

ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

VERITEK

For

MATAMATA PIAKO DISTRICT COUNCIL AND
MERIDIAN ENERGY

Prepared by: Steve Woods

Date audit commenced: 4 May 2022

Date audit report completed: 17 June 2022

Audit report due date: 20-Jun-22

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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 **Meridian Energy (Meridian)**, 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.

Meridian reconciles this DUML load using the DST profile. Wattages are derived from reports of database information provided by MPDC. Additional ICPs have been created by Powerco during the audit period as they identified that the streetlight load is spread across three NSPs. All are in the same balancing area so there is no impact on reconciliation.

On and off times are derived from a data logger read by EMS and are used to create a shape file. Power Solutions Limited (PSL) manages the database on behalf of MPDC. The field work is carried out by McKay Electrical.

I compared the RAMM database provided to the capacity information Meridian supplied to EMS for the months of April and May 2022 which confirmed the overall kWh submitted for the council is correct but due to the incorrect ICP being allocated to some of the load in the monthly report there was a variance. This has been passed to Power Solutions to correct.

In the last audit it was identified that the 124 NZTA rural lights had the MPDC ICP recorded against them but were being excluded from the monthly wattage reports as they were being reconciled by a different trader against ICP 0000557929UNE2C. The ICP has been corrected and these items of load are only recorded in MPDC RAMM database for clarity of asset ownership, and not for submission.

The 462 NZTA urban lights are being submitted by MPDC. NZTA are working to remove all NZTA lighting from council databases as these are being reconciled under other ICPs, so the NZTA urban load is being submitted twice by both NZTA (which is with another trader) and by MPDC. Power Solutions are working with NZTA on behalf of MPDC to correct this. This will be resulting in an estimated over submission of 303,735 kWh per annum, but once resolved revisions are expected to be carried out to correct this over submission from the date that the NZTA urban load commenced being submitted in the NZTA RAMM database.

The field audit found no errors and confirmed the database is within the accuracy threshold.

This audit found three non-compliances. The future risk rating of 18 indicates that the next audit be completed in six months. I have considered this in conjunction with Meridian's comments and I agree with the six month recommendation, mainly to ensure the NZTA lighting is removed and revisions are conducted.

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>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.</p> <p>Four items of load with incorrect ballasts recorded resulting in an estimated very minor under submission of 137 kWh per annum.</p> <p>462 NZTA urban lights being reconciled by MPDC and NZTA resulting in a potential estimated over submission 303,735 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	High	6	Identified Ballast details have been corrected

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Database accuracy	3.1	15.2 and 15.37B(b)	<p>Four items of load with incorrect ballasts recorded resulting in an estimated very minor under submission of 137 kWh per annum.</p> <p>NZTA urban lights being reconciled by MPDC and NZTA resulting in a potential estimated over submission 303,735 kWh per annum.</p> <p>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.</p>	Moderate	High	6	Identified

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

RECOMMENDATIONS

Subject	Section	Description
Deriving submission information	2.1	<p>Liaise with Powerco to identify the metered ICP for the Te Aroha Museum.</p> <p>Liaise with MPDC and Powerco to determine the correct ICP for the remaining eight private lights to be reconciled against.</p>
Database accuracy	3.1	Liaise with Genesis (NZTA trader) to resolve the duplicate submission volumes.

