# ELECTRICITY INDUSTRY PARTICIPATION CODE
# DISTRIBUTED UNMETERED LOAD AUDIT REPORT

For

## WHAKATANE DISTRICT COUNCIL
## AND GENESIS ENERGY

Prepared by: Rebecca Elliot

Date audit commenced: 10 April 2019

Date audit report completed: 10 May 2019

Audit report due date: 1 June 2019

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## EXECUTIVE SUMMARY

This audit of the Whakatane District Council (**WDC**) 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.

Genesis continue to use the registry figures and UML profile to calculate submissions. The registry figures were last updated with data provided by WDC in July 2018. This found a potential under submission of 14,136 kWh per annum. The combination of the LED lower wattages and the extra lights recorded in the database against ICP 1000023047BP07D appear to almost balance out the variance. This is by good luck and if the lights missing were to be examined on their own this would result in a much greater variance than is indicated. WDC intend to start providing Genesis with monthly wattage reports.

WDC have installed a central management system called Telensa as part of the LED replacement programme of work. This was demonstrated during the site audit. It controls the light burn times and has replaced the networks relays previously used therefore the fixed burn hours used to calculate submission will not be representative of the actual burn hours. I have recorded non-compliance for the use of the Telensa system without an appropriate profile and recommend that Genesis work with WDC and the Electricity Authority to get a profile to address this.

The previous audit report noted that the RAMM database did not record the ballast figure. This has been corrected and the accuracy of these is discussed in **section 3.1**. The registry figures being used to calculate submission do not have the ballast included but with the extensive roll out of LED lights the effect on submission would be expected to be minimal.

WDC expect the LED rollout to be complete by June 2019 and the database content to stabilise. The field audit accuracy confirmed this expectation with an estimated accuracy of 100.8%. This falls within the +/- 5% allowable threshold and therefore the database was confirmed to be accurate.

This audit found seven non-compliances and makes three recommendations. The number of non-compliances has increased but the overall score has reduced. This is reflective of progress being made. The future risk rating of 32 indicates that the next audit be completed in three months. I have considered this in conjunction with the Genesis' responses and recommend that the next audit be in six months to allow time for the LED roll out to be completed and the use of Telensa for submission data be progressed.

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 | Variance found between RAMM database extract and the kWh figure submitted by Genesis resulting in an estimated annual under submission 14,136 kWh.<br>Telensa system used to control lighting without an approved profile. | Weak | High | 9 | Investigating |
| ICP identifier and items of load | 2.2 | 11(2)(a) & (aa) of Schedule 15.3 | Items of load associated with ICP 1000023061BPCA7 (Murupara amenity lights) are not recorded in a database. | Moderate | Low | 2 | Investigating |
| Location of each item of load | 2.3 | 11(2)(b) of Schedule 15.3 | Items of load associated with ICP 1000023061BPCA7 (Murupara amenity lights) are not recorded in a database and therefore the location is not recorded. | Moderate | Low | 2 | Investigating |
| Description and capacity of load | 2.4 | 11(2)(c) and (d) of Schedule 15.3 | 74 items of load with an invalid or incomplete lamp description.<br>Items of load associated with ICP 1000023061BPCA7 (Murupara amenity lights) are not recorded in a database and therefore the lamp type and capacity are not recorded. | Moderate | Low | 2 | Identified |

| Subject | Section | Clause | Non-Compliance | Controls | Audit Risk Rating | Breach Risk Rating | Remedial Action |
|---|---|---|---|---|---|---|---|
| All load recorded in database | 2.5 | 11(2A) and (d) of Schedule 15.3 | 13 additional items of load found in the field sample. | Moderate | High | 6 | Investigating |
| Database accuracy | 3.1 | 15.2 and 15.37B(b) | 205 items of load with incorrect ballast applied. | Moderate | Low | 2 | Identified |
| Volume information accuracy | 3.2 | 15.2 and 15.37B(c) | Variance found between RAMM database extract and the kWh figure submitted by Genesis resulting in an estimated annual under submission 14,136 kWh.<br>Telensa system used to control lighting without an approved profile. | Weak | High | 9 | Identified |
| Future Risk Rating | | | | | | 32 | |

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

## RECOMMENDATIONS

| Subject | Section | Recommendation |
|---|---|---|
| Deriving submission information | 2.1 | Liaise with WDC and the Electricity Authority to get a profile in place to enable the Telensa data to be used to calculate submission. |
| ICP identifier and items of load | 2.2 | Liaise with WDC to determine if the assets associated with ICP 1000023061BPCA7 (Murupara amenity lights) exist and if so, get these recorded in a database. |
| Tracking of load change | 2.6 | Liaise with WDC and Horizon to ensure new streetlights are reconciled from the point of electrical connection. |

