



# PERFORMANCE AUDIT REPORT UNDER THE SWITCHING ARRANGEMENTS AND DOWNSTREAM RECONCILIATION RULES

First Gas Limited as Distributor and Meter  
Owner

Audit date: 29 to 31 March 2021

Report date: 28 May 2021

Under the Gas (Switching Arrangements) Rules 2008 and the Gas (Downstream Reconciliation) Rules 2008 the Gas Industry Company has commissioned Langford Consulting to undertake a performance audit of First Gas Limited in its role of distributor and meter owner. 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  
julie@langfordconsulting.co.nz

## Executive Summary

Under the Gas (Switching Arrangements) Rules 2008 and the Gas (Downstream Reconciliation) Rules 2008 the Gas Industry Company (GIC) commissioned Langford Consulting to undertake a performance audit of First Gas Ltd (First Gas).

The purpose of the audit is to:

- assess compliance with the rules
- assess the systems and processes put in place to enable compliance with the rules

The audit was conducted within the terms of reference supplied by the GIC and within the guideline note *Guideline note for rules 65 to 75: the commissioning and carrying out of performance audits and event audits, version 3.0* (<http://www.gasindustry.co.nz/dmsdocument/2858>).

The summary of report findings shows that the First Gas control environment, for the 15 areas evaluated, was found to be “effective” for 9 areas; “effective” for NGCD and “not adequate” for VCTX/MAUI for 1 area; “not adequate” for 1 area for all 4 participant codes and not applicable for 4 areas.

8 breach allegations are made in relation to First Gas regarding the non-compliant areas and are summarised in the following table. The following observations and recommendations were also made:

**RECOMMENDATION:** That First Gas follow through on their plan to build a Power BI tool that brings together the information available in various systems that would enable their new connections team to determine the correct values for registry fields for new ICPs without moving between various systems and making ad hoc decisions. This would also assist with their on-going review of registry data quality and maintenance.

**OBSERVATION:** There are a large number of ICPs in the registry where the retailer has the status designated as inactive temporary, which prevents ICPs from being decommissioned. Many of these are likely to be inactive permanent.

**RECOMMENDATION:** That First Gas do a review of registry data for all ICPs that have VCTX or MAUI as distributor

**OBSERVATION:** To date the First Gas transmission business, with respect to metering compliance, have focused on complying with the transmission metering requirements. Their responsibility of compliance with NZS5259 resulting from their responsibilities as meter owner registry participants had not been a focus. As a result of this audit they are now aware of this responsibility.

**RECOMMENDATION:** That First Gas (VCTX and MAUI as meter owner) introduce a routine check to confirm that the actual flow of gas at an ICP continues to be within the acceptable Qmin Qmax of the meter to ensure on-going accuracy within the maximum permissible error.

## Summary of breach allegations

All breach allegations are made under the Gas (Switching Arrangements) Rules 2008 unless otherwise stated.

Section	Summary of issue	Rules potentially breached
3.1	Participant registry information was out of date for all four participant codes	r10.1.1
4.2	7 recently created NGCD ICPs had been incorrectly assigned to the wrong gas gate	r58.1
4.2	A review of recently created NGCD ICPs found: <ul style="list-style-type: none"> <li>• 61 were found to have the incorrect load shedding category when compared to their tariff code or allocation group</li> <li>• 1 was found to have the wrong tariff code</li> <li>• 2 were found to have incorrect altitudes</li> <li>• 3 were found to have incorrect network pressures</li> </ul>	r58.1
4.3	A review of a sample of established NGCD ICPs identified: <ul style="list-style-type: none"> <li>• 2 with incorrect addresses</li> <li>• 1 with an incorrect load shedding category</li> </ul>	r58.1
4.3	Out of a sample of 6 established transmission ICPs (all VCTX): <ul style="list-style-type: none"> <li>• 5 were found to have inaccurate network pressure</li> <li>• 3 had significantly inaccurate altitude entries</li> </ul>	r58.1
4.3	9 ICPs had been found associated to the Morrinsville dairy factory instead of MRV16302 for Morrinsville town. These were corrected immediately prior to the audit visit	r58.1
4.4	Incorrect status for VCTX ICP 1001142883VTFC0 OKW23401 (Okaiawa), still shown as active on the registry after decommissioning. The retailer is Nova Gas (GNVG)	r58.1
5.5	VCTX has the incorrect ICP type code for 1 ICP	r58.1

## Summary of report findings

Issue	Section	Control Rating	Compliance Rating	Comments
GENERAL				
Participant registration information	3.1	Not adequate	Not Compliant	First Gas had out of date participant details on the register for all four participant codes
Obligation to act reasonably	3.2	Effective	Compliant	No examples of First Gas acting unreasonably were found
Obligation to use registry software competently	3.3	Effective	Compliant	No examples of First Gas using software incompetently were found
AS DISTRIBUTOR				
Assignment of ICPs	4.1	Effective	Not compliant	11 VCTX ICPs have incorrect ICP identifiers, however these were created prior to First Gas owning the business and can't realistically be corrected
Creation of new ICPs	4.2	Effective	Not compliant	A review of a sample of new ICPs found all were created within the 3-business day requirement; there were however some with incorrect registry entries
Maintenance of ICPs in the registry	4.3	Effective - NGCD Not adequate - VCTX/MAUI	Not compliant	NGCD has initiated a process for maintaining registry data; VCTX/MAUI data is not maintained.
Notices of gas gate creation/decommissioning	4.4	Effective	Compliant	VCTX has not changed the status of a decommissioned gas gate (reflected in maintenance of ICPs)
Publishing of network price category codes	4.5	Effective	Compliant	These were reviewed and found to be current and publicly available for NGCD
Disclosure of ICP information	4.6	Not applicable	Not applicable	No instances had occurred
Loss factor codes	4.7	Not applicable	Not applicable	First Gas does not currently use loss factor codes
AS METER OWNER				
Compliance with NZS5259	5.1	Effective	Compliant	VCTX/MAUI are now aware they need to comply with NZS5259 and the transmission metering requirements
Provision of metering price codes	5.2	Not applicable	Not applicable	First Gas do not have any metering price codes
Disclosure of ICP information	5.3	Not applicable	Not applicable	No instances have occurred
Registry information for new ICPs	5.4	Effective	Compliant	FGDM was compliant, VCTX/MAUI did not have any new ICPs
Maintenance of ICP information	5.5	Effective	Compliant	A couple of issues were identified relating to distribution responsibilities

