ELECTRICITY INDUSTRY PARTICIPATION CODE
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

VERITEK

For

ASHBURTON DISTRICT COUNCIL AND MERIDIAN ENERGY LIMITED

Prepared by: Rebecca Elliot

Date audit commenced: 9 July 2021

Date audit report completed: 19 August 2021

Audit report due date: 1 September 2021

TABLE OF CONTENTS

EXECUTIVE SUMMARY

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

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

A RAMM database is held by ADC, who is Meridian's customer. **Electricity Ashburton (EA Networks)** are responsible for new connections, fault, maintenance, and upgrade work, and maintain the database.

A monthly report from the database is provided to Meridian and is used to calculate submissions. Meridian submits the DUML load as NHH using the DST profile. The on and off times are derived from a data logger read by EMS and are used to create a shape file. Meridian supplies EMS with the capacity information and EMS calculates the kWh figure for each ICP and includes this in the relevant AV080 file. This process was audited during Meridian's reconciliation participant audit and EMS' agent audit.

A field audit was conducted of a statistical sample of 219 items of load. The "database auditing tool" was used to analyse the results. The analysis confirmed that the database potential error is less than 5.0% and is therefore compliant.

On 18 June 2019, the Electricity Authority issued a memo clarifying the memo of 2012 that stated that a monthly snapshot was sufficient to calculate submission from, and confirmed 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. Meridian completes revision submissions where corrections are required but they are not yet being provided with changes made to the database during the month.

Four non-compliances were identified. The future risk rating of four indicates that the next audit be completed in 24 months. I have considered this in conjunction with Meridian's responses 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	The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.	Strong	Low	1	Disputed
All load recorded in the database	2.5	11(2A) of Schedule 15.3	Four additional lights found in the field of the sample audited.	Strong	Low	1	Investigating
Database accuracy	3.1	15.2 and 15.37B(b)	20 lights with the incorrect light description. The correct wattage is recorded so this has no impact on reconciliation. One light with the incorrect ballast recorded. The impact on submission is negligible.	Strong	Low	1	Investigating
Volume information accuracy	3.2	15.2 and 15.37B(c)	The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.	Strong	Low	1	Disputed
Future Risk Rating						4	

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	Adopt the EA Standardised wattage format where the total wattage is recorded in the lamp value.

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

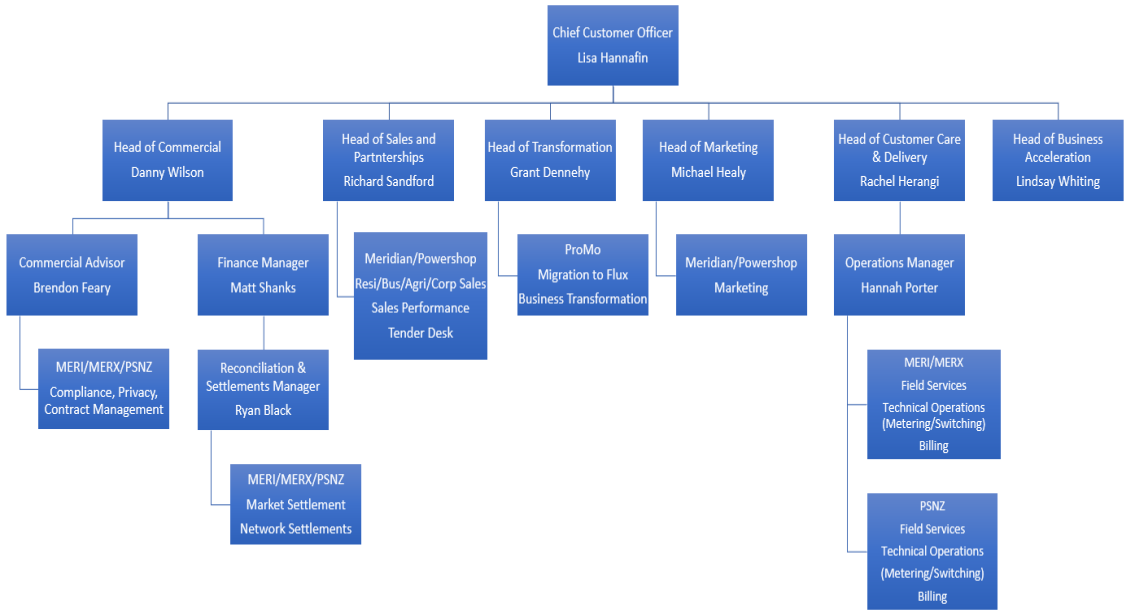
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

Audit commentary

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

1.2. Structure of Organisation

Meridian provided a copy of their organisational structure.



