ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

For

WHAKATANE DISTRICT COUNCIL
AND GENESIS ENERGY

Prepared by: Steve Woods

Date audit commenced: 3 December 2019

Date audit report completed: 10 December 2019

Audit report due date: 20 December 2019

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EXECUTIVE SUMMARY

This audit of the Whakatane 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.

Genesis continue to use the registry figures and UML profile to calculate submissions. There is a variance between the RAMM database extract, and the kWh figure submitted by Genesis resulting in an estimated annual under submission 30,000 kWh. In addition, the RAMM database is inaccurate, resulting in under submission of approx. 17,400 kWh per annum. Genesis intends to start using the output from WDC's Telensa system for on/off times and possibly for wattage information. The wattage information will need to be checked for accuracy first, because lamps of the same rated wattage do not all have the same reported wattage in Telensa.

Amenity lights were previously recorded in the database against ICP 1000023042BPD32, but they are now recorded against ICP 1000023047BP07D. The assets associated with ICP 1000023061BPCA7 (Murupara amenity lights) are not recorded in the RAMM database and are excluded from this audit. Whakatane DC has a spreadsheet with summary information indicating there are 109 items of load.

This audit found five non-compliances and makes one recommendation.

The future risk rating of 18 indicates that the next audit be completed in six months. I agree with this recommendation.

The matters raised are detailed below:

AUDIT SUMMARY

NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Deriving submission information	2.1	11(1) of Schedule 15.3	Variance found between RAMM database extract and the kWh figure submitted by Genesis resulting in an estimated annual under submission 30,000 kWh	Weak	Medium	6	Identified
Description and capacity of load	2.4	11(2)(c) and (d) of Schedule 15.3	67 items of load with an invalid or incomplete lamp description	Moderate	Low	2	Identified
All load recorded in database	2.5	11(2A) and (d) of Schedule 15.3	Seven additional items of load found in the field sample	Moderate	Low	2	Investigating
Database accuracy	3.1	15.2 and 15.37B(b)	In absolute terms, total annual consumption is estimated to be 17,400 kWh higher than the DUML database indicates. 2 incorrect ballasts. 67 items of load with insufficient description details. Any changes that are made during any given month take effect from the beginning of that month. This process does not account for historic changes or changes within a month. New connections are recorded from the time of vesting, not from the time of livening	Moderate	Low	2	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Volume information accuracy	3.2	15.2 and 15.37B(c)	Variance found between RAMM database extract and the kWh figure submitted by Genesis resulting in an estimated annual under submission 30,000 kWh.	Weak	Medium	6	Identified
Future Risk Rating						18	

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
Deriving submission information	2.1	Liaise with WDC to determine the accuracy of the on/off information and the kWh reporting.

ISSUES

Subject	Section	Description	Issue
		Nil	

1. ADMINISTRATIVE

1.1. Exemptions from Obligations to Comply with Code

Code reference

Section 11 of Electricity Industry Act 2010.

