

**ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT**

For

**TAUPO DISTRICT COUNCIL
AND GENESIS ENERGY LIMITED
NZBN: 9429037696863**

Prepared by: Rebecca Elliot

Date audit commenced: 22 May 2023

Date audit report completed: 11 September 2023

Audit report due date: 1 October 2023

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EXECUTIVE SUMMARY

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

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

TDC switched to Genesis during the audit period from 1 July 2022.

TDC use a RAMM database to manage this DUMML load. New connection, fault and maintenance work is completed by Horizons. Reports are received by Genesis on a monthly basis. These are checked to identify light changes and the light volumes are calculated on a daily basis for any changes made in the month, however the livening date for newly connected lights is not populated in the database. The date of the "as-built" plan is used, which is after livening but before vesting.

Analysis of the database extract provided found 764 items of load with the with the incorrect ballast applied (the majority with zero incorrectly applied). Genesis have corrected this in their records prior to submission, so this has not impacted the market. TDC have corrected this in the database, and I confirmed this by checking a subsequent database extract.

The field audit found that in absolute terms, total annual consumption is estimated to be 6,300 kWh higher than the DUMML database indicates, meaning that under submission is occurring.

The audit found four non-compliances and makes two recommendations. The future risk rating of eight indicates that the next audit be completed in 18 months. I have considered this in conjunction with Genesis' comments and agree with this recommendation.

The matters raised are detailed below:

AUDIT SUMMARY

NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Deriving submission information	2.1	11(1) of Schedule 15.3	<p>In absolute terms, total annual consumption is estimated to be 6,300 kWh higher than the DUML database indicates.</p> <p>The incorrect livening date for new lights is populated resulting in the lights being entered after they have been livened.</p>	Moderate	Low	2	Investigating
All load recorded in the database	2.5	11(2A) of Schedule 15.3	All load is not recorded in the database. Two additional items of load were found.	Moderate	Low	2	Identified
Database accuracy	3.1	15.2 and 15.37B(b)	<p>In absolute terms, total annual consumption is estimated to be 6,300 kWh higher than the DUML database indicates.</p> <p>764 items of load with the incorrect ballast applied (the majority with zero incorrectly applied). This would be resulting in an estimated under submission of 40,538 kWh per annum if the database extract was used without adjustment.</p> <p>The database is not populated with the actual livening date for new lights.</p>	Moderate	Low	2	Investigating

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Volume information accuracy	3.2	15.2 and 15.37B(c)	In absolute terms, total annual consumption is estimated to be 6,300 kWh higher than the DUML database indicates. The incorrect livening date for new lights is populated resulting in the lights being entered after they have been lived.	Moderate	Low	2	Investigating
Future Risk Rating						8	

Future risk rating	0	1-4	5-8	9-15	16-18	19+
Indicative audit frequency	36 months	24 months	18 months	12 months	6 months	3 months

RECOMMENDATIONS

Subject	Section	Recommendation
Database Accuracy	3.1	Share the field audit findings and review the database accuracy process with the contractor.
		Liaise with the networks to ensure that streetlight electrical connections are notified to TDC.
		Establish a process to account for streetlight consumption between livening and when the database is populated.

ISSUES

Subject	Section	Description	Issue
		Nil	

1. ADMINISTRATIVE

1.1. Exemptions from Obligations to Comply with Code

Code reference

Section 11 of Electricity Industry Act 2010.

