ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

VERITEK

For

WAITAKI DISTRICT COUNCIL AND GENESIS ENERGY LIMITED

Prepared by: Rebecca Elliot

Date audit commenced: 20 March 2020

Date audit report completed: 1 May 2020

Audit report due date: 01-May-20

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EXECUTIVE SUMMARY

This audit of the Waitaki 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 largely conducted in accordance with the audit guidelines for DUML audits version 1.1. A field audit was not undertaken due to the restrictions imposed by the Covid-19 lockdown; therefore, the following checks were conducted:

- New connection records were checked for two new streetlight circuits in the new subdivisions.
- Results of the 2019 field audit were checked to ensure the database was updated.

The WDC boundary is part of both Network Waitaki and OtagoNet (Child Company of PowerNet). WDC manages a RAMM database for the entire area, which is used for submission purposes. WDC sends a monthly report to Genesis Energy.

The audit found four non-compliance issues in relation to this DUML database and processes and makes no recommendations.

There were some minor inaccuracies found in the database and a review of the previous audit findings found that most errors had been addressed.

The new connection process has been reviewed and updated to ensure that appropriate approval is gained from the network and new lights are recorded in the database.

The future risk rating of 4 indicates that the next audit be completed in 24 months. I agree with this recommendation.

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	The database has minor inaccuracies resulting in an over submission of 286 kWh per annum. 14 items of load have the incorrect wattage applied in the DUML database resulting in an estimated over submission of 217.8 kWh per annum. Database discrepancies not corrected from last audit resulting in an estimated over submission of 4,903 kWh per annum. The monthly database extract provided does not track	Strong	Low	1	Identified

			changes at a daily basis and is provided as a snapshot.				
Description and capacity of load	2.4	11(2)(c) and (d) of Schedule 15.3	2 missing lamp wattages 1 missing ballast 1 missing make/model 3 ballasts still recorded for LED.	Strong	Low	1	Identified
Database accuracy	3.1	15.2 and 15.37B(b)	The database has minor inaccuracies resulting in an over submission of 286 kWh per annum. 14 items of load have the incorrect wattage applied in the DUML database resulting in an estimated over submission of 217.8 kWh per annum. Database discrepancies not corrected from last audit resulting in an estimated over submission of 4903 kWh per annum.	Strong	Low	1	Identified
Volume information accuracy	3.2	15.2 and 15.37B(c)	The database has minor inaccuracies resulting in an over submission of 286 kWh per annum. 14 items of load have the incorrect wattage applied in the DUML database resulting in an estimated over submission of 217.8 kWh per annum. The data used for submission does not track changes at a daily basis and is provided as a snapshot.	Strong	Low	1	Identified
					Future Risk Rating	**4**	

Future risk rating	1-3	4-6	7-8	9-17	18-26	27+
Indicative audit frequency	36 months	24 months	18 months	12 months	6 months	3 months

