



# RECONCILIATION AUDIT GENESIS ENERGY LTD

Date of audit: 13 to 17 July 2020

Report completed: 28 October 2020

Under the Gas (Downstream Reconciliation) Rules 2008 the Gas Industry Company commissioned Langford Consulting to undertake a performance audit of Genesis Energy Ltd. The purpose of the audit is to assess compliance with the rules and the systems and processes put in place to enable compliance.

Auditor Julie Langford

## Executive Summary

This performance audit was conducted at the request of the Gas Industry Company (GIC) in accordance with rule 65 of the 2015 Amendment Version of the Gas (Downstream Reconciliation) Rules 2008 effective from September 2015.

The purpose of this audit is to assess the systems, processes and performance of Genesis Energy Ltd (Genesis) for its three participant codes (GENG GEND and GEOL) in terms of compliance with these rules.

The audit was conducted in accordance with terms of reference prepared by the GIC, and in accordance with the "Guideline note for rules 65 to 75 and 80: the commissioning and carrying out of performance audits and event audits, v3.0" which was published by the GIC in June 2013.

The summary of report findings in the table below shows that the Genesis control environment is "effective" for twelve of the areas evaluated, "adequate" for two areas and "not adequate" for four areas.

Twelve of the eighteen areas evaluated were found to be compliant. Breaches have already been raised by the Allocation Agent with respect to the accuracy of initial submission files (rule 37.2). The following additional alleged breaches are raised because of this audit:

Breach Allegation	Rules	Section in this report
Sample checks found examples of GENG, GEOL and GEND adding new ICPs into their submission files late	28.3	2.1.1 and 5.3
Vector Ltd is the recipient of an alleged breach as the responsible distributor for two ICPs with inaccurate altitude in the registry	26.5.1 and 26.5.4	2.1.2
GENG is the recipient of an alleged breach as the responsible retailer for two ICPs with inaccurate altitude in the registry which will have been used in energy calculations.	28.2	2.1.2
GENG has assigned an ICP to allocation group 4 but have not ensured that the register reading is recorded monthly	29.4.2	3.2
Six GENG ICPs were assigned to allocation group 4 when they should have been assigned to allocation group 6.	29.3	3.2
The compressibility calculation used for GENG/GEOL submission files is not NZS5259 compliant	28.2	4
GEND included the billing information for one ICP in the incorrect gas gate	26.2.1	5.7

The audit also identified an unusually high difference between billed and submitted figures for GEND in November 2019 which was raised with Genesis as a part of the pre-audit preparation. It was established this was due to 'as billed' over-submission between February 2019 and May 2020, when GEND gained a major new contract. Quantities were mistakenly reported in kwh rather than GJs.

As a result of the consequential discussions between Genesis and the Allocation Agent to rectify this error an alleged breach was made by the Allocation Agent prior to the completion of this audit. The breach is therefore not repeated here.

In addition to recommending that Genesis address the cause of the alleged breaches, the report also makes the following recommendations:

- That Genesis review any ICPs where the allocation group has been identified as requiring change to see if the necessary back office action has occurred to implement the decision.
- That Genesis routinely review ICPs for usage that has moved above or below the 10TJs per annum threshold to identify ICPs that may need to move allocation group.
- That all the active ICPs where the load shedding group is inconsistent with the allocation group be identified and reviewed for all three Genesis retailers.
- The report used annually by Genesis to reassess allocation groups should be reviewed.
- That Genesis undertake a review of its processes for identifying new and recently switched in consumers and recently switched out consumers, to ensure their prompt inclusion/exclusion in submission files for GENG, GEOL and GEND.

## Summary of Report Findings

Issue	Section	Control Rating (Refer to Appendix 1 for definitions)	Compliance Rating	Comments
ICP set up information	2.1	Adequate	Not compliant	There were examples of new connections not being included in the initial submission files
Metering set up information	2.2	Effective	Not Compliant	Alignment between the registry and Gentrack was found to be effective. Breaches were alleged against a distributor for inaccurate altitudes in the registry, which in turn led to 2 instances of inaccurate energy calculations by GENG but the instance was low.
Billing factors	2.3	Effective	Compliant	But see section 4 re compressibility issues
Archiving of reading data	3.1	Effective	Compliant	Meter reading data is readily available after 30 months.
Meter interrogation requirements	3.2	Not Adequate	Not Compliant	Although there is an annual review of allocation groups, it was found that group changes are slow to be implemented. There were also inconsistencies between allocation groups and load shedding categories. The report used for the annual review could be improved.
Meter reading targets	3.3	Effective	Compliant	During the on-site audit, the processes for case working sites where it had not been possible to obtain a recent meter read was reviewed and found to be robust.
Non TOU validation	3.4	Effective	Compliant	Validation processes are robust.
Non TOU error correction	3.5	Effective	Compliant	No issues arose from this review
TOU validation	3.6	Effective	Compliant	Validation processes were reviewed and found to be robust.