1.3. Persons involved in this audit

Auditor:

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
Deborah Barron	Asset Management Officer – Transportation	Ashburton District Council
Wayne Watson	Overhead Manager	Electricity Ashburton Network
Daniel Lau	Energy Data Analyst	Meridian Energy Limited

1.4. Hardware and Software

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

RAMM Software Limited backs up the database and assists with disaster recovery as part of their hosting service. Nightly backups are performed. As a minimum, daily backups are retained for the previous five working days, weekly backups are retained for the previous four weeks, and monthly backups are retained for the previous six months.

Access to the database is secure by way of password protection.

1.5. Breaches or Breach Allegations

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

1.6. ICP Data

ICP Number	Description	NSP	Profile	Number of items of load	Database wattage (watts)
0000010559EAD7C	280 East St, Ashburton	ASB0661	DST	35	18,552
0000025163EA218	ADC Streetlights, Ashburton	ASB0661	DST	3,067	142,501
0000025164EAFD2	Open Spaces - Parks and Amenities, Ashburton	ASB0661	DST	85	6,089
0000030218EA553	Open Spaces - Methven Town Centre, Methven	ASB0661	DST	27	961
Total				3,214	168,103

1.7. Authorisation Received

All information was provided directly by Meridian or ADC.

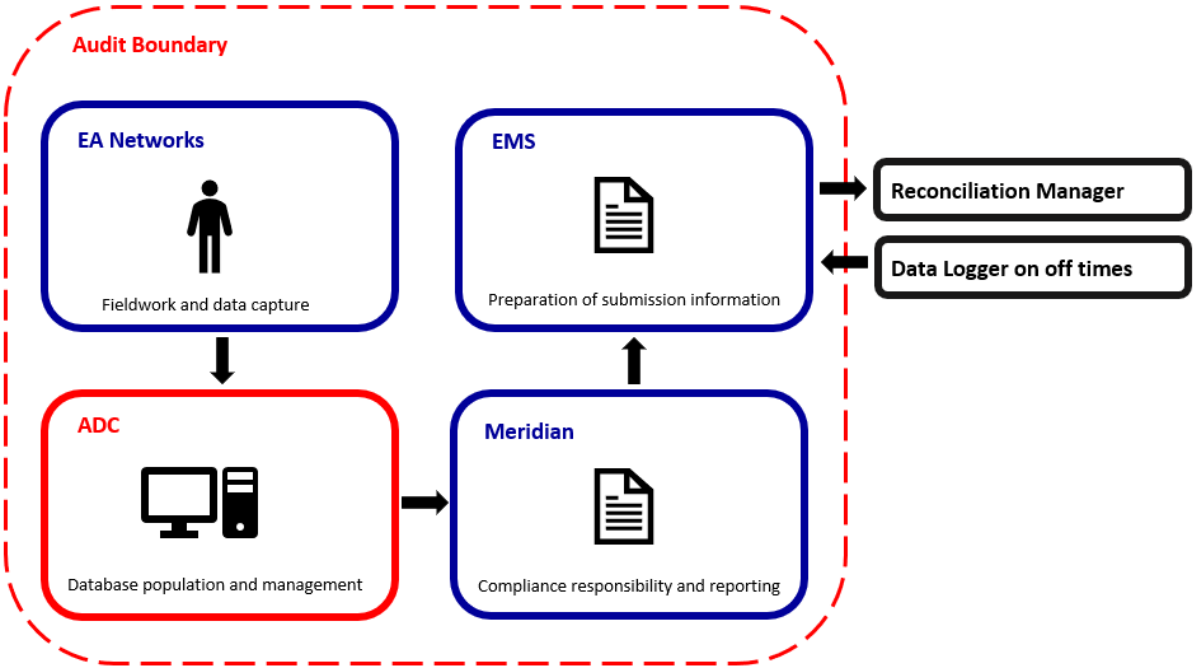
1.8. Scope of Audit

This audit of the ADC DUML database and processes was conducted at the request of Meridian 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.

