

ELECTRICITY INDUSTRY PARTICIPATION CODE  
DISTRIBUTED UNMETERED LOAD AUDIT REPORT



For

MATAMATA PIAKO DISTRICT COUNCIL AND  
GENESIS ENERGY

Prepared by: Rebecca Elliot

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Date audit report completed: 12 December 2022

Audit report due date: 20 January 2023

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## EXECUTIVE SUMMARY

This audit of the **Matamata Piako District Council Unmetered Streetlights (MPDC)** DUML database and processes was conducted at the request of **Genesis Energy (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 DUML audits version 1.1.

MPDC switched to Genesis from 1 July 2022. The corrections required from the period of supply with Meridian will be examined as part of their next Reconciliation Participant audit.

Genesis reconciles this DUML load using the NST profile. Wattages are derived from monthly reports of the database information provided by MPDC. On and off times are derived from a data logger.

Power Solutions Limited (PSL) manages the database on behalf of MPDC. The field work is carried out by McKay Electrical.

The last audit found some incorrect allocation of volume between ICPs, and that the NZTA urban lights were being submitted by both MPDC and NZTA. This has been corrected since the database switched to Genesis.

The field audit confirmed that the database is within the accuracy threshold.

This audit found four non-compliances and makes one recommendation. The future risk rating of six indicates that the next audit be completed in 18 months. I have considered this in conjunction with Genesis' comments and recommend that the next audit be in 20 months on 20 September 2024.

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	<p>Some load reconciled to the incorrect ICP due to errors in the monthly report. The overall volume is correct and the ICPs are all in the same balancing area, so the impact is minimal.</p> <p>Five private lights recorded in the database and confirmed as not being reconciled elsewhere resulting in an estimated minor under submission of 1,657 kWh per annum.</p> <p>The data used for submission does not track changes at a daily basis and is provided as a snapshot.</p>	Moderate	Low	2	Identified
All load recorded in database	2.5	11(2A) of Schedule 15.3	One additional light found in the field of a sample of 271 lights checked.	Strong	Low	1	Identified
Database accuracy	3.1	15.2 and 15.37B(b)	Five private lights recorded in the database and confirmed as not being reconciled elsewhere resulting in an estimated minor under submission of 1,657 kWh per annum.	Strong	Low	1	Identified

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)	<p>Some load reconciled to the incorrect ICP due to errors in the monthly report. The overall volume is correct and the ICPs are all in the same balancing area, so the impact is minimal.</p> <p>Five private lights recorded in the database and confirmed as not being reconciled elsewhere resulting in an estimated minor under submission of 1,657 kWh per annum.</p> <p>The data used for submission does not track changes at a daily basis and is provided as a snapshot.</p>	Moderate	Low	2	Identified
Future Risk Rating						6	

<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	Description
Database accuracy	3.1	Add more detail to light model descriptions including expected lamp wattage.

## 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

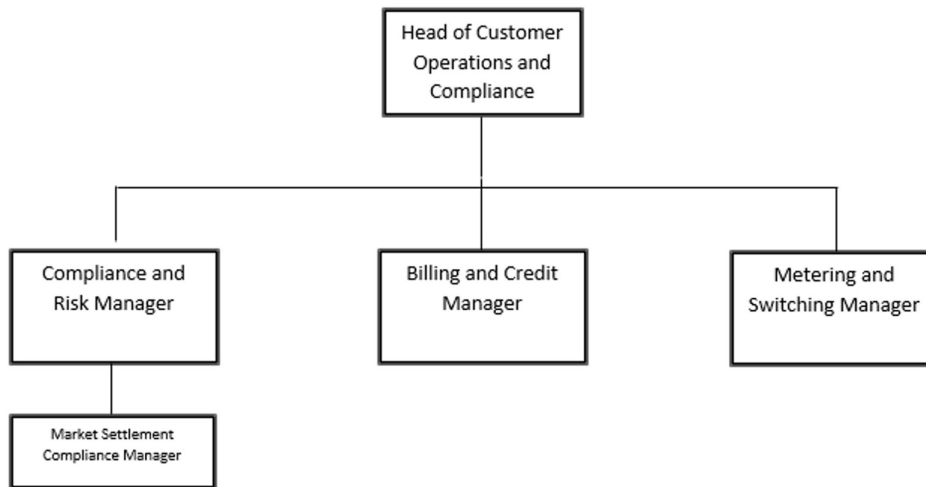
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

