VERITEK

Gas Downstream Reconciliation Performance Audit Final Report

For

Prepared by Steve Woods – Veritek Ltd

Date of Audit: 17/09/14 - 18/09/14

Date Audit Report Complete: 25/11/14

Executive Summary

This Performance Audit was conducted at the request of the Gas Industry Company (GIC) in accordance with Rule 65 of the 2013 Amendment Version of the Gas (Downstream Reconciliation) Rules 2008.

The purpose of this audit is to assess the systems, processes and performance of Energy Direct 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 GIC in June 2013.

The summary of report findings in the table below shows that Energy Direct's control environment is "effective" for all of the areas evaluated.

Fifteen of the seventeen areas evaluated were found to be compliant. Two breach allegations are made in relation to the remaining areas. They are summarised as follows:

- Estimated TOU consumption information has been provided on some occasions. Energy Direct's processes achieve compliance with the requirement to provide its "best estimate of consumption information"; however, the existence of estimated information up until June 2013 is considered a matter of non-compliance. This issue is addressed on a monthly basis
- Energy Direct's initial submission accuracy did not meet the 10% requirement for some gas gates for the period May 2012 to April 2013. Breach allegations are already in place for these examples.

Energy Direct has a stable and well managed operation with robust monitoring and controls. This has led to a high level of compliance and data accuracy. The issues raised in the last audit are largely resolved. I do not have any recommendations for improvement.

Summary of Report Findings

Issue	Section	Control Rating (Refer to Appendix 1 for definitions)	Compliance Rating	Comments
ICP set up information	2.1	Effective	Compliant	Energy Direct has robust controls in place to identify and resolve ICP set-up related discrepancies.
Metering set up information	2.2	Effective	Compliant	Energy Direct has robust controls in place to identify and resolve metering information discrepancies.
Billing factors	2.3	Effective	Compliant	Robust controls are in place for the management of billing factors.
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	Effective	Compliant	Monitoring of consumption is in place to ensure allocation groups are correct.
Meter reading targets	3.3	Effective	Compliant	Meter reading occurs monthly for all ICPs. Meter reading attainment processes are robust.
Non TOU validation	3.4	Effective	Compliant	A robust validation process is in place before and after invoicing.
Non TOU error correction	3.5	Effective	Compliant	The error correction processes are robust for all events leading to the requirement for correction.

TOU validation	3.6	Effective	Compliant	TOU validation contains multiple steps and includes peer review for calculations.
Energy consumption calculation	4	Effective	Compliant	There is no manual intervention in this process, and it was “proved” from end to end using a spreadsheet based calculation tool.
TOU estimation and correction	5.1	Effective	Not compliant	Estimation seldom occurs, however the processes are effective and compliant. Some estimation has occurred since the previous audit and any estimation is an issue of non-compliance.
Provision of retailer consumption information	5.2	Effective	Compliant	The process for preparing consumption information files is compliant and it contains a number of high level and ICP level checks to ensure accuracy.
Initial submission accuracy	5.3	Effective	Not compliant	Energy Direct’s estimate process includes a “factoring” process, which involves the use of historic profile shapes. Although compliance has not been achieved, the process is robust.
Forward estimates	5.4	Effective	Compliant	Energy Direct’s forward estimate process includes a “factoring” process, which involves the use of historic profile shapes.
Historic estimates	5.5	Effective	Compliant	Compliance was achieved for all of the scenarios provided during the audit.
Proportion of HE	5.6	Effective	Compliant	Reporting has been provided as required.

Billed vs consumption comparison	5.7	Effective	Compliant	On a long-term basis, Energy Direct's billed information is slightly lower than consumption information. Although these figures cannot be directly compared, they provide a useful indicator to ensure that under reporting of consumption information is not occurring.

Persons Involved in This Audit

Auditor:

Steve Woods
Veritek Limited

Energy Direct personnel assisting in this audit were.