A RAMM database is held by ADC, who is Meridian's customer. EA Networks are responsible for new connections, fault, maintenance, and upgrade work, and maintain the database.

Meridian reconciles the DUML load for ADC ICPs 0000010559EAD7C, 0000025163EA218, 0000025164EAFD2 and 0000030218EA553 as NHH using the DST profile. The on and off times are derived from a data logger read by EMS and are used to create a shape file. Meridian supplies EMS with the capacity information and EMS calculates the kWh figure for each ICP and includes this in the relevant AV080 file. This process was audited during Meridian's reconciliation participant audit and EMS' agent audit.

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 219 items of load in Ashburton on carried out on 23 July 2021.

1.9. Summary of previous audit

The previous audit was undertaken by Tara Gannon of Veritek Limited in June 2020. The summary table below shows the statuses of the non-compliances and recommendations raised in the previous audit. Further comment is made in the relevant sections of this report.

Table of Non-compliance

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	Three lights were assigned to ICP 0000000000EAZZZ, which is used to track lights with unknown owners and is not settled.	Cleared
			Three lights (light IDs 10727, 10729 and 10734) had missing gear wattages, and were corrected by the time the audit was complete. The errors could have resulted under reporting of 55 kWh p.a.	Cleared
			Incorrect wattages were recorded for 11 connected lights and were corrected during the audit. The errors could have resulted under reporting of 154 kWh p.a.	Cleared
			The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.	Still existing

Subject	Section	Clause	Non-compliance	Status
ICP identifier and items of load	2.2	11(2)(a) and (aa) of Schedule 15.3	Three lights (light IDs 7962, 7901 and 7902) were assigned to ICP 0000000000EAZZZ, which is used to track lights with unknown owners and is not settled.	Cleared
Description and capacity of load	2.4	11(2)(c) and (d) of Schedule 15.3	Three lights (light IDs 10727, 10729 and 10734) had missing gear wattages, and were corrected by the time the audit was complete.	Cleared
Database accuracy	3.1	15.2 and 15.37B(b)	Three lights were assigned to ICP 0000000000EAZZZ, which is used to track lights with unknown owners and is not settled. Three lights (light IDs 10727, 10729 and 10734) had missing gear wattages, and were corrected by the time the audit was complete. The errors could have resulted under reporting of 55 kWh p.a. Incorrect wattages were recorded for 11 connected lights and were corrected during the audit. The errors could have resulted under reporting of 154 kWh p.a.	Cleared Cleared Cleared
Volume information accuracy	3.2	15.2 and 15.37B(c)	Three lights were assigned to ICP 0000000000EAZZZ, which is used to track lights with unknown owners and is not settled. Three lights (light IDs 10727, 10729 and 10734) had missing gear wattages, and were corrected by the time the audit was complete. The errors could have resulted under reporting of 55 kWh p.a. Incorrect wattages were recorded for 11 connected lights and were corrected during the audit. The errors could have resulted under reporting of 154 kWh p.a. The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot.	Cleared Cleared Cleared Still existing

Table of Recommendations

Subject	Section	Description	Recommendation	Status
Tracking of load changes	2.6	Private lights	I recommend the details of known private lights should be passed to EA Networks to create shared unmetered load or standard unmetered load as appropriate and be removed from the monthly wattage report once this is complete.	Cleared
Database accuracy	3.1	Lamp Wattage	I recommend that the total wattage for MH 60W should be checked and updated in the database if necessary.	Cleared

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

Meridian 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

This clause requires that the distributed unmetered load database must satisfy the requirements of schedule 15.5 regarding the methodology for deriving submission information.

A monthly report from the database is provided to Meridian and is used to calculate submissions. Meridian submits the DUML load as NHH using the DST profile. The on and off times are derived from a data logger read by EMS and are used to create a shape file. Meridian supplies EMS with the capacity information and EMS calculates the kWh figure for each ICP and includes this in the relevant AV080 file. This process was audited during Meridian's reconciliation participant audit and EMS' agent audit. Compliance was confirmed.

The capacities supplied to EMS for June 2021 were checked and confirmed to be accurate.

