ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

VERITEK

For

PORIRUA CITY COUNCIL
AND GENESIS ENERGY LIMITED

Prepared by: Steve Woods

Date audit commenced: 15 August 2019

Date audit report completed: 3 September 2019

Audit report due date: 06 September 2019

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EXECUTIVE SUMMARY

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

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

The scope of the audit encompasses the collection, security and accuracy of the data, including the preparation of submission information.

A RAMM database is managed by PCC in relation to this load. The database is remotely hosted by RAMM Software Ltd.

Field work and new light installations are carried out by Downer, and the recently completed PCC LED upgrade was completed by Northpower and Fulton Hogan. All contractors update the database using Pocket RAMM. Park lights are managed by the parks team.

There has been minor improvement to the contents of the database, but there are still a significant number of discrepancies. Almost one third of the lamps checked in the field had discrepancies. The only way to ensure the database is accurate is to urgently conduct a complete field audit.

Some of the database content is no longer part of this audit. The table below shows the details.

ICP Number	Description	Comments
1001102038UN6D0	MASTER ICP TRANSIT, STATE HIGHWAY 1, PUKERUA BAY	No longer billed to PCC. A separate NZTA audit will be required for this ICP.
1001102039UNA95	MASTERICP PORIRUA CC, STATE HIGHWAY 1, PUKERUA BAY	No longer billed to PCC. A separate NZTA audit will be required for this ICP.
0000160523CK83F	Greater Wellington Regional Council	The ICP identifier is not present in the database but is in the registry. This ICP is now with another trader and will need a separate audit.

Database accuracy is described as follows:

Result	**Percentage**	**Comments**
The point estimate of R	101.6	Wattage from survey is higher than the database wattage by 1.6%
R_L	94.3	With a 95% level of confidence it can be concluded that the error could be between -5.7% and 12.6%
R_H	112.6	

The variability of the sample results across the strata means that the true wattage (installed in the field) could be between 5.7% lower and 12.6% 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 4.0 kW higher than the database indicates.

There is a 95% level of confidence that the installed capacity is between 14 kW lower to 30 kW higher than the database.

In absolute terms, total annual consumption is estimated to be 16,900 kWh higher than the DUML database indicates.

There is a 95% level of confidence that the annual consumption is between 58,400kWh p.a. lower to 129,900 kWh p.a. higher than the database indicates.

Submission is calculated using "Profile night hours" for some ICPs. The use of "Profile night hours" leads to inaccurate consumption information. "Profile night hours" are the CST profile hours, which are sunset and sunrise hours published by NIWA rounded to the nearest half hour. The CST profile rules do not allow these on/off times to be used to calculate consumption information. The CST profile on/off times can be used to apportion consumption, but the times are too inaccurate to be used for any other purpose. For July 2019 the difference between "Profile night hours" and actual hours derived from a datalogger measuring the on/off signals is 4%.

The future risk rating of 32 indicates that the next audit be completed in three months. This may not be sufficient time to resolve the matters raised and I recommend the Authority considers a 6-month period. 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	Potential over submission of 62,220 kWh p.a. due to incorrect on/off times. Potential under submission of 18,977 kWh p.a. due to incorrect wattages. Incorrect use of CST profile. 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. Database is not confirmed as accurate with a 95% level of confidence as recorded in Section 3.1	Weak	High	9	Investigating

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
ICP identifier and items of load	2.2	11(2)(a) and (aa) of Schedule 15.3	48 items of load do not have an ICP number recorded	Moderate	Low	2	Investigating
Location of each item of load	2.3	11(2)(b) of Schedule 15.3	One item of load does not have sufficient location information to enable it to be readily locatable.	Strong	Low	1	Identified
Description and capacity of load	2.4	11(2)(b) of Schedule 15.3	26 lights have blanks in all fields containing lamp descriptions. 69 lights have zero lamp wattages recorded. 4 lights have zero gear wattages recorded	Moderate	Low	2	Investigating
All load recorded in database	2.5	11(2A) of Schedule 15.3	Eight additional lamps in the field were not recorded in the database.	Moderate	Low	2	Investigating
Database accuracy	3.1	15.2 and 15.37B(b)	1,261 examples of incorrect or incomplete description or capacity information. Database is not confirmed as accurate with a 95% level of confidence. 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 Some light owner discrepancies	Weak	High	9	Investigating
Volume information accuracy	3.2	15.2 and 15.37B(c)	Potential over submission of 62,220 kWh p.a. due to incorrect on/off times.	Weak	High	9	Investigating

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
			Potential under submission of 18,977 kWh p.a. due to incorrect wattages. Incorrect use of CST profile. 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. Database is not confirmed as accurate with a 95% level of confidence as recorded in Section 3.1				
						Future Risk Rating	**32**

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	Description	Recommendation
ICP identifier and items of load	2.1	Missing ICP numbers	Confirm whether lights with missing ICP numbers and owner of "Private" are being reconciled as standard unmetered load or whether shared unmetered load should be created for these lights.