Energy consumption calculation	4	Not adequate	Not compliant	The compressibility calculation used for GENG/GEOL submission files is not NZS5259 compliant
TOU estimation and correction	5.1	Effective	Compliant	Examples were reviewed and no issues arose.
Provision of retailer consumption information	5.2	Effective	Compliant	GAS040s were confirmed as accurate
Initial submission accuracy	5.3	Not adequate	Not compliant	Alleged breaches have been made for initial allocations not being within 10% of the final allocation figures.  It is recommended Genesis review processes for including new connections and recently switched in consumers for prompt inclusion in submission files.
Historic estimates	5.4	Effective	Compliant	Compliance was achieved for all relevant scenarios
Proportion of HE	5.5	Effective	Compliant	The correct proportion of HE is being reported.
Forward Estimates	5.6	Effective	Compliant	The lack of any seasonal shape in the method used for forward estimates was a contributory factor in the difference between initial and final submission files dragging up the estimates for spring and down for autumn months.
Billed vs consumption comparison	5.7	Not adequate	Not Compliant	An example of an incorrect gas gate was identified  The audit identified a large difference between billed and submitted figures for GEND between February 2019 and May 2020.
Gas trading notifications	5.8	Effective	Compliant	A gas trading notification had been made

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# **1. Pre-Audit and Operational Infrastructure Information**

## **1.1 Scope of Audit**

This performance audit was conducted at the request of the Gas Industry Company (GIC) in accordance with rule 65 of the 2015 Amendment Version of the Gas (Downstream Reconciliation) Rules 2008 effective from September 2015.

65. Industry body to commission performance audits

65.1 The industry body must arrange at regular intervals performance audits of the allocation agent and allocation participants.

65.2 The purpose of a performance audit under this rule is to assess in relation to the allocation agent or an allocation participant, as the case may be,

65.2.1 The performance of the allocation agent or that allocation participant in terms of compliance with these rules; and

65.2.2 The systems and processes of the allocation agent or that allocation participant that have been put in place to enable compliance with these rules.

The audit was conducted in accordance with terms of reference prepared by the GIC, and in accordance with the “Guideline note for rules 65 to 75 and 80: the commissioning and carrying out of performance audits and event audits, v3.0” which was published by the GIC in June 2013.

The engagement commenced on 16 January 2020 and involved a site visit to the retailer between 13 to 17 July 2020. The site visit had been planned for March but was unable to occur due to Covid-19 alert level protocols.

The scope of the audit includes “downstream reconciliation” only for all three of the Genesis participant codes (GENG, GEND and GEOL). Switching and registry management functions were audited in conjunction with this audit but are included in a separate report.

## **1.2 General Compliance**

Genesis are currently using v3.8 of Gentrack, which is nearing the end of its lifespan. Options are being considered for its upgrade or replacement, but meanwhile there would be a lower level of change or updates to the system. GEOL and GENG processes have now been fully aligned, which has helped with reconciliation issues, and has also improved the management of event based processes. GEND customers are managed separately, mostly outside of Gentrack.

Genesis commented that their first advanced metering pilot was beginning shortly.

### **1.2.1 Summary of Previous Audit**

Genesis were last audited in August 2016. The following is a summary of the points arising and an update on these points as found during this audit.

- Some altitude discrepancies have led to the provision of incorrect consumption information to the allocation agent.



There were isolated examples of altitude issues in this audit.

- Altitude adjustment is not occurring for GEND ICPs

Altitude adjustment is now occurring.

- Genesis recently updated their temperature data but were using air temperature at 200 cm above ground, not ground temperature at 30cm.

GIC temperature data is now being used

- Consumption information was not submitted for some ICPs shown as disconnected where consumption is recorded

Gas consumed by disconnected ICPs is now being included in submission files

- Initial submission accuracy did not meet the 10% requirement for some gas gates

This is still the case.

- GEOL's HE processes were not compliant for some scenarios

This is no longer relevant as GEOL ICPs are now managed alongside GENG ICPs.

Energy Online (GEOL) were also the subject of a system change audit in September 2018 due to switching from the use of Orion to Gentrack. The summary of the downstream reconciliation issues arising from that audit was:

- Three ICPs were found with allocation groups of 1 or 2 and XTOU profiles. These were confirmed as incorrect but had not been identified.

There were some allocation group issues found during this audit and it is an area where there is a recommendation for improvement.

## 1.2.2 Breach Allegations

In the three years 2017 to 2019 Genesis have been the subject of 59 breach allegations (GENG 31 and GEOL 28). These were all alleged by the Allocation Agent relating to rule 37.2, initial consumption not being within the required percentage of error when compared with final consumption data.

The following additional alleged breaches are raised because of this audit:

Breach Allegation	Rules	Section in this report
Sample checks found examples of GENG, GEOL and GEND adding new ICPs into their submission files late	28.3	2.1.1 and 5.3
Vector Ltd is the recipient of an alleged breach as the responsible distributor for two ICPs with inaccurate altitude in the registry	26.5.1 and 26.5.4	2.1.2
GENG is the recipient of an alleged breach as the responsible retailer for two ICPs with inaccurate altitude	28.2	2.1.2

in the registry which will have been used in energy calculations.		
GENG has assigned an ICP to allocation group 4 but have not ensured that the register reading is recorded monthly	29.4.2	3.2
Six GENG ICPs were assigned to allocation group 4 when they should have been assigned to allocation group 6.	29.3	3.2
The compressibility calculation used for GENG/GEOL submission files is not NZS5259 compliant	28.2	4
GENG included the billing information for one ICP in the incorrect gas gate	26.2.1	5.7

### **1.3 Provision of Information to the Auditor (rule 69)**

In conducting this audit, the auditor may request any information from Genesis, the allocation agent and any allocation participant.

Information was provided by Genesis in a timely manner in accordance with this rule and the auditor considers that all parties have complied with the requirements of this rule.

