

ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

VERITEK

For

WAIMATE DISTRICT COUNCIL AND
GENESIS ENERGY LIMITED

NZBN: 9429038698279

Prepared by: Rebecca Elliot

Date audit commenced: 11 January 2023

Date audit report completed: 27 January 2023

Audit report due date: 31-Mar-23

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EXECUTIVE SUMMARY

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

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

The database is remotely hosted by thinkproject New Zealand Limited. WDC provide a monthly report to Genesis of this database. Genesis reconciles the WDC DUML load using the SST profile. Wattages are derived from a RAMM database extract. On and off times are derived from a data logger.

The field work and asset data capture are conducted by NetCon.

ICP 0000175690WT219 was previously included in this audit and switched to Meridian as of 27 October 2022.

The field audit was undertaken of a statistical sample of 108 items of load on 19th January 2023, This found that the database is within the allowable +/-5% accuracy threshold.

WDC has completed a LED roll-out since the last audit. Some issues were identified in the field audit with regard to the wattage recorded in the database, WDC are investigating the discrepancies and will correct the database.

The audit found one non-compliance and makes no recommendations. The future risk rating of two indicates that the next audit be completed in 24 months. I agree that the next audit be in 24 months, from the date the audit was due.

The matters raised are detailed below:

AUDIT SUMMARY

NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Database accuracy	3.1	Clause 15.2 and 15.37B(b)	The field audit identified 34 lamps which had incorrect lamp wattages and lamp descriptions recorded.	Low	Moderate	2	Identified
Future Risk Rating						2	

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	Clause	Recommendation
Nil			

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

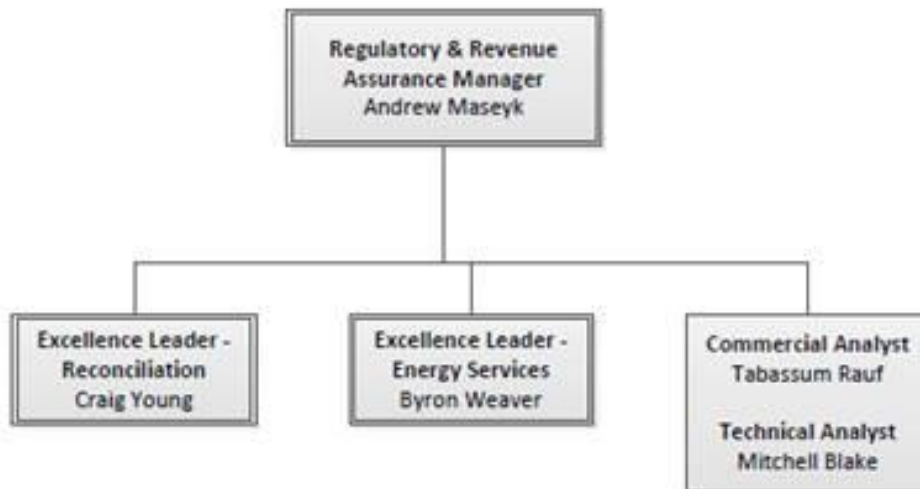
Section 11 of the Electricity Industry Act provides for the Electricity Authority to exempt any participant from compliance with all or any of the clauses.

Audit commentary

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

1.2. Structure of Organisation

Genesis provided a copy of their organisational structure:



1.3. Persons involved in this audit

Auditor:

Name	Title	
Rebecca Elliot	Auditor	Veritek Ltd
Claire Stanley	Supporting Auditor	Veritek Ltd

Other personnel assisting in this audit were:

Name	Title	Company
Nirav Teli	DUML Data & Stakeholder Lead	Genesis Energy
Shelley Wilson	Roading Assistant	Waimate District Council
Catherine Bennett	Road Asset Information Technician	Waimate District Council

1.4. Hardware and Software

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

WDC confirmed that the database back-up is in accordance with standard industry procedures. Access to the database is secure by way of password protection.

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

1.5. Breaches or Breach Allegations

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

1.6. ICP Data

The following ICP is relevant to the scope of this audit:

ICP Number	Description	NSP	Profile	Number of items of load	Total Database wattage (watts)
000000002AL627	Streetlighting	STU0111	SST	624	42,139
TOTAL				624	42,139

ICP 0000175690WT219 was previously included in this audit and switched to Meridian as at 27.10.22.