RECOMMENDATIONS

Subject	Section	Description	Recommendation

ISSUES

Subject	Section	Description	Issue

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

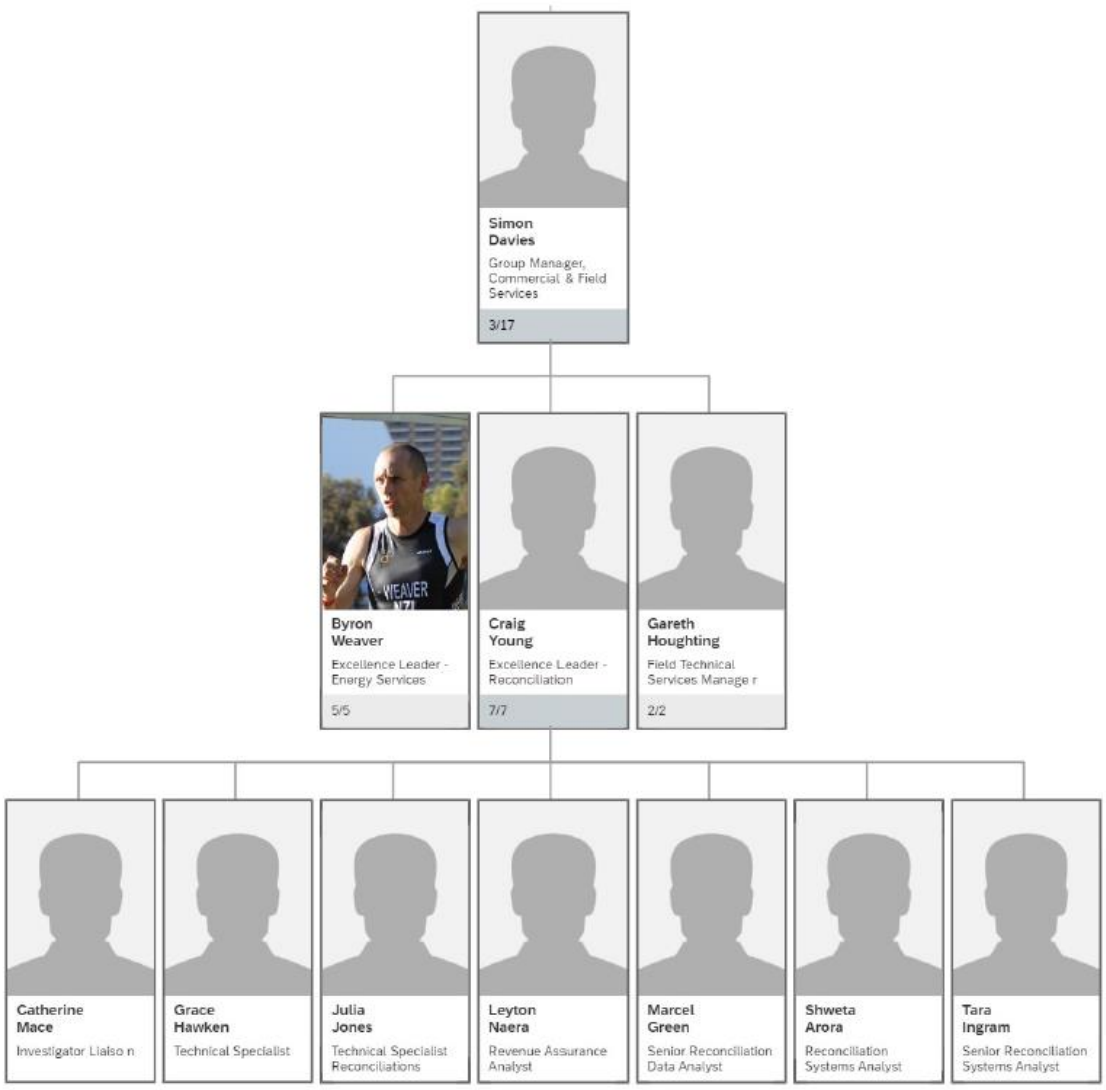
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

Audit commentary

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

1.2. Structure of Organisation

Genesis Energy provided a copy of their organisational structure.



1.3. Persons involved in this audit

Auditor:

Rebecca Elliot

Veritek Limited

Electricity Authority Approved Auditor

Supporting Auditor:

Brett Piskulic

Veritek Limited

Electricity Authority Approved Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Rodger McGaw	Road Network Engineer	Waitaki District Council
Craig Young	Excellence Leader - Reconciliation	Genesis Energy
Grace Hawken	Technical Specialist - Reconciliations Team	Genesis Energy

1.4. Hardware and Software

WDC uses a RAMM database for the management of DUML information. This data resides on RAMM's server in Auckland, and back-up is in accordance with standard industry procedures. Access to the spreadsheet is secure by way of password protection.

1.5. Breaches or Breach Allegations

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

1.6. ICP Data

The following ICPs are relevant to the scope of this audit:

ICP Number	Description	GXP	Profile	Number of items of load	Database wattage (watts)
0001982402TG5FC OtagoNet	WDC STREETLIGHTS	HWB1101	SST	153	5,969
0000050700WTE7B Network Waitaki	Streetlighting GXP OAM 0331	OAM0331	SST	1,994	96,708.6
0000050710WT4D6 Network Waitaki	Streetlights GXP TWZ 0331	TWZ0331	SST	126	5,519

0000050720WT32E Waitaki Power	Streetlighting GXP WTK 0111	WTK0111	SST	205	9,597
			Totals	**2,478**	**117,793.6**

1.7. Authorisation Received

All information was provided directly by Genesis and WDC.

1.8. Scope of Audit

This audit of the Waitaki 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.

