka Kotahi lights associated with ICP 000111170WMD3F are now being submitted against the Waka Kotahi Waikato DUMML load. 19 items of load, where the light owner is recorded as ODC, Amenity and Accessway, Private and Ministry of Education are still being reconciled by ODC against this ICP. This is being manually manipulated in the database extract. I recommend that the ICP that Waka Kotahi is reconciling their load is recorded against these items of load in the ODC database. The incorrect ICP recorded against these items of load is recorded as non-compliance below. I also recommend that the remaining lights are checked to confirm that they are correctly allocated to the ODC load.

The last audit noted that the ODC Waka Kotahi lights are spread across the both the Lines Company and Waipa Networks but were being only being reconciled to the Lines Company network. These lights are no longer being reconciled in the ODC database. The accuracy of submission against NSP will be examined as part of the Waka Kotahi Waikato area audit.

There has been a turnover of staff in ODC resulting in there being no staff to manage the streetlight management. A contractor has been appointed to manage this on behalf of the council until staff can be recruited. The change management processes were discussed, and I recommend that both the new connections and maintenance processes to update the database be reviewed to ensure that changes are being updated in the database in a timely manner and are recording the date that change has taken place.

The field audit confirmed that the database is accurate with only two discrepancies found.

The audit found four non-compliances and makes four recommendations. The future risk rating of ten indicates that the next audit be completed in 12 months. I have considered this in conjunction with Genesis' comments and agree with this recommendation.

The matters raised are detailed below:

## AUDIT SUMMARY

### NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Deriving submission information	2.1	11(1) of Schedule 15.3	Festive lights are included throughout the year resulting in an estimated annual over submission of 812 kWh.  Some decorative and festive lights are not recorded in the database.  Submission is based on a snapshot and does not consider historic adjustments.	Moderate	Low	2	Identified
All load recorded in database	2.5	11(2A) of Schedule 15.3	One additional item of load found in the field.  Some decorative and festive lights are not recorded in the database.	Weak	Low	3	Investigating
Database accuracy	3.1	15.2 and 15.37B(b)	Incorrect ICP recorded against 128 items of load that are now being reconciled against the Waka Kotahi RAMM database.  Festive lights are included throughout the year resulting in an estimated annual over submission of 812 kWh.  Some decorative and festive lights are not recorded in the database.	Weak	Low	3	Identified
Volume information accuracy	3.2	15.2 and 15.37B(c)	Festive lights are included throughout the year resulting in an estimated annual over submission of 812 kWh.  Some decorative and festive lights are not recorded in the database.  Submission is based on a snapshot and does not consider historic adjustments.	Moderate	Low	2	Identified
Future Risk Rating						10	

<b>Future risk rating</b>	0	1-4	5-8	9-15	16-18	19+
<b>Indicative audit frequency</b>	36 months	24 months	18 months	12 months	6 months	3 months

## RECOMMENDATIONS

Subject	Section	Recommendation
Deriving submission information	2.1	Identify all unmetered festive and decorative lights, confirm their wattages, and update RAMM.  Confirm connection status and if festive lights, when they are connected and then disconnected.
Database Accuracy	3.1	Investigate if ICP 0001111170WMD3F is still required as the remaining items of load could be moved to ODC ICP 0008807415WMBD6.
		Review the change management process to ensure that changes made in the field are updated in the database.
		Review the new street light connection process with ODC and the networks to ensure that acceptance of additional load and subsequently the date of electrical connection is notified.

## ISSUES

Subject	Section	Description	Issue
		Nil	

## 1. ADMINISTRATIVE

### 1.1. Exemptions from Obligations to Comply with Code

#### Code reference

*Section 11 of Electricity Industry Act 2010.*

#### Code related audit information

*Section 11 of the Electricity Industry Act provides for the Electricity Authority to exempt any participant from compliance with all or any of the clauses.*

#### Audit observation

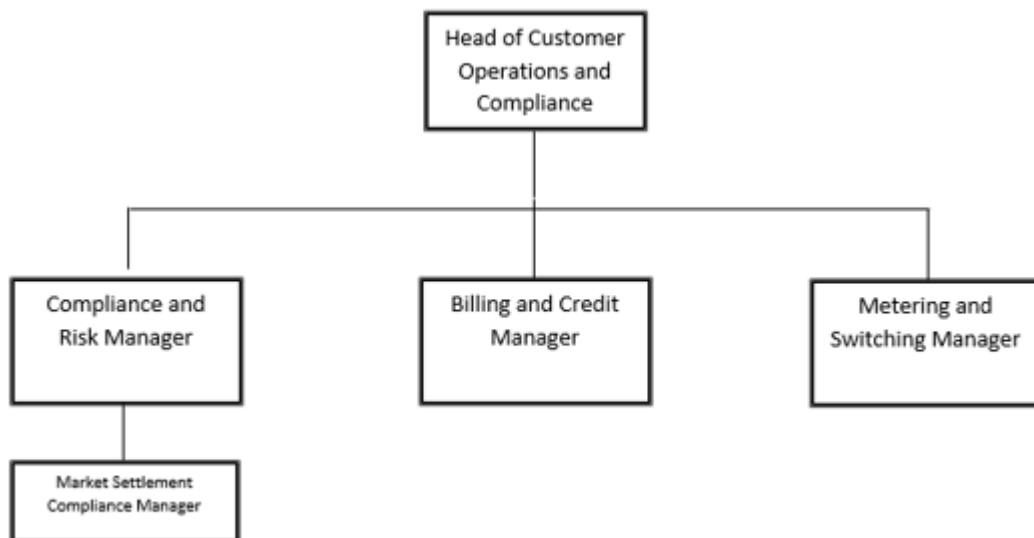
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

#### Audit commentary

There are no exemptions in place relevant to the scope of this audit.

