

ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT



For

TARARUA DISTRICT COUNCIL
AND MERCURY ENERGY LIMITED
NZBN: 9429037706609

Prepared by: Tara Gannon

Date audit commenced: 15 July 2024

Date audit report completed: 16 August 2024

Audit report due date: 1 September 2024

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EXECUTIVE SUMMARY

This audit of the **Tararua District Council (TDC)** DUML database and processes was conducted at the request of **Mercury Energy Limited (Mercury)** 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.

Streetlight load is determined by wattages held within TDC's RAMM database, which is managed by Tararua Alliance. New connection, fault, maintenance, and upgrade work is completed by Scanpower, Centralines and Powerco (directly and also via subcontractor CJ Contracting).

Few new connections occur and there have been no new connections during the audit period. Tararua Alliance staff and the networks identify faults and maintenance issues which require investigation or work, and TDC issues customer initiated work requests to Tararua Alliance. Tararua Alliance's supervisors prioritise and programme the work for completion and issue the job to the appropriate field services provider and record the job in RAMM dispatch.

The field services provider who completes the work provides "as built" details, which are checked by the supervisor who updates RAMM dispatch and the "as built" register with the work completion details. The Asset Management team checks the "as built" register daily and updates RAMM with the asset details, including the date that the work was completed.

Mercury reconciles this DUML load using the HHR profile. Mercury was granted exemption No. 233, which allowed them to provide HHR submission information instead of NHH submission information for DUML. Clause 8(g) of schedule 15.3 of the Code, which the exemption related to was removed from the Code in 2018, and the exemption is no longer valid. Mercury is planning to apply for a new profile which will allow them to continue to submit the DUML load as HHR.

Mercury's submission calculation process is compliant but an error was made in calculating the total wattage for January 2024 to June 2024. Mercury added the count of light IDs to the wattage totals (1,369) resulting in over submission of approximately 2,923 kWh over the six months. Mercury confirmed that their data has been corrected and revised submission data will be washed up.

A field audit of a statistical sample of 167 items of load on 11 August 2024 found the database was accurate within $\pm 5\%$.

The audit found five non-compliances and makes four recommendations. The future risk rating of 9 indicates that the next audit be completed in 12 months. Taking into consideration that:

- the database is accurate within $\pm 5\%$,
- the submission errors for January to June 2024 have been corrected and revised submission information will be washed up,
- the database accuracy non-compliances either had no impact (missing LED gear wattages for two lights) or a low impact (festive lights connected for two months each year which are excluded from the database), and
- Tararua Alliance intends to adopt all the recommendations,

I recommend that the next audit is completed in a minimum of 18 months on 1 March 2026.

The matters raised are detailed in the table 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>The DUML load is submitted using HHR profile, without an exemption in place.</p> <p>Due to an error in calculating the total wattage the submissions for January 2024 to June 2024 added the count of light IDs to the wattage totals (1,369) resulting in over submission of approximately 2,923 kWh over the six months. Mercury confirmed that their data has been corrected and revised submission data will be washed up.</p> <p>LED lights (light IDs 2776 and 2802) have a blank gear wattage when zero is expected.</p> <p>There are festive lights connected in Woodville, Dannevirke and Eketahuna between December and January each year. The wattage of the lights is unknown, they are not recorded in the database, and there is no process to advise Mercury of when the lights are connected and disconnected.</p>	Moderate	Low	2	Investigating
Description and capacity of load	2.4	11(2)(c) and (d) of schedule 15.3	LED lights (light IDs 2776 and 2802) have a blank gear wattage when zero is expected.	Strong	Low	1	Identified
All load recorded in database	2.5	11(2A) of schedule 15.3	<p>Two additional lights in the field of the 167 items of load sampled.</p> <p>There are festive lights connected in Woodville, Dannevirke and Eketahuna between December and January each year. The wattage of the lights is unknown, they are not recorded in the database, and there is no process to advise Mercury of when the lights are connected and disconnected.</p>	Moderate	Low	2	Investigating

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>LED lights (light IDs 2776 and 2802) have a blank gear wattage when zero is expected.</p> <p>There are festive lights connected in Woodville, Dannevirke and Eketahuna between December and January each year. The wattage of the lights is unknown, they are not recorded in the database, and there is no process to advise Mercury of when the lights are connected and disconnected.</p>	Moderate	Low	2	Investigating
Volume information accuracy	3.2	15.2 and 15.37B(c)	<p>The DUML load is submitted using HHR profile, without an exemption in place.</p> <p>Due to an error in calculating the total wattage the submissions for January 2024 to June 2024 added the count of light IDs to the wattage totals (1,369) resulting in over submission of approximately 2,923 kWh over the six months. Mercury confirmed that their data has been corrected and revised submission data will be washed up.</p> <p>LED lights (light IDs 2776 and 2802) have a blank gear wattage when zero is expected.</p> <p>There are festive lights connected in Woodville, Dannevirke and Eketahuna between December and January each year. The wattage of the lights is unknown, they are not recorded in the database, and there is no process to advise Mercury of when the lights are connected and disconnected.</p>	Moderate	Low	2	Investigating
Future Risk Rating						9	