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

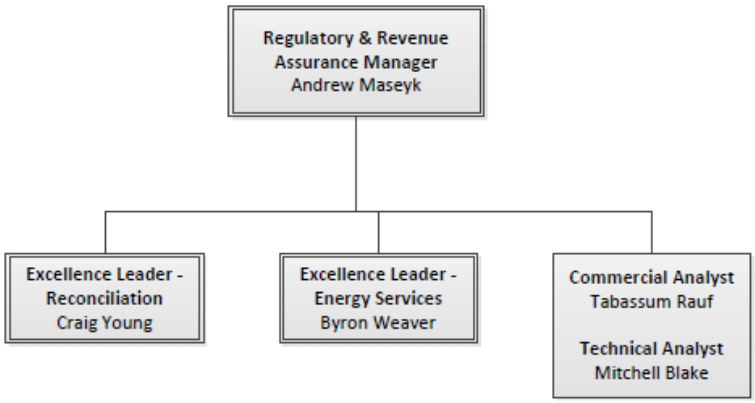
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

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:

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 - Reconciliation Team	Genesis Energy
Jane Pearson	RAMM Technician	Porirua City Council

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".

PCC 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	Registry profile	Number of items of load	Database wattage (watts)
0000023024WE5D5	STREETLIGHTS, AOTEA DRIVE	RPS	15	2,293
0001255308UN5C4	MASTER ICP PORIRUA CC, HUTT ROAD	CST	3,905	177,370
0001256873UNFA3	PORIRUA CITY STREETLIGHTS – NORTHERN, PAREMATA HAYWARDS ROAD	CST	1,361	53,415
0000161078CKA46	MASTER ICP PCC PARKS # PNI0331	UNM	34	2,312
0000161079CK603	PCC PARKS #TKR0331 TOTAL ASSETS	UNM	61	5,568
Total			**5,376**	**240,958**

Other ICPs in the database not relevant to this audit.

ICP Number	Description	Comments
1001102038UN6D0	MASTER ICP TRANSIT, STATE HIGHWAY 1, PUKERUA BAY	No longer billed to PCC. A separate NZTA audit will be required for this ICP.
1001102039UNA95	MASTERICP PORIRUA CC, STATE HIGHWAY 1, PUKERUA BAY	No longer billed to PCC. A separate NZTA audit will be required for this ICP.
0000160523CK83F	Greater Wellington Regional Council	The ICP identifier is not present in the database but is in the registry. This ICP is now with another trader and will need a separate audit.

The previous audit report recorded that no lights were recorded in the database against ICP 1001101874UN586 (Traffic Lights - Transit Mana Esplanade, State Highway 1, Plimmerton). These lights are settled with UNM profile based on the unmetered load details currently recorded on the registry. Genesis had determined this ICP is for NZTA lighting and NZTA is the customer, therefore it does not need to be included in this database or this audit. This ICP is no longer in the database. When NZTA is audited, this load will need to be identified.

1.7. Authorisation Received

All information was provided directly by Genesis or PCC.

1.8. Scope of Audit

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

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

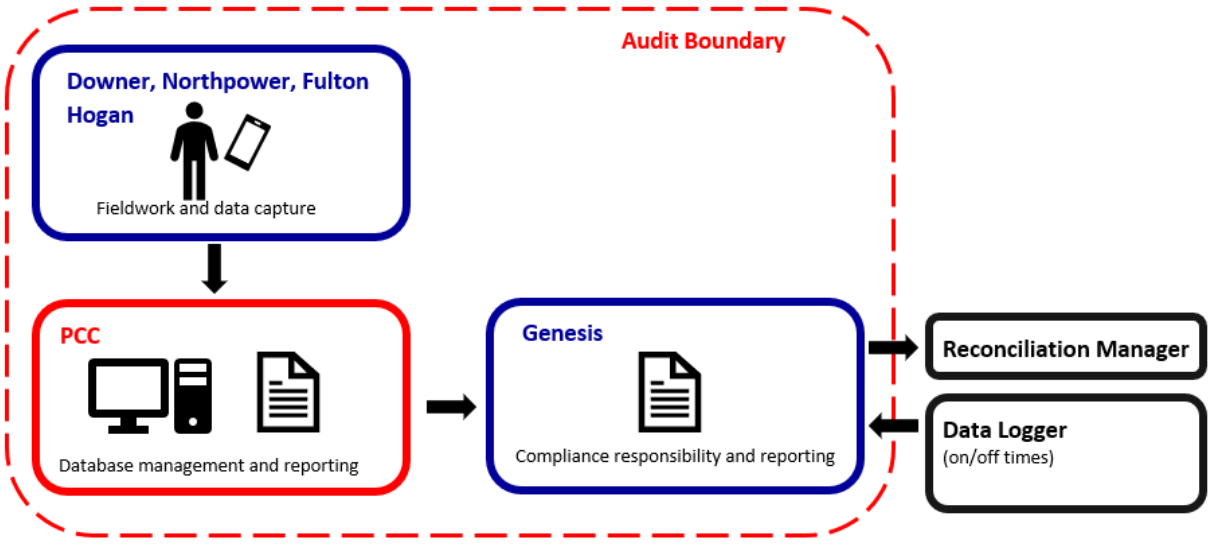
The scope of the audit encompasses the collection, security and accuracy of the data, including the preparation of submission information.

A RAMM database is managed by PCC in relation to this load. The database is remotely hosted by RAMM Software Ltd.

Field work and new light installations are carried out by Downer, and the recently completed PCC LED upgrade was completed by Northpower and Fulton Hogan. All contractors update the database using Pocket RAMM.