#### 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:

Name	Company	Role
Rebecca Elliot	Veritek Limited	Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Nirav Tali	DUML Data & Stakeholder Lead	Genesis Energy
Jon Stevens	Projects Engineer	Power Solutions

### 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 audit.

### 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)
1000510806PC47F	MATAMATA-PIAKO RURAL	WHU0331	NST	717	28,340
1000588658PC323	Matamata Piako District Council Streetlights - Hinuera GXP	HIN0331	NST	1,154	50,594
1000588659PCF66	Matamata Piako District Council Streetlights - Piako GXP	PAO1101	NST	1,128	46,405
TOTAL				2,999	125,338

The NZTA unmetered lights are recorded in the database against the NZTA ICP so are excluded as these are not billed to MPDC and are reconciled by NZTA. The last report recorded that the NZTA urban lights were being reconciled by both MPDC and NZTA. This has been resolved with the removal of the NZTA urban from July 2022 when it switched into Genesis.

This was during the Meridian period of supply so the correction of volumes will be covered as part of their Reconciliation Participant audit.

## 1.7. Authorisation Received

All information was provided directly by Genesis or Power Solutions.

## 1.8. Scope of Audit

This audit of the Matamata Piako District Council Unmetered Streetlights (MPDC) DUML database and processes was conducted at the request of Genesis Energy (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.

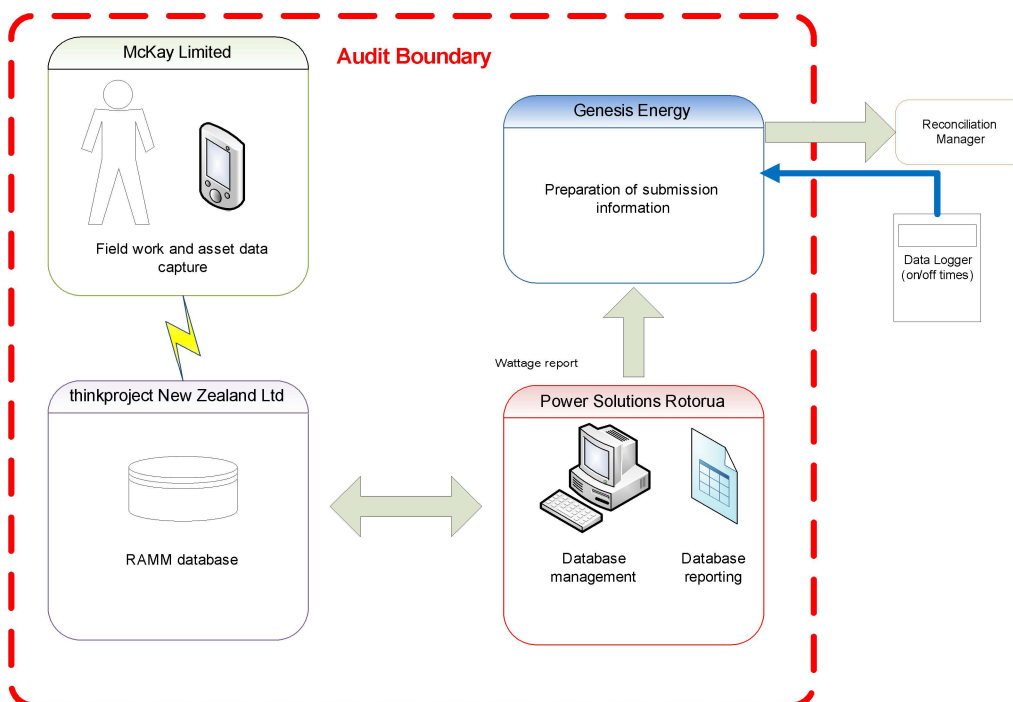
The audit was conducted in accordance with the audit guidelines for DUML audits version 1.1.