## ISSUES

| Subject | Section | Description | Issue |
|---|---|---|---|
| | | Nil | |

# 1. ADMINISTRATIVE

## 1.1. Exemptions from Obligations to Comply with Code

### Code reference

*Section 11 of Electricity Industry Act 2010.*

### Code related audit information

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

### Audit observation

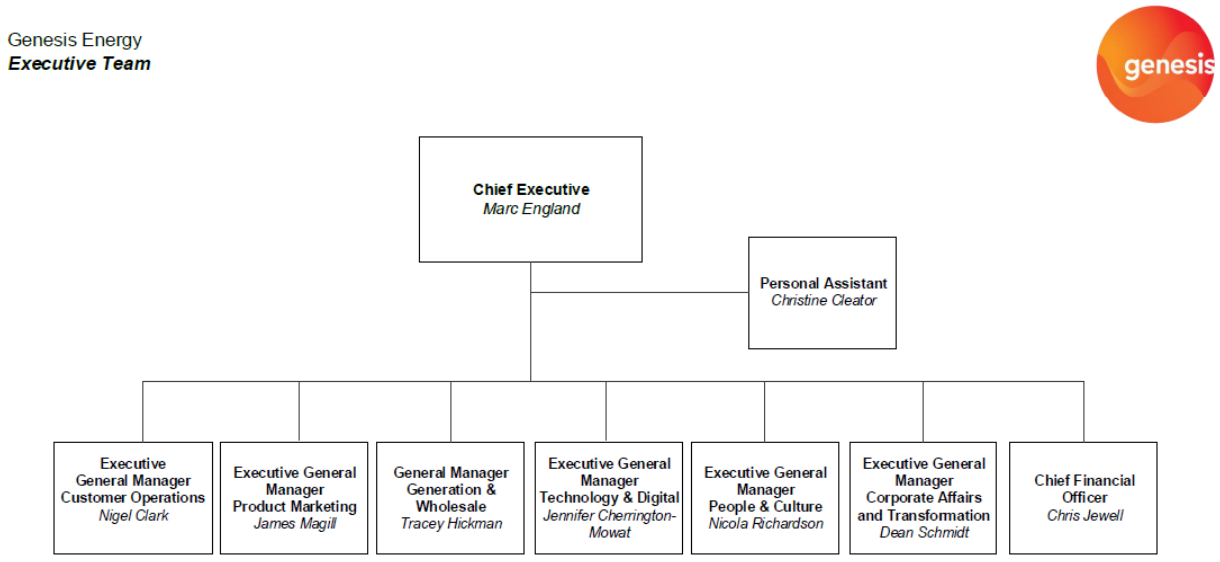
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

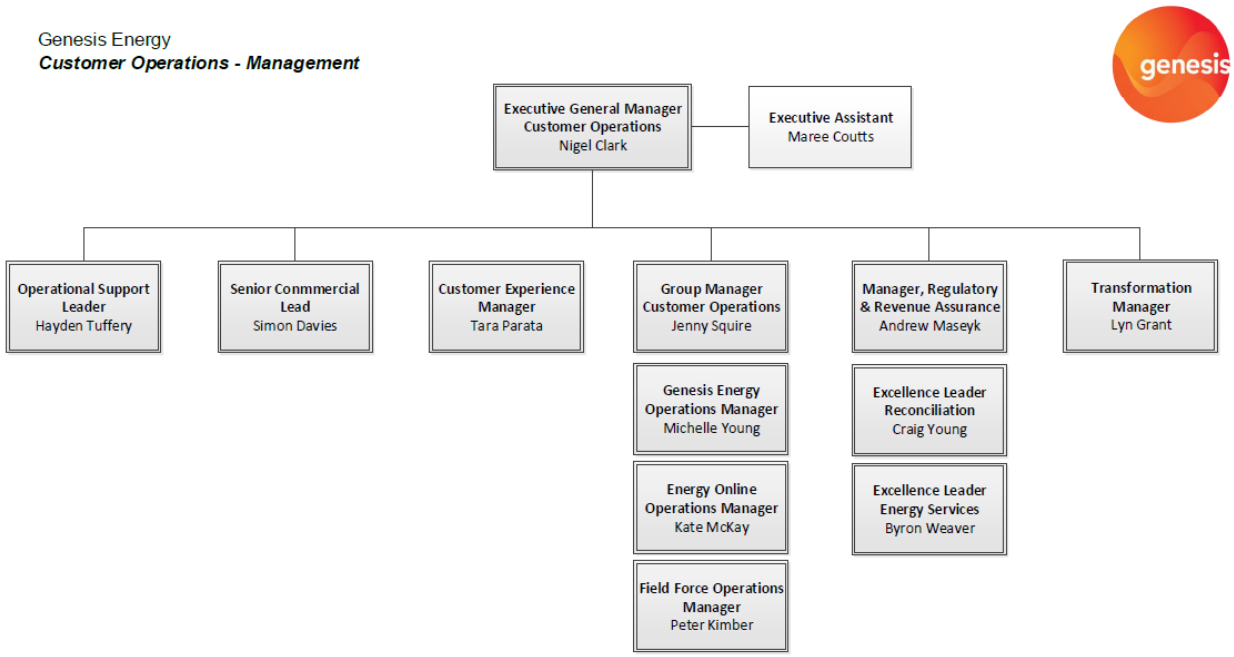
### Audit commentary

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

## 1.2. Structure of Organisation

Genesis provided the relevant organisational structure:






## 1.3. Persons involved in this audit

Auditor:

**Rebecca Elliot**

**Veritek Limited**

**Electricity Authority Approved Auditor**

Other personnel assisting in this audit were:

| Name | Title | Company |
|---|---|---|
| Craig Young | Excellence Leader - Reconciliation | Genesis Energy |
| Grace Hawken | Technical Specialist - Reconciliations Team | Genesis Energy |
| Aidan Glynn | Team Leader – Network Operations | Whakatane DC |
| Abner Salanguit | Asset Engineer- Transportation | Whakatane DC |

## 1.4. Hardware and Software

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

The database is backed-up 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 | Profile | Number of items of load | Database wattage (watts) |
|---|---|---|---|---|---|
| 1000023042BPD32 | Amenity Lights WDC | EDG0331 | UNM | 86 | 10,326 |
| 1000023060BP0E2 | Ruatahuna Streetlights | EDG0331 | UNM | 209 | 12,746 |
| 1000023061BPCA7 | Murupara Amenity Lights | EDG0331 | UNM | 9 | 639 |
| 1000023047BP07D | Whakatane Streetlights | EDG0331 | UNM | 2,354 | 134,575 |
| Total | | | | 2,649 | 157,647 |

The assets associated with ICP 1000023061BPCA7 are not recorded in the RAMM database. This is discussed in **section 2.2**.