Park lights are managed by the parks team.

The diagram below shows the audit boundary for clarity.



The field audit was undertaken of a statistical sample of 358 items of load.

1.9. Summary of previous audit

The previous audit was completed in November 2018 by Tara Gannon of Veritek Limited. Seven non-compliances were identified, and three recommendations were made. The statuses of the non-compliances and recommendations are described below.

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	Lamps with zero wattage resulting in an estimated 297,744 kWh annual under submission. Lamps with zero gear wattage resulting in an estimated 5,381 kWh annual under submission. 1,695 with incorrect gear wattage recorded resulting in an estimated 13,686 kWh annual over submission. The database accuracy is assessed to be 91.9% of the database for the sample checked indicating a potential over submission of approximately 135,900 kWh per annum. NZTA ICP RAMM database estimated under submission of 253,287 kWh per annum.	Still existing
ICP identifier and items of load	2.2	11(2)(a) and (aa) of Schedule 15.3	19 items of load do not have an ICP number recorded.	Still existing

Subject	Section	Clause	Non-compliance	Status
Location of each item of load	2.3	11(2)(b) of Schedule 15.3	One item of load does not have sufficient location information to enable it to be readily locatable.	Still existing
Description and capacity of load	2.4	11(2)(b) of Schedule 15.3	28 lights have blanks in all fields containing lamp descriptions. 437 lights have zero lamp wattages recorded. 88 lights have zero gear wattages recorded invalidly.	Still existing
All load recorded in database	2.5	11(2A) of Schedule 15.3	Five additional lamps in the field were not recorded in the database.	Still existing
Database accuracy	3.1	15.2 and 15.37B(b)	The database contains some inaccurate data.	Still existing
Volume information accuracy	3.2	15.2 and 15.37B(c)	Lamps with zero wattage resulting in an estimated 297,744 kWh annual under submission. Lamps with zero gear wattage resulting in an estimated 5,381 kWh annual under submission. 1,695 with incorrect gear wattage recorded resulting in an estimated 13,686 kWh annual over submission. The database accuracy is assessed to be 91.9% of the database for the sample checked indicating a potential over submission of approximately 135,900 kWh per annum. NZTA ICP RAMM database estimated under submission of 253,287 kWh per annum.	Still existing

Subject	Section	Clause	Recommendation	Status
ICP identifier and items of load	2.1	11(2)(a) and (aa) of Schedule 15.3	Confirm whether lights with missing ICP numbers and owner of “Private” are being reconciled as standard unmetered load or whether shared unmetered load should be created for these lights.	Still existing

Subject	Section	Clause	Recommendation	Status
Database accuracy	3.1	15.2 and 15.37B(b)	Lights with inconsistencies between street addresses and GPS coordinates should have their records updated.	Cleared
Database accuracy	3.1	15.2 and 15.37B(b)	Check lights with inconsistency between the owner and ICP number and update as necessary.	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 and the application of profiles was checked. The database was checked for accuracy.

Audit commentary

Genesis reconciles this DUML load based on RAMM extracts provided by PCC monthly and night hours or data logger hours as described in the table below.

ICP Number	Description	Registry profile	Submission profile	On hours based on
0000023024WE5D5	STREETLIGHTS, AOTEA DRIVE	RPS	CST	Profile night hours
0001255308UN5C4	MASTER ICP PORIRUA CC, HUTT ROAD	CST	CST	Data logger on hours
0001256873UNFA3	PORIRUA CITY STREETLIGHTS – NORTHERN, PAREMATA HAYWARDS ROAD	CST	CST	Profile night hours
0000161078CKA46	MASTER ICP PCC PARKS # PNI0331	UNM	CST	Profile night hours
0000161079CK603	PCC PARKS #TKR0331 TOTAL ASSETS	UNM	CST	Profile night hours

The use of "Profile night hours" leads to inaccurate consumption information. "Profile night hours" are the CST profile hours, which are sunset and sunrise hours published by NIWA rounded to the nearest half hour. The CST profile rules do not allow these on/off times to be used to calculate consumption information. The CST profile on/off times can be used to apportion consumption, but the times are too inaccurate to be used for any other purpose. The reason for this is that if the "on" time is 18.20 and the off time is 07.13, the "Profile night hours" will have values from 18.00 to 07.30. The on/off times used may vary from the actual on/off times by up to 29 minutes at each end of the period.

Consumption for ICP 0001255308UN5C4 is calculated based on "actual" on/off times derived from a datalogger measuring the on/off ripple signals. The total hours for July 2019 are 447.37, but the CST profile hours are overstated as 465 hours, which is 4% too high.

I recalculated the consumption for July 2019 using the database wattage and an "on-time" of 447.37 hours. The table below shows a comparison between my calculation and the actual submission for July 2019.

ICP Number	Genesis kWh	Recalculated kWh	Difference	Potential annual difference
0000023024WE5D5	1,393	1,026	367	4,404
0001255308UN5C4	86,900	79,350	7,550	90,600
0001256873UNFA3	20,883	23,896	-3,013	-36,156
0000161078CKA46	1,293	1,034	259	3,108
0000161079CK603	2,513	2,491	22	264
Total	**112,982**	**107,797**	**5,185**	**62,220**

Because there are some missing and incorrect lamp and gear wattages recorded in RAMM, Genesis reviews and updates the data prior to submission:

1. Sodium lamps with zero gear wattage are updated to default gear values.
2. Lamps with zero lamp wattage are updated to 150W. If there is sufficient information in the model fields to determine they are likely to be LEDs, the gear wattage is populated with zero, otherwise default gear wattage for a 150 W sodium lamp is applied.

