

ELECTRICITY INDUSTRY PARTICIPATION CODE  
DISTRIBUTED UNMETERED LOAD AUDIT REPORT



For

WHAKAPAPA VILLAGE – DOC AND  
MERIDIAN ENERGY

Prepared by: Tara Gannon

Date audit commenced: 9 November 2020

Date audit report completed: 13 November 2020

Audit report due date: 1 December 2020

---

## TABLE OF CONTENTS

Executive summary .....	3
Audit summary .....	4
Non-compliances .....	4
Recommendations .....	4
Issues .....	4
1. Administrative.....	5
1.1. Exemptions from Obligations to Comply with Code .....	5
1.2. Structure of Organisation .....	6
1.3. Persons involved in this audit.....	7
1.4. Hardware and Software .....	7
1.5. Breaches or Breach Allegations.....	7
1.6. ICP Data .....	7
1.7. Authorisation Received .....	7
1.8. Scope of Audit .....	8
1.9. Summary of previous audit .....	9
1.10. Distributed unmetered load audits (Clause 16A.26 and 17.295F).....	9
2. DUML database requirements.....	10
2.1. Deriving submission information (Clause 11(1) of Schedule 15.3) .....	10
2.2. ICP identifier and items of load (Clause 11(2)(a) and (aa) of Schedule 15.3) .....	11
2.3. Location of each item of load (Clause 11(2)(b) of Schedule 15.3) .....	11
2.4. Description and capacity of load (Clause 11(2)(c) and (d) of Schedule 15.3) .....	12
2.5. All load recorded in database (Clause 11(2A) of Schedule 15.3) .....	13
2.6. Tracking of load changes (Clause 11(3) of Schedule 15.3) .....	14
2.7. Audit trail (Clause 11(4) of Schedule 15.3).....	14
3. Accuracy of DUML database .....	15
3.1. Database accuracy (Clause 15.2 and 15.37B(b)) .....	15
3.2. Volume information accuracy (Clause 15.2 and 15.37B(c)) .....	17
Conclusion .....	19
Participant response .....	20

## EXECUTIVE SUMMARY

This audit of the **Whakapapa Village - DoC 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.

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

ICP 0088055801WMB6F switched from Genesis Energy to Meridian effective 21/04/2020.

The **Department of Conservation (DoC)** manages the streetlights directly. Meridian maintains a spreadsheet database which records the items of load; and seeks information from DoC on any changes to the unmetered load details monthly. There have been no changes to the database information since Meridian took responsibility.

The DUML load is settled using the RPS profile using the database load and 11.9 on hours per day.

All 41 items of load recorded in the database were surveyed in the field. The field wattage was estimated<sup>1</sup> to be 104.09% of the database wattage, indicating that the installed capacity is 4.09% higher than the database. The database is considered to be accurate because the error is +150W and less than  $\pm 5.0\%$ .

Four non-compliances were identified, relating to two driver notification signs which had zero wattage recorded in the database. Two recommendations were made.

The future risk rating of eight indicates that the next audit be completed in 18 months. Taking into consideration that the database was found to be accurate within  $\pm 5.0\%$  and there was a single event which resulted in the same non-compliance being repeated in four sections, I recommend that the next audit is completed in a minimum of 24 months.

---

<sup>1</sup> The wattage for two driver notification signs was unable to be confirmed prior to the audit report being issued; and was estimated to be 200 W each based on LED signs of a comparable size.

## 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	Two LED driver notification signs do not have wattage information recorded.	Moderate	Low	2	Investigating
Description and capacity of load	2.4	11(2)(c) and (d) of Schedule 15.3	Two LED driver notification signs do not have wattage information recorded.	Moderate	Low	2	Investigating
Database accuracy	3.1	15.2 and 15.37B(b)	Two LED driver notification signs do not have wattage information recorded.	Moderate	Low	2	Investigating
Volume information accuracy	3.2	15.2 and 15.37B(c)	Two LED driver notification signs do not have wattage information recorded.	Moderate	Low	2	Investigating
Future Risk Rating						8	

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

### RECOMMENDATIONS

Subject	Section	Recommendation	Issue
Description and capacity of load	2.4	Diver notification sign wattages	Confirm the wattages for the two LED driver notification signs and update the database.
Database accuracy	3.1	Lights near Chateau Tongariro also recorded in the RDC database	Work with the RDC DUML database owner to ensure that lights in the area are recorded and assigned to the correct ICP in either the Whakapapa Village – DoC DUML database or the RDC DUML database.