Genesis reconciles this DUML load using the NST profile. Wattages are derived from reports of database information provided by MPDC. On and off times are derived from a data logger.

The database is remotely hosted by thinkproject New Zealand Ltd and is managed by PSL, on behalf of MPDC, who is Genesis' customer. McKay Limited is engaged by MPDC and conducts the fieldwork and asset data capture. Reporting is provided to Genesis on a monthly basis by PSL.

The database records all Matamata Piako lights and the NZTA lighting for the Matamata Piako area. The NZTA items of load are only recorded in MPDC RAMM database for clarity of asset ownership, and not for submission.

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 271 items of load on 25<sup>th</sup> November 2022.



## 1.9. Summary of previous audit

The previous audit was undertaken by Steve Woods of Veritek Limited in June 2022 for Meridian Energy. Three non-compliances were identified, and two recommendations were made. The statuses of the non-compliances are described below:

**Table of Non-Compliance**

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	Some load reconciled to the incorrect ICP due to errors in the monthly report. The overall volume is correct and the ICPs are all in the same balancing area, so the impact is minimal.	Still existing
			Eight private lights recorded in the database and confirmed as not being reconciled elsewhere resulting in an estimated minor under submission of 2,486 kWh per annum.	Still existing
			Four items of load with incorrect ballasts recorded resulting in an estimated very minor under submission of 137 kWh her annum.	Cleared
			462 NZTA urban lights being reconciled by MPDC and NZTA resulting in a potential estimated over submission 303,735 kWh per annum.	TBD as part of Meridian RP audit
			The data used for submission does not track changes at a daily basis and is provided as a snapshot.	Still existing
Database accuracy	3.1	15.2 and 15.37B(b)	Four items of load with incorrect ballasts recorded resulting in an estimated very minor under submission of 137 kWh her annum.	Cleared
			NZTA urban lights being reconciled by MPDC and NZTA resulting in a potential estimated over submission 303,735 kWh per annum.	TBD as part of Meridian RP audit
			Eight private lights recorded in the database and confirmed as not being reconciled elsewhere resulting in an estimated minor under submission of 2,486 kWh per annum.	Still existing

Subject	Section	Clause	Non-compliance	Status
Volume information accuracy	3.2	15.2 and 15.37B(c)	Some load reconciled to the incorrect ICP due to errors in the monthly report. The overall volume is correct and the ICPs are all in the same balancing area, so the impact is minimal.	Still existing
			Eight private lights recorded in the database and confirmed as not being reconciled elsewhere resulting in an estimated minor under submission of 2,486 kWh per annum.	Still existing
			Four items of load with incorrect ballasts recorded resulting in an estimated very minor under submission of 137 kWh her annum.	Cleared
			462 NZTA urban lights being reconciled by MPDC and NZTA resulting in a potential estimated over submission 303,735 kWh per annum.	TBD as part of Meridian RP audit
			The data used for submission does not track changes at a daily basis and is provided as a snapshot.	Still existing

### Table of Recommendations

Subject	Section	Description	Status
Deriving submission information	2.1	Liaise with Powerco to identify the metered ICP for the Te Aroha Museum.	Adopted
		Liaise with MPDC and Powerco to determine the correct ICP for the remaining eight private lights to be reconciled against.	In progress
Database accuracy	3.1	Liaise with Genesis (NZTA trader) to resolve the duplicate submission volumes.	TBD as part of Meridian RP audit

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

#### Audit commentary

Genesis reconciles the DUML load using the NST profile. The on and off times are derived from a data logger. I reviewed the submission methodology and confirmed compliance.