I haven't taken these adjustments into account; I have only used the database data.

Sources of inaccuracy are as follows:

Issue	Estimated volume information impact (annual kWh)
Lamp wattages of zero were recorded for 69 lights (1.3%). It's not possible to determine the correct wattage, so I've estimated the consumption discrepancy based on 83 watts (70 watt SON)	Estimated 24,460 of under submission.
Gear wattages of zero were incorrectly recorded for 4 lights.	307.5 kWh of under submission
130 lights had incorrect gear wattages recorded in the database.	5,791 kWh of over submission

The RAMM extract is adjusted by Genesis to populate missing lamp wattage and unexpected zero gear wattage information with default values. While these values may not be accurate in all cases, they are expected to improve the accuracy of the data. None of the adjusted lights were included in the sample so I could not confirm whether the adjustments were correct.

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" but there is not a field for "livening date" for newly connected lights. 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.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: 01-Jan-18 To: 05-Nov-18	Potential over submission of 62,220 kWh p.a. due to incorrect on/off times. Potential under submission of 18,977 kWh p.a. due to incorrect wattages. Incorrect use of CST profile. 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. Database is not confirmed as accurate with a 95% level of confidence as recorded in Section 3.1. Potential impact: High Actual impact: High Audit history: Multiple times Controls: Weak Breach risk rating: 9
Audit risk rating	**Rationale for audit risk rating**
High	The controls over the database are rated as weak, due to the large number of discrepancies identified during the field count and analysis of the RAMM database extract. The audit risk rating is high based on kWh variances detailed above.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis has a recommendation that the EA publishes New Zealand regional burn hours to gain **consistency** for all traders to ustilise when determining submission volumes for DUML asset load calculation processes. For Genesis to use another source of accepted night hours (assumed on times) for July 2019, 31 days @ 11.7 daily average burn hours equates to **362.7,** the data logger only associated with ICP 0001255308UN5C4 equates to **447.37** and the Astronomical Society night hours profile to **465** burn hours respectively, which as stated Astronomical Society night hours is 4% higher than the data logger, however the EA acceptable daily average equates to **23.33% less than the data logger** for that period. Genesis has been proactive and used the a more accurate depiction of night hours for the submission period in that region and being that burn hours change seasonally and an assumed	01/03/2020	Investigating

annual "ON TIME" of 4271 hours is an <u>average</u> of **11.7** which is **not an accurate measure** of any one season or period, albeit it seems to meet compliance. Genesis will be working with PCC and the distributor around livening dates and light/lamp install dates to align with the recent memo on the DUML Guidelines. Genesis will be reviewing the RAMM dataset to help them identify and correct errors within their dataset.		
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis will discuss the use the 11.7 burn to align Genesis's calculation processes to the EA audit guidelines. Albeit feel these are inaccurate and will drive inaccuracies in submission volumes over seasonality's, although accuracy is met annually. Genesis will need to advise PCC and their third-party contractors of their responsibilities when replacing and livening new assets.	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

There are 48 items of load without the ICP populated. One item of load is recorded as "NZ Railways" and 47 items of load a recorded as "Greater Wellington Regional Council". ICP 0000160523CK83F has been created for Greater Wellington Regional Council and it has a different Trader, however it only has 11 lights attributed to it in the registry, not 47 lights. This ICP is not recorded in the database. 25 of the items of load where the ICP is recorded as Greater Wellington Regional Council have Porirua City Council recorded as the "Light owner".

244 items of load have a "light owner" of "Private" but they still have an ICP recorded and these are considered for submission. Liaison is occurring with Wellington Electricity to determine if shared unmetered ICPs need to be created.

I recommend that PCC liaise with Wellington Electricity to confirm whether the private lights are being reconciled as standard unmetered load, or whether shared unmetered load should be created for these lights. I've left the recommendation in for visibility.

Description	Recommendation	Audited party comment	Remedial action
Missing ICP numbers	Confirm whether lights with missing ICP numbers and owner of "Private" are being reconciled as standard unmetered load or whether shared unmetered load should be created for these lights.	Genesis has mentioned that the "Private Lights" are yet to be **confirmed** by PCC. These are being reconciled as part of the total PCC streetlight load. Genesis has requested these to be **investigated** after Genesis had identified that there is a high percentage of assets listed as **Private** but most likely to be under the council ownership. Once the ownership is established then any private lights become the responsibility of the distributor and the distributor will be notified of the sites upon confirmation, although these assets should already be known to the distributor. Genesis will be requesting the correction of information pertaining to lamp ownership to avoid duplication of submission volumes, or have it removed to avoid confusion. ICP **0000160523CK83F** (MERI) is not under Genesis ownership and therefore cannot comment on the trader's accuracy of asset information.	Investigating

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.2 With: Clause 11(2)(a) and (aa) of Schedule 15.3 From: 01-Jan-18 To: 02-Sep-19	48 items of load do not have an ICP number recorded. 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	Controls are rated as moderate because almost all items of load have an ICP number recorded. The impact is rated as low, as a very small number of items of load are affected.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis has reviewed the missing information and will request the council to accurately populate the correct ICP in the dataset.	31/12/2019	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis reviews the information provided by PCC. Genesis has been working with PCC to realign their data set with the council requirements and will advise of any potential updates/corrections.	31/12/2019	

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 databases were 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.