### 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**

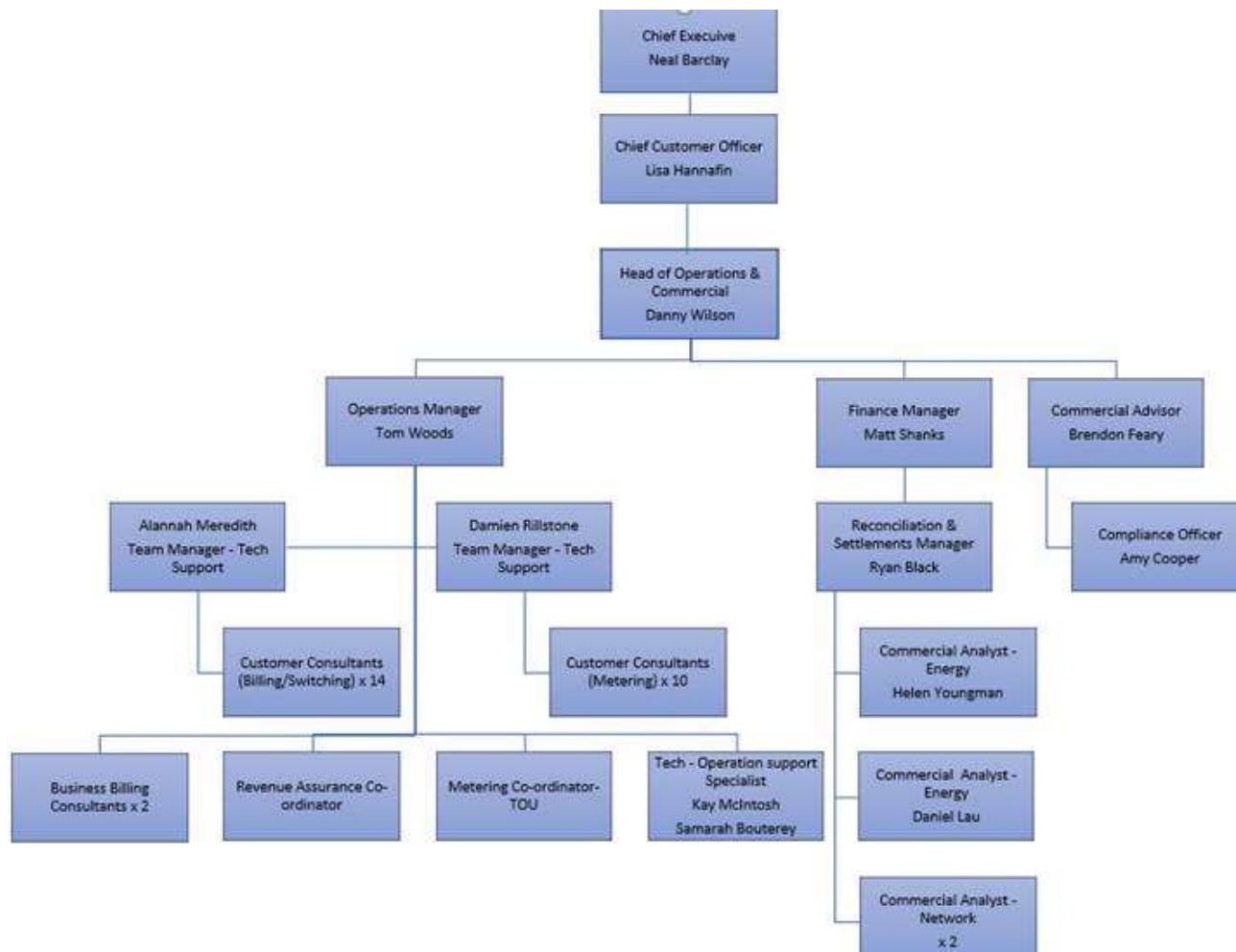
Section 11 of the Electricity Industry Act provides for the Electricity Authority to exempt any participant from compliance with all or any of the clauses.

