VERITEK

Gas Major Change Final Report

For

Energy Online Limited

Prepared by

Steve Woods: Veritek Limited

Date of Audit: 12/09/2018

Date Audit Report Complete: 28/10/2018

Executive Summary

Genesis, trading as Energy Online (Energy Online) is an allocation participant and a registry participant. Energy Online has recently started using the Gentrack system rather than the Orion system for all relevant functions. This is considered a major change under rule 65.4 of the Gas (Downstream Reconciliation) Rules 2008 and rule 88.5 of the gas (Switching Arrangements) Rules 2008.

This Performance Audit was conducted at the request of the Gas Industry Company (GIC) in accordance with rule 65.5 of the Gas (Downstream Reconciliation) Rules 2008 and rule 88.6 of the gas (Switching Arrangements) Rules 2008.

The scope of the audit is limited to those areas where the system change could impact on compliance with the rules.

The audit mainly relied on Energy Online's test results and data migration dress rehearsal results. Some areas were checked by examining specific ICPs in the production system.

The audit found a high level of compliance. There were three issues found, as follows:

1. The physical address information in the registry is out of date since the most recent move to new premises. This was not caused by the major change, but I've recorded it here to ensure it gets changed.
2. Three ICPs were found with allocation groups of 1 or 2 and XTOU profiles. These were all confirmed as incorrect and had not been identified, despite the ICPs switching in between two and four months ago.
3. Vacant ICPs were sent in the AN (GAN?) file with the OC code which indicates the ICP is "occupied", when it is not.

Two recommendations are made, as follows:

1. When there is no reading during the period of supply, the date of the last estimate is populated as the date of the last reading in the GTN file. I recommend populating the "last actual read" field with the last actual read date from the GTN file supplied by the last retailer at the time of switch in.
2. I recommend Energy Online ensures validation settings will identify incorrect allocation groups.

Summary of Report Findings – Downstream Reconciliation

Issue	Section	Control Rating (Refer to Appendix 1 for definitions)	Compliance Rating	Comments
Set-up and Maintenance of Information in Systems	2	Effective	Compliant	Validation processes will be more robust in Gentrack.
Archiving of reading data	3.1	Effective	Compliant	Robust controls are in place for the security of meter reading data.
Meter interrogation requirements	3.2	Not applicable	Not applicable	Periodic validation occurs to ensure allocation groups are correct. This area will not change as a result of the system implementation.
Meter reading targets	3.3	Effective	Compliant	Meter reading attainment processes are robust.
Non TOU validation	3.4	Effective	Compliant	Validation processes are robust.
Non TOU error correction	3.5	Effective	Compliant	Test results and checks in the production system confirmed compliance.
Energy consumption calculation	4	Effective	Compliant	The issues associated with the previous Orion system are now resolved.
Provision of retailer consumption information	5.1	Effective	Compliant	Test results confirmed compliance.

Initial submission accuracy	5.2	Not applicable	Not applicable	This area will not change as a result of the system implementation.
Historic estimates	5.3	Effective	Compliant	The issues associated with the Orion system are now resolved with the use of Gentrack.
Proportion of HE	5.4	Effective	Compliant	The issues associated with the Orion system are now resolved with the use of Gentrack.
Forward estimates	5.6	Effective	Compliant	Energy Online uses historic seasonal adjustment daily shape values, which are then "scaled" depending on temperature relevant to historic temperature.
Billed vs consumption comparison	5.7	Effective	Compliant	The issues associated with the Orion system are now resolved with the use of Gentrack.

Summary of Report Findings – Registry and Switching

Issue	Section	Control Rating (Refer to Appendix 1 for definitions)	Compliance Rating	Comments
Participant registration	6	Adequate	Not compliant	The new street address has not been updated.
Obligation to act reasonably	7	Effective	Compliant	No examples of Energy Online acting unreasonably were identified.
Obligation to use registry software competently	8	Effective	Compliant	No examples of Energy Online using registry software incompetently were identified.
ICP identifier on invoice	9	Effective	Compliant	I checked an invoice generated from Gentrack and it showed the ICP identifier.
Uplift of READY ICP	10	Effective	Compliant	Test results confirmed compliance.
Maintenance of ICP information in registry	11	Adequate	Not compliant	Three ICPs were found with allocation groups of 1 or 2 and XTOU profiles. These were all confirmed as incorrect and had not been identified despite the ICPs switching in between two and four months ago. I recommend Energy Online ensures validation settings will identify incorrect allocation groups.
Resolving discrepancies	12	Effective	Compliant	Test results confirmed compliance.
Initiation of consumer switch/switching notice	13	Effective	Compliant	Test results confirmed compliance.

