ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

VERITEK

For

TASMAN DISTRICT COUNCIL
AND GENESIS ENERGY LIMITED
NZBN: 9429037706609

Prepared by: Rebecca Elliot

Date audit commenced: 3 February 2022

Date audit report completed: 24 March 2022

Audit report due date: 12 April 2022

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This audit of the **Tasman District Council (TDC)** 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.

Network Tasman holds an access database for the Tasman DC unmetered streetlights. Fault, maintenance and upgrade work is conducted by PowerTech and the database is managed by Network Tasman. New streetlight connections are undertaken by Delta and Powertech.

Genesis reconciles the TDC DUML load using the CST profile. A monthly wattage report is provided to Genesis from the database by Network Tasman. Genesis derives the hours of operation information using a data logger. I checked the database extract provided by Network Tasman for February 2022 against the estimated submission totals supplied by Genesis for October 2021 and found that there was a difference in the number of lights and volume submitted for all of the ICPs resulting in an estimated annualised over submission of 83,760 kWh. Genesis is investigating this.

The field audit was undertaken on 287 items of load on 2nd March 2022 and found that database accuracy was within the allowable +/- 5% threshold.

The audit found five non-compliances. I have repeated three recommendations for improvements in the database fields and recorded one additional recommendation.

The future risk rating of nine indicates that the next audit be completed in six months, and I have considered this in conjunction with Genesis' comments and I recommend that the next audit be in six months from the audit due date.

The late submission of the audit report is not recorded as a non-compliance as the draft audit report was provided prior to the due date and the delay has been due to the responses being late in being received.

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	Estimated over submission of 83,760 kWh per annum due to discrepancies between data extract and volume submitted. The data used for submission does not track changes at a daily basis and is provided as a snapshot. Incorrect wattages for 20 items of load resulting in an estimated minor over submission of 87.12 kWh per annum.	Moderate	High	6	Identified
Location of load	2.3	11(2)(b) of Schedule 15.3	109 items of load with insufficient details to locate these.	Moderate	Low	2	Identified
All load recorded in database	2.5	11(2A) of Schedule 15.3	Two additional items of load found in the field of 287 items of load sampled.	Moderate	Low	2	Identified
Database accuracy	3.1	15.2 and 15.37B(b)	Incorrect wattages for 20 items of load resulting in an estimated minor over submission of 87.12 kWh per annum.	Moderate	Low	2	Identified
Volume information accuracy	3.2	15.2 and 15.37B(c)	Estimated over submission of 83,760 kWh per annum due to discrepancies between data extract and volume submitted. The data used for submission does not track changes at a	Moderate	High	6	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
			daily basis and is provided as a snapshot. Incorrect wattages for 20 items of load resulting in an estimated minor over submission of 87.12 kWh per annum.				
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	Description	Recommendation
Location of each item of load	2.3	Location of each item of load.	Add GPS co-ordinates to items of load with insufficient information.
			Review the "Area" field to contain "area" details only and not street level detail.
Database Accuracy	3.1	Confirm wattages for new connections with contractor.	The wattage for 38 new connections has been advised as 13W, however the field audit identified this was not correct.
		The database records 3,190 LED lights as "LED" lights only. There are 61 different LED wattages recorded.	Update database with lamp descriptions to confirm the correct wattage has been applied.