### **1.4 Transmission Methodology and Audit Trails (rule 28.4.1)**

The audit trail was viewed for all data gathering, validation and processing functions. Compliance is confirmed with this rule, consumption information is transferred and stored in such a manner that it cannot be altered without leaving a detailed audit trail.

## **2. Set-up and Maintenance of Information in Systems (rule 28.2)**

Every retailer must ensure the conversion of measured volume to volume at standard conditions and the conversion of volume at standard conditions to energy complies with NZS 5259:2015, for metering equipment installed at each consumer installation, for which the retailer is the responsible retailer.

Compliance with this rule has been examined in relation to the set-up of ICP, metering and billing information. The "Gas (Downstream Reconciliation) Rules 2008 Billing factors guideline note, v2.0" (Billing Factors Guideline) published by GIC on 30 November 2015 was also considered when examining the set up and maintenance of information.

## 2.1 ICP Set Up Information

### 2.1.1 New Connections Process

The process was examined for the connection and activation of new ICPs.

The switching and registry management audit that was completed alongside this audit, reports on the analysis of the new connections process with respect to the Gas (Switching Arrangements) Rules 2008 (the switching rules) and the timeliness of status changes so this is therefore not repeated here.

The first point of contact for new connections is the customer or distributor as a READY ICP. The customer is signed up and the ICP is then claimed, alongside being approved in the distributor's system. A job is then raised in Siebel for the meter so the ICP is then passed back to the network and meter installer. Details are entered in a new connections spreadsheet; results are received from the meter owner to say that the meter is now installed and the ICP is then set up in Gentrack. Gentrack in turn updates the registry automatically. The next morning the registry is checked and the entering of the metering information in Gentrack is completed.

A sample of new connections ICPs were checked for correct inclusion in consumption submission files. The sample was the same as the sample used for the switching and registry management audit which was extracted from the Maintenance Breach History report (RET breaches) and all related to new connections in 2019.

The analysis involved identifying which month the new ICP had been included in the submission file and compared this against the date the ICP had been input as active in the registry. Of the sample reviewed, those that were not included in the submission file for the month they were input as active have been recorded below as a breach.

- ALLEGED BREACH rule 28.3 GENG was late adding new ICPs into their submission files for 3 new active ICPs out of a sample of 64 ICPs
- ALLEGED BREACH rule 28.3 GEOL was late adding new ICPs into their submission files for 2 new ICPs out of a sample of 31 ICPs
- ALLEGED BREACH rule 28.3 GEND was late adding new ICPs into their submission files for 2 new ICPs out of a sample of 2 ICPs

See appendix 2 for further detail regarding the alleged breach detail.

### 2.1.2 Altitude Information

It is a distributor responsibility to populate the registry with correct altitude information to support compliance with NZS 5259:2015, and it is a retailer responsibility to comply with NZS 5259:2015 for the conversion of volume to energy.

NZS 5259 contains the following points, which affect the way altitude information should be managed:

1. The maximum permissible error is  $\pm 1.0\%$  where the meter pressure is below 100kPa and  $\pm 0.5\%$  where the meter pressure is greater than 100kPa.

2. The following note is also included “To minimise uncertainty due to altitude factor the aim should be to determine the altitude to within 10m where practicable.”
3. The altitude factor can be assumed to be 1 where meters are situated at an elevation less than 50m above sea level.

The registry list file for each of the 3 participant codes was reviewed for obvious outliers. Samples were also viewed with an emphasis on new ICPs. The data quality was generally good, but the following anomalies were found. Breaches are alleged against the distributor as they are responsible for entering the altitude in the registry. Breaches are also alleged against the retailer if it is believed the inaccurate altitude may have led to inaccurate energy conversion.

## **GENG**

- ALLEGED BREACH rule 26.5.1 and 26.5.4 against Vector Ltd as the responsible distributor for two ICPs with inaccurate altitude in the registry
- ALLEGED BREACH rule 28.2 against GENG as the responsible retailer for two ICPs with inaccurate altitude in the registry which will have been used in energy calculations which would therefore have been inaccurate.

See appendix 2 for further detail regarding these alleged breaches.

## **2.2 Metering Set-up Information**

The records in the Genesis systems were compared against the information in the registry for gas gate; meter pressure; dials and multiplier and the GEND use of the XTOU field was also reviewed. There were no issues arising to report.

## **2.3 Billing Factors**

### **2.3.1 Temperature Information**

To assist industry participants in complying with NZS 5259 the Gas Industry Company has recently published temperature data that retailers may use in their energy conversion calculations. The data was created by the National Institute of Water and Atmospheric Research (NIWA) and provides a 30 year average of ground temperature at 30cm depth. The data is presented in degrees Celsius and there is one number per month for each gas gate. Use of this data is voluntary.

During the onsite audit it was verified that Genesis are now using the GIC data in Gentrack. Genesis reported that they had been using this since April 2020. This therefore addresses one of the concerns raised in the last audit.

### **2.3.2 Calorific Values**

Gas composition data is sourced from the Open Access Transmission Information System (OATIS). A sample was validated back to the OATIS source, no issues arose.

A sample of gas gates in the Gentrack system were also validated back to the First Gas document published on OATIS detailing which gas types apply to which gas gates. No issues were identified.

### **3. Meter Reading and Validation**

#### **3.1 Archiving of Register Reading Data (rule 28.4.2)**

Retailers are required to keep register reading data for a period of 30 months. Data was examined during the audit and it is confirmed that meter reads are available 30 months after their date of origin.

Sample meter read data was also verified against the data used as the meter read input for the energy calculation to prove the end-to-end process.