Name	Title
Tara Gannon	Energy Trading Manager
Katrina Wyeth	Switching Clerk
Judy Slater	Billing Clerk

Service providers assisting with processes within the audit scope:

Company	Processes
Vircom	Meter reading & TOU downloads
MRSL	Meter reading

Contents

1. Pre-Audit and Operational Infrastructure Information

1.1 Scope of Audit

This Performance Audit was conducted at the request of the GIC in accordance with rule 65 of the Gas (Downstream Reconciliation) Rules 2008. Rule 65 is inserted below:

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, -

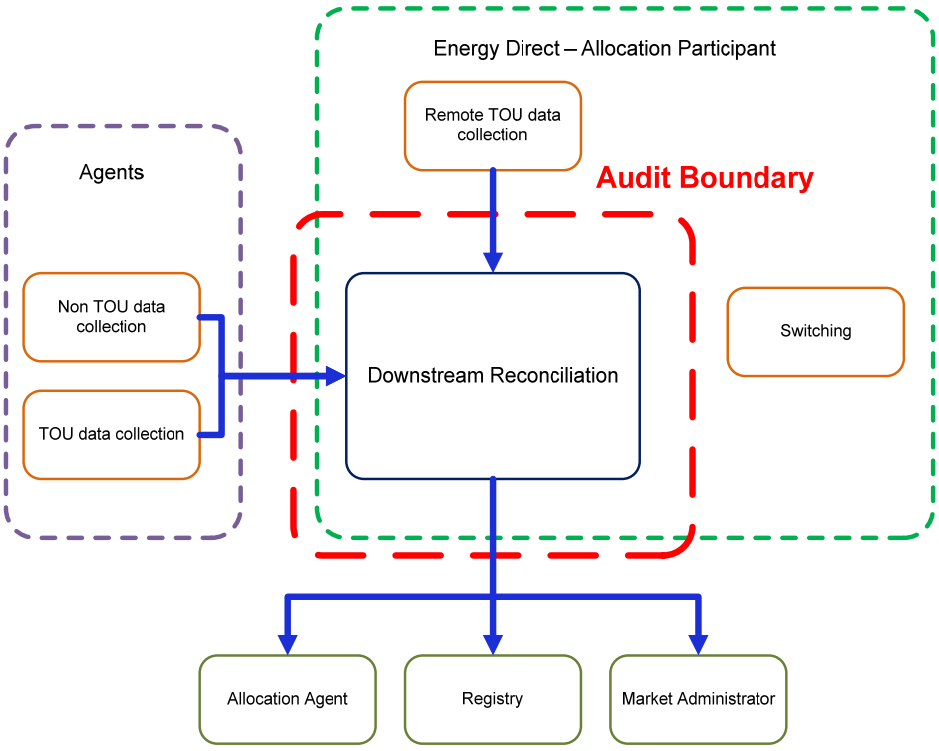
65.2.1 The performance of the allocation agent or that allocation participant in terms of compliance with these rules; and

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 audit was carried out on September 17-18 2014 at Energy Direct's offices in Wanganui.

The scope of the audit includes "downstream reconciliation" only, as shown in the diagram below. Switching, metering ownership and data collection functions are not within the audit scope.



1.2 Audit Approach

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

This audit has examined the effectiveness of the controls Energy Direct has in place to achieve compliance, and where it has been considered appropriate sampling has been undertaken to determine compliance.

Where sampling has occurred, this has been conducted using the Auditing Standard 506 (AS-506) which was published by the Institute of Chartered Accountants of New Zealand. I have used my professional judgement to determine the audit method and to select sample sizes, with an objective of ensuring that the results are statistically significant.[1]

Where calculations are performed by Energy Direct's systems, the algorithm has been checked by using one or two examples as a "sample". Multiple examples are not required because they will not introduce any different variables.

Where compliance is reliant on manual processes, manual data entry for example, the sample size has been increased to a magnitude that, in my judgement, ensures the result has statistical significance.

Where errors have been found or processes found not to be compliant the materiality of the error or non-compliance has been evaluated.

[1] In statistics, a result is considered statistically significant if it is unlikely to have occurred by chance. (Wikipedia)

1.3 General Compliance

1.3.1 Summary of Previous Audit

Energy Direct provided a copy of their previous audit conducted in 2011 by Tom Tetenburg. Eleven of the seventeen areas evaluated were found to be compliant. Six breach allegations were made in relation to the remaining areas. The resolution of these matters is summarised in the table below.