Code related audit information

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

Audit observation

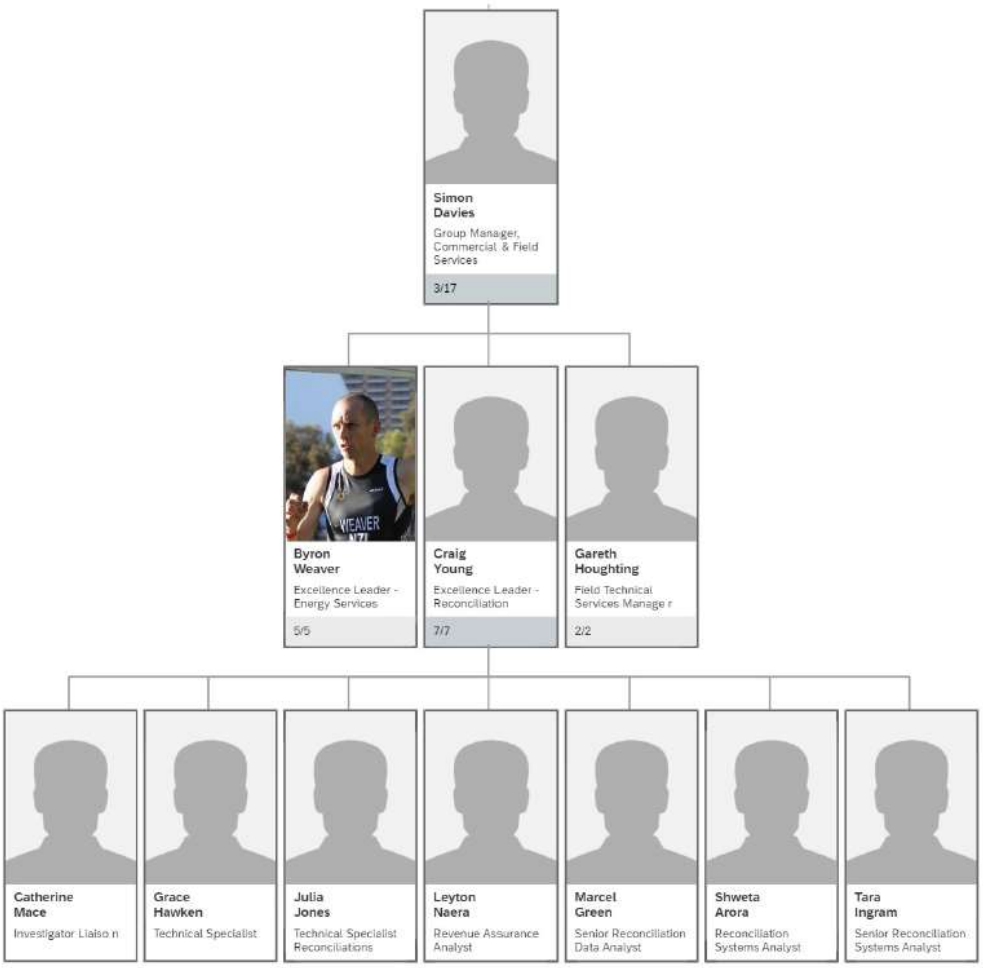
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

Audit commentary

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

1.2. Structure of Organisation

Genesis provided the relevant organisational structure:



1.3. Persons involved in this audit

Auditor:

Steve Woods

Veritek Limited

Electricity Authority Approved Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Craig Young	Excellence Leader - Reconciliation	Genesis Energy
Grace Hawken	Technical Specialist - Reconciliations Team	Genesis Energy
Aidan Glynn	Team Leader – Network Operations	Whakatane DC
Ella Barnfield		Whakatane DC
Ian Molony	Team Leader Open Spaces Operations	Whakatane DC

1.4. Hardware and Software

The SQL database used for the management of DUML is remotely hosted by RAMM Software 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.

The database is backed-up in accordance with standard industry procedures. Access to the database 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

ICP Number	Description	NSP	Profile	Number of items of load	Database wattage (watts)
1000023042BPD32	Amenity Lights WDC	EDG0331	UNM	0	0
1000023060BP0E2	Ruatahuna Streetlights	EDG0331	UNM	199	11,470
1000023047BP07D	Whakatane Streetlights	EDG0331	UNM	2,353	126,977
Total				2,552	138,447

The assets associated with ICP 1000023061BPCA7 (Murupara amenity lights) are not recorded in the RAMM database and are excluded from this audit. Whakatane DC has a spreadsheet with summary information indicating there are 109 items of load.

The items of load associated with ICP 1000023042BPD32 are now recorded against ICP 1000023047BP07D

1.7. Authorisation Received

All information was provided directly by Genesis and WDC.