Response to a gas switching notice	14	Adequate	Not compliant	The "OC" code is still used for vacant ICPs.
Gas transfer notice	15	Effective	Compliant	One issue was identified. When there is no reading during the period of supply, the date of the last estimate is populated as the date of the last reading. I recommend using the last actual read date from the GTN file supplied by the last retailer.
Gas switching withdrawal	16	Effective	Compliant	Test results confirmed compliance.
Switch reading negotiation	17	Effective	Compliant	Test results confirmed compliance.

Persons Involved in This Audit

Auditors

Steve Woods
Veritek Limited

Energy Online personnel assisting in this audit were:

Name	Title
Craig Young	Reconciliation Leader

Contents

1. Pre-Audit and Operational Infrastructure Information

1.1 Scope of Audit

Energy Online has recently started using the Gentrack system rather than the Orion system for all relevant functions. This is considered a major change under rule 65.4 of the Gas (Downstream Reconciliation) Rules 2008 and rule 88.5 of the gas (Switching Arrangements) Rules 2008.

This Performance Audit was conducted at the request of the Gas Industry Company (GIC) in accordance with rule 65.5 of the Gas (Downstream Reconciliation) Rules 2008 and rule 88.6 of the gas (Switching Arrangements) Rules 2008.

The scope of the audit is limited to those areas where the system change could impact on compliance with the rules. The Gentrack and Market Submission Database systems and associated downstream reconciliation processes have not changed since they were last audited for Energy Online, therefore detailed testing has not been conducted. The main area impacted by the change is registry and switching, which is discussed in the Registry and Switching section.

1.2 Audit Approach

As mentioned in **section 1.1**, the purpose of this audit is to assess the performance of Energy Online in terms of compliance with the rules, and the systems and processes that have been put in place to enable compliance with the rules.

The audit mainly relied on Energy Online's test results and data migration dress rehearsal results. Some areas were checked by examining specific ICPs in the production system.

1.3 General Compliance

1.3.1 Audit findings

As noted in the Summary of Report Findings, this audit has found three areas of non-compliance. The following breach allegations are made in relation to these matters:

Breach Allegation	Rule	Section in this report	Energy Online response
Physical address information in the registry out of date	10.1.1	6	Genesis will need to advise the registry engineer of the physical address change for the gas registry to comply with this code.
Three ICPs were found with allocation groups of 1 or 2 and XTOU profiles. These were all confirmed as incorrect and had not been identified despite the ICPs switching in between two and four months ago. I recommend Energy Online ensures validation settings will identify incorrect allocation groups.	58.1	11	Genesis can confirm that these issues were dealt with during the migration of data into the Gentrack billing system.
Vacant ICPs with "the occupier" moved in have OC sent in the AN file.	70.3	14	Genesis can confirm that this was an isolated user error in Orion and the Gentrack process is automatically dealt with through system processes.

1.3.2 Summary of Previous Audit

Energy Online provided a copy of their previous audit conducted in 2016 by Veritek Ltd. The resolution of these matters is summarised in the table below.

Downstream Reconciliation

Breach Allegation	Rule	Section in this report	Resolution
Two non TOU altitude discrepancies have led to the provision of incorrect consumption information to the allocation agent.	28.2	2.1 & 4	Compliance was found during this audit
Energy Online recently updated their temperature data and they are using data from the MetService which contains air temperature at 200cm above ground and not ground temperature at 30cm below ground. We compared this data with data obtained from NIWA's National Climate Database for nine areas for a winter month and a summer month and in two cases in winter and three cases in summer, the temperature factor differences will result in conversion errors greater than 1.1% as allowed by NZS 5259:2015.	26.2.1, & 28.2	N/A	There has been not change to the management or use of temperature data
Consumption information was not submitted for some ICPs shown as disconnected where consumption is recorded.	26.2.1 & 26.3	3.5	Compliance was found during this audit
Energy Online's initial submission accuracy did not meet the 10% requirement for some gas gates for the period May 2014 to April 2015.	37.2	5.2	No changes have occurred in this area
Energy Online's HE processes are not compliant for some scenarios. The calculation includes a shape file value for the day of the meter read, but meter readings are deemed to have been obtained at 2400 on any given day so the calculation should use a shape value starting the next day. The exception to this is when an ICP starts with Energy Online or has a status change to ACTC, because the ICP is active with Energy Online all day. Total consumption is not affected but the apportionment between months will be slightly incorrect, with more consumption in the current month and less in the next month.	35.2	5.3	This matter is now resolved.