## 1.7. Authorisation Received

All information was provided directly by Genesis and WDC.

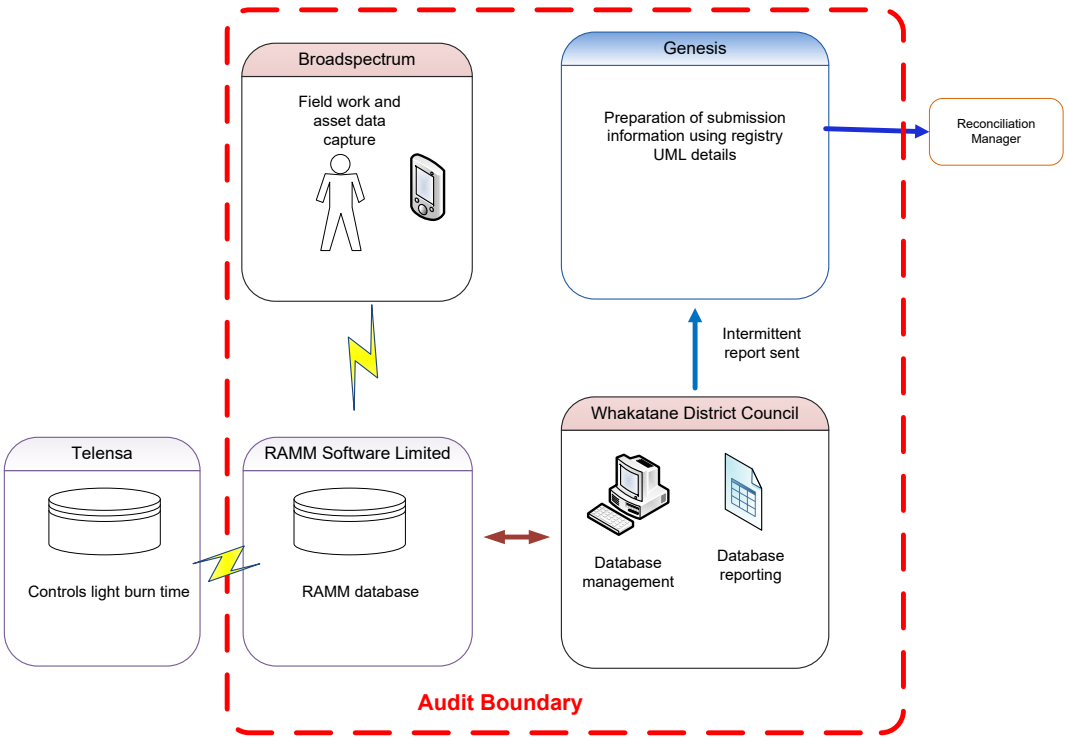
## 1.8. Scope of Audit

This audit of the Whakatane District Council (**WDC**) 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.

A field audit against the RAMM database extract was undertaken to assess the accuracy of this against the registry figures used for submission. Broadspectrum is engaged by WDC and conducts the fieldwork and asset data capture. WDC have installed a central management system called Telensa as part of the LED replacement programme of work. It controls the lights burn times and has replaced the networks relays previously used. Outputs from this system have yet to be approved by the Electricity Authority to be used to derive submission therefore this system is outside of the scope of this audit.

The scope of the audit encompasses the collection, security and accuracy of the data, including the preparation of submission information based on the database reporting. The diagram below shows the audit boundary for clarity.




The field audit was undertaken of a statistical sample of 324 items of load on 2nd April 2019.

### 1.9. Summary of previous audit

The previous audit was completed in December 2018 by Rebecca Elliot of Veritek Limited. The current status of that audit's findings is detailed below:

## Table of Non-Compliance

| Subject | Section | Clause | Non-compliance | Status |
|---|---|---|---|---|
| Deriving submission information | 2.1 | 11(1) of Schedule 15.3 | Variance found between RAMM database extract and the kWh figure submitted by Genesis resulting in an estimated annual over submission 243,781. | Still existing |
| | | | Ballast not recorded in the RAMM database resulting in an estimated annual under submission if 27,599 kWh. | Cleared |
| | | | The database accuracy is assessed to be 110.8% indicating potential under submission of 72,300 kWh per annum. | Cleared |

| Subject | Section | Clause | Non-compliance | Status |
|---|---|---|---|---|
| Description and capacity of load | 2.4 | 11(2)(c) and (d) of Schedule 15.3 | Ballast is not recorded as a separate value therefore it is not being reconciled resulting in an estimated 27,599 of under submission per annum.<br>37 items of load with an invalid or incomplete lamp description. | Cleared<br>Still existing |
| All load recorded in database | 2.5 | 11(2A) and (d) of Schedule 15.3 | 33 additional items of load found in the field found in field sample. | Still existing |
| Database accuracy | 3.1 | 15.2 and 15.37B(b) | The database accuracy is assessed to be 110.8% indicating potential under submission of 72,300 kWh per annum.<br>Ballast is not recorded as a separate value therefore it is not being reconciled resulting in an estimated 27,599 of under submission per annum. | Cleared<br>Cleared |
| Volume information accuracy | 3.2 | 15.2 and 15.37B(c) | Variance found between RAMM database extract and the kWh figure submitted by Genesis resulting in an estimated annual over submission 243,781.<br>Ballast not recorded in the RAMM database resulting in an estimated annual under submission if 27,599 kWh.<br>The database accuracy is assessed to be 110.8% indicating potential under submission of 72,300 kWh per annum. | Still existing<br>Cleared<br>Cleared |

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

### Code reference

*Clause 16A.26 and 17.295F*

### Code related audit information

*Retailers must ensure that DUML database audits are completed:*

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

### Audit observation

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.

