

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

For

**GORE DISTRICT COUNCIL AND MERIDIAN  
ENERGY**

Prepared by: Tara Gannon

Date audit commenced: 19 March 2018

Date audit report completed: 19 April 2018

Audit report due date: 1 June 2018

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## EXECUTIVE SUMMARY

This audit of the Gore District Council (GDC) 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, which became effective on 1 June 2017.

GDC is considered Meridian's customer for all the GDC lights. Due to historical pricing arrangements, Meridian bills the Power Company Ltd for the former Gore Borough Council (Gore township) lighting at commercial rates, and the Power Company Ltd on charges GDC at the agreed historic rate. For all other lights in the district Meridian directly bills GDC.

The database used for submission is managed by the PowerNet network. The database also contains State Highway lighting but excludes under verandah and amenity lighting. Field work is conducted by PowerNet as a contractor.

GDC also maintains their own RAMM database which includes streetlight information and had created a separate spreadsheet which contains amenity and under verandah lighting. Amenity and under verandah lighting is not included in RAMM, because GDC prefers to keep the roading and other lighting separate. GDC is in the process of validating and updating their own database and spreadsheet, including determining accurate locations for each item of load. This database is not used for submission and therefore was not assessed as part of this audit.

The future risk rating of 32 indicates that the next audit be completed in three months. Six non-compliances were identified, and no recommendations were raised. 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>The database used to prepare submissions contains some inaccurate information.</p> <ul style="list-style-type: none"> <li>• The database accuracy is assessed to be 98.9% indicating an estimated over submission of 875 kWh per annum.</li> <li>• Under submission of 56,804 kWh per annum has occurred due to the exclusion of under verandah lights. The volume of under submission for parks and amenity lighting is unknown.</li> </ul>	Weak	Medium	6	Identified
Location of each item of load	2.3	11(2)(b) of Schedule 15.3	18 items of load do not have a street address recorded.	Moderate	Low	2	Identified
All load recorded in database	2.5	11(2A) of Schedule 15.3	Park, amenity, and under verandah lights are excluded from the database.	Weak	Medium	6	Identified
All load recorded in database	2.6	11(3) of schedule 15.3	The tracking of load changes is not being carried out in relation to changing of light type on existing items of load.	Weak	Medium	6	Identified

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Database accuracy	3.1	15.2 and 15.37B(b)	<p>The database used to prepare submissions contains some inaccurate information.</p> <ul style="list-style-type: none"> <li>The database accuracy is assessed to be 98.9% indicating an estimated over submission of 875 kWh per annum.</li> <li>Under submission of 56,804 kWh per annum has occurred due to the exclusion of under verandah lights. The volume of under submission for parks and amenity lighting is unknown.</li> </ul>	Weak	Medium	6	Identified
Volume information accuracy	3.2	15.2 and 15.37B(c)	<p>The database used to prepare submissions contains some inaccurate information.</p> <ul style="list-style-type: none"> <li>The database accuracy is assessed to be 98.9% indicating an estimated over submission of 875 kWh per annum.</li> <li>Under submission of 56,804 kWh per annum has occurred due to the exclusion of under verandah lights. The volume of under submission for parks and amenity lighting is unknown.</li> </ul>	Weak	Medium	6	Identified
Future Risk Rating						32	

<b>Future risk rating</b>	1-3	4-6	7-8	9-17	18-26	27+
<b>Indicative audit frequency</b>	36 months	24 months	18 months	12 months	6 months	3 months