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

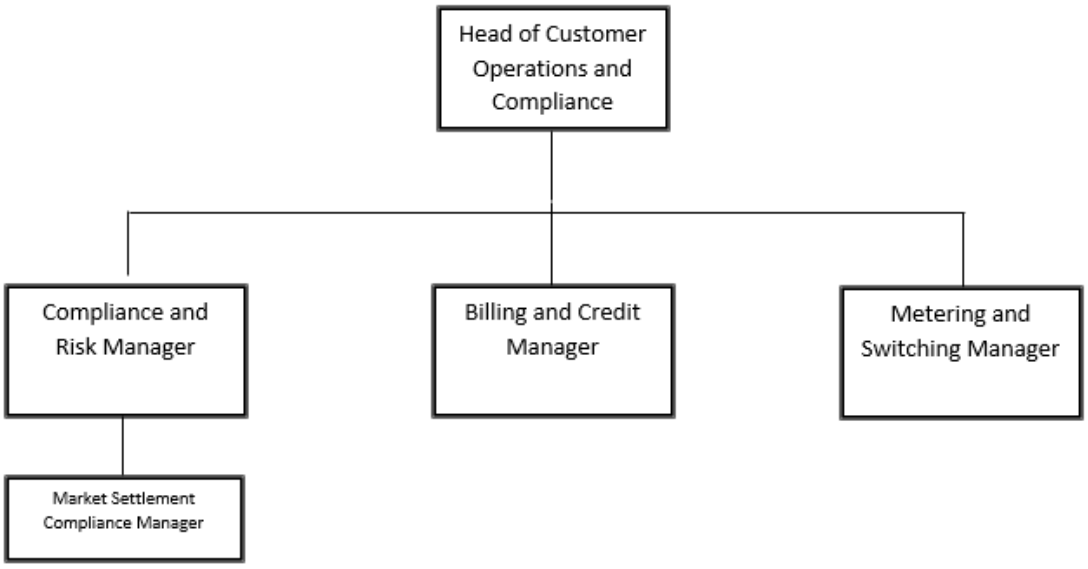
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

Audit commentary

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

1.2. Structure of Organisation

Genesis Energy provided a copy of their organisational structure.



1.3. Persons involved in this audit

Name	Company	Role
Rebecca Elliot	Veritek Limited	Lead Auditor
Claire Stanley	Veritek Limited	Supporting Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Kerryn Little	Easement Officer	Network Tasman
Julia Jones	DUML Data & Stakeholder Lead - Market Settlement Compliance	Genesis Energy

1.4. Hardware and Software

The Access database used by Network Tasman is backed-up is in accordance with standard industry procedures. Access to the database is secure by way of password protection.

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

1.5. Breaches or Breach Allegations

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

1.6. ICP Data

ICP Number	Description	NSP	Profile	Number of items of load	Database wattage (watts)
0000090005NTAE5	TDC STREETLIGHTING KIKIWA	KIK0111	CST	70	2,638
0000090003NTB6A	TDC STREETLIGHTING MOTUEKA	STK0661	CST	857	35,109
0000090004NT6A0	TDC STREETLIGHTING MOTUPIPI	STK0661	CST	258	9,034
0000090006NT625	TDC STREETLIGHTING MURCHISON	MCH0111	CST	46	1,791
0000090002NT72F	TDC STREETLIGHTING STOKE	STK0331	CST	2,352	110,809
TOTAL				**3,583**	**159,381**

1.7. Authorisation Received

All information was provided directly by Genesis or Network Tasman.

