# Gas Downstream Reconciliation and Switching Arrangements Performance Audit Final Report

For

## Powerco Limited as distributor and meter owner

Prepared by: Tara Gannon

Date of Audit: 23-24 October 2024

Date Audit Report Complete: 29 November 2024

# Executive Summary

This Performance Audit was conducted at the request of the Gas Industry Company (GIC) in accordance with Rule 88 of the Gas (Switching Arrangements) Rules 2008 (GSAR) and rule 65 of the Gas (Downstream Reconciliation) Rules (GDRR), both in effect from 14 September 2015.

The purpose of this audit is to assess the systems, processes, and performance of Powerco Limited (Powerco) 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: the commissioning and carrying out of performance audits and event audits, V3.0" which was published by GIC in June 2013.

Powerco continues to have a high level of compliance, and all previous audit recommendations have been adopted. Compliance is built into Powerco's standards, policies and procedures, which are well understood and closely followed by their team members.

There are good validation processes in place, and I saw evidence that exceptions are promptly identified and corrected, and where new or better information becomes available (such as updated address details) Powerco's systems and the registry are updated. Powerco's validations cover all required fields, and the checks completed for each field type are reasonable.

Overall, Powerco's registry data was on time and there was a high degree of accuracy. Some isolated data accuracy errors were identified, and I found the majority of the errors were created prior to the current audit period; and the data recorded in CWMS and the registry matched. Most of the errors had an insignificant or minor impact, but some affecting pricing had a moderate impact on retailers, and their customers and some affecting network pressure resulted in temperature factors outside the maximum permissible error set out in NZS 5259.

CWMS does not date range all fields which are also recorded on the registry, and Powerco has work arounds in place to ensure dates are correctly recorded in update files before being sent to the registry. These are operating effectively, and the only updates found to be sent with incorrect dates were identified and corrected through Powerco's validation processes.

One alleged breach is recorded for late distributor information, and eight breach allegations are relating to data accuracy exceptions (six as a distributor and two as a meter owner).

Two recommendations are made. One to liaise with the retailer for ICP 0002043581QT61E to determine whether it can be decommissioned for consistency with its gas gate status, now that MGK05401 (Mangatainoka) has been decommissioned. The other is to refine the focus for Powerco's network pressure validations, to target ICPs which have a higher likelihood of an inaccurate network pressure.

Powerco is motivated to check and correct the exceptions identified, and a number of corrections have already been processed.

## Summary of Report Findings

| Issue | Section | Control Rating (Refer to Appendix 1 for definitions) | Compliance Rating | Comments |
|---|---|---|---|---|
| **General** | | | | |
| Participant registration information | 2.1 | Effective | Compliant | Powerco's participant registration information is current and accurate. |
| Obligation to act reasonably | 2.2 | Effective | Compliant | Processes for managing queries and complaints about Registry information were reviewed, and no examples of Powerco acting unreasonably were found. |
| Obligation to use registry software competently | 2.3 | Effective | Compliant | Powerco is compliant with the requirements of r35. |
| **Distributor** | | | | |
| ICP creation | 3.1 | Effective | Compliant | Powerco's new connection process is compliant. |
| ICP assignment | 3.2 | Effective | Compliant | Powerco's new connection process is compliant. |
| Registry information management | 3.3 | Acceptable | Not compliant | Controls over timeliness of registry updates are effective, with only one late pricing update confirmed.<br>Controls over the accuracy of information are adequate. Some ICPs had incorrect network pressures, altitudes, addresses, load shedding categories or |