Breach Allegation	Rule	Section in this report	Resolution
Estimated TOU consumption information has been provided. Energy Direct could provide a more accurate estimate by using the mechanical uncorrected readings. The existence of estimated information is considered a matter of non-compliance, as actual daily energy quantities are required. This issue is addressed on a monthly basis, and historic breach allegations are listed in Section 5.1	30.3	5.1	Some estimated consumption has been supplied since the last audit. The estimation processes are compliant.
Altitude is fixed by gas gate, rather than individual ICP, and applied only at gas gates > 100 metres asl.	28.2	2.1.2	This matter is now resolved
Temperature fixed at 15 degrees C for non-TOU ICPs.	28.2	2.3.1	This matter is now resolved
Historic estimate calculations apportion standard cubic metres rather than GJs.	35	5.5	This matter is now resolved
Energy Direct's initial submission accuracy did not meet the +/-15% requirement for all gas gates for the period October 2008 to Sep 2009, or the +/-12.5% requirement for the period October 2009 to March 2010.	37.2	5.3	A small number of variances still exist
Energy Direct's As Billed data provided to the allocation agent contains a UFG component, which defeats the purpose of the annual reconciliation.	52	5.7	This matter is now resolved

1.3.2 Breach Allegations

Energy Direct has 561 alleged breaches recorded by the Market Administrator between May 2011 and September 2014. These are summarised as follows:

Nature of Breach	Rule	Quantity	Section in this Report
Switching Breaches		20	Not within audit scope
Various allegations as a result of the previous audit, as recorded in Section 1.3.1		5	
Submission of estimated TOU data	30.3, 31.1, 32.1, 33.1	23	5.1
Initial vs final allocation variances	37.2	506	5.3
Inaccurate consumption information provided to the allocation agent	26.2.1	2	5.2
Late trading notification	39	1	
Meter interrogation requirements not met	29.4	1	3.2
Meter reading report not sent within the required timeframe	40.2	1	3.3
Late quantities billed file	52.2.1	1	5.7

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

Breach Allegation	Rules	Section in this report
Estimated TOU consumption information has been provided on a number of occasions. Energy Direct's processes achieve compliance with the requirement to provide its "best estimate of consumption information"; however, the existence of estimated information up until June 2013 is considered a matter of non-compliance. This issue was addressed on a monthly basis.	30.3	5.1
The initial submission accuracy did not meet the required accuracy percentage for some gas gates for the period May 2012 to April 2013.	37.2	5.3

I have also made breach allegations against some distributors in relation to incorrect altitude figures on the registry. They are shown in the table below.

Breach Allegation	Participant Identifier	Rule(s)	Section in this report
Altitude figure incorrect for one ICP.	NGCD	26.5.1 & 26.5.4	2.1.2
Altitude figures incorrect for four ICPs.	POCO	26.5.1 & 26.5.4	2.1.2

1.4 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 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. No comments were received; therefore I have not made any changes to the report.

1.5 Provision of Information to the Auditor (Rule 69)

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

Information was provided by Energy Direct 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. I consider that all parties have complied with the requirements of this rule.

1.6 Transmission Methodology and Audit Trails (Rule 28.4.1)

All meter reading data is transmitted to Energy Direct in a secure manner; either by FTP or text files with a checksum. A complete audit trail was viewed for all data gathering, validation and processing functions. Compliance is confirmed with this rule.

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 5259:2004, 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. I have also considered the "Gas (Downstream Reconciliation) Rules 2008 Billing factors guideline note, V1.0" (Billing Factors Guideline) published by GIC on 22/12/11 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. Energy Direct has a robust set of validation processes and reports to identify and resolve discrepancies. These were demonstrated during the audit. The validation compares Orion data to registry data, and includes:

- ICP number
- Connection Status
- Gas gate
- Allocation Group
- Network capacity group
- Load shedding category
- Meter charge codes

I checked the event detail report for March and April 2014 to evaluate whether status information is being populated in a timely manner. 120 ICPs had their status changed to ACTC. The registry was updated more than five business days after the actual event date for 47 of the 120 ICPs, and for seven of these the registry was updated more than 20 business days after the actual event date. The average update timeframe is 7.7 days.

