

ELECTRICITY INDUSTRY PARTICIPATION CODE  
DISTRIBUTED UNMETERED LOAD AUDIT REPORT

VERITEK

For

GORE DISTRICT COUNCIL AND MERIDIAN  
ENERGY

Prepared by: Rebecca Elliot

Date audit commenced: 20 October 2018

Date audit report completed: 9 November 2018

Audit report due date: 01-Dec-18

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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.

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.

Currently GDC also maintain 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 was not included in RAMM at the time of this audit, because GDC had preferred 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 intention is for GDC's RAMM database to be updated with LED rollout and field data and the currently excluded lights to be included prior to Christmas. Once complete and validated GDC intends to use this information to report to Meridian, who will use it to calculate their submission information.

Part of GDC's LED rollout program is a body of work to cleanse and update their RAMM database with data from the field. A spreadsheet of the cleansed data that will be used to update GDC's RAMM database has been sighted and when compared to findings in the field appears very accurate.

The field audit was undertaken of a statistical sample of 162 items of load on 26<sup>th</sup> October 2018.

The audit found six non-compliances. These predominately relate to missing and incorrect data recorded in the PowerNet database. The field audit found a high level of inaccuracy and the auditing tool reflected this in the database accuracy result.

The future risk rating of 38 indicates that the next audit be completed in three months. 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>Under submission of 56,804 kWh per annum has occurred due to the exclusion of under verandah lights.</p> <p>The volume of under submission for parks and amenity lighting is unknown.</p> <p>The database accuracy is assessed to be 27.6% of the database for the sample checked indicating a potential over submission of approximately 540,100 kWh per annum.</p>	Weak	High	9	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 the database	2.5	11(2A) of Schedule 15.3	Park, amenity, and under verandah lights are excluded from the database.	Weak	High	9	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 accuracy is assessed to be 27.6% of the database for the sample checked indicating a potential over submission of approximately 540,100 kWh per annum.</p> <p>Under submission of 56,804 kWh per annum has occurred due to the exclusion of under verandah lights.</p> <p>The volume of under submission for parks and amenity lighting is unknown.</p>	Weak	High	9	Identified
Volume information accuracy	3.2	15.2 and 15.37B(c)	<p>The database accuracy is assessed to be 27.6% of the database for the sample checked indicating a potential over submission of approximately 540,100 kWh per annum.</p> <p>Under submission of 56,804 kWh per annum has occurred due to the exclusion of under verandah lights.</p> <p>The volume of under submission for parks and amenity lighting is unknown.</p>	Weak	High	9	Identified
Future Risk Rating						38	

<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	Description	Issue
		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

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. Persons involved in this audit

Auditor:

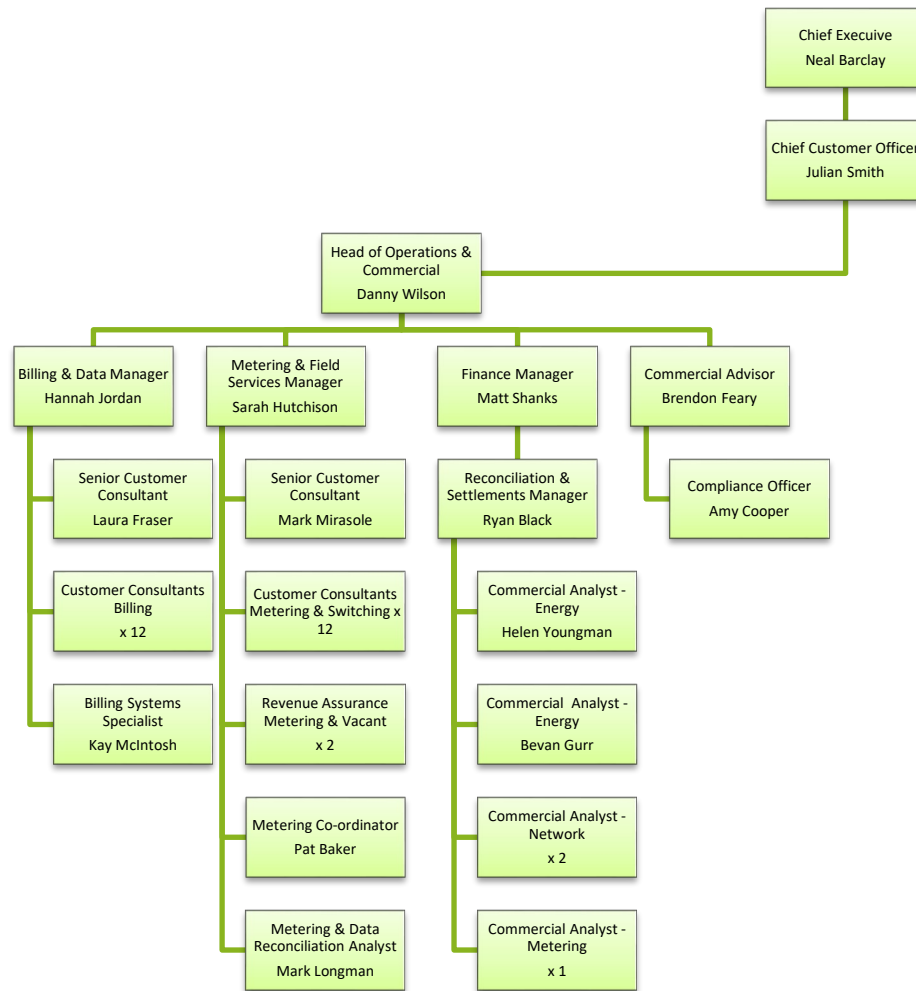
Name	Title
Rebecca Elliot	Lead Auditor
Debbie Anderson	Supporting Auditor