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

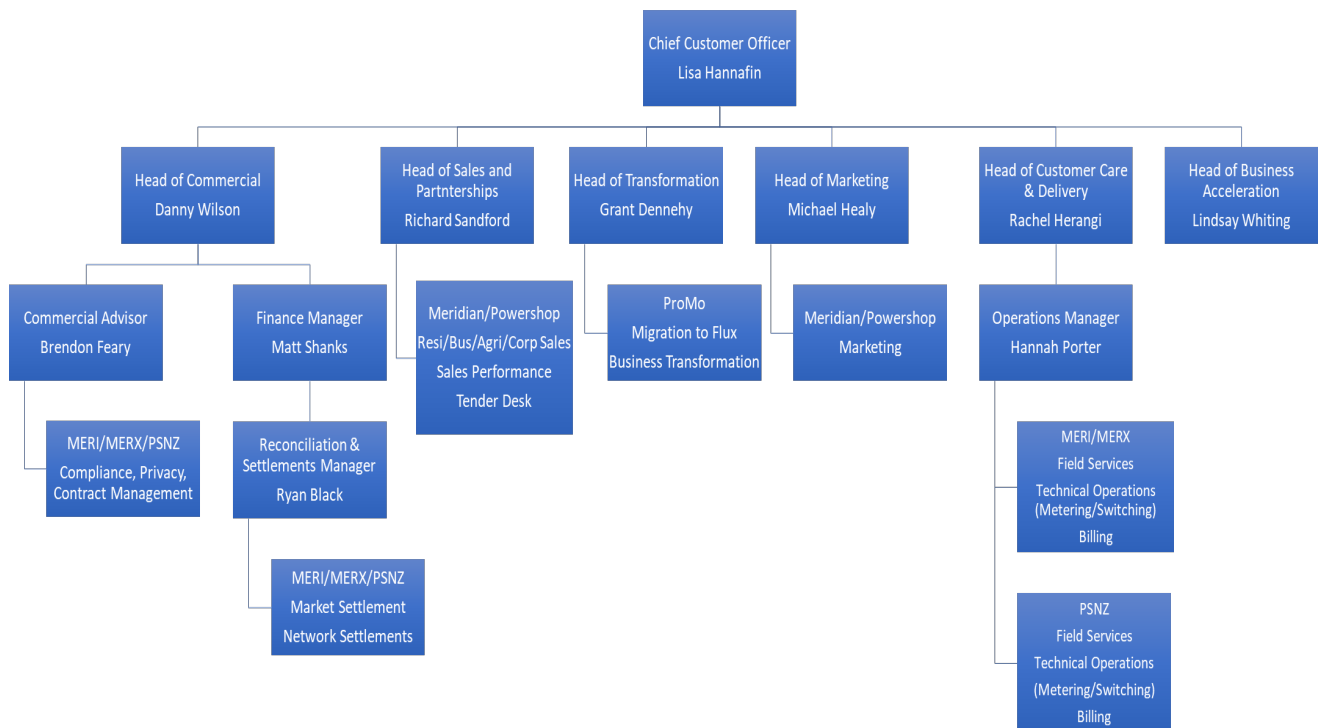
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

Audit commentary

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

1.2. Structure of Organisation

Meridian provided a copy of their organisational structure.



1.3. Persons involved in this audit

Auditor:

Name	Company	Role
Steve Woods	Veritek Limited	Lead Auditor
Rebecca Elliot	Veritek Limited	Supporting Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Daniel Lau	Energy Data Analyst	Meridian Energy
Melanie Matthews	Quality and Compliance Advisor	Meridian Energy
Amy Cooper	Compliance Officer	Meridian 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, and their agent 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)
1000510806PC47F	MATAMATA-PIAKO RURAL	WHU0331	DST	845	47,153
1000588658PC323	Matamata Piako District Council Streetlights - Hinuera GXP	HIN0331	DST	1,358	85,227
1000588659PCF66	Matamata Piako District Council Streetlights - Piako GXP	PAO1101	DST	1,288	70,699
TOTAL				3,491	203,079

During the audit period Powerco identified that the MPDC lighting load was spread across three NSPs so two additional ICPs were created to account for this. All ICPs are in the same balancing area so this has had no effect on submission.

The NZTA rural 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 NZTA urban lights are being submitted by MPDC. NZTA are working to remove all NZTA lighting from council databases as these are being reconciled under other ICPs, so the NZTA urban load is being submitted twice by both NZTA (which is with another trader) and by MPDC. Power Solutions are working with NZTA on behalf of MPDC to correct this.

1.7. Authorisation Received

All information was provided directly by Meridian or Power Solutions.

1.8. Scope of Audit

This audit of the **Matamata Piako District Council Unmetered Streetlights (MPDC)** DUMML database and processes was conducted at the request of **Meridian Energy (Meridian)**, 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.