I checked the seven ICPs and found the following issues:

Quantity	Issue
2	Change from ACTV to ACTC following a switch
2	New connections with a delay in the distributor updating their field, leading to a delay in updating to ACTC
1	Reconnection occurring without Energy Direct's knowledge
1	Reversal of an incorrect entry on the registry
1	Re-sending of a registry file after the original file failed

254 ICPs were changed to ACTV, INACP or INACT during the same period, and 57 of these had a registry update duration of more than five business days. Six of the 57 had updates greater than 20 days. The average duration for updating the registry was 6.6 days. This included one ICP backdated for over two years. With this ICP excluded the average duration is four days.

2.1.2 Altitude Information

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

NZS 5259:2004 Amendment No1 contains the following points, which affect the way altitude information should be managed:

1. The maximum permissible error is ± 1.0% where the meter pressure is below 100kPa and ±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."

Energy Direct provided a registry list file and a sample of ICPs per distributor was checked against "google earth" data. The sample was selected by firstly looking for obvious outliers and then increasing the sample size through random selection. The "google earth" data is based on the "Shuttle Radar Topography Mission" (SRTM) results and a number of recent studies indicate an accuracy of ± 10m for altitude. An evaluation against this data is considered an appropriate test for "reasonableness".

Altitude figures within approximately 90m of the actual altitude will ensure an accuracy of ± 1.0%. As shown in the table below, there is one NGCD ICP with an incorrect altitude recorded and the difference is more than 90m. This ICP was found by looking for obvious outliers and this example is in Rotorua where an altitude less than 200m will normally be incorrect.

Point 2 above recommends altitude figures are determined to within 10m where practicable. An evaluation of altitude data on the registry was conducted to check whether this recommendation had been met. As noted above, the margin of error of the "google earth" data appears to be approximately ± 10m, therefore, to allow for this margin, I have checked that the registry data is within 20m of "google earth" data.

As shown in the table below the altitude data on the registry appears to be very accurate. There are only two ICPs where the altitude difference is greater than 20m.

Distributor	Total ICPs	ICPs checked	Quantity within 20m	Quantity within 90m
UNLG	53	24	24	24
NGCD	451	25	23	24
POCO	8,871	25	25	25
GNET	5,727	25	25	25
Total	15,102	99	97	98

A further evaluation was conducted of ICPs where the altitude figure was zero on the registry. This data appears to be less accurate than when a figure other than zero is populated. The results are shown in the table below. NGCD and GNET do not have any ICPs with zero populated. UNLG has two and a check of both found they were within 20m. POCO has 21 ICPs with zero populated. Seven were within 20m and 17 were within 90m.

Distributor	Total ICPs	ICPs with altitude of zero	ICPs checked	Quantity within 20m	Quantity within 90m
UNLG	53	2	2	2	2
NGCD	451	0	0	N/A	N/A
POCO	8,871	21	21	7	17
GNET	5,727	0	0	N/A	N/A

I have considered whether distributors have potentially breached any rules by populating the registry with inaccurate altitude information. Distributors have responsibility for populating the registry with altitude figures[2] and for maintaining the accuracy of this information. Distributors must also comply with rule 26.5 of the Gas (Downstream Reconciliation) Rules 2008, which requires them to ensure that any information on the registry is accurate and complete and supports compliance with NZS 5259. There are five ICPs where the altitude information is incorrect and could result in consumption information being incorrect by more than the 1.1% threshold allowed by NZS 5259. I have alleged a breach of rules 26.5.1 and 26.5.4 by NGCD (1 ICP) and POCO (4 ICPs).

Rule 28.2 requires retailers to comply with NZS 5259:2004, which includes the altitude accuracy requirements mentioned above. Energy Direct has an existing process to check altitude figures and the examples above were already on their list as discrepancies. Once the distributors have populated the registry with correct figures, Energy Direct will adjust their data, which will result in an adjustment to consumption information, which flows through to the appropriate revision files.