Code related audit information

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

Audit observation

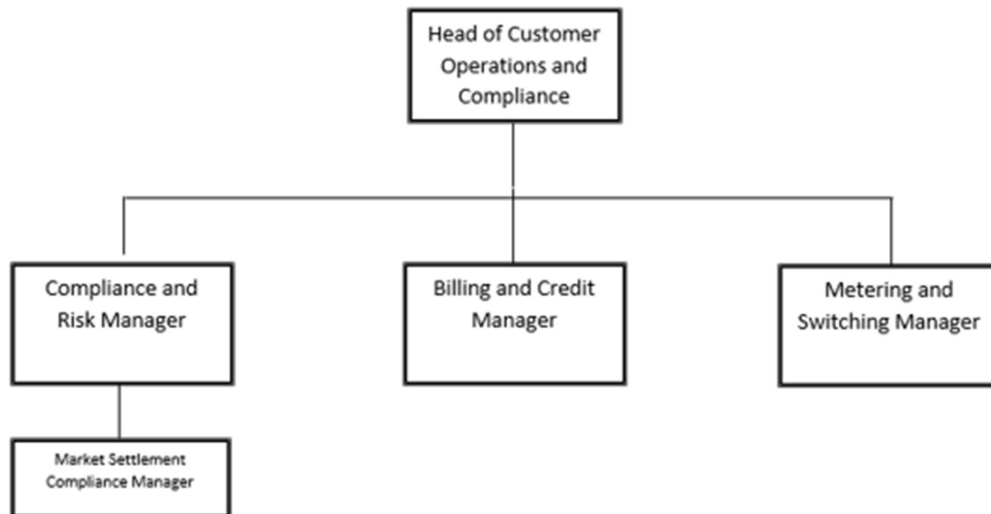
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

Audit commentary

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

1.2. Structure of Organisation

Genesis provided a copy of their organisational structure.



1.3. Persons involved in this audit

Auditor:

Rebecca Elliot

Veritek Limited

Electricity Authority Approved Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Johan van Staden	Risk and Compliance Specialist	Genesis Energy
Shantelle Comer	Customer Operations Data and Systems Specialist	Genesis Energy
Claire Sharland	Asset Manager	Taupo DC
Izelda Cruz	Team Leader Operations Maintenance	Taupo DC
Nichole Tang	Asset Data Specialist-Transport	Taupo DC

1.4. Hardware and Software

The SQL database used for the management of DUML is remotely hosted by think project Ltd. The database is commonly known as "RAMM" which stands for "Roading Asset and Maintenance Management". The specific module used for DUML is called RAMM Contractor.

The database back-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)
0000029279HR82A	Atiamuri Streetlights	ROT0111	NST	34	1,998
0000031514WEC89	Wharewaka Streetlights	WRK0331	NST	64	2,408
0001264720UN608	Taupo Streetlights	WRK0331	NST	3,537	143,265
0008807420WM161	Turangi Streetlights	TKU0331	NST	788	25,831

0008808341WM4B6	Mangakino Streetlights	HTI0331	NST	223	7,297
Total				4,646	180,799

I note that the overall volume of lights is similar to the last audit, except for ICP 0008807420WM161 which has reduced in number by 27 lights. This is due to the removal of the Waka Kotahi lights as these are now being reconciled in the Waka Kotahi Waikato RAMM database.

