ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

For

UPPER HUTT CITY COUNCIL AND GENESIS ENERGY

Prepared by: Rebecca Elliot

Date audit commenced: 12 July 2021

Date audit report completed: 17 September 2019

Audit report due date: 1 October 2021

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EXECUTIVE SUMMARY

This audit of the **Upper Hutt City Council (UHCC)** DUML database and processes was conducted at the request of **Genesis Energy (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.

UHCC switched to Genesis Energy from 01/07/2021.

The RAMM database used for submission is managed by UHCC. Fulton Hogan is the streetlight contractor and they update the database using Pocket RAMM. UHCC sends a monthly report to Genesis. The current report is provided as a snapshot. Genesis are working with UHCC to put reporting in place that tracks load change at a daily level.

The database contains three ICPs which include all relevant items of load.

The database contains private lighting. These do not have individual ICPs and are included in the wattage reports. UHCC are reviewing these with the intention to pass them to Wellington Electricity to create standard or shared unmetered load as appropriate before these are removed from the database.

The last audit incorrectly recorded that the UHCC database includes NZTA lighting, but I confirmed that there is no NZTA lighting included, and it has never been included in this database. NZTA lights are managed directly by NZTA and is outside of the scope of this audit.

The audit found that the database did not fall within the required +/-5% accuracy threshold:

- In absolute terms the installed capacity is estimated to be 2 kW lower than the database indicates.
- There is a 95% level of confidence that the installed capacity is between 12.0 kW lower to 5 kW higher than the database.
- In absolute terms, total annual consumption is estimated to be 9,900 kWh lower than the DUML database indicates.
- There is a 95% level of confidence that the annual consumption is between 53,000kWh p.a. lower to 20,600 kWh p.a. higher than the database indicates.

The audit found five non-compliances, and one recommendation is made. The future risk rating of nine indicates that the next audit be completed in 12 months. I have considered this in conjunction with Genesis' comments and 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 is outside of the allowable +/-5% threshold. In absolute terms, total annual consumption is estimated to be 9,900 kWh lower than the DUML database indicates. The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.	Moderate	Low	2	Investigating
Location of each item of load	2.3	11(2)(a) and (d) of Schedule 15.3	506 (13%) items of load do not have sufficient information in the database to be locatable.	Strong	Low	1	Identified
All load recorded in database	2.5	11(2A) of Schedule 15.3	Four items of load not recorded in the database of the sample of 312 items of load checked.	Moderate	Low	2	Investigating
Database accuracy	3.1	15.2 and 15.37B(b)	The database is outside of the allowable +/-5% threshold. In absolute terms, total annual consumption is estimated to be 9,900 kWh lower than the DUML database indicates.	Moderate	Low	2	Investigating
Volume information accuracy	3.2	15.2 and 15.37B(c)	The database is outside of the allowable +/-5% threshold. In absolute terms, total annual consumption is estimated to be 9,900 kWh lower than the DUML database indicates. The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.	Moderate	Low	2	Investigating

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
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

Section	Subject	Description
2.4	Description and capacity of load	Use the STL profile for submission rather than the UML profile.

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

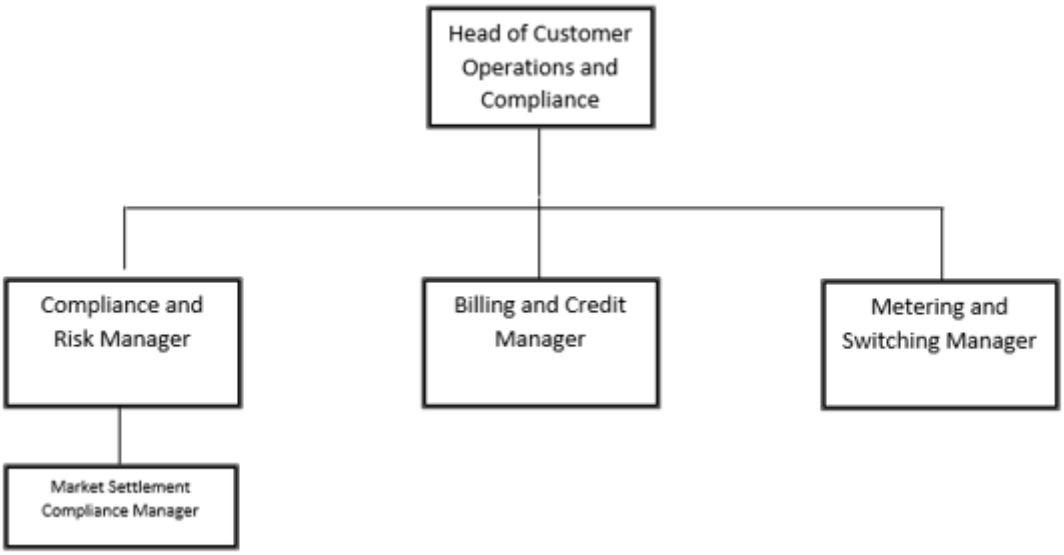
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

Audit commentary

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

1.2. Structure of Organisation

Genesis provided a copy of their organisational structure.