[2] Gas (Switching Arrangements) Rules 2008, Part A, ICP parameters maintained by Distributors and rules 41 and 58.

2.2 Metering Set-up Information

Energy Direct has a process in place to validate metering information. Each week, validation occurs against the registry for the following fields:

- Meter Number
- Meter Owner
- Meter Model
- Network Pressure
- Altitude
- Network
- Gas Gate
- Connection status

Each month an additional validation is conducted against meter owner's data, including the following fields:

- Meter number
- Meter owner
- Meter pressure
- Meter digits
- Meter multiplier (where provided)

The most recent reporting contained eight ICPs with discrepancies. These were all addressed immediately.

2.3 Billing Factors

2.3.1 Temperature Information

For ICPs where the actual temperature is not measured NZS 5259: 2004 states that temperature may be estimated and four methodologies are provided. These are listed below in order of decreasing preference.

(a) Temperature records of the station under flowing conditions. Historical records can be used if similarity is preserved.
(b) Records of actual gas temperature in similar installations over similar periods at similar locations may serve to estimate the value of gas temperature in the installation.
(c) For compact installations directly connected to short risers and well shaded from direct sunlight, where the temperature of the gas is in the vicinity of ground temperature, the temperature may be estimated from the average ground temperature at 300mm depth. NOTE – Reliable and relevant climatic temperature data may be used as a basis for estimating average 300mm ground temperatures. This may include published data. For installations with seasonal use only, the data for the relevant season or seasons should be used.
(d) For installations where the inlet pipes are exposed to ambient air conditions the temperature may be estimated from the mean temperature obtained at reliable and

relevant weather recording stations. For installations with seasonal use only, the data for the relevant season or season should be used. The installation should be shielded from direct sunlight.

Energy Direct has chosen option (c) and uses a read to read daily average temperature in their calculations. The daily temperature data is sourced from NIWA's National Climate Database and is refreshed each year. The last refresh was May 2014.

EDNZ adjusts for the Joule Thompson effect. I confirmed the calculation is correct.

2.3.2 Calorific Values

Gas composition data is sourced from the Open Access Transmission Information System (OATIS) and is loaded into Orion.

The process was observed for the daily downloading of this data. If CV data is not loaded, a "check data error" occurs when billing attempts to run.

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 Energy Direct securely archives data for a period in excess of 30 months.

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.

Allocation groups and load shedding categories are reviewed fortnightly and any discrepancies are corrected in Orion and the Registry as required. The most recent report contained six ICPs, which had recently switched in, and the allocation group needs to be changed from 4 to 6.

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.

Energy Direct provided a copy of a recent GAS080 reports for May 2014. All meters were read in the prior 12 month period.

The table below shows the GAS080 results.

Target	Reading Percentage May 2014
Rolling 4 months (target 90%)	99.54%
12 months (target 100%)	99.96%

Energy Direct achieved compliance with rule 40.2, which is the requirement to report the number and percentage of validated register readings obtained in accordance with rules 29.4.3 and 29.5.

3.4 Non TOU Validation

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 an agreed setting with Energy Direct.

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 Orion billing system also checks the reading and reading dates when they are entered. A meter read import report is generated, which checks for possible errors such as reading date earlier than latest read, usage too low, usage too high, index rollover and negative usage.

After conversion to energy and invoice generation, checks are made to compare dollar amounts to the previous invoice, and invoices are checked where the variance is too low or too high.

Meter readings are not edited during these processes. If a reading fails validation and an incorrect meter reading is suspected, then a check reading is performed.

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.

The process for stopped meters is that the meter is removed with an estimated reading, which includes consumption for the period the meter was faulty. The estimation process is based on sound principles using historic consumption. Any previous incorrect meter readings are labelled “mis-reads” to ensure they are not considered in the calculation process, and then Orion correctly apportions the consumption to the appropriate months between the last correct reading and the estimated reading. I checked a range of examples to confirm compliance.