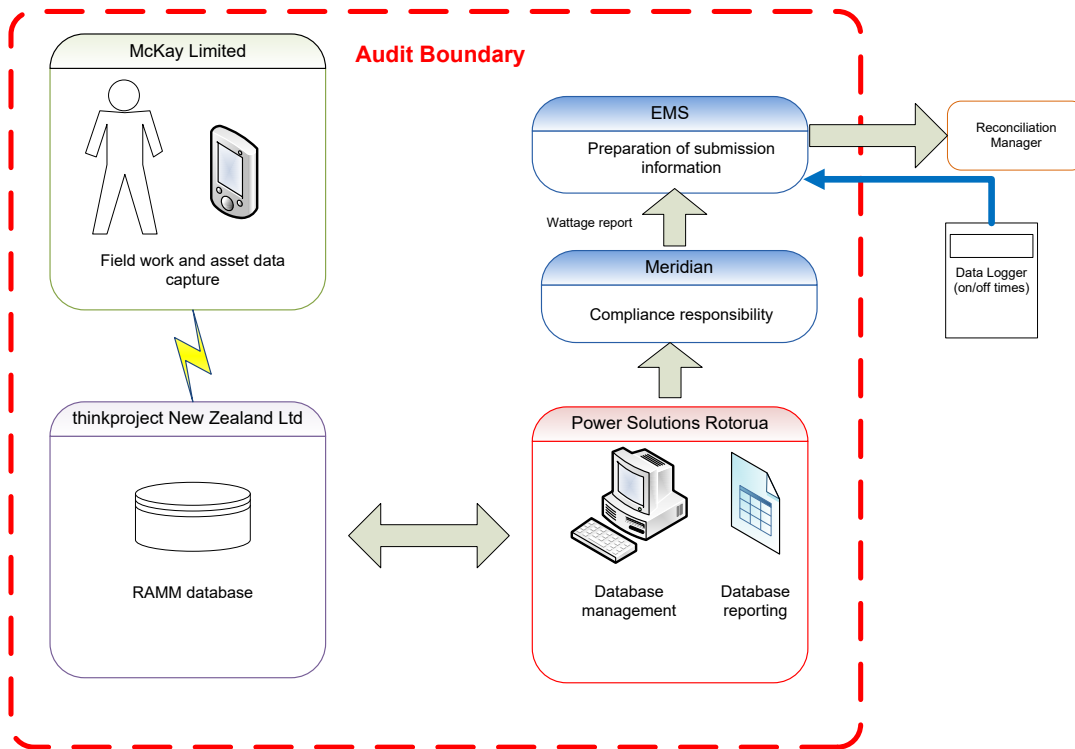
The audit was conducted in accordance with the audit guidelines for DUMML audits version 1.1.

Meridian reconciles this DUMML load using the DST profile. Wattages are derived from reports of database information provided by MPDC. On and off times are derived from a data logger read by EMS and are used to create a shape file.

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

The database records all Matamata Piako lights and the NZTA urban and rural lighting for the Matamata Piako area. The NZTA rural 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 216 items of load on 2nd June 2022.

1.9. Summary of previous audit

The previous audit was undertaken by Rebecca Elliot of Veritek Limited in May 2020 for Meridian Energy. Three non-compliances were identified, and no 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	Five items of load with missing or incorrect wattages/ballasts recorded.	Still existing
			952 22W lights recorded as 20W in the database, resulting in an estimated 8,132 kWh of under submission per annum.	Cleared
			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)	Five items of load with missing or incorrect wattages/ballasts recorded.	Still existing
			952 22W lights recorded as 20W in the database, resulting in an estimated 8,132 kWh of under submission per annum.	Cleared
			MDPC ICP incorrectly recorded against the 124 NZTA Rural and 14 private items of load.	Partially cleared

Subject	Section	Clause	Non-compliance	Status
Volume information accuracy	3.2	15.2 and 15.37B(c)	Five items of load with missing or incorrect wattages/ballasts recorded.	Still existing
			952 22W lights recorded as 20W in the database, resulting in an estimated 8,132 kWh of under submission per annum.	Cleared
			The data used for submission does not track changes at a daily basis and is provided as a snapshot.	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

Meridian 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

Meridian reconciles the DUML load using the DST profile. The on and off times are derived from a data logger read by EMS and are used to create a shape file. Meridian supplies EMS with the capacity information and EMS calculates the kWh figure for each ICP and includes this in the relevant AV080 file. This process was audited during Meridian's reconciliation participant audit and EMS' agent audit. Compliance was confirmed for both parties.

I compared the RAMM database provided to the capacity information Meridian supplied to EMS for the months of April and May 2022 which confirmed the overall kWh submitted for the council is correct but due to the incorrect ICP being allocated to some of the load in the monthly report there is a variance between ICPs as detailed for May 2022 below:

ICP	RAMM database kW value	Monthly report	kW variance for May 2022
1000510806PC47F	47.15	52.80	+5.65
1000588658PC323	79.16	78.93	-0.23
1000588659PCF66	70.45	65.21	-5.24
TOTAL	196.76	196.94	0.18

This has been passed to Power Solutions to correct and is recorded as non-compliance below.

As reported in the previous audit, the monthly wattage report is 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:

- 26 "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,

- 14 privately owned lights - in the last audit these were thought to be being reconciled as either standard or shared unmetered load. I reviewed these and found:
 - Three of these have an MPDC ICP recorded against them. The Powerco ICPs associated with each location have no unmetered load associated with any ICPs so these need to be reconciled against the recorded ICP until the correct ICP is confirmed and the unmetered load is assigned correctly.
 - 11 where the ICP is recorded as “privately owned”:
 - Six are outside the Te Aroha Museum and are thought to be connected to the metered building supply. I recommend below that the ICP for the museum is added to the database.
 - 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.