#### **Audit commentary**

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

## 1.2. Structure of Organisation

Meridian Energy provided a copy of their organisational structure.



### 1.3. Persons involved in this audit

Auditor:

**Tara Gannon**

**Veritek Limited**

**Electricity Authority Approved Auditor**

Other personnel assisting in this audit were:

Name	Title	Company
Amy Cooper	Compliance Officer	Meridian Energy Limited

### 1.4. Hardware and Software

Meridian maintains a spreadsheet database which records the items of load; and seeks information from DoC on any changes to the unmetered load details monthly. There have been no changes to the database information since Meridian took responsibility.

The DUML load is settled using the RPS profile using the database load and 11.9 on hours per day.

Access to the directory where the spreadsheet is saved is restricted to the reconciliation and settlements team through password protection. Meridian confirmed that this directory is backed up as part of Meridian's standard ICT processes with daily, weekly, and monthly backups conducted.

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	Number of items of load	Database wattage (watts)
0088055801WMB6F	Streetlighting	NPK0331	41	3,670
<b>Total</b>			<b>41</b>	<b>3,670</b>

### 1.7. Authorisation Received

All information was provided directly by Meridian.

## 1.8. Scope of Audit

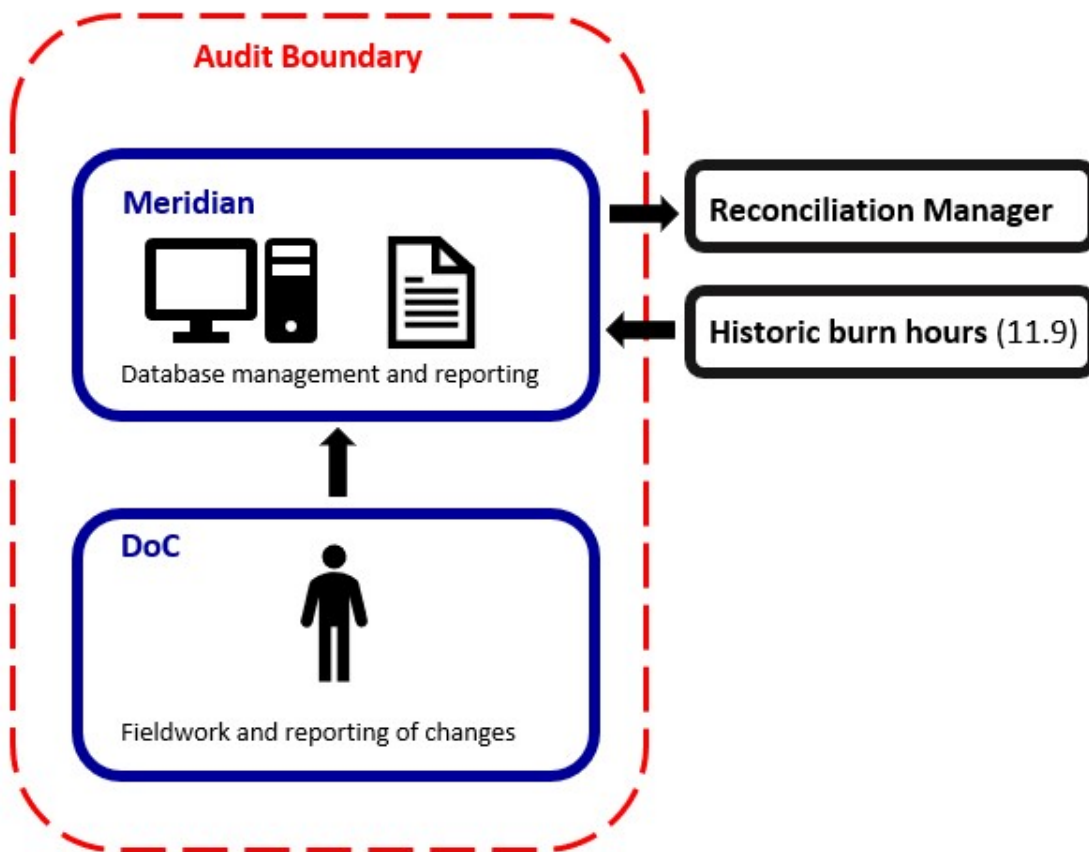
This audit of the Whakapapa Village - DoC DUMML database and processes was conducted at the request of Meridian, in accordance with clause 15.37B. The purpose of this audit is to verify that the volume information is being calculated accurately, and that profiles have been correctly applied. The audit was conducted in accordance with the audit guidelines for DUMML audits version 1.1.