### Audit outcome

Compliant

## 2. DUML DATABASE REQUIREMENTS

### 2.1. Deriving submission information (Clause 11(1) of Schedule 15.3)

**Code reference**

*Clause 11(1) of Schedule 15.3*

**Code related audit information**

*The retailer must ensure the:*

- *DUML database is up to date*
- *methodology for deriving submission information complies with Schedule 15.5.*

**Audit observation**

The process for calculation of consumption was examined.

**Audit commentary**

Genesis reconciles this DUML load using the UML profile. Genesis is expecting to receive monthly wattage reports imminently but the registry values, which were updated in July 2018, continue to be used to calculate submission until a regular monthly wattage report is received. This will be resulting in inaccurate submission data.

I compared the submission volumes with the load recorded in the database extract provided for this audit in March 2019 against the volumes submitted by Genesis and found:

| ICPs | Fittings number from March 2019 submission | Fittings number from March 2019 database extract | Differences | kWh value submitted | Calculated kWh value from database | Differences |
|---|---|---|---|---|---|---|
| 1000023042BPD32 | 133 | 86 | 47 | 5,239 | 3,809.26 | 1,429.74 |
| 1000023060BP0E2 | 209 | 209 | - | 5,518 | 4,702.00 | 816.00 |
| 1000023047BP07D | 2,072 | 2,354 | -282 | 46,221 | 49,644.72 | -3,423.72 |
| **Total month kWh difference** | | | | | | -1,177.98 |

Annualised this will result in an estimated annual under submission of 14,136 kWh. This is calculated on the difference in the daily kWh figures. The combination of the LED lower wattages and the extra lights recorded in the database against ICP 1000023047BP07D appear to almost balance out the variance. This is by good luck and if the lights missing were to be examined on their own this would result in a much greater variance than is indicated above.

As detailed in **sections 1.6** and **2.2**, the RAMM database does not include the assets associated with ICP 1000023061BPCA7. I recommend in **section 2.2**, that Genesis liaise with the relevant team/person in WDC who are responsible for these lights to determine if these assets still exist and if so get them recorded in a database.

WDC have installed a central management system called Telensa as part of the LED replacement programme of work. This was demonstrated during the site audit. It controls the light burn times and

has replaced the networks relays previously used therefore the fixed burn hours used to calculate submission will not be representative of the actual burn hours. This is recorded as non-compliance.

The Telensa system calculates the kWh consumption across the streetlight network and I recommend that Genesis work with WDC and the Electricity Authority to apply for a profile to address this.

| Description | Recommendation | Audited party comment | Remedial action |
|---|---|---|---|
| Deriving submission information | Liaise with WDC and the Electricity Authority to get a profile in place to enable the Telensa data to be used to calculate submission. | Genesis has discussed the issue that WDC has bestowed upon Genesis by removing there lighting from the network relays, without advising their trader. Genesis will be talking with the EA in due course as to how we can utilise the Telensa wattage reporting to ascertain an accurate depiction of when the lights are on/off and reporting of wattage v RAMM information | Investigating |

The lamp ballast has been populated in the database since the last audit. Examination of these found some errors. These have been passed to WDC to correct. This has no direct impact on submission as no wattage reports have been provided since July 2018. The registry figures being used to calculate submission do not have the ballast included but with the extensive roll out of LED lights the effect on submission would be expected to be minimal. The incorrect wattages applied in the database are recorded as non-compliance in **section 3.1**.

**Audit outcome**

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 2.1<br>With: Clause 11(1) of Schedule 15.3<br><br>From: 01-Oct-18<br>To: 31-Mar-19 | Variance found between RAMM database extract and the kWh figure submitted by Genesis resulting in an estimated annual under submission 14,136 kWh.<br>Telensa system used to control lighting without an approved profile.<br>Potential impact: High<br>Actual impact: Unknown<br>Audit history: Twice previously<br>Controls: Weak<br>Breach risk rating: 9 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **High** | The controls are rated as weak as the submission is not calculated for an up to date data source and the burn hours used to calculate submission are fixed but are variable in the field.<br>The impact is assessed to be high due to the number of factors identified above resulting in the true impact on submission being unknown. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| the result of the under submitted volumes does not stem from the streetlighting separation from the network relays.<br>WDC agreed to remedy these issues outstanding from the LED upgrade that is taking place in which has led to lamp attribute exceptions.<br>Genesis will be requesting information from the Telensa system to determine on/off times and wattage reporting in the future. | 01/09/2019 | Investigating |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| Genesis rely on the contracted customer and their 3rd party contractor(s) to ensure that the asset information is updated accurately and in a timely manner. Genesis will advise of any exceptions when identified to WDC for correction. | 01/06/2019 | |

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

### Code reference

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

### Code related audit information

*The DUML database must contain:*

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

### Audit observation

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

### Audit commentary

The RAMM database is used to manage transport assets. Amenity lights are recorded in the database against ICP 1000023042BPD32 but any changes to these lights are not actively managed in the RAMM database. The overall accuracy of the database is discussed in **section 3.1**. As noted in **section 1.6**, the nine assets associated with ICP 1000023061BPCA7 (Murupara amenity lights) are not recorded in the RAMM database. The previous audit reports assumed they were omitted in error, but it was confirmed in this audit that these are not recorded in the database. I recommend that Genesis liaise with the relevant team/person in WDC who are responsible for these lights to determine if these assets still exist and if so get them recorded in a database.