The proportion of HE is calculating incorrectly for Energy Online	26.2.1	5.4	This matter is now resolved.
Incorrect quantities billed totals in GAS070 files for Energy Online and GEND.	26.2.1	5.6	This matter is now resolved.

Registry and Switching

Breach Allegation	Rule	Section in this report	Resolution
Physical address information on registry out of date for all 3 participant codes	r10.1.1	6	Information is incorrect from the most recent move.
Status updates for new connections were not done within 2 business days of entering into a contract for all 6 ICPs	r54.1	10	Timeliness issues are not affected by the system change.
There were 162 instances of status event changes (other than new connections) exceeding 30 business days	r61.1	11	Timeliness issues are not affected by the system change.
157 status events occurred more than 30 business days after the actual status change. These were considered a breach in excess of the "as soon as practicable" test.	r61.1	11	Timeliness issues are not affected by the system change.
GTNs • ICP0000011587GN869 last actual read date provided was 28 May 2016; should have been 24 April 2016 • ICP0000195321QT888 last actual read date provided was 15 January 2016; should have been 12 January 2016 • ICP000163557QT3DC last actual read date provided was 7 April 2016; should have been 29 March 2016 • ICP0004008868NGAD7 last actual read date provided was 20 May 2016; should have been 13 May 2016 • ICP1001248566NG714 last actual read date provided was 18 April 2016; should have been 15 March 2016	r72.1.5	15	One last actual read date was incorrect
GTN • ICP 0000021738GN02E on 18/5/16 the switch reading type provided was A; should have been E	r72.1.8	15	Readings are identified correctly

GTN • ICP1001247635QTF79 The read type in the registry was E; in Energy Online system it was A	r72.1.8	15	Readings are identified correctly
GNWWP • ICP 17641QTA74 Should have used the CE code (not the WP code)	r76.2	16	Withdrawal codes are not affected by the system change.
GNWWS • ICP 3032114NQ3D1 Should have used the WP code (not the WS code)	r76.2	16	Withdrawal codes are not affected by the system change.

1.3.3 Historic Breach Allegations

The table below shows other breach allegations recorded by GIC.

Breach Allegation	Rule(s)	Section in this report
Incorrect status code by Energy Online (found during the AMS audit)	58.1	11
Incorrect allocation group by Energy Online (found during the AMS audit)	61.1	11
Late GTN	72.2	15
Late GTN	72.2	15

1.4 Provision of Information to the Auditor (Rule 69)

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

Information was provided by Energy Online in a timely manner in accordance with this rule.

Information was requested from metering equipment owners and was provided within the requested timeframe or a subsequent agreed timeframe by all parties. We consider that all parties have complied with the requirements of this rule.

1.5 Draft Audit Report Comments

A draft audit report was provided to the industry body (GIC), the allocation agent, and allocation participants that I considered had an interest in the report. In accordance with rule 70.3 of the 2015 Amendment Version of the Gas (Downstream Reconciliation) Rules 2008, those parties were given an opportunity to comment on the draft audit report and indicate whether they would like their comments attached as an appendix to the final audit report. The following responses were received.

Party	Response	Comments provided	Attached as appendix
Energy Online	Yes	Yes	No

The comments received were considered in accordance with rule 71.1, prior to preparing the final audit report. The following table records the changes that were made to the report after considering comments.

Report Section	Change to Report
1.3.1	Addition of responses to breach allegations.

1.6 Transmission Methodology and Audit Trails (Rule 28.4.1)

A complete audit trail was viewed for all data gathering, validation and processing functions. Compliance is confirmed with this rule.

Downstream Reconciliation

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.

I checked the test plan, test results and the data migration dress rehearsal results to confirm the data from Orion was successfully migrated and that the validation of data between Gentrack, MSD and the registry would operate in the same manner for Energy Online as for GENE.

The process was examined for the connection and activation of new ICPs. The new connections process is discussed in the "Switching and Registry" part of the report but it is also relevant to this section because the accuracy of ICP information affects the accuracy of consumption calculations.

The registry was populated manually for Energy Online, but updates are now automated in the same way as for GENE.

When ICPs switched in to Energy Online the status in Orion was automatically set to ACTC, regardless of the registry status. The discrepancies were identified and corrected through monthly validation. However, this validation only dealt with a snapshot, not a historic "timeline", so if any registry fields changed more than once in a month, the validation process did not deal with this.

Other fields were updated daily or weekly, and these changes were made by creating a batch file and uploading it. New ICPs and switched in ICPs had default values of "1" in Orion for altitude and network pressure. The registry notification files were used to populate Orion with the correct information, but it was possible billing and submission to the allocation agent could occur between the population of Orion and the updating of the data.