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# 1. Introduction

Under the Gas (Switching Arrangements) Rules 2008 (the rules) and the Gas (Downstream Reconciliation) Rules 2008 the Gas Industry Company (GIC) commissioned Langford Consulting to undertake a performance audit of First Gas Ltd (First Gas) as a distributor and meter owner. The audit was commissioned under rule 88 and was conducted within terms of reference prepared by the GIC and includes the activities of participant codes NGCD as distributor; VCTX as meter owner and distributor; MAUI as meter owner and distributor and FGDM as meter owner.

The engagement commenced on 26 January 2021 and involved a site visit to First Gas' Wellington office on 29 to 31 March 2021 and subsequent visits to First Gas in New Plymouth.

The purpose of the audit is to:

- assess compliance with the rules
- assess the systems and processes put in place to enable compliance with the rules

In preparing the report, the auditor used the processes set out in the guideline note issued on 1 June 2013: *Guideline note for rules 65 to 75: the commissioning and carrying out of performance audits and event audits, version 3.0* (<http://www.gasindustry.co.nz/dmsdocument/2858>).

NGCD is the distributor for 82,000 ICPs; MAUI is distributor for 6 ICPs; VCTX is distributor for 30 ICPs.

FGDM is meter owner for 2 ICPs; MAUI is meter owner for 1 ICP and VCTX is meter owner for 34 ICPs

The emphasis of this audit is therefore on NGCD as distributor.

All references to the rules are made under the Gas (Switching Arrangements) Rules 2008 unless otherwise stated.

## 2. General Compliance

### 2.1 Switch Breach Report

First Gas as distributor and meter owner have not had any alleged breaches since their last audit.

### 2.2 Summary of previous audit

First Gas as distributor was last audited under the rules in 2017. Below are the recommendations and observations arising, plus the table summarising the alleged breaches. First Gas has not previously been audited as meter owner.

**RECOMMENDATION:** It is recommended that First Gas add a routine check to their ICP creation process to ensure ICP identifiers have the correct 'NG' code as the 11<sup>th</sup> and 12<sup>th</sup> characters.

**OBSERVATION** Rules 51 and 53 do not reflect the process undertaken by First Gas and apply time constraints that have no relevance. If this is true of other distributors there may be a case for a review of the rules to align with the operational processes.

**RECOMMENDATION:** Consider a review of rules 51 and 53 once all the distributors have undergone their first audit.

The GIC is aware of this issue and has undertaken to review drafting of these rules.

**RECOMMENDATION:** First Gas should review its processes for assigning gas gates to ensure consistent assignment of ICPs that could be fed by more than gas gate within a greater gas gate area.

**RECOMMENDATION:** First Gas should complete data cleansing to correct new ICPs entered with incorrect network pressures. First Gas has already commenced this.

**RECOMMENDATION:** That First Gas initiate regular processes for identifying and rectifying data quality issues in their registry data.

**RECOMMENDATION:** That First Gas initiate regular processes for identifying ICPs that need the load shedding category to be revised.

**RECOMMENDATION:** That First Gas initiate a process for decommissioning ICPs.

**RECOMMENDATION:** That First Gas should introduce a process where they routinely review load shedding categories for new ICPs once billing information of actual consumption becomes available.

**RECOMMENDATION:** It is recommended that the load shedding category should be actively maintained. Data that is available to assist includes allocation group changes by retailers, billing information and retailer requests for metering upgrades.

### Summary of 2017 breach allegations

Section	Summary of issue	Rules potentially breached
4.2	3 ICPs within a sample of 30 new ICPs were not created within 3 business days of request.	r 51.2
4.2	3 ICPs created in 2017 had been incorrectly assigned to the wrong gas gate. 2 ICPs had incorrect address details.	r 58.1
4.2	From a sample of 30 new ICPs 5 errors were found:  4 ICPs had incorrect network pressures. 1 ICP had an incorrect network pricing category.	r 58.1
4.3	A review of ICPs with unusual or incompatible load shedding categories/allocation groups found 330 active ICPs to have incorrect load shedding categories.	r 58.1

4.3	A review of altitude outliers on the registry found 16 ICPs with incorrect altitudes.	r 58.1
4.3	A review of the registry for unexpected combinations of network pressures and load shedding category identified 5 ICPs with incorrect network pressures.	r 58.1
4.3	A review of a sample of 70 established ICPs found 18 errors:  2 ICPs had incorrect altitudes 5 ICPs had incorrect gas gates 5 ICPs had incorrect load shedding categories 3 ICPs had incorrect price categories 3 ICPs had incorrect network pressures	r 58.1
4.3	First Gas has not used its reasonable endeavours to maintain current and accurate information in the registry by failing to have any process for maintaining registry data. They do not: <ul style="list-style-type: none"> <li>• do any monitoring of data quality</li> <li>• maintain ICP load shedding categories</li> <li>• identify/update decommissioned ICPs</li> </ul>	r 58.1

First Gas provided a summary of their actions in response to the last audit as follows:

#### **Recommendation**

It is recommended that First Gas add a routine check to their ICP creation process to ensure ICP identifiers have the correct 'NG' as the 11th and 12th characters

Consider a review of rules 51 and 53 once all distributors have undergone their first audit

First Gas should review its processes for assigning gas gates to ensure consistent assignment of ICPs that could be fed by more than one gas gate within a greater gas gate area  
First Gas should complete data cleansing to correct new ICPs entered with incorrect network pressures. First Gas has already commenced this.