These details have been passed to Power Solutions to liaise with MPDC and Powerco to resolve. The eight privately owned lights not being reconciled will potentially be resulting in an estimated under submission of 2,486 kWh per annum.

Description	Recommendation	Audited party comment	Remedial action
Deriving submission information	<p>Liaise with Powerco to identify the metered ICP for the Te Aroha Museum.</p> <p>Liaise with MPDC and Powerco to determine the correct ICP for the remaining eight private lights to be reconciled against.</p>	Matamata-Piako District Council has advised that they will liaise with Powerco and hope to have this confirmed and sorted over in the next month.	Investigating

The field audit found no errors and confirmed the database is within the accuracy threshold.

The accuracy of the lamp wattage and ballasts in the database was examined and found four ballast inaccuracies. This will be resulting in an estimated very minor under submission of 137 kWh per annum. This is recorded as non-compliance below and in **sections 3.1** and **3.2**.

The 462 NZTA urban lights are being submitted by MPDC. NZTA are working to remove all NZTA lighting from council databases as these are being reconciled under other ICPs, so the NZTA urban load is being submitted twice by both NZTA (which is with another trader) and by MPDC. Power Solutions are working with NZTA on behalf of MPDC to correct this. This will be resulting in an estimated over submission of 303,735 kWh per annum, but once resolved revisions are expected to be carried out to correct this over submission from the date that the NZTA urban load commenced being submitted by NZTA. This is recorded as non-compliance below and in **sections 3.1** and **3.2**.

The monthly report continues to be provided as a snapshot. This practice is non-compliant. 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.

Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3</p> <p>From: 01-Sep-20 To: 02-Jun-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>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.</p> <p>Four items of load with incorrect ballasts recorded resulting in an estimated very minor under submission of 137 kWh per annum.</p> <p>462 NZTA urban lights being reconciled by MPDC and NZTA resulting in a potential estimated over submission 303,735 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: High Actual impact: High Audit history: Multiple times Controls: Moderate Breach risk rating: 6</p>		
Audit risk rating	Rationale for audit risk rating		
<p>High</p>	<p>The controls are rated as moderate, as the processes to manage the database are robust but the submission inaccuracies show room for improvement.</p> <p>The impact is assessed to be high due to the over submission relating to the NZTA urban lights that are being submitted by both MPDC and NZTA. .</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>Matamata-Piako District Council has advised that the incorrect loads against the incorrect icps will be corrected in the July wattage report.</p>		<p>1/8/2022</p>	<p>Identified</p>
<p>Matamata-Piako District Council has advised that they will liaise with Powerco regarding the 8 private lights and hope to have this confirmed and sorted over in the next month.</p>		<p>1/8/2022</p>	
<p>Matamata-Piako District Council confirm that the 4 items of load with the incorrect ballasts have now been corrected to 18 watts to match all other 150-watt metal halide gear in the database.</p>		<p>16/6/2022</p>	
<p>Meridian will liaise with Genesis Energy regarding the duplicate lights and will have the database corrected. Once the database is corrected, Meridian will revise the historic submissions.</p>		<p>1/10/2022</p>	
<p>We are considering how we can redesign our processes to incorporate the calculation of volumes at a daily level rather than a monthly snapshot</p>		<p>Ongoing</p>	
Preventative actions taken to ensure no further issues will occur		Completion date	

Meridian will continue to follow up with Matamata-Piako District Council to complete the required corrections and to maintain the install updates and changes to the database.	1/8/2022	
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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 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 216 items of load on 2nd June 2022.

Audit commentary

The field audit findings for the sample of lamps was accurate with no errors found.

Audit outcome

Compliant

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

Code reference

Clause 11(3) of Schedule 15.3

Code related audit information

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

Audit observation

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

Audit commentary

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. 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">1. A-J,2. K-SH24,3. SH26-SH29 and4. St-Y.
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 35 sub-units.
Total items of load	216 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

Database accuracy based on the field audit

A field audit was conducted of a statistical sample of 216 items of load and found no errors confirming the database is within the allowable accuracy threshold.

Lamp description and capacity accuracy

I checked the wattages being applied in the RAMM database and found four 150W MH lights with a ballast of 10W applied instead of 18W resulting in an estimated very minor under submission of 137 kWh per annum.

The last audit identified that 61x I-Tron 2 module 575mA LED lights were incorrectly recorded as 20W in the database, but we confirmed as being 22W. These have all been corrected.