Energy Online and GENE ICP management processes now have the same level of validation and control, which will resolve many of the validation issues previously present for Energy Online.

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. I confirmed that Energy Online data was still available for a period of 30 months and I checked the data migration dress rehearsal results to confirm meter readings would be successfully loaded to Gentrack for Energy Online.

Archiving, storage, security and audit trail management is included in the test plan and the results confirm compliance.

3.2 Retailer to Ensure Certain Metering Interrogation Requirements are Met (Rule 29)

This rule requires that for consumer installations where the actual or expected consumption is greater than 10TJ, a TOU meter will be installed and the installation will be assigned to allocation group 1 or 2. For consumer installations where the actual or expected consumption is between 250GJ and 10TJ a non-TOU meter will be installed and the installation will be assigned to allocation group 4.

Energy Online conducts analysis of consumption on a periodic basis to ensure ICPs are in the correct allocation groups. This process will not be altered as a result of the system change.

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.

Archiving, storage, security and audit trail management is included in the test plan and the results confirm compliance.

3.4 Non TOU Validation

Energy Online's processes will be the same as those described below, which achieve compliance.

Meter reading validation occurs at multiple levels.

At source, the handheld data input devices perform a localised validation, to ensure that the reading is within expected high-low parameters. These parameters are set as a "high/low" limit, based on settings agreed between Energy Online and the data collector.

Readings that fail this initial validation must be re-entered, and if the second reading is the same, it will be accepted; if it is different (indicating an error with the first reading) then it must be re-entered. Once the same reading has been entered twice consecutively, it will be accepted.

The second level of validation occurs when the data reaches Energy Online. This validation looks for obvious file errors or file corruption and invalid metering information.

Readings are then subject to "billing validation". Each bill produced is subject to a number of individual validation checks. Bills that fail validation end up on an "exceptions" list and any issues are investigated and resolved prior to sending the bill. These validation checks include:

- short read period
- long read period
- high dollar amount
- zero consumption
- negative consumption

- consumption on inactive and vacant premises; the registry status is checked in these instances and is updated as required.

Meter readings are not edited during this process. If a reading fails validation and an incorrect meter reading is suspected then a check reading will be performed.

A final level of consumption validation occurs during "submission validation" in the "consumption validation manager" tool. Each ICP is allocated to a "customer load profile" group and readings are either accepted or rejected based on whether they fit within an expected consumption band. Those readings that fail validation are recalculated to fit the expected profile. Readings that fail validation at this point have already been "billed" so notification is made back to the billing team when recalculation has occurred.

Energy Online checks for consumption at ICPs where their records indicate the ICP is disconnected or vacant.

3.5 Non TOU Error Correction

The process for error correction was examined by checking the test plan and test results, which confirmed that compliance will be achieved, and that the relevant consumption information flows through to submission files.

I also checked five error corrections in the production system, which confirmed the consumption information was accurately corrected and applied to the correct time periods.

I checked ten examples in production of inactive ICPs with consumption recorded. In all cases this was correctly submitted.

4. Energy Consumption Calculation (Rule 28.2)

The energy consumption calculation in Gentrack was confirmed as compliant during the previous audit. Energy Online ICPs will use the same methodology. Compliance is confirmed.

5. Estimation and Submission Information

5.1 Provision of Retailer Consumption Information (Rules 30 to 33)

The test plan and test results confirm compliance with regard to the preparation of GAS040 files.

5.2 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%.

The processes supporting compliance with this rule will not be altered as a result of the system change.

5.3 Historic Estimates (Rules 34 & 35)

The test plan and test results confirm compliance will be achieved because Gentrack's historic estimate calculation methodologies is accurate. The Orion system was not compliant for all scenarios. The calculation included a shape file value for the day of the meter read, but meter readings are deemed to have been obtained at 2400 on any given day so the calculation should have used a shape value starting the next day.

5.4 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. Orion was incorrectly calculating the "proportion of HE" field. Orion calculated the proportion of HE differently to the way it calculated the HE for the total submission. The proportion of HE was calculated by taking the number of days where HE was present, divided by the total days in the month then this is multiplied by the total submission. The calculation in Gentrack is compliant.

5.5 Forward Estimates (Rules 34 & 36)

The rules do not prescribe how forward estimates are to be calculated. Energy Online uses an "estimated seasonal profile model (ESPM) for forward estimation. In summary this model uses historic seasonal adjustment daily shape values which are then "scaled" depending on temperature relevant to historic temperature. Energy Online will use this same methodology. The test plan and test results confirmed that estimates were calculated as expected.