ICP 0088055801WMB6F switched from Genesis Energy to Meridian effective 21/04/2020.

DoC manages the streetlights directly. Meridian maintains a spreadsheet database which records the items of load; and seeks information from DoC on any changes to the unmetered load details monthly. There have been no changes to the database information since Meridian took responsibility.

The DUMML load is settled using the RPS profile using the database load and 11.9 on hours per day.

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.



A field audit was undertaken of all 41 items of load on 9 November 2020.



## 1.9. Summary of previous audit

The previous audit of this database was undertaken by Steve Woods of Veritek Limited in January 2019. The summary table below shows the statuses of the non-compliances raised in the previous audit. Further comment is made in the relevant sections of this report.

Subject	Section	Clause	Non-compliance	Status
Audit	1.10	16A.26 and 17.295F	Audit not completed by 01/06/18.	Cleared.
Deriving submission information	2.1	11(1) of Schedule 15.3	Under submission of approx. 7,900 kWh per annum.	Relates to the previous retailer.
Volume information accuracy	3.2	15.2 and 15.37B(c)	Under submission of approx. 7,900 kWh per annum.	A new non-compliance is recorded for two LED driver notification signs which do not have wattage information recorded.

## 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

Meridian reconciles the DUML load as NHH using the RPS profile. Submissions are based on the database load and 11.9 on hours per day. The best available estimate indicates that the database is accurate within  $\pm 5\%$  as discussed in **section 3.1**.

I checked the submission information for August 2020 and confirmed that the calculation and submission values were correct.

Sources of inaccuracy are as follows:

Issue	Estimated volume information impact (annual kWh)
Two LED driver notification signs do not have wattage information recorded	Potential under submission of 868.7 kWh p.a. <sup>2</sup>

The database records the lamp install date, and there have been no changes to lamp details since Meridian took responsibility.

#### Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: 21-Apr-20 To: 09-Nov-20	Two LED driver notification signs do not have wattage information recorded. Potential impact: Low Actual impact: Low Audit history: Once Controls: Moderate Breach risk rating: 2

<sup>2</sup> The wattage for two driver notification signs was unable to be confirmed prior to the audit report being issued; and was estimated to be 200 W each based on LED signs of a comparable size. Expected annual consumption is 868.7 kWh based on 11.9 on hours per day.

Audit risk rating	Rationale for audit risk rating		
Low	<p>The controls are moderate. Most items of load are correctly recorded. The driver notification signs are recorded in the database, but their wattages are missing.</p> <p>The audit risk rating is low because there is a minor impact on settlement.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
We are awaiting information from DoC regarding wattages for the driver notification signs.		31 Dec 2020	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	

## 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

All items of load relate to one ICP, which is recorded against each item of load in the database.

### 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

All items of load have addresses and GPS coordinates recorded.

### 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

The database contains a lamp description, model, gear wattage and lamp wattage. These fields are populated for every item of load except two LED driver notification signs, which do not have wattages recorded.

Recommendation	Description	Audited party comment	Remedial action
Diver notification sign wattages	Confirm the wattages for the two LED driver notification signs and update the database.	We are awaiting information from DoC regarding wattages for the driver notification signs.	Investigating

Lamp and gear wattages were confirmed to be accurate for all other items of load in **section 3.1**.

### Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.4 With: Clause 11(2)(c) and (d) of Schedule 15.3 From: 21-Apr-20 To: 09-Nov-20	Two LED driver notification signs do not have wattage information recorded. 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 moderate. Most items of load are correctly recorded. The driver notification signs are recorded in the database, but their wattages are missing. The audit risk rating is low because there is a minor impact on settlement.		
Actions taken to resolve the issue		Completion date	Remedial action status
We are awaiting information from DoC regarding wattages for the driver notification signs.		31 Dec 2020	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	

## 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

A field audit of all items of load was undertaken on 9 November 2020.