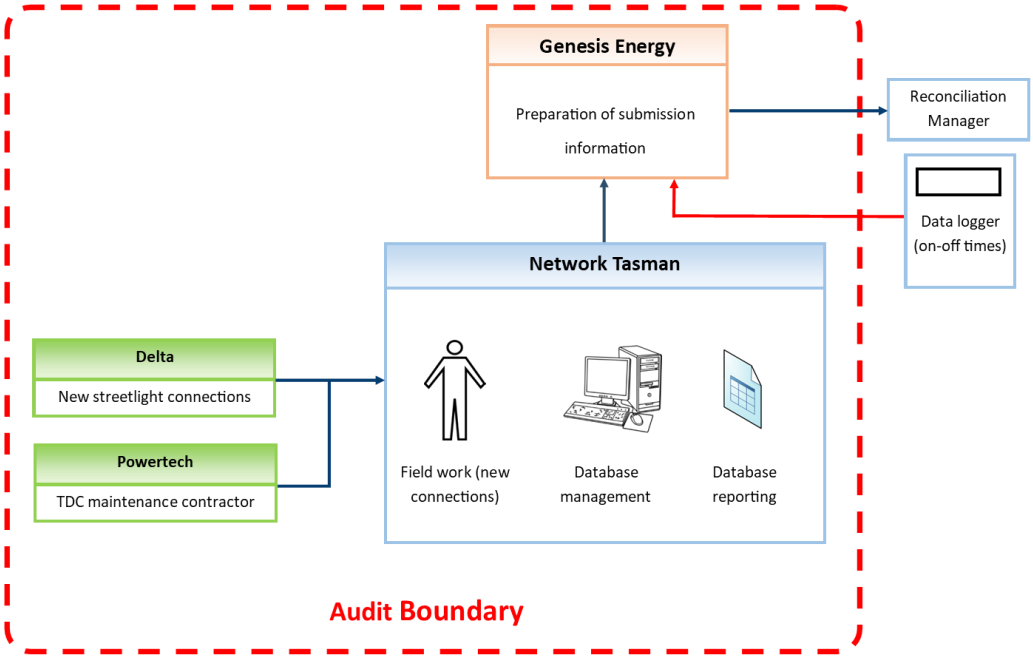
1.8. Scope of Audit

This audit of the Tasman District Council 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.

Network Tasman hold an access database for the Tasman DC unmetered streetlights. Fault, maintenance and upgrade work is conducted by Powertech, and the database is managed by Network Tasman. New streetlight connections are undertaken by Delta and Powertech.

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 287 items of load on 2nd March 2022.

1.9. Summary of previous audit

The previous audit of this database was undertaken by Steve Woods of Veritek Limited in September 2020. The summary table below shows the statuses of the non-compliances raised in the previous audit.

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	Under submission of 1,215 kWh for June due to discrepancy between data extract and volume submitted. The data used for submission does not track changes at a daily basis and is provided as a snapshot. Incorrect wattages for 19 items of load resulting in an estimated minor over submission of 40.15kWh per annum.	Still existing across all ICPs Still existing Still existing
Location of load	2.3	11(2)(b) of Schedule 15.3	105 items of load with insufficient details to locate these.	Still existing
Database accuracy	3.1	15.2 and 15.37B(b)	Incorrect wattages for 19 items of load resulting in an estimated minor over submission of 40.15kWh per annum.	Still existing
Volume information accuracy	3.2	15.2 and 15.37B(c)	Under submission of 1,215 kWh for June due to discrepancy between data extract and volume submitted. Incorrect wattages for 19 items of load resulting in an estimated minor over submission of 40.15kWh per annum. The data used for submission does not track changes at a daily basis and is provided as a snapshot.	Still existing across all ICPs Still existing Still existing

Table of recommendations

Subject	Recommendation	Status
Location of each item of load	Add GPS co-ordinates to items of load with insufficient info.	Still existing
	Review the "Area" field to contain "area" details only and not street level detail.	Still existing
Database accuracy	Update database with lamp descriptions to confirm the correct wattage has been applied.	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.

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 using the CST profile. I checked the submission methodology.

A monthly wattage report is provided to Genesis from the database by Network Tasman. Genesis derives the hours of operation information using a data logger. I checked the database extract provided by Network Tasman on 3rd February 2022 against the estimated submission totals supplied by Genesis for October 2021 and found that there was a difference in the number of lights and volume submitted for all of the ICPs, as detailed in the table below:

ICPs	Fittings number from October submission	Fittings number from 3rd February database extract	Difference	kWh value submitted	Calculated kWh value from database	kWh difference
0000090005NTAE5	82	70	-12	943	755.32	- 187.68
0000090003NTB6A	927	857	-70	12,640	10,052.53	- 2,587.47
0000090004NT6A0	301	258	-43	3,897	2,586.64	- 1,310.36
0000090006NT625	73	46	-27	1,364	512.81	508.04
0000090002NT72F	2,349	2,352	3	37,185	33,782.46	- 3,402.54
Totals	**3,732**	**3,583**	**-149**	**56,029**	**47,689.76**	**- 6,980.00**

The discrepancy results in a possible over submission of 6,980 kWh for January 2022 and an estimated annualised over submission of 83,760 kWh. Genesis are investigating this.

The field audit found that database accuracy was within the allowable +/- 5% threshold.