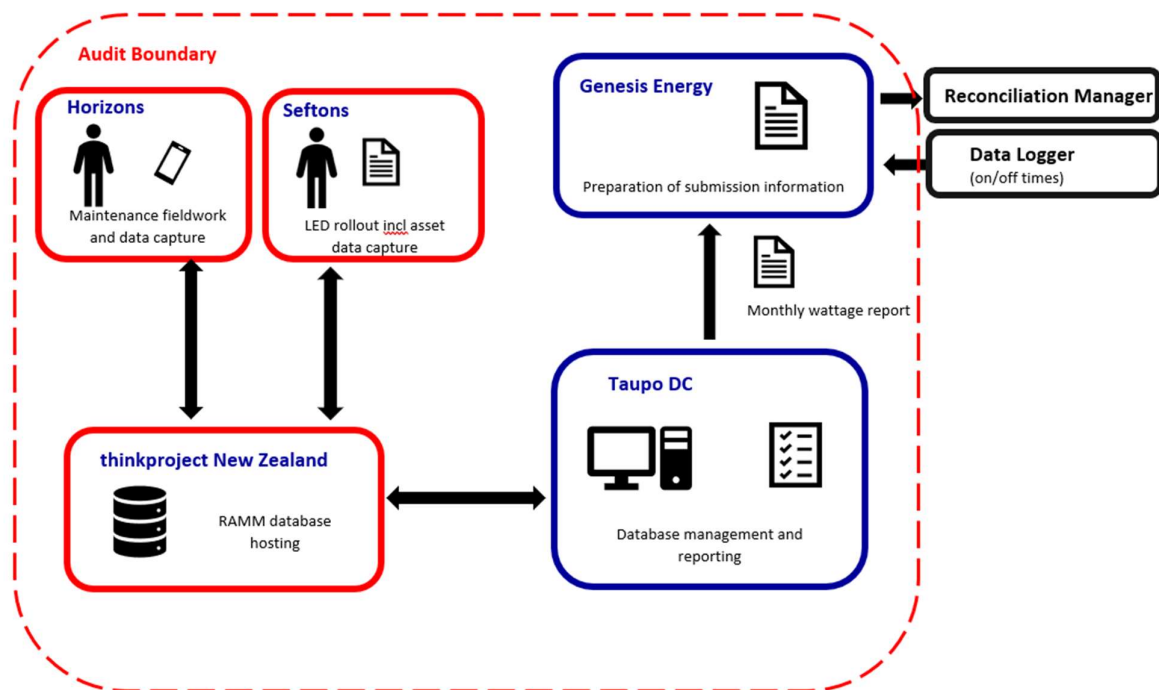
1.7. Authorisation Received

All information was provided directly by Genesis and TDC.

1.8. Scope of Audit

TDC use a RAMM database to manage this DUML load. New connection, fault and maintenance work is completed by Horizons. The first LED roll out is complete. The second roll out of the P category lights is underway. Seftons Limited are undertaking this work. Monthly reports are received by Genesis.

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



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

The field audit was undertaken of a statistical sample of 216 items of load on 5th July 2023.

1.9. Summary of previous audit

The previous audit was completed in April 2022 by Steve Woods of Veritek Limited for Meridian Energy. That audit found four non-compliances and made two recommendations. The status against the relevant clauses is detailed below:

Table of Non-Compliance

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	In absolute terms, total annual consumption is estimated to be 12,100 kWh higher than the DUML database indicates. Submission is based on a snapshot of the database at the end of the month and does not consider historic adjustments or the fact that lights can be lived before they are entered into the database.	Still existing
All load recorded in the database	2.5	11(2A) of Schedule 15.3	All load is not recorded in the database. Two additional items of load were found.	Still existing
Database accuracy	3.1	15.2 and 15.37B(b)	In absolute terms, total annual consumption is estimated to be 12,100 kWh higher than the DUML database indicates. The database is not populated with the actual living date for new lights.	Still existing
Volume information accuracy	3.2	15.2 and 15.37B(c)	In absolute terms, total annual consumption is estimated to be 12,100 kWh higher than the DUML database indicates. Submission is based on a snapshot of the database at the end of the month and does not consider historic adjustments or the fact that lights can be lived before they are entered into the database.	Still existing

Table of Recommendations

Subject	Section	Recommendation	Status
Database Accuracy	3.1	Meridian to liaise with TDC and NZTA to ensure changes made in the field are updated in the database.	Cleared
		Liaise with the networks to ensure that streetlight electrical connections are notified to TDC. Establish a process to account for streetlight consumption between living and when the database is populated.	Repeated as trader has changed during the audit period.

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 using the NST profile. The total volume submitted to the Reconciliation Manager is based on a monthly database report derived from RAMM and the “burn time” which is sourced from a data logger.