#### **3.2 Metering Interrogation Requirements (rule 29)**

Rule 29 specifies the type of metering (TOU or non-TOU) that must be installed at a consumer installation, the relevant allocation group that the consumer installation falls within and the interrogation requirements that apply depending on the type of metering and allocation group.

Genesis review allocation groups annually. A report is run, and the exceptions list produced is reviewed manually. If a decision is made to change groups, the information is passed to the back office to implement. The report was last run on 17 January 2020. However, this routine review focuses on the border between group 4 and group 6 (250 GJs), there was no routine monitoring to look for consumption greater than 10TJs that would require the moving of an ICP into group 1 or 2.

An example of an ICP that had been recently changed from group 6 to group 4 was followed through to see if the changes had been made. The registry had been updated but it had not yet been changed to monthly billing.

- ALLEGED BREACH (rule 29.4.2) GENG has assigned an ICP to allocation group 4 but have not ensured that the register reading is recorded monthly

See appendix 2 for alleged breach details.

RECOMMENDATION That Genesis review any ICPs where the allocation group has been identified as requiring change to see if the necessary back office action has occurred to implement the decision.

RECOMMENDATION That Genesis routinely review ICPs for usage that has moved above or below the 10TJs per annum threshold to identify ICPs that may need to move allocation group.

The auditor did a cross check between allocation groups and load shedding categories and some potential anomalies were found. A sample of these anomalies were reviewed on site.

A list of 292 active GENG ICPs was identified with load shedding group of 6 and allocation group 4. The first three were reviewed on site and all were found to be appropriate to allocation group 6.

A list of 110 active GENG ICPs with a load shedding category of DOM and allocation group 4 was identified. The first three were reviewed on site, two were confirmed as domestic and should have been in allocation group 6, one was found to be an intermediate school with usage appropriate to allocation group 6.

- ALLEGED BREACH (rule 29.3) Six GENG ICPs were assigned to allocation group 4 when they should have been assigned to allocation group 6.

See appendix 2 for alleged breach details.

RECOMMENDATION That all the active ICPs where the load shedding group is inconsistent with the allocation group be identified and reviewed for all three Genesis retailers.

RECOMMENDATION The report used annually by Genesis to reassess allocation groups should be reviewed.

### **3.3 Meter Reading Requirements (rules 29.4.3, 29.5 & 40.2)**

All consumer installations with non-TOU meters must have register readings recorded at least once every 12 months unless exceptional circumstances prevent such an interrogation (rule 29.4.3).

All consumer installations with non-TOU meters and annual consumption between 250GJ and 10 TJs must have register readings recorded monthly (29.4.2).

Consumer installations with annual consumption over 10TJs must have a TOU meter (rule 29.1.1) and have register readings for each day (rule 29.4.1).

Meter readings must be taken at least every 4 months for 90% of consumer installations with non-TOU meters (rule 29.5) and this should be reported on every month (rule 40.2).

Prior to the on-site audit Genesis provided GAS080 details for GENG and GEOL. The information for GAS080 for November 2019 showed:

#### **GENG**

No of ICPs read in the last 4 months: 88,729

No of ICPs not read in the last 4 months: 1,341

1.5% of total ICPs, so GENG have met the 90% threshold in rule 29.5.

#### **GEOL**

No of ICPs read in the last 4 months: 10,198

No of ICPs not read in the last 4 months: 230

2.3% of total ICPs, so GEOL have met the 90% threshold in rule 29.5.

During the on-site audit the processes for case working sites where it had not been possible to obtain a recent meter read was reviewed and found to be robust.

The process is the same for domestic and commercial customers. It begins with an entry on the “no access” report which has two criteria:

- The customer has been at the premises for more than 60 days
- There has been two “no access” estimates (Genesis policy is to do bi-monthly reads, so this equates to 4 months of no actual read)

The first step is an automated SMS or landline dial. Multiple automated correspondence continues until 341 days is reached. At this point the team start to manually casework the ICP with the final stage being a disconnection letter at 355 days.

There had been significant change to this process during the Covid-19 lockdown, where communication had switched to phone calling customers to obtain customer reads and automated messages mentioning disconnection had ceased, but the business as usual processes were about to be reinstated.

### **3.4 Non TOU Validation**

Genesis validate all sites as a part of the month end process prior to submission of consumption files. A consumption validation application which sits outside Gentrack is used, it holds all ICP data for the last 24 months and allows the user to select and review any period. It identifies unexpected usage such as high/low or negative quantities. There has been no system change to this since the last audit, the same process is used for GENG and GEOL. No issues arose as a result of the on-site review.

### **3.5 Non TOU Error Correction**

The process for error correction was examined to ensure that consumption information for prior consumption periods is included in the revision process and provided to the allocation agent (r44.2).

Error correction was examined by a “walk through” of the process and by examining examples where meters had stopped recording and examples where the meter pressure was corrected. It was also confirmed that the correct figures had been carried through to the submission files.

No issues arose.

### **3.6 TOU Validation**

This process was observed during the on-site audit. GEND receives AMS files on telemetry daily, these represent approximately half the GEND ICPs. These are not routinely reviewed within the month unless someone raises an issue. At the end of the month volumes are viewed via a visual tool to look for anomalies. All sites are viewed every month and are also validated against the D+1 data as an additional sanity check.

## **4. Energy Consumption Calculation (rule 28.2)**

During the on-site audit validation of the energy calculation was done by manually replicating the temperature, pressure, altitude and compressibility factors used in a sample ICP calculation. The

auditor was able to replicate the temperature, pressure and altitude factors but not the compressibility factor.