A check of the wattages applied identified 20 lights with the incorrect wattage applied resulting in an estimated very minor over submission of 87.12 kWh per annum as detailed in **section 3.1**.

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

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

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

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: 16-Jul-20 To: 03-Feb-22	Estimated over submission of 83,760 kWh per annum due to discrepancies between data extract and volume submitted. The data used for submission does not track changes at a daily basis and is provided as a snapshot. Incorrect wattages for 20 items of load resulting in an estimated minor over submission of 87.12 kWh per annum. Potential impact: High Actual impact: High Audit history: Multiple times previously Controls: Moderate Breach risk rating: 6
Audit risk rating	**Rationale for audit risk rating**
High	Controls are rated as moderate, as they are sufficient to mitigate the risk most of the time, but there is room for improvement. The audit risk rating is high based on the estimated kWh volume variances detailed above.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis conducted a full consumption review of the Tasman DC data base using the extract provided in April 2022. The volumes have been adjusted and will washed up going back 14mth. Genesis has discussed the audit findings with the Tasman DC with the intent that council makes every effort to ensure the exceptions are rectified. Genesis will continue to work the council to define the monthly reporting requirements in regard to the tracking of changes that has occurred within the month.	11/4/2022 Continuous improvement	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis continues to work with the council to raise database accuracy levels.	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 was recorded against each item of load.

Audit commentary

All items of load have an ICP recorded against them.

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 light ID, location description, area and GPS co-ordinates. All but 525 (14%) of the database have GPS co-ordinates recorded. Of these all but 109 items of load have sufficient details to locate them, these lamps have a lot number and street name recorded, they have not been updated with the street number or GPS co-ordinates. This is recorded as a non-compliance below.

GPS co-ordinates are not provided when the lamp is installed, they are only provided when a change is made to the lamp. I repeat the recommendation from the previous audit that GPS co-ordinates are captured for these items of load.

Recommendation	Description	Audited party comment	Remedial action
Location of each item of load	Add GPS co-ordinates to items of load with insufficient information to locate them.	Genesis has discussed the audit findings with the Tasman DC with the intent that council makes every effort to ensure the exceptions are rectified.	Identified

The previous audit identified that the database contains an "Area" field which contains a mixture of areas and individual street names, effectively containing two different levels of addressing in the one field. I repeat the recommendation that the field be reviewed to contain areas only.

Recommendation	Description	Audited party comment	Remedial action
Location of each item of load	Review the "Area" field to contain "area" details only and not street level detail.	Genesis has discussed the audit findings with the Tasman DC with the intent that council makes every effort to ensure the exceptions are rectified.	Identified

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.3 With: Clause 11(2)(b) of Schedule 15.3 From: 16-Jul-20 To: 03-Feb-22	109 items of load with insufficient details to locate these. Potential impact: Low Actual impact: Low Audit history: Three times previously Controls: Moderate Breach risk rating: 2
Audit risk rating	**Rationale for audit risk rating**
Low	Controls are rated as moderate as the processes in place do not capture the GPS co-ordinates for a new connection. The audit risk rating is recorded as low due to the small number of lights that can't be readily located.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis has discussed the audit findings with the Tasman DC with the intent that council makes every effort to ensure the exceptions are rectified.	Continuous improvement	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis continues to work with the council to raise database accuracy levels.	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 light type and wattage capacity,
- wattage capacities include any ballast or gear wattage, and
- each item of load has a light type, light wattage, and gear wattage recorded.

Audit commentary

A lamp type, lamp size and lamp wattage including an allowance for ballast is recorded for each item of load in the database.

The accuracy of these is discussed in **section 3.1**.

Audit outcome

Compliant

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

Code reference

Clause 11(2A) of Schedule 15.3

Code related audit information

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

Audit observation

The field audit was undertaken of a statistical sample of 287 items of load on 2nd March 2022.