I checked the submission calculation provided by Genesis for May 2023 and found a difference for four of the five ICPs:

ICPs	Fittings number from May 2023 submission	Fittings number from May 2023 database extract	Differences	kWh value submitted	Calculated kWh value from database	Differences + over submission -under submission
0000031514WEC89	64	64	0	2,272.61	1,952.78	+319.83
0001264720UN608	3506	3537	31	65,031.18	62,149.63	+2,881.55
0008807420WM161	788	788	0	10,211.4	10,789.88	578.48
0008808341WM4B6	223	223	0	2,698.24	2,610.09	-88.15
Total month kWh difference						+2,710.98

This indicates an over submission of 2,711 kWh for May 2023. This is likely due to the incorrect gear wattages recorded in the database which Genesis have corrected prior to submission, therefore the figure submitted is likely to be correct. TDC have corrected this in the database, and I confirmed this by checking a subsequent database extract. As this is being corrected before submission, I have not recorded non-compliance.

The issue of dimming was checked, and whilst the lights have this capability, TDC have no CMS system to operate this, so it is not expected to be deployed.

I checked the field audit against the revised database with the ballasts corrected, as this is the most accurate assessment of the database accuracy. This found that the database is not confirmed as accurate with a 95% level of confidence. This indicates an estimated under submission of 6,300 kWh per annum. This is detailed in **section 3.1**.

Analysis of the database found 764 items of load with the with the incorrect ballast applied (the majority with zero incorrectly applied). This indicates an estimated under submission of 40,538 kWh per annum but as noted above, this was being corrected by Genesis before being submitted so the volumes being submitted are likely to be correct. TDC have corrected this in the database, and I confirmed this by checking a subsequent database extract. As this is being corrected before submission, I have not recorded non-compliance.

The monthly wattage report is provided and includes the date of light changes. These are checked to identify light changes and the light volumes are calculated on a daily basis for any changes made in the month, however the livening date for newly connected lights is not populated in the database. The date of the “as-built” plan is used, which is after livening but before vesting.

Audit outcome

Non-compliant

Non-compliance	Description	
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: 02-Mar-22 To: 31-May-23	In absolute terms, total annual consumption is estimated to be 6,300 kWh higher than the DUML database indicates. The incorrect livening date for new lights is populated resulting in the lights being entered after they have been livened. Potential impact: Medium 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 as there is room for improvement. The impact is assessed to be low based on the estimated kWh impact.	
Actions taken to resolve the issue	Completion date	Remedial action status
Taupo DC will liaise with lines companies to query the livening date of assets with missing data. This information will be used to update the database.	1/11/2023	Investigating
Preventative actions taken to ensure no further issues will occur	Completion date	
Taupo DC will establish a process with network companies to ensure the livening date is provided and used in the database.	1/11/2023	

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 that an ICP is recorded for each item of load.

Audit commentary

All items of load have an ICP recorded.

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 the nearest street address, displacement from end of road and/or Global Positioning System (GPS) coordinates for each item of load. All but one item of load had GPS coordinates populated. Light ID 69750 has the displacement value recorded and is locatable. Compliance is confirmed.

Audit outcome

Compliant

2.4. Description and capacity of load (Clause 11(2)(c) and (d) of Schedule 15.3)

Code reference

Clause 11(2)(c) and (d) of Schedule 15.3

Code related audit information

The DUML database must contain:

- *a description of load type for each item of load and any assumptions regarding the capacity*
- *the capacity of each item in watts.*

Audit observation

The database was checked to confirm that it contained a field for lamp type and wattage capacity and included any ballast or gear wattage.

Audit commentary

The database contains two fields for wattage, firstly the manufacturers rated wattage and secondly the “ballast wattage”. The ballast wattage is expected to be a calculated figure which accounts for any variation from the input wattage and includes losses associated with ballasts. Examination of the database confirmed all fields were populated.

The accuracy of the ballast wattages used for submission are 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 216 items of load on 5th July 2023.

Audit commentary

The field audit findings are shown in the table below. A detailed spreadsheet has been provided listing each item of load.

Discrepancy	Quantity
Incorrect wattage	25
Additional items of load	2
Items of load in the database but not located in the field	2

I checked the findings from the last audit and the corrections have been made in the database.

The two additional lights found in the field are recorded as non-compliance.