| Description | Recommendation | Audited party comment | Remedial action |
|---|---|---|---|
| ICP Identifier & items of load | Liaise with WDC to determine if the assets associated with ICP 1000023061BPCA7 (Murupara amenity lights) exist and if so, get these recorded in a database | Genesis has already contacted the WDC division regarding the management process of their amenity lighting in general. | Investigating |

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 2.2<br>With: Clause 11(2)(a) & (aa) of Schedule 15.3<br><br>From: 01-Oct-18<br>To: 31-Mar-19 | Items of load associated with ICP 1000023061BPCA7 (Murupara amenity lights) are not recorded in a database.<br>Potential impact: Low<br>Actual impact: Low<br>Audit history: none<br>Controls: Moderate<br>Breach risk rating: 2 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **Low** | The controls are rated as moderate as the street lights have robust controls in place but there are no controls in place for the amenity lights.<br>The impact is assessed to be low as the volume of lights associated with the ICP are small (nine lights indicated on the registry). The volume is being reconciled based on the registry kWh figure which is based on historical information. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| Requested the amenity lighting processes to be outlined and which ICP the information is being reconciled under and the system information source. | 01/07/2019 | Investigating |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| All exception reporting to include any amenity lighting issue identified. Liaise with the council division to have these rectified. | 01/07/2019 | |

## 2.3. Location of each item of load (Clause 11(2)(b) of Schedule 15.3)

### Code reference

*Clause 11(2)(b) of Schedule 15.3*

### Code related audit information

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

### Audit observation

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

### Audit commentary

The database contains either the nearest street address, pole numbers, metres from the end of the carriageway for each item of load. As detailed in **section 2.2**, the items of load associated with ICP 1000023061BPCA7 (Murupara amenity lights) are not recorded in a database. This is recorded as non-compliance.

### Audit outcome

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 2.3<br>With: Clause 11(2)(b) of Schedule 15.3<br><br>From: 01-Oct-18<br>To: 31-Mar-19 | Items of load associated with ICP 1000023061BPCA7 (Murupara amenity lights) are not recorded in a database and therefore the location is not recorded.<br>Potential impact: Low<br>Actual impact: Low<br>Audit history: none<br>Controls: Moderate<br>Breach risk rating: 2 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **Low** | The controls are rated as moderate as the street lights have robust controls in place but there are no controls in place for the amenity lights.<br>The impact is assessed to be low as the volume of lights associated with the ICP are small (nine lights indicated on the registry). The volume is being reconciled based on the registry kWh figure which is based on historical information. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| Requested the amenity lighting processes to be outlined and which ICP the information is being reconciled under and the system information source. | 01/07/2019 | Investigating |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| All exception reporting to include any amenity lighting issue identified. Liaise with the council division to have these rectified. | 01/07/2019 | |

## 2.4. Description and capacity of load (Clause 11(2)(c) and (d) of Schedule 15.3)

### Code reference

*Clause 11(2)(c) and (d) of Schedule 15.3*

### Code related audit information

*The DUML database must contain:*

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

### Audit observation

The database was checked to confirm that it contained a field for lamp type and wattage capacity and included any ballast or gear wattage and that all items of load were recorded.

### Audit commentary

Lamp make, model and lamp wattage are included in the database. The lamp ballast has been populated in the database since the last audit. The accuracy of the ballasts applied is discussed in **section 3.1**.

Examination of the database found 74 items of load that had an incomplete or invalid light type recorded:

| Lamp Descriptions | Quantity |
|---|---|
| 175W Sodium | 3 |
| LED | 64 |
| MH | 5 |
| RUDD MH FLOOD | 1 |
| SON 80w | 1 |
| **TOTAL** | 74 |

These have been passed to WDC to correct. This is recorded as non-compliance.

As detailed in **section 2.2**, the items of load associated with ICP 1000023061BPCA7 (Murupara amenity lights) are not recorded in a database. This is recorded as non-compliance.

**Audit outcome**

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 2.4<br>With: Clause 11(2)(c) and (d) of Schedule 15.3<br><br>From: 01-Oct-18<br>To: 31-Mar-19 | 74 items of load with an invalid or incomplete lamp description.<br>Items of load associated with ICP 1000023061BPCA7 (Murupara amenity lights) are not recorded in a database and therefore the lamp type and capacity are not recorded.<br>Potential impact: Low<br>Actual impact: Low<br>Audit history: Twice<br>Controls: Moderate<br>Breach risk rating: 2 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **Low** | The controls are rated as moderate as the lamp ballast is now recorded in the database. Some errors were found indicating that the controls have not identified all discrepancies.<br>The impact is assessed to be low as the volume of lights with ballasts associated continues to diminish with the LED roll out and the volume of lights associated with ICP 1000023061BPCA7 is small. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| WDC agreed to remedy these issues outstanding from the LED upgrade that is taking place in which has led to lamp attribute exceptions. Genesis will monitor WDC progress on these issues. | 01/07/2019 | Identified |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| Genesis will provide WDC with exception reporting when dataset discrepancies are identified. | 01/07/2019 | |

## 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 324 items of load on 2nd April 2019.

### Audit commentary

The field audit findings for the sample of lamps was accurate with the exception of the streets detailed in the table below:

I found 13 more lamps in the field than were recorded in the database, and nine lamp wattage differences. This is an improvement from the findings in the last audit. The majority of these differences are as a result of the LED roll out which is still in progress. The roll out is expected to be completed by June 2019 and the database accuracy is expected to stabilise once this is completed.

| Street | Database count | Field count | Light count differences | Wattage recorded incorrectly | Comments |
|---|---|---|---|---|---|
| RICHARDSON STREET | 2 | 6 | +4 | 2 | 4x additional LED lights found in the field.<br>2x incorrect wattage - LED found in the field recorded as a 100 HPS in the database. |
| GALATEA ROAD | 2 | 1 | -1 | | 1x 29W LED light not found in the field. |
| MIRO DRVIE | 14 | 14 | | 1 | 1x incorrect wattage - LED found in the field recorded as a 80W MV in the database. |
| AMOKURA ROAD | 5 | 6 | +1 | | 1x additional 70W HPS light found in the field. |
| BRIDGE STREET (WHAKATANE) | 13 | 12 | -1 | | 1x 29W LED not found in the field. |
| CHURCHILL STREET | 13 | 11 | -2 | | 2x 67W LED not found in the field. |
| CLARKE STREET (WEST) | 1 | 0 | -1 | | 1x 29W LED not found in the field. |
| CLEARY AVENUE | 7 | 8 | +1 | | 1x additional 29W LED found in the field. |
| JAMES STREET | 44 | 44 | | 3 | 3x incorrect wattages - LEDs found in the field recorded as a 70W |

| Street | Database count | Field count | Light count differences | Wattage recorded incorrectly | Comments |
|---|---|---|---|---|---|
| | | | | | HPS in the database. |
| NATANA PLACE | 4 | 4 | | 2 | 2x incorrect wattages - 70W HPS found in the field recorded as a 29W LED in the database. |
| NIKAU PLACE (EDGECUMBE) | 1 | 3 | +2 | | 2x additional LED lights found in the field. |
| PYNE STREET CARPARK | 9 | 9 | | 1 | 1x incorrect wattage - 103W LED found in the field recorded as a 70W HPS in the database. |
| RUATOKI VALLEY ROAD | 3 | 4 | +1 | | 1x additional 70W HPS light found in the field. |
| ST JOHN STREET | 3 | 6 | +3 | | 3x additional 70W HPS lights found in the field. |
| TOROA STREET | 8 | 9 | +1 | | 1x additional LED light found in the field. |
| WAIMANA ROAD | 14 | 12 | -2 | | 2x 80W MV not found in the field. |
| **Grand Total** | **324** | **337** | **20** | **9** | |

I found 13 additional lamps in the field than were recorded in the database. One example was found of LED lights recorded in the database but 70W HPS lights were found in the field (Natana Place). The database accuracy is detailed in **section 3.1**. The additional items found in the field are recorded as non-compliance below.

Galatea Road was selected in the previous audit and 17 additional lights were found. These additional lights are located at the Matahina Power Station where Galatea Road crosses the top of the damn. These have been confirmed as private lights belonging to Trustpower and not WDC and are therefore outside of the scope of this audit.

**Audit outcome**

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 2.5<br>With: Clause 11(2A) and (d) of Schedule 15.3<br><br>From: 01-Oct-18<br>To: 31-Mar-19 | 13 additional items of load found in the field sample.<br>Potential impact: High<br>Actual impact: High<br>Audit history: Twice<br>Controls: Moderate<br>Breach risk rating: 6 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **High** | The controls are rated as moderate as the process to update the database is robust and the majority of additional lights found were due to timing differences.<br>The impact is assessed to be high as reconciliation is not being derived from up to date data. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| WDC agreed to remedy these issues outstanding from the LED upgrade that is taking place in which has led to lamp attribute exceptions. Genesis will be deriving energy volumes based off Telensa provided information moving forward. Genesis does plan to investigate revision accuracy. | 01/09/2019 | Investigating |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| Genesis will provide WDC with exception reporting when dataset discrepancies are identified. | 01/07/2019 | |

## 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 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 monthly report is sufficient to achieve compliance.

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

Pocket RAMM is used by the contractors to track changes. These are reviewed by WDC before they are accepted into the database. WDC are undertaking an extensive LED rollout and pole replacement programme and this is not expected to be completed until June 2019. WDC have previously elected not to provide monthly wattage reports whilst this roll out is underway. This approach is being reviewed and monthly wattage reports are expected to be provided to Genesis. This is recorded as non-compliance in **sections 2.1** and **3.2**.

WDC have installed a central management system called Telensa as part of the LED replacement programme of work. This was demonstrated during the site audit. It controls the lights burn times and has replaced the networks relays previously used. WDC have no plans to use dimming. The impact of the CMS system on the calculation of submission is discussed further in **sections 2.1** and **3.2**.

The Telensa CMS system tracks faults on the network and therefore outage patrols are no longer required. The system also flags if the lamp burn wattage is different to that recorded in the database. This will increase the accuracy of the data in the database. The data from the Telensa system is synchronised with the RAMM database.

The new connection process was discussed. The level of new activity in the WDC area is increasing but is still relatively small. New streetlight circuits get connected by the network, but these do not get added to the RAMM database until the lights are vested to WDC. This can be some months later and therefore the intervening period is not being reconciled. I recommend this process is reviewed in conjunction with WDC and Horizon.

| Description | Recommendation | Audited party comment | Remedial action |
|---|---|---|---|
| Tracking of load change | Liaise with WDC and Horizon to ensure new streetlights are reconciled from the point of electrical connection. | Genesis has raised this with Genesis Energy's commercial team and will review this process with the distributor to verify the process. | Investigating |

The accuracy of the database is discussed in **section 3.1**.

