

VERITEK

Electricity Industry Participation Code Audit Report

For

Genesis Energy Limited



**South Taranaki District Council
Distributed Unmetered Load**

Prepared by Tara Gannon – Veritek Ltd

Date of Audit: 03/01/2018

Date Audit Report Complete: 26/03/2018

Executive Summary

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

The audit was conducted in accordance with the audit guidelines for DUML audits version 1.1, which became effective on 1 June 2017.

Streetlight load is determined by wattages held within STDC's RAMM database. STDC provides monthly reports from RAMM to Genesis, excluding private lighting.

Festive lighting is connected to metered under verandah lighting and is excluded from the database.

The audit process included a field audit of 202 items of load and found 96.1% accuracy. Most differences related to timing, and the wattage difference would result in over reporting of approximately 2280 kWh per annum.

The future risk rating of eight indicates that the next audit be completed in 18 months. The matters raised are detailed below:

Table of Non-Compliance

Subject	Section	Clause	Non-compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Deriving submission information	2.1	11(1) of Schedule 15.3	The database used to prepare submissions contains some inaccurate information.	Moderate	Low	2	Identified
All load recorded in database	2.5	11(2A) of Schedule 15.3	For the sample of 202 lamps checked, eight lamps could not be located.	Moderate	Low	2	Identified
Database accuracy	3.1	15.2	For the sample of 202 lamps checked, eight lamps had incorrect model information recorded, and eight lamps could not be located.	Moderate	Low	2	Identified
Volume information accuracy	3.2	15.2	The database used to prepare submissions contains some inaccurate information.	Moderate	Low	2	Identified
Future risk rating						8	

Subject	Section	Clause	Non-compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Indicative audit frequency						18 months	

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

Table of Recommendations

Subject	Section	Recommendation	Description
Description of load type	3.1	Correction to Cree LEDway model names	Correct the Cree LEDway model names to clarify that they do not reflect the lamp wattage.
ICP data	1.4	Confirm lights installed at Manawapou Road and Whareroa Road.	I recommend Genesis works with STDC to confirm the lights installed at Manawapou Road and Whareroa Road.

Persons Involved in This Audit:

Auditor:

Tara Gannon
Veritek Limited
Electricity Authority Approved Auditor

Other personnel assisting in this audit were:

Name	Title	Company
Vincent Lim	Roading Manager	South Taranaki District Council
Shweta Arora	Reconciliation Systems Analyst	Genesis Energy

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1. Administrative

1.1 Exemptions from Obligations to Comply With Code (Section 11 of Electricity Industry Act 2010)

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.

Review of current exemptions on the Electricity Authority's website confirmed that there are no exemptions in place relevant to the scope of this audit.

1.2 Supplier List

STDC, NPE Tech, and RAMM Software Limited are considered agents under this clause and Genesis clearly understands that the use of agents does not release them from their compliance obligations.

Genesis' contract is with STDC, and there is no direct contractual relationship between Genesis and NPE Tech, or Genesis and RAMM Software Limited.

STDC has contracts with

- **NPE Tech** for fieldwork and asset data capture; and
- **RAMM Software Limited** for database hosting.

This is not seen as an issue, as the processes for updating the database are robust and have appropriate validation controls in place. This is discussed further in **section 2.6**.

1.3 Hardware and Software

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

STDC confirmed that the database back-up is in accordance with standard industry procedures. The database is password protected.

Compliance is confirmed.

1.4 List of ICPs

The following ICPs are relevant to the scope of this audit:

ICP	Description	Profile	NSP	No. of items of load
1000543586PC5A9	STDC Streetlights (Hawera)	NST	HWA0331	234
1000543527PC1F3	STDC Streetlights (Hawera)	NST	HWA0331	1338
1000543587PC9EC	STDC Streetlights (New Plymouth)	NST	NPL0331	125
1000543529PC268	STDC Streetlights (New Plymouth)	NST	NPL0331	321
1000543528PCE2D	STDC Streetlights (Stratford)	NST	SFD0331	300
1000543590PCE8B	STDC Streetlights (Waverley)	NST	WVY0111	110
1000543526PCDB6	STDC Streetlights (Waverley)	NST	WVY0111	358
TOTAL items of load				2786

0042251397PC0FC is settled as standard unmetered load. The ICP is still recorded in STDC's database with two 150W sodium lights situated at Manawapou Road and Whareroa Road. The registry shows one 150W light and one 70W light. Standard unmetered load is outside of the scope of this audit, but I recommend Genesis works with STDC to determine the correct wattage of the lights installed and update their records and the registry if necessary.