### 1.2. Structure of Organisation

Genesis provided a copy of their organisational structure:



### 1.3. Persons involved in this audit

Auditor:

**Rebecca Elliot**

**Veritek Limited**

**Electricity Authority Approved Auditor**

Other personnel assisting in this audit were:

Name	Title	Company
Richard Shailer	Acting Roading Manager	Otorohonga District Council
Cameron Senior	Asset Information Engineer – RATA	RATA – Waikato Regional Asset Technical Accord
Nirav Teli	DUML Data & Stakeholder Lead	Genesis

### 1.4. Hardware and Software

The SQL database used for the management of DUML is remotely hosted by thinkproject New Zealand Ltd. The database is commonly known as “RAMM” which stands for “Roading Asset and Maintenance Management”.

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

Systems used by the trader to calculate submissions are assessed as part of their reconciliation participant audits.

### 1.5. Breaches or Breach Allegations

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

## 1.6. ICP Data

ICP Number	Description	NSP	Profile	Number of items of load	Database wattage (watts)
0000400332WA74B	Te Kawa	TMU0111	STL	3	66
0000400337WAA04	OPARAU/AOTEAS/LTS	TMU0111	STL	10	220
0000400341WAED6	Kawhia	TMU0111	STL	114	2,478
0001111170WMD3F	State Highway Urban	HTI0331	STL	147	24,568
0008807415WMBD6	Local Authority Streetlights	HTI0331	STL	399	8,798
<b>Total</b>				<b>673</b>	<b>36,130</b>

The NZTA lights associated with ICP 0001111170WMD3F are now being submitted against the NZTA Waikato DUML load. 19 items of load where the light owner is recorded as ODC, Amenity and Accessway, Private and Ministry of Education are still being reconciled by ODC against this ICP. The incorrect ICP recorded against the NZTA items of load is recorded as non-compliance in **section 3.1**.

The revised ODC database load with the NZTA items of load removed is below:

ICP Number	Description	NSP	Profile	Number of items of load	Database wattage (watts)
0000400332WA74B	Te Kawa	TMU0111	STL	3	66
0000400337WAA04	OPARAU/AOTEAS/LTS	TMU0111	STL	10	220
0000400341WAED6	Kawhia	TMU0111	STL	114	2,478
0001111170WMD3F	State Highway Urban	HTI0331	STL	19	1,652
0008807415WMBD6	Local Authority Streetlights	HTI0331	STL	399	8,798
<b>Total</b>				<b>545</b>	<b>13,214</b>

## 1.7. Authorisation Received

All information was provided directly by Genesis, ODC and RATA – Waikato Regional Asset Technical Accord.



## 1.8. Scope of Audit

This audit of the ODC DUMML database and processes was conducted at the request of Genesis in accordance with clause 15.37B. The purpose of this audit is to verify that the volume information is being calculated accurately, and that profiles have been correctly applied.

The audit was conducted in accordance with the audit guidelines for DUMML audits version 1.1.

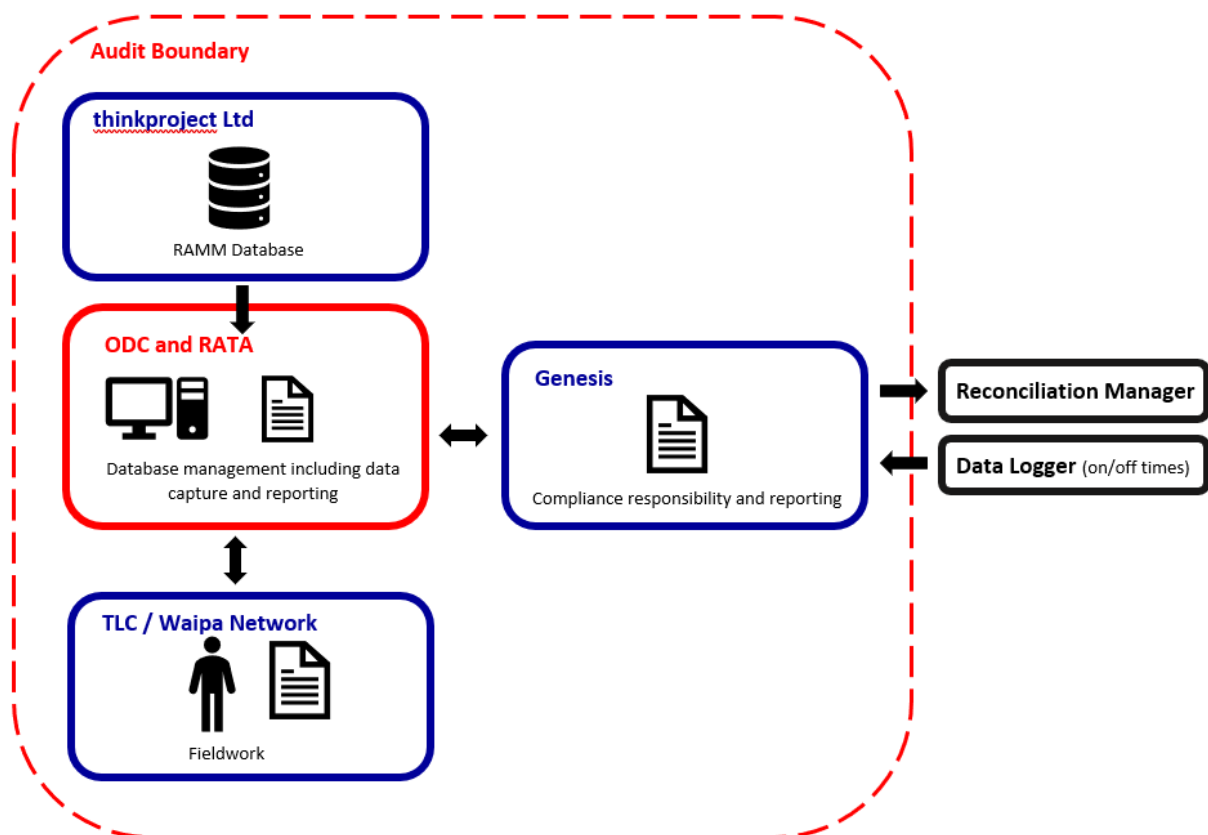
A RAMM database is held by ODC, who is Genesis' customer. RATA (Waikato Regional Asset Technical Accord) provides technical support for RAMM road asset information as a shared service across the Waikato region.