I reviewed the submission volumes for October 2022 and found that the kW Housing for the elderly load has been transposed in the monthly report:

ICP	RAMM database kW value	October 2022 Monthly report	kW variance
1000588658PC323	0.785	0.555	-0.230
1000588659PCF66	0.555	0.785	+0.230

This has been passed to Power Solutions to correct.

The last report noted a similar discrepancy occurring for the months of April and May 2022. So that whilst the overall volume submitted was correct, the incorrect ICP was allocated to some of the load in the monthly report and there is a variance resulting in an over and under submission of approximately 35kWh between ICPs. As this error relates to the period of supply for Meridian this will be examined during their Reconciliation Participant audit.

The monthly wattage report continues to be calculated using RAMM data, but the wattage report is calculated outside of the database. The following lights are excluded from the monthly wattage report as detailed:

- 12 “not yet connected” - these will be included once they are confirmed as electrically connected and the light install date is populated; the reporting of such changes is detailed below,
- two “privately owned” lights have the Council ICP recorded against them but are being excluded from the monthly wattage report; these have been confirmed as private and the ICP reference needs to be updated,
- the remaining five items of load with the ICP recorded as private:

- four are associated with a retirement village; the ICPs associated with village have no unmetered load associated and there is no shared unmetered load - I have passed these findings to Power Solutions to work with MPDC and Powerco to resolve,
- the item of load recorded against Follis Street is located on Riverview Lane and is mis-plotted.

The five private lights detailed above are still being investigated in conjunction with Powerco to confirm where the load should be reconciled to. The five privately owned lights not being reconciled will potentially be resulting in an estimated under submission of 1,657 kWh per annum.

In the last audit 14 privately owned lights were being excluded. The seven above continue to be excluded the remaining seven were reviewed and found:

- one of these has been confirmed as belonging to MPDC unmetered load and is included, and
- six are outside the Te Aroha Museum and are connected to the metered building supply; the metered ICP for the museum has been added to the database.

The field audit confirmed that the database is within the accuracy threshold as detailed in **section 3.1**.

No NZTA lights are being reconciled in the MPDC database. The NZTA urban lights stopped being submitted as part of the MPDC load from 1 July 2022 which is the same date this switched into Genesis. The over submission relating to these lights will be examined as part of the Meridian Reconciliation Participant audit.

The monthly report continues to be provided as a snapshot. The database contains a “light install date”. This is populated once the light has been electrically connected. When a wattage is changed or added in the database due to a physical change or a correction, only the record present at the time the report is run is recorded, not the historical information showing dates of changes. Genesis is working with Power Solutions to provide a monthly wattage report directly from RAMM which tracks changes at a daily level.

**Audit outcome**

Non-compliant

Non-compliance	Description
<p>Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3</p> <p>From: 01-Jul-22 To: 11-Oct-22</p>	<p>Some load reconciled to the incorrect ICP due to errors in the monthly report. The overall volume is correct and the ICPs are all in the same balancing area, so the impact is minimal.</p> <p>Five private lights recorded in the database and confirmed as not being reconciled elsewhere resulting in an estimated minor under submission of 1,657 kWh per annum.</p> <p>The data used for submission does not track changes at a daily basis and is provided as a snapshot.</p> <p>Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2</p>

Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	<p>The controls are rated as moderate, with the provision of monthly reporting that tracks change at a daily level it will move to strong.</p> <p>The impact is assessed to be low as there is not a large amount of change occurring during a month so the lack of daily tracking of changes will have a very minor effect on submission.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>Genesis has discussed the discrepancy of some load being reconciled to incorrect ICP due to errors in the monthly report with PSL and received revised dataset for the period of July-22 to November-22. Genesis has revised their submissions for that period based on the new datasets provided.</p> <p>Genesis has discussed the issue around the five private lights with PSL who are going to have meeting with the MPDC to confirm if MPDC is happy to take ownership of these lights and which ICP's will they be allocated to.</p> <p>Genesis has discussed the importance of tracking of change with PSL. PSL have agreed to add tab's (Lamp Install date &amp; Lamp Replacement Date) to the monthly datasets they send to enable Genesis to manage tracking of change. Dataset received for December has the above columns and tracking of change is now been done (December dataset attached for your reference)</p>		20/02/2023	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Genesis has visited PSL who provide the monthly datasets for MPDC and have discussed the above discrepancies and have put a plan in place to have these resolved.		20/02/2023	