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	Recommendation	Comment
Ensure compliant submission for ICP 7012020000CH14D	1.8	ICP 7012020000CH14D is invalidly treated as standard unmetered load. Either: <ul style="list-style-type: none"> create a separate ICP for each point of connection, and then settle each ICP as standard unmetered load, or switch the ICP to MEEN and settle the load as DUML. 	On face value Mercury is happy to switch this ICP in and treat it as DUML to resolve this issue. However, there may be unforeseen roadblocks; Tararua DC are investigating and will contact us when ready to discuss further.
Check items of load with blank ICP numbers	2.2	Check the 28 items with a blank ICP group and the light owner listed as Local Authority. Update the ICP number and/or light owner and lamp information as appropriate.	Tararua DC has a plan for this recommendation as noted above.
Add festive lights to the database and communicate connections and disconnections to Mercury Energy	2.5	Confirm the locations and wattages of the festive lights and add them to RAMM. Develop a process to communicate these wattages, connection and disconnection dates to Mercury so that they can be correctly included in submission. If any of the lights are attached to poles which are NZTA Waka Kotahi's responsibility, liaise with them to ensure that they are recorded in the correct database.	Tararua DC are investigating with the relevant community boards as need to know the fitting info first. Will then add to RAMM and communicate with Mercury when to include and exclude.
Check sodium lights connected to DUML ICPs	3.1	Check the 36 sodium lights connected to DUML ICPs to confirm that TDC is responsible for the load and update RAMM as necessary.	Tararua DC will be investigating.

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

Mercury were granted exemption No. 233, which allowed them to provide half-hour ("HHR") submission information instead of non-half-hour ("NHH") submission information for distributed unmetered load ("DUML"). Clause 8(g) of schedule 15.3 of the Code, which the exemption related to was removed from the Code in 2018, therefore the exemption is no longer valid.

Mercury currently submits the DUML load as HHR, which is non-compliant with clause 8(5) of schedule 15.3 of the Code, because the DUML load does not meet the requirements for use of the HHR profile:

For any unmetered load at an ICP for which it is responsible, regardless of the category of any metering installation at the ICP, a reconciliation participant must provide non-half-hour submission information to the reconciliation manager unless—

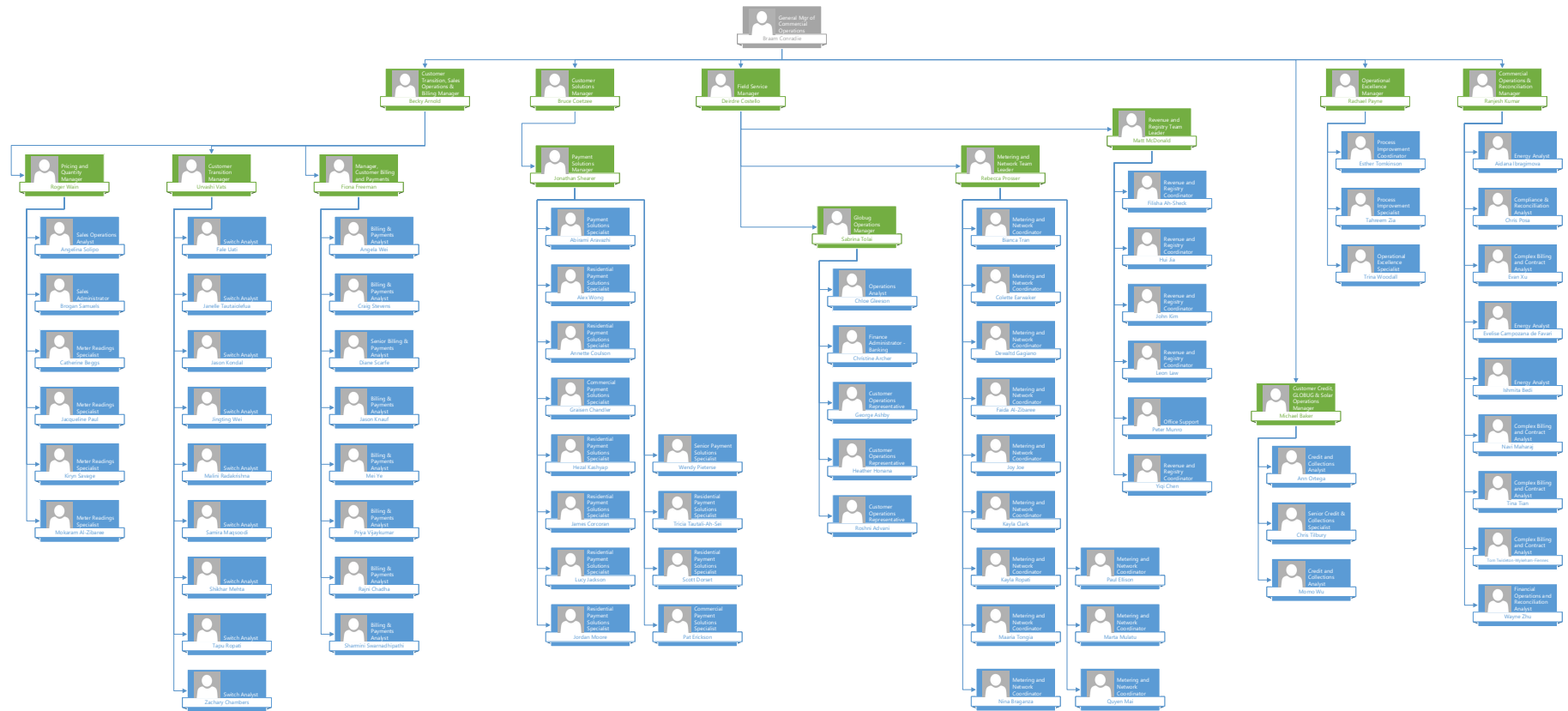
(a) the Authority has approved a profile for the unmetered load that allows the reconciliation participant to provide half hour submission information to the reconciliation manager for the unmetered load; and