If altitude or meter pressure changes occur, these are automatically applied to previous consumption periods. Some examples were examined to confirm accuracy.

3.6 TOU Validation

TOU downloads are emailed to Energy Direct. A series of validation checks are conducted before conversion to GJ occurs in Orion and further checks are conducted as part of the billing and submission processes. The validation checks include:

- Correct number of records
- Date and time
- Pressure and temperature are within acceptable ranges
- Corrected vs a calculation from uncorrected and from mechanical readings where these are available
- TOU calculations are peer reviewed
- GAS050 files are peer reviewed

The validation processes appear to be complete and robust.

4. Energy Consumption Calculation (Rule 28.2)

To evaluate this calculation a spreadsheet was prepared which converts volume between meter readings to volume at standard conditions and then to energy consumption. The relevant information for two NTOU ICPs was entered into the spreadsheet and the resulting energy values were compared to that calculated by Orion. This comparison confirmed the accuracy of the Orion calculation and confirmed compliance with NZS 5259. Adjustment occurs for the Joule Thompson effect and for compressibility.

The TOU calculation was checked using the same calculator and the only issue found is that altitude adjustment is not occurring. NZS5259 allows a conversion error of ± 0.5% and the conversion errors due to not adjusting for altitude are less than this. Energy Direct has now included altitude adjustment in their calculation for TOU.

The small sample size for this comparison is considered appropriate because the calculation being evaluated is conducted entirely within the Orion system, with no manual intervention. Therefore, the only opportunity for error is if the incorrect factors are present within the system.

5. Estimation and Submission Information

5.1 TOU Estimation and Correction (Rule 30.3)

This rule requires that retailers must provide the best estimate of consumption information to the allocation agent in situations where actual data is not available. EDNZ has process documentation for all types of estimates, although estimates are seldom required.

Various methods are used depending on the nature of the issue. If data is missing and a register reading is available then a profile is created by using a similar previous period. The customer may be consulted if the profile is unclear. If data and register readings are missing then previous consumption periods are used in conjunction with customer liaison to determine a likely profile.

Two examples were available for review and in both cases, the estimation theory was sound and the data is appropriately labelled.

The existence of any estimated TOU consumption information is considered a matter of non-compliance. This issue is addressed on a monthly basis and a number of breach allegations have been made as recorded in Section 1.3. No estimates have been provided since June 2013.

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

Energy Direct's compliance with rules 30 to 33 was examined by a "walk through" of their processes and controls to confirm compliance.

A GAS040 file was examined and compared to the data in Energy Direct's system at ICP level; the totals matched, which confirms compliance. This also proves that Energy Direct's consumption information provided to the allocation agent is calculated at ICP level and then aggregated.

The matter of "vacant consumption" was also examined. When an ICP is vacant but still active (ACTV on the registry), meter reading still occurs and any volume recorded is converted into validated consumption and is then included in the allocation process, even though this consumption is not billed.

5.3 Initial Submission Accuracy (Rule 37.2)

Final allocations are complete for the months May 2012 to April 2013. 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%.

Energy Direct did not meet this requirement for a number of gas gates during the 12 month period shown. The results are summarised in the table below.

Month	Total Gas Gates	Number Within 10%	% Compliant	Within +/-10% or < 200 GJ	% Compliant or immaterial
May 2012	43	30	69.8	42	97.7
June 2012	43	36	83.72	43	100
July 2012	44	34	77.27	44	100
August 2012	44	37	84.09	44	100
September 2012	44	37	84.09	44	100
October 2012	44	35	79.55	44	100
November 2012	44	35	79.55	44	100
December 2012	44	25	56.82	40	90.91
January 2013	44	28	63.64	44	100
February 2013	44	28	63.64	44	100
March 2013	44	20	45.45	40	90.91
April 2013	44	27	61.36	41	93.18

The following table shows the difference between consumption information for initial and final submissions at an aggregated level for all gas gates.