That First Gas initiate regular processes for identifying and rectifying data quality issues in their registry data

That First Gas initiate regular process for identifying ICPs that need the load shedding category to be revised

That First Gas initiate a process for decommission ICPs

#### **Current Process/Explanation**

A checksum calculator has been created to ensure that the ICP creation process is correct and to eliminate the possibility of double-up ICPs

Whether retailer driven, or customer driven, ICP creation from customer quote acceptance is aimed to be completed within three working days.

Annual review of input data run to ensure correct gas gates are being used within the Gas Registry.

This has already been commenced and completed. There has been a report created to assist in identifying ICPs where the network pressure is incorrect. Ongoing cleanses are occurring to ensure data is correct.

A Power BI report has been created to identify any data issues within the registry data. Annual Review of Registry Data is occurring to ensure reflection of correct data

A manual process of comparing annual data against load shedding categories is regularly completed. Occurs during annual review of data.

A manual process of downloading the disconnection data from Maximo has been completed. This is done on a regular basis. We still have a large back log of ICPs that we are wanting to decommission, but are unable to do, due to the fact that the retailer hasn't change the ICP to the correct status



That First Gas should introduce a process where they routinely review load shedding categories for new ICPs once billing information of actual consumption becomes available

It is recommended that the load shedding category should be actively maintained. Data that is available to assist includes allocation group changes by retailers, billing information and retailer requests for metering upgrades

A manual process of comparing annual data against load shedding categories is regularly completed

A manual process of comparing annual data against load shedding categories is regularly completed. During this process, the load shedding categories are compared against the allocation group by retailers. When metering upgrades are request by retailers, the load shedding category is reviewed at this point

## 2.3 Provision of Information to the Auditor

In conducting this audit, the auditor may request any information from First Gas, the industry body and any registry participant.

Information was provided by First Gas in a timely manner in accordance with this rule.

## 3. General obligations

### 3.1 Participant registration information

The participant registration information for First Gas participant codes FGDM, MAUI, NGCD and VCTX were reviewed and a number of aspects were found to be incorrect:

FGDM – the phone number was out of date and the email address was for a member of staff who had changed responsibilities

MAUI – The phone number had been disconnected, the email address was for a member of staff who had left the organisation and the address was out of date. The record had not been updated since 2014.

NGCD – the phone number was invalid

VCTX – the email address was for a member of staff who had left the organisation

**ALLEGED BREACH:** Participant registry information was out of date for all four participant codes (rule 10.1.1)

### 3.2 Obligation to act reasonably

No examples of First Gas acting unreasonably were found.

### 3.3 Obligation to use registry software competently

No examples of First Gas using registry software incompetently were found.

## 4. Obligations as Distributor

The audit took a multi layered approach reviewing the First Gas processes; looking for outliers in the data to investigate; reviewing a sample of both new and established ICPs for the accuracy of the registry fields.

### 4.1 Assignment of ICPs (rules 5.2, 43.1 and 43.2)

First Gas described their process for creating new ICPs and there had been no significant change since the last audit.

A request to investigate the availability and cost of a new connection could arrive via e-mail, a call to the 0800 First Gas call centre, or via the “get connected” part of the First Gas website. The request could come from the end customer, retailer, builder or gas fitter. The initial process is managed using a CRM system and involves investigating the feasibility of the gas connection and can involve phone calls with the customer and Electrix as the service provider, for non-standard requests.

Retailers can access the CRM system to track the progress of initial enquiries. At this stage no ICP is generated but the retailer can enter their reference number into the CRM system to help track the case. The CRM system is also integrated with Maximo, the work order system used by First Gas. The costs are determined by their field service provider and modelled by First Gas. First Gas can then determine the contribution required. The customer is then provided with a quote.

When the customer accepts the quote a status change in Maximo occurs which in turn generates a work order to Electrix and adds the case to a worklist for ICP creation. This customer agreement also triggers the billing system to create the bill for the capital contribution. The creation of an ICP then enables the retailer to request a meter.

The creation of a new ICP starts with the address being verified with the customer, Google Earth and the GIS system. “As builds” for addresses which don’t already exist in GIS are hand drawn, as the First Gas GIS system doesn’t currently have “greenfield” functionality. The registry is also searched to ensure there is no existing ICP and the NZ Post website is used to confirm the accuracy of the detail of the address.

For big projects, such as major sub-divisions, the ICP creation process can be more complex. These are managed outside of the usual CRM/Maximo systems. Developers usually initiate the development projects such as shopping malls and multi-residentials, and retailers usually initiate the industrial connections. One of the parties involved may request that the ICP creation be done before there is an agreement to connect, because of the lead time for requesting the meter and the meter owners need for an ICP number as a part of the request. First Gas create the ICP as soon as it is requested and even encourage this, to ensure the supply of metering does not delay a new connection project. Pinpointing the exact time of these requests is difficult after the fact, as they could have occurred via a phone call, can be prior to the contract being signed and are managed outside of the CRM system.

The trigger for ICP creation can be a retailer request, a signed contract or a work order request to Electrix. Other than complex projects, First Gas considers the acceptance of a quote to be the “request” for an ICP.

The auditor reviewed the distributor's process for the creation of ICP identifiers. This is done manually using a spreadsheet to generate the gas connection number sequentially, the unique distributor code supplied by the GIC of 'NG' was used and the algorithm made available by the Electricity Authority website is used to generate the check sum.

During the last audit it was tested whether the entry of an incorrect retailer code would be prevented by the registry system. It was confirmed that an invalid retailer code would be rejected by the system, but the accidental entry of a valid but incorrect code (i.e. another retailer's code instead the First Gas "NG" code) would be accepted. This was thought unlikely but possible. The resulting recommendation had been actioned since the last audit by hardcoding the 'NG' into the spreadsheet used to create the ICP identifier.

No incorrect NGCD codes were identified by the review of the creation of the ICP identifier. However, the VCTX ICPs included 11 where the ICP identifier included 'NG' or 'GN' in the identifier instead of 'VT'. However, these were all created in 2008 or 2009, so was not a reflection of the current First Gas process and they cannot now realistically be corrected. An alleged breach has therefore not been raised.

See appendix B for details.