(b) the reconciliation participant provides half hour submission information in accordance with the profile.

Mercury is planning to apply for a new profile which will allow them to continue to submit the DUML load as HHR.

1.2. Structure of Organisation

Mercury Energy provided a copy of their organisational structure:



1.3. Persons involved in this audit

Auditor:

Name	Role	Company
Tara Gannon	Auditor	Provera

Other personnel assisting in this audit were:

Name	Title	Company
Chris Posa	Compliance Reconciliation Analyst	Mercury Energy
Jordan Taylor	Asset Manager	Tararua Alliance

1.4. Hardware and Software

RAMM

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

thinkproject NZ Ltd backs up the database and assists with disaster recovery as part of their hosting service. Nightly backups are performed. As a minimum, daily backups are retained for the previous five working days, weekly backups are retained for the previous four weeks, and monthly backups are retained for the previous six months.

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

Mercury systems

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)
0009100000CADDCC	Dannevirke Street Lighting - Dannevirke Borough	DVK0111	HHR	697	22,461
0009101000CAC7C	Street Lighting - Rural Streetlighting	DVK0111	HHR	84	2,943
0009102000CAE9C	Street Lighting - Woodville Borough	WDV0111	HHR	210	5,939

ICP Number	Description	NSP	Profile	Number of items of load	Database wattage (watts)
1000554957PC423	TDC Master stlight - cnr Mangamaire & Tutaekara Road	MGM0331	HHR	3,742	11,708
7012020000CH14D	MERX			6	227
Blank				299	47,442
Total¹				1,363	43,051

Blank ICP

299 items of load (47,442 W) have a blank ICP number:

- 271 items (44,500 W) have a light owner of Waka Kotahi and are not Tararua DC's responsibility, and
- 28 items (2,892 W) have a light owner of Local Authority, and Tararua Alliance plans to check the lights to confirm whether they are TDC or NZTA Waka Kotahi's responsibility and will update the ICP number and/or light owner and lamp information as appropriate.

ICP 7012020000CH14D

As reported in the previous audits, ICP 7012020000CH14D (WPW0331 GN CHBP) is also included in the database, but is outside the scope of the audit. The ICP is supplied by Meridian and is settled as standard unmetered load. Tararua Alliance confirmed that the six lights connected do not all have the same point of connection.

Light ID	Road	ICP Group	Lamp model
1523	052-0063	7012020000CH14D	Betacom 27w led (Field audit confirmed is 40W LED)
2564	SEAVIEW RD	7012020000CH14D	40W LED
2565	SEAVIEW RD	7012020000CH14D	40W LED
2540	SEAVIEW RD	7012020000CH14D	40W LED
2541	SEAVIEW RD	7012020000CH14D	40W LED
2542	SEAVIEW RD	7012020000CH14D	40W LED

Only loads below the unmetered load threshold with a single point of connection may be settled as standard unmetered load. The recommendation from the last four audits is to create separate ICPs for each point of connection so they can continue to be treated as standard unmetered load, or the ICPs should be treated as DUML. This was also raised in the Meridian Reconciliation Participant audit.

I repeat the previous recommendation.

¹ Excluding ICP 7012020000CH14D and blank ICPs

Recommendation	Description	Audited party comment	Remedial action
Ensure compliant submission for ICP 7012020000CH14D	ICP 7012020000CH14D is invalidly treated as standard unmetered load. Either: <ul style="list-style-type: none"> • create a separate ICP for each point of connection, and then settle each ICP as standard unmetered load, or • switch the ICP to MEEN and settle the load as DUML. 	On face value Mercury is happy to switch this ICP in and treat it as DUML to resolve this issue. However, there may be unforeseen roadblocks; Tararua DC are investigating and will contact us when ready to discuss further.	Investigating

1.7. Authorisation Received

All information was provided directly by Mercury or Tararua Alliance.

1.8. Scope of Audit

This audit of the TDC DUML database and processes was conducted at the request of Mercury 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.