ICP Accuracy

During the audit period Powerco identified that the MPDC lighting load was spread across three NSPs so two additional ICPs were created to account for this. All ICPs are in the same balancing area so this has had no effect on submission.

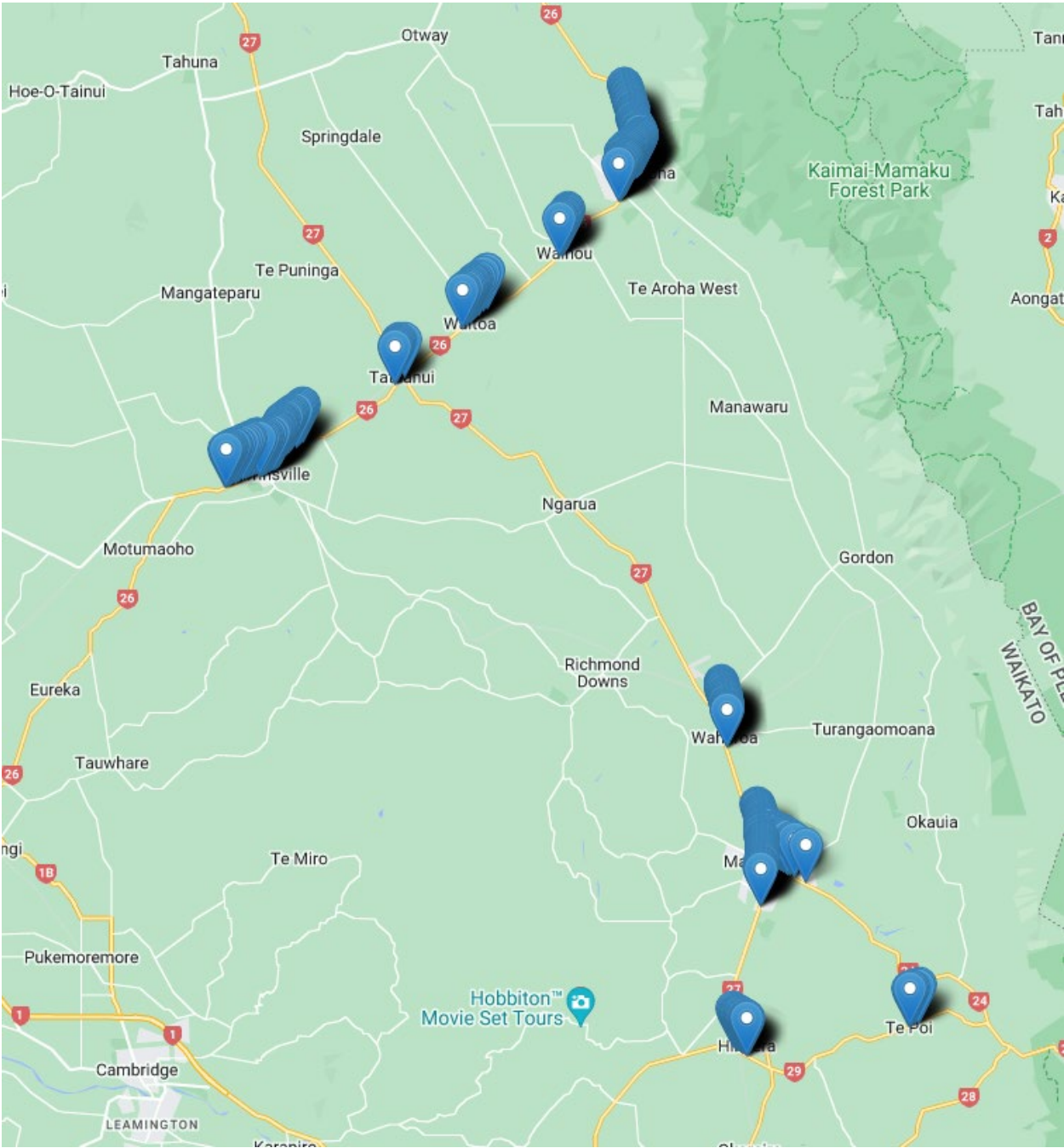
In the last audit it was identified that the 124 NZTA rural lights had the MPDC ICP recorded against them but were being excluded from the monthly wattage reports as they were being reconciled by a different trader against ICP 0000557929UNE2C. The ICP has been corrected and these items of load are only recorded in MPDC RAMM database for clarity of asset ownership, and not for submission.

The 462 NZTA urban lights are being submitted by MPDC. NZTA are working to remove all NZTA lighting from council databases as these are being reconciled under other ICPs, so the NZTA urban load is being submitted twice by both NZTA (which is with another trader) and by MPDC. Power Solutions have compared the data in both databases and passed their findings onto NZTA. I recommend that Meridian liaise with Genesis (NZTA trader) to resolve the duplicate submission volumes.