New connections are managed by the relevant networks.

ODC have not renewed the contract with The Lines Company for field maintenance. The streetlight load is now largely LED. Maintenance is being undertaken on a job-by-job basis with the work being issued to either The Lines Company or Waipa Network depending on which network the light/s are located.

A monthly report from the database was being provided by ODC to Genesis but due to staff changes this has not occurred every month. RATA have undertaken to provide a monthly wattage report until ODC has in house staff available to do this. If no report is received, then the latest report is used. Genesis reconciles the DUMML load as NHH using the NST profile, and on and off times are derived from 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 boundary for clarity.



The field audit was undertaken of a statistical sample of 137 items of load on 14 November 2022.

## 1.9. Summary of previous audit

The previous audit was completed in May 2022 by Rebecca Elliot of Veritek Limited. The current status of that audit's findings is detailed below.

### Table of Non-compliance

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	The database is not confirmed as accurate with a 95% level of confidence resulting in an estimated annual under submission of 10,400 kWh.	Cleared
			NZTA lights are being submitted by both ODC and NZTA resulting in 104,930 kWh of over submission.	Cleared
			An estimated 22 NZTA lights or 19,540 kWh per annum are reconciled to the Lines Company network instead of the Waipa network.	NZTA issue-cleared for ODC
			Festive lights are included throughout the year resulting in an estimated annual over submission of 812 kWh.	Still existing
			Some decorative and festive lights are not recorded in the database.	Still existing
Submission is based on a snapshot and does not consider historic adjustments.	Still existing			
Description and capacity of load	2.4	11(2)(c) and (d) of Schedule 15.3	Pole ID 741 with no lamp make, model or wattage recorded.	Cleared
All load recorded in database	2.5	11(2A) of Schedule 15.3	Three additional items of load found in the field. Some decorative and festive lights are not recorded in the database.	Still existing
Database accuracy	3.1	15.2 and 15.37B(b)	The database is not confirmed as accurate with a 95% level of confidence resulting in an estimated annual under submission of 10,400 kWh.	Cleared
			NZTA lights are being submitted by both ODC and NZTA resulting in 104,930 kWh of over submission.	Cleared
			An estimated 22 NZTA lights or 19,540 kWh per annum are reconciled to the Lines Company network instead of the Waipa network.	NZTA issue-cleared for ODC
			Pole ID 741 with no lamp make, model or wattage recorded.	Cleared
			Festive lights are included throughout the year resulting in an estimated annual over submission of 812 kWh.	Still existing
Some decorative and festive lights are not recorded in the database.	Still existing			

Subject	Section	Clause	Non-compliance	Status
Volume information accuracy	3.2	15.2 and 15.37B(c)	The database is not confirmed as accurate with a 95% level of confidence resulting in an estimated annual under submission of 10,400 kWh.	Cleared
			NZTA lights are being submitted by both ODC and NZTA resulting in 104,930 kWh of over submission.	Cleared
			An estimated 22 NZTA lights or 19,540 kWh per annum are reconciled to the Lines Company network instead of the Waipa network.	NZTA issue-cleared for ODC
			Festive lights are included throughout the year resulting in an estimated annual over submission of 812 kWh.	Still existing
			Some decorative and festive lights are not recorded in the database.	Still existing
			Submission is based on a snapshot and does not consider historic adjustments.	Still existing

### Table of Recommendations

Subject	Section	Recommendation for Improvement	Status
Festive and decorative lights	2.1	Ensure monthly reports are being received from RATA.	Being adopted
		Identify all unmetered festive and decorative lights, confirm their wattages, and update RAMM.  If the lights are not connected year-round, communicate the on and off times to Genesis, so that the lights are correctly included in submission information when connected, and excluded from submission information when disconnected.	Repeated
Tracking of load changes for NZTA lights	3.1	Develop a process to ensure that all NZTA lights are accurately recorded in the database, and changes are captured.	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 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

Genesis 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.

**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 database accuracy assessed.

#### Audit commentary

Genesis reconciles the DUML load as NHH using the NST profile. A monthly report from the database was being provided by ODC to Genesis but due to staff changes this has not occurred every month. RATA have undertaken to provide a monthly wattage report until ODC has in house staff available to do this. If no report is received, then the latest report is used.

Genesis reconciles the DUML load as NHH using the NST profile, and on and off times are derived from data logger information. I compared the submission values for October 2022 against the database extract provided and found they matched. I checked the kWh calculation using the logger hours and confirmed the calculation was correct.