Subject	Recommendation	Description
ICP data	Confirm lights installed at Manawapou Road and Whareroa Road.	I recommend Genesis works with STDC to confirm the lights installed at Manawapou Road and Whareroa Road.

1.5 Breaches or Breach Allegations

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

1.6 Distributed unmetered load audits (Clauses 16A.26 & 17.295F)

Retailers must ensure that DUML database audits are completed:

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

Audit Observation

Genesis have requested Veritek to undertake this streetlight audit.

Audit Commentary

This audit report confirms that the requirement to conduct an audit has been met for this database within the required timeframe. Compliance is confirmed.

1.7 Separate distributed unmetered load audit (Clause 16A.8(4))

Retailers must ensure that DUML audits are reported in a separate audit report.

Audit Observation

Genesis have requested Veritek to undertake this streetlight audit.

Audit Commentary

The audit report for this DUML database is separate from other audit reports. Compliance is confirmed.

1.8 Summary of Previous Audit

Genesis provided a copy of the report of the previous audit conducted in February 2017 by Tara Gannon of Veritek Limited. Two non-compliances were found, and one recommendations was made. The status of the non-compliances and recommendations is detailed below:

Table of Non-Compliance

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	Clause 11(1) of schedule 15.3	No reporting is provided by STDC for ICP 0042251397PC0FC. Consumption is estimated by Genesis.	Cleared, this ICP is now settled as standard unmetered load. Refer to section 1.4.
Tracking of load changes	2.3	Clause 11(3) of schedule 15.3	Some discrepancies identified between the lights in the field and the database, including: <ul style="list-style-type: none">• 12 lamps recorded in the database were not located in the field• Four lamps found in the field were not recorded in the database• Two lamps recorded in the database as sodium lamps had been replaced with LEDs.	Still existing. Refer to section 2.5.

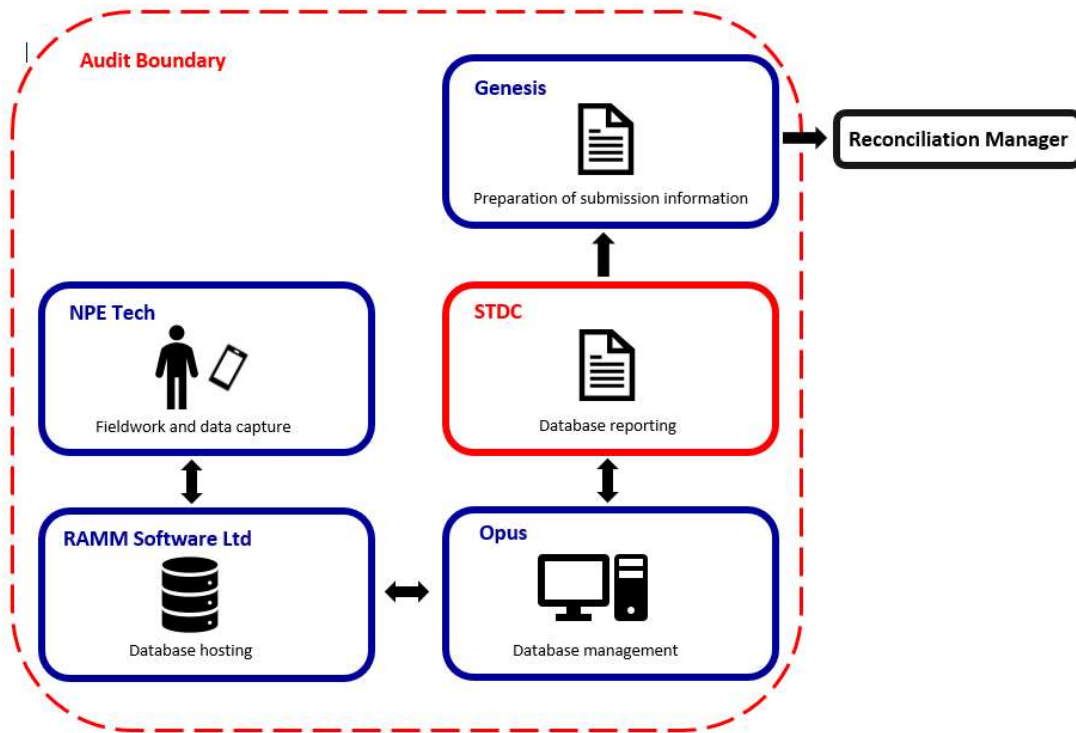
Table of Recommendations

Subject	Section	Clause	Recommendation	Status
Data Transmission	1.9	Clause 20 of schedule 15.2	I recommend requiring the monthly report from RAMM to be password protected.	Implemented. Refer to section 1.10.