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. There are very few changes being made in the database so the impact on reconciliation is expected to be small.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: 23-Jun-20 To: 09-Jul-21	The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot. Potential impact: Low Actual impact: Low Audit history: Three times previously Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as strong overall as there are robust processes in place ensure that the database is kept up to date. The impact on settlement and participants is low; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
		Disputed
Preventative actions taken to ensure no further issues will occur	**Completion date**	**Whilst Meridian will revise volumes if changes are made, ADC indicated that the monthly reporting provided to Meridian does not track change at a daily level and reporting changes are needed to provide this
Processes are in place to account for historical database corrections that have a material impact on settlement volumes.		

2.2. ICP identifier and items of load (Clause 11(2)(a) and (aa) of Schedule 15.3)

Code reference

Clause 11(2)(a) and (aa) of Schedule 15.3

Code related audit information

The DUML database must contain:

- *each ICP identifier for which the retailer is responsible for the DUML*
- *the items of load associated with the ICP identifier.*

Audit observation

The database was checked to confirm the correct ICP was recorded against each item of load.

Audit commentary

The analysis found that all items of load had an ICP number recorded.

The last audit identified three lights that were assigned to ICP 0000000000EAZZZ, which is used to track lights with unknown owners and is not settled., the status is updated below.

Road Name	ICP Code	Lamp Model	Lamp and gear wattage	Comment 2020	Comment 2021
MCMURDO STREET	PRIVATE	MV 125W	135	The unmetered load is connected to ICP 0000025557EA8EB and settled by Meridian as standard unmetered load. There are two 125W MV lights on McMurdo Street in the Tinwald Tavern carpark. Underground work is being completed at the site and as part of this process the unmetered load will become metered. Meridian is working with EA networks and intend to update their unmetered load details so that submission is correct until the lights become metered.	Advised by EA Networks that these lights were removed week of 05/07/2021. The trader has yet to remove this unmetered load from the trader's details.
TINWALD DOMAIN ROAD3	PRIVATE	SON 100W	114	These lights are located at the Tinwald Domain camping ground. Investigation has been completed and these lights could be metered through the camping ground's main switchboard. EA Networks intends to arrange this with the trader. Once metered they will be removed from the RAMM data.	Advised by EA Networks that these lights are on a metered circuit and are included on ICP0000023713EA483. EA confirmed they are being reconciled as part of the metered load.
TINWALD DOMAIN ROAD3	PRIVATE	SON 100W	114		

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 RAMM database contains house numbers, opposite house numbers, road names, road IDs, location numbers, and GPS coordinates.

All items of load have GPS coordinates recorded and are locatable.

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 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 description of each light is recorded in the make and model fields, wattages are recorded in the lamp wattage and gear wattage fields. All items of load have a lamp model and lamp wattage populated.

The accuracy of the lamp description, capacity and ballasts recorded is discussed in **section 3.1**.

The accuracy of the recorded wattages 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 219 items of load on 23rd July 2021.

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/Area	Database Count	Field Count	Lamp no. difference	No of incorrect lamp wattage	Comments
Catherine Street	5	7	+2		2 x additional 25W LED found in the field
Cridland Street	8	10	+2	1	2 x additional 25W LED found in the field 1 x 70W SON recorded in the database but 25W LED found in the field
Huntington Avenue	11	11		1	1 x 20W LED recorded in the database, but 26W LED found in the field
Racecourse Road	21	21		3	1 x 63W LED recorded in the database but 71W LED found in field 1 x 107W LED recorded in the database but 55W LED found in field 1 x 63W LED recorded in the database but 68W LED found in field
Elizabeth Street	24	24		2	1 x 100W MH recorded in the database but 70W LED located in the field 1 x 55W LED recorded in the database but 100W MH located in the field.
Tancred St East	25	25		2	1 x 27W LED recorded in the database but 29W LED found in the field 1 x 27W LED recorded in the database but 23W LED found in the field
Tancred St West	4	3	-1		1 x 55 W LED not located in the field
GRAND TOTAL	**243**	**247**	**5**	**9**	

The field audit found four additional lights in the field. This is recorded as a non-compliance below.

The accuracy of the database 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: 23-Jun-20 To: 09-Jul-21	Four additional lights found in the field of the sample audited. Potential impact: Low Actual impact: Low Audit history: None Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as strong overall as there are robust processes in place ensure that the database is kept up to date. The impact on settlement and participants is minor; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
The database discrepancies identified during this audit have been provided to Ashburton DC to investigate and the database has been updated where required.	31 Oct 2021	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Overall processes for maintaining the database are reported as robust with strong controls.		