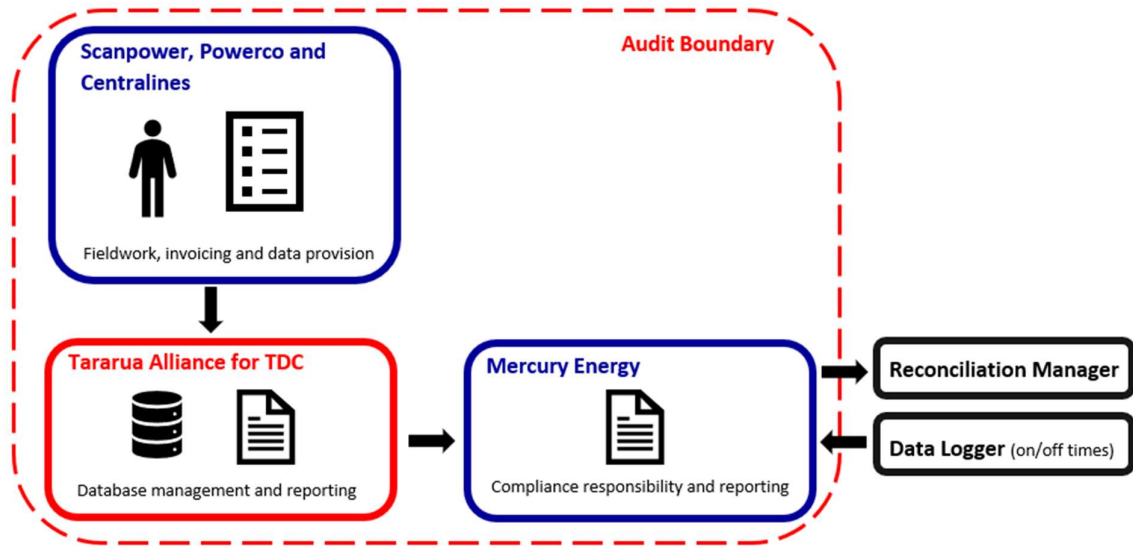
Streetlight load is determined by wattages held within TDC's RAMM database, which is managed by Tararua Alliance. New connection, fault, maintenance, and upgrade work is completed by Scanpower, Centralines and Powerco (directly and also via subcontractor CJ Contracting).

Few new connections occur and there have been no new connections during the audit period. Tararua Alliance staff and the networks identify faults and maintenance issues which require investigation or work, and TDC issues customer initiated work requests to Tararua Alliance. Tararua Alliance's supervisors prioritise and programme the work for completion and issue the job to the appropriate field services provider and record the job in RAMM dispatch.

The field services provider who completes the work provides "as built" details, which are checked and then RAMM dispatch and the "as built" register are updated with the work completion details. The Asset Management team checks the "as built" register daily and updates RAMM with the asset details.

Mercury reconciles this DUML load using the HHR profile. Mercury was granted exemption No. 233, which allowed them to provide HHR submission information instead of NHH submission information for DUML. Clause 8(g) of schedule 15.3 of the Code, which the exemption related to was removed from the Code in 2018, and the exemption is no longer valid. Mercury is planning to apply for a new profile which will allow them to continue to submit the DUML load as HHR.

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



The field audit was undertaken of a statistical sample of 167 items of load on 11 August 2024.

1.9. Summary of previous audit

The previous audit was undertaken by Bernie Cross of Veritek Limited in February 2023. The summary table below shows the statuses of the non-compliances and recommendations raised in the previous audit. Further comment is made in the relevant sections of this report.

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	Database assessed as having poor accuracy therefore the potential error is greater than 5.0% resulting in an estimated under submission of 9,700 kWh per annum.	Cleared.
			Festive lighting in Woodville and Dannevirke not recorded in the database.	Still existing.
			The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.	Cleared.
All load recorded in database	2.5	11(2A) of Schedule 15.3	Three additional lights in the field of the 166 items of load sampled.	Still existing.
Database accuracy	3.1	15.2 and 15.37B(b)	Database assessed as having poor accuracy therefore the potential error is greater than 5.0% resulting in an estimated under submission of 9,700 kWh per annum.	Cleared.
			Festive lighting in Woodville and Dannevirke are not recorded in the database.	Still existing.
Volume information accuracy	3.2	15.2 and 15.37B(c)	Database assessed as having poor accuracy therefore the potential error is greater than 5.0% resulting in an estimated under submission of 9,700 kWh per annum.	Cleared.
			Festive lighting in Woodville, Eketahuna and Dannevirke not recorded in the database.	Still existing.
			The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.	Cleared.

Subject	Section	Recommendation	Status
Database Accuracy	1.6	ICP 7012020000CH14D is invalidly treated as standard unmetered load. Either: <ul style="list-style-type: none"> create a separate ICP for each point of connection, and then settle each ICP as standard unmetered load, or switch the ICP to MEEN and settle the load as DUML. Mercury to work with Meridian to resolve 	Tararua Alliance intends to action this recommendation.
Improve ability to accurately identify all light types, attributes and input wattages.	2.4	Improve the level of detail captured as part of the lamp model description to ensure the input wattages can accurately be determined and ensure all light specification sheets are held centrally and easily available for reference for all lights within the TDC database.	Adopted.
Database Accuracy	3.1	Review the process to update the database one field work is completed is reviewed to consider electronic data capture on site that includes photos to support the information provided	Adopted. Details are checked once “as built” plans are received.
Database Accuracy	3.1	Investigate and determine if the festive lights in Eketahuna that are attached to the NZTA poles are in use, and if so when are they used.	Tararua Alliance intends to action this recommendation.