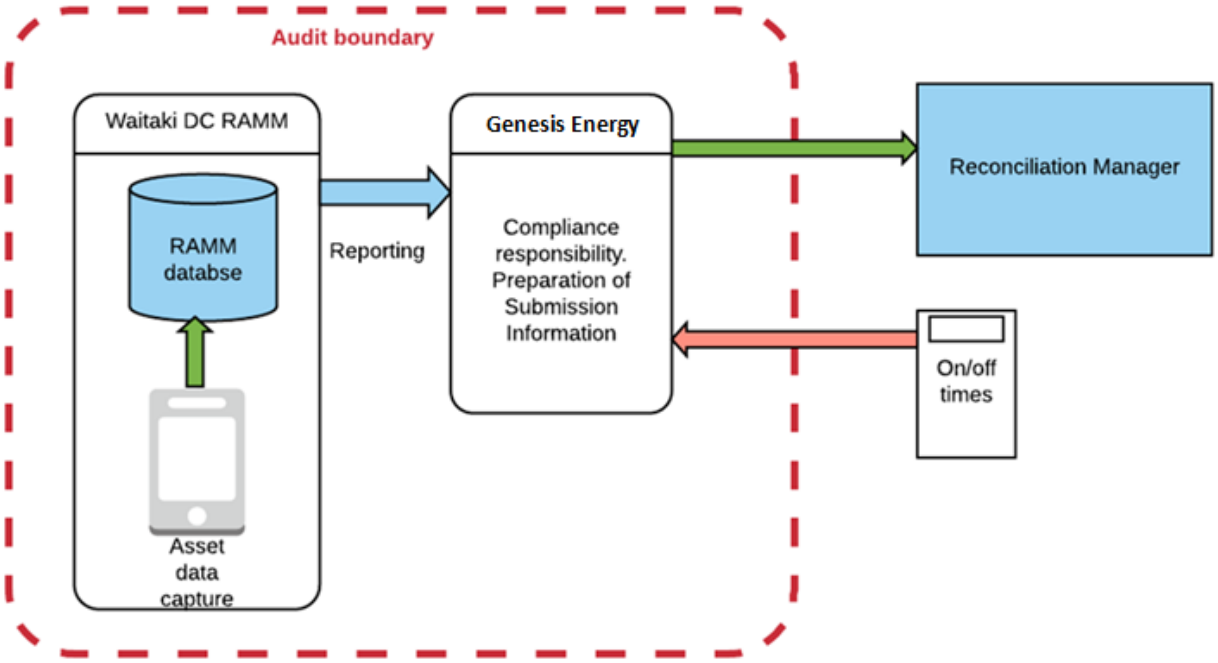
The audit was largely conducted in accordance with the audit guidelines for DUML audits version 1.1. A field audit was not undertaken due to the restrictions imposed by the Covid-19 lockdown; therefore, the following checks were conducted:

- New connection records were checked for two new streetlight circuits in the new subdivisions.
- Results of the 2019 field audit were checked to ensure the database was updated.

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.

Genesis uses the monthly report received from Waitaki DC as a basis for their submission calculation.

The diagram below shows the audit boundary for clarity.



1.9. Summary of previous audit

The previous audit was completed in March 2019 by Steve Woods of Veritek. The current status of that audit's findings is detailed below:

Table of Non-Compliance

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	Over submission has occurred of approx. 16,000 kWh per annum due to database inaccuracies and there is under submission of approx. 705 kWh per annum due to database inaccuracies.	Still existing to a lesser extent.
ICP identifier and items of load	2.2	11(2)(a) and (aa) of Schedule 15.3	There are four items of load that do not have an ICP identifier recorded against them in the database	Cleared
Description and capacity of load	2.4	11(2)(c) and (d) of Schedule 15.3	2 missing lamp wattages 1 missing make/model 2 ballast still recorded for LED	Still existing
Database accuracy	3.1	15.2 and 15.37B(b)	The database has minor inaccuracies The field data was 64.8% of the database data for the sample checked. Indicating over submission of 60,400 kWh per annum	Still existing to a lesser extent.
Volume information accuracy	3.2	15.2 and 15.37B(c)	Over submission has occurred of approx. 16,000 kWh per annum due to database inaccuracies and there is under submission of approx. 705 kWh per annum due to database inaccuracies	Still existing to a lesser extent.

Table of Recommendations

Subject	Section	Recommendation for Improvement	Status
Tracking of Load Changes	2.6	Develop a process for new connections to ensure all items of load are recorded from the correct date.	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 3 months of submission to the reconciliation manager (for new DUML)*
3. *within the timeframe specified by the Authority for DUML that has been audited since 1 June 2017.*

Audit observation

Genesis have requested Veritek to undertake this streetlight audit.