23 items of load do not have GPS coordinates. Of these only one item of load does not have sufficient other information to enable it to be located. It's the same item of load recorded during the last audit and is shown in the table below.

House Address	Pole Number	Side	Offset	Northing	Easting
JOHN BURKE DRIVE		Unknown	0	0	0

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.3 With: Clause 11(2)(b) of Schedule 15.3 From: 01-Jan-18 To: 02-Sep-19	One item of load does not have sufficient location information to enable it to be readily locatable. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as strong and the impact as low, because only one exception was identified.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis has reviewed the missing information and will request the council to accurately populate the correct locational details (northing/Easting) in the dataset.	31/12/2019	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis reviews the information provided by PCC. Genesis has been working with PCC to realign their data set with the council requirements and will advise of any potential updates/corrections.	31/12/2019	

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 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

Lamp description information is contained within the lamp make model field, and four other model fields. Analysis of the database found:

- 26 lights have blanks in all five fields containing lamp description information
- 69 lamp wattages were recorded as zero
- four gear wattages were recorded as zero.

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)(b) of Schedule 15.3 From: 01-Jan-18 To: 02-Sep-19	26 lights have blanks in all fields containing lamp descriptions. 69 lights have zero lamp wattages recorded. 4 lights have zero gear wattages recorded 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 rated as moderate because most lamps have description and wattage information recorded but there is room for improvement. PCC has been working to populate the missing information. The audit risk rating is low based on the small volume of lights affected.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis will advise PCC of the necessary corrections and the requirements for all new connections, lamp replacements.	31/12/2019	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis reviews the information provided by PCC. Genesis has been working with PCC to realign their data set with the council requirements and will advise of any potential updates/corrections.	31/12/2019	

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 358 items of load. The sample was selected from seven strata, as follows:

- Mana
- Parks and amenities
- Porirua East
- Porirua West
- Whitby

Audit commentary

The field audit discrepancies are detailed in the table below:

Address	Database Count	Field Count	Count differences	Wattage differences	Comments
CASSLEY CRESCENT	4	4	-	2	2 x 26W LEDs recorded as 35.5W
GLOUCESTER STREET	12	12	-		7 x 26W LEDs recorded as 20W
GORDON ROAD	18	18	-	8	5 x 36W LEDs recorded as 35.5. 2 x 28W LEDs recorded as 35.5. 1 x 28W LED recorded as 36W
HEREWINI STREET	17	16	1	2	1x LED not found in the field 1 x 26W LED recorded as 35.5. 1 x 36W LED recorded as 35.5.
LAGDEN STREET	7	7	-	7	6 x 36W LED recorded as 35.5W. 1 x 50W MH recorded as 20W LED
LAUDERDALE ROAD	4	4	-	1	1 x 26W LED recorded as 36W
MAIN ROAD	43	43	-	11	2 x 36W LEDs recorded as 35.5W. 6 x 75W LED recorded as 36W. 2 x 36W LEDs recorded as 75W. 1 x 100W SON recorded as 20W LED.
MCKILLOP STREET	31	31	-	6	1 x 28W LED recorded as 35.5W. 3 x 99W LEDs recorded as 26W. 1 x 26W LED recorded as 36W. 1 x 36W LED recorded as 35.5W.
MOANA ROAD	38	37	1	14	1 x LED not found in the field

Address	Database Count	Field Count	Count differences	Wattage differences	Comments
					8 x 26W LED recorded as 36W. 2 x 26W LED recorded as 35.5W. 2 x 36W LED recorded as 35.5W. 1 x 70W SON recorded as 36W LED. 1 x 75W LED recorded as 36W LED.
NOHORUA STREET	5	5	-	4	3 x 26W LED recorded as 35.5W. 1 x 26W LED recorded as 70 SON.
PAEKAKARIKI HILL ROAD	18	18	-	7	2 x 150W SON recorded as 75W LED. 1 x incandescent recorded as 26W LED. 1 x 27W LED recorded as 36W. 1 x 70W SON recorded as zero watts. 1 x 36W LED recorded as 26W. 1 x 28W LED recorded as 35.5.
ROMESDALE ROAD	3	3	-	1	1 x 26W LED recorded as 36W
ROTHWELL STREET	6	6	-	1	1 x 28W LED recorded as 35.5W.
SASANOF VIEW	3	3	-	2	2 x 26W LED recorded as 36W.
STAITHES DRIVE SOUTH	5	5	-	3	2 x 26W LED recorded as 36W. 1 x 36W LED recorded as 35.5.
TE ARAWI STREET	6	6	-	1	1 x 36W LED recorded as 26W
WAIRAKA ROAD	7	7	-	7	5 x 36W LED recorded as 35.5. 2 x 36 W LED recorded as 20W.
YORK PLACE	4	4	-	1	1 x 28W LED recorded as 35.5W.
JELLICOE STREET	5	5	-	4	3 x 99W LED recorded as 130W. 1 x 28W LED recorded as 130W.
PASCOE AVENUE WEST	6	12	6	6	6 additional 36W LED found in the field. 2 x 150W SON recorded as 136W LED. 2 x 36W LED recorded as 35.5W 2 x 36W LED recorded as 1 x 136 W LED. 1 x 36W LED recorded as 70W SON.
WESTRIDGE	4	4	-	4	4 x 36W LED recorded as 130W
HICKS CLOSE EAST	1	1	-	1	1 x 26W LED recorded as 36W.
RESOLUTION DRIVE	21	22	1	0	1 additional 36W LED found in the field