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

Mercury have requested Provera to undertake this streetlight audit.

Audit commentary

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

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

Mercury reconciles this DUML load using the HHR profile. Mercury was granted exemption No. 233, which allowed them to provide HHR submission information instead of NHH submission information for DUML. Clause 8(g) of schedule 15.3 of the Code, which the exemption related to was removed from the Code in 2018, and the exemption is no longer valid. Mercury is planning to apply for a new profile which will allow them to continue to submit the DUML load as HHR.

Wattages are derived from monthly database extracts provided by TDC, and on and off times are derived from a data logger. I checked the submission information for June 2024 and confirmed that the process to calculate submission volumes was operating as expected. Due to an error in calculating the total wattage, the submissions for January 2024 to June 2024 added the count of light IDs to the wattage totals (1,369) resulting in over submission of approximately 2,923 kWh over the six months. Mercury confirmed that their data has been corrected and revised submission data will be washed up.

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.

Mercury is able to produce submissions with different kW values for different days and produces revision submissions where required. The monthly report is provided as a snapshot reflecting the current details for each light on the day the report is generated. Changes are provided along with the monthly extract so that Mercury can calculate the daily unmetered load connected.

Database accuracy

A field audit of a statistical sample of 167 items of load on 11 August 2024 found the database was accurate within $\pm 5\%$. The database contains some inaccurate information:

Discrepancy	Potential impact on submission
LED lights (light IDs 2776 and 2802) have a blank gear wattage when zero is expected.	Nil
There are festive lights connected in Woodville, Dannevirke and Eketahuna between December and January each year. The lights are managed by community boards, and TDC advises Tararua Alliance of when to connect and disconnect the lights. The wattage of the lights is unknown, they are not	Unknown under submission

Discrepancy	Potential impact on submission
recorded in the database, and there is no process to advise Mercury of when the lights are connected and disconnected.	

Audit outcome

Non-compliant

Non-compliance	Description	
<p>Audit Ref: 2.1</p> <p>With: Clause 11(1) of schedule 15.3</p> <p>From: 01-Jan-24</p> <p>To: 11-Aug-24</p>	<p>The DUML load is submitted using HHR profile, without an exemption in place.</p> <p>Due to an error in calculating the total wattage the submissions for January 2024 to June 2024 added the count of light IDs to the wattage totals (1,369) resulting in over submission of approximately 2,923 kWh over the six months. Mercury confirmed that their data has been corrected and revised submission data will be washed up.</p> <p>LED lights (light IDs 2776 and 2802) have a blank gear wattage when zero is expected.</p> <p>There are festive lights connected in Woodville, Dannevirke and Eketahuna between December and January each year. The wattage of the lights is unknown, they are not recorded in the database, and there is no process to advise Mercury of when the lights are connected and disconnected.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: Multiple times</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p>	
Audit risk rating	Rationale for audit risk rating	
Low	<p>The controls are moderate because there is room for improvement, particularly for festive lights.</p> <p>The impact is low based on the expected impact on submission volumes, and that revised submission information will be washed up.</p>	
Actions taken to resolve the issue	Completion date	Remedial action status
<p>We are in the process of drafting applications for DUML profiles that allow us to submit as HHR, we will submit to the EA as soon as possible. August/September 2024</p> <p>We have corrected the calculation error and revised submission data will be washed up in the coming months.</p> <p>Tararua DC will be working on correcting discrepancies in the database.</p> <p>Regarding festive lights, Tararua DC are investigating with the relevant community boards as need to know the fitting info first. Will then add to RAMM and communicate with Mercury when to include and exclude.</p>	August/September 2024	Investigating

Preventative actions taken to ensure no further issues will occur	Completion date	
We will continue to work with Tararua DC to ensure that the database and therefore submissions are as accurate as possible.	Ongoing.	

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

299 items of load (47,442 W) have a blank ICP number:

- 271 items (44,500 W) have a light owner of NZTA Waka Kotahi and are not Tararua DC's responsibility, and
- 28 items (2,892 W) have a light owner of Local Authority, and Tararua Alliance plans to check the 28 lights to confirm whether they are TDC or NZTA Waka Kotahi's responsibility and will update the ICP number and/or light owner and lamp information as appropriate.

All other items of load have a valid ICP number.

Recommendation	Description	Audited party comment	Remedial Action
Check items of load with blank ICP numbers	Check the 28 items with a blank ICP group and the light owner listed as Local Authority. Update the ICP number and/or light owner and lamp information as appropriate.	Tararua DC has a plan for this recommendation as noted above.	Identified

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 DUML items of load.

Audit commentary

The database contains fields for the road name, location number, side, and GPS coordinates.

1,330 (97.58%) of the 1,363 items of load have GPS coordinates. The other 33 items of load have sufficient location information to enable them to be 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 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 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 to record the lamp and gear model, lamp and gear wattage and total wattage.