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

### 1.3. Structure of Organisation

Meridian provided a copy of their organisational structure:





#### 1.4. Hardware and Software

The SQL database used for the management of DUMML 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
<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.

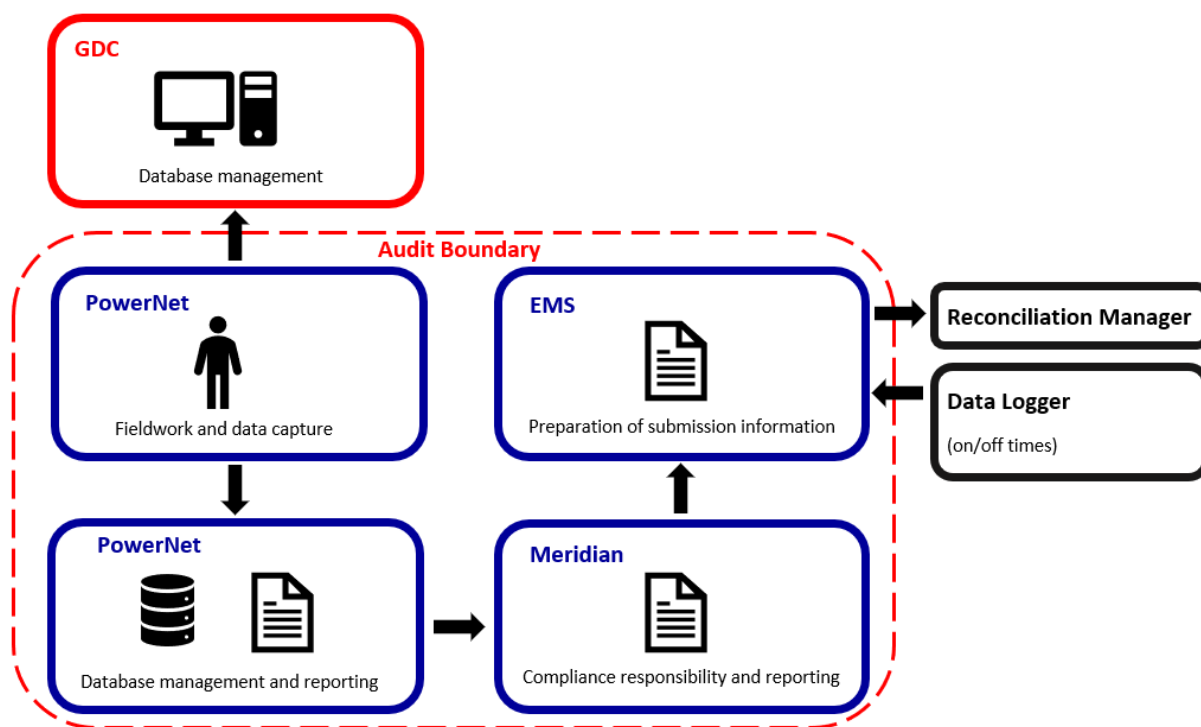
#### 1.8. Scope of Audit

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. With the LED roll-out program GDC is very close to having their database updated and validated. Prior to Christmas is the target for the validating and updating of their own database. This will include the field findings from the LED rollout, GPS locations and the previously excluded items of load (amenity and under verandah lighting). Once this is complete GDC intend to provide reporting from this database to Meridian for submission purposes.