NZS 5259 2.12.3 states that a compressibility factor shall be applied where the non-application would result in errors greater than the limit specified. Application is recommended at pressures above 50 kPa and calculation of the compressibility factor can be determined using the methods recommended in NZS 5259 3.8.2.

The standard recommends AGA 8, AGA NX19 or ISO 12213 (NZS 5259 3.8.2.4) and these are reiterated by the GIC’s Billing Factors Guideline.

Investigation into the GENG/GEOL calculations established that Gentrack uses AGA NX19 for ICPs with pressure over 50 kPa and a compressibility factor of 1 for ICPs with a lower pressure when billing, which is NZS5259 compliant. However, when Genesis prepare their submission files, they use the Market Submission system which does not use NX19, but instead uses another equation which does not use any of the gas type information:

$$zF = (0.9973 / (1 - (0.00003138 - 0.0000003179 * (temperature + temperature) / 2) * (metering\_pressure + metering\_pressure + 202.65) / 2))$$

At the time of writing this report Genesis were unsure of the source of the equation or why this alternative approach was used, it had been in use since 2007.

- ALLEGED BREACH (rule 28.2) GENG and GEOL do not comply with NZS5259 when preparing their submission files with respect to the adjustment for compressibility

A comparison was done of the compressibility factor used by the Market Submission system versus the AGA NX19 compressibility factor for a small sample of ICPs, for two different gas types, to get a sense of how much variance the use of this equation across different pressures/temperatures may have caused was done.

Gas Type X	Compressibility factor calculated using NX19	Compressibility factor as calculated by Market Submission	% difference between the factors	Meter Pressure
A sample ICP with high gas pressure in July	1.004018417	1.004110471	0.00916856% increase	140
A sample ICP with low gas pressure in July	1.000016446	1.000190512	0.0174063% increase	1.5
A sample ICP with high gas pressure in January	1.001757169	1.001511554	0.0245184% decrease	70



A sample ICP with low gas pressure in January	1.000046927	0.999848013	0.0198905% decrease	2.5
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Gas Type T	Compressibility factor calculated using NX19	Compressibility factor as calculated by Market Submission	% difference between the factors	Meter Pressure
A sample ICP with high gas pressure in July	1.002879392	1.003180817	0.030056% increase	104
A sample ICP with low gas pressure in July	1.000022268	0.999921714	0.0100552% decrease	1.5
A sample ICP with high gas pressure in January	1.00193716	1.002202219	0.0264547% increase	70
A sample ICP with low gas pressure in January	1.000047215	0.999947279	0.00999313% decrease	2.5

The TOU process for calculating energy was reviewed. It starts with a CSV file which is imported into an ORACLE SQL database. A query is then run to align units and then there is another which runs the energy calculation. It was noted that this calculation now includes the altitude, an improvement following the last audit. Validation of the process was done while on-site including a sample check of gas types and altitudes. It was confirmed that the NX19 methodology was being used for calculating all TOU energy quantities, regardless of meter pressure. There were no issues arising regarding the TOU energy conversion process for GEND ICPs.

## 5. Estimation and Submission Information

### 5.1 TOU Estimation and Correction (rule 30.3)

Missing data, corrector and/or meter failure are the main causes of TOU estimates. These are done using the best information available depending on the scenario. Meter reads are usually the best information, shape is added to the estimate using the typical profile of the customer. If there are no reads the recent historical data and the data from 12 months prior are used and weighted according to the nature of the business and the trend over the last few years.

Specific examples were reviewed, there were no matters arising.

## 5.2 Provision of Retailer Consumption Information (rules 30 to 33)

During the on-site audit sample GAS040 files for May 2020 were compared with Gentrack for one gas gate for each retailer code to demonstrate:

- That the GAS040 accurately reflects the Gentrack data
- That the GAS040 is an aggregate of ICPs

Genesis provided lists of inactive ICPs found to have gas consumption for both GENG and GEOL as these ICPs are still visited by meter readers. During the on-site audit example ICPs were reviewed to confirm that ICPs found to be consuming gas while their status was inactive nonetheless had the consumption included in the relevant consumption file.

## 5.3 Initial Submission Accuracy (rule 37.2)

Rule 37.2 requires that the accuracy of consumption information, for allocation groups 3 to 6, for initial allocation must be within a certain percentage of error published by the industry body. The published percentage for the months analysed is 10%.

GENG did not meet this requirement for some gas gates during the 12-month period reviewed. The results are summarised in the table below. In total over this period there were 8 instances of a gate exceeding the +/-10% test and exceeding the 200GJ materiality threshold.

GENG					
Month	Total Gas Gates	Number Within +/- 10%	% Compliant	Within +/- 10% or < 200 GJ	% Compliant or immaterial
December 2017	77	29	37%	70	91%
January 2018	77	27	35%	66	86%
February 2018	77	27	34%	66	86%
March 2018	77	35	45%	68	88%
April 2018	77	29	38%	59	77%
May 2018	77	18	23%	51	66%
June 2018	77	30	40%	55	71%
July 2018	77	46	60%	69	90%
August 2018	77	50	65%	71	92%

September 2018	77	44	57%	69	90%
October 2018	77	22	29%	57	74%
November 2018	77	46	60%	68	88%

The following table shows the difference between consumption information for initial and final submissions at an aggregated level for all gas gates for GENG. This demonstrates non-compliance in 3 months.