### Audit commentary

The field audit discrepancies are detailed in the table below:

Street	Database count	Field count	Light count difference	Wattage recorded incorrectly	Comments
Driver notification signs	2	2	-	2	The signs were recorded with 0 W in the database. The correct wattages were unable to be confirmed and are estimated to be 200 W per sign.
Flood light for sign 250w at the corner of SH48 and Ngauruhoe Tce	1	-	-1	-	The light was not located on the street.
<b>Total</b>	<b>41</b>	<b>40</b>	<b>-1</b>	<b>2</b>	

Compliance is recorded in this section because no items of load were missing from the database.

### Audit outcome

Compliant

## 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

Meridian maintains a spreadsheet database which records the items of load; and seeks information from DoC on any changes to the unmetered load details monthly. There have been no changes to the database information since Meridian took responsibility.

The database contains fields for lamp installation and removal dates, as well as a lamp status which shows lamps which have been removed or replaced.

If changes are required in the future, Meridian intends to record the required details, including installation and change dates, and keep a compliant manual audit trail on a separate sheet of the workbook. Lamp changes would be processed by recording inactive status and a removal date for the old lamp and adding a new row with the new installation date for the replacement lamp.

### 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 data is contained in a spreadsheet.

There have been no changes to the database information since Meridian took responsibility. If changes are required in the future, Meridian intends to keep a compliant manual audit trail on a separate sheet of the workbook.

### 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

Meridian reconciles this DUML load using the using the database load and 11.9 on hours per day.

A database extract was provided in September 2020 and I assessed the accuracy of this by checking all active items of load. The table below shows the survey plan.

Plan Item	Comments
Area of interest	Whakapapa Village streetlights
Strata	The database contains 41 items of load connected to ICP 0088055801WMB6F. All 41 items of load were checked.
Area units	Not applicable, all 41 items of load were checked.
Total items of load	All 41 items of load were checked.

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

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

##### Audit commentary

##### Field audit findings

All 41 items of load recorded in the database were surveyed in the field. The field wattage was estimated<sup>3</sup> to be 104.09% of the database wattage, indicating that the installed capacity is 4.09% higher than the database. The database is considered to be accurate because the error is +150W and less than ±5.0%.

##### Light description and capacity accuracy

As discussed in **section 2.4**, the database contains a lamp description, model, gear wattage and lamp wattage. These fields are populated for every item in the spreadsheet except two LED driver notification signs, which have zero recorded.

Wattages for all items of load except the driver notification signs were checked against the published standardised wattage table produced by the Electricity Authority and found to be correct.

---

<sup>3</sup> The wattage for two driver notification signs was unable to be confirmed prior to the audit report being issued; and was estimated to be 200 W each based on LED signs of a comparable size.

### Change management process findings

Meridian maintains a spreadsheet database which records the items of load; and seeks information from DoC on any changes to the unmetered load details monthly. There have been no changes to the database information since Meridian took responsibility.

### Festive and private lights

There are no private or festive lights for Whakapapa Village.

### Ruapehu District Council DUML

The Ruapehu District Council (RDC) DUML audit was completed for Trustpower in August 2020. During that audit I found 16 lights connected to poles that are owned by DoC situated near Chateau Tongariro. I was advised DoC had asked Ruapehu District Council to take responsibility for the streetlights. Some of these lights also appear to be recorded in the Whakapapa Village – DoC DUML database (ICP 0088055801WMB6F).

Alf Downs are responsible for maintaining RDC's database and have recorded the lights in the database as private lights until investigation is completed to confirm whether the lights are metered or unmetered, the correct lamp and gear wattages, and party responsible. The private lights are not settled by Trustpower.