### **Rule 43.1 and 43.2**

These rules require that a distributor assign an ICP identifier for each consumer installation connected to its system. Each consumer installation must represent a single consumer installation that:

- may be isolated without affecting another consumer installation
- may have a single loss factor and network price category and
- has its gas volume measured directly by a single set of compliant metering equipment or indirectly by a method approved by the industry body

First Gas ensure there is a single customer for each installation by waiting on the acceptance of a quote for the connection, so ensuring there is a single entity accepting responsibility for paying for the connection.

Isolation is designed into every new service by the inclusion of a network valve and in any case all pipelines under 100 millimetres can be readily isolated by squeezing.

First Gas distribution does not provide any metering services, it only owns two ICP meters and does not plan to expand its portfolio. It accepts confirmation from the meter owner in the registry that metering has been connected to be confirmation that there is a single set of metering equipment complying with NZS5259. No additional verification is done as a part of the ICP creation process.

## **4.2 Creation of new ICPs (rule 51.2 and 51.3)**

First Gas as distributor have a new connections team split across Hamilton, Bell Block and Wellington.

The auditor reviewed a sample of new ICPs to see if First Gas had complied with the requirement to assign an ICP within 3 business days of receiving a request. The sample was all for NGCD ICPs created since the last audit in 2017. MAUI and VCTX had not created any new ICPs in recent years. First Gas considers the acceptance of a quote to be the 'request' for an ICP assignment. Of the sample of 41 ICPs reviewed all were done within 3 business days, most were set up on the same day.

Because the First Gas process is to wait for a signed contract before assigning the ICP, they are also able to set up the rest of the distributor parameters at the same time without waiting for the physical connection. The process envisaged by rule 51.2 (assigning an ICP), rule 51.3 (entering the ICP identifier, creation date, responsible distributor and the physical address) and rule 53.1 (entering the remaining parameters) are concatenated into one. Consequently, the ICP status moves directly to READY, skipping the NEW status. No further tests were therefore applied by the auditor regarding the 2 business day time requirements for action under rule 51.3 and 53.1.

The auditor did however verify that First Gas followed its own process by looking for any NGCD ICPs with a status of NEW, none were found.

### **Gas Gates**

The process for determining gas gates had not changed significantly since the last audit. The first step is to look up the relevant town on a list to identify the expected gas gate code or codes for that town or city. The relevant address is then looked up in GIS to identify the new connection and that connection is then followed upstream to identify the source gas gate.

During the last audit it was highlighted that in some areas, where it is possible for gas to be sourced from more than one gate within 'greater' gas gates, that the process could be more tightly defined to make it clear which addresses should be assigned to which gate, to ensure consistency. First Gas has done some mapping to define areas more clearly. The new connections team now look to check which specific gate the ICP address is closer to when determining gas gate, but there are still some areas, for example in central Hamilton, where it is not black and white which gas gate should be selected. First Gas plan to build a tool that would tell the connections team what the correct gas gate was for a given address without them having to make ad hoc decisions. This tool would be used for decisions about other registry fields as well.

**RECOMMENDATION:** That First Gas follow through on their plan to build a Power BI tool that brings together the information available in various systems that would enable their new connections team to determine the correct values for registry fields for new ICPs without moving between various systems and making ad hoc decisions.

A review of all ICPs created since 2018 identified some outliers with addresses that might not be associated with the registry gas gate. The list of outliers was further reviewed and 7 ICPs were identified as requiring a change of gas gate.

**ALLEGED BREACH:** 7 NGCD ICPs had been incorrectly assigned to the wrong gas gate (rule 58.1)

See appendix B for details.

### **Load shedding**

The on-site review of processes included the process for deciding the load shedding category. This is done using the information in Maximo about appliances and proposed load from the initial connection information. It is done at the same time as deciding the pricing category and the two should be aligned. First Gas had developed an Excel based tool to assist with this process.

During the sample check of new ICPs created since the last audit no errors in load shedding category were identified.

The load shedding category of First Gas ICPs created since the last audit were compared with tariff codes to look for unlikely pairings. Four ICPs were identified for further review and of these three had their load shedding categories corrected and one its tariff code corrected.

The load shedding category of First Gas ICPs on the registry was also compared with the allocation group, to look for invalid or unlikely combinations for ICPs created in 2018 or later. 129 were identified for further review. The last 3 years of consumption was reviewed and 58 were found to require updates to the registry.

**ALLEGED BREACH:** 61 NGCD ICPs created in 2018 or later were found to have incorrect load shedding categories, 3 as a result of the comparison with the tariff codes and 58 from comparison with their allocation group (r58.1)

**ALLEGED BREACH:** 1 recently created NGCD ICP was found to have the wrong network code (r58.1)

See appendix B for further detail.

### **Altitude**

First Gas use Elevationmap.net to determine the correct altitude for the registry, after first taking care to confirm the address details. They use Google Earth to verify this.

A review of ICPs created in 2018 or later looked for altitudes that were outliers compared to other ICPs at the same gate. Three were identified and checked and the altitude of two of these were revised as a consequence. An additional sample check of ICPs while on site found no other issues.

**ALLEGED BREACH:** 2 NGCD ICPs created since 2018 were found to have incorrect altitudes (r58.1)

See appendix B for details

### **Network pressure**

The rules governing ICP parameters as maintained by the distributors describe network pressure as “the value of the nominal operating pressure, expressed numerically in kilopascals, of the distribution system or transmission system to which the ICP’s consumer installation is connected”.

During the on-site audit the process for deciding the network pressure was reviewed, it was unchanged since the last audit. This is done by finding the address on the GIS system, identifying which pipeline supplies the ICP and reviewing the associated asset information. The most common rating is MP4 pipeline, which has a nominal pressure of 400 kPa. The trend was to move to more 100 and 200 kPa pipelines.

A review of ICPs created in 2018 or later identified a list of 58 outliers where the network pressure on the registry differed from the other ICPs at the same gas gate. These were further reviewed and 3 needed a correction to be made.

**ALLEGED BREACH:** 3 NGCD ICPs created since 2018 were found to have incorrect network pressures recorded on the registry (r58.1)

Further detail can be found in appendix B.