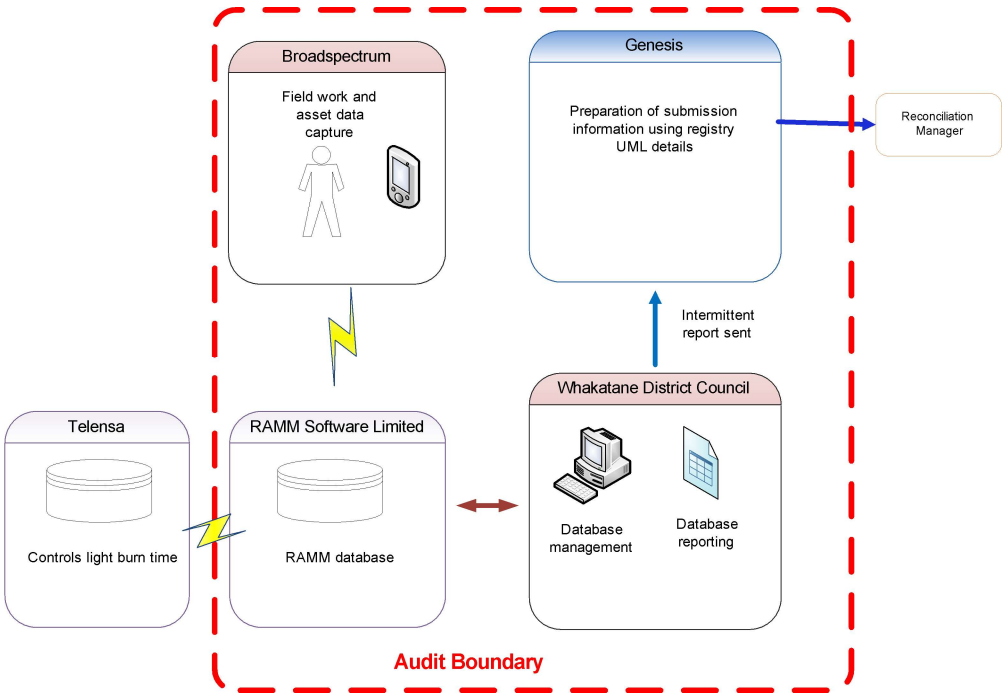
1.8. Scope of Audit

This audit of the Whakatane 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.

A field audit against the RAMM database extract was undertaken to assess the accuracy of this against the registry figures used for submission. Broadspectrum is engaged by WDC and conducts the fieldwork and asset data capture. WDC have installed a central management system called Telensa as part of the LED replacement programme of work. It controls the light burn times and has replaced the network relays previously used. Genesis does not use the output from this system; therefore, I did not check the accuracy of the reporting. Genesis still uses the registry figures for submission.

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



The field audit was undertaken of a statistical sample of 317 items of load.

1.9. Summary of previous audit

The previous audit was completed in April 2019 by Rebecca Elliot of Veritek Limited. 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	Variance found between RAMM database extract and the kWh figure submitted by Genesis resulting in an estimated annual under submission 14,136 kWh. Telensa system used to control lighting without an approved profile.	Still existing
ICP identifier and items of load	2.2	11(2)(a) & (aa) of Schedule 15.3	Items of load associated with ICP 1000023061BPCA7 (Murupara amenity lights) are not recorded in a database.	Cleared
Location of each item of load	2.3	11(2)(b) of Schedule 15.3	Items of load associated with ICP 1000023061BPCA7 (Murupara amenity lights) are not recorded in a database and therefore the location is not recorded.	Cleared
Description and capacity of load	2.4	11(2)(c) and (d) of Schedule 15.3	74 items of load with an invalid or incomplete lamp description. Items of load associated with ICP 1000023061BPCA7 (Murupara amenity lights) are not recorded in a database and therefore the lamp type and capacity are not recorded.	Still existing
All load recorded in database	2.5	11(2A) and (d) of Schedule 15.3	13 additional items of load found in the field sample.	Still existing
Database accuracy	3.1	15.2 and 15.37B(b)	205 items of load with incorrect ballast applied.	Still existing
Volume information accuracy	3.2	15.2 and 15.37B(c)	Variance found between RAMM database extract and the kWh figure submitted by Genesis resulting in an estimated annual under submission 14,136 kWh. Telensa system used to control lighting without an approved profile.	Still existing

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

Code reference

Clause 16A.26 and 17.295F

Code related audit information

Retailers must ensure that DUML database audits are completed:

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

Audit observation

Genesis have requested Veritek to undertake this streetlight audit.