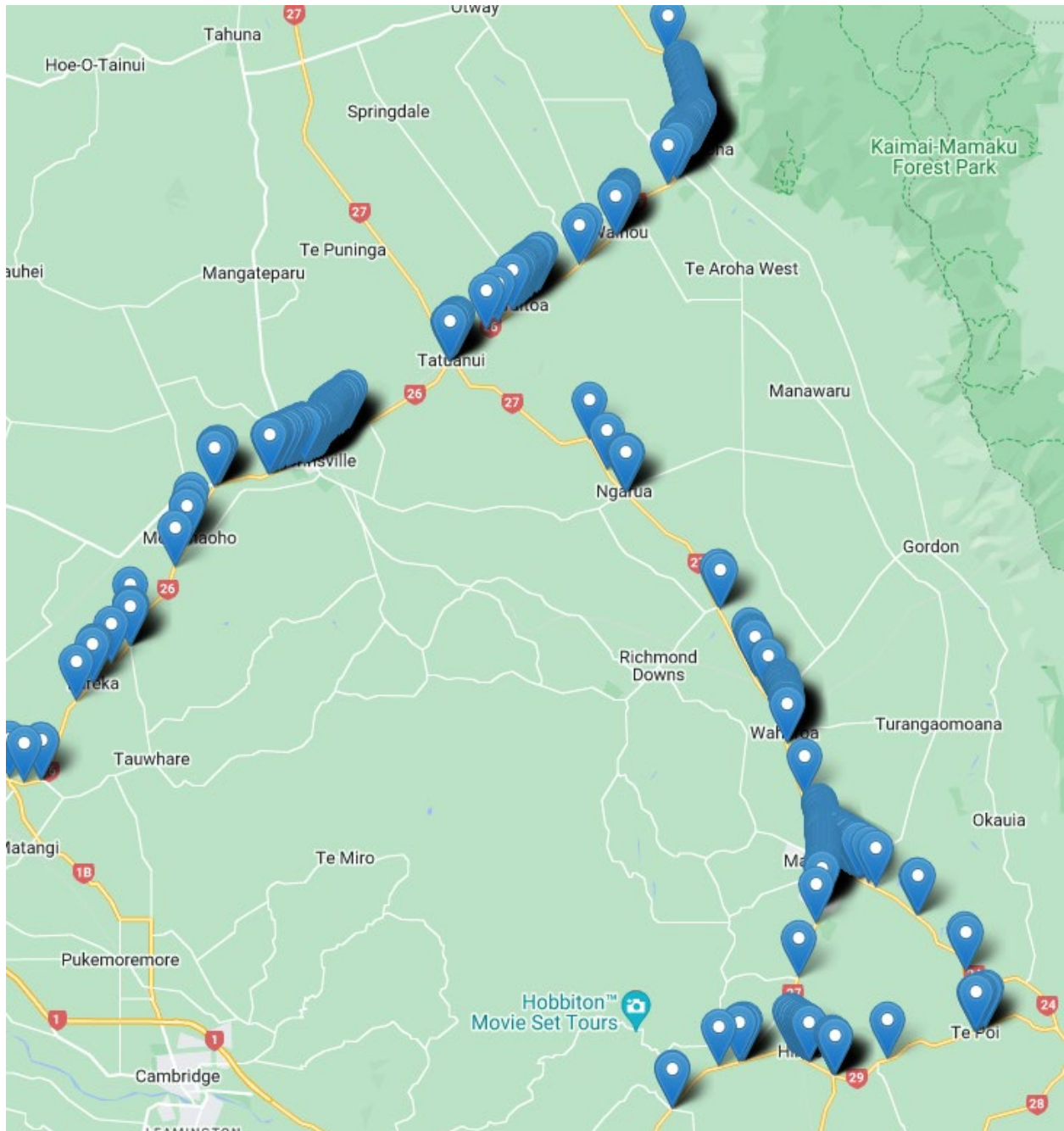
Description	Recommendation	Audited party comment	Remedial action
Database accuracy	Liaise with Genesis (NZTA trader) to resolve the duplicate submission volumes.	Meridian will liaise with Genesis Energy regarding the duplicate lights and will have the database corrected. Once the database is corrected, Meridian will revise the historic submissions.	Identified

Below are the plotted lights recorded in both databases as detailed below:

MPDC NZTA Urban lights



NZTA Waikato RAMM database lights:



This will be resulting in an estimated over submission of 303,735 kWh per annum, but I note that once agreed revisions are expected to be carried out to correct this over submission from the date that the NZTA urban load commenced being submitted by NZTA. This is recorded as non-compliance below.