A sample of new ICPs were also reviewed on site, but no issues arose.

## **Network Pricing Category**

The process for deciding network pricing category is done alongside the decision about load shedding, as described in that section above. The general sample of new ICPs did not find any issues with price codes. The review of new ICP load shedding categories against pricing categories did identify 1 ICP with the wrong pricing code. This alleged breach has already been detailed.

### **4.3 Maintenance of ICP in the registry**

During the last audit First Gas acknowledged it did not yet have routine processes for checking data quality in the registry or for maintaining data that could change. Changes were only made in response to a retailer request or as a result of an annual review of network price codes. It was therefore recommended that First Gas initiate regular processes for identifying and rectifying data quality issues in their registry data.

First Gas as NGCD had now done this and were routinely running data quality checks to ensure registry fields such as gas gate and network pressure were accurate but were still keen to improve the process further. They had started to build a Power BI tool which pulls in data from a cube which in turn pulls in data from a variety of systems including the registry, OATIS, and the finance system. They hoped to add an overlay of GIS. The tool would be able to review altitude, allocation group, load shedding, network pressure and gas gate.

This was still a 'work in progress'. For example, during the audit it was identified that the allocation groups it was pulling in did not consistently reflect the registry field; the consumption being pulled through was the total for the ICP and an 'annual consumption' field would need to be added.

**RECOMMENDATION:** That First Gas continue to develop their Power BI tool to assist with their on-going review of registry data quality and maintenance

During the last audit it was also acknowledged that First Gas didn't have a routine decommissioning process. First Gas as NGCD has now initiated a process for decommissioning ICPs. They currently have 2,423 with a status of DECR with 1,016 having been decommissioned in the last 60 months. They use MAXIMO to action customer or retailer requests for decommissioning. They were however encountering an issue where a large number of ICPs had a status of INACT (i.e. inactive transitional), currently 13,205. As distributor they could not progress these to DECR until retailers had changed them to INACP (i.e. inactive permanent). They were finding it difficult to make more progress on this as retailers were not taking the required actions.

**OBSERVATION:** There are a large number of ICPs in the registry where the retailer has the status designated as inactive temporary, which prevents ICPs from being decommissioned. Many of these are likely to be inactive permanent.

First Gas use the registry as their primary repository of ICP information so checks for consistency between the registry and a First Gas system were not relevant.

As a part of the audit a sample of established NGCD ICPs were reviewed to assess the accuracy of the distributor fields.

**ALLEGED BREACH:** A review of a small sample of established ICPs identified 2 NGCD ICPs with incorrect addresses and 1 NGCD ICP with an incorrect load shedding category. (r58.1)

See appendix B for further details

No other issues were found.

The sample of established ICPs also included a few VCTX and MAUI ICPs. Some of these were found to have inaccurate network pressure and altitude fields.

**ALLEGED BREACH:** Out of a sample of 6 established transmission ICPs 5 were found to have inaccurate network pressure and 3 significantly inaccurate altitude entries in the registry, all VCTX (r58.1)

See appendix B for the relevant detail.

As a consequence of this review it was thought likely that other VCTX and MAUI ICPs had inaccurate registry fields. First Gas does not have a process of regular review for its VCTX/MAUI registry entries. It was thought these would have been set up by the previous business owners and not reviewed since. However, these registry inaccuracies would not have impacted on the accuracy of data energy conversion. The ICPs were unallocated gas gates with TOU meters and correctors. First Gas supplied metering data managed by its IMV system to the relevant participants via OATIS and their process had no dependency on registry information.

The IMV system had been audited separately as a part of the system change audit already completed on First Gas as transmission system owner. IMV does not use or have any dependency on registry information.

First Gas supplied the following comment with regard to the VCTX/MAUI registry data:

*We haven't had a process for double checking that information on the registry is correct for our ICPs. I note that a lot of effort went into making sure that the information that IMV uses for energy conversion is correct. The outputs of the IMV system and the data validation checks are published on Oatis, and these values are used as inputs to the allocation process (for shared delivery points) and as consumption data for directly-connected consumers. We do not believe that there has been any market impact of incorrect ICP data on the registry. Nevertheless, we intend to update the registry information with the information used by the IMV system, to ensure that the registry data are correct.*

**RECOMMENDATION:** That First Gas do a review of registry data for all ICPs that have VCTX or MAUI as distributor

### **Gas Gates**

First Gas as NGCD explained that a recent data cleanse had identified some ICPs that had been associated to the incorrect gas gate, some Morrinsville ICPs had been associated to the single site Morrinsville Dairy Factory code rather than the allocated Morrinsville gas gate. This had been rectified immediately prior to the audit and was an example of the maintenance work being done on registry data.

**ALLEGED BREACH:** 9 ICPs had been found associated to the Morrinsville dairy factory instead of MRV16302 for Morrinsville town. These were corrected immediately prior to the audit visit. (r58.1)

See appendix B for further detail.

No further issues were found with the maintenance of registry fields.

#### 4.4 Notices of gas gate creation/decommissioning

Rule 45 requires that distributors notify the GIC, registry and allocation agent 20 business days prior to a gas gate creation or decommissioning taking effect.

There had been one new gas gate created since the last audit, Waiuku with a start date of 7 June 2019. First Gas supplied a copy of the e-mail notifying this change to the relevant parties more than 20 business days prior to the start date.

The VCTX direct connect gas gate ICP 1001142883VTFC0 OKW23401 (Okaiawa) had been decommissioned but the status had not been changed in the registry, it was still shown as active. First Gas have now decommissioned this in the registry.

**ALLEGED BREACH:** Incorrect status for VCTX ICP 1001142883VTFC0 OKW23401 (Okaiawa), still shown as active on the registry after decommissioning. The retailer is Nova gas (GNVG) (r58.1)

#### 4.5 Publishing of network price category codes

It was confirmed that the NGCD price category codes are published on the First Gas website. This was viewed on 18 March 2021 and the prices from 1 October 2020 were available.