All DUML items of load had non-zero lamp wattages and valid gear wattages except two LED lights with a blank gear wattage when zero was expected. Tararua Alliance intends to update the gear wattage to zero.

Light ID	Pole ID	Road	Lamp Model	Lamp wattage	Gear wattage
2776	2757	Town Hall Carpark	30W LED	30	
2802	2770	Edward St	Betacom 27W LED	27	

The previous audit recommended lamp make and model information be expanded to include a more detailed description. This recommendation has been adopted, and the information recorded has been improved.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.4 With: Clause 11(2)(c) and (d) of Schedule 15.3 From: 15-Jul-24 To: 15-Jul-24	LED lights (light IDs 2776 and 2802) have a blank gear wattage when zero is expected. Potential impact: Low Actual impact: Low Audit history: None Controls: Strong Breach risk rating: 1		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are strong because almost all lights have a lamp and gear wattage populated. There is no impact because a zero wattage is expected.		
Actions taken to resolve the issue		Completion date	Remedial action status
Tararua DC will be working on correcting discrepancies in the database.		August/September 2024	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
We will continue to work with Tararua DC to ensure that the database and therefore submissions are as accurate as possible.		Ongoing	

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 167 items of load on 11 August 2024. The sample was selected from two strata:

- Dannevirke, and
- Woodville, Pahiatua and rural.

Audit commentary

The field audit discrepancies are detailed in the table below:

Street	Database count	Field count	Light count difference	Wattage recorded incorrectly	Comments
COLE ST	21	21	-	1	One L27 LED (light ID 897) was recorded in the database as a 23W LED.

Street	Database count	Field count	Light count difference	Wattage recorded incorrectly	Comments
GREGG ST	10	10	-	1	One L22 LED (light ID 969) was recorded in the database as a 27W LED.
ROBERTSHAWE CRES	5	4	-1	-	One 27W LED (light ID 886) was recorded in the database but not found on the street.
STAIRS ST	3	3	-	1	One L23 LED (light ID 1194) was recorded in the database as a 27W LED.
BRIDGE ST	11	10	-1	-	One 27W LED was missing near the intersection with Drummond St (light ID 45), the pole appears to have been replaced.
DAVIDSON CRES	1	1	-	1	One L23 LED (light ID 1809) was recorded in the database as a 27W LED.
GEORGE ST (P)	5	6	+1	-	One 27W LED opposite 7 George Street was not recorded in the database.
ORMOND ST	14	15	+1	-	One 27W LED opposite 55B Ormond Street was not recorded in the database.
STANLY ST	14	13	-1	2	One 40W LED (light ID 60) was recorded in the database but not found on the street. One L22 (light ID 62) was recorded in the database as a 27W LED. One L23 (light ID 61) was recorded in the database as a 27W LED.
Grand Total	167	166	5 (+2, -3)	6	

The audit found two additional lights in the field when checking a sample of 167 lights. The accuracy of the database is discussed in **section 3.1**.

Under verandah lights

Under verandah lights in Pahiatua have been replaced with bollard lights. The remaining under verandah lights are believed to be metered through the shop installations.

Festive lights

There are festive lights connected in Woodville, Dannevirke and Eketahuna between December and January each year. The lights are managed by community boards, and TDC advises Tararua Alliance of when to connect and disconnect the lights. The wattage of the lights is unknown, they are not recorded in the database, and there is no process to advise Mercury of when the lights are connected and disconnected.

Recommendation	Description	Audited party comment	Remedial Action
Add festive lights to the database and	Confirm the locations and wattages of the festive lights and add them to	Tararua DC are investigating with the relevant	Investigating

Recommendation	Description	Audited party comment	Remedial Action
communicate connections and disconnections to Mercury Energy	<p>RAMM. Develop a process to communicate these wattages, connection and disconnection dates to Mercury so that they can be correctly included in submission.</p> <p>If any of the lights are attached to poles which are NZTA Waka Kotahi's responsibility, liaise with them to ensure that they are recorded in the correct database.</p>	community boards as need to know the fitting info first. Will then add to RAMM and communicate with Mercury when to include and exclude.	

Audit outcome

Non-compliant

Non-compliance	Description	
<p>Audit Ref: 2.5</p> <p>With: Clause 11(2A) of schedule 15.3</p> <p>From: 01-Jan-24</p> <p>To: 11-Aug-24</p>	<p>Two additional lights in the field of the 167 items of load sampled.</p> <p>There are festive lights connected in Woodville, Dannevirke and Eketahuna between December and January each year. The wattage of the lights is unknown, they are not recorded in the database, and there is no process to advise Mercury of when the lights are connected and disconnected.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: Once</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p>	
Audit risk rating	Rationale for audit risk rating	
Low	The controls are moderate because there is room for improvement, particularly for festive lights. The impact is low based on the expected impact on submission volumes.	
Actions taken to resolve the issue	Completion date	Remedial action status
<p>Tararua DC will be working on correcting discrepancies in the database.</p> <p>Regarding festive lights, Tararua DC are investigating with the relevant community boards as need to know the fitting info first. Will then add to RAMM and communicate with Mercury when to include and exclude.</p>	August/September 2024	Investigating
Preventative actions taken to ensure no further issues will occur	Completion date	
We will continue to work with Tararua DC to ensure that the database and therefore submissions are as accurate as possible.	Ongoing	

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

RAMM records audit trail 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

A database extract was provided, 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	Tararua District Council streetlights
Strata	The database contains the TDC items of load for DUML ICs in the Tararua region. The processes for the management of all TDC items of load are the same, but I decided to place the items of load into two strata: <ul style="list-style-type: none"> • Dannevirke, and • Woodville, Pahiatua and rural.
Area units	I created a pivot table of the roads, and I used a random number generator in a spreadsheet to select a total of 24 sub-units.
Total items of load	167 items of load were checked making up 10.5% of the database wattage.