Audit commentary

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

Street	Database count	Field count	Light count difference	Wattage recorded incorrectly	Comments
6 Atkins St	8	8		1	1 x 27W LED recorded in the database but 1 x 24W LED located in the field
D'Arcy Street	11	12	+1		1 x 35W LED not recorded in the database but located in the field
78 Headingly Lane		3		1	1 x 27W LED recorded in the database but 1 x 33W LED located in the field
Inglis Street	5	4	-1	1	1 x 27W LED recorded in the database but 1 x 36W LED located in the field 1 x 27W LED recorded in the database but not located in the field
Midlane Crescent	12	12		12	9 x 13W LED recorded in the database but 1 x 22W LED located in the field 2 x 13W LED recorded in the database but 1 x 21W LED located in the field 1 x 13W LED recorded in the database but 1 x 19W LED located in the field
60/62 Olympus Way	16	15	-1		1 x 70W SON recorded in the database but not located in the field
Sabine Drive (cnr Hart Road)	6	7	+1		1 x 28W LED not recorded in the database but located in the field

Street	Database count	Field count	Light count difference	Wattage recorded incorrectly	Comments
Grand Total			**4(+2- 2)**	**15**	

This clause relates to lights in the field that are not recorded in the database. The field audit found two additional lights in the field of 287 items of load sampled. This is recorded as a non-compliance below.

The database accuracy is 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: 16-Jul-20 To: 03-Feb-22	Two additional items of load found in the field of 287 items of load sampled. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2		
Audit risk rating	**Rationale for audit risk rating**		
Low	The controls are rated as moderate as the processes in place will ensure that the data is recorded correctly most of the time. The impact is assessed to be low due to the small number of additional lights found in the field in relation to the overall count of the items of load.		
Actions taken to resolve the issue		**Completion date**	**Remedial action status**
Genesis has discussed the audit findings with the Tasman DC with the intent that council makes every effort to ensure the exceptions are rectified.		Continuous improvement	Identified
Preventative actions taken to ensure no further issues will occur		**Completion date**	
Genesis continues to work with the council to raise database accuracy levels.		Continuous improvement	

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 access 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

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

A 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	Tasman District Council Street Lights
Strata	The database contains the items of load for DUML ICPs on the Network Tasman network. The processes for the management of all items of load are the same, but I decided to place the items of load into four strata based on the street names: 1. A-F, 2. G-L, 3. M-R, and 4. S-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 53 sub-units.
Total items of load	287 items of load were checked, which made up over 8% of the total database wattage.

Wattages were checked for alignment with the published standardised wattage table produced by the Electricity Authority against the database or in the case of LED lights against the LED light specification.

The process to manage changes made in the field being updated in the database was examined.

Audit commentary

Field audit findings

A field audit was conducted of a statistical sample of 287 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	100.8	Wattage from survey is higher than the database wattage by 0.8%
R_L	98.7	With a 95% level of confidence, it can be concluded that the error could be between -1.3% and +2.9%
R_H	102.9	

These results were categorised in accordance with the "Distributed Unmetered Load Statistical Sampling Audit Guideline", effective from 1 February 2019 and the table below shows that Scenario A (detailed below) applies. Compliance is confirmed.

The conclusion from Scenario A is that the variability of the sample results across the strata means that the true wattage (installed in the field) could be between -1.3% lower and 2.9% higher than the wattage recorded in the DUML database. Compliance is recorded because the potential error is less than 5.0%.

In absolute terms the installed capacity is estimated to be 1 kW higher than the database indicates.

There is a 95% level of confidence that the installed capacity is between 2 kW lower to 5 kW higher than the database.

In absolute terms, total annual consumption is estimated to be 5,100 kWh higher than the DUML database indicates.

There is a 95% level of confidence that the annual consumption is between 8,700 kWh p.a. lower to 19,900 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 %

Light description and capacity accuracy

Lamp and gear wattages were compared to the expected values. This found a minor number of discrepancies. These are detailed in the table below:

Lamp make model	Quantity	Database lamp wattage	Expected lamp wattage	Variance
Fluor (26 watts)	6	33	28.6	26.4
Fluor (2x58W)	2	130	144	-28
Fluor (2x60W)	1	132	143	-11
Metal Halide (150W)	2	167	168	-2
Metal Halide (70W)	8	86	83	24
SON (50W)	1	50	61	11
			TOTAL	20.4

This will result in a very minor estimated annual over submission of 87.12 kWh per annum (based on 4,271 burn hours). This is recorded as non-compliance below.