1.3. Persons involved in this audit

Auditor:

Rebecca Elliot

Veritek Limited

Electricity Authority Approved Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Nir Kumar	Senior Roading Engineer - Operations	Upper Hutt City Council
Patrick Hanaray	Roading Manager	Upper Hutt City Council
Craig Young	Rubiks Business Service Owner – Market Settlements and interactions	Genesis
Julia Jones	DUML Data & Stakeholder Lead - Market Settlement Compliance	Genesis

1.4. Hardware and Software

The SQL database used for the management of DUML is remotely hosted by thinkproject New Zealand Limited (formerly RAMM 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.

UHCC confirmed that the database back-up is 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)
0001255307UNA1A	SHP78 Hutt Road	UHT0331	UML	2,274	146,355
0001256870UN363	SHP1 Hutt Road	HAY0111	UML	365	12,620
0001256872UN3E6	SHP30 Hutt Road	HAY0331	UML	1,370	74,760
Total				**4,009**	**233,735**

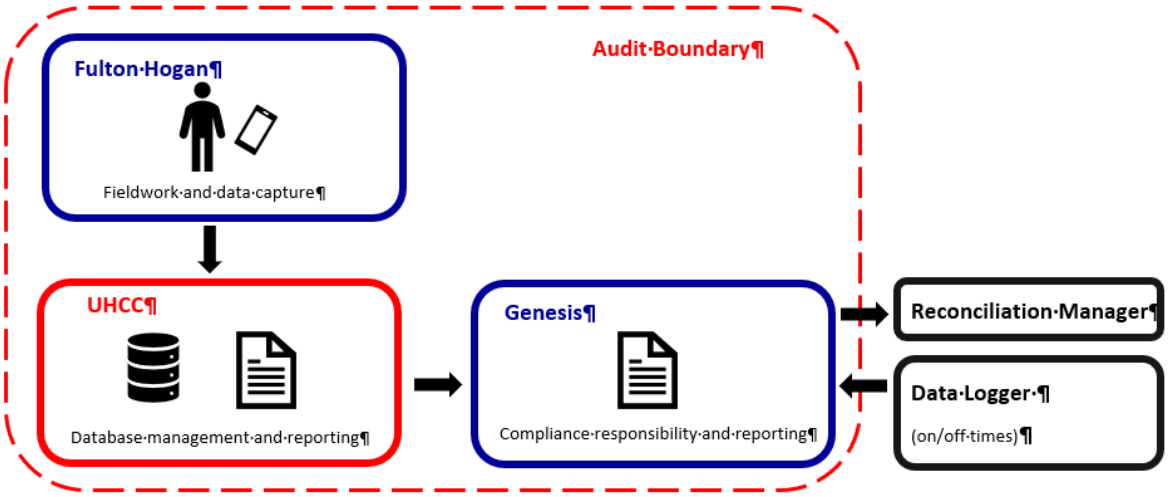
1.7. Authorisation Received

All information was provided directly by Genesis and UHCC.

1.8. Scope of Audit

The RAMM database used for submission is managed by UHCC. Fulton Hogan is the streetlight contractor and they update the database using Pocket RAMM. UHCC sends a monthly report to Trustpower.

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

The field audit was undertaken of a statistical sample of 312 items of load on 10th August 2021.

The database contains private lighting. These do not have individual ICPs and are included in the wattage reports. UHCC are reviewing these with the intention to pass them to Wellington Electricity to create standard or shared unmetered load as appropriate before these are removed from the database.

The last audit incorrectly recorded that the UHCC database includes NZTA lighting, but I confirmed that there is no NZTA lighting included, and it has never been included in this database. NZTA lights are managed directly by NZTA and is outside of the scope of this audit.

1.9. Summary of previous audit

The previous audit was completed in September 2019 by Steve Woods of Veritek Limited. Five non-compliances were identified. The statuses of the non-compliances and recommendation are described below.