Festive lighting is connected into the metered circuits and is therefore accounted for in the metered supply.

Some private lights have been identified as a result of the installation of the Telensa system as these lights were no longer turning off with the removal of the Network owned relays. WDC have passed the details of these lights to Horizon to investigate. The outcome of these investigations will need to be examined as part of the next Horizon Distributor audit.

**Audit outcome**

Compliant

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

**Code reference**

*Clause 11(4) of Schedule 15.3*

**Code related audit information**

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

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

### Audit observation

The database was checked for audit trails.

### Audit commentary

RAMM contains a complete audit trail of all additions and changes with operator ID 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**

A RAMM database extract provided in July 2018 has been used to populate the registry unmetered load figures. These are used to calculate submission. A RAMM database extract was provided and I assessed the accuracy of this by using the DUML Statistical Sampling Guideline. The table below shows the survey plan.

| Plan Item | Comments |
|---|---|
| Area of interest | Whakatane District Council area |
| Strata | The database contains the WDC items of load in for three of the four ICPs in the Whakatane region area.<br>The processes for the management of all WDC items of load are the same, but I decided to place the items of load into five strata:<br>1. Amenity lights<br>2. Ruatahuna<br>3. Whakatane roads A-H<br>4. Whakatane roads I-O<br>5. Whakatane roads P-Z. |
| Area units | I created a pivot table of the roads and I used a random number generator in a spreadsheet to select a total of 58 sub-units making up 11% of the total database wattage. |
| Total items of load | 324 items of load were checked. |

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

**Audit commentary**

A statistical sample of 324 items of load found that the field data was 100.8% of the database data for the sample checked. This is within the required database accuracy of 5%+/- threshold. The statistical sampling tool reported with 95% confidence the precision of the sample was 15.9% and the true load in the field will be between 93.3% to 109.2% 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 accurate and therefore compliance is confirmed.

The tool indicated that there is potentially 5,300 kWh per annum (based on annual burn hours of 4,271 as detailed in the DUML database auditing tool) of under submission. The statistical sampling tool reported with 95% confidence that there is a potential estimated submission variance range of between 44,900 kWh of over submission and 62,100 kWh of under submission.

As discussed in **section 2.4**, the lamp ballast value is now recorded as a separate field in RAMM. The accuracy of these were examined and found 205 items of load with an incorrect ballast applied.

| | Ballast | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Lamp Type** | **10** | **13** | **14** | **16** | **18** | **28** | **38** | **Grand Total** |
| 80W | | 1 | | | | | | 14 |
| EDGE SQ. 40 LED | | | | | | | | |
| Elliptical ( HPS ) 70W E | | 11 | | 1 | 3 | | | 15 |
| Elliptical ( HPS ) 70w I | 2 | | | | 2 | | | 72 |
| Elliptical 250W | | 1 | | | | | | 1 |
| Elliptical 70w Son E | | 1 | | | | | | 1 |
| HPS Tub. 100w E | | | 2 | | | | | 2 |
| HPS Tub. 150w E | | | | | 1 | | | 1 |
| HPS Tub. 250w E | | | | | | 1 | | 1 |
| HPS Tub. 70w E | | 1 | | | | | | 1 |
| LED | | 4 | | | 2 | | | 6 |
| LED XSP1 29W | | 16 | | | | | | 16 |
| LED XSP1 67W | 6 | 11 | | | 4 | | | 21 |
| LED XSP2 103W | | 1 | 2 | | 13 | | | 16 |
| Metal Halide 150W | | | | | | 1 | | 5 |
| Metal Halide 250W | | 1 | | | | | | 1 |
| SON 80w | 1 | | | | | | | 1 |
| Tubular ( HPS ) 150w | | 1 | | | | | | 29 |
| Tubular ( HPS ) 250w | | | | | 1 | | | 1 |
| Tubular (HPS) 100w | | 1 | | | | | | 1 |
| **Grand Total** | **9** | **50** | **4** | **1** | **26** | **2** | | **205** |

These have been passed to WDC to correct. This has no direct impact on reconciliation as the registry figures (updated in July 2018) are used for submission.

This is recorded as non-compliance.

**Audit outcome**

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 3.1<br>With: Clause 15.2 and 15.37B(b)<br><br>From: 01-Oct-18<br>To: 01-Mar-19 | 205 items of load with incorrect ballast applied.<br>Potential impact: Low<br>Actual impact: None<br>Audit history: Twice<br>Controls: Moderate<br>Breach risk rating: 2 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **Low** | The controls are rated as moderate as ballasts are now recorded in the database but were found to have some errors indicating controls in place did not identify these.<br>The audit risk rating is assessed to be low as the errors found in relation to incorrect ballasts will have no impact on reconciliation as submission is calculated from a database extract provided in July 2018. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| Genesis has previously utilised the registry data as monthly reporting was not being supplied albeit requested. The WDC has now agreed to supply Genesis with a monthly report which Genesis will be using for monthly calculation of energy volumes. | 01/07/2019 | Identified |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| Genesis have requested monthly data from the Telensa system to utilise for monthly billing and settlements. | 01/07/2019 | |

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

### Audit commentary

Genesis reconciles this DUML load using the UML profile. Genesis is expecting to receive monthly wattage reports imminently but the registry values, which were updated in July 2018, continue to be used to calculate submission until a regular monthly wattage report is received. This will be resulting in inaccurate submission data. I compared the submission volumes with the load recorded in the database extract provided for this audit in March against the volumes submitted by Genesis and found an estimated annualised under submission of 14,136 kWh. This is calculated on the difference in the daily kWh figures. The combination of the LED lower wattages and the extra lights recorded in the database against ICP 1000023047BP07D appear to almost balance out the variance. This is by good luck and if the lights missing were to be examined on their own this would result in a much greater variance than is indicated in **section 2.1**.