<b>GENG</b>			
<b>Month</b>	<b>Initial Submission All Gas Gates (GJ)</b>	<b>Final Submission All Gas Gates (GJ)</b>	<b>Percentage Variation</b>
December 2017	180,540	177,787	2%
January 2018	143,727	157,782	9%
February 2018	146,552	162,690	10%
March 2018	187,151	204,119	8%
April 2018	241,347	274,469	12%
May 2018	330,360	404,655	18%
June 2018	464,266	529,957	12%
July 2018	502,776	544,489	8%
August 2018	477,754	502,800	5%
September 2018	422,588	426,355	9%
October 2018	353,581	339,347	4%
November 2018	275,282	277,452	1%

GEOL did not meet this requirement for some gas gates during the 12-month period reviewed. The results are summarised in the table below. In total over this period there were 3 instances of a gate exceeding the +/-10% test and exceeding the 200GJ materiality threshold.

GEOL					
Month	Total Gas Gates	Number Within +/- 10%	% Compliant	Within +/- 10% or < 200 GJ	% Compliant or immaterial
December 2017	64	3	5%	56	88%
January 2018	64	2	3%	60	94%
February 2018	64	7	11%	62	97%
March 2018	64	24	38%	62	97%
April 2018	64	17	27%	62	97%
May 2018	63	8	13%	54	86%
June 2018	63	3	5%	52	83%
July 2018	64	21	33%	61	95%
August 2018	64	24	38%	62	97%
September 2018	65	30	46%	65	100%
October 2018	66	19	29%	65	98%
November 2018	66	22	33%	66	100%

The following table shows the difference between consumption information for initial and final submissions at an aggregated level for all gas gates for GEOL. This demonstrates non-compliance in 6 months.

GEOL			
Month	Initial Submission All Gas Gates (GJ)	Final Submission All Gas Gates (GJ)	Percentage Variation
December 2017	17,940	10,872	65%
January 2018	15,059	10,077	49%
February 2018	12,062	10,008	21%
March 2018	13,412	12,437	8%
April 2018	14,674	16,389	10%

May 2018	18,347	24,374	25%
June 2018	22,844	32,474	30%
July 2018	30,422	33,798	10%
August 2018	29,686	31,810	7%
September 2018	26,584	26,831	1%
October 2018	23,636	21,318	11%
November 2018	17,564	17,326	1%

GEND only have ICPs in allocation group 1 and 2 so this check is not relevant to this retailer.

Breaches have already been alleged for differences between initial and final submission data exceeding 10% so are not repeated here.

During the on-site audit it was confirmed that the numbers in a sample file did accurately reflect the data in the submitted files.

Analysis of the GENG May 2018 data for all gas gates demonstrated that there were 266 ICPs in the final submission file that did not appear in the initial submission file and 398 ICPs in the initial file that were not in the final file. This suggests Genesis processes can be slow to both include new and switched in ICPs as well as to exclude switched out ICPs in its initial submission files.

The on-site review also identified that during May 2018 there was an estimate for an ICP for a large commercial that had not been using gas for several months but restarted use. It highlighted that if there is an estimate for a larger commercial it contributes to inaccuracies between initial and final submissions.

It was also identified during the on-site review that there was a new commercial customer in allocation group 4 starting on 2 May 2018 which was missed in the initial GENG submission file.

- ALLEGED BREACH rule 28.3 GENG did not include in its initial submission file for May 2018 an ICP switched in on 2 May 2018

RECOMMENDATION That Genesis undertake a review of its processes for identifying new connections and recently switched in consumers and recently switched out consumers, to ensure their prompt inclusion/exclusion in submission files for GENG, GEOL and GEND.

## 5.4 Historic Estimates (Rules 34 & 35)

To assist with determining compliance of the historic estimate processes, Genesis was supplied with a list of scenarios. Genesis provided an example for most scenarios (see below) and all examples were found to meet the test expectation.

<b>HE Scenarios GENG</b>			
<b>Test</b>	<b>Scenario</b>	<b>Test Expectation</b>	<b>Result</b>
A	ICP becomes Active part way through a month	Consumption is only calculated for the Active portion of the month.	Compliant
B	ICP becomes Inactive part way through a month.	Consumption is only calculated for the Active portion of the month.	Compliant
C	ICP's become Inactive then Active within a month.	Consumption is only calculated for the Active portion of the month.	Compliant
D	ICP switches in part way through a month	Consumption is calculated to include the 1st day of responsibility.	Compliant
E	ICP switches out part way through a month	Consumption is calculated to include the last day of responsibility.	Compliant
F	ICP switches out then back in within a month	Consumption is calculated for each day of responsibility.	No examples
G	Continuous ICP with a read during the month	Consumption is calculated assuming the readings are valid until the end of the day	Compliant
H	Continuous ICP without a read during the month	Consumption is calculated assuming the readings are valid until the end of the day	Compliant
I	Rollover Reads	Consumption is calculated correctly in the instance of meter rollovers.	Compliant

<b>HE Scenarios GEOL</b>			
<b>Test</b>	<b>Scenario</b>	<b>Test Expectation</b>	<b>Result</b>
A	ICP becomes Active part way through a month	Consumption is only calculated for the Active portion of the month.	Compliant
B	ICP becomes Inactive part way through a month.	Consumption is only calculated for the Active portion of the month.	Compliant
C	ICP's become Inactive then Active within a month.	Consumption is only calculated for the Active portion of the month.	No examples

D	ICP switches in part way through a month	Consumption is calculated to include the 1st day of responsibility.	Compliant
E	ICP switches out part way through a month	Consumption is calculated to include the last day of responsibility.	Compliant
F	ICP switches out then back in within a month	Consumption is calculated for each day of responsibility.	No examples
G	Continuous ICP with a read during the month	Consumption is calculated assuming the readings are valid until the end of the day	Compliant
H	Continuous ICP without a read during the month	Consumption is calculated assuming the readings are valid until the end of the day	Compliant
I	Rollover Reads	Consumption is calculated correctly in the instance of meter rollovers.	Compliant

A selection of scenarios were viewed on site. This included the validating of the shape file used back to source (the allocation agent portal). The reads were also confirmed back to source and the figures flow through to the submission files was confirmed.