This check was not relevant for VCTX/MAUI

#### 4.6 Disclosure of ICP information

No instances of information being withheld under rule 50 have occurred.

#### 4.7 Loss factor codes

First Gas do not currently operate any loss factors.

### 5. Obligations as Meter Owner

First Gas is the responsible meter owner for 38 meters in the gas registry under 3 different codes (VCTX, MAUI and FGDM), they are all TOU.

First Gas as FGDM is the meter owner for two active ICPs and has no intention of increasing its portfolio. MAUI has one meter and the remainder are VCTX meters.

The main focus of this audit was therefore the distributor audit, and with respect to the meter owner aspect the emphasis was placed on the transmission business processes of VCTX and MAUI.

First Gas as FGDM meter owner receive data from their meters via telemetry and send it on directly to the retailer as a CSV file without any conversion or other manipulation. It was confirmed that the data received was the same as the data sent on.

First Gas as MAUI and VCTX process metering data using their IMV system and make data for all the ICPs that are direct connects to the transmission system available via OATIS. The few meters it owns that do not connect directly to transmission are still managed via their IMV system, but



are sent on via email instead of being supplied via OATIS. As the IMV system has been reviewed recently via a separate audit that work was not repeated as a part of this audit.

No issues were found for MAUI, VCTX or FGDM as meter owner with regard to data accuracy.

## 5.1 Compliance with NZS5259

To establish if First Gas as meter owner was compliant with the requirements of NZS5259 with respect to its GMS operation, maintenance, testing and accuracy the auditor requested documentation for a sample of ICPs, a copy of the recent meter maintenance programme and copies of recent 'as found' test results.

It was noted that for the transmission part of the business compliance with the transmission metering requirements was the focus, rather than NZS5259, but nonetheless, as the overall objectives of the metering requirements and NZS5259 were aligned this was not thought to be incompatible.

**OBSERVATION:** To date the First Gas transmission business, with respect to metering compliance, have focused on complying with the transmission metering requirements. Their responsibility of compliance with NZS5259 resulting from their responsibilities as meter owner registry participants had not been a focus. As a result of this audit they are now aware of this responsibility.

### 5.1.2 Documentation

NZS 5259 requires documentation be kept to demonstrate conformance with the requirements of the standard. The documentation requirements can be summarised as follows:

NZS5259 section 2 sets out performance requirements.

- Records shall be kept of the suitability of the GMS components for the life of the asset (NZS5259 2.8.2)
- Documentation shall be kept of the acceptance testing, installation, operating conditions, and maintenance of the GMS components for the duration of its service (NZS5259 2.8.3)

NZS5259 section 3 provides a means of compliance. Alternative methods for establishing compliance with the section 2 requirements may be used provided they are tested and documented.

- Records shall be kept to monitor the performance and maintenance of each GMS component, for at least the life of each component and shall include the results of all acceptance and as-found tests and the date and details of all maintenance. (NZS 5259 3.7.1)
- Records shall be kept for each complete GMS detailing all inspections, maintenance and changes to the components and shall include the identity, location and date of installation of each installed component, maintenance test results and the scheduled dates for the next maintenance, test or replacement. (NZS5259 3.7.2)
- Procedures for selection, installation and maintenance of GMSs shall be documented. (NZS 5259 3.7.3)

First Gas as FGDM demonstrated that their selected metering equipment for both their 2 ICPs was effective within the MPEs of NZS5259 for the flow conditions of the site and provided evidence of testing and maintenance.

First Gas as VCTX/MAUI made available records of the last 6 months of meter maintenance work and the last 4 months of meter testing activity to demonstrate their programme of work for ensuring the effectiveness of their metering compliance programme.

A sample of VCTX/MAUI meter owner ICPs were selected for further examination. All were demonstrated as being designed for appropriate accuracy for the Qmax and Qmin flows at the relevant sites. It was however noted that First Gas don't routinely check after installation whether the flows on site have significantly changed after initial installation. It is therefore possible that a meter could start to operate outside of the expected MPE if the ICP has significantly changed its usage outside of the Qmax, Qmin of the meter.

**RECOMMENDATION:** That First Gas (VCTX and MAUI as meter owner) introduce a routine check to confirm that the actual flow of gas at an ICP continues to be within the acceptable Qmin Qmax of the meter to ensure on-going accuracy within the maximum permissible error.

### 5.1.3 Operation and maintenance

First Gas as FGDM meter owner have a preventative maintenance plan, managed through Maximo, which involves a field team visit to site every 6 months.

First Gas as VCTX/MAUI have a routine maintenance programme. Meters are routinely rotated every 2 years, more often if a problem arises. For sites with 2 meters a series prove is done on site every 3 months. Sites with correctors have the corrector checked every 6 months and flow computers are checked annually.

Where First Gas has ultrasonic meters, they download an inspection report once a month and view the diagnostic information to ensure that the computed speed of sound is approximately the same as the metered speed of sound. They also confirm that the profile factor (the expected difference between the outer and inner sensors) is as expected. If they are not this is likely to be because of a build-up of dirt.

First Gas provided their log of the last 6 months of maintenance activity as evidence of their maintenance programme.

The auditor was also provided with instrumentation diagrams and as relevant, series prove records, corrector checks, upgraded metering specifications and maintenance logs for the sample of meters selected for review.

### 5.1.4 Testing

First Gas provided details of all testing done in the last 4 months as evidence of routine testing activity. They also provided the most recent measurement laboratory certificate of calibration for the sample of ICPs selected for review.

First Gas also provided a copy of their metering volume conversion accuracy verification procedure. This includes periodic testing of gas measurement equipment at the point of measurement by direct comparison with reference equipment and processes which indirectly measure the equipment performance.

The procedure covers the taking of meter readings (the frequency, the information to be included and the recording of the information); BVI verification; CFi verification; primary flow signal integrity verification; verification of pressure and temperature transmitters.

No issues arose with regard to the suitability, maintenance or testing of the First Gas meters for any of their 3 participant codes.