1.7. Authorisation Received

All information was provided directly by Genesis and WDC.

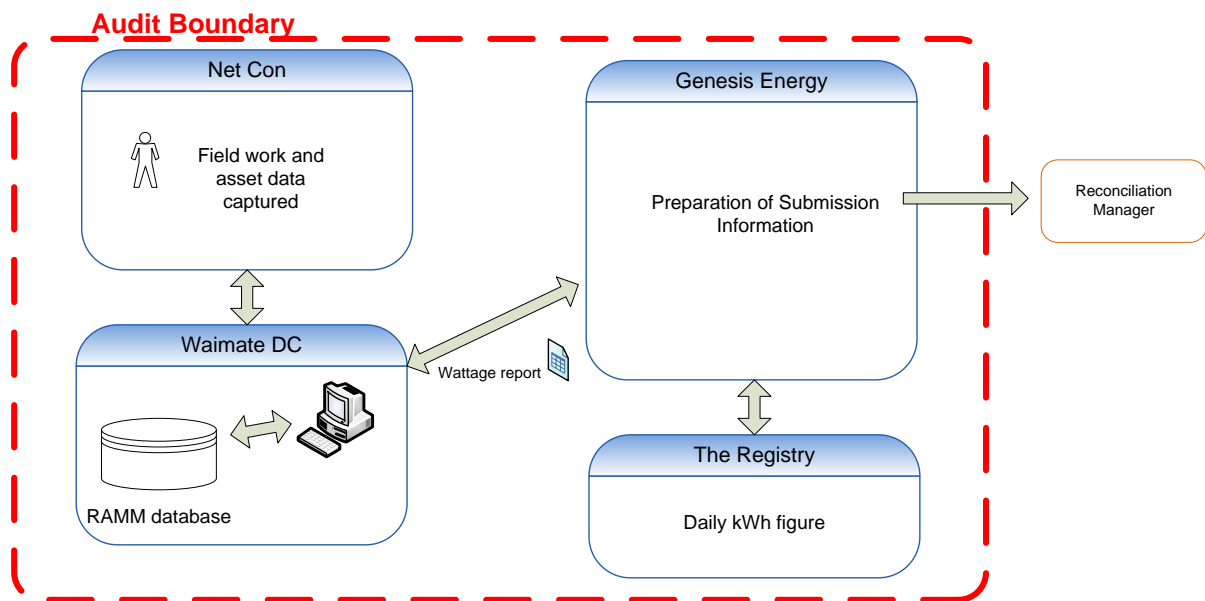
1.8. Scope of Audit

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

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

The field work is undertaken by NetCon. WDC manage their streetlight data in RAMM.

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 108 items of load on 19th January 2023.

1.9. Summary of previous audit

The last audit was undertaken by Rebecca Elliot of Veritek Limited in September 2021. The results are shown below.

Table of Non-Compliance

Subject	Section	Clause	Non-Compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	Estimated over submission of 886 kWh p.a. due to use of the registry daily kWh field instead of the database total kW.	Cleared
			Incorrect SST profile for ICP 000000002AL627.	Cleared
			Festive lighting is connected but the volume is not recorded in the database.	Cleared
			The use of the registry figures for reconciliation does not track changes at a daily basis.	Cleared

Subject	Section	Clause	Non-Compliance	Status
Description and capacity of load	2.4	11(2)(c) and (d) of Schedule 15.3	Eight items of load do not have Lamp make and model, Gear model or Lamp and Gear Wattage recorded in the database.	Cleared
Database accuracy	3.1	15.2 and 15.37B(b)	Eight items of load do not have Lamp make and model, Gear model or Lamp and Gear Wattage recorded in the database	Cleared
Volume information accuracy	3.2	15.2 and 15.37B(c)	Estimated over submission of 886 kWh p.a. due to use of the registry daily kWh field instead of the database total kW.	Cleared
			Incorrect SST profile for ICP 000000002AL627.	Cleared
			Festive lighting is connected but the volume is not recorded in the database.	Cleared
			The use of the registry figures for reconciliation does not track changes at a daily basis.	Cleared

1.10. Distributed unmetered load audits (Clause 16A.26 and 17.295F)

Code reference

Clause 16A.26 and 17.295F

Code related audit information

Retailers must ensure that DUML database audits are completed:

- 1. by 1 June 2018 (for DUML that existed prior to 1 June 2017)*
- 2 within three months of submission to the reconciliation manager (for new DUML) within the timeframe specified by the Authority for DUML that has been audited since 1 June 2017.*

Audit observation

Genesis have requested Veritek to undertake this streetlight audit.