## RECOMMENDATIONS

Subject	Section	Description	Recommendation
		Nil	

## 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.

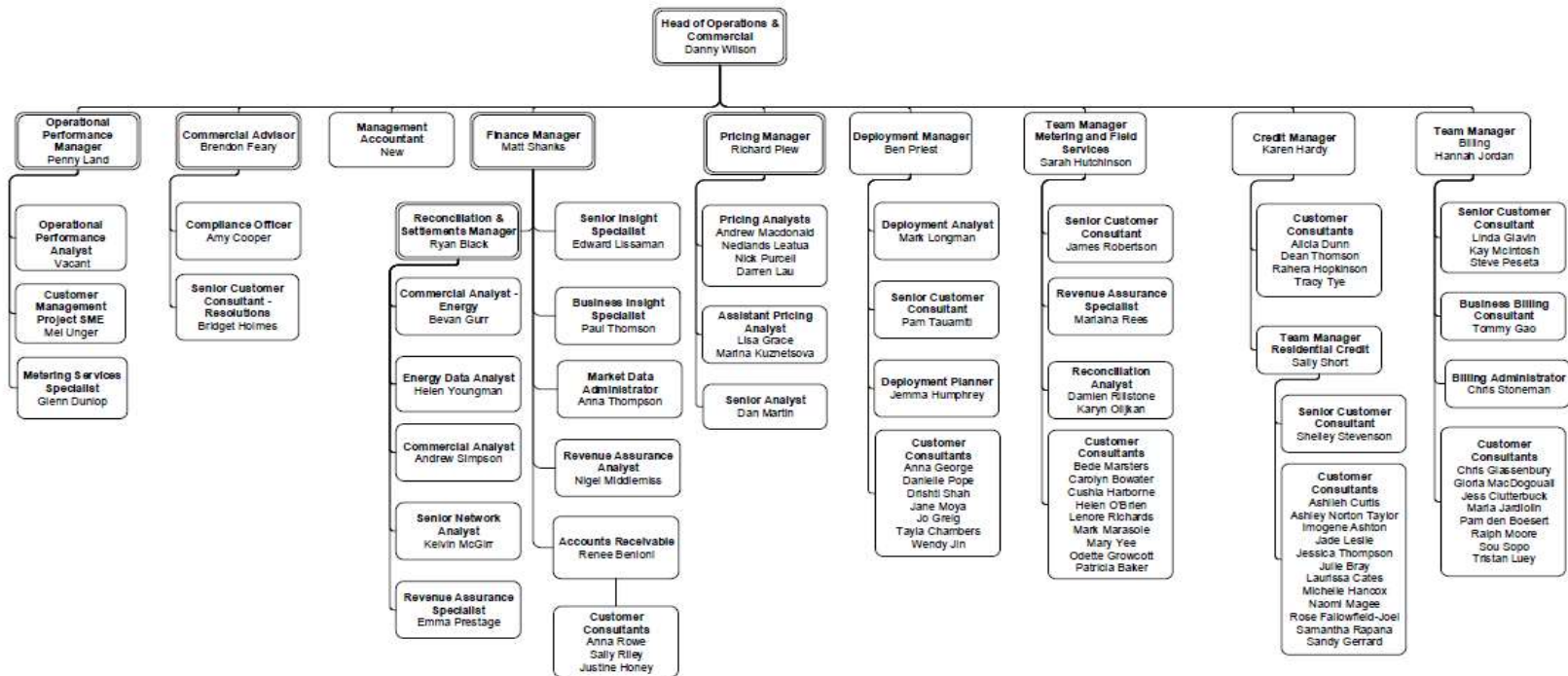
#### **Audit commentary**

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

## 1.2. Structure of Organisation

Meridian provided their current organisation structure.

### Operations and Commercial





### 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
Graham Hill	Roading Officer	Gore District Council
Peter Standring	Transportation Manager	Gore District Council
Alaister Marshall	Customer and Metering Services Manager	PowerNet
Amy Cooper	Compliance Officer	Meridian Energy
Helen Youngman	Energy Data Analyst	Meridian Energy
David Syme	Key Account Manager	Meridian Energy
Matthew Herbert	National Sales Manager - Corporate	Meridian Energy
Rebecca Elliot	Director	Veritek Limited

### 1.4. Hardware and Software

The SQL database used for the management of DUML is managed by PowerNet.

The database back up is in accordance with standard industry procedures. Access to the database is secure by way of password protection.