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

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.5 With: Clause 11(2A) of Schedule 15.3 From: 02-Mar-22 To: 31-May-23	All load is not recorded in the database. Two additional items of load were found. 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 as there is room for improvement. The impact is assessed to be low as the majority of the volume of additional lighting found in the sample was small.		
Actions taken to resolve the issue		Completion date	Remedial action status
Taupo DC will add the two additional lights found in the field, to their database.		1/10/2023	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Taupo DC will implement a process to carry out their own field audit with their contractor on a routine basis. This will be done to identify non-compliances such as this.		1/12/2023	

2.6. Tracking of load changes (Clause 11(3) of Schedule 15.3)

Code reference

Clause 11(3) of Schedule 15.3

Code related audit information

The DUML database must track additions and removals in a manner that allows the total load (in kW) to be retrospectively derived for any given day.

Audit observation

The process for tracking of changes in the database was examined.

Audit commentary

The database tracks additions and removals as required by this clause.

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 DUMML 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

A complete audit trail exists of all additions and changes to the database information.

Audit outcome

Compliant

3. ACCURACY OF DUML DATABASE

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

Code reference

Clause 15.2 and 15.37B(b)

Code related audit information

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

Audit observation

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

Plan Item	Comments
Area of interest	Taupo district
Strata	<p>The database contains items of load in Taupo District Council area.</p> <p>The area has two distinct sub-groups of urban and rural.</p> <p>The processes for the management of TDC items of load are the same, but I decided to place the items of load into four strata, as follows:</p> <ol style="list-style-type: none"> 1. A-Ho 2. Hu-O 3. P-S 4. T-Y
Area units	I created a pivot table of the roads in each area, and I used a random number generator in a spreadsheet to select a total of 40 sub-units or 5% of the database wattage.
Total items of load	216 items of load were checked.

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

Audit commentary

Database accuracy based on the field audit

A field audit was conducted against the revised database with the ballasts corrected, as this is the most accurate assessment of the database accuracy. 216 items of load were selected using the statistical sampling methodology. 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	97.1	With a 95% level of confidence, it can be concluded that the error could be between -2.9% and +10.8%
R _H	110.8	

These results were categorised in accordance with the “Distributed Unmetered Load Statistical Sampling Audit Guideline”, effective from 1 February 2019. 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 2.9% lower and 10.8% 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 1.0 kW higher than the database indicates.

There is a 95% level of confidence that the installed capacity is between 5.0 kW lower to 20 kW higher than the database.

In absolute terms, total annual consumption is estimated to be 6,300 kWh higher than the DUML database indicates.

There is a 95% level of confidence that the annual consumption is between 22,700 kWh lower to 83,600 kWh p.a. higher than the database indicates.

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

Lamp description and capacity accuracy

Wattages for all items of load were checked against the published standardised wattage table produced by the Electricity Authority and found the ballasts recorded have been corrected in RAMM.

Analysis of the database found:

- 20 items of load with the incorrect wattage of 58.1W but the light label states 59W. This will be resulting in a very very minor amount of under submission. This is due to the label being different to the light specification provided by the developer. TDC are investigating this to ensure that the correct wattages are recorded.

- 764 items of load with the incorrect ballast applied (the majority with zero incorrectly applied). This would be resulting in an estimated under submission of 40,538 kWh per annum if the database extract were used for submission with no adjustment. Genesis have been correcting this prior to submission so this error has no impact to the market but is recorded as non-compliance below as the database was complete and accurate as required by this clause. TDC have now corrected this, and I confirmed this by checking a subsequent database extract. I will record this as cleared in the audit summary table.

Waka Kotahi lighting

All Waka Kotahi lighting has been removed from the TDC database. This load is being reconciled by Waka Kotahi as part of the Waikato area.

ICP accuracy

All items of load appear to have the correct ICPs recorded.

Location accuracy

The location details are accurate and complete.