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 a statistical sample of 162 items of load on 26<sup>th</sup> October 2018.

### 1.9. Summary of previous audit

The previous audit was completed in April 2018 by Tara Gannon of Veritek Limited. Six non-compliances were identified, and no recommendations were made. The statuses of the non-compliances and recommendations are described below.

### Table of Non-Compliance

Subject	Section	Clause	Non-Compliance	Status
Deriving submission information	2.1	11(1) of Schedule 15.3	The database used to prepare submissions contains some inaccurate information. The database accuracy is assessed to be 98.9% indicating an estimated over submission of 875 kWh per annum. 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.	Still existing
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.	Still existing
All load recorded in database	2.5	11(2A) of Schedule 15.3	Park, amenity, and under verandah lights are excluded from the database.	Still existing

Subject	Section	Clause	Non-Compliance	Status
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.	Still existing
Database accuracy	3.1	15.2 and 15.37B(b)	The database used to prepare submissions contains some inaccurate information.  The database accuracy is assessed to be 98.9% indicating an estimated over submission of 875 kWh per annum.  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.	Still existing
Volume information accuracy	3.2	15.2 and 15.37B(c)	The database used to prepare submissions contains some inaccurate information.  The database accuracy is assessed to be 98.9% indicating an estimated over submission of 875 kWh per annum.  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.	Still existing

#### 1.10. Distributed unmetered load audits (Clause 16A.26 and 17.295F)

##### Code reference

Clause 16A.26 and 17.295F

##### Code related audit information

Retailers must ensure that DUML database audits are completed:

1. by 1 June 2018 (for DUML that existed prior to 1 June 2017)
2. within three months of submission to the reconciliation manager (for new DUML)
3. within the timeframe specified by the Authority for DUML that has been audited since 1 June 2017.

##### Audit observation

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 and the application of profiles was checked. The database was checked for 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. Compliance was confirmed for both parties.

I compared the PowerNet database provided to the capacity information Meridian supplied to EMS for the month of August 2018 and found it matched exactly.

There is a high volume of inaccurate data within the PowerNet database which is used to provide capacity information to Meridian. This will only have increased with the LED roll out underway.

Issue	Volume information impact (annual kWh)
Potential over submission due to database inaccuracy	540,100 kWh over submission
Under verandah lights not reconciled	56,804 kWh under submission
Amenity lights not reconciled	Unknown volume-currently being entered into GDC RAMM database

This is recorded as non-compliance and discussed in **sections 2.4, 3.1 and 3.2.**

#### Audit outcome

Non-compliant

Non-compliance	Description		
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3  From: 20-Mar-18 To: 31-Aug-18	The database used to prepare submissions contains some inaccurate information. 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.  The database accuracy is assessed to be 27.6% of the database for the sample checked indicating a potential over submission of approximately 540,100 kWh per annum.  Potential impact: High Actual impact: Unknown  Audit history: Multiple times  Controls: Weak  Breach risk rating: 9		
Audit risk rating	Rationale for audit risk rating		
<b>High</b>	The controls are rated as weak, because they are not sufficient to ensure that lamp details are correct and not all load is reconciled.  The impact is assessed to be high, based on the kWh differences described above and the unknown volume of amenity lighting.		
Actions taken to resolve the issue		Completion date	Remedial action status
We continue to work with Gore DC to ensure the validation and update of their RAMM database is completed as soon as possible to resolve the reported inaccuracies – this is taking much longer than anticipated.		31 Dec 18	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
As above			

## 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 database was checked to confirm the correct ICP was recorded against 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 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.

As part of the LED rollout project, GDC's database will be updated with accurate location information and GPS co-ordinates have also been recorded and will be added to the database. GDC's RAMM database will be used for submission once it has been updated and validated.

**Audit outcome**

Non-compliant

Non-compliance	Description		
Audit Ref: 2.3 With: Clause 11(2)(b) of Schedule 15.3 From: 01-May-18 To: 31-Aug-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		
Low	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 continue to work with Gore DC to ensure the validation and update of their RAMM database is completed as soon as possible to resolve the reported inaccuracies – this is taking much longer than anticipated.		31 Dec 18	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
As above			

#### 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 database was checked to confirm that it contained a field for lamp type and wattage capacity and included any ballast or gear wattage and that each item of load had a value recorded in these fields.

##### 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 DUML for which it is responsible is recorded in this database.

### Audit observation

The field audit was undertaken of a statistical sample of 162 items of load on 26<sup>th</sup> October 2018.