A manual calculation was also performed using the relevant seasonal adjustment shape files to verify Genesis processes.

Genesis processes were verified as compliant for GENG and GEOL. This review was not relevant to GEND.

## 5.5 Proportion of Historic Estimates (rule 40.1)

This rule requires retailers to report to the allocation agent the proportion of historic estimates contained within the consumption information for the previous initial, interim and final allocations. The relevant files were examined, and compliance is confirmed.

## 5.6 Forward Estimates (rules 34 & 36)

During the on-site audit, the process for forward estimates was reviewed, using data relating to May 2020. The process calculates forward estimates using the most recent two reads and the associated historical estimate for the first portion of the month. Since July 2018 when GEOL switched to Gentrack the same process has been applied to both retailer codes. It was however noted that the lack of any seasonal shape in the method used for forward estimates was likely a contributory factor in the difference between initial and final submission files, dragging up the estimates for spring and down for autumn months.

## 5.7 Billed vs Consumption Comparison (rule 52)

A sample reconciliation of GAS070 data for the month of June 2020 was done while on site. The GEOL and GENG sample files reconciled without issue.

The GEND file for June 2020 for Hamilton Te Kowhai contained an ICP with the incorrect Hamilton gas gate. The ICP was incorrect in the GAS050 file as well.

- ALLEGED BREACH (rule 26.2.1) GEND included the billing information for one ICP in the incorrect gas gate

See appendix 2 for further detail regarding the alleged breach.

The table below shows a comparison between quantities billed and consumption information submitted to the allocation agent for three years for all three retailer codes.

<b>Billed vs Consumption - GENG</b>				
<b>Year ending</b>	<b>Billed GJ</b>	<b>Submission GJ</b>	<b>Difference GJ</b>	<b>% Difference</b>
November 2019	4,198,329	4,125,961	72,367	1.8%
November 2018	3,992,867	4,028,250	-35,383	-0.9%
November 2017	3,484,520	3,933,862	-449,341	-11.4%
<b>Total</b>	<b>11,675,716</b>	<b>12,088,073</b>	<b>-412,357</b>	<b>-3.4%</b>

<b>Billed vs Consumption - GEOL</b>				
<b>Year ending</b>	<b>Billed GJ</b>	<b>Submission GJ</b>	<b>Difference GJ</b>	<b>% Difference</b>
November 2019	272,692	264,881	7,810	2.9%
November 2018	259,835	261,409	-1,574	-0.6%
November 2017	231,447	238,700	-7,252	-3.0%
<b>Total</b>	<b>763,974</b>	<b>764,990</b>	<b>-1,016</b>	<b>-0.1%</b>

<b>Billed vs Consumption GEND</b>				
<b>Year ending</b>	<b>Billed GJ</b>	<b>Submission GJ</b>	<b>Difference GJ</b>	<b>% Difference</b>
November 2019	27,455,715	5,024,277	22,431,437	446%
November 2018	3,610,832	3,636,458	-25,626	-0.7%



November 2017	3,011,347	2,893,279	118,067	4.1%
<b>Total</b>	<b>34,077,894</b>	<b>11,554,014</b>	<b>22,523,878</b>	<b>194.9%</b>

The unusually high difference between billed and submitted figures for GEND in November 2019 was identified and raised with Genesis as a part of the pre-audit preparation. Genesis did some work to establish what had happened and reported that the discrepancy was due to ‘as billed’ over-submission between February 2019 and May 2020. This coincided with GEND gaining a major new contract where quantities were mistakenly reported in kwh rather than GJs.

As a result of the consequential discussions between Genesis and the Allocation Agent to rectify this error an alleged breach was made by the Allocation Agent prior to the completion of this audit. The breach is therefore not repeated here.

The total of all the Genesis GAS050s for the three retailers for May 2019 (final) were as follows:

	Total submitted	total billed
GEND	450,086	422,604
GENG	389,132	344,971
GEOL	23,856	21,530

## 5.8 Gas Trading Notifications (Rule 39)

A retailer must give notice to the allocation agent when they commence, amend or cease gas supply under a supplementary agreement to a transmission services agreement. They must do this by the third business day of the month following the relevant consumption month of the change.

GEND has entered into a new supplementary agreement in 2019 and a copy of the trading notification was supplied.

## 6. Conclusion

The summary of report findings in the table below shows that the Genesis control environment is “effective” for twelve of the areas evaluated, “adequate” for two areas and “not adequate” for four areas.