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

Code reference

Clause 11(3) of Schedule 15.3

Code related audit information

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

Audit observation

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

Audit commentary

The RAMM database functionality achieves compliance with the code.

Audit outcome

Compliant

2.7. Audit trail (Clause 11(4) of Schedule 15.3)

Code reference

Clause 11(4) of Schedule 15.3

Code related audit information

The DUML database must incorporate an audit trail of all additions and changes that identify:

- *the before and after values for changes*
- *the date and time of the change or addition*
- *the person who made the addition or change to the database.*

Audit observation

The database was checked for audit trails.

Audit commentary

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	Streetlights in the Ashburton DC region
Strata	The database contains items of load located in the Ashburton area owned by Ashburton DC. The management process is the same for all lights. The total population was divided into three strata: Roads starting with A-E Roads starting with F–N Roads starting with O-Z
Area units	I created a pivot table of the roads in the stratum, and I used a random number generator in a spreadsheet to select a total of 20 sub-units making up 5% of the total database wattage.
Total items of load	219 items of load were checked.

Wattages for all items of load were checked against the published standardised wattage tables produced by the Electricity Authority, and the manufacturer's specifications or in the case of LED lights against the LED light specification.

Audit commentary

Database accuracy

A field audit was conducted of a statistical sample of 219 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	100.00	Wattage from survey matches the database wattage.
R_L	98.8	With a 95% level of confidence, it can be concluded that the error could be between -1.2% and 3.8%
R_H	103.8	

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 A (detailed below) applies.

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 1.2% lower and 3.8% 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 match the database.

There is a 95% level of confidence that the installed capacity is between 2 kW lower to 6 kW higher than the database.

In absolute terms, total annual consumption is estimated to match the DUML database.

There is a 95% level of confidence that the annual consumption is between 8,700 kWh p.a. lower to 27,400 kWh p.a. higher than the database indicates.

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

Light description and capacity accuracy

As discussed in **section 2.4**:

All items of load have a lamp model and lamp wattage populated, and no items of load had invalid zero lamp wattages.

Lamp and gear wattages were compared to the expected values:

Lamp Model	Quantity	Recorded wattage	Expected total wattage	Comment
LED 36w	18	36	43	ADC advised that wattages for these EFL 540 R65 LEDs were corrected to 43 during the last audit. They were updated to 36W + 7W gear wattage = 43W total. T I recommend below that the EA standardised wattage LED format is used where the total wattage.
MH 60w	20	66	66	MH 60W is recorded in the database, this lamp type does not exist. This lamp should be recorded as 'Phillips Cosmo Polis', to align with the correct wattage and gear wattage recorded in the database. These were corrected by Ashburton DC during the audit.
MV125W	1	136	135	Incorrect ballast wattage recorded for one light.

The Electricity Authority standardised wattage table indicates that the total LED wattage is recorded rather than the lamp + gear wattage:

LED	Various	Use the total system power (eg 26 watt lamp = 26 watts)

Recommendation	Description	Audited party comment	Remedial action
Database Accuracy	Adopt the EA Standardised wattage format for LED lights where the total wattage is recorded in the lamp value.	We will pass this recommendation on to ADC for their consideration. We note while this may not be consistent with the approach outlined in the standardised wattage table, the total wattage recorded in the database and used for settlement is accurate.	Investigating

Change management process findings

EA Networks are responsible for new connections, fault, maintenance, and upgrade work, and maintain the database.

For new subdivisions, the developer liaises with EA Networks to arrange a new connection. Streetlight design is approved by ADC on EA Networks' recommendation. EA Networks completes the connection once it is approved by ADC and EA Networks, and updates RAMM. ICP 0000000000EAXXX is used to track lights which are not livened, and once the lights become live, they are moved to the correct ICP. ICP 0000000000EAXXX is correctly excluded from submission data.

Ashburton DC now has approx. 85% of LED lights installed in the field. Further LED upgrades are occurring as power is undergrounded and new streetlight poles are installed.

Outage patrols are conducted on an ad hoc basis when staff are working in an area at night. Outages are also reported by residents within the ADC region and work orders are raised with EA Networks as required.