The last audit found that the Waka Kotahi lights reconciled in this database were also being reconciled by NZTA in their RAMM database. Genesis have corrected this, and corrections have been carried out back to April 2022, when the Waka Kotahi RAMM database commenced being used for submission. I reviewed these to confirm this.

The last audit noted that the ODC Waka Kotahi lights are spread across the both the Lines Company and Waipa Networks but were being only being reconciled to the Lines Company network. These lights are no longer being reconciled in the ODC database. The accuracy of submission against NSP will be examined as part of the Waka Kotahi Waikato area audit.

As reported in the last three audits:

- festive lights for Maniapoto Street were added to the database following the 2019 audit and are connected from 1 December until 31 January each year; the festive lights continue to be included throughout the year resulting in an estimated over submission of 812 kWh per annum, which is recorded as non-compliance below and in **sections 3.1** and **3.2** - ODC intend to investigate these and confirm if they are connected at all as I observed in the recent field audit that in some instances these were broken and hanging from the light pole arm,
- the 2019 audit found that decorative lights in the redwood trees on Maniapoto Street, Otorohanga were not recorded in the database; these lights are thought to have been donated to the community by The Lines Company and a 150W HPS light has been added to the database to account for these lights, but this is not accurate as there are many lights, therefore an unknown amount of under submission will be occurring, and
- during the 2020 field audit, five LED strings of festive lights were located on Jervois Street, Kawhia which were not recorded in the database.

I repeat the last audit's recommendation to get these correctly recorded in the database and confirm when/if they are all connected.

Recommendation	Description	Audited party comment	Remedial action
Festive and decorative lights	<p>Identify all unmetered festive and decorative lights, confirm their wattages, and update RAMM.</p> <p>Confirm connection status, and if festive lights when they are connected and then disconnected.</p>	<p>Genesis has discussed auditor's findings with ODC. ODC is going to carry out a site visit by mid-January to confirm the wattages and status of the festive and decorative lights. Once done RAMM will be updated accordingly.</p>	Identified

On 18 June 2019, the Electricity Authority issued a memo clarifying the memo of 2012 that stated that a monthly snapshot was sufficient to calculate submission from, and confirmed the code requirement to calculate the correct monthly load must:

- take into account when each item of load was physically installed or removed, and
- wash up volumes must take into account where historical corrections have been made to the DUML load and volumes.

The current monthly report is provided as a snapshot and is non-compliant. Genesis completes revision submissions where corrections are required. Genesis has requested the monthly report be provided with changes made during the month, so this is expected to be resolved by the next audit.

**Audit outcome**

Non-compliant

Non-compliance	Description		
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3  From: 12-Nov-20 To: 10-Oct-22	Festive lights are included throughout the year resulting in an estimated annual over submission of 812 kWh. Some decorative and festive lights are not recorded in the database. Submission is based on a snapshot and does not consider historic adjustments. Potential impact: Low Actual impact: Low Audit history: Three times previously Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are rated as moderate but there is room for improvement. The impact is assessed to be low based on the kWh impact to the market.		
Actions taken to resolve the issue		Completion date	Remedial action status
Genesis has discussed auditor's findings with ODC. ODC is going to carry out a site visit by mid-January to confirm the wattages and status of the festive and decorative lights. Once done RAMM will be updated accordingly.  Genesis has discussed the importance of tracking of change. ODC are happy to have a column added in their dataset for "Lamp Replaced Date"		20/01/2023	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	
Genesis will continue to work with the council to increase accuracy levels in their database.		Continuous Improvement	

## 2.2. ICP identifier and items of load (Clause 11(2)(a) and (aa) of Schedule 15.3)

### Code reference

*Clause 11(2)(a) and (aa) of Schedule 15.3*

### Code related audit information

*The DUML database must contain:*

- *each ICP identifier for which the retailer is responsible for the DUML*
- *the items of load associated with the ICP identifier.*

### Audit observation

The database was checked to confirm an ICP is recorded for each item of load.

### **Audit commentary**

All items of load had an ICP recorded as required by this clause. The accuracy of these is discussed in **section 3.1**.

### **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 DUMML database must contain the location of each DUMML item.*

### **Audit observation**

The database was checked to confirm the location is recorded for all items of load.

### **Audit commentary**

The database contains road names, displacements, and Global Positioning System (GPS) coordinates. GPS coordinates are populated for all but nine items of load, and the remaining items have sufficient location information to enable them to be readily located.

### **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 DUMML database must contain:*

- *a description of load type for each item of load and any assumptions regarding the capacity*
- *the capacity of each item in watts.*

### **Audit observation**

The database was checked to confirm that:

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

### **Audit commentary**

The database contains fields for lamp make, lamp model, lamp wattage and gear wattage.

### **Audit outcome**

Compliant



## 2.5. All load recorded in database (Clause 11(2A) of Schedule 15.3)

### Code reference

Clause 11(2A) of Schedule 15.3

### Code related audit information

The retailer must ensure that each item of DUML for which it is responsible is recorded in this database.

### Audit observation

The field audit was undertaken of a statistical sample of 137 items of load on 19 November 2022. The sample was selected from five relatively similar sized strata:

1. ODC streets A-Hi,
2. ODC streets Ho-Mair St,
3. ODC streets Maniapoto St-Progress Dr, and
4. ODC streets Ranfurly St to William St.

### Audit commentary

The field audit discrepancies are detailed in the table below:

Street	Database count	Field count	Light count difference	Wattage recorded incorrectly	Comments
WAHANUI CRES	14	13	-1	-	1x 22W LED not found in the field. Pole 695.
WHITTINGTON LANE	4	5	1	-	1x additional 22W LED found in the field but not recorded in the database.
<b>Grand Total</b>	<b>137</b>	<b>137</b>	<b>2 (-1+1)</b>		

One additional item of load was found in the field audit and is recorded as non-compliance below.