Audit commentary

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

Audit outcome

Compliant

2. DUML DATABASE REQUIREMENTS

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

Code reference

Clause 11(1) of Schedule 15.3

Code related audit information

The retailer must ensure the:

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

Audit observation

The process for calculation of consumption was examined.

Audit commentary

Genesis reconciles this DUML load using the UML profile and the registry daily kWh figure.

I compared the submission volumes with the load recorded in the database extract provided for this audit in November 2019 against the volumes submitted by Genesis and found:

ICPs	Fittings number from November 2019 submission	Fittings number from March 2019 database extract	Differences	kWh value submitted	Calculated kWh value from database	Differences
1000023042BPD32	104	0	+104	3,690	0	3,690
1000023060BP0E2	190	199	-9	4,227	4,095	132
1000023047BP07D	2,009	2353	-344	39,030	45,331	-6,301
Total month kWh difference						-2,479

Annualised this will result in an estimated annual under submission of approx. 30,000 kWh. This is calculated on the difference in the daily kWh figures.

WDC have installed a central management system called Telensa as part of the LED replacement programme of work. This was demonstrated during the site audit. It controls the light burn times and has replaced the networks relays previously used therefore the fixed burn hours used to calculate submission will not be representative of the actual burn hours. This is recorded as non-compliance.

The Telensa system calculates the kWh consumption across the streetlight network and I recommend that Genesis work with WDC to determine the accuracy of the on/off information and the kWh reporting.

Description	Recommendation	Audited party comment	Remedial action
Deriving submission information	Liaise with WDC to determine the accuracy of the on/off information and the kWh reporting	Genesis are currently reviewing all their currently streetlight loggers. Whakatane will be supplying data that supports the current burn time of their assets.	Identified

The lamp ballast accuracy was checked. There were two minor discrepancies. One 67 watt LED has a 13 watt ballast populated and one 100 watt HPS has a 13 watt ballast instead of a 14 watt ballast. These have been passed to WDC to correct. This has no direct impact on submission as no wattage reports have been provided to Genesis. The incorrect wattages applied in the database are recorded as non-compliance in **section 3.1**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: 01-Apr-19 To: 09-Dec-19	Variance found between RAMM database extract and the kWh figure submitted by Genesis resulting in an estimated annual under submission 30,000 kWh. Potential impact: High Actual impact: Medium Audit history: Three times previously Controls: Weak Breach risk rating: 6
Audit risk rating	**Rationale for audit risk rating**
Medium	The controls are rated as weak as the submission is not calculated from the database and the burn hours used to calculate submission are fixed but are variable in the field. The impact is assessed to be medium due to the under submission of approx. 30,000 kWh per annum.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis have spoken with WDC and have identified the areas of concern. WDC have been forthcoming in assisting Genesis and discussing potential solutions. Genesis expects the data accuracy and submission revisions to correct any short fall.	01/03/2020	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis have discussed the audit outcomes with WDC who has confirmed their understanding.	01/03/2020	

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

The RAMM database is used to manage roading assets. Amenity lights were previously recorded in the database against ICP 1000023042BPD32 but they are now recorded against ICP 1000023047BP07D.

The assets associated with ICP 1000023061BPCA7 (Murupara amenity lights) are not recorded in the RAMM database and are excluded from this audit. Whakatane DC has a spreadsheet with summary information indicating there are 109 items of load.

Audit outcome

Compliant

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

Code reference

Clause 11(2)(b) of Schedule 15.3

Code related audit information

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

Audit observation

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

Audit commentary

The database contains either the nearest street address, pole numbers, metres from the end of the carriageway for each item of load.

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 all items of load were recorded.

Audit commentary

Lamp make, model, wattage and ballast wattage are included in the database.