In the RDC audit, I recommended they confirm whether the affected lights are DUML load, and work with the Whakapapa Village - DoC DUML database owner to ensure that lights in the area are recorded and assigned to the correct ICP in either the Whakapapa Village – DoC DUML database or the RDC DUML database. The recommendation is repeated here:

Recommendation	Description	Audited party comment	Remedial action
Lights near Chateau Tongariro also recorded in the RDC database	Work with the RDC DUML database owner to ensure that lights in the area are recorded and assigned to the correct ICP in either the Whakapapa Village – DoC DUML database or the RDC DUML database.	We will liaise with the RDC database owner to confirm responsibility for the 16 identified lights and amend the database accordingly.	Investigating

### Audit outcome

Non-compliant

Non-compliance	Description
<p>Audit Ref: 3.1</p> <p>With: Clause 15.2 and 15.37B(b)</p> <p>From: 21-Apr-20</p> <p>To: 09-Nov-20</p>	<p>Two LED driver notification signs do not have wattage information recorded.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: None</p> <p>Controls: Moderate</p> <p>Breach risk rating: 2</p>



Audit risk rating	Rationale for audit risk rating		
Low	The controls are moderate. Most items of load are correctly recorded. The driver notification signs are recorded in the database, but their wattages are missing. The audit risk rating is low because there is a minor impact on settlement.		
Actions taken to resolve the issue		Completion date	Remedial action status
We are awaiting information from DoC regarding wattages for the driver notification signs.		31 Dec 2020	Investigating
Preventative actions taken to ensure no further issues will occur		Completion date	

### 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

Meridian reconciles the DUML load as NHH using the RPS profile, and the correct profile is recorded on the registry. Submissions are based on the database load and 11.9 on hours per day. The best available estimate indicates that the database is accurate within  $\pm 5\%$  as discussed in **section 3.1**.

I checked the submission information for August 2020 and confirmed that the calculation and submission values were correct.

Sources of inaccuracy are as follows:

Issue	Estimated volume information impact (annual kWh)
Two LED driver notification signs do not have wattage information recorded	Potential under submission of 868.7 kWh p.a. <sup>4</sup>

<sup>4</sup> The wattage for two driver notification signs was unable to be confirmed prior to the audit report being issued; and was estimated to be 200 W each based on LED signs of a comparable size. Expected annual consumption is 868.7 kWh based on 11.9 on hours per day.

The database records the lamp install date, and there have been no changes to lamp details since Meridian took responsibility.

**Audit outcome**

Non-compliant

Non-compliance	Description	
Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c)  From: 21-Apr-20 To: 09-Nov-20	Two LED driver notification signs do not have wattage information recorded. Potential impact: Low Actual impact: Low Audit history: Once Controls: Moderate Breach risk rating: 2	
Audit risk rating	Rationale for audit risk rating	
<b>Low</b>	The controls are moderate. Most items of load are correctly recorded. The driver notification signs are recorded in the database, but their wattages are missing.  The audit risk rating is low because there is a minor impact on settlement.	
Actions taken to resolve the issue	Completion date	Remedial action status
We are awaiting information from DoC regarding wattages for the driver notification signs.	31 Dec 2020	Investigating
Preventative actions taken to ensure no further issues will occur	Completion date	

## CONCLUSION

ICP 0088055801WMB6F switched from Genesis Energy to Meridian effective 21/04/2020.

DoC manages the streetlights directly. Meridian maintains a spreadsheet database which records the items of load; and seeks information from DoC on any changes to the unmetered load details monthly. There have been no changes to the database information since Meridian took responsibility.

The DUML load is settled using the RPS profile using the database load and 11.9 on hours per day.

All 41 items of load recorded in the database were surveyed in the field. The field wattage was estimated<sup>5</sup> to be 104.09% of the database wattage, indicating that the installed capacity is 4.09% higher than the database. The database is considered to be accurate because the error is +150W and less than  $\pm 5.0\%$ .

Four non-compliances were identified, relating to two driver notification signs which had zero wattage recorded in the database. Two recommendations were made.

The future risk rating of eight indicates that the next audit be completed in 18 months. Taking into consideration that the database was found to be accurate within  $\pm 5.0\%$  and there was a single event which resulted in the same non-compliance being repeated in four sections, I recommend that the next audit is completed in a minimum of 24 months.

---

<sup>5</sup> The wattage for two driver notification signs was unable to be confirmed prior to the audit report being issued; and was estimated to be 200 W each based on LED signs of a comparable size.

## PARTICIPANT RESPONSE

Meridian have reviewed this report, and their comments are contained within its body.