- The 2019 audit found that decorative lights in the redwood trees on Maniapoto Street, Otorohanga were not recorded in the database. These lights are thought to have been donated to the community by The Lines Company. A 150W HPS light has been added to the database to account for these lights, but this is not accurate as there are many lights, therefore an unknown amount of under submission will be occurring.
- During the 2020 field audit, five LED strings of festive lights were located on Jervois Street, Kawhia which were not recorded in the database.

I have repeated the recommendation made in **section 2.1** to identify all unmetered festive and decorative lights, confirm their wattages, and update RAMM. If the lights are not connected year-round, the on and off dates should be communicated to Genesis, so that the lights are correctly included in submission information when connected and excluded from submission information when disconnected.

### Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.5 With: Clause 11(2A) of Schedule 15.3  From: unknown To: 10-Oct-22	One additional item of load found in the field. Some decorative and festive lights are not recorded in the database. Potential impact: Low Actual impact: Low Audit history: Three times previously Controls: Weak Breach risk rating: 3		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	The controls are rated as weak overall as the controls in place are not robust enough to ensure that all load is recorded in the database. The impact is assessed to be low, as the kWh impact on reconciliation is expected to be small.		
Actions taken to resolve the issue		Completion date	Remedial action status
Genesis has notified ODC of the additional item found in field and ODC will have this updated in RAMM.  ODC is going to complete a site visit to confirm the status of decorative and festive lights. RAMM will be updated with findings.		20/01/2023	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	
Genesis will continue to work with the council to increase accuracy levels in their database.		20/01/2023	

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

### Audit observation

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

### Audit commentary

The RAMM database functionality achieves compliance with the code.

The change management process and the compliance of the database reporting provided to Genesis is detailed in **sections 3.1** and **3.2**.

**Audit outcome**

Compliant

**2.7. Audit trail (Clause 11(4) of Schedule 15.3)****Code reference**

*Clause 11(4) of Schedule 15.3*

**Code related audit information**

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

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

**Audit observation**

The database was checked for audit trails.

**Audit commentary**

The database has a complete audit trail.

**Audit outcome**

Compliant

### 3. ACCURACY OF DUML DATABASE

#### 3.1. Database accuracy (Clause 15.2 and 15.37B(b))

##### Code reference

Clause 15.2 and 15.37B(b)

##### Code related audit information

Audit must verify that the information recorded in the retailer's DUML database is complete and accurate.

##### Audit observation

Genesis' submissions are based on a monthly extract from the RAMM database. A RAMM database extract was provided in May 2022, and I assessed the accuracy of this by using the DUML Statistical Sampling Guideline. The table below shows the survey plan.

Plan Item	Comments
Area of interest	Otorohanga district
Strata	The database contains items of load in the Otorohanga area, recorded against five ICPs.  The processes for the management of ODC items of load are the same, but I decided to place the items of load into four relatively similar sized strata: <ol style="list-style-type: none"> <li>1. ODC streets A-Hi,</li> <li>2. ODC streets Ho-Mair St,</li> <li>3. ODC streets Maniapoto St-Progress Dr, and</li> <li>4. ODC streets Ranfurly St to William St.</li> </ol>
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 23 sub-units or 24% of the database wattage.
Total items of load	137 items of load were checked.

Wattages were checked for alignment with the published standardised wattage table produced by the Electricity Authority against the database or in the case of LED lights against the LED light specification.

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

##### Audit commentary

##### Field audit findings

A field audit was conducted of a statistical sample of 137 items of load. The "database auditing tool" was used to analyse the results, which are shown in the table below.

Result	Percentage	Comments
The point estimate of R	100.0	The database was accurate
R <sub>L</sub>	98.3	With a 95% level of confidence, it can be concluded that the error could be between 1.7% lower and 2.1% higher
R <sub>H</sub>	102.1	

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

The conclusion from Scenario A is that the database is within the allowable +/-5% variance threshold.

In absolute terms the installed capacity is estimated to be the same as the database.

There is a 95% level of confidence that the installed capacity matches the database.

In absolute terms, total annual consumption is estimated to be match the DUML database.

There is a 95% level of confidence that the annual consumption is between 1,000 kWh p.a. lower to 1,200 kWh p.a. higher than the database indicates.

Scenario	Description
<b>A - Good accuracy, good precision</b>	<p>This scenario applies if:</p> <ul style="list-style-type: none"> <li>(a) <math>R_H</math> is less than 1.05; and</li> <li>(b) <math>R_L</math> is greater than 0.95</li> </ul> <p>The conclusion from this scenario is that:</p> <ul style="list-style-type: none"> <li>(a) the best available estimate indicates that the database is accurate within +/- 5 %; and</li> <li>(b) this is the best outcome.</li> </ul>
<b>B - Poor accuracy, demonstrated with statistical significance</b>	<p>This scenario applies if:</p> <ul style="list-style-type: none"> <li>(a) the point estimate of R is less than 0.95 or greater than 1.05</li> <li>(b) as a result, either <math>R_L</math> is less than 0.95 or <math>R_H</math> is greater than 1.05.</li> </ul> <p>There is evidence to support this finding. In statistical terms, the inaccuracy is statistically significant at the 95% level</p>
<b>C - Poor precision</b>	<p>This scenario applies if:</p> <ul style="list-style-type: none"> <li>(a) the point estimate of R is between 0.95 and 1.05</li> <li>(b) <math>R_L</math> is less than 0.95 and/or <math>R_H</math> is greater than 1.05</li> </ul> <p>The conclusion from this scenario is that the best available estimate is not precise enough to conclude that the database is accurate within +/- 5 %</p>

#### **Light description and capacity accuracy**

All items of load had a valid description, lamp wattage and gear wattage.