1.9 Scope of Audit

A RAMM database is held by STDC, who is Genesis' customer. This database is hosted by RAMM Software Limited (CJN Technologies Ltd). NPE Tech complete the field work and data capture. STDC provides monthly reports from the database to Genesis.

The scope of the audit encompasses the collection, security and accuracy of the data, including the preparation of submission information based on the spreadsheet reporting from RAMM. The diagram below shows the flow of information and 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 202 lights using the statistical sampling methodology on 3 January 2018. The field selection included two population groups:

- Streets where an owner other than Local Authority was recorded for some lamps.
- All other streets.

1.10 Data Transmission (Clause 20 of Schedule 15.2)

The reporting from STDC to Genesis is by way of a spreadsheet attached to an email. This file is password protected to prevent accidental editing.

Compliance is confirmed.

2. DUML database requirements

2.1 Deriving Submission Information (Clause 11(1) of Schedule 15.3)

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

This clause requires that the distributed unmetered load database must satisfy the requirements of schedule 15.5 regarding the methodology for deriving submission information. Genesis reconciles this DUML load using the NST profile.

The calculations were checked for October 2017 for the following ICPs and found to be correct. Compliance is confirmed.

ICP	Description
1000543586PC5A9	STDC Streetlights (Hawera)
1000543527PC1F3	STDC Streetlights (Hawera)
1000543587PC9EC	STDC Streetlights (New Plymouth)
1000543529PC268	STDC Streetlights (New Plymouth)
1000543528PCE2D	STDC Streetlights (Stratford)
1000543590PCE8B	STDC Streetlights (Waverley)
1000543526PCDB6	STDC Streetlights (Waverley)

While Genesis are using up to date database information, there is some inaccurate data within the database, and this is recorded as non-compliance below and discussed in **sections 2.5** and **3.1**.

Non-compliance	Description
Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3 From: entire audit period	The database used to prepare submissions contains some inaccurate information. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2
Audit risk rating	Rationale for audit risk rating
Low	Controls are rated as moderate, because 96.1% accuracy was achieved for the sample checked. The impact is low. Most differences related to timing, and the combined wattage difference would result in over reporting of approximately 2280 kWh per annum.

Actions taken to resolve the issue	Completion date	Remedial action status
Genesis are working with the database owner to maintain exceptions where identified.	10/2018	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
Awaiting database owner's response. Genesis will work with the contracted party to gain accuracies in their database.	10/2018	

2.2 ICP Identifier (Clause 11(2)(a) of Schedule 15.3)

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 an ICP was recorded against each item of load.

Audit Commentary

The analysis found that all items of load had the correct ICP recorded against them. Compliance is confirmed.

2.3 Location of Each Item of Load (Clause 11(2)(b) of Schedule 15.3)

The DUML database must contain the location of each DUML item.

Audit Observation

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

Audit Commentary

The database contains street names and location numbers for each item of load. Users in the office and field can view these locations on a mapping system. 2731 (98%) of the 2786 poles are numbered in the database. Compliance is confirmed.

2.4 Description of Load Type (Clause 11(2)(c) & (d) of Schedule 15.3)

The DUML database must contain:

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

Audit Observation

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

Audit Commentary

For each record lamp wattage and adjusted lamp wattage (including the gear wattage) is recorded.

Compliance is confirmed.

2.5 All load recorded in database (Clause 11(2A) of Schedule 15.3)

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 202 lights using the statistical sampling methodology. The field selection included two population groups:

- Streets where an owner other than Local Authority was recorded for some lamps.
- All other streets.

Audit Commentary

The database contains two fields titled Model, and in some cases the information contained within them is inconsistent. This is discussed further in **section 3.1**. I found that wattage appeared to be linked to the second field named model and focussed on the accuracy of this information.

The field audit findings are detailed in the table below:

Street	Database count	Field count	Light count differences	Model recorded incorrectly	Comments
Local Authority owns all lamps					
ALBANY STREET (709), PATEA	5	5	-	-	
CAMBRIA STREET (573), HAWERA	4	4	-	-	
CAMPBELL STREET (575), HAWERA	10	10	-	-	
DOUGLAS STREET (588), HAWERA	6	6	-	-	
HUNTER STREET (611), HAWERA	13	13	-	-	
LONDON STREET (542), ELTHAM	14	14	-	-	
MANUKA PLACE (625), HAWERA	5	5	-	-	
PEMBROKE STREET (736), PATEA	5	5	-	-	
ROD SYME PLACE (838), HAWERA	5	5	-	-	
SMITH STREET (754), WAVERLEY	12	7	5	-	Four 70W lamps and one 24W lamp were not located.
TAUHURI STREET (769), MANAIA	14	14	-	1	One 21W LED should have been recorded as 70W.