### Audit commentary

The field audit findings are detailed in the table below:

Street/Area	Database Count	Field Count	Lamp no. difference	No of incorrect lamp wattage	Comments
<b>Gore District Council - Rural</b>					
SH1/96 Intersection	4	4			
SH1/Craig Road Intersection	5	5			
<b>Gore District Council - TPC Urban</b>					
Brown Street	2	2		2	2 x L24
Clyde Street	6	6		6	6 x L24
Devon Street	8	8		8	8 x L24
Elizabeth Street	7	7		7	7 x L24
Gorton Street	12	12		7	7 x L24
Kerwood Place	4	4		4	4 x L24
Lennox Street	2	2		2	2 x L24
Norton Street	16	16		16	16 x L24
Oxford Street	7	7		7	7 x L24
Richmond Street	7	6	-1	6	6 x L24
Stratford street	3	3		3	3 x L24
Sword Street	5	5		5	5 x L24
Talbot Street	20	20	-2	18	18 x L24
Talbot Street/SH1	1	1			1 x L24
Vera Street	7	6	-1	6	6 x L24
Walker Cresent	11	11		11	11 x L24
Weka Street	1	1		1	1 x L24
<b>Gore District Council - Urban</b>					
Carlyle Street	7	6	-1	5	4 x L24 1 x L130 1 x duplicate in database
Carlyle Street/McConnell St	1	1		1	1 x L130
Doctors Road	6	6		6	6 x L24
Forth Street	9	9		9	9 x L24
Main Street (opp Carlyle St.)	1	1			
Scott Street	4	4		4	4 x L24
Welcome Sign	6	0	-6		No lights could be located



Street/Area	Database Count	Field Count	Lamp no. difference	No of incorrect lamp wattage	Comments
Grand Total	162	153	-11	134	

I was unable to locate eleven lamps in the field and 134 lamps were discovered with a different lamp type and wattage than recorded in the database. These differences are recorded as non-compliance in **section 3.1**.

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. The amenity and under verandah lighting has historically been tracked in a separate spreadsheet but this will be added to GDC's RAMM database at the same time the LED roll out information is added. 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 currently 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.

The intention is for GDC's RAMM database to be updated with LED rollout and field data and currently excluded lights to be included prior to Christmas. Once complete and validated GDC intends to use this information to report to Meridian, who will use it to calculate their submission information.

There were no items located in the field that were missing from the RAMM database.

#### **Audit outcome**

Non-compliant

Non-compliance	Description		
Audit Ref: 2.5 With: Clause 11(2A) of Schedule 15.3  From: 01-May-18 To: 31-Aug-18	Park, amenity, and under verandah lights are excluded from the database. Potential impact: Medium Actual impact: Unknown Audit history: Multiple times Controls: Weak Breach risk rating: 9		
Audit risk rating	Rationale for audit risk rating		
High	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.  The impact is assessed to be high as due to the under verandah lighting not being submitted resulting in an estimated 56,804 kWh per annum of under submission and the unknown volume of under submission for parks and amenity lighting.		
Actions taken to resolve the issue		Completion date	Remedial action status
We continue to work with Gore DC to ensure the validation and update of their RAMM database is completed as soon as possible to resolve the reported inaccuracies – this is taking much longer than anticipated.		31 Dec 18	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	

## 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

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<sup>th</sup> September 2012, the Authority sent a memo to Retailers and auditors advising that tracking of load changes at a daily level was not required as long as the database contained an audit trail. I have interpreted this to mean that the production of a monthly “snapshot” report is sufficient to achieve compliance.

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

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 affecting the accuracy of the database and this is recorded as non-compliance in sections **2.1, 3.1** and **3.2**.

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.

Every six months a night outage patrol takes place, otherwise GDC rely on the public to report outages.

#### **Audit outcome**

Compliant

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

#### **Code reference**

*Clause 11(4) of Schedule 15.3*

#### **Code related audit information**

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

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

#### **Audit observation**

The database was checked for audit trails.

#### **Audit commentary**

PowerNet has previously 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	Gore District Council region
Strata	The database contains items of load in Gore area. The processes for the management of 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. Rural</li><li>2. TPC Urban</li><li>3. 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 26 sub-units.
Total items of load	162 items of load were checked.

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

##### Audit commentary

The results of the field audit are detailed in **section 2.5**.

A statistical sample of 162 items of load found that the field data was 27.6% of the database data for the sample checked. The statistical sampling tool reported with 95% confidence the precision of the sample was 12% and the true load in the field will be between 20.2% to 32.2% of the load recorded in the database. The sample is not sufficiently precise to be able to determine the database accuracy but indicates that the database is likely to be over submitting.