Audit commentary

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

2. DUML DATABASE REQUIREMENTS

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

Code reference

Clause 11(1) of Schedule 15.3

Code related audit information

The retailer must ensure the:

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

Audit observation

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

Audit commentary

Genesis reconciles this DUML load as NHH using the SST profile, and on hours are derived using data logger information.

The total volume submitted to the Reconciliation Manager is based on a monthly database report derived from the Waimate RAMM database and the “burn time” which is sourced from data logger. The methodology is compliant.

I checked the submission data for December 2022 and confirmed the calculation was correct.

The field audit indicated that the database was within the allowable +/-5% variance threshold and is therefore deemed to be accurate. This is discussed in **section 3.1**.

Festive lights are managed by the Information Centre. A contractor from Oamaru is used to install and then remove the lights. WDC have details recorded in RAMM for the festive lights and capture relevant notes so that they are identifiable. Genesis is advised of the additional load when the festive lights are used.

The monthly reporting identifies changes so that it is clear in the reporting to the trader there has been a change in the field.

Audit outcome

Compliant

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 number recorded.

Audit outcome

Compliant

2.3. Location of each item of load (Clause 11(2)(b) of Schedule 15.3)

Code reference

Clause 11(2)(b) of Schedule 15.3

Code related audit information

The DUMML database must contain the location of each DUMML item.

Audit observation

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

Audit commentary

All items of load have a road name and location recorded. All items of load also have a pole number and GPS co-ordinates recorded to assist with the location of the items.

Audit outcome

Compliant

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

Code reference

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

Code related audit information

The DUMML database must contain:

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

Audit observation

The database was checked to confirm that it contained a field for 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

The extract provided has fields for Lamp Make, Lamp Model, Lamp Wattage and Gear Wattage, and all were populated.

The accuracy of the lamp wattages and ballasts is discussed in **section 3.1**.

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 108 items of load on 19th January 2023.

Audit commentary

The field audit discrepancies found are detailed in the table below.

Address	Database Count	Field Count	Count differences	Wattage differences	Comments
EATON STREET	2	2		2	2 x 27W LED recorded in the database but 2 x 22W LED located in the field
GOLDSMITH STREET	3	3		3	3 x 27W LED recorded in the database but 3 x 22W LED located in the field
INNES STREET	5	5		2	2 x 19.9 W LED recorded in the database but 2 x 22W LED located in the field
KENNEDY CRESCENT	4	4		4	4 x 27W LED recorded in the database but 4 x 22W LD located in the field
PAUL STREET	9	9		8	8 x 27W LED recorded in the database but 8 x 22W LED located in the field
RUGBY STREET	5	5		5	5 x 27W LED recorded in the database but 5 x 22W LED located in the field
WILKIN STREET	10	10		10	10 x 27W LED recorded in the database but 10 x 22W LED located in the field
Total	624	624	Nil	34	

The field audit did not find any additional lamps in the field of 108 items of load sampled. The database accuracy is discussed in **section 3.1**.

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

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

Audit observation

The database was checked for audit trails.

Audit commentary

RAMM records audit trail information of changes made.

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	Waimate District Council region
Strata	The database contains items of load in Waimate District Council area. The processes for the management of WDC items of load are the same, but I decided to place the items of load into three strata, based on pole owner, as follows: <ol style="list-style-type: none"> 1. A – M street name 2. N – Z street name 3. NZTA.
Area units	I created a pivot table of the roads in each area, and I used a random number generator in a spreadsheet to select a total of 25 sub-units.
Total items of load	108 items of load were checked.

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

Audit commentary

A field audit was conducted of a statistical sample of 108 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	97.1	Wattage from survey is lower than the database wattage by 2.9%
R _L	95.4	With a 95% level of confidence, it can be concluded that the error could be between -4.6% and -1.4%
R _H	98.6	

These results were categorised in accordance with the “Distributed Unmetered Load Statistical Sampling Audit Guideline”, effective from 1 February 2019. The table below shows that Scenario A (detailed below) applies, and the best available estimate indicates that the database is accurate within $\pm 5.0\%$.