**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 DUMML database must contain:*

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

**Audit observation**

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

**Audit commentary**

All items of load have an ICP recorded. The accuracy of the ICPs 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 DUML database must contain the location of each DUML item.*

### **Audit observation**

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

### **Audit commentary**

The database contains the nearest street address, pole numbers and Global Positioning System (GPS) coordinates for each item of load and users in the office and field can view these locations on a mapping system.

### **Audit outcome**

Compliant

## **2.4. Description and capacity of load (Clause 11(2)(c) and (d) of Schedule 15.3)**

### **Code reference**

*Clause 11(2)(c) and (d) of Schedule 15.3*

### **Code related audit information**

*The DUML database must contain:*

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

### **Audit observation**

The database was checked to confirm that it contained a field for lamp type and wattage capacity and included any ballast or gear wattage and that each item of load had a value recorded in these fields.

### **Audit commentary**

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

### **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 271 items of load on 25<sup>th</sup> November 2022.

### Audit commentary

The field audit findings for the sample of lamps were accurate with the exception of the streets detailed in the table below:

Street	Database count	Field count	Light count difference	Wattage recorded incorrectly	Comments
BRICK ST	4	4	-	1	1x 19.9W LED found in the field but recorded as 22W LED in the database.
BRIDIE AVE	6	6	-	1	1x 70W HPS found in the field but recorded as 24W LED in the database.
EMA ST	16	15	-1		1x 22W LED not found in the field.
HOWIE ST	2	3	+1	1	1x additional 16.6W LED found in the field. 1x 16.6W LED found in the field but recorded in the database as 28.4W LED.
GORDON AVE	12	12	-	1	1x 80W LED found in the field but recorded in the database as 60.5W LED.
KENRICK ST	7	7	-	1	1x 60.5W LED found in the field but recorded in the database as 80W LED.
<b>GRAND TOTAL</b>	<b>3,016</b>	<b>3,017</b>	<b>2 (+1-1)</b>	<b>5</b>	

One additional light was found in the field audit. This is recorded as non-compliance below. The field audit confirmed that the database accuracy is within the allowable +/-5% threshold as detailed in **section 3.1**.

### Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.5 With: Clause 11(2A) of Schedule 15.3 From: 01-Jul-22 To: 11-Oct-22	One additional light found in the field of a sample of 271 lights checked. Potential impact: Low Actual impact: Low Audit history: None Controls: Strong Breach risk rating: 1

Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	<p>The controls are rated as strong, as the field contractors use pocketed RAMM, and updates are made directly. The small number of errors found are due to human error.</p> <p>The impact is assessed to be low as only two additional lights were found of the sample checked.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
Genesis has advised PSL of the missing lamp in the dataset. PSL have confirmed this has now been updated in RAMM.		20/12/2022	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
PSL has been notified of the missing asset. Genesis relies on PSL to accurately maintain its database.		20/12/2022	

## 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.

### 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 DUMML 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 RAMM database has a complete audit trail of all additions and changes to the database information.

**Audit outcome**

Compliant

### 3. ACCURACY OF DUML DATABASE

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

##### Code reference

Clause 15.2 and 15.37B(b)

##### Code related audit information

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

##### Audit observation

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

Plan Item	Comments
Area of interest	Matamata Piako district
Strata	The database contains items of load in Matamata Piako area and excludes NZTA lighting.  The processes for the management of MPDC items of load are the same, but I decided to place the items of load into four strata, as follows: <ol style="list-style-type: none"> <li>1. A-Fa,</li> <li>2. Fe-Mo,</li> <li>3. Mu-Sa and</li> <li>4. Sti-Y.</li> </ol>
Area units	I created a pivot table of the roads by strata and used a random number generator in a spreadsheet to select a total of 42 sub-units.
Total items of load	271 items of load were checked.