### 1.5. Breaches or Breach Allegations

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

### 1.6. ICP Data

ICP Number	Description	NSP	Number of items of load	Database wattage (watts)
0008801020TPE7D	GDC LIGHTS - RURAL	GOR0331	60	9,326
0008801002TP3AD	GDC LIGHTS - URBAN	GOR0331	265	39,554
0008801007TPEE2	GDC LIGHTS - URBAN	GOR0331	1,183	125,807

ICP Number	Description	NSP	Number of items of load	Database wattage (watts)
<b>Total</b>			<b>1,508</b>	<b>174,687</b>

### 1.7. Authorisation Received

All information was provided directly by Meridian, GDC, and PowerNet.

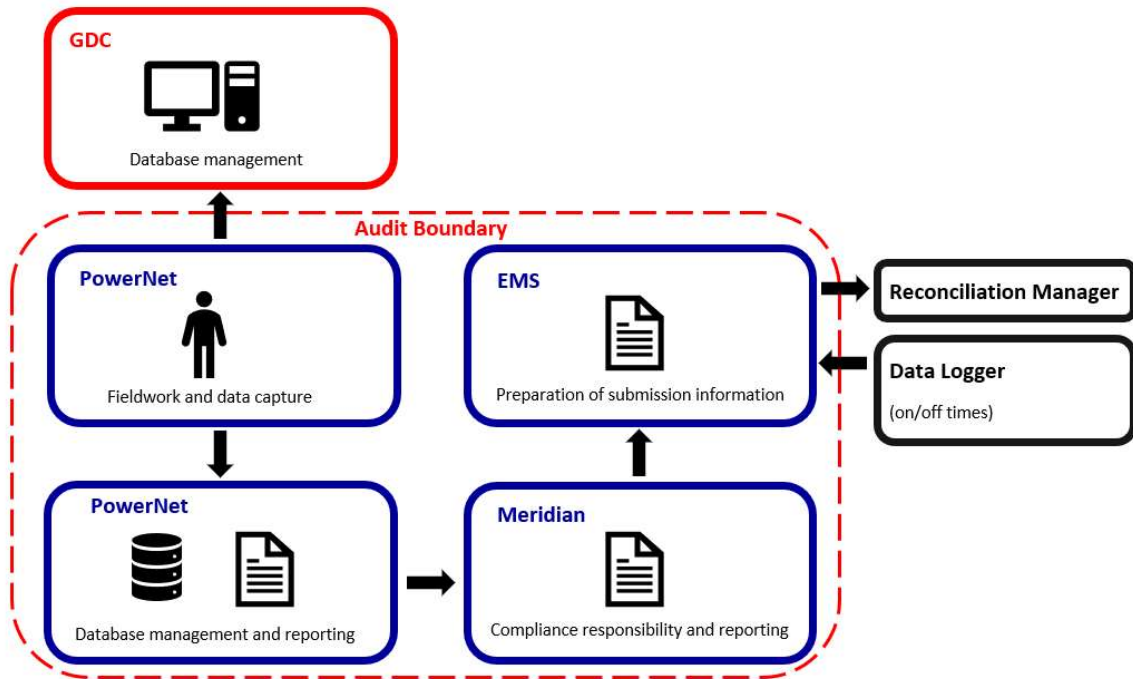
### 1.8. Scope of Audit

GDC is considered Meridian’s customer for all the GDC lights. Due to historical pricing arrangements, Meridian bills the Power Company Ltd for the former Gore Borough Council (Gore township) lighting at commercial rates, and the Power Company Ltd on charges GDC at the agreed historic rate. For all other lights in the district Meridian directly bills GDC.

The database used for submission is managed by the PowerNet network. The database also contains State Highway lighting but excludes under verandah and amenity lighting. Field work is conducted by PowerNet as a contractor.

GDC also maintains their own RAMM database which includes streetlight information and had created a separate spreadsheet which contains amenity and under verandah lighting. GDC is in the process of validating and updating their own database and spreadsheet, including determining accurate locations for each item of load.

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 audit focusses on the PowerNet database, because it is used for submission. 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 219 items of load on 19 March 2018. The total population was divided into three strata:

- Gore rural
- Gore urban; and
- Mataura urban.