| Issue | Section | Control Rating (Refer to Appendix 1 for definitions) | Compliance Rating | Comments |
|---|---|---|---|---|
| | | | | pricing categories. Exceptions were isolated and mostly created prior to this audit period, and most differences had a low impact. |
| Creation and decommissioning of gas gates | 3.4 | Effective | Compliant | MGK05401 (Mangatainoka) was decommissioned effective from 13 December 2023 and notice was provided on 29 August 2023 as required by the rules. |
| Management of network price category codes | 3.5 | Effective | Compliant | Powerco's network price category codes are recorded on the registry and no price category code additions, deletions or changes have occurred since 2009. Charges are published on Powerco's website, except where pricing is disclosed on application under The Gas (Switching Arrangements) Rules 2008 r50. |
| Disclosure on application | 3.6 | Effective | Compliant | Powerco had a portal for price enquiries and all requests sampled were responded to on time. |
| Management of loss factor codes | 3.7 | Effective | Compliant | Powerco are aware of the notification requirements. No loss factor code additions, deletions or changes have occurred since 2009. |
| **Meter owner** | | | | |
| Compliance with NZS 5259 | 4.1 | Effective | Compliant | Powerco's processes are designed to be compliant with the requirements of NZS 5259, and are consistently followed. |
| Provision of metering price codes | 4.2 | Effective | Compliant | Powerco supplied a copy of their meter pricing schedule, which is sent to all retailers as part of the yearly pricing updates and is also available on request. |

| Issue | Section | Control Rating<br>(Refer to Appendix 1 for definitions) | Compliance Rating | Comments |
|---|---|---|---|---|
| Disclosure on application | 4.3 | Effective | Compliant | Powerco had a portal for price enquiries and all requests sampled were responded to on time. |
| Registry information for new ICPs | 4.4 | Effective | Compliant | Powerco's new connection process is compliant. |
| Management of ICP information | 4.5 | Acceptable | Not compliant | Controls over timeliness of registry updates are effective, and no late meter information updates were identified.<br>Controls over the accuracy of information are adequate. Some ICPs had incorrect pricing categories. Exceptions were isolated. |

## Persons Involved in This Audit

Auditor:

Tara Gannon

**Provera**

Powerco personnel assisting in this audit were:

| Name | Title |
|---|---|
| Bruce Monk | Principal Engineer Gas |
| Gavin Ward | Gas Metering Manager |
| Kelly Russell | Connections Team |
| Lee Hickmott | Customer Team |
| Liah Ula | Gas Customer Team Leader – Gas Hub |
| Lloyd Key | Program and Process |
| Lucas Oliveira Machado | Connections Team |
| Michael Grace | Gas Revenue and Pricing Manager |
| Michael Warren | Billing and Reconciliation Manager |
| Michelle Pepperell | Performance, Quality and Compliance Coordinator |
| Simon Hart | Network Connections Team Lead |
| Vikki Johnson | Connections Team |
| Vincent Cox | Internal Audit Manager |

Other personnel assisting in this audit were:

| Name | Title |
|---|---|
| Catherine Cooper | Gas Industry Company |

# Contents

# 1. Pre-Audit and Operational Infrastructure Information

## 1.1 Scope of Audit

This Performance Audit was conducted at the request of the Gas Industry Company (GIC) in accordance with Rule 65 of the Gas (Downstream Reconciliation) Rules 2008 effective from 14 September 2015. 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 GIC in June 2013.

The audit was completed remotely using Microsoft Teams between 23 and 24 October 2024.

## 1.2 Audit Approach

As mentioned in **section 1.1** the purpose of this audit is to assess the performance of Powerco 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 Powerco 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 Powerco'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-conformance 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

The previous audit was completed in 2021 by Julie Langford of Langford Consulting. The table below describes the issues found during the audit and whether they have been resolved.

| Breach Allegation | Rule | Section in this report | Resolution |
|---|---|---|---|
| **Breach notice 2022-016**<br>Of 62 new connections reviewed, two were found not to have had an ICP identifier assigned within three business days and the retailer not to have been informed. | GSAR 51.2 | 4.2 | The Market Administrator determined the breach not to be material.<br>**Compliance was found during this audit**<br>All new connections sampled had ICPs created within three business days. |
| **Breach notice 2022-017**<br>Six new ICPs had been incorrectly assigned to the wrong gas gate. | GSAR 58.1 | 4.2 | The breach is still being considered by the Market Administrator.<br>**Further non-conformance was found during this audit**<br>One new ICP was found to have initially been assigned an incorrect gas gate, but compliance is recorded because the error was detected and corrected through Powerco's validation process prior to the audit. |
| **Breach notice 2022-018**<br>134 ICPs were in the wrong load shedding categories, including some categorised as domestic that appear to be commercial. | GSAR 58.1 | 4.3 | The Market Administrator determined the breach not to be material.<br>**Further non-conformance was found during this audit**<br>ICP 001842361QTBB8 (load shedding category 4) had its consumption increase to over 10,000 GJ per annum recently. High consumption is expected to continue, and its load shedding category should be updated. |
| **Breach notice 2022-019**<br>6 ICPs were found to have incorrect altitudes and/or addresses. | GSAR 58.1 | 4.3 | The Market Administrator determined the breach not to be material.<br>**Further non-conformance was found during this audit**<br>ICPs 0004224795NG001 and ICP 1000597801PGADD had incorrect altitudes recorded and the difference in the altitude factor was within the maximum permissible errors set out in NZS 5259.<br>ICP 0004213254NGBE2 had an incorrect street address number and ICP 1000545255PG6C4 |