Wattages were checked for alignment with the published standardised wattage table produced by the Electricity Authority or LED light specifications where available against the RAMM database.

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

##### Audit commentary

##### Field audit findings

A field audit was conducted of a statistical sample of 271 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	100.7	Wattage from survey is lower than the database wattage by 4.0%
R <sub>L</sub>	99.5	With a 95% level of confidence, it can be concluded that the error could be between -0.5% and +3.4%
R <sub>H</sub>	103.4	

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 and compliance is confirmed.

In absolute terms the installed capacity is estimated to be 1 kW higher than the database indicates.

There is a 95% level of confidence that the installed capacity is between 1 kW lower to 4 kW higher than the database.

In absolute terms, total annual consumption is estimated to be 3,700 kWh higher than the DUML database indicates.

There is a 95% level of confidence that the annual consumption is between 2,600 kWh lower to 18,300 kWh p.a. higher than the database indicates.

Scenario	Description
<b>A - Good accuracy, good precision</b>	<p>This scenario applies if:</p> <p>(a) <math>R_H</math> is less than 1.05; and</p> <p>(b) <math>R_L</math> is greater than 0.95</p> <p>The conclusion from this scenario is that:</p> <p>(a) the best available estimate indicates that the database is accurate within +/- 5 %; and</p> <p>(b) this is the best outcome.</p>
<b>B - Poor accuracy, demonstrated with statistical significance</b>	<p>This scenario applies if:</p> <p>(a) the point estimate of R is less than 0.95 or greater than 1.05</p> <p>(b) as a result, either <math>R_L</math> is less than 0.95 or <math>R_H</math> is greater than 1.05.</p> <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> <p>(a) the point estimate of R is between 0.95 and 1.05</p> <p>(b) <math>R_L</math> is less than 0.95 and/or <math>R_H</math> is greater than 1.05</p> <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>

#### Lamp description and capacity accuracy

I checked the wattages being applied in the RAMM database and found all wattages and ballasts were applied correctly. I recommend that more detail be added to some light models to make the determination of wattage easier to confirm.

Description	Recommendation	Audited party comment	Remedial action
Database accuracy	Add more detail to light model descriptions including expected lamp wattage.	Genesis has discussed with PSL who have now added more details to light model descriptions including expected lamp wattage in RAMM	Identified

## ICP Accuracy

The ICPs for MPDC were correctly assigned. The NZTA lights are recorded in the database for maintenance purposes only.

As detailed in **section 2.1**:

- the NZTA urban lights stopped being submitted as part of the MPDC load from 1 July 2022 which is the same date this switched into Genesis; the over submission relating to these lights will be examined as part of the Meridian Reconciliation Participant audit,
- two “privately owned” lights have the Council ICP recorded against them but are being excluded from the monthly wattage report; these have been confirmed as private and the ICP reference needs to be updated,
- five “private” items of load are recorded in the database and are excluded from submission:
  - four are associated with a retirement village; the ICPs associated with village have no unmetered load associated and there is no shared unmetered load - I have passed these findings to Power Solutions to work with MPDC and Powerco to resolve,
  - the item of load recorded against Follis Street is located on Riverview Lane and is mis-plotted.

The five private lights detailed above are still being investigated in conjunction with Powerco to confirm where the load should be reconciled to. The five privately owned lights not being reconciled will potentially be resulting in an estimated under submission of 1,657 kWh per annum.

In the last audit 14 privately owned lights were being excluded. The seven above continue to be excluded the remaining seven were reviewed and found:

- one of these has been confirmed as belonging to MPDC unmetered load and is included, and
- six are outside the Te Aroha Museum and are connected to the metered building supply; the metered ICP for the museum has been added to the database.

## Festive lights

Festive lights are connected in the MPDC area. These are included in the monthly wattage report when connected and correctly excluded when not connected.