### 1.9. Summary of previous audit

The previous audit was completed in May 2017 by Rebecca Elliot of Veritek Limited. Seven non-compliances were identified, and two recommendations were made. The statuses of the non-compliances and recommendations are described below.

Subject	Section	Clause	Non-compliance	Status
Deriving Submission Information	2.1	11(1) of schedule 15.3	Inaccurate submission due to inaccurate database.	Still existing. Refer to <b>section 2.1</b> .
Deriving Submission Information	2.1	11(1) of schedule 15.3	Over submission of 3.6kWh for the months of November 2016 - February 2017.	Cleared.
Deriving Submission Information	2.1	11(1) of schedule 15.3	Under verandah lights not reconciled to the market.	Still existing. Refer to <b>section 3.1</b> .
Location of Each Item of Load	2.2.2	11(2)(b) of schedule 15.3	Location not recorded for 31 items of load.	Still existing. Refer to <b>section 2.3</b> .
Description of Load Type	2.2.3	11(2)(c) of schedule 15.3	One item of load recorded with an invalid light type.	Cleared. Refer to <b>section 2.4</b> .
Capacity of Load	2.2.4	11(2)(d) of schedule 15.3	Incorrect ballast applied to five items of load.	Cleared. Refer to <b>section 2.4</b> .
Tacking of Load Changes	2.3	11(3) of schedule 15.3	Database inaccuracies found.	Still existing. Refer to <b>section 3.1</b> .

Subject	Section	Clause	Recommendation	Status
Deriving Submission Information	2.1	11(1) of schedule 15.3	PowerNet and Meridian to determine how under veranda lighting is to be reconciled-metered or added to the DUMML database.	Underway. GDC has confirmed that under verandah lighting is unmetered, and is gathering and recording the details of the unmetered load.
Database Contents	2.2	11(2) of schedule 15.2	RAMM be used for submission calculation once the database contains all items of load including the amenity lighting and the ICPs are recorded per item of load.	Underway. GDC is in the process of updating and validating their RAMM data, and creating a separate spreadsheet of under verandah and amenity lighting.

#### 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 DUMML database audits are completed:*

1. *by 1 June 2018 (for DUMML that existed prior to 1 June 2017)*
2. *within three months of submission to the reconciliation manager (for new DUMML)*
3. *within the timeframe specified by the Authority for DUMML 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. Compliance is confirmed.

## 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.

#### Audit commentary

Meridian reconciles this DUML load 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 its accuracy and compliance was confirmed.

I compared the PowerNet database provided in February 2018 to the capacity information Meridian supplied to EMS in February 2018 and found it matched exactly.

There is some inaccurate data within the PowerNet database which is used to provide capacity information to EMS. This is recorded as non-compliance and discussed in **sections 2.5** and **3.1**.

#### Audit outcome

Non-compliant

Non-compliance	Description
<p>Audit Ref: 2.1</p> <p>With: Clause 11(1) of Schedule 15.3</p> <p>From: unknown</p> <p>To: 19-Mar-18</p>	<p>The database used to prepare submissions contains some inaccurate information.</p> <ul style="list-style-type: none"> <li>• The database accuracy is assessed to be 98.9% indicating an estimated over submission of 875 kWh per annum.</li> <li>• Under submission of 56,804 kWh per annum has occurred due to the exclusion of under verandah lights. The volume of under submission for parks and amenity lighting is unknown.</li> </ul> <p>Potential impact: Medium</p> <p>Actual impact: Medium</p> <p>Audit history: Three times previously</p> <p>Controls: Weak</p> <p>Breach risk rating: 6</p>