| Breach Allegation | Rule | Section in this report | Resolution |
|---|---|---|---|
| | | | had no property name or street number, and both were corrected during the audit. |
| **Breach notice 2022-020**<br>16 ICPs were found to have incorrect network pressure. | GSAR 58.1 | 4.3 | The Market Administrator determined the breach not to be material.<br>**Further non-conformance was found during this audit**<br>156/229 ICPs with network pressures assigned to less than 5% of ICPs connected to the gate had incorrect network pressure values. The impact is moderate because the difference would cause 18 of the ICPs to have their temperature factor overstated. The correct temperature factor would be 1.47% lower than the applied factor. |
| **Breach notice 2022-021**<br>The statistical sampling of their smaller meters required by NZS5259, has been suspended. | GDRR 27.1 | 5.1 | The breach is still being considered by the Market Administrator.<br>**Compliance was found during this audit**<br>Statistical sampling has been resumed and the process is compliant. |
| **Breach notice 2022-022**<br>Powerco had incorrectly shown a meter as removed in the registry. | GSAR 58.1 | 5.5 | The Market Administrator determined the breach not to be material.<br>**Further non-conformance was found during this audit**<br>ICP 1000516721PG602 has a xG11 residential price code applied and an MT140 meter with capacity of 85-140 SCMH. The meter is less than 10 SCMH and the price category has been corrected in consultation with the retailer.<br>Three ICPs had MT10S smart meter codes without a smart meter owner populated, because an incorrect meter make and model was recorded in CWMS. The affected ICPs have been corrected and the correct advanced meter owner is now recorded in the registry. |

The table below shows the recommendations made during the previous audit have been adopted.

| Section in this report | Recommendation | Status |
|---|---|---|
| 3.3 | That Powerco improve the integrity checks in their tool for reviewing load shedding categories, particularly with regard to ensuring the DOM code is used accurately. | **Adopted.** Annually the network connections team reviews load shedding category codes 3, 4 and 6 for consistency with the volumes recorded on the retailer's network submissions, their network pricing category, and property name. ICPs with a domestic load shedding category and commercial pricing are checked to ensure that the category is valid (e.g., an apartment building). ICPs with non domestic load shedding categories and their property names are scanned through to identify any potentially domestic ICPs.<br>Proposed changes are checked with the retailer for the ICP before the change is made. |
| 4.1.1 | That Powerco considers how it stores documentation to demonstrate compliance with NZS 5259. | **Adopted.** Work required to ensure compliance with NZS 5259 is well managed using SalesForce, Blueworks and SAP. Documentation was available for all ICPs sampled during this audit. |
| 4.1.2 | That Powerco consider how they record retailer metering queries. The logging of these in one central place would enable monitoring, to assure them of timely responses and to help identify emerging trends/issues. | **Adopted.** Metering queries are appropriately tracked and monitored. |

The table below shows the observation made during the previous audit has been resolved.

| Section | Observation | Status |
|---|---|---|
| 4.1 | Powerco have suspended the statistical sampling of smaller meters as required by NZS 5259, given the expected rollout of smart meters in 2022. If there is any significant delay to the smart metering project this suspension will need to be reconsidered. | **Resolved.** I confirmed that statistical sampling has resumed from 2022 with the roll out of AMI meters, and all meters with expired certifications are eventually expected to be replaced as part of the roll out. |

## 1.3.2 Breach Allegations

The only breach allegations during the audit period related to the findings of the audit completed in 2021 by Julie Langford of Langford Consulting. The breaches and their current statuses are listed in **section 1.3.1**.