## Change management process findings

The processes were reviewed for ensuring that changes in the field are notified through to PSL and there have been no changes to these processes since the last audit. McKay Electrical enters all field data via “Pocket RAMM” directly into RAMM Contractor. The high level of accuracy found in the field audit confirms the process has robust controls.

Monthly “outage patrols” are conducted, and this process is used to check database accuracy.

MPDC follows the Powerco requirement for new streetlight connections which includes the contractor applying as if the lights are a new connection. Upon receipt of this Powerco approach the proposed trader and request they accept responsibility for the new load. The lights are only allowed to be electrically connected by the Powerco approved contractor if this step is complete. The vesting process takes place in parallel. “As built” plans are provided to PSL who then conduct a field check to ensure the database has been populated accurately.

## Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b)  From: 01-Jul-22 To: 11-Oct-22	Five private lights recorded in the database and confirmed as not being reconciled elsewhere resulting in an estimated minor under submission of 1,657 kWh per annum.  Potential impact: Low  Actual impact: Low  Audit history: Multiple times  Controls: Strong  Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	The controls are rated as strong, as the processes to manage the database are robust and mitigate risk to an acceptable level.  The impact is assessed to be low as the unsubmitted volume associated with the private lights is very small.		
Actions taken to resolve the issue		Completion date	Remedial action status
Genesis has discussed the issue around the five private lights with PSL who are going to have meeting with the MPDC to confirm if MPDC is happy to take ownership of these lights and which ICP's will they be allocated to.		20/02/2022	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Genesis will continue to work with PSL to improve database accuracy		20/02/2022	

### 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

I reviewed the submission volumes for October 2022 and found that the kW Housing for the elderly load has been transposed in the monthly report:

ICP	RAMM database kW value	October 2022 Monthly report	kW variance
1000588658PC323	0.785	0.555	-0.230
1000588659PCF66	0.555	0.785	+0.230

This has been passed to Power Solutions to correct.

The last report noted a similar discrepancy occurring for the months of April and May 2022. So that whilst the overall volume submitted was correct that the incorrect ICP was allocated to some of the load in the monthly report there is a variance between resulting in a over and under submission of approximately 35kWh between ICPs had occurred. As this error relates to the period of supply for Meridian this will be examined during their Reconciliation Participant audit.

I also found that

The monthly wattage report continues to be calculated using RAMM data, but the wattage report is calculated outside of the database. The following lights are excluded from the monthly wattage report as detailed:

- 12 “not yet connected” - these will be included once they are confirmed as electrically connected and the light install date is populated; the reporting of such changes is detailed below,
- two have the Council ICP recorded against them but are being excluded from the monthly wattage report; these have been confirmed as private and the ICP reference needs to be updated, and
- the remaining five items of load with the ICP recorded as private:
  - four are associated with a retirement village; the ICPs associated with village have no unmetered load associated and there is no shared unmetered load - I have passed these findings to Power Solutions to work with MPDC and Powerco to resolve, and
  - the item of load recorded against Follis Street is located on Riverview Lane and is mis-plotted.

The five private lights detailed above are still being investigated in conjunction with Powerco to confirm where the load should be reconciled to. The five privately owned lights not being reconciled will potentially be resulting in an estimated under submission of 1,657 kWh per annum.

In the last audit 14 privately owned lights were being excluded. The seven above continue to be excluded the remaining seven were reviewed and found:

- one of these has been confirmed as belonging to MPDC unmetered load and is included, and
- six are outside the Te Aroha Museum and are connected to the metered building supply; the metered ICP for the museum has been added to the database.

The field audit confirmed that the database is within the accuracy threshold as detailed in **section 3.1**.

No NZTA lights are being reconciled in the MPDC database. The NZTA urban lights stopped being submitted as part of the MPDC load from 1 July 2022 which is the same date this switched into Genesis. The over submission relating to these lights will be examined as part of the Meridian Reconciliation Participant audit.