## 5.2 Provision of metering price codes

First Gas does not have any metering price codes loaded into the gas registry (VCTX, MAUI and FGDM all checked 23/3/21), they are all marked as 'DOA'. FGDM do charge for their two meters but the charges are bespoke and are disclosed to the relevant retailers.

This requirement was not applicable to VCTX/MAUI as they do not charge for any meters.

## 5.3 Disclosure of ICP information

No instances of information being withheld under rule 50 have occurred.

## 5.4 Registry information for new ICPs

First Gas as FGDM is the meter owner for two active ICPs and has no intention of increasing its portfolio, both are TOU. Both ICPs had been created since the last audit so the meter owner registry entries were viewed and confirmed as accurate and having been entered within 2 business days of installation.

VCTX and MAUI was not the meter owner for any recently created ICPs.

## 5.5 Maintenance of ICP information

FGDM's entries for its 2 meters were confirmed as still being accurate.

As mentioned in the Distributor section of this report, First Gas as VCTX and MAUI has not placed any emphasis on maintaining accuracy of data in the gas registry. As all of its meters are TOU the registry data isn't critical for energy conversion and the First Gas IMV metering data management system does not make use of any gas registry fields.

However, as a part of this audit the registry data was reviewed.

It was understood that the VCTX/MAUI meter owner ICPs were unallocated and directly connected to the transmission system. To test this the responsible distributor code for this data set was examined. 5 were found to have 'NGCD' and one 'POCO' as the responsible distributor code, not VCTX/MAUI. These were therefore further reviewed. All had unusual, complex asset management scenarios where transmission and distribution assets were closely entwined, but the responsible distributor was considered accurate.

It was also noticed that 1 ICP had the wrong ICP type code. This was a legacy issue since the original set up and has now been corrected.

**ALLEGED BREACH:** VCTX has the incorrect ICP type code for 1 ICP (r58.1)

As the VCTX/MAUI meters are TOU the registry fields of meter pressure, number of digits and register multiplier are not applicable.

## 6 Breach Allegations

All breach allegations are made under the Gas (Switching Arrangements) Rules 2008 unless otherwise stated.

Section	Summary of issue	Rules potentially breached
3.1	Participant registry information was out of date for all four participant codes	r10.1.1
4.2	7 recently created NGCD ICPs had been incorrectly assigned to the wrong gas gate	r58.1
4.2	A review of recently created NGCD ICPs found: <ul style="list-style-type: none"> <li>• 61 were found to have the incorrect load shedding category when compared to their tariff code or allocation group</li> <li>• 1 was found to have the wrong tariff code</li> <li>• 2 were found to have incorrect altitudes</li> <li>• 3 were found to have incorrect network pressures</li> </ul>	r58.1
4.3	A review of a sample of established NGCD ICPs identified: <ul style="list-style-type: none"> <li>• 2 with incorrect addresses</li> <li>• 1 with an incorrect load shedding category</li> </ul>	r58.1
4.3	Out of a sample of 6 established transmission ICPs (all VCTX): <ul style="list-style-type: none"> <li>• 5 were found to have inaccurate network pressure</li> <li>• 3 had significantly inaccurate altitude entries</li> </ul>	r58.1
4.3	9 ICPs had been found associated to the Morrinsville dairy factory instead of MRV16302 for Morrinsville town. These were corrected immediately prior to the audit visit	r58.1
4.4	Incorrect status for VCTX ICP 1001142883VTFC0 OKW23401 (Okaiawa), still shown as active on the registry after decommissioning. The retailer is Nova Gas (GNVG)	r58.1
5.5	VCTX has the incorrect ICP type code for 1 ICP	r58.1

## 7 Conclusion

The summary of report findings shows that the First Gas control environment, for the 15 areas evaluated, was found to be “effective” for 9 areas; “effective” for NGCD and “not adequate” for VCTX/MAUI for 1 area; “not adequate” for 1 area for all 4 participant codes and not applicable for 4 areas.

8 breach allegations are made in relation to First Gas regarding the non-compliant areas and are summarised in the table above. The following observations and recommendations were also made:

**RECOMMENDATION:** That First Gas follow through on their plan to build a Power BI tool that brings together the information available in various systems that would enable their new connections team to determine the correct values for registry fields for new ICPs without moving between various systems and making ad hoc decisions. This would also assist with their on-going review of registry data quality and maintenance.

**OBSERVATION:** There are a large number of ICPs in the registry where the retailer has the status designated as inactive temporary, which prevents ICPs from being decommissioned. Many of these are likely to be inactive permanent.

**RECOMMENDATION:** That First Gas do a review of registry data for all ICPs that have VCTX or MAUI as distributor

**OBSERVATION:** To date the First Gas transmission business, with respect to metering compliance, have focused on complying with the transmission metering requirements. Their responsibility of compliance with NZS5259 resulting from their responsibilities as meter owner registry participants had not been a focus. As a result of this audit they are now aware of this responsibility.

**RECOMMENDATION:** That First Gas (VCTX and MAUI as meter owner) introduce a routine check to confirm that the actual flow of gas at an ICP continues to be within the acceptable Qmin Qmax of the meter to ensure on-going accuracy within the maximum permissible error.

## Appendix A – Control Rating Definitions

<b>Control Rating</b>	<b>Definition</b>
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 B – Alleged Breach Details

### Assignment of ICPs (section 4.1)

VCTX ICPs where the ICP identifier does not include the correct 'VT' code.