Audit risk rating	Rationale for audit risk rating		
<b>Medium</b>	<p>The controls are rated as weak, because they are not sufficient to ensure that lamp details are correct and not all load is reconciled.</p> <p>The impact is assessed to be medium, based on the kWh differences described above.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>We will obtain the recently validated list of under verandah lighting from Gore DC and include these volumes in our submissions going forward.</p> <p>We will revise historic submissions to include the under verandah lighting in accordance with the wash up cycle.</p> <p>We are continuing to work with Gore DC to confirm a date by which their database validation and update is likely to be completed including the capture of unmetered parks and amenity lighting.</p>		<p>30 June 2018</p> <p>31 July 2018</p> <p>30 June 2018</p>	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
<p>Once database validation has been completed we will arrange an audit to confirm accuracy.</p> <p>Once the accuracy of the database has been confirmed we will arrange monthly reporting to calculate submissions going forward.</p> <p>Further revisions of historic submission information will be conducted where more accurate data is available.</p>		<p>01 Dec 2018</p> <p>TBC</p> <p>TBC</p>	

## 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 DUMML database must contain:

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

### Audit observation

The PowerNet database was checked to confirm an ICP is recorded for each item of load.

### Audit commentary

An ICP is recorded for each item of load.

### 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 PowerNet database was checked to confirm the location is recorded for all items of load.

#### Audit commentary

Most items of load have a location street, location town, and pole number recorded.

18 items of load connected to 0008801007TPEE2 do not have a location street recorded, and there is insufficient address information to enable the location to be readily identified. This is recorded as non-compliance below.

### Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.3 With: Clause 11(2)(b) of Schedule 15.3 From: unknown To: 19-Mar-18	18 items of load do not have a street address recorded. Potential impact: Low Actual impact: Low Audit history: Multiple times Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	Controls are rated as moderate as they are sufficient to ensure that most items of load have address information recorded. The impact is rated as low because 18 ICPs (1.2%) have missing address information.		
Actions taken to resolve the issue		Completion date	Remedial action status
We are continuing to work with Gore DC to confirm a date by which their database validation and update is likely to be completed including the capture of unmetered parks and amenity lighting.		30 June 2018	Identified

Preventative actions taken to ensure no further issues will occur	Completion date
Once database validation has been completed we will arrange an audit to confirm accuracy	01 Dec 2018

#### 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 DUMML 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 PowerNet 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

A lamp type, lamp rating, and input wattage (including gear or ballast) is included for each item of load.

##### 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 DUMML for which it is responsible is recorded in this database.*

##### Audit observation

A field audit of a statistical sample of 219 items of load recorded in the PowerNet database was undertaken.

##### Audit commentary

The field audit findings are detailed in the table below.

Address	Database Count	Field Count	Count differences	Wattage differences	Comments
Gore					
Aparima Street	6	6	-	-	
Avon Street	5	5	-	-	



Address	Database Count	Field Count	Count differences	Wattage differences	Comments
Birch Lane	1	1	-	-	
Burrows Street	2	2	-	-	
Charles Street	1	1	-	-	
Church Street	4	4	-	-	
Churchhill Avenue	4	4	-	-	
Clyde Street	6	5	-1	-	One 70W HPS was not located.
Cnr SH1/Ontario Street	2	2	-	-	
Crewe Street	11	11	-	-	
Crombie Street	6	6	-	-	
Eccles Street	8	8	-	-	
Edwin Street	2	2	-	-	
Elizabeth Street	7	7	-	-	
Frank Street	13	11	-2	-	One 40W fluorescent and two 70W HPS were not located.
Green Street	3	3	-	-	
Nelson Street	4	4	-	-	
North Terrace	3	3	-	-	
Reaby Road	1	1	-	-	
Richmond Street	7	7	-	-	
River Street	10	10	-	-	
River Terrace	4	4	-	-	
Ruia Street	11	11	-	-	
St Andrew Street	3	3	-	-	
Surrey Street	4	4	-	-	

Address	Database Count	Field Count	Count differences	Wattage differences	Comments
Tainui street	2	2	-	-	
Tamworth Street	3	3	-	-	
Waiiau Street	2	2	-	1	One 40W fluorescent appears to have been replaced with 70W HPS.
Walker Crescent	11	9	-2	-	Two 70W HPS were not located.
Wayland Street	7	7	-	-	
Wigan Street	12	12	-	-	
Mataura					
Allen Street	2	2	-	-	
Argyle Street	3	3	-	1	One 70W HPS was not located and a 250W HPS appears to be present.
Bangor Street	4	4	-	-	
Bridge & Kana Street Intersection	3	3	-	-	
Carteret Street	3	3	-	-	
Crawford Road	4	4	-	1	One 40W fluorescent appears to have been replaced with 70W HPS.
Culling Terrace	7	6	-1	-	One 40W fluorescent was not located.
Ingram Place	3	3	-	-	
McKelvie Heights	2	2	-	-	
Selbourne Lane	3	3	-	-	
SH 1 (Bridge St. Cnr)	4	4	-	-	