The database records light installation and replacement dates.

Private lights

As detailed in **section 2.2**, the three private lights recorded in the last audit have been resolved. They have either been removed or confirmed as being supplied through a metered supply.

Festival and festive lights

The Methven festival lights, and other festive lights connected to the streetlight circuits when operating are recorded in RAMM.

The lights are only included in the database extracts when connected. ADC's procedure notes list the lights and on/off dates and require the lights to be manually removed from the database extract when they are not connected.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b) From: 23-Jun-20 To: 09-Jul-21	20 lights with the incorrect light description. The correct wattage is recorded so this has no impact on reconciliation. One light with the incorrect ballast recorded. The impact on submission is negligible. Potential impact: Low Actual impact: None Audit history: Once Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as strong as they are sufficient to ensure most of the database information is accurate. The impact on settlement and participants is none but low is the only option.

Actions taken to resolve the issue	Completion date	Remedial action status
The database discrepancies identified during this audit have been provided to Ashburton DC to investigate and update the database where required. The incorrect light descriptions noted were updated during the audit	31 Oct 2021 August 2021	Investigating
Preventative actions taken to ensure no further issues will occur	**Completion date**	
Overall processes for maintaining the database are reported as robust with strong controls.		

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 process for calculation of consumption was examined and the application of profiles was checked. The database was checked for accuracy.

Audit commentary

This clause requires that the distributed unmetered load database must satisfy the requirements of schedule 15.5 regarding the methodology for deriving submission information.

A monthly report from the database is provided to Meridian and is used to calculate submissions. Meridian submits the DUML load as NHH using the DST profile. The on and off times are derived from a data logger read by EMS and are used to create a shape file. Meridian supplies EMS with the capacity information and EMS calculates the kWh figure for each ICP and includes this in the relevant AV080 file. This process was audited during Meridian's reconciliation participant audit and EMS' agent audit. Compliance was confirmed.

The capacities supplied to EMS for June 2021 were checked and confirmed to be accurate.

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. There are very few changes being made in the database so the impact on reconciliation is expected to be small.

Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c) From: 23-Jun-20 To: 09-Jul-21	The monthly database extract provided does not track changes at a daily basis and is provided as a snapshot. Potential impact: Low Actual impact: Low Audit history: Three times previously Controls: Strong Breach risk rating: 1
Audit risk rating	**Rationale for audit risk rating**
Low	The controls are rated as strong overall as the processes in place ensure that the database is kept up to date. The impact on settlement and participants is low; therefore, the audit risk rating is low.

Actions taken to resolve the issue	Completion date	Remedial action status
		Disputed
Preventative actions taken to ensure no further issues will occur	**Completion date**	**Whilst Meridian will revise volumes if changes are made, ADC indicated that the monthly reporting provided to Meridian does not track change at a daily level and reporting changes are needed to provide this
Processes are in place to account for historical database corrections that have a material impact on settlement volumes		

CONCLUSION

A RAMM database is held by ADC, who is Meridian's customer. **Electricity Ashburton (EA Networks)** are responsible for new connections, fault, maintenance, and upgrade work, and maintain the database.

A monthly report from the database is provided to Meridian and is used to calculate submissions. Meridian submits the DUML load as NHH using the DST profile. The on and off times are derived from a data logger read by EMS and are used to create a shape file. Meridian supplies EMS with the capacity information and EMS calculates the kWh figure for each ICP and includes this in the relevant AV080 file. This process was audited during Meridian's reconciliation participant audit and EMS' agent audit.

A field audit was conducted of a statistical sample of 219 items of load. The "database auditing tool" was used to analyse the results. The analysis confirmed that the database potential error is less than 5.0% and is therefore compliant.

On 18 June 2019, the Electricity Authority issued a memo clarifying the memo of 2012 that stated that a monthly snapshot was sufficient to calculate submission from, and confirmed 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. Meridian completes revision submissions where corrections are required but they are not yet being provided with changes made to the database during the month.

Four non-compliances were identified. The future risk rating of four indicates that the next audit be completed in 24 months. I have considered this in conjunction with Meridian's responses and agree with this recommendation.

PARTICIPANT RESPONSE

Meridian have reviewed this report and their comments are recorded in the body of the report.