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 167 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	98.7	Wattage from survey is lower than the database wattage by 1.3%
R _L	95.2	With a 95% level of confidence, it can be concluded that the error could be between -4.8% and +1.8%
R _H	101.8	

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 and the database is accurate within ±5%.

- 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 2 kW lower and 1 kW higher than the database.
- In absolute terms, total annual consumption is estimated to be 2,400 kWh lower than the DUML database indicates.
- There is a 95% level of confidence that the annual consumption is between 8,800 kWh lower and 3,300 kWh p.a. higher than the database indicates.

Scenario	Description
A - Good accuracy, good precision	<p>This scenario applies if:</p> <p>(a) R_H is less than 1.05; and</p> <p>(b) R_L 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 - Poor accuracy, demonstrated with statistical significance	<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 R_L is less than 0.95 or R_H 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>
C - Poor precision	<p>This scenario applies if:</p> <p>(a) the point estimate of R is between 0.95 and 1.05</p> <p>(b) R_L is less than 0.95 and/or R_H 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>

Light description and capacity accuracy

All DUML items of load had non-zero lamp wattages and valid gear wattages except two LED lights (light IDs 2776 and 2802) with a blank gear wattage when zero was expected. Tararua Alliance intends to update the gear wattage to zero.

The previous audit recommended lamp make and model information be expanded to include a more detailed description. This recommendation has been adopted, and the information recorded has been improved.

All lamp and gear wattages recorded were consistent with the expected values.

ICP number accuracy

28 items (2,892 W) with a blank ICP number have a light owner of Local Authority. Tararua Alliance plans to check the lights to confirm whether they are TDC or NZTA Waka Kotahi's responsibility and will update the ICP number and/or light owner and lamp information as appropriate. A recommendation is raised in **section 2.2**.

Change management process

New connection, fault, maintenance, and upgrade work is completed by Scanpower, Centralines and Powerco (directly and also via subcontractor CJ Contracting).

Few new connections occur and there have been no new connections during the audit period. Tararua Alliance inspectors, patrolmen and supervisors and the networks identify faults and maintenance issues which require investigation or work, and TDC issues customer initiated work requests to Tararua Alliance. Tararua Alliance’s supervisors prioritise and programme the work for completion and issue the job to the appropriate field services provider and record the job in RAMM dispatch.

The field services provider who completes the work provides “as built” details, which are checked by the supervisor who updates RAMM dispatch and the “as built” register with the work completion details. The Asset Management team checks the “as built” register daily and updates RAMM with the asset details, including the date that the work was completed.

Tararua Alliance confirmed that there are still sometimes delays in updating RAMM where “as built” plans are not received promptly, or updates are sent to them in batches. Tararua Alliance have been working with field services providers to improve this.

Outage patrols are completed on an ad hoc basis and maintenance issues are identified by Tararua Alliance inspectors, patrolmen and supervisors, the networks and the public reporting outages.

LED lights

97.3% of the lights connected to DUML ICPs are LED, with only 36 sodium lights remaining in the database. Tararua Alliance believes that all lights they are responsible for should have been upgraded. They will check the lights to confirm that they are TDC’s responsibility and arrange for them to be upgraded as required, or for the ICP numbers to be corrected in RAMM.

Recommendation	Description	Audited party comment	Remedial Action
Check sodium lights connected to DUML ICPs	Check the 36 sodium lights connected to DUML ICPs to confirm that TDC is responsible for the load and update RAMM as necessary.	Tararua DC will be investigating.	Investigating

Tararua Alliance has no plans to use dimming or a central management system.

Festive lights

There are festive lights connected in Woodville, Dannevirke and Eketahuna between December and January each year. The wattage of the lights is unknown, they are not recorded in the database, and there is no process to advise Mercury of when the lights are connected and disconnected. A recommendation is raised in **section 2.5**.