Twelve of the eighteen areas evaluated were found to be compliant. Breaches have already been raised by the Allocation Agent with respect to the accuracy of initial submission files (rule 37.2). The following additional alleged breaches are raised because of this audit:

Breach Allegation	Rules	Section in this report
Sample checks found examples of GENG, GEOL and GEND adding new ICPs into their submission files late	28.3	2.1.1 and 5.3

Vector Ltd is the recipient of an alleged breach as the responsible distributor for two ICPs with inaccurate altitude in the registry	26.5.1 and 26.5.4	2.1.2
GENG is the recipient of an alleged breach as the responsible retailer for two ICPs with inaccurate altitude in the registry which will have been used in energy calculations.	28.2	2.1.2
GENG has assigned an ICP to allocation group 4 but have not ensured that the register reading is recorded monthly	29.4.2	3.2
Six GENG ICPs were assigned to allocation group 4 when they should have been assigned to allocation group 6.	29.3	3.2
The compressibility calculation used for GENG/GEOL submission files is not NZS5259 compliant	28.2	4
GEND included the billing information for one ICP in the incorrect gas gate	26.2.1	5.7

The audit also identified an unusually high difference between billed and submitted figures for GEND in November 2019 which was raised with Genesis as a part of the pre-audit preparation. It was established this was due to 'as billed' over-submission between February 2019 and May 2020, when GEND gained a major new contract. Quantities were mistakenly reported in kwh rather than GJs.

As a result of the consequential discussions between Genesis and the Allocation Agent to rectify this error an alleged breach was made by the Allocation Agent prior to the completion of this audit. The breach is therefore not repeated here.

In addition to recommending that Genesis address the cause of the alleged breaches, the report also makes the following recommendations:

- That Genesis review any ICPs where the allocation group has been identified as requiring change to see if the necessary back office action has occurred to implement the decision.
- That Genesis routinely review ICPs for usage that has moved above or below the 10TJs per annum threshold to identify ICPs that may need to move allocation group.
- That all the active ICPs where the load shedding group is inconsistent with the allocation group be identified and reviewed for all three Genesis retailers.
- The report used annually by Genesis to reassess allocation groups should be reviewed.
- That Genesis undertake a review of its processes for identifying new and recently switched in consumers and recently switched out consumers, to ensure their prompt inclusion/exclusion in submission files for GENG, GEOL and GEND.

## Appendix 1 – Control Rating Definitions

Control Rating	Definition
Control environment is not adequate	<p>Operating controls designed to mitigate key risks are not applied, or are ineffective, or do not exist.</p> <p>Controls designed to ensure compliance are not applied, or are ineffective, or do not exist.</p> <p>Efficiency/effectiveness of many key processes requires improvement.</p>
Control environment is adequate	<p>Operating controls designed to mitigate key risks are not consistently applied or are not fully effective.</p> <p>Controls designed to ensure compliance are not consistently applied or are not fully effective.</p> <p>Efficiency/effectiveness of some key processes requires improvement.</p>
Control environment is effective	<p>Isolated exceptions identified when testing the effectiveness of operating controls to mitigate key risks.</p> <p>Isolated exceptions identified when testing the effectiveness of controls to ensure compliance.</p> <p>Isolated exceptions where efficiency/effectiveness of key processes could be enhanced.</p>

## **Appendix 2 – Alleged Breach Detail**

### **2.1.1 New Connections Process**

ALLEGED BREACH rule 28.3 GENG was late adding new ICPs into their submission files for 3 new active ICPs out of a sample of 64 ICPs. They were only missed in the initial file.

1002058125QT844

1002060351QTA38

1000582047PG63B

ALLEGED BREACH rule 28.3 GEOL was late adding new ICPs into their submission files for 2 new ICPs out of a sample of 31 ICPs

1002054847QT5B8 They were only missed in the initial file.

1000572939PGC68 Initial and interim missed, will be included in final as consequence of audit

ALLEGED BREACH rule 28.3 GEND was late adding new ICPs into their submission files for 2 new ICPs out of a sample of 2 ICPs. They were only missed in the initial file.

1000580385PG112

1000577892PG487

### **2.1.2 Altitude Information**

#### **GENG**

- ALLEGED BREACH rule 26.5.1 and 26.5.4 against Vector Ltd as the responsible distributor for two ICPs with inaccurate altitude in the registry
- ALLEGED BREACH rule 28.2 against GENG as the responsible retailer for two ICPs with inaccurate altitude in the registry which will have been used in energy calculations which would therefore have been inaccurate.

1002065266QTE2E registry has altitude of 400m, Google earth has 21m Responsible Distributor is UNLG (Vector Ltd)

1001297509NG20B registry has altitude of 46 m, Google Earth has 3m Responsible Distributor is UNLG (Vector Ltd)

### **3.2 Metering interrogation requirements**

- ALLEGED BREACH (rule 29.4.2) GENG has assigned an ICP to allocation group 4 but have not ensured that the register reading is recorded monthly

0000587301QT7C3

- ALLEGED BREACH (rule 29.3) Six GENG ICPs were assigned to allocation group 4 when they should have been assigned to allocation group 6.

0000012332GND72

0000014497GN2E0

0000021722GN812  
0000014251QTE38  
0000026973GNE34  
0000079701QTB4D

### **5.3 Initial v Final Accuracy**

- ALLEGED BREACH rule 28.3 GENG did not include in its initial submission file for May 2018 an ICP switched in on 2 May 2018

GENG 0002230221QT182      May 2018      Switch Date 02/05/2018

### **5.7 Billed v Actual**

- ALLEGED BREACH (rule 26.2.1) GEND included the billing information for one ICP in the incorrect gas gate

0008000245NG8EE      This ICP was incorrect in the GAS050 file as well.