Address	Database Count	Field Count	Count differences	Wattage differences	Comments
Waikaka					
Main Street	12	10	-2	-	Two 80W MV were not located.
<b>Total</b>	<b>215</b>	<b>206</b>	<b>-9</b>	<b>4</b>	

I found nine less lamps in the field than were recorded in the database, and four lamp wattage differences. These differences are recorded as non-compliance in **section 3.1**.

The field data was 98.9% of the database data for the sample checked. The total wattage recorded in the database for the sample was 20,101 watts. The total wattage found in the field for the sample checked was 20,306 watts, a difference of 205 watts. This will result in estimated over submission of 875 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool).

Under verandah lights in the Gore township are not included in the PowerNet database. Since the 2017 audit, work has been undertaken to confirm that these lights are unmetered and connected to the Fairfield monument. The lights are being documented and will be included in GDC's spreadsheet of under verandah lights. The estimated load is 13.3 kW for 166 lights or 56,804kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool).

Parks and amenity lighting is also excluded from the database, and work is being undertaken to identify these lights and the associated load. These lights include some Christmas lights, and some decorative lights that are used year round. The lights are being documented and will be included in GDC's spreadsheet of parks and amenity lights. The total load for parks and amenity lights is currently unknown.

Once GDC's RAMM database and spreadsheet is updated, GDC intends to use this information to report to Meridian.

#### Audit outcome

Non-compliant

Non-compliance	Description
Audit Ref: 2.5 With: Clause 11(2A) of Schedule 15.3 From: unknown To: 19-Mar-18	Park, amenity, and under verandah lights are excluded from the database. Potential impact: Medium Actual impact: Medium Audit history: Multiple times Controls: Weak Breach risk rating: 6

Audit risk rating	Rationale for audit risk rating		
<b>Medium</b>	<p>The controls are rated as weak, as they are not sufficient to ensure that park, amenity, and under verandah lights are included in the database.</p> <p>The impact is assessed to be medium.</p> <ul style="list-style-type: none"> <li>• The database accuracy is assessed to be 98.9% indicating an estimated over submission of 875 kWh per annum.</li> <li>• Under submission of 56,804 kWh per annum has occurred due to the exclusion of under verandah lights. The volume of under submission for parks and amenity lighting is unknown.</li> </ul>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>We will obtain the recently validated list of under verandah lighting from Gore DC and include these volumes in our submissions going forward to reduce market impact.</p> <p>We will revise historic submissions to include the under verandah lighting volumes in accordance with the wash up cycle.</p> <p>We are continuing to work with Gore DC to confirm a date by which their database validation and update is likely to be completed including the capture of unmetered parks and amenity lighting.</p>		<p>30 June 2018</p> <p>31 July 2018</p> <p>30 June 2018</p>	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
As above		As above	

## 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 PowerNet database was examined.

### Audit commentary

Any changes that are made during any given month take effect from the beginning of that month. The information is available which would allow for the total load in kW to be retrospectively derived for any day. On 20 September 2012, the Authority sent a memo to retailers and auditors advising that tracking of load changes at a daily level was not required if the database contained an audit trail. I have interpreted this to mean that the provision of a copy of the report to Meridian when changes occur is sufficient to achieve compliance.

The processes were reviewed for new lamp connections and the tracking of load changes due to faults and maintenance. Fault, maintenance and LED upgrade work is completed by PowerNet as a contractor, who maintain their own database. If new flag lights are required, GDC prefers to install solar lights where possible.