Table of Non-compliance

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot. Livening dates not recorded for new connections.	Still existing Cleared

Subject	Section	Clause	Non-compliance	Status
ICP identifier	2.2	11(2)(a) and (d) of Schedule 15.3	Two records with a blank ICP.	Cleared
All load recorded in database	2.5	11(2A) of Schedule 15.3	Four items of load not recorded in the database.	Still existing
Database accuracy	3.1	15.2 and 15.37B(b)	The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot. Livening dates not recorded for new connections.	Still existing Cleared
Volume information accuracy	3.2	15.2 and 15.37B(c)	The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot. Livening dates not recorded for new connections.	Still existing Cleared

Table of Recommendations

Subject	Section	Recommendation	Status
Deriving submission information	2.1	Use the STL profile for submission rather than the UML profile.	N/A as the database has switched traders

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 CST profile. Submissions are based on the database information, with on and off times derived from data logger information.

I checked the submission calculation provided by Genesis and found the calculation was correct from the information provided by UHCC.

The database is outside of the allowable +/-5% threshold. In absolute terms, total annual consumption is estimated to be 9,900 kWh lower than the DUML database indicates. This is recorded as non-compliance below and in **sections 3.1** and **3.2**.

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 monthly report is provided as a snapshot and this practice is non-compliant. The database contains a "light install date" and a "lamp install date". The light install date is populated with the electrical connection date. When a wattage is changed in the database due to a physical change or a correction, only the record present at the time the report is run is recorded, not the historical information showing dates of changes. Genesis is working with UHCC to get appropriate reporting in place.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: 26-Aug-19 To: 31-Jul-21	The database is outside of the allowable +/-5% threshold. In absolute terms, total annual consumption is estimated to be 9,900 kWh lower than the DUML database indicates. The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate as they will mitigate risk most of the time. The impact is assessed to be low, based on the potential database accuracy kWh per annum detailed above.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis has discussed the tracking of change requirement, UHCC will be investigating the ability to extract the information at an asset event level. Genesis has also discussed the need to increase database accuracy.	01/04/2022	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
UHCC was recently acquired as @ July 2021 and is continuing to provide feedback to assist with increasing the database compliance levels. Genesis have established exception reporting off the reports provided by UHCC and will continue to liaise with UHCC to monitor these exceptions.	Continuous improvement	

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 is recorded for each item of load.

Audit commentary

All items of load have an ICP recorded.

The database contains private lighting. These do not have individual ICPs and are included in the wattage reports. UHCC are reviewing these with the intention to pass them to Wellington Electricity to create standard or shared unmetered load as appropriate before these are removed from 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

The database contains fields for the street address and also GPS coordinates. Unlike most RAMM databases, it does not have the RPS values (distance from the end of a road) populated. Only 1,583 of 4,010 records have GPS coordinates. A further 1,921 have a street number that makes them locatable, but the remaining 506 (13%) items of load have only the street name to locate them. RAMM GIS has the location available for all items of load but this has not been imported to the database. UHCC are investigating getting the missing GPS co-ordinates populated.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.3 With: Clause 11(2)(b) of Schedule 15.3 From: 26-Aug-19 To: 31-Jul-21	506 (13%) items of load do not have sufficient information in the database to be locatable. 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 rated as strong, as locations are available in the RAMM GIS but are not populated in the database. The impact is assessed to be low, as this has no effect on reconciliation.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis has discussed the audit findings with the council with the intent that the council makes every effort to ensure the exceptions are rectified.	01/04/2022	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis will provide exception reporting to the council where exceptions have been identified.	Continuous improvement	

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.

Audit commentary

There are lamp make, model, lamp wattage and ballast wattage fields in the database. These were examined and found all were populated with sufficient information to determine the wattage with the exception of 95 items of load that have the light type recorded as unknown. The lamp descriptions are recorded in another lamp model field in RAMM. I recommend that the lamp models recorded as unknown are populated to ensure there is one field with a complete list.

Recommendation	Description	Audited party comment	Remedial action
Description and capacity of load	Populate the lamp model for the 95 items of load with "unknown".	Genesis has discussed the audit findings with the council with the intent the council makes every effort to ensure the exceptions are rectified.	Identified

Audit outcome

Compliant

2.5. All load recorded in database (Clause 11(2A) of Schedule 15.3)

Code reference

Clause 11(2A) of Schedule 15.3

Code related audit information

The retailer must ensure that each item of DUML for which it is responsible is recorded in this database.