As detailed in **sections 1.6** and **2.2**, the RAMM database does not include the assets associated with ICP 1000023061BPCA7. I recommend in **section 2.2**, that Genesis liaise with the relevant team/person in WDC who are responsible for these lights to determine if these assets still exist and if so get them recorded in a database.

WDC have installed a central management system called Telensa as part of the LED replacement programme of work. This was demonstrated during the site audit. It controls the light burn times and has replaced the networks relays previously used therefore the fixed burn hours used to calculate submission will not be representative of the actual burn hours. The use of the Telensa system without an appropriate profile is recorded as non-compliance. I recommend in **section 2.1**, that Genesis work with WDC and the Electricity Authority to get a profile to address this.

The lamp ballast has been populated in the database since the last audit. Examination of these found some errors. These have been passed to WDC to correct. This has no direct impact on submission as no wattage reports have been provided since July 2018. The registry figures being used to calculate submission do not have the ballast included but with the extensive roll out of LED lights the effect on submission would be expected to be minimal.

**Audit outcome**

Non-compliant

| Non-compliance | Description |
|---|---|
| Audit Ref: 3.2<br>With: Clause 15.2 and 15.37B(c)<br><br>From: 01-May-18<br>To: 30-Sep-18 | Variance found between RAMM database extract and the kWh figure submitted by Genesis resulting in an estimated annual under submission 14,136 kWh.<br>Telensa system used to control lighting without an approved profile.<br>Potential impact: High<br>Actual impact: Unknown<br>Audit history: Twice previously<br>Controls: Weak<br>Breach risk rating: 9 |
| **Audit risk rating** | **Rationale for audit risk rating** |
| **High** | The controls are rated as weak as the submission is not calculated for an up to date data source and the burn hours used to calculate submission are fixed but are variable in the field.<br>The impact is assessed to be high due to number of factors identified above resulting in the true impact on submission to unknown. |

| Actions taken to resolve the issue | Completion date | Remedial action status |
|---|---|---|
| Genesis were only made aware of the burn hours source change when Genesis attended the Whakatane DC review of findings late April. Genesis will be utilising the Telensa, RAMM sync data and operational hours derived from the system for future energy calculations. | 01/09/2019 | Identified |
| **Preventative actions taken to ensure no further issues will occur** | **Completion date** | |
| Genesis discussed the auditor's findings in detail and have iterated the importance of notifications of changes and how these will have an effect on both billing and purchases of energy volumes. Genesis also has an opportunity to gain access for reporting purposes of the Telensa system maintained by WDC. | 01/05/2019 | |

## CONCLUSION

Genesis continue to use the registry figures and UML profile to calculate submissions. The registry figures were last updated with data provided by WDC in July 2018. This found a potential under submission of 14,136 kWh per annum. The combination of the LED lower wattages and the extra lights recorded in the database against ICP 1000023047BP07D appear to almost balance out the variance. This is by good luck and if the lights missing were to be examined on their own this would result in a much greater variance than is indicated. WDC intend to start providing Genesis with monthly wattage reports.

WDC have installed a central management system called Telensa as part of the LED replacement programme of work. This was demonstrated during the site audit. It controls the light burn times and has replaced the networks relays previously used therefore the fixed burn hours used to calculate submission will not be representative of the actual burn hours. I have recorded non-compliance for the use of the Telensa system without an appropriate profile and recommend that Genesis work with WDC and the Electricity Authority to get a profile to address this.

The previous audit report noted that the RAMM database did not record the ballast figure. This has been corrected and the accuracy of these is discussed in **section 3.1**. The registry figures being used to calculate submission do not have the ballast included but with the extensive roll out of LED lights the effect on submission would be expected to be minimal.

WDC expect the LED rollout to be complete by June 2019 and the database content to stabilise. The field audit accuracy confirmed this expectation with an estimated accuracy of 100.8%. This falls within the +/- 5% allowable threshold and therefore the database was confirmed to be accurate.

This audit found seven non-compliances and makes three recommendations. The number of non-compliances has increased but the overall score has reduced. This is reflective of progress being made. The future risk rating of 32 indicates that the next audit be completed in three months. I have considered this in conjunction with the Genesis' responses and recommend that the next audit be in six months to allow time for the LED roll out to be completed and the use of Telensa for submission data be progressed.

PARTICIPANT RESPONSE

Genesis Energy plan on using the information provided by the WDC moving forward. Genesis Energy will begin work on how to utilise the information in the CMS system Telensa to accurately provide monthly energy volumes for billing and settlement purposes. Genesis may, dependant on asset information completeness be able to rectify previous submission/billing periods.

Genesis discussed all exceptions found within the dataset and WDC have agreed to correct the data. Genesis has contacted the division that maintains the amenity lighting assets and are awaiting a reply to date.

Genesis does not agree that a “profile” will be required as a profile shape is only determining over what periods the energy is to be spread and not to be used as part of the energy calculation process. The give Genesis Energy believes the Telensa information accuracy will be the best representation of the hours or operation which would include seasonality and daylight savings rather than an annual/monthly burn time provided by networks.

Genesis will be requesting a 6-9-month audit review to establish the monthly reporting and investigate historical revision corrections and discuss the use of the CMS system data for operational hours.