Address	Database Count	Field Count	Count differences	Wattage differences	Comments
MANA SERVICE LANE	3	3	-	1	1 x 150W SON recorded as 75W LED
GYBE PLACE	2	2	-	2	2 x 36W LED recorded as 70W SON
SEASCPE VIEW PVT	4	3	1	0	1 x 70W SON not found in the field.
Total	**277**	**281**	**10**	**96**	

This clause relates to lights in the field that are not recorded in the database. The field audit found eight additional lights. This is recorded as non-compliance.

The count differences where lights were present in the database but not recorded in the field, and wattage differences are discussed in **section 3.1**.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.5 With: Clause 11(2A) of Schedule 15.3 From: unknown To: 02-Sep-19	Eight additional lamps in the field but were not recorded in the database. 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	Controls are rated as moderate, as they are sufficient to ensure most lights are recorded in the database. The impact is rated as low, as only 8 lights were missing from the database.		
Actions taken to resolve the issue		**Completion date**	**Remedial action status**

The work PCC has managed to do to update their dataset has meant that there are minimal missing lamp discrepancies. Genesis will advise PCC of these and have them updated in the database. Additional Asset on Seascape View is deemed to be private and is not the council responsibility. The 1 x PCC asset on Seascape View is recorded accurately in the database with Porirua City Council as the owner. Genesis believes the missing asset on Resolution is counted as part of Optimist Way (5 lamps including the corner lamp on Resolution Dr) Genesis note that the differences in the wattage (35.5w) that the manufacturers descriptions have been entered by the contractor. Genesis will request these to be **rounded up to 36w** and updated into the database.	31/12/2019	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis will advise PCC of the necessary corrections and requirements for new connections.	31/12/2019	

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

The database has a complete audit trail.

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	PCC streetlights in the Porirua area
Strata	The databases contain 5,784 items of load in the PCC area. The processes for the management of all PCC items of load is the same. I selected the following strata: • Mana • Parks and amenities • Porirua East • Porirua West • Whitby
Area units	I created a pivot table of the roads in each database and used a random number generator in each spreadsheet to select a total of 46 sub-units.
Total items of load	358 items of load were checked.

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

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

Audit commentary

A field audit was conducted of a statistical sample of 358 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	101.6	Wattage from survey is higher than the database wattage by 1.6%
R_L	94.3	With a 95% level of confidence it can be concluded that the error could be between -5.7% and 12.6%
R_H	112.6	

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 5.7% lower and 12.6% 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 4.0 kW higher than the database indicates.

There is a 95% level of confidence that the installed capacity is between 14 kW lower to 30 kW higher than the database.

In absolute terms, total annual consumption is estimated to be 16,900 kWh higher than the DUML database indicates.

There is a 95% level of confidence that the annual consumption is between 58,400kWh p.a. lower to 129,900 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

All lamps have a gear wattage and lamp wattage recorded, but some were incorrectly recorded:

- 130 incorrect gear wattages
- 1,032 incorrect lamp wattages

In addition to this as recorded in **section 2.4**:

- 26 lights have blanks in all fields containing lamp descriptions.
- 4 lights have zero gear wattages recorded
- 69 lights have zero lamp wattages recorded.

I haven't attempted to calculate the exact impact of these discrepancies, but I have recorded the audit risk rating as high due to the large numbers.

Address accuracy

The field audit did not identify any location discrepancies.

ICP number and owner accuracy

PCC has undertaken work to cleanse owner and ICP information.

Some lights still appear to have inconsistency between the owner and ICP information. There are 25 lights with Porirua City Council recorded as the light owner, but "Greater Wellington Regional Council" recorded in the ICP field.

Change management process findings

The RAMM database used for submission is managed by PCC. The streetlight contractors update the database using Pocket RAMM.

I conducted a walkthrough of the new connection process. The lights are recorded in RAMM when an as built plan is provided to Downer.

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" but there is not a field for "livening date" for newly connected lights. Lights can be livened prior to "vesting" and PCC will not take responsibility for the consumption until "vesting" occurs. The new connections process will need to be revised and it's possible separate ICPs may be required for the developer in situations where lighting is livened but is not the responsibility of PCC. 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.

Festive lighting is no longer connected.

Outage patrols are not conducted now that most lights are LED.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 01-Jan-18 To: 02-Sep-19	1,261 examples of incorrect or incomplete description or capacity information. Database is not confirmed as accurate with a 95% level of confidence. 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 Some light owner discrepancies Potential impact: High Actual impact: High Audit history: Multiple times Controls: Weak Breach risk rating: 9
Audit risk rating	**Rationale for audit risk rating**
High	The controls over the database are rated as weak, due to the large number of discrepancies identified during the field count and analysis of the RAMM database extract. The audit risk rating is high based on kWh variances.