Audit observation

The field audit was undertaken of a statistical sample of 312 items of load.

Audit commentary

The field audit discrepancies are detailed in the table below.

Address	Database Count	Field Count	Count differences	Wattage differences	Comments
Ararino Street	42	39	-3	1	2x 24W LED & 1x 73W LED not found in the field. 1x 24W LED recorded as 27W LED
Gard Street	14	11	-3		2x 24W LED & 1x 73W LED not found in the field
Golders Road	14	14		12	12 x 27W LED recorded as 24W LED
King Charles Drive	24	23	-1		1x 27W LED not found in the field
Martin Street	22	24	+2		2 additional 27W LED lights
Seon Place	1	2	+1		1 additional 27W LED light
York Ave	5	5		1	1x 149W LED recorded as 73W LED
Total			**10**	**3**	

This clause relates to lights in the field not recorded in the database. Four additional items of load were found in the field. This is recorded as non-compliance below. The accuracy of the database is detailed in **section 3.1.**

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.5 With: Clause 11(2A) of Schedule 15.3 From: 26-Aug-19 To: 31-Jul-21	Four items of load not recorded in the database of the sample of 312 items of load checked. Potential impact: Low Actual impact: Low Audit history: Once previously Controls: Moderate Breach risk rating: 2		
Audit risk rating	**Rationale for audit risk rating**		
Low	The controls are recorded as moderate as they will mitigate risk most of the time. 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 have raised the field findings with the council and have requested these assets be confirmed and the database updated.		01/04/2022	Investigating
Preventative actions taken to ensure no further issues will occur		**Completion date**	
Genesis unfortunately are unable to aid on missing assets. As the council enters assets into the CMS any missing assets will become clear to see and populated as required.		unknown	

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

UHCC demonstrated a complete audit trail of all additions and changes to the database information.

Audit outcome

Compliant

3. ACCURACY OF DUML DATABASE

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

Code reference

Clause 15.2 and 15.37B(b)

Code related audit information

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

Audit observation

The DUML Statistical Sampling Guideline was used to determine the database accuracy. The table below shows the survey plan.

Plan Item	Comments
Area of interest	UHCC region
Strata	The database contains items of load in Upper Hutt area. The processes for the management of all UHCC items of load are the same, and I decided to create four similar size strata based on road name: • A-Fe • Fer-G • H-N • O-Y
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 42 sub-units.
Total items of load	312 items of load were checked.

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

Audit commentary

Field Audit Findings

A field audit was conducted of a statistical sample of 312 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	99.0	Wattage from survey is lower than the database wattage by 1.0%
R_L	94.7	With a 95% level of confidence it can be concluded that the error could be between -5.3% and +2.1%
R_H	102.1	

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 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 5.3% lower and 2.1% lower 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 2 kW lower than the database indicates.

There is a 95% level of confidence that the installed capacity is between 12.0 kW lower to 5 kW higher than the database.

In absolute terms, total annual consumption is estimated to be 9,900 kWh lower than the DUML database indicates.

There is a 95% level of confidence that the annual consumption is between 53,000kWh p.a. lower to 20,600 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 %

Wattages for all items of load were checked against the published standardised wattage table produced by the Electricity Authority, and the manufacturer's specifications where they were not included in the standardised wattage table. All wattages and ballast wattages were found to be correct.

<u>Wattage and ballast accuracy findings</u>

The database was analysed and found one lamp recorded with a incorrect lamp description XSP1IP66-SINGLE MODULE-52W but there is a 25W LED in the field. This is being corrected.

The following items of load are being investigated to confirm that the correct wattage is recorded for them. They are LED signage that is supplied by a battery that charges off the streetlight circuit. I was unable to confirm if the current wattage recorded is incorrect, so I have recorded compliance.

Item of load	No. of items of load	Wattage recorded
LED Illuminated 40KSchool Zone Sign	2	5
Cyclist Alert LED sign	5	20

Change management process findings

The RAMM database used for submission is managed by UHCC. Fulton Hogan is the streetlight contractor and they update the database using Pocket RAMM. UHCC is installing the Telensa central management system and there are plans to use both static and dynamic dimming in the future. Genesis will be working with them to ensure that there is an appropriate profile used.

I conducted a walkthrough of the new connection process. The lights are recorded in RAMM when an "as built" plan is provided to UHCC, and a field check by the Asset Engineer is completed as part of this process. UHCC notifies Genesis when new lights are ready to be livened, and Genesis provides Wellington Electricity with an approval to liven. The code details that:

Clause 10.33A(4)

No participant may electrically connect a point of connection or authorise the electrical connection of a point of connection, other than a reconciliation participant.