Lamp and gear wattages were compared to the expected values and confirmed all were correct.

#### **Address accuracy**

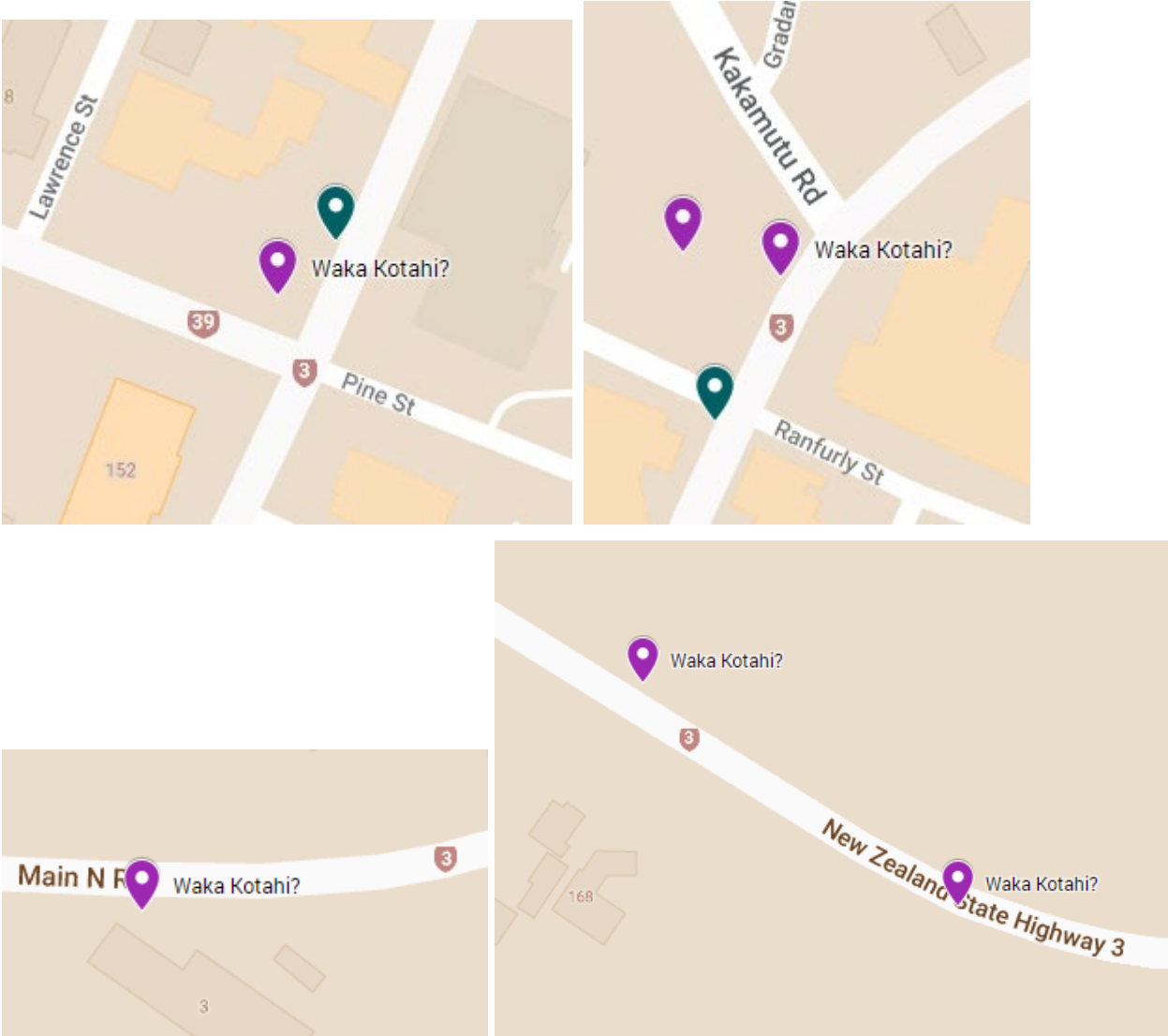
As discussed in **section 2.3**, all items of load have address information recorded. No inaccurate addresses were identified during the field audit.

#### **ICP number accuracy**

As discussed in **section 2.2**, all items of load have an ICP number recorded.

The Waka Kotahi lights associated with ICP 0001111170WMD3F are now being submitted against the Waka Kotahi Waikato DUML load. 19 items of load, where the light owner is recorded as ODC, Amenity and Accessway, Private and Ministry of Education are still being reconciled by ODC against this ICP. This

is being manually manipulated in the database extract. I recommend that the ICP that Waka Kotahi is reconciling their load is recorded against these items of load in the ODC database. The incorrect ICP recorded against these items of load is recorded as non-compliance below. I have plotted the remaining items of load and recommend that ODC review these to confirm they are correctly recorded as four items of load maybe incorrectly allocated to ODC. I have detailed these below:



I recommend that Genesis review whether ICP 000111170WMD3F is still required as the remaining items of load recorded against this ICP could be recorded against ODC ICP 0008807415WMBD6 which is associated with the same NSP as the code only requires one DUMML ICP per NSP.