Change management process findings

TDC use a RAMM database to manage this DUMML load. New connections, fault and maintenance work is completed by Horizons. Nightly patrols are included in this contract and the whole network is expected to be covered every three months. The field audit found a large number of incorrect wattages being recorded by the field contractor which has affected the database accuracy and I recommend that these findings are shared, and the field update process be reviewed with the contractor.

Description	Recommendation	Audited party comment	Remedial action
Database accuracy	Share the field audit findings and review the database accuracy process with the contractor.	Taupo DC will share the audit and its findings with the contractor.	Identified

Seftons' are undertaking the category P LED Light replacement (this includes decorative lights). They are using pocket RAMM to enter the assets. All changes made during a month are reviewed and provided as part of the monthly report provided to Genesis for submission.

TDC is responsible for checking all claims for work carried out prior to the claim by the contractor being approved for payment. The process for the connection of streetlights in new subdivisions was discussed. TDC have strict requirements for all relevant asset information to be provided prior to the signing off the section 224C that is required before the subdivision is vested to council. This includes a check of all of the "as-builts". The sign off will not be granted before the council is satisfied that the information required is complete. Once the subdivision is vested the assets are added to RAMM. This is expected to happen promptly after the 224C has been issued. Titles cannot be issued prior to this therefore the building of houses is unlikely to occur (and this is the usually the trigger for streetlights to go on). The field contractor is now contacting TDC to ask for the correct ICP for new lights to be allocated to. TDC do not receive any notification of streetlights being connected from Unison or the Lines Company, therefore there is a possibility that streetlight assets are added to RAMM prior to being electrically connected. I recommend that Genesis liaise with TDC, Unison and the Lines Company to ensure that the process is well mapped between the parties, including that a process is established for the period between streetlight livening and when the database is populated to ensure this period is captured for submission purposes.

Description	Recommendation	Audited party comment	Remedial action
Database accuracy	<p>Liaise with the networks to ensure that streetlight electrical connections are notified to TDC.</p> <p>Establish a process to account for streetlight consumption between livening and when the database is populated.</p>	<p>Taupo DC will establish a process with network companies to ensure the livening date is provided and used in the database. This will ensure all consumption is accounted for.</p>	Investigating

Festive Lighting

Festive lights are connected into the unmetered circuits, and these are added and removed for the relevant months.

Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 02-Mar-22 To: 31-May-23	In absolute terms, total annual consumption is estimated to be 6,300 kWh higher than the DUML database indicates. 764 items of load with the incorrect ballast applied (the majority with zero incorrectly applied). This would be resulting in an estimated under submission of 40,538 kWh per annum if the database extract was used without adjustment. The database is not populated with the actual livening date for new lights. Potential impact: Medium 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 as there is room for improvement with recommendations detailed above. The impact is assessed to be low based on the estimated kWh impact.		
Actions taken to resolve the issue		Completion date	Remedial action status
Taupo DC will liaise with lines companies to query the livening date of assets with missing data. This information will be used to update the database.		1/11/2023	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	
Taupo DC will establish a process with network companies to ensure the livening date is provided and used in the database.		1/11/2023	

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

Code reference

Clause 15.2 and 15.37B(c)

Code related audit information

The audit must verify that:

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

Audit observation

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

- checking the registry to confirm that all ICPs have the correct profile and submission flag, and
- checking the database extract combined with the burn hours against the submitted figure to confirm accuracy.

Audit commentary

I checked the submission calculation provided by Genesis for May 2023 and found a difference for four of the five ICPs:

ICPs	Fittings number from May 2023 submission	Fittings number from May 2023 database extract	Differences	kWh value submitted	Calculated kWh value from database	Differences + over submission -under submission
0000031514WEC89	64	64	0	2,272.61	1,952.78	+319.83
0001264720UN608	3506	3537	31	65,031.18	62,149.63	+2,881.55
0008807420WM161	788	788	0	10,211.4	10,789.88	578.48
0008808341WM4B6	223	223	0	2,698.24	2,610.09	-88.15
Total month kWh difference						+2,710.98

This indicates an over submission of 2,711 kWh for May 2023. This is likely due to the incorrect gear wattages recorded in the database which Genesis have corrected prior to submission, therefore the figure submitted is likely to be correct. TDC have corrected this in the database, and I confirmed this by checking a subsequent database extract. As this is being corrected before submission, I have not recorded non-compliance.