Audit commentary

This audit report confirms that the requirement to conduct an audit has been met for this database within the required timeframe. 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 using the SST profile. The registry shows SST profile for all of these WDC ICPs.

Submissions are based on the RAMM database report provided by WDC.

I checked the submissions for February 2020, and I confirmed that the calculation method and total was correct.

The database has minor inaccuracies resulting in an over submission of 286 kWh per annum. This is detailed in **section 3.1.**

14 items of load have the incorrect wattage applied in the DUML database resulting in an estimated over submission of 217.8 kWh per annum. This is detailed in **section 3.1.**

Database discrepancies not corrected from last audit resulting in an estimated over submission of 4,903 kWh per annum as recorded in **section 3.1.**

On 18 June 2019, the Electricity Authority issued a memo confirming that the code requirement to calculate the correct monthly load must:

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

The current data used is a snapshot and this practice is non-compliant.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: 01-Mar-19 To: 17-Mar-20	The database has minor inaccuracies resulting in an over submission of 286 kWh per annum. 14 items of load have the incorrect wattage applied in the DUML database resulting in an estimated over submission of 217.8 kWh per annum. The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot. Database discrepancies not corrected from last audit resulting in an estimated over submission of 4903 kWh per annum as recorded in section 3.1. Potential impact: High Actual impact: Low Audit history: Twice Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as strong because there is sound validation occurring and the main reason for the error is Oamaru Gardens, which will be resolved very soon. The impact on settlement and participants is moderate; therefore the audit risk rating is Medium.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis will continue to work with the council and clear the remaining exceptions.	01/06/2020	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Continue best practices in maintaining the asset database.	01/06/2020	

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 the correct ICP was recorded against each item of load.

Audit commentary

All items of load have an ICP number recorded against them in the database.

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

There is a large proportion of the database that does not have GPS co-ordinates (1,340 lamps), but all items do have street address locations and Pole ID's to assist with Location.

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

The database contains fields to record the lamp make and model. Analysis of the database found a small number of errors, as follows:

Quantity	Finding
2	Missing lamp wattage
1	Missing ballast
2	Missing make/model
3	Ballast still recorded after LED replacement

The accuracy of lamp descriptions, wattages and ballasts is recorded in **section 3.1**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.4 With: Clause 11(2)(c) and (d) of Schedule 15.3 From: 01-May-18 To: 17-Mar-20	2 missing lamp wattages 1 missing ballast 1 missing make/model 3 ballasts still recorded for LED. Potential impact: Medium Actual impact: Low Audit history: Twice Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as strong because they mitigate risk to an acceptable level. Sound validation processes are in place. The impact on settlement and participants is minor; therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis will continue to work with the council and clear the remaining exceptions.	01/06/2020	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Continue best practices in maintaining the asset database.	01/6/2020	

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 2019 field audit was undertaken of a statistical sample of 304 items of load.

Audit commentary

No additional items of load were identified during the 2019 audit.

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

Audit outcome

Compliant

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

Code reference

Clause 11(4) of Schedule 15.3

Code related audit information

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

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

Audit observation

The database was checked for audit trails.

Audit commentary

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

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

The findings of the field audit undertaken during the last audit were reviewed to determine if the database had been updated.

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

Audit commentary

The database was found to contain some inaccuracies.

Lamp description and capacity accuracy

The RAMM database was found to contain a small number of discrepancies which will have an impact on database accuracy. The issues are as follows:

Quantity	Finding
2	Missing lamp wattage
1	Missing ballast
3	Ballast still recorded after LED replacement

The issues above result in an estimated over submission of 286 kWh per annum.

I checked the wattage being applied in the database and found that 14 lamps had a discrepancy when compared to the standardised wattage table. This is detailed in the table below:

Lamp Type	Database Total Lamp Wattage	EA Standardised Total Wattage	Variance	Database Quantity	Estimated Annual kWh effect on consumption
150W Incandescent	168	150	18	3	230.634
100W HPS	111	114	-3	2	-25.626
70W HPS	88	83	5	3	64.065
70W HPS	81	83	-2	6	-51.252
Total estimated annual effect on submission					217.8

The incorrect capacities would result in an estimated over submission of 217.8 kWh per annum (based on annual burn hours of 4,271 as is detailed in the DUML database auditing tool).

Previous field audit findings

I checked if the database had been updated to reflect the findings of the field audit undertaken during the last audit.