Private lights

Tararua Alliance is not aware of any private unmetered lights.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b)	LED lights (light IDs 2776 and 2802) have a blank gear wattage when zero is expected. There are festive lights connected in Woodville, Dannevirke and Eketahuna between December and January each year. The wattage of the lights is unknown, they are not recorded in the database, and there is no process to advise Mercury of when the lights are connected and disconnected. Potential impact: Low Actual impact: Low

From: 15-Jul-24 To: 11-Aug-24	Audit history: Multiple times Controls: Moderate Breach risk rating: 2	
Audit risk rating	Rationale for audit risk rating	
Low	The controls are moderate because there is room for improvement, particularly for festive lights. The impact is low based on the expected impact on submission volumes, and that revised submission information will be washed up.	
Actions taken to resolve the issue	Completion date	Remedial action status
Tararua DC will be working on correcting discrepancies in the database. Regarding festive lights, Tararua DC are investigating with the relevant community boards as need to know the fitting info first. Will then add to RAMM and communicate with Mercury when to include and exclude.	August/September 2024	Investigating
Preventative actions taken to ensure no further issues will occur	Completion date	
We will continue to work with Tararua DC to ensure that the database and therefore submissions are as accurate as possible.	Ongoing	

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

Mercury reconciles this DUML load using the HHR profile. Mercury was granted exemption No. 233, which allowed them to provide HHR submission information instead of NHH submission information for DUML. Clause 8(g) of schedule 15.3 of the Code, which the exemption related to was removed from the Code in 2018, and the exemption is no longer valid. Mercury is planning to apply for a new profile which will allow them to continue to submit the DUML load as HHR.

Wattages are derived from monthly database extracts provided by TDC, and on and off times are derived from a data logger. I checked the submission information for June 2024 and confirmed that the process to calculate submission volumes was operating as expected. Due to an error in calculating the total wattage, the submissions for January 2024 to June 2024 added the count of light IDs to the wattage totals (1,369) resulting in over submission of approximately 2,923 kWh over the six months. Mercury confirmed that their data has been corrected and revised submission data will be washed up.

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.

Mercury is able to produce submissions with different kW values for different days and produces revision submissions where required. The monthly report is provided as a snapshot reflecting the current details for each light on the day the report is generated. Changes are provided along with the monthly extract so that Mercury can calculate the daily unmetered load connected.

Database accuracy

A field audit of a statistical sample of 167 items of load on 11 August 2024 found the database was accurate within ±5%. The database contains some inaccurate information:

Discrepancy	Potential impact on submission
LED lights (light IDs 2776 and 2802) have a blank gear wattage when zero is expected.	Nil
There are festive lights connected in Woodville, Dannevirke and Eketahuna between December and January each year. The lights are managed by community boards, and TDC advises Tararua Alliance of when to connect and disconnect the lights. The wattage of the lights is unknown, they are not recorded in the database, and there is no process to advise Mercury of when the lights are connected and disconnected.	Unknown under submission

Audit outcome

Non-compliant

Non-compliance	Description	
<p>Audit Ref: 3.2</p> <p>With: Clause 15.2 and 15.37B(c)</p> <p>From: 01-Jan-23</p> <p>To: 11-Aug-24</p>	<p>The DUMML load is submitted using HHR profile, without an exemption in place.</p> <p>Due to an error in calculating the total wattage the submissions for January 2024 to June 2024 added the count of light IDs to the wattage totals (1,369) resulting in over submission of approximately 2,923 kWh over the six months. Mercury confirmed that their data has been corrected and revised submission data will be washed up.</p> <p>LED lights (light IDs 2776 and 2802) have a blank gear wattage when zero is expected.</p> <p>There are festive lights connected in Woodville, Dannevirke and Eketahuna between December and January each year. The wattage of the lights is unknown, they are not recorded in the database, and there is no process to advise Mercury of when the lights are connected and disconnected.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: Multiple times</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p>	
Audit risk rating	Rationale for audit risk rating	
Low	<p>The controls are recorded as moderate because there is room for improvement, particularly for festive lights.</p> <p>The impact is low based on the expected impact on submission volumes, and that revised submission information will be washed up.</p>	
Actions taken to resolve the issue	Completion date	Remedial action status
<p>We are in the process of drafting applications for DUMML profiles that allow us to submit as HHR, we will submit to the EA as soon as possible. August/September 2024</p> <p>We have corrected the calculation error and revised submission data will be washed up in the coming months.</p> <p>Tararua DC will be working on correcting discrepancies in the database.</p> <p>Regarding festive lights, Tararua DC are investigating with the relevant community boards as need to know the fitting info first. Will then add to RAMM and communicate with Mercury when to include and exclude.</p>	August/September 2024	Investigating
Preventative actions taken to ensure no further issues will occur	Completion date	
We will continue to work with Tararua DC to ensure that the database and therefore submissions are as accurate as possible.	Ongoing.	

CONCLUSION

A field audit of a statistical sample of 167 items of load on 11 August 2024 found the database was accurate within $\pm 5\%$.

The audit found five non-compliances and makes four recommendations. The future risk rating of 9 indicates that the next audit be completed in 12 months. Taking into consideration that:

- the database is accurate within $\pm 5\%$,
- the submission errors for January to June 2024 have been corrected and revised submission information will be washed up,
- the database accuracy non-compliances either had no impact (missing LED gear wattages for two lights) or a low impact (festive lights connected for two months each year which are excluded from the database), and
- Tararua Alliance intends to adopt all the recommendations,

I recommend that the next audit is completed in a minimum of 18 months on 1 March 2026.

The matters raised are detailed in the table below:

PARTICIPANT RESPONSE

Thank you to Tara for her work and support on this audit.