As noted in the Summary of Report Findings, this audit recorded non-conformance in two sections leading to nine breach allegations, as shown in the table below.

| Breach Allegation | Rule | Section in this report |
|---|---|---|
| 156/229 ICPs with network pressures assigned to less than 5% of ICPs connected to the gate had incorrect network pressure values. The impact is moderate because the difference would cause 18 of the ICPs to have their temperature factor overstated. The correct temperature factor would be 1.47% lower than the applied factor. Only five of the 156 exceptions were created during the audit period, and none of those were over the maximum permissible error in NZS 5259. | GSAR r58.1 | 3.3 |
| ICP 0004224795NG001 had an altitude of 20m recorded but should be 9m, and ICP 1000597801PGADD had an altitude of 36m recorded but should have 58m. Both exceptions are to be corrected and are within the maximum permissible errors set out in NZS 5259. | GSAR r58.1 | 3.3 |
| ICP 0004213254NGBE2 had an incorrect street address number and ICP 1000545255PG6C4 had no property name or street number, and both were corrected during the audit. | GSAR r58.1 | 3.3 |
| ICP 1000580413PG078 had an incorrect MHQ which was corrected to DOA during the audit. MHQ is not used for pricing and there was no impact. | GSAR r58.1 | 3.3 |
| ICP 001842361QTBB8 (load shedding category 4) had its consumption increase to over 10,000 GJ per annum recently. High consumption is expected to continue, and its load shedding category should be updated. | GSAR r58.1 | 3.3 |
| ICPs 0079000510PG5DB and 0089206250PG482 had xG18 price codes applied (for meters with capacities 140-200 SCMH) and meter price code MT60 for meters with capacities 25-60 SCMH. Powerco consulted with the retailer and corrected the price codes for both affected ICPs during the audit. | GSAR r58.1 | 3.3 |
| ICP 0004205921NGDDF's pricing change from 5G06 to 5G11 was processed late effective 4 October 2022 on 14 February 2023. | GSAR r61.1 | 3.3 |
| ICP 1000516721PG602 has a xG11 residential price code applied and an MT140 meter with capacity of 85-140 SCMH. The meter is less than 10 SCMH and the price category has been corrected in consultation with the retailer. | GSAR r58.1 | 4.5 |
| Three ICPs had MT10S smart meter codes without a smart meter owner populated, because an incorrect meter make and model was recorded in CWMS. The affected ICPs have been corrected and the correct advanced meter owner is now recorded in the registry. | GSAR r58.1 | 4.5 |

## 1.4 Provision of Information to the Auditor (Rule 69)

In conducting this audit, the auditor may request any information from Powerco, the industry body and any registry participant. Information was provided by Powerco in a timely manner in accordance with this rule.

## 1.5 Draft Audit Report Comments

A draft audit report was provided to the industry body (GIC), the allocation agent, and allocation participants that I considered had an interest in the report. In accordance with the Gas (Downstream Reconciliation) Rules 2008 r70.3 and the Gas (Switching Arrangements) Rules 2008 r93.2, those parties were given an opportunity to comment on the draft audit report and indicate whether they would like their comments attached as an appendix to the final audit report. The following responses were received:

| Party | Response | Comments provided | Included in report |
|---|---|---|---|
| Powerco | Yes | Yes | Yes, not required to be attached as an appendix. |

# 2. General obligations

## 2.1 Participant registration information

*The Gas (Switching Arrangements) Rules 2008 r7, 8 and 10 require participants to provide accurate registration information to the registry operator.*

Powerco's participant registration information is current and accurate.

## 2.2 Obligation to act reasonably

*The Gas (Switching Arrangements) Rules 2008 r34 requires participants to act reasonably in relation to its dealings with the registry and use its reasonable endeavours to co-operate with other registry participants.*

Processes for managing queries and complaints about Registry information were reviewed, and no examples of Powerco acting unreasonably were found.