The PowerNet network has advised GDC that they are no longer updating their database in relation to the maintenance of lamps. If items of load are removed these will be updated but not if lamp type is changed. Therefore, the tracking load changes is no longer being carried out for all changes. This is recorded as non-compliance below.

GDC confirmed that there have been no new connections added to the database in the past four years. A new development at Matai Ridge is currently privately owned, but if ownership transfers to GDC in the future it will be added to the database.

Formal outage patrols occur every three to four months; the frequency of these checks will be revisited once the LED upgrades are complete.

### Audit outcome

Non-compliant

Non-compliance	Description	
Audit Ref: 2.6 With: Clause 11(3) of schedule 15.3  From: entire audit period	The tracking of load changes is not being carried out in relation to changing of light type on existing items of load.  Potential impact: High  Actual impact: Medium  Audit history: None  Controls: Weak  Breach risk rating: 6	
Audit risk rating	Rationale for audit risk rating	
<b>Medium</b>	The controls are rated as weak, because changes to light type are not being captured for exiting items of load.  The impact is assessed to be medium. <ul style="list-style-type: none"> <li>• The database accuracy is assessed to be 98.9% indicating an estimated over submission of 875 kWh per annum.</li> <li>• Under submission of 56,804 kWh per annum has occurred due to the exclusion of under verandah lights. The volume of under submission for parks and amenity lighting is unknown.</li> </ul>	
Actions taken to resolve the issue	Completion date	Remedial action status
We are continuing to work with Gore DC to confirm a date by which their database validation and update is likely to be completed so this can be used to calculate submission information.	30 June 2018	Identified

Preventative actions taken to ensure no further issues will occur	Completion date	
Once database validation has been completed we will arrange an audit to confirm accuracy and to confirm processes are in place to track changes.	01 Dec 2018	

## 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

PowerNet demonstrated a complete audit trail 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	GDC region
Strata	The database contains items of load in Gore area. The area has two distinct sub regions of urban and rural. The processes for the management of all GDC items of load are the same, but I decided to place the items of load into three strata, as follows: <ol style="list-style-type: none"><li>1. Gore rural</li><li>2. Gore urban</li><li>3. Mataura urban</li></ol>
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 43 sub-units.
Total items of load	219 items of load were checked.

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

##### Audit commentary

The PowerNet database was found to contain some inaccuracies and missing data.

The field audit found:

- nine less lamps in the field than were recorded in the database
- three lamp type difference - two were 40W fluorescent lamps which had been replaced with 70W HPS, and one 70W HPS on Argyle Street, Mataura was not located, but a 250W HPS situated on the street corner was not included in the database.

The field data was 101.0% of the database data for the sample checked, and database accuracy is assessed to be 98.9%. The total wattage recorded in the database for the sample was 20,101 watts. The total wattage found in the field for the sample checked was 20,306 watts, a difference of 205 watts. This will result in estimated over submission of 875 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool).

Under verandah lights in the Gore township are not included in the PowerNet database. Since the 2017 audit, work has been undertaken to confirm that these lights are unmetered and connected to the Fairfield monument. The lights are being documented and will be included in GDC's spreadsheet of under verandah lights. The estimated load is 13.3 kW for 166 lights or 56,804kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool).

Parks and amenity lighting is also excluded from the database, and work is being undertaken to identify these lights and the associated load. These lights include some Christmas lights, and some decorative lights that are used year round. The lights are being documented and will be included in GDC's spreadsheet of parks and amenity lights. The total load for parks and amenity lights is currently unknown.