Month	Initial Submission All Gas Gates (GJ)	Final Submission All Gas Gates (GJ)	Percentage Variation
May 2012	53,526	56,814	-5.79%
June 2012	67,551	67,088	0.69%
July 2012	73,660	72,142	2.10%
August 2012	65,288	65,401	-0.17%
September 2012	54,910	54,375	0.98%
October 2012	44,653	43,842	1.85%
November 2012	37,586	38,988	-3.60%
December 2012	29,471	27,367	7.69%
January 2013	24,508	23,344	4.99%
February 2013	22,705	22,121	2.64%
March 2013	28,523	26,087	9.34%
April 2013	34,616	32,432	6.73%

The table above shows that at an aggregate level, the consumption information submitted to the allocation agent for the initial allocation is within 10% of the consumption information submitted for the final allocation. Energy Direct monitors variances at gas gate and ICP level and this reporting showed all of the variances reported in the tables above relate to seasonal loads (for example chicken farms on a 6-week cycle) or to variances between forward estimates and actual consumption.

5.4 Forward Estimates (Rules 34 & 36)

Energy Direct's forward estimate process uses historic consumption that has been seasonally adjusted or if historic consumption is not available then the "price plan and meter type average" is used. Energy Direct uses their own shape files for forward estimation for initial allocations. Where possible these shape files are based on the average of the previous two years of files supplied by the allocation agent.

EDNZ reads meters monthly and as close to the end of the month as possible to minimise the quantity and impact of forward estimates.

5.5 Historic Estimates (Rules 34 & 35)

To assist with determining compliance of the historic estimate processes, Energy Direct was supplied with a list of scenarios. For each scenario, a manual calculation was performed using the relevant seasonal adjustment shape file, and this was compared to the calculation performed in Energy Direct's system. Compliance is confirmed for all scenarios. This test also proves that the correct shape file is used in each case.

Test	Scenario	Test Expectation	Result
A	ICPs become inactive part way through a month.	Consumption is only calculated for the Active portion of the month.	Compliant
B	ICPs become active then inactive within a month.	Consumption is only calculated for the Active portion of the month.	Compliant
C	ICPs become inactive, then active, then inactive again within a month.	Consumption is only calculated for the Active portion of the month.	Compliant
E	ICPs start on the 1st day of a month.	Consumption is calculated to include the 1st day of responsibility.	Compliant
F	ICPs end on the last day of the month.	Consumption is calculated to include the last day of responsibility.	Compliant
G	ICPs start part way through a month.	Consumption is calculated to include the 1st day of responsibility.	Compliant
H	ICPs end part way through a month.	Consumption is calculated to include the last day of responsibility.	Compliant
I & J	ICP's are lost and won back in a month.	Consumption is calculated for each day of responsibility.	Compliant
N	ICPs start on 1st and end on last day of month.	Consumption is calculated for each day of responsibility.	Compliant
O	Rollover reads	Consumption is calculated correctly in the instance of meter rollovers.	Compliant

5.6 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.

A GAS040 file was examined and compared to the data in Energy Direct's system at ICP level; the totals matched, which confirms compliance. This also proves that Energy Direct's consumption information provided to the allocation agent is calculated at ICP level and then aggregated.

5.7 Billed vs Consumption Comparison (Rule 52)

The content of the GAS070 files was proved by selecting some gas gates and checking the bills in Orion for all ICPs at those gates, against the total in the GAS070 files. This confirmed the accuracy of the data.

The table below shows a comparison between quantities billed and consumption information submitted to the allocation agent for a three year period. The consumption information is higher than quantities billed by 0.45%. This minor difference can be explained by the fact that the revision and normalisation processes for billed data are different to those for consumption data, the billed data, and the consumption data contains some initial and interim submission information for the most recent months, which will include a higher proportion of estimated data. Although these figures cannot be directly compared, they provide a useful indicator to ensure that under reporting of consumption information is not occurring.

Year ending	Billed	Consumption	Percentage Difference
March 2012	711,350	701,501	1.38%
March 2013	823,586	833,668	-1.22%
March 2014	703,509	713,314	-1.39%
Total	**2,238,445**	**2,248,482**	**-0.45%**

6. Recommendations

I do not have any recommendations for improvement as a result of this performance audit.

Appendix 1 – Control Rating Definitions

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.