The tool indicated that there is potentially 540,100 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool) of over submission. The statistical sampling tool reported with 95% confidence that there is a potential estimated submission variance range of between 595,700 kWh and 506,100 kWh per annum over submission.

As expected, the auditing tool reflects that the LED rollout in the field has not been captured in the database, in addition to missing items of Park, amenity, and under verandah lights that are excluded from the database.

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. 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 DUMML database auditing tool).

Parks and amenity lighting is also currently 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 all 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.

The intention is for GDC's RAMM database to be updated with LED rollout and field data and all currently excluded lights to be included prior to Christmas. Once complete and validated GDC intends to use this information to report to Meridian, who will use it to calculate their submission information.

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: 20-Mar-18 To: 31-Aug-18	The database accuracy is assessed to be 27.6% of the database for the sample checked indicating a potential over submission of approximately 540,100 kWh per annum.  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.  Potential impact: High  Actual impact: Unknown  Audit history: Once  Controls: Weak  Breach risk rating: 6		
Audit risk rating	Rationale for audit risk rating		
<b>High</b>	The controls are rated as weak, because they are not sufficient to ensure that changes to the database are correctly recorded.  The impact is assessed to be high, based on the kWh differences described above and the unknown volume of amenity lighting.		
Actions taken to resolve the issue		Completion date	Remedial action status
We continue to work with Gore DC to ensure the validation and update of their RAMM database is completed as soon as possible to resolve the reported inaccuracies – this is taking much longer than anticipated.		31 Dec 18	Identified
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 submission was checked for accuracy for the month the database extract was supplied. This included:

- checking the registry to confirm that the ICP has the correct profile and submission flag
- 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 to the capacity information Meridian supplied to EMS in August 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 2.1, 2.5 and 3.1**.

As detailed in **section 3.1**, the DUML database auditing tool provided a result indicating the field data was 27.6% of the database data. This will result in a potential over submission by 540,100 kWh per annum.

### Audit outcome

Non-compliant

Non-compliance	Description		
<p>Audit Ref: 3.2 With: Clause 15.2 and 15.37B(c)</p> <p>From: 20-Mar-18 To: 31-Aug-18</p>	<p>The database accuracy is assessed to be 27.6% of the database for the sample checked indicating a potential over submission of approximately 540,100 kWh per annum.</p> <p>Under submission of 56,804 kWh per annum has occurred due to the exclusion of under verandah lights.</p> <p>The volume of under submission for parks and amenity lighting is unknown.</p> <p>Potential impact: High Actual impact: Unknown Audit history: Once Controls: Weak Breach risk rating: 6</p>		
Audit risk rating	Rationale for audit risk rating		
<p><b>High</b></p>	<p>The controls are rated as weak, because they are not sufficient to ensure that changes to the database are correctly recorded.</p> <p>The impact is assessed to be high, based on the kWh differences described above and the unknown volume of amenity lighting.</p>		
Actions taken to resolve the issue		Completion date	Remedial action status
<p>We continue to work with Gore DC to ensure the validation and update of their RAMM database is completed as soon as possible to resolve the reported inaccuracies – this is taking much longer than anticipated.</p> <p>Corrections to historic market submissions will be undertaken as required.</p>		<p>31 Dec 18</p> <p>TBC</p>	<p>Identified</p>
Preventative actions taken to ensure no further issues will occur		Completion date	



## 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.

Currently GDC also maintain 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 was not included in RAMM at the time of this audit, because GDC had preferred 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 intention is for GDC's RAMM database to be updated with LED rollout and field data and the currently excluded lights to be included prior to Christmas. Once complete and validated GDC intends to use this information to report to Meridian, who will use it to calculate their submission information.

Part of GDC's LED rollout program is a body of work to cleanse and update their RAMM database with data from the field. A spreadsheet of the cleansed data that will be used to update their database has been sighted and when compared to findings in the field appears very accurate.

The field audit was undertaken of a statistical sample of 162 items of load on 26<sup>th</sup> October 2018.

The audit found six non-compliances. These predominately relate to missing and incorrect data recorded in the Powernet database. The field audit found a high level of inaccuracy and the auditing tool reflected this in the database accuracy result.

The future risk rating of 38 indicates that the next audit be completed in three months.

## PARTICIPANT RESPONSE

Meridian has continued to work with Gore DC since the last audit to ensure the validation and update of their RAMM database is completed as soon as possible so this information can be used to derive submission information.

Unfortunately, this work is taking longer than anticipated despite our ongoing effort.