There are 14 private lights recorded with the MPDC ICP against them. In the last audit these were thought to be being reconciled as either as standard or shared unmetered load.

- Three of these have an MPDC ICP recorded against them. The Powerco ICPs associated with each location have no unmetered load associated with any ICPs so these need to be reconciled against the recorded ICP until the correct ICP is confirmed and the unmetered load is assigned correctly.

- 11 where the ICP is recorded as “privately owned”:
 - Six are outside the Te Aroha Museum and are thought to be connected to the metered building supply. I recommend below that the ICP for the museum is added to the database.
 - 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.

These details have been passed to Power Solutions to liaise with MPDC and Powerco to resolve and I recommend in **section 2.1** that these are investigated to confirm which ICP these should be reconciled to. The eight privately owned lights not being reconciled will potentially be resulting in an estimated under submission of 2,486 kWh per annum.

Festive lights

The last audit noted that these had been included in the monthly report outside of the connected period. I examined the monthly wattage report for May and June 2022 and confirmed that they were not included in the submission.

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. “As built” plans are also provided and PSL then conduct a field check to ensure the database has been populated accurately. 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.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 01-Sep-20 To: 02-Jun-22	Four items of load with incorrect ballasts recorded resulting in an estimated very minor under submission of 137 kWh her annum. NZTA urban lights being reconciled by MPDC and NZTA resulting in a potential estimated over submission 303,735 kWh per annum. 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. Potential impact: High Actual impact: High Audit history: Three times previously Controls: Moderate Breach risk rating: 6
Audit risk rating	Rationale for audit risk rating

High	<p>The controls are rated as moderate, as the processes to manage the database are robust but the submission inaccuracies show room for improvement.</p> <p>The impact is assessed to be high due to the over submission relating to the NZTA urban lights that are being submitted by both MPDC and NZTA. .</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>Matamata-Piako District Council confirm that the 4 items of load with the incorrect ballasts have now been corrected to 18 watts to match all other 150-watt metal halide gear in the database.</p> <p>Meridian will liaise with Genesis Energy regarding the duplicate lights and will have the database corrected. Once the database is corrected, Meridian will revise the historic submissions.</p> <p>Matamata-Piako District Council has advised that they will liaise with Powerco regarding the 8 private lights and hope to have this confirmed and sorted over in the next month.</p>		16/6/2022	Identified
		1/10/2022	
		1/08/2022	
Preventative actions taken to ensure no further issues will occur		Completion date	
<p>Meridian will continue to follow up with Matamata-Piako District Council to complete the required corrections and to maintain the install updates and changes to the database.</p>		1/08/2022	

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

Meridian reconciles the DUML load using the DST profile. The on and off times are derived from a data logger read by EMS and are used to create a shape file. Meridian supplies EMS with the capacity information and EMS calculates the kWh figure for each ICP and includes this in the relevant AV080 file. This process was audited during Meridian's reconciliation participant audit and EMS' agent audit. Compliance was confirmed for both parties.

As detailed in **section 2.1**, I compared the RAMM database provided to the capacity information Meridian supplied to EMS for the months of April and May 2022 confirmed the overall kWh submitted for the council is correct but due to the incorrect ICP being allocated in the monthly report to some of the load there is a variance between ICPs. This has been passed to Power Solutions to correct and is recorded as non-compliance below.

As reported in the previous audit, the monthly wattage report is 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:

- 26 “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,
- 14 privately owned lights - in the last audit these were thought to be being reconciled as either standard or shared unmetered load. I reviewed these and found:
 - Three of these have an MPDC ICP recorded against them. The Powerco ICPs associated with each location have no unmetered load associated with any ICPs so these need to be reconciled against the recorded ICP until the correct ICP is confirmed and the unmetered load is assigned correctly.
 - 11 where the ICP is recorded as “privately owned”:
 - Six are outside the Te Aroha Museum and are thought to be connected to the metered building supply. I recommend in **section 2.1**, that the ICP for the museum is added to the database.
 - 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.

These details have been passed to Power Solutions to liaise with MPDC and Powerco to resolve. The eight privately owned lights not being reconciled will potentially be resulting in an estimated under submission of 2,486 kWh per annum.

The field audit found no errors and confirmed the database is within the accuracy threshold.

The accuracy of the lamp wattage and ballasts in the database was examined and found four ballast inaccuracies. This will be resulting in an estimated very minor under submission of 137 kWh per annum. This is recorded as non-compliance below and in **sections 2.1** and **3.1**.