The monthly report continues to be provided as a snapshot. The database contains a “light install date”. This is populated once the light has been electrically connected. When a wattage is changed or added in the database due to a physical change or a correction, only the record present at the time the report is run is recorded, not the historical information showing dates of changes. Genesis is working with Power Solutions to provide a monthly wattage report directly from RAMM which tracks changes at a daily level.

**Audit outcome**

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c)</p> <p>From: 01-Jul-22 To: 11-Oct-22</p>	<p>Some load reconciled to the incorrect ICP due to errors in the monthly report. The overall volume is correct and the ICPs are all in the same balancing area, so the impact is minimal.</p> <p>Five private lights recorded in the database and confirmed as not being reconciled elsewhere resulting in an estimated minor under submission of 1,657 kWh per annum.</p> <p>The data used for submission does not track changes at a daily basis and is provided as a snapshot.</p> <p>Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2</p>		
Audit risk rating	Rationale for audit risk rating		
<p><b>Low</b></p>	<p>The controls are rated as moderate, with the provision of monthly reporting that tracks change at a daily level it will move to strong.</p> <p>The impact is assessed to be low as there is not a large amount of change occurring during a month so the lack of daily tracking of changes will have a very minor effect on submission.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>Genesis has discussed the discrepancy of some load being reconciled to incorrect ICP due to errors in the monthly report with PSL and received revised dataset for the period of July-22 to November-22. Genesis has revised their submissions for that period based on the new datasets provided.</p> <p>Genesis has discussed the issue around the five private lights with PSL who are going to have meeting with the MPDC to confirm if MPDC is happy to take ownership of these lights and which ICP's will they be allocated to.</p>		<p>20/02/2023</p>	<p>Identified</p>

<p>Genesis has discussed the importance of tracking of change with PSL. PSL have agreed to add tab's (Lamp Install date &amp; Lamp Replacement Date) to the monthly datasets they send to enable Genesis to manage tracking of change. Dataset received for December has the above columns and tracking of change is now been done (December dataset attached for your reference)</p>		
<p><b>Preventative actions taken to ensure no further issues will occur</b></p>	<p><b>Completion date</b></p>	
<p>Genesis has visited PSL who provide the monthly datasets for MPDC and have discussed the above discrepancies and have put a plan in place to have these resolved.</p>	<p>20/02/2023</p>	



## CONCLUSION

MPDC switched to Genesis from 1 July 2022. The corrections required from the period of supply with Meridian will be examined as part of their next Reconciliation Participant audit.

Genesis reconciles this DUML load using the NST profile. Wattages are derived from monthly reports of the database information provided by MPDC. On and off times are derived from a data logger.

Power Solutions Limited (PSL) manages the database on behalf of MPDC. The field work is carried out by McKay Electrical.

The last audit found some incorrect allocation of volume between ICPs, and that the NZTA urban lights were being submitted by both MPDC and NZTA. This has been corrected since the database switched to Genesis.

The field audit confirmed that the database is within the accuracy threshold.

This audit found four non-compliances and makes one recommendation. The future risk rating of six indicates that the next audit be completed in 18 months. I have considered this in conjunction with Genesis' comments and recommend that the next audit be in 20 months on 20 September 2024.

## PARTICIPANT RESPONSE

Genesis has visited PSL who provide monthly data for MPDC and put a plan in place to resolve the discrepancies highlighted by the auditor.

Genesis has discussed the importance of tracking of change with PSL. PSL have agreed to make required changes to the monthly datasets they send to enable Genesis to manage tracking of change effectively. Dataset received for December has additional columns (Lamp install & replaced dates) which enables Genesis to manage tracking of change. (December dataset attached for your reference)

Genesis has discussed the discrepancy of some load being reconciled to incorrect ICP due to errors in the monthly report with PSL and received revised dataset for the period of July-22 to November-22. Genesis has revised their submissions for that period based on the new datasets provided.

Genesis has discussed the issue around the five private lights with PSL and are expecting to have this resolved by March 2023.

More details have been added to light model descriptions including expected lamp wattage in RAMM now by PSL.