The issue of dimming was checked, and whilst the lights have this capability, TDC have no CMS system to operate this, so it is not expected to be deployed.

I checked the field audit against the revised database with the ballasts corrected, as this is the most accurate assessment of the database accuracy. This found that the database is not confirmed as accurate with a 95% level of confidence. This indicates an estimated under submission of 6,300 kWh per annum. This is detailed in **section 3.1**.

Analysis of the database found 764 items of load with the incorrect ballast applied (the majority with zero incorrectly applied). This indicates an estimated under submission of 40,538 kWh per annum but as noted above, this was being corrected by Genesis before being submitted so the volumes being submitted are likely to be correct. TDC have corrected this in the database, and I confirmed this by checking a subsequent database extract. As this is being corrected before submission, I have not recorded non-compliance.

The monthly wattage report is provided and includes the date of light changes. These are checked to identify light changes and the light volumes are calculated on a daily basis for any changes made in the month, however the liveness date for newly connected lights is not populated in the database. The date of the "as-built" plan is used, which is after liveness but before vesting.

Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 3.2</p> <p>With: Clause 15.2 and 15.37B(c)</p> <p>From: 02-Mar-22</p> <p>To: 31-May-23</p>	<p>In absolute terms, total annual consumption is estimated to be 6,300 kWh higher than the DUMML database indicates.</p> <p>The incorrect livening date for new lights is populated resulting in the lights being entered after they have been livened.</p> <p>Potential impact: Medium</p> <p>Actual impact: Low</p> <p>Audit history: Multiple times</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p>		
Audit risk rating	Rationale for audit risk rating		
<p>Low</p>	<p>The controls are rated as moderate as there is room for improvement.</p> <p>The impact is assessed to be low based on the estimated kWh impact.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>Taupo DC will liaise with lines companies to query the livening date of assets with missing data. This information will be used to update the database.</p>		<p>1/11/2023</p>	<p>Investigating</p>
Preventative actions taken to ensure no further issues will occur		Completion date	
<p>Taupo DC will establish a process with network companies to ensure the livening date is provided and used in the database.</p>		<p>1/11/2023</p>	

CONCLUSION

TDC switched to Genesis during the audit period from 1 July 2022.

TDC use a RAMM database to manage this DUML load. New connection, fault and maintenance work is completed by Horizons. Reports are received by Genesis on a monthly basis. These are checked to identify light changes and the light volumes are calculated on a daily basis for any changes made in the month, however the livening date for newly connected lights is not populated in the database. The date of the “as-built” plan is used, which is after livening but before vesting.

Analysis of the database extract provided found 764 items of load with the with the incorrect ballast applied (the majority with zero incorrectly applied). Genesis have corrected this in their records prior to submission, so this has not impacted the market. TDC have corrected this in the database, and I confirmed this by checking a subsequent database extract.

The field audit found that in absolute terms, total annual consumption is estimated to be 8,800 kWh higher than the DUML database indicates, meaning that under submission is occurring.

The audit found four non-compliances and makes two recommendations. The future risk rating of eight indicates that the next audit be completed in 18 months. I have considered this in conjunction with Genesis’ comments and I agree with this recommendation.

PARTICIPANT RESPONSE

TDC switched to Genesis during the audit period and manage a well maintained database, which has been found in this audit.

Corrections regarding incorrect ballast information have been made during the audit period, promoting better database accuracy. Protections have also been put in place to ensure this information is correctly recorded for any future additions to the database.

Items of load not recorded, will be recorded in the database in a timely manner once investigated by the contractor. Additionally, a self-audit will be implemented by TDC to ensure inaccuracies such as this are identified earlier.

TDC will also work to gather further information from network companies to improve compliance of their database, Genesis will assist them where needed during this process.