Recommendation	Description	Audited party comment	Remedial action
Database accuracy	Investigate if ICP 0001111170WMD3F is still required as the remaining items of load could be moved to ODC ICP 0008807415WMBD6.	Genesis has highlighted this to ODC who will discuss with NZTA and confirm which assets will be under council's ownership and which ones under NZTA. Once confirmed council will notify Genesis if they are happy to have ICP 0001111170WMD3F decommissioned and transfer their assets to ICP 0008807415WMBD6	Investigating

### Change management process findings

ODC use a RAMM database to manage this DUML load. RATA (Waikato Regional Asset Technical Accord) provides technical support for RAMM road asset information as a shared service across the Waikato region. There has been a turnover of staff in ODC resulting in there being no staff to manage this area. A contractor has been appointed to manage this on behalf of the council until staff can be recruited.

ODC have completed the LED roll out, and no CMS system is installed or planned.

ODC have not renewed the contract with The Lines Company for field maintenance. Maintenance is being undertaken on a job-by-job basis with the work being issued to either The Lines Company or Waipa Network depending on which network the light/s are located. There have been few maintenance jobs issued but due to the lack of staff the updating of such changes is not clear, and I recommend that this process be reviewed to ensure that any changes made in the field are being updated in the database for the date that the changes took effect. ODC are hoping to re-let the maintenance contract in the future.

Recommendation	Description	Audited party comment	Remedial action
Database accuracy	Review the change management process to ensure that changes made in the field are updated in the database.	Genesis has discussed the change management process with ODC and have provided them with a template of dataset as an example. ODC is happy to incorporate a new column in their dataset for "Lamp removal date" which will help Genesis identify changes and submit volumes accordingly.	Identified

New connections are managed by the relevant network. Each network has their own process. There is one new subdivision underway called the Harper Ave subdivision. ODC expect to receive information as part of the consenting process. A walkover of the assets will take place before the 224C will be issued and then titles can be issued. What was not clear was how the date of electrical collection of the street light circuit is notified. In addition to this Genesis, as the trader has received no request from The Lines Company to accept responsibility for this additional load. I recommend that Genesis review this process with ODC and the networks to ensure that acceptance of additional load and subsequently the date of electrical connection is notified.

Recommendation	Description	Audited party comment	Remedial action
Database accuracy	Review the new street light connection process with ODC and the networks to ensure that acceptance of additional load and subsequently the date of electrical connection is notified.	Genesis has brought this to the attention for ODC who will discuss the process internally and have this process streamlined. Genesis is happy to assist ODC where required.	Investigating

### Festive and decorative lights

As reported in the last three audits:

- festive lights for Maniapoto Street were added to the database following the 2019 audit and are connected from 1 December until 31 January each year; the festive lights continue to be included throughout the year resulting in an estimated over submission of 812 kWh per annum, which is recorded as non-compliance below and in **sections 3.1** and **3.2** - ODC intend to investigate these and confirm if they are connected at all as I observed in the recent field audit that in some instances these were broken and hanging from the light pole arm,
- the 2019 audit found that decorative lights in the redwood trees on Maniapoto Street, Otorohanga were not recorded in the database; these lights are thought to have been donated to the community by The Lines Company and a 150W HPS light has been added to the database to account for these lights, but this is not accurate as there are many lights, therefore an unknown amount of under submission will be occurring, and
- during the 2020 field audit, five LED strings of festive lights were located on Jervois Street, Kawhia which were not recorded in the database.

In **section 2.1**, I repeat the last audit's recommendation to get these correctly recorded in the database and confirm when/if they are all connected.

### Private lights

Three private lights are recorded in the database. The private lights are paid for by ODC and have the correct ICP number assigned which ensures that they are included in Genesis' reconciliation submissions as part of the DUMML load.

### Audit outcome

Non-compliant



Non-compliance	Description		
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b)  From: 12-Nov-20 To: 10-Oct-22	Incorrect ICP recorded against 128 items of load that are now being reconciled against the Waka Kotahi RAMM database.  Festive lights are included throughout the year resulting in an estimated annual over submission of 812 kWh.  Some decorative and festive lights are not recorded in the database.  Potential impact: Low  Actual impact: Low  Audit history: Multiple times  Controls: Weak  Breach risk rating: 3		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	Controls are rated as weak as the processes to manage change in the database were unclear and require review.  The impact is assessed to be low based on the kWh impact to the market.		
Actions taken to resolve the issue		Completion date	Remedial action status
Genesis has brought this to the attention of ODC and advised to use NZTA ICP 0008806768WM373 against NZTA's assets. Genesis has revised submissions back to April 2022 to reflect the same.  ODC is going to complete a site visit to confirm the status of decorative and festive lights. RAMM will be updated with findings.		20/01/2023	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Genesis continues to work with the council to increase accuracy levels in their database.		20/01/2023	

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

#### Code reference

Clause 15.2 and 15.37B(c)

#### Code related audit information

The audit must verify that:

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

### Audit observation

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

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

### Audit commentary

Genesis reconciles the DUML load as NHH using the NST profile. A monthly report from the database was being provided by ODC to Genesis but due to staff changes this has not occurred every month. RATA have undertaken to provide a monthly wattage report until ODC has in house staff available to do this. If no report is received, then the latest report is used.

Genesis reconciles the DUML load as NHH using the NST profile, and on and off times are derived from data logger information. I compared the submission values for October 2022 against the database extract provided and found they matched. I checked the kWh calculation using the logger hours and confirmed the calculation was correct.

The last audit found that the Waka Kotahi lights reconciled in this database were also being reconciled by NZTA in their RAMM database. Genesis have corrected this, and corrections have been carried out back to April 2022, when the Waka Kotahi RAMM database commenced being used for submission. I reviewed these to confirm this.