5.6 Billed vs Consumption Comparison (Rule 52)

The test plan and test results confirm the GAS070 file is accurate. It was previously not accurate when it was generated from Orion because some Energy Online quantities billed figures were using default conversion factors, leading to GAS070 totals being incorrectly higher than submission totals. It appeared that when a billing period was longer than exactly one month, the conversion factor rounded to whole numbers for the GAS070 but not for actual billed values or for submission values.

Registry and Switching

6. Participant registration information (rules 7 and 10)

The participant registration information is incorrect for Energy Online because they have recently moved from the location recorded in the registry. This move was not due to the system change; therefore, this is technically out of scope but I recommend Energy Online updates the details for all of their codes.

7. Obligation to act reasonably (rule 34)

No examples of Energy Online acting unreasonably were identified.

8. Obligation to use registry software competently (rule 35)

No examples of Energy Online using registry software incompetently were identified.

9. ICP identifier on invoice (rule 36)

I checked an invoice generated from Gentrack and it showed the ICP identifier.

10. Uplift of READY ICP (rule 54)

The test plan included all relevant registry interactions. The test results confirmed updates were operating as expected.

11. Maintenance of ICP information in the registry (rules 58 to 61)

The test plan included all relevant registry interactions. The test results confirmed updates were operating as expected.

I conducted a check of the list file to identify any obvious errors and I found three ICPs with allocation groups of 1 or 2 and XTOU profiles. These were all confirmed as incorrect and had not been identified despite the ICPs switching in between two and four months ago. I recommend Energy Online ensures validation settings will identify incorrect allocation groups.

12. Resolving discrepancies (rule 62.1)

Energy Online has a number of processes in place to identify and resolve discrepancies between the registry and their databases. These processes are run daily, weekly or monthly depending on the impact the discrepancy can have. These same processes will be used for Energy Online ICPs and will strengthen validation.

13. Initiation of consumer switch / switching notice (rules 65 to 67)

The timeliness of sending GNT files is dependent on processes and not systems.

The test plan included all relevant switch file interactions with the registry. The test results confirmed the correct file formats.

14. Response to a gas switching notice (rules 69 to 75)

The timeliness of sending GAN files is monitored to ensure compliance.

The test plan included all relevant switch file interactions with the registry. The test results confirmed the correct file formats.

I checked the content of Gentrack for three ICPs with the PD code, three with the OC code and one with the MU code. The PD and MU codes were used correctly but the OC code is still used for vacant

premises where “the occupier” is moved in. Two of the three ICPs checked were occupied but one was vacant, and the OC code was incorrectly sent. This does not achieve compliance with Rule 70.3.

15. Gas transfer notice (rule 72)

The timeliness of sending GTN files is monitored to ensure compliance.

The test plan included all relevant switch file interactions with the registry. The test results confirmed the correct file formats.

I compared the content of ten GTN files with the information contained in Gentrack for all relevant fields, including switch readings. The content was correct for nine of the ten but for ICP 0000021612GN6EE, the date of the last reading was incorrect. It appears the ICP did not have a reading during the period of supply, therefore anything populated in this field will be incorrect. I recommend Energy Online considers populating the “last actual read” field with the date of the last actual reading from the TN file supplied by the responsible retailer at the time the ICP switched to Energy Online.

16. Gas switching withdrawal (rule 74A, 75, 76, 78)

The test plan included all relevant switch file interactions with the registry. The test results confirmed the correct file formats. The selection of the correct withdrawal codes is process and not system related.

17. Switch reading negotiation (rule 79, 81)

The test plan included all relevant switch file interactions with the registry. The test results confirmed the correct file formats.

18. Conclusion

The audit found a high level of compliance. There were three issues found, as follows:

4. The physical address information in the registry is out of date since the most recent move to new premises. This was not caused by the major change, but I've recorded it here to ensure it gets changed.
5. Three ICPs were found with allocation groups of 1 or 2 and XTOU profiles. These were all confirmed as incorrect and had not been identified, despite the ICPs switching in between two and four months ago.
6. Vacant ICPs were sent in the AN (GAN?) file with the OC code which indicates the ICP is "occupied", when it is not.

Two recommendations are made, as follows:

3. When there is no reading during the period of supply, the date of the last estimate is populated as the date of the last reading in the GTN file. I recommend using the last actual read date from the GTN file supplied by the last retailer at the time of switch in.
4. I recommend Energy Online ensures validation settings will identify incorrect allocation groups.

Appendix 1

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