The 462 NZTA urban lights are being submitted by MPDC. NZTA are working to remove all NZTA lighting from council databases as these are being reconciled under other ICPs, so the NZTA urban load is being submitted twice by both NZTA (which is with another trader) and by MPDC. Power Solutions are working with NZTA on behalf of MPDC to correct this. This will be resulting in an estimated over submission of 303,735 kWh per annum, but once resolved revisions are expected to be carried out to correct this over submission from the date that the NZTA urban load commenced being submitted by NZTA. This is recorded as non-compliance below and in **sections 3.1** and **3.2**.

The monthly report is provided as a snapshot. This practice is non-compliant. 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.

Audit outcome

Non-compliant

Non-compliance	Description	
<p>Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c)</p> <p>From: 01-Sep-20 To: 02-Jun-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>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.</p> <p>Four items of load with incorrect ballasts recorded resulting in an estimated very minor under submission of 137 kWh her annum.</p> <p>462 NZTA urban lights being reconciled by MPDC and NZTA resulting in a potential estimated over submission 303,735 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: High Actual impact: High Audit history: Multiple times</p> <p>Controls: Moderate Breach risk rating: 6</p>	
Audit risk rating	Rationale for audit risk rating	
<p>High</p>	<p>The controls are rated as moderate, as the processes to manage the database are robust but the submission inaccuracies show room for improvement.</p> <p>The impact is assessed to be high due to the over submission relating to the NZTA urban lights that are being submitted by both MPDC and NZTA. .</p>	
Actions taken to resolve the issue	Completion date	Remedial action status
<p>Matamata-Piako District Council has advised that the incorrect loads against the incorrect icps will be corrected in the July wattage report.</p>	<p>1/8/2022</p>	<p>Identified</p>
<p>Matamata-Piako District Council has advised that they will liaise with Powerco regarding the 8 private lights and hope to have this confirmed and sorted over in the next month.</p>	<p>1/8/2022</p>	
<p>Matamata-Piako District Council confirm that the 4 items of load with the incorrect ballasts have now been corrected to 18 watts to match all other 150-watt metal halide gear in the database.</p>	<p>16/6/2022</p>	
<p>Meridian will liaise with Genesis Energy regarding the duplicate lights and will have the database corrected. Once the database is corrected, Meridian will revise the historic submissions.</p>	<p>1/10/2022</p>	
<p>We are considering how we can redesign our processes to incorporate the calculation of volumes at a daily level rather than a monthly snapshot</p>	<p>Ongoing</p>	

Preventative actions taken to ensure no further issues will occur	Completion date	
Meridian will continue to follow up with Matamata-Piako District Council to complete the required corrections and to maintain the install updates and changes to the database.	1/8/2022	

CONCLUSION

Meridian reconciles this DUML load using the DST profile. Wattages are derived from reports of database information provided by MPDC. Additional ICPs have been created by Powerco during the audit period as they identified that the streetlight load is spread across three NSPs. All are in the same balancing area so there is no impact on reconciliation.

On and off times are derived from a data logger read by EMS and are used to create a shape file. Power Solutions Limited (PSL) manages the database on behalf of MPDC. The field work is carried out by McKay Electrical.

I compared the RAMM database provided to the capacity information Meridian supplied to EMS for the months of April and May 2022 which confirmed the overall kWh submitted for the council is correct but due to the incorrect ICP being allocated to some of the load in the monthly report there was a variance. This has been passed to Power Solutions to correct.

In the last audit it was identified that the 124 NZTA rural lights had the MPDC ICP recorded against them but were being excluded from the monthly wattage reports as they were being reconciled by a different trader against ICP 0000557929UNE2C. The ICP has been corrected and these items of load are only recorded in MPDC RAMM database for clarity of asset ownership, and not for submission.

The 462 NZTA urban lights are being submitted by MPDC. NZTA are working to remove all NZTA lighting from council databases as these are being reconciled under other ICPs, so the NZTA urban load is being submitted twice by both NZTA (which is with another trader) and by MPDC. Power Solutions are working with NZTA on behalf of MPDC to correct this. This will be resulting in an estimated over submission of 303,735 kWh per annum, but once resolved revisions are expected to be carried out to correct this over submission from the date that the NZTA urban load commenced being submitted in the NZTA RAMM database.

The field audit found no errors and confirmed the database is within the accuracy threshold.

This audit found three non-compliances. The future risk rating of 18 indicates that the next audit be completed in six months. I have considered this in conjunction with Meridian's comments and I agree with the six month recommendation, mainly to ensure the NZTA lighting is removed and revisions are conducted.

PARTICIPANT RESPONSE