In absolute terms the installed capacity is estimated to be 1.0 kW lower than the database indicates.

There is a 95% level of confidence that the installed capacity is between -2.0 kW and -1.0 kW lower than the database.

In absolute terms, total annual consumption is estimated to be 5,200 kWh lower than the DUMML database indicates.

There is a 95% level of confidence that the annual consumption is between -8,300 kWh p.a. and -2,500 kWh p.a. higher than the database indicates.

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

Lamp description and capacity accuracy

As discussed in **section 2.4**, all items of load have a gear model, light model, light wattage and gear wattage recorded, and no items have invalid zero lamp or gear wattages.

The database was checked against the published standardised wattage table, and manufacturer’s specifications where available. No lamp or gear wattage inaccuracies were identified.

The field audit identified 34 lamps which had incorrect lamp wattages and lamp descriptions recorded, which are detailed in **section 2.5**.

Change management process findings

The processes were reviewed for ensuring that changes in the field are captured, there have not been any change to the processes. Alpine Energy’s contracting company, NetCon remains the contractor for streetlight maintenance and new connections. There are very few new streetlight connections in the WDC area. All new streetlight connections or removals follow the “new connections” process and a “streetlight movements” form is required to be completed. WDC add new lights to the RAMM database.

Regular monthly reporting is provided to Genesis. The monthly reporting identifies changes so that it is clear in the reporting to the trader there has been a change in the field.

Festive lights are managed by the Information Centre. A contractor from Oamaru is used to install and then remove the lights. WDC have details recorded in RAMM for the festive lights and capture relevant notes so that they are identifiable. Genesis is advised of the additional load when the festive lights are used.

WDC has completed a LED roll-out since the last audit. Some issues were identified in the field audit with regard to the wattage recorded in the database, WDC are investigating the discrepancies and will correct the database.

Monthly outage patrols are carried out by NetCon. If they identify any issues, they advise WDC who then provide a work instruction to fix the lamp. This process is in place to ensure they are across any issues with the LED lights that have been rolled out.

Non-compliance	Description		
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 04-Mar-22 To: 26-Jan-23	The field audit identified 34 lamps which had incorrect lamp wattages and lamp descriptions recorded. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	The controls are recorded as moderate because they mitigate risk most of the time but there is room for improvement. The impact is assessed to be low based on the wattage difference of 155.8 W or 665 kWh p.a.		
Actions taken to resolve the issue		Completion date	Remedial action status
Genesis has reviewed the auditors finding and have advised WDC of the discrepancy with the intent that WDC makes every effort to ensure the exceptions are rectified.		01/08/2023	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Genesis relies on WDC to accurately maintain its database.		01/08/2023	

Audit outcome

Non-compliant

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

Genesis reconciles this DUML load as NHH using the SST profile, and on hours are derived using data logger information.

The total volume submitted to the Reconciliation Manager is based on a monthly database report derived from the Waimate RAMM database and the “burn time” which is sourced from data logger. The methodology is compliant.

I checked the submission data for December 2022 and confirmed the calculation was correct.

The field audit indicated that the database was within the allowable +/-5% variance threshold and is therefore deemed to be accurate. This is discussed in **section 3.1**.

Festive lights are managed by the Information Centre. A contractor from Oamaru is used to install and then remove the lights. WDC have details recorded in RAMM for the festive lights and capture relevant notes so that they are identifiable. Genesis is advised of the additional load when the festive lights are used.

The monthly reporting identifies changes so that it is clear in the reporting to the trader there has been a change in the field.

Audit outcome

Compliant

CONCLUSION

WDC manage the database and produce the wattage report for Genesis, and this is used to update the registry daily kWh field, which is used for submission purposes.

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

The database is remotely hosted by thinkproject New Zealand Limited. WDC provide a monthly report to Genesis of this database. Genesis reconciles the WDC DUML load using the SST profile. Wattages are derived from a RAMM database extract. On and off times are derived from a data logger.

The field work and asset data capture are conducted by NetCon.

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The audit found one non-compliance and makes no recommendations. The future risk rating of two indicates that the next audit be completed in 24 months. I agree that the next audit be in 24 months, from the date the audit was due.

PARTICIPANT RESPONSE