Three lamps which couldn't be found have been removed from the database.

There were a number of discrepancies found on the Oamaru Gardens Walkway. Nine 100W incandescent lamps had been replaced with LEDs, the database had not been updated with the change to LED. The database has still not been updated. The database contained six poles recorded as having 100W

incandescent lamps, the field audit found the lamps had been removed. One of these poles has been removed from the database. These discrepancies result in an estimated over submission of 4,903 kWh per annum (based on annual burn hours of 4,271 as is detailed in the DUML database auditing tool). WDC advised that their contractor has recently been to check the lights in Oamaru Gardens and the database will be updated soon.

Change management process findings

The processes were reviewed for new lamp connections and the tracking of load changes due to faults and maintenance.

All changes and new connections are notified through to WDC by the street lighting contractor, Clements Electrical for this region. Clements Electrical update the RAMM database via tablet.

Festive lights are not defined separately in RAMM. The contractor advises WDC and the Network when they are installed and removed. The network records festive lights as a separate item in their monthly report to Genesis.

WDC perform an annual night time audit. At other times maintenance is performed by a street lighting contractor upon receiving a request from WDC.

The new connection process for streetlights was reviewed and updated in consultation with the Network Waitaki. Prior to connection of a new streetlight circuit the contractor submits an application form to Network Waitaki detailing the planned addition. Network Waitaki approves the application and notifies Genesis requesting approval to connect. Once approved by Genesis the connection is authorised and completed by Network Waitaki. The documentation is provided to both Network Waitaki and WDC and the database is updated by the contractor. I checked the documentation which included the forms, drawings and emails for two new streetlight circuits to confirm the process had been followed and the database had been updated to reflect the changes.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 01-Mar-19 To: 17-Mar-20	The database has minor inaccuracies resulting in an over submission of 286 kWh per annum. 14 items of load have the incorrect wattage applied in the DUML database resulting in an estimated over submission of 217.8 kWh per annum. Database discrepancies not corrected from last audit resulting in an estimated over submission of 4,903 kWh per annum. Potential impact: High Actual impact: Low Audit history: Twice Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as strong because there is sound validation occurring and the main reason for the error is Oamaru Gardens, which has plans to resolve. The impact on settlement and participants is minor; therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis will continue to work with the council and clear the remaining exceptions.	01/06/2020	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Continue best practices in maintaining the asset database.	01/06/2020	

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
- checking the database extract combined with the burn hours against the submitted figure to confirm accuracy.

Audit commentary

Submissions are based on the RAMM database report provided by WDC.

I checked the submissions for February 2020, and I confirmed that the calculation method and total was correct.

As detailed in Section 3.1, submitted volumes are not accurate.

The database has minor inaccuracies resulting in an over submission of 286 kWh per annum.

14 items of load have the incorrect wattage applied in the DUML database resulting in an estimated over submission of 217.8 kWh per annum.

Database discrepancies not corrected from last audit resulting in an estimated over submission of 4903 kWh per annum as recorded in **section 3.1.**

On 18 June 2019, the Electricity Authority issued a memo confirming that the code requirement to calculate the correct monthly load must:

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

The current data used is a snapshot and this practice is non-compliant.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: 01-Mar-19 To: 17-Mar-20	The database has minor inaccuracies resulting in an over submission of 286 kWh per annum. 14 items of load have the incorrect wattage applied in the DUML database resulting in an estimated over submission of 217.8 kWh per annum. The data used for submission does not track changes at a daily basis and is provided as a snapshot. Database discrepancies not corrected from last audit resulting in an estimated over submission of 4,903 kWh per annum. Potential impact: High Actual impact: Low Audit history: Twice Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as strong because there is sound validation. The impact on settlement and participants is minor; therefore the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis will continue to work with the council and clear the remaining exceptions.	01/06/2020	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Continue best practices in maintaining the asset database.	01/06/2020	

CONCLUSION

The audit found four non-compliance issues in relation to this DUML database and processes and makes no recommendations.

There were some minor inaccuracies found in the database and a review of the previous audit findings found that most errors had been addressed.

The new connection process has been reviewed and updated to ensure that appropriate approval is gained from the network and new lights are recorded in the database.

The future risk rating of 4 indicates that the next audit be completed in 24 months. I agree with this recommendation.

PARTICIPANT RESPONSE

Genesis Energy is expecting the Oamaru Gardens exceptions to be rectified, at its earliest opportunity. The minor lamp descriptions will be addressed.