The last audit noted that the ODC Waka Kotahi lights are spread across the both the Lines Company and Waipa Networks but were being only being reconciled to the Lines Company network. These lights are no longer being reconciled in the ODC database. The accuracy of submission against NSP will be examined as part of the Waka Kotahi Waikato area audit.

As reported in the last three audits:

- festive lights for Maniapoto Street were added to the database following the 2019 audit and are connected from 1 December until 31 January each year; the festive lights continue to be included throughout the year resulting in an estimated over submission of 812 kWh per annum, which is recorded as non-compliance below and in **sections 3.1** and **3.2** - ODC intend to investigate these and confirm if they are connected at all as I observed in the recent field audit that in some instances these were broken and hanging from the light pole arm,
- the 2019 audit found that decorative lights in the redwood trees on Maniapoto Street, Otorohanga were not recorded in the database; these lights are thought to have been donated to the community by The Lines Company and a 150W HPS light has been added to the database to account for these lights, but this is not accurate as there are many lights, therefore an unknown amount of under submission will be occurring, and
- during the 2020 field audit, five LED strings of festive lights were located on Jervois Street, Kawhia which were not recorded in the database.

In **section 2.1**, I repeat the last audit's recommendation to get these correctly recorded in the database and confirm when/if they are all connected.

On 18 June 2019, the Electricity Authority issued a memo clarifying the memo of 2012 that stated that a monthly snapshot was sufficient to calculate submission from, and confirmed the code requirement to calculate the correct monthly load must:

- take into account when each item of load was physically installed or removed, and
- wash up volumes must take into account where historical corrections have been made to the DUML load and volumes.
- The current monthly report is provided as a snapshot and is non-compliant. Genesis completes revision submissions where corrections are required.

The current monthly report is provided as a snapshot and is non-compliant. Genesis completes revision submissions where corrections are required. Genesis has requested the monthly report be provided with changes made during the month, so this is expected to be resolved by the next audit.

**Audit outcome**

Non-compliant

Non-compliance	Description		
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c)  From: 12-Nov-20 To: 05-May-22	Festive lights are included throughout the year resulting in an estimated annual over submission of 812 kWh.  Some decorative and festive lights are not recorded in the database.  Submission is based on a snapshot and does not consider historic adjustments.  Potential impact: Low Actual impact: Low  Audit history: Three times previously  Controls: Moderate  Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	The controls are rated as moderate but there is room for improvement.  The impact is assessed to be low based on the kWh impact to the market.		
Actions taken to resolve the issue		Completion date	Remedial action status
Genesis has discussed auditor’s findings with ODC. ODC is going to carry out a site visit by mid-January to confirm the wattages and status of the festive and decorative lights. Once done RAMM will be updated accordingly.  Genesis has discussed the importance of tracking of change. ODC are happy to have a column added in their dataset for “Lamp Replaced Date”		20/01/2023	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Genesis will continue to work with the council to increase accuracy levels in their database.		Continuous Improvement	

## CONCLUSION

A RAMM database is held by ODC, who is Genesis' customer. RATA (Waikato Regional Asset Technical Accord) provides technical support for RAMM road asset information as a shared service across the Waikato region.

A monthly report from the database was being provided by ODC to Genesis but due to staff changes this has not occurred every month. RATA have undertaken to provide a monthly wattage report until ODC has in house staff available to do this. If no report is received, then the latest report is used. I compared the submission values for October 2022 against the database extract provided and found they matched. I checked the kWh calculation using the logger hours and confirmed the calculation was correct.

The last audit found that the Waka Kotahi lights reconciled in this database were also being reconciled by NZTA in their RAMM database. Genesis have corrected this, and corrections have been carried out back to April 2022, when the Waka Kotahi RAMM database commenced being used for submission. I reviewed these to confirm this.

The Waka Kotahi lights associated with ICP 0001111170WMD3F are now being submitted against the Waka Kotahi Waikato DUML load. 19 items of load, where the light owner is recorded as ODC, Amenity and Accessway, Private and Ministry of Education are still being reconciled by ODC against this ICP. This is being manually manipulated in the database extract. I recommend that the ICP that Waka Kotahi is reconciling their load is recorded against these items of load in the ODC database. The incorrect ICP recorded against these items of load is recorded as non-compliance. I also recommend that the remaining lights are checked to confirm that they are correctly allocated to the ODC load.

The last audit noted that the ODC Waka Kotahi lights are spread across the both the Lines Company and Waipa Networks but were being only being reconciled to the Lines Company network. These lights are no longer being reconciled in the ODC database. The accuracy of submission against NSP will be examined as part of the Waka Kotahi Waikato area audit.

There has been a turnover of staff in ODC resulting in there being no staff to manage the streetlight management. A contractor has been appointed to manage this on behalf of the council until staff can be recruited. The change management processes were discussed, and I recommend that both the new connections and maintenance processes to update the database be reviewed to ensure that changes are being updated in the database in a timely manner and are recording the date that change has taken place.

The field audit confirmed that the database is accurate with only two discrepancies found.

The audit found four non-compliances and makes four recommendations. The future risk rating of ten indicates that the next audit be completed in 12 months. I have considered this in conjunction with Genesis' comments and agree with this recommendation.

## PARTICIPANT RESPONSE

Genesis continues to build on their relationship with the council. Genesis has raised their current new connection processes and the need for these to be addressed, involving different departments of the council ensuring that they are on board enabling the compliance requirements to be met.

Genesis has provided a template of dataset for ODC to refer and make changes in the way they currently manage the data. This should enable ODC to increase accuracy in their dataset and resolve some of the issues.