Street	Database count	Field count	Light count differences	Model recorded incorrectly	Comments
TOTARA CRESCENT (658), HAWERA	7	7	-	-	
WELLINGTON STREET (664), HAWERA	5	5	-	1	One 70W was replaced with a 21W LED.
WILSON STREET (667), HAWERA	10	10	-	-	
YORK STREET (562), ELTHAM	6	6	-	1	One 24W LED was recorded as a 30W LED.
Other owners own some lamps					
BRASSEY STREET (747), WAVERLEY	14	12	2	-	Two 150W lamps were not located.
DISRAELI STREET (585), HAWERA	16	16	-	5	Five 70W lamps were recorded as 14W LED.
WAIHI ROAD (SH3) NORMANBY (700), NORMANBY	19	19	-	-	
WERAROA ROAD (SH3) WAVERLEY (799), WAVERLEY	32	31	1	-	One 150W was not located.
Total	202	194	8	8	

The field audit found the database to be highly accurate. Eight lamp count differences are recorded as non-compliance below, and the eight wattage differences are recorded as non-compliance in **section 3.1**. Following the audit, a STDC senior roading engineer checked the discrepancies, and found that some may relate to addressing particularly for lights near intersections.

Non-compliance	Description		
Audit Ref: 2.5 With: Clause 11(2A) of Schedule 15.3 From: entire audit period	For the sample of 202 lamps checked, eight lamps could not be located. Potential impact: Low Actual impact: Low Audit history: Once previously Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as moderate, because 96.1% accuracy was achieved for the sample checked. The impact is low. Most differences related to timing or addressing where lamps were close to an intersection.		
Actions taken to resolve the issue		Completion date	Remedial action status
Genesis are working with the database owner to maintain exceptions where identified.		10/2018	Identified

Preventative actions taken to ensure no further issues will occur	Completion date	
Awaiting database owner's response. Genesis will work with the contracted party to gain accuracies in their database.	10/2018	

2.6 Tracking of Load Changes (Clause 11(3) of Schedule 15.3)

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 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 production of a monthly "snapshot" report 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 upgrade work is completed by NPE Tech. The RAMM database is either updated in the field using PDAs, or paper records are provided to the NPE Tech administration staff who update the database. Under their contract NPE Tech are responsible for validating any work completed in RAMM.

There are very few new connections. New subdivisions are rare, and most are rural and do not have street lighting. The STDC streetlight team works closely with the planning team to identify new subdivisions that will have streetlighting and progress with them. NPE Tech are Powerco approved contractors and will normally be responsible for connecting any new streetlighting and will ensure that they are entered into the RAMM database.

There are several database completeness and accuracy checks in place:

- Outage patrols are conducted on a monthly cycle. This process is used to check the accuracy of the database on a rolling basis.
- NPE Tech checks the database monthly to ensure it has been populated correctly following any maintenance activities.
- Opus is also responsible for monitoring NPE Tech's activities and database updates.
- STDC completes reasonableness and completeness checks on the database before submitting the data to Genesis each month. If any issues are found, they are referred to Opus and NPE Tech for investigation and correction.

Compliance is confirmed.

2.7 Audit Trail (Clause 11(4) of Schedule 15.3)

The DURL 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 RAMM database contains an audit trail for all changes, in addition this clause requires that an audit trail exists for all processing functions. The provision of reports from the database is considered to be secure, and an audit trail exists for the transmission of these reports.

Compliance is confirmed.

3. Accuracy of DURL database

3.1 Database Accuracy (Clause 15.2)

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

Audit Observation

The audit findings were used to determine if the information contained in the database is complete and accurate.