Actions taken to resolve the issue	Completion date	Remedial action status
Inform the distributor of best practice to avoid further non-compliance on behalf of Genesis customer regarding the livening of assets unknown to the trader. Work with the council and influence process change, review current dataset to assist in asset ownership realignment, request field visits on assets identified as missing and have included if deemed valid.	01/02/2020	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis needs to educate the council and third-party contractors on the asset change management process. Genesis will need to enquire with the distributor as to how their new connection process is managed, as the developer should be responsible for the lighting until the council take ownership. Notification to the trader for acceptance of new load is required to complete the process. Genesis would expect the light install date in RAMM be the correct field for the livening date, as the lamp install date will cater for any change in asset.	01/02/2020	

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 on hours against the submitted figure to confirm accuracy.

Audit commentary

Genesis reconciles this DUML load based on RAMM extracts provided by PCC monthly and night hours or data logger hours as described in the table below.

ICP Number	Description	Registry profile	Submission profile	On hours based on
0000023024WE5D5	STREETLIGHTS, AOTEA DRIVE	RPS	CST	Profile night hours
0001255308UN5C4	MASTER ICP PORIRUA CC, HUTT ROAD	CST	CST	Data logger on hours
0001256873UNFA3	PORIRUA CITY STREETLIGHTS – NORTHERN, PAREMATA HAYWARDS ROAD	CST	CST	Profile night hours
0000161078CKA46	MASTER ICP PCC PARKS # PNI0331	UNM	CST	Profile night hours
0000161079CK603	PCC PARKS #TKR0331 TOTAL ASSETS	UNM	CST	Profile night hours

The use of "Profile night hours" leads to inaccurate consumption information. "Profile night hours" are the CST profile hours, which are sunset and sunrise hours published by NIWA rounded to the nearest half hour. The CST profile rules do not allow these on/off times to be used to calculate consumption information. The CST profile on/off times can be used to apportion consumption, but the times are too inaccurate to be used for any other purpose. The reason for this is that if the "on" time is 18.20 and the off time is 07.13, the "Profile night hours" will have values from 18.00 to 07.30. The on/off times used may vary from the actual on/off times by up to 29 minutes at each end of the period.

Consumption for ICP 0001255308UN5C4 is calculated based on "actual" on/off times derived from a datalogger measuring the on/off ripple signals. The total hours for July 2019 are 447.37, but the CST profile hours are overstated as 465 hours, which is 4% too high.

I recalculated the consumption for July 2019 using the database wattage and an "on-time" of 447.37 hours. The table below shows a comparison between my calculation and the actual submission for July 2019.

ICP Number	Genesis kWh	Recalculated kWh	Difference	Potential annual difference
0000023024WE5D5	1,393	1,026	367	4,404
0001255308UN5C4	86,900	79,350	7,550	90,600
0001256873UNFA3	20,883	23,896	-3,013	-36,156
0000161078CKA46	1,293	1,034	259	3,108
0000161079CK603	2,513	2,491	22	264
Total	**112,982**	**107,797**	**5,185**	**62,220**

Because there are some missing and incorrect lamp and gear wattages recorded in RAMM, Genesis reviews and updates the data prior to submission:

3. Sodium lamps with zero gear wattage are updated to default gear values.
4. Lamps with zero lamp wattage are updated to 150W. If there is sufficient information in the model fields to determine they are likely to be LEDs, the gear wattage is populated with zero, otherwise default gear wattage for a 150 W sodium lamp is applied.

I haven't taken these adjustments into account; I've only used the database data.

Sources of inaccuracy are as follows:

Issue	Estimated volume information impact (annual kWh)
Lamp wattages of zero were recorded for 69 lights (1.3%). It's not possible to determine the correct wattage, so I've estimated the consumption discrepancy based on 83 watts (70 watt SON)	Estimated 24,460 of under submission.
Gear wattages of zero were incorrectly recorded for 4 lights.	307.5 kWh of under submission
130 lights had incorrect gear wattages recorded in the database.	5,791 kWh of over submission

The RAMM extract is adjusted by Genesis to populate missing lamp wattage and unexpected zero gear wattage information with default values. While these values may not be accurate in all cases, they are expected to improve the accuracy of the data. None of the adjusted lights were included in the sample so I could not confirm whether the adjustments were correct.

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" but there is not a field for "livening date" for newly connected lights. 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.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: 01-Jan-18 To: 02-Sep-19	Potential over submission of 62,220 kWh p.a. due to incorrect on/off times. Potential under submission of 18,977 kWh p.a. due to incorrect wattages. Incorrect use of CST profile. 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. Database is not confirmed as accurate with a 95% level of confidence as recorded in Section 3.1. Potential impact: High Actual impact: High Audit history: Multiple times Controls: Weak Breach risk rating: 9
Audit risk rating	**Rationale for audit risk rating**
High	The controls over the database are rated as weak, due to the large proportion of discrepancies identified during the field count and analysis of the RAMM database extract. The audit risk rating is high based on kWh variances detailed above.