## 2.3 Obligation to use registry software competently

*The Gas (Switching Arrangements) Rules 2008 r35 set out the requirements for use of the registry software.*

Powerco is compliant with the requirements of r35.

| Gas (Switching Arrangements) Rules 2008 rule | Commentary |
|---|---|
| **35.1** Registry software is used in a proper manner by competent employees or by persons under the supervision of those employees. | No examples of Powerco using Registry software incompetently were found. Access to modify Registry information is restricted and staff are appropriately trained. |
| **35.2** Only the registry operator to provide support services in respect of any software for the registry. | Powerco only uses Jade for Registry support services. |
| **35.3** There must be a nominated manager responsible for all of that registry participant's communications with the registry. | Powerco's participant registration information records a nominated manager for communications with the registry. |

# 3. Obligations as distributor

## 3.1 ICP creation (rules 5.2, 43.1 and 43.2)

*The Gas (Switching Arrangements) Rules 2008 r5.2 and 43 set out when ICPs are to be created, and the requirements for ICPs.*

**New connection process**

The new connection process helps to ensure compliance with the rules, and is documented in the table below.

| Process step | Process step description |
|---|---|
| Application receipt | Applications may be received from retailers, customers, gasfitters or developers. Retailers and some developers can load applications directly into CWMS via a linked form. Customers and their gasfitters complete a connection form which is emailed to Powerco. If a party other than the retailer has requested the new connection, they must nominate a retailer.<br><br>The application process collects information on the address, requested connection date and appliances to be installed which is used to determine the GMS, regulator, pressure and other ICP attributes. |
| Powerco acceptance | Received applications are referred as a website enquiry to Monday.com, which is a workflow platform. Applications are reviewed within 48 hours of receipt to check for completeness and accuracy, and any missing or potentially inaccurate information is queried with the requestor.<br><br>Powerco staff check the application in the GIS to determine whether the customer qualifies for a free connection or a quote is required, and whether there are any other existing connections at the same address. Larger connections are referred to the commercial, asset strategy and engineering teams for review to ensure that the maximum load and pressure requested can be supplied.<br><br>All new connections are required to have Powerco meters, and Powerco's Gas Operations Standards are used to determine the type of meter to be installed, and whether it is required to be individually designed by the metering team.<br><br>If Powerco accepts the new connection it will move to customer acceptance, otherwise the customer will be advised that the application has been declined (including the reason the application is declined). Applications are tracked in SalesForce using cases. |
| Customer acceptance | A quote (or confirmation that a customer contribution is not required) is sent to the customer, along with terms and conditions for them to agree to.<br><br>If the customer accepts the quote and terms and conditions, the connection moves to retailer acceptance. If no response is received, Powerco follows up with the customer to determine whether the connection is required. If the quote and/or terms and conditions are not agreed to, the connection process stops and the SalesForce case is closed. |
| Retailer acceptance | The nominated retailer is advised once the customer has accepted. The retailer accepts responsibility for the ICP by entering their own customer's account number against the ICP in CWMS, which grants them access to view the full ICP information in CWMS. |

| Process step | Process step description |
|---|---|
| | If the retailer declines the new ICP, Powerco works with the customer until a retailer acceptance is gained. The connection cannot progress until a retailer accepts responsibility.<br>Once responsibility is accepted by the retailer the ICP moves to "new" status in CWMS, but no update is sent to the registry until the ICP is moved to "ready" status. ICP attributes are determined using a combination of application and GIS information. |
| Raise and complete work order | A work order is created in SAP for metering to be installed and the ICP connected. |
| Update CWMS and the registry with connection details | Once work completion paperwork is received it is uploaded into SAP and manually entered into CWMS. Once all required fields are populated in CWMS to allow the ICP to move to "ready" status on the registry, the update is produced and sent to the registry overnight. |

**New connection compliance**

To determine compliance with each of the requirements for new ICPs, I reviewed processes and checked all ICPs on the registry list generated on 15 August 2024. Powerco's new connection process is designed to comply with the requirements of Gas (Switching Arrangements) Rules 2008 r5.2 and 43.