The database records 3,190 LED lights as "LED" lights only. There are 61 different LED wattages recorded. Lamp descriptions will be updated as time and resource allows. I repeat the recommendation from the previous audit that all LED light descriptions are reviewed to ensure that they contain enough detail to confirm that the correct wattage has been applied.

Recommendation	Description	Audited party comment	Remedial action
Database Accuracy	Update database with lamp descriptions to confirm the correct wattage has been applied.	Genesis has discussed the audit findings with the Tasman DC with the intent that council makes every effort to ensure the exceptions are rectified.	Identified

Three LED lamps had an incorrect lamp size value recorded, all other details for the LED lamps appeared to be correct:

Lamp Total Watts	Lamp Size
35	3535
265	265265
98	9898

Change management process findings

Fault, maintenance and upgrade work is managed by Powertech. All changes made require a "streetlight advice form" to be supplied to Network Tasman. The database assigns a unique identifier per light. Each item of load has a "UML start date" and "UML end date". The "UML start date" relates to the installation

date for the light. The "UML end date" defaults to 2099 and is updated to the date of removal when the light is replaced. As changes are made the ICP kW value is calculated on the day of updating. This is updated on a daily basis in the Network Tasman ICP database. Reporting of these changes is not provided in the monthly report to Genesis. This is recorded as non-compliance in **sections 2.1** and **3.2**.

The new connection process follows the same process as changes made in the field. This work is undertaken by Delta and Powertech. A "streetlight service form" is completed and an "as built" drawing is provided. GPS co-ordinates are not provided as part of this process and often there are lot numbers at this time resulting in lights that have insufficient information to locate them.

The field audit identified 12 lamps in a new subdivision that had 13W LED recorded in the database, however the lamps were labelled with a higher wattage, these should be checked with the contractor to confirm the correct wattage and update the database. The database has 38 lamps recorded as 13W LED, I recommend obtaining paperwork for all of the lamps identified as 13W LED new connections to confirm the correct lamp wattage installed in the field and update the database.

Recommendation	Description	Audited party comment	Remedial action
Confirm wattages for new connections with contractor	The wattage for 38 new connections has been advised as 13W, however the field audit identified this was not correct.	Genesis has discussed the audit findings with the Tasman DC with the intent that council makes every effort to ensure the exceptions are rectified.	Identified

Festive lights

Network Tasman confirmed that there is no festive lighting used on the Network Tasman network.

Private lights

Private lights are recorded as either standard unmetered load or shared unmetered load as required by the code. No private lights are recorded in the database.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 16-Jul-20 To: 03-Feb-22	Incorrect wattages for 20 items of load resulting in an estimated minor over submission of 87.12 kWh per annum. 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	Controls are rated as moderate, as they are sufficient to mitigate the risk most of the time, but there is room for improvement. The impact is assessed to be low, based on the kWh differences described above.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis has discussed the audit findings with the Tasman DC with the intent that council makes every effort to ensure the exceptions are rectified.	Continuous improvement	Identified
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis continues to work with the council to raise database accuracy levels.	Continuous improvement	

3.2. Volume information accuracy (Clause 15.2 and 15.37B(c))

Code reference

Clause 15.2 and 15.37B(c)

Code related audit information

The audit must verify that:

- *volume information for the DUML is being calculated accurately*
- *profiles for DUML have been correctly applied.*

Audit observation

The submission was checked for accuracy for the month the database extract was supplied. This included:

- checking the registry to confirm that the ICP has the correct profile and submission flag, and
- checking the database extract combined with the on hours against the submitted figure to confirm accuracy.

Audit commentary

Genesis reconciles this DUML load using the CST profile. I checked the submission methodology.