<b>ICP Identifier</b>	<b>ICP Creation Date</b>	<b>Original Commissioning Event Date</b>	<b>Responsible Distributor code</b>
0000012325GNA15	1/09/2008	1/09/2008	VCTX
0001014051NG440	1/09/2008	1/09/2008	VCTX
0001032600NGA06	1/10/2009	1/10/2009	VCTX
0008000031NG6BE	1/09/2008	1/09/2008	VCTX
0008000046NGE29	1/09/2008	1/09/2008	VCTX
0008000071NG41B	1/09/2008	1/09/2008	VCTX
0008000090NG2E4	1/09/2008	1/09/2008	VCTX
0008000091NGEA1	1/09/2008	1/09/2008	VCTX
0008000121NG517	1/09/2008	1/09/2008	VCTX
0008000192NGB65	1/09/2008	1/09/2008	VCTX
0008000234NG1F6	1/09/2008		VCTX

### Gas Gates (section 4.2)

<b>ICP</b>	<b>Gas Gate from Audit</b>	<b>Findings</b>
1001300074NGAC0	TRG07701	Updated; should be HTV11301
1001299155NGDDC	TAU07001	Updated; should be TRG07701
1001299989NG38D	ROT08101	Updated; should be HTV11301
1001298262NG54D	KAW04405	Updated; should be HTK08301
1001299242NG9B8	KAW04405	Updated; should be HTK08301
1001298408NGE2A	CAM17201	Updated; should be HTV11301
1001299567NG6A0	HTK08301	Updated; should be MMU08001

### Load Shedding

Mismatch between load shedding category and tariff codes were revised as follows:

ICP		Load Shed Category	Tariff Code
1001297269NG2F9	GENG	4 - updated to DOM	GN0R
1001296127NG164	GENG	6 - updated to 4	GN03
1001297063NGA6F	TRUS	6 - updated to 4	GN03
1001297765NG4E2	CTCT	DOM	GN03 - updated to GN0R

ICP	Registry Load Shed Category	Correct Load Shed Category
1001295818NG2AB	4	6
1001296139NG852	4	3
1001296225NG2E2	6	4
1001296226NGE22	6	4
1001296228NGDB9	4	6
1001296377NG36B	6	4
1001296655NGBBE	4	6
1001296797NG5D0	4	6
1001296902NG173	6	4
1001297050NG157	6	4
1001297063NGA6F	6	4
1001297326NG686	6	4
1001297565NGEE5	4	6
1001297566NG225	4	6
1001297568NG1BE	4	6
1001297585NG45F	6	4
1001297713NG030	4	6
1001297786NG298	4	6
1001297787NGEDD	4	6
1001297820NG407	4	6
1001297885NG157	4	6
1001297905NGD19	4	6
1001297916NGB74	4	6
1001297960NGFA6	6	4
1001298001NGC7A	4	6
1001298002NG0BA	4	6
1001298008NG22B	4	6
1001298053NG4F7	4	6
1001298131NG286	4	6
1001298208NG82C	4	6
1001298222NG7E8	4	6
1001298342NG11C	4	6



1001298470NG963	4	6
1001298471NG526	4	6
1001298472NG9E6	4	6
1001298681NGF36	4	6
1001298724NG362	4	6
1001298805NGD7D	4	6
1001298929NGA32	4	6
1001298961NGA83	4	6
1001299052NG912	4	6
1001299292NG4FA	4	6
1001299478NGAD7	4	6
1001299541NGA7A	4	6
1001299713NG8F0	4	6
1001299768NG379	4	6
1001299769NGF3C	4	6
1001299770NGBC0	4	6
1001299817NG6F5	4	6
1001299855NG4D5	4	6
1001299895NG33A	4	6
1001299917NGFF1	4	6
1001299993NGBB1	4	6
1001300078NG9DE	4	6
1001300134NG161	4	6
1001300184NG3D3	4	6
1001300215NG372	4	6

### Altitudes

ICP	Original Altitude	Corrected Altitude
1001300329NGE90	<u>400</u>	<u>44</u>
1001300101NGBD6	<u>400</u>	<u>29</u>

### Network Pressure

ICP	Original network pressure	Corrected network pressure
1001299852NG91F	500	80
1001299853NG55A	500	80
1001299265NG927	40	400

Sample review of established NGCD ICPs (section 4.3)

- ICP 0003062505NGA4C – we couldn’t find 86 School Rd when we were searching yesterday, it looks like the street name has changed to Horotiu Bridge Rd. I ran the ICP through GIS to get the location. It looks like the number is 84 Horotiu Bridge Rd and not 86 School Rd. Will get this amended.
- ICP 0001003007NG146 – we couldn’t find 76 Calypso Drive in our search yesterday. It looks like the ICP is actually associated with 74 Calypso Drive. Will get this changed in the Registry.
- ICP 0001006104NG3A2 – I needed to check the Load Shed Cat was correct. I ran a consumption report and found that the average consumption over the past four years (covid year included) was 309 GJ which moves this up to LS category 4. Will get this amended in the registry.

Sample review of established VCTX/MAUI ICPs in the registry

<b>ICP Identifier</b>	<b>ICP Creation Date</b>	<b>Responsible Distributor code</b>	<b>Gas Gate Code</b>	<b>registry network pressure</b>	<b>correct network pressure</b>
0008000031NG6BE	1/09/2008	VCTX	TAT16401	2000	550
0008000090NG2E4	1/09/2008	VCTX	KUR33601	2000	360
1001143525VT2F8	1/09/2008	VCTX	BAL09626	400	3150
1001290782VTF2F	1/05/2016	VCTX	LCF20011	4500	720
1001271264VTDC2	7/10/2013	VCTX	STR00511	2000	4500

<b>ICP Identifier</b>	<b>ICP Creation Date</b>	<b>Responsible Distributor code</b>	<b>Gas Gate Code</b>	<b>registry altitude</b>	<b>correct altitude</b>
0008000090NG2E4	1/09/2008	VCTX	KUR33601	10	141
1001143525VT2F8	1/09/2008	VCTX	BAL09626	280	180
1001290782VTF2F	1/05/2016	VCTX	LCF20011	160	244

Maintenance of gas gates NGCD

The following ICPs were associated with Morrinsville dairy factory instead of MRV16302.

- 1001300258NGE8C
- 1001300325NGD8E
- 1001300326NG14E
- 1001300327NGD0B
- 1001299833NGAAA
- 1001299835NGB25
- 1001299949NG462
- 1001299950NG09E
- 1001300101NGBD6

Maintenance of registry (section 5.1)

It was also noticed that 1 ICP had the wrong ICP type code

ICP	Responsible Distributor	Current ICP type code	Correct ICP type code	Gas Gate
1001290782VTF2F	VCTX	GN	GD	LCF20011