Actions taken to resolve the issue	Completion date	Remedial action status

Non-compliance	Description	
Genesis has a recommendation that the EA publishes New Zealand regional burn hours to gain **consistency** for all traders to ustilise when determining submission volumes for DUML asset load calculation processes. For Genesis to use another source of accepted night hours (assumed on times) for July 2019, 31 days @ 11.7 daily average burn hours equates to **362.7,** the data logger only associated with ICP 0001255308UN5C4 equates to **447.37** and the Astronomical Society night hours profile to **465** burn hours respectively, which as stated Astronomical Society night hours is 4% higher than the data logger, however the EA acceptable daily average equates to **23.33% less than the data logger** for that period. Genesis has been proactive and used the a more accurate depiction of night hours for the submission period in that region and being that burn hours change seasonally and an assumed annual "ON TIME" of 4271 hours is an average of **11.7** which is **not an accurate measure** of any one season or period, albeit it seems to meet compliance. Genesis will be working with PCC and the distributor around livening dates and light/lamp install dates to align with the recent memo on the DUML Guidelines. Genesis will be reviewing the RAMM dataset to help them identify and correct errors within their dataset.	01/03/2020	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis will discuss the use the 11.7 burn to align Genesis's calculation processes to the EA audit guidelines. Albeit feel these are inaccurate and will drive inaccuracies in submission volumes over seasonality's, although accuracy is met annually. Genesis will need to advise PCC and their third-party contractors of their responsibilities when replacing and livening new assets.	01/03/2020	

CONCLUSION

There has been minor improvement to the contents of the database, but there are still a significant number of discrepancies. Almost one third of the lamps checked in the field had discrepancies. The only way to ensure the database is accurate is to urgently conduct a complete field audit.

Some of the database content is no longer part of this audit. The table below shows the details.

ICP Number	Description	Comments
1001102038UN6D0	MASTER ICP TRANSIT, STATE HIGHWAY 1, PUKERUA BAY	No longer billed to PCC. A separate NZTA audit will be required for this ICP.
1001102039UNA95	MASTERICP PORIRUA CC, STATE HIGHWAY 1, PUKERUA BAY	No longer billed to PCC. A separate NZTA audit will be required for this ICP.
0000160523CK83F	Greater Wellington Regional Council	The ICP identifier is not present in the database but is in the registry. This ICP is now with another trader and will need a separate audit.

Database accuracy is described as follows:

Result	**Percentage**	**Comments**
The point estimate of R	101.6	Wattage from survey is higher than the database wattage by 1.6%
R_L	94.3	With a 95% level of confidence it can be concluded that the error could be between -5.7% and 12.6%
R_H	112.6	

The variability of the sample results across the strata means that the true wattage (installed in the field) could be between 5.7% lower and 12.6% 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 4.0 kW higher than the database indicates.

There is a 95% level of confidence that the installed capacity is between 14 kW lower to 30 kW higher than the database.

In absolute terms, total annual consumption is estimated to be 16,900 kWh higher than the DUML database indicates.

There is a 95% level of confidence that the annual consumption is between 58,400kWh p.a. lower to 129,900 kWh p.a. higher than the database indicates.

Submission is calculated using “Profile night hours” for some ICPs. The use of “Profile night hours” leads to inaccurate consumption information. “Profile night hours” are the CST profile hours, which are sunset and sunrise hours published by NIWA rounded to the nearest half hour. The CST profile rules do not allow these on/off times to be used to calculate consumption information. The CST profile on/off times can be used to apportion consumption, but the times are too inaccurate to be used for any other purpose. For

July 2019 the difference between “Profile night hours” and actual hours derived from a datalogger measuring the on/off signals is 4%.

The future risk rating of 32 indicates that the next audit be completed in three months. This may not be sufficient time to resolve the matters raised and I recommend the Authority considers a 6-month period.

PARTICIPANT RESPONSE

Genesis has made progress with the Porirua City Council's (PCC) dataset. Genesis has established that the NZTA Assets were to be removed from the "ownership" of PCC and assigned the load to newly created ICP's in conjunction with the Distributor and the NZTA.

The Assets associated with NZ Rail and Greater Wellington Regional Council, were established to be under the ownership of Meridian. These assets were sent to Meridian and should now under Meridians DUML regime.

The Assets under PCC ownership, were then separated to cater for financials within the councils, allowing the identification of costs to be easily reconciled. The assets were aligned to the correct NSP associated to the street as determined by the distributor. These updates have been updated in the RAMM database and Genesis are receiving this information via monthly reporting from PCC.

Genesis will be meeting with the council 19/09/2019 to work through the audit findings. It has been clear that the LED updates have been attempted, and that this shows in the auditor's field findings. It is noted that the Memo regarding daily asset reconciliation is not happening and that the council and contractor(s) will need guidance on how to meet this requirement.

Where Genesis find null lamp or Zero lamp wattages, Genesis default to 150w/18w totalling 168w per asset to cater for erroneous information found.

Genesis will be wanting to clarify the expectations around burn hours. It seems each trader has its own way of calculating this and there is no one truth. And it seems each variant has its complexities around compliance accuracy.

Genesis would be seeking a 6 month review period in order to ascertain the extent of the new connections requirements for the distributor/council and to rectify current data errors in PCC's RAMM dataset and what "burn hours" to use.