A monthly wattage report is provided to Genesis from the database by Network Tasman. Genesis derives the hours of operation information using a data logger. I checked the database extract provided by Network Tasman on 3rd February 2022 against the submission totals supplied by Genesis for October 2021 and found that there was a difference in the number of lights and volume submitted for all of the ICPs, as detailed in the table below:

ICPs	Fittings number from October submission	Fittings number from 3rd February database extract	Difference	kWh value submitted	Calculated kWh value from database	kWh difference
0000090005NTAE5	82	70	-12	943	755.32	- 187.68
0000090003NTB6A	927	857	-70	12,640	10,052.53	- 2,587.47
0000090004NT6A0	301	258	-43	3,897	2,586.64	- 1,310.36
0000090006NT625	73	46	-27	1,364	512.81	508.04
0000090002NT72F	2,349	2,352	3	37,185	33,782.46	- 3,402.54
Totals	**3,732**	**3,583**	**-149**	**56,029**	**47,689.76**	**- 6,980.00**

The discrepancy results in a possible over submission of 6,980 kWh for January 2022 and an estimated annualised over submission of 83,760 kWh . Genesis are investigating this.

The field audit found that database accuracy was within the allowable +/- 5% threshold.

A check of the wattages applied identified 20 lights with the incorrect wattage applied resulting in an estimated very minor over submission of 87.12 kWh per annum as detailed in **section 3.1**.

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

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

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

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: 16-Jul-20 To: 03-Feb-22	Estimated over submission of 83,760 kWh per annum due to discrepancies between data extract and volume submitted. The data used for submission does not track changes at a daily basis and is provided as a snapshot. Incorrect wattages for 20 items of load resulting in an estimated minor over submission of 87.12 kWh per annum. Potential impact: High Actual impact: High Audit history: Multiple times previously Controls: Moderate Breach risk rating: 6
Audit risk rating	**Rationale for audit risk rating**
High	Controls are rated as moderate, as they are sufficient to mitigate the risk most of the time, but there is room for improvement. The audit risk rating is high based on the estimated kWh volume variances detailed above.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis conducted a full consumption review of the Tasman DC data base using the extract provided in April 2022. The volumes have been adjusted and will washed up going back 14mth.	11/4/2022	Identified
Genesis has discussed the audit findings with the Tasman DC with the intent that council makes every effort to ensure the exceptions are rectified. Genesis will continue to work the council to define the monthly reporting requirements in regard to the tracking of changes that has occurred within the month.	Continuous improvement	
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Genesis continues to work with the council to raise database accuracy levels.	Continuous improvement	

CONCLUSION

Network Tasman hold an access database for the Tasman DC unmetered streetlights. Fault, maintenance and upgrade work is conducted by PowerTech and the database is managed by Network Tasman. New streetlight connections are undertaken by Delta and Powertech.

Genesis reconciles the TDC DUML load using the CST profile. A monthly wattage report is provided to Genesis from the database by Network Tasman. Genesis derives the hours of operation information using a data logger. I checked the database extract provided by Network Tasman for February 2022 against the estimated submission totals supplied by Genesis for October 2021 and found that there was a difference in the number of lights and volume submitted for all of the ICPs resulting in an estimated annualised over submission of 83,760 kWh. Genesis is investigating this.

The field audit was undertaken on 287 items of load on 2nd March 2022 and found that database accuracy was within the allowable +/- 5% threshold.

The audit found five non-compliances. I have repeated three recommendations for improvements in the database fields and recorded one additional recommendation.

The future risk rating of nine indicates that the next audit be completed in six months, and I have considered this in conjunction with Genesis' comments and I recommend that the next audit be in six months from the audit due date.

The late submission of the audit report is not recorded as a non-compliance as the draft audit report was provided prior to the due date and the delay has been due to the responses being late in being received.

PARTICIPANT RESPONSE

Genesis conducted a full consumption review of the Tasman DC data base using the extract provided in April 2022. The volumes have been adjusted and will washed up going back 14mth.

Genesis has discussed the audit findings with the Tasman DC with the intent that council makes every effort to ensure the exceptions are rectified.

Genesis will continue to work the council to define the monthly reporting requirements in regard to the tracking of changes that has occurred within the month.