Examination of the database found 67 items of load that had an incomplete or invalid light type recorded:

Lamp Descriptions	Quantity
250W	1
LED	65
MH	1
TOTAL	67

These have been passed to WDC to correct. This is recorded as non-compliance.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.4 With: Clause 11(2)(c) and (d) of Schedule 15.3 From: 01-Apr-19 To: 09-Dec-19	67 items of load with an invalid or incomplete lamp description. Potential impact: Low Actual impact: Low Audit history: Three times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate because the lamp description is correct most of the time. The impact is assessed to be low because the wattages appear to be correct.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis have spoken with WDC and have identified the areas of concern. WDC have been forthcoming in assisting Genesis and discussing potential solutions. Genesis expects the data accuracy and submission revisions to correct any short fall.	01/03/2020	Identified

Preventative actions taken to ensure no further issues will occur	Completion date	
Genesis have discussed the audit outcomes with WDC and monthly data sets will be provided as previously agreed, however never delivered. Genesis will review datasets moving forward.	01/03/2020	

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 field audit was undertaken of a statistical sample of 317 items of load.

Audit commentary

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

I found 13 more lamps in the field than were recorded in the database, and nine lamp wattage differences. This is an improvement from the findings in the last audit. The majority of these differences are as a result of the LED roll out which is still in progress. The roll out is expected to be completed by June 2019 and the database accuracy is expected to stabilise once this is completed.

Street	Database count	Field count	Light count differences	Wattage recorded incorrectly	Comments
BLUETT ROAD	8	9	+1	-	1 x additional 70W HPS found
FARNWORTH CRESCENT	11	12	+1	-	1 x additional 29W LED found
GATEWAY WEST	2	3	+1	-	1 x additional 70W HPS found
HURINUI AVENUE	4	5	+1	-	1 x additional 47W LED found
KAKAHOROA DRIVE/BRACKEN STREET RAB	5	6	+1	-	1 x additional 103W LED found
KAURI STREET	4	5	+1	-	1 x additional 67W LED found
NOEL MILLS PLACE	2	3	+1	-	1 x additional 29W LED found

Street	Database count	Field count	Light count differences	Wattage recorded incorrectly	Comments
WIREMU PLACE	4	3	-1	-	1 x 29W LED not found

I found seven additional lamps in the field than were recorded in the database. One lamp was not found in the field. No wattage discrepancies were identified.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.5 With: Clause 11(2A) and (d) of Schedule 15.3 From: 01-Apr-19 To: 09-Dec-19	Seven additional items of load found in the field sample. Potential impact: High Actual impact: Low Audit history: Three times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as moderate because they ensure the light count is accurate most of the time. The impact is assessed to be low because there were only seven discrepancies.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis have spoken with WDC and have identified the areas of concern. WDC have been forthcoming in assisting Genesis and discussing potential solutions. Genesis expects the data accuracy and submission revisions to correct any short fall.	01/03/2020	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	

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 database tracks additions and removals as required by this clause.

The accuracy of the database is discussed in **section 3.1**.

Festive lighting is connected into the metered circuits and is therefore accounted for in the metered supply.

Some private lights have been identified as a result of the installation of the Telensa system as these lights were no longer turning off with the removal of the Network owned relays. WDC have passed the details of these lights to Horizon to investigate. The outcome of these investigations will need to be examined as part of the next Horizon Distributor audit.

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 contains a complete audit trail of all additions and changes with operator ID to the database information.

Audit outcome

Compliant

3. ACCURACY OF DUML DATABASE

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

Code reference

Clause 15.2 and 15.37B(b)

Code related audit information

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

Audit observation

A RAMM database extract provided in July 2018 has been used to populate the registry unmetered load figures. These are used to calculate submission. A RAMM 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	Whakatane District Council area
Strata	The database contains the items of load in the Whakatane region. The processes for the management of all WDC items of load are the same, but I decided to place the items of load into three strata: 1. Roads A-H 2. Roads I-O 3. Roads P-Z.
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 69 sub-units.
Total items of load	317 items of load were checked.

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

Audit commentary

Database accuracy based on the field audit

A field audit was conducted of a statistical sample of 317 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	102.9	Wattage from survey is higher than the database wattage by 2.9%
R_L	100.9	With a 95% level of confidence it can be concluded that the error could be between 0.9% and 6.0%
R_H	106.0	

These results were categorised in accordance with the "Distributed Unmetered Load Statistical Sampling Audit Guideline", effective from 01/02/19 and the table below shows that Scenario C (detailed below) applies.