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

Audit Commentary

The database contains two fields titled Model, and in some cases the information contained within them is inconsistent. For example:

Model 1	Count	Model 2	Count
Floodlight	22	100w	17
		100w SON	2
		150w	2
		70w	1
GL 500	1020	100w	16
		100w SON	115
		14wLED	5
		150w	1
		150w SON	8
		70w	149
		70w SON	714

Model 1	Count	Model 2	Count
		NHT 150I SON	2
		TerraLED 21W 4000k	2
		TerraLED 24W 4000K	8
GL 600	201	100w	3
		100w SON	3
		150w	5
		150w SON	97
		70w SON	3
		NHT 150I SON	90
GL 700	134	100w	5
		100w SON	10
		150w	51
		150w SON	27
		250w	1
		70w SON	2
		NHT 150I SON	38
QS10 250W MH	8	150w SON	1
		250w Metal Halide	7

Two Cree LEDway models (20wLEDWAY and 30wLEDWAY) appeared to include the wattage in the name. The number within the name should refer to the number of LEDs, and the wattages were correctly recorded as 35W and 53W respectively. I recommend that the model names should be corrected for clarity.

Subject	Recommendation	Description
Description of load type	Correction to Cree LEDway model names. Review of model information recorded in RAMM to ensure it is correct and consistent.	Correct the Cree LEDway model names to clarify that they do not reflect the lamp wattage. Review model information where data in the model fields is inconsistent and update the database as necessary.

STDC intends to update model discrepancies before the end of January.

Lamp and adjusted wattages in the database were consistent with the lamp model information in the second model field. The field audit found the database to be 96.1% accurate, when compared to the second model field. For the sample of 202 lamps checked, eight lamps had incorrect model information recorded, and eight lamps could not be located. This is discussed further in **section 2.5**.

The recorded wattage for the sample checked was 13,245. and the actual wattage found was 12,724. The light count and model differences identified in the field totalled -521W. Based on this the sample's accuracy was 96.1%.

The inaccurate information is recorded as non-compliance below.

Non-compliance	Description	
Audit Ref: 3.1 With: Clause 15.2 From: entire audit period	For the sample of 202 lamps checked, eight lamps had incorrect model information recorded, and eight lamps could not be located. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2	
Audit risk rating	Rationale for audit risk rating	
Low	Controls are rated as moderate, because 96.1% accuracy was achieved for the sample checked. The impact is low. Most differences related to timing, and the combined wattage difference would result in over reporting of approximately 2280 kWh per annum.	
Actions taken to resolve the issue	Completion date	Remedial action status
Genesis are working with the database owner to maintain exceptions where identified.	10/2018	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
Awaiting database owner's response. Corrections were to be actioned by end of Jan-18. Genesis will be working with the contracted party to gain accuracies in their database.	10/2018	

3.2 Volume Information Accuracy (Clause 15.2)

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 against the submitted figure to confirm accuracy.

Audit Commentary

All the ICPs have the correct profile and submission flag assigned on the registry. The calculations were checked for October 2017 for the following ICPs and found to be correct.

ICP	Description
1000543586PC5A9	STDC Streetlights (Hawera)
1000543527PC1F3	STDC Streetlights (Hawera)
1000543587PC9EC	STDC Streetlights (New Plymouth)
1000543529PC268	STDC Streetlights (New Plymouth)

ICP	Description
1000543528PCE2D	STDC Streetlights (Stratford)
1000543590PCE8B	STDC Streetlights (Waverley)
1000543526PCDB6	STDC Streetlights (Waverley)

While Genesis are using up to date database information, there is some inaccurate data within the database, and this is recorded as non-compliance below and discussed in **sections 2.5 and 3.1**.

Non-compliance	Description		
Audit Ref: 3.2 With: Clause 15.2 From: entire audit period	The database used to prepare submissions contains some inaccurate information. Potential impact: Low Actual impact: Low Audit history: None Controls: Moderate Breach risk rating: 2		
Audit risk rating	Rationale for audit risk rating		
Low	Controls are rated as moderate, because 96.1% accuracy was achieved for the sample checked. The impact is low. Most differences related to timing, and the combined wattage difference would result in over reporting of approximately 2280 kWh per annum		
Actions taken to resolve the issue		Completion date	Remedial action status
Genesis are working with the database owner to maintain exceptions where identified.		10/2018	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
Resolution of 2.5 & 3.71 will correct this.		10/2018	

4. Conclusions

Streetlight load is determined by wattages held within STDC's RAMM database. STDC provides monthly reports from RAMM to Genesis, excluding private lighting.

Festive lighting is connected to metered under verandah lighting and is excluded from the database.

The audit process included a field audit of 202 items of load and found 96.1% accuracy. Most differences related to timing, and the wattage difference would result in over reporting of approximately 2280 kWh per annum.

The future risk rating of eight indicates that the next audit be completed in 18 months.



Tara Gannon
Veritek Limited
Electricity Authority Approved Auditor

5. Genesis Comments

Genesis have reviewed the report and their comments are provided within its body.