Therefore, when Wellington Electricity electrically connects the streetlight circuit they are doing this as an agent to the trader.

The database contains a "light install date" and a "lamp install date". The light install date is populated with the electrical connection date.

UHCC provides the dates the festive lights are connected to the trader, so they can include or exclude the lights in their submissions as appropriate. I checked the festive light data and expect this will be compliant as UHCC will provide the Genesis with this data and this will be included when connected.

Outage patrols occur periodically but are not as critical now that LED lighting is in place.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 26-Aug-19 To: 31-Jul-21	The database is outside of the allowable +/-5% threshold. In absolute terms, total annual consumption is estimated to be 9,900 kWh lower than the DUML database indicates. Potential impact: Low Actual impact: Low Audit history: Twice previously Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate as they will mitigate risk most of the time. The impact is assessed to be low, based on the potential database accuracy kWh per annum detailed above.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis has requested UPCC review the asset database to ensure all asset information is complete and accurate. Genesis will follow up with the council monthly for exception management. The council is currently reviewing the tracking of change requirement and will work with Genesis to capture monthly asset changes.	Continuous improvement	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
No comment provided		

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 CST profile. Submissions are based on the database information, with on and off times derived from data logger information.

I checked the submission calculation provided by Genesis and found the calculation was correct from the information provided by UHCC.

The database is outside of the allowable +/-5% threshold. In absolute terms, total annual consumption is estimated to be 9,900 kWh lower than the DUML database indicates. This is recorded as non-compliance below and in **sections 2.1** and **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 monthly report is provided as a snapshot and this practice is non-compliant. The database contains a "light install date" and a "lamp install date". The light install date is populated with the electrical connection date. When a wattage is changed in the database due to a physical change or a correction, only the record present at the time the report is run is recorded, not the historical information showing dates of changes. Genesis is working with UHCC to get appropriate reporting in place.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: 26-Aug-19 To: 31-Jul-21	The database is outside of the allowable +/-5% threshold. In absolute terms, total annual consumption is estimated to be 9,900 kWh lower than the DUML database indicates. The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot. Potential impact: Low Actual impact: Low Audit history: Twice previously Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are recorded as moderate as they will mitigate risk most of the time. The impact is assessed to be low, based on the potential database accuracy kWh per annum detailed above.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis has requested UPCC review the asset database to ensure all asset information is complete and accurate. Genesis will follow up with the council monthly for exception management. The council is currently reviewing the tracking of change requirement and will work with Genesis to capture monthly asset changes.	Continuous improvement	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Once monthly database extractions track change, Genesis will be able to provide any anomalies back to the council to review.		

CONCLUSION

UHCC switched to Genesis Energy from 01/07/2021.

The RAMM database used for submission is managed by UHCC. Fulton Hogan is the streetlight contractor and they update the database using Pocket RAMM. UHCC sends a monthly report to Genesis. The current report is provided as a snapshot. Genesis are working with UHCC to put reporting in place that tracks load change at a daily level.

The database contains three ICPs which include all relevant items of load.

The database contains private lighting. These do not have individual ICPs and are included in the wattage reports. UHCC are reviewing these with the intention to pass them to Wellington Electricity to create standard or shared unmetered load as appropriate before these are removed from the database.

The last audit incorrectly recorded that the UHCC database includes NZTA lighting, but I confirmed that there is no NZTA lighting included, and it has never been included in this database. NZTA lights are managed directly by NZTA and is outside of the scope of this audit.

The audit found that the database did not fall within the required +/-5% accuracy threshold:

- In absolute terms the installed capacity is estimated to be 2 kW lower than the database indicates.
- There is a 95% level of confidence that the installed capacity is between 12.0 kW lower to 5 kW higher than the database.
- In absolute terms, total annual consumption is estimated to be 9,900 kWh lower than the DUML database indicates.
- There is a 95% level of confidence that the annual consumption is between 53,000kWh p.a. lower to 20,600 kWh p.a. higher than the database indicates.
- The audit found five non-compliances, and one recommendation is made. The future risk rating of nine indicates that the next audit be completed in 12 months. I have considered this in conjunction with Genesis' comments and agree with this recommendation.

PARTICIPANT RESPONSE

Genesis has discussed the audit findings with UPCC and the importance of tracking of change and the need to increase database accuracy level.

Genesis will provide monthly exception reporting to assist with database accuracy level and agree with the auditors recommended re audit timeframe.