The conclusion from Scenario C is that the variability of the sample results across the strata means that the true wattage (installed in the field) could be between 0.9% higher and 6.0% higher than the wattage recorded in the DUML database. Non-compliance is recorded because the potential error is greater than 5.0%.

In absolute terms the installed capacity is estimated to be 4 kW higher than the database indicates.

There is a 95% level of confidence that the installed capacity is between 1 kW higher to 8 kW higher than the database.

In absolute terms, total annual consumption is estimated to be 17,400 kWh higher than the DUML database indicates.

There is a 95% level of confidence that the annual consumption is between 5,300 kWh p.a. higher to 35,400 kWh p.a. higher than the database indicates.

Scenario	**Description**
A - **Good accuracy, good precision**	This scenario applies if: (a) R_H is less than 1.05; and (b) R_L is greater than 0.95 The conclusion from this scenario is that: (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**	This scenario applies if: (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. There is evidence to support this finding. In statistical terms, the inaccuracy is statistically significant at the 95% level
C - **Poor precision**	This scenario applies if: (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 The conclusion from this scenario is that the best available estimate is not precise enough to conclude that the database is accurate within +/- 5 %

Lamp description and capacity accuracy

As recorded in Section 2.4, examination of the database found 67 items of load that had an incomplete or invalid light type recorded:

Lamp Descriptions	Quantity
250W	1
LED	65
MH	1
TOTAL	67

The lamp ballast accuracy was checked. There were two minor discrepancies. One 67 watt LED has a 13 watt ballast populated and one 100 watt HPS has a 13 watt ballast instead of a 14 watt ballast. These have been passed to WDC to correct. This has no direct impact on submission as no wattage reports have been provided to Genesis. The incorrect wattages applied in the database are recorded as non-compliance in **section 3.1**.

NZTA lighting

NZTA lighting is not included in the database. NZTA lighting has separate ICPs.

ICP accuracy

The RAMM database is used to manage roading assets. Amenity lights were previously recorded in the database against ICP 1000023042BPD32 but they are now recorded against ICP 1000023047BP07D.

The assets associated with ICP 1000023061BPCA7 (Murupara amenity lights) are not recorded in the RAMM database and are excluded from this audit. Whakatane DC has a spreadsheet with summary information indicating there are 109 items of load.

Location accuracy

Analysis of the RAMM database extract found compliance.

Change management process findings

Pocket RAMM is used by the contractors to track changes. These are reviewed by WDC before they are accepted into the database.

WDC have installed a central management system called Telensa as part of the LED replacement programme of work. This was demonstrated during the site audit. It controls the lights burn times and has replaced the networks relays previously used. WDC have no plans to use dimming. The impact of the CMS system on the calculation of submission is discussed further in **sections 2.1** and **3.2**.

The Telensa CMS system tracks faults on the network and therefore outage patrols are no longer required. The system also flags if the lamp burn wattage is different to that recorded in the database. This will increase the accuracy of the data in the database. The data from the Telensa system is synchronised with the RAMM database.

The new connection process was discussed. The level of new activity in the WDC area is increasing but is still relatively small. New streetlight circuits get connected by the network, but these do not get added to the RAMM database until the lights are vested to WDC. This can be some months later and therefore the intervening period is not being reconciled. Any changes that are made during any given month take effect from the beginning of that month. This process does not account for historic changes or changes within a month.

Festive lighting is connected into the metered circuits and is therefore accounted for in the metered supply.