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

### Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b)  From: unknown To: 23-Feb-18	The database used to prepare submissions contains some inaccurate information. <ul style="list-style-type: none"> <li>• The database accuracy is assessed to be 98.9% indicating an estimated over submission of 875 kWh per annum.</li> <li>• Under submission of 56,804 kWh per annum has occurred due to the exclusion of under verandah lights. The volume of under submission for parks and amenity lighting is unknown.</li> </ul> Potential impact: Medium Actual impact: Medium Audit history: None Controls: Weak Breach risk rating: 6		
Audit risk rating	Rationale for audit risk rating		
<b>Medium</b>	The controls are rated as weak, because they are not sufficient to ensure that lamp details are correct.  The impact is assessed to be medium, based on the kWh differences described above.		
Actions taken to resolve the issue		Completion date	Remedial action status
We are continuing to work with Gore DC to confirm a date by which their database validation and update is likely to be completed including the capture of unmetered parks and amenity lighting.		30 June 2018	Identified



Preventative actions taken to ensure no further issues will occur	Completion date	
As above	As above	

### 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
- checking the database extract combined with the burn hours against the submitted figure to confirm accuracy.

#### Audit commentary

Meridian reconciles this DUML load 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, and its accuracy and compliance was confirmed.

I compared the PowerNet database provided in February 2018 to the capacity information Meridian supplied to EMS in February 2018 and found it matched exactly.

There is some inaccurate data within the PowerNet database which is used to provide capacity information to EMS. This is recorded as non-compliance and discussed in **sections 2.5** and **3.1**.

#### Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c)</p> <p>From: unknown To: 19-Mar-18</p>	<p>The database used to prepare submissions contains some inaccurate information.</p> <ul style="list-style-type: none"> <li>The database accuracy is assessed to be 98.9% indicating an estimated over submission of 875 kWh per annum.</li> <li>Under submission of 56,804 kWh per annum has occurred due to the exclusion of under verandah lights. The volume of under submission for parks and amenity lighting is unknown.</li> </ul> <p>Potential impact: Medium Actual impact: Medium Audit history: None Controls: Weak Breach risk rating: 6</p>		
Audit risk rating	Rationale for audit risk rating		
<b>Medium</b>	<p>The controls are rated as weak, because they are not sufficient to ensure that lamp details are correct.</p> <p>The impact is assessed to be medium, based on the kWh differences described above.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>We will obtain the recently validated list of under verandah lighting from Gore DC and include these volumes in our submissions going forward.</p> <p>We will revise historic submissions to include the under verandah lighting in accordance with the wash up cycle.</p> <p>We are continuing to work with Gore DC to confirm a date by which their database validation and update is likely to be completed including the capture of unmetered parks and amenity lighting.</p>		<p>30 June 2018</p> <p>31 July 2018</p> <p>30 June 2018</p>	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
<p>Once database validation has been completed we will arrange an audit to confirm accuracy.</p>		01 Dec 2018	
<p>Once the accuracy of the database has been confirmed we will arrange monthly reporting to calculate submissions going forward.</p>		TBC	
<p>Further revisions of historic submission information will be conducted where more accurate data is available.</p>		TBC	

## CONCLUSION

GDC is considered Meridian's customer for all the GDC lights. Due to historical pricing arrangements, Meridian bills the Power Company Ltd for the former Gore Borough Council (Gore township) lighting at commercial rates, and the Power Company Ltd on charges GDC at the agreed historic rate. For all other lights in the district Meridian directly bills GDC.

The database used for submission is managed by the PowerNet network. The database also contains State Highway lighting but excludes under verandah and amenity lighting. Field work is conducted by PowerNet as a contractor.

GDC also maintains their own RAMM database which includes streetlight information and had created a separate spreadsheet which contains amenity and under verandah lighting. Amenity and under verandah lighting is not included in RAMM, because GDC prefers to keep the roading and other lighting separate. GDC is in the process of validating and updating their own database and spreadsheet, including determining accurate locations for each item of load.

The future risk rating of 32 indicates that the next audit be completed in three months. Six non-compliances were identified, and no recommendations were raised.

## PARTICIPANT RESPONSE

At the time of writing we have been unable to confirm with Gore DC a date by which they will have the validation and update of streetlight information in their database completed.

Work to update the database has been ongoing for a number of years however progress has been slow with staffing changes and a number of competing priorities for the council manage.

It is our understanding following meetings with the customer at the time of this audit that validation work is almost complete and we have estimated timeframes in this report based on that assumption.

We will continue our efforts to agree some firm dates with Gore DC and will update the Authority if any of the dates provided in this report are no longer reasonable.