Some private lights have been identified as a result of the installation of the Telensa system as these lights were no longer turning off with the removal of the Network owned relays. WDC have passed the details of these lights to Horizon to investigate.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 01-Apr-19 To: 09-Dec-19	In absolute terms, total annual consumption is estimated to be 17,400 kWh higher than the DUML database indicates. 2 incorrect ballasts. 67 items of load with insufficient description details. Any changes that are made during any given month take effect from the beginning of that month. This process does not account for historic changes or changes within a month. New connections are recorded from the time of vesting, not from the time of livening. Potential impact: Medium Actual impact: Medium Audit history: Three times 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 audit risk rating is assessed to be low because the database is not used for submission.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis have spoken with WDC and have identified the areas of concern. WDC have been forthcoming in assisting Genesis and discussing potential solutions. Genesis expects the data accuracy and submission revisions to correct any short fall.	01/03/2020	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis have discussed the audit outcomes with WDC who has confirmed their understanding.	01/03/2020	

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 all ICPs have 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 using the UML profile and the registry daily kWh figure.

I compared the submission volumes with the load recorded in the database extract provided for this audit in November 2019 against the volumes submitted by Genesis and found:

ICPs	Fittings number from November 2019 submission	Fittings number from March 2019 database extract	Differences	kWh value submitted	Calculated kWh value from database	Differences
1000023042BPD32	104	0	+104	3,690	0	3,690
1000023060BP0E2	190	199	-9	4,227	4,095	132
1000023047BP07D	2,009	2353	-344	39,030	45,331	-6,301
Total month kWh difference						-2,479

Annualised this will result in an estimated annual under submission of approx. 30,000 kWh. This is calculated on the difference in the daily kWh figures.

WDC have installed a central management system called Telensa as part of the LED replacement programme of work. This was demonstrated during the site audit. It controls the light burn times and has replaced the networks relays previously used therefore the fixed burn hours used to calculate submission will not be representative of the actual burn hours. This is recorded as non-compliance.

The Telensa system calculates the kWh consumption across the streetlight network and I recommend that Genesis work with WDC to determine the accuracy of the on/off information and the kWh reporting.

The lamp ballast accuracy was checked. There were two minor discrepancies. One 67 watt LED has a 13 watt ballast populated and one 100 watt HPS has a 13 watt ballast instead of a 14 watt ballast. These have been passed to WDC to correct. This has no direct impact on submission as no wattage reports have been provided to Genesis. The incorrect wattages applied in the database are recorded as non-compliance in **section 3.1**.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: 01-Apr-19 To: 09-Dec-19	Variance found between RAMM database extract and the kWh figure submitted by Genesis resulting in an estimated annual under submission 30,000 kWh. Potential impact: High Actual impact: Medium Audit history: Three times previously Controls: Weak Breach risk rating: 6
Audit risk rating	**Rationale for audit risk rating**
Medium	The controls are rated as weak as the submission is not calculated from the database and the burn hours used to calculate submission are fixed but are variable in the field. The impact is assessed to be medium due to the under submission of approx. 30,000 kWh per annum.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis have spoken with WDC and have identified the areas of concern. WDC have been forthcoming in assisting Genesis and discussing potential solutions. Genesis expects the data accuracy and submission revisions to correct any short fall.	01/03/2020	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis have discussed the audit outcomes with WDC who has confirmed their understanding.	01/03/2020	

CONCLUSION

Genesis continue to use the registry figures and UML profile to calculate submissions. There is a variance between the RAMM database extract, and the kWh figure submitted by Genesis resulting in an estimated annual under submission 30,000 kWh. In addition, the RAMM database is inaccurate, resulting in under submission of approx. 17,400 kWh per annum. Genesis intends to start using the output from WDC's Telensa system for on/off times and possibly for wattage information. The wattage information will need to be checked for accuracy first, because lamps of the same rated wattage do not all have the same reported wattage in Telensa.

Amenity lights were previously recorded in the database against ICP 1000023042BPD32, but they are now recorded against ICP 1000023047BP07D. The assets associated with ICP 1000023061BPCA7 (Murupara amenity lights) are not recorded in the RAMM database and are excluded from this audit. Whakatane DC has a spreadsheet with summary information indicating there are 109 items of load.

This audit found five non-compliances and makes one recommendation.

The future risk rating of 18 indicates that the next audit be completed in six months. I agree with this recommendation.

PARTICIPANT RESPONSE

Genesis continue to work with WDC and their Telensa system to meet the requirements.