| Gas (Switching Arrangements) Rules 2008 rule | Commentary |
|---|---|
| **5.2 and 43.1** An ICP must be created for each consumer installation, in the format specified under r5.2. | All ICPs are created in CWMS in the appropriate format, with a check sum. I checked all 5,798 new ICPs created between 1 January 2021 and 15 August 2024 and confirmed that they contained the "PG" network code, were in a compliant format and accepted by the gas registry. |
| **43.2.1** Each ICP must be able to be isolated without affecting any other consumer installation. | Powerco does not allow ICPs to be connected downstream of other ICPs. Any applications that required this would be rejected, and no GAS ICPs had duplicate addresses. |
| **43.2.2** Each ICP must have a single loss factor and single network price category. | Each ICP which was not decommissioned had one loss factor and one price category assigned on the registry list. |
| **43.2.3** Each ICP must have its energy measured by a single metering installation compliant with NZS 5259. | As part of the new connection process, Powerco requires that any new connections to its network have compliant Powerco metering installed.<br>The registry list generated on 15 August 2024 recorded 610 ICPs had connection statuses indicating that a GMS was present, but the GMS was recorded as removed on the registry.<br>I checked a sample of five or all ICPs per connection status, where the ICP's status indicated that a meter was present but the meter serial was REMOVED and Powerco was not the meter owner. Five were timing differences and a Powerco meter was installed after the report was run or the ICP moved to "inactive" status. As Powerco was not the meter owner for the other 19 ICPs, they were unable to confirm whether the meters were removed, or the correct status was applied. |

| Gas (Switching Arrangements) Rules 2008 rule | Commentary |
|---|---|
| | I checked a sample of five or all ICPs per connection status, where the ICP's status indicated that a meter was present but the meter serial was REMOVED and Powerco was the meter owner. Five were timing differences and meters were installed after the report was run. Powerco confirmed that the other 19 ICPs had no metering and the retailer had incorrectly recorded a metered status.<br><br>I checked a sample of 20 ICPs at GNM, GSM or GVM status which indicate the meter is removed, but a Powerco GMS is recorded.<br><br>• For 12 ICPs Powerco believes the ICP is still present and their status is correct.<br>• Six ICPs relate to new connections, where the meter can be installed in advance of it being connected and consuming gas.<br><br>For ICPs 0004201019NG7BA and 0043144650PG23D the meters were installed the day after the ICPs moved to "inactive" unmetered statuses, and Powerco will follow up with the retailer because they believe that the ICPs should have "active" status. |

## 3.2 ICP assignment (rule 51.1, 51.2, 51.3, 53.1 and 53.4)

*The Gas (Switching Arrangements) Rules 2008 r51 and 53 require distributors to assign an ICP within three business days of receiving a request for an ICP from a retailer or advise the retailer why they are unable to assign an ICP. Once they receive confirmation that the installation is connected they must update ICP, creation date and address information within two business days, and any other ICP attributes within two business days of confirming them.*

5,798 new ICPs were created between 1 January 2021 and 15 August 2024. There was one TOU new connection, 31 AG4 connections and 5,743 AG6 connections. 154 ICPs were moved directly from READY-GIR to an "inactive" unmetered or "decommissioned" status without becoming "active". The other 5,644 ICPs were connected after the report was run.

Provision of information for the new ICPs was checked:

| Gas (Switching Arrangements) Rules 2008 rule | Commentary |
|---|---|
| **51.2** The distributor must create an ICP or advise of the reasons if an ICP cannot be created with three business days of receiving a request. | The new connection process is discussed in detail in **section 3.1**. Powerco considers that the request has been received once the customer approves the quote for new connection. I believe this is reasonable because until the quote is accepted, the connection may not proceed.<br><br>To ensure compliance, Powerco reviews applications within 48 hours of receipt. If further information is required to progress the application the retailer is notified and this is documented in CWMS. A quote is issued, which may be accepted, declined or not responded to. Once Powerco receives confirmation that the quote is accepted, they will create the ICP number and provide it to the customer and retailer.<br><br>Powerco provided 562 examples of ICPs which were not created within three business days of the initial request being received, and I confirmed that the delay was caused by the job being unable to be progressed |

| Gas (Switching Arrangements) Rules 2008 rule | Commentary |
|---|---|
| | because Powerco was awaiting application information or acceptance from the customer and/or retailer, or the job was cancelled before the ICP was created.<br><br>I checked a further sample of 50 new connections during the audit period and confirmed that the ICP numbers were created and advised to the retailer within three business days of the quote for new connection being accepted. |
| **51.3** The distributor must update the ICP, creation date, distributor, and address on the registry within two business days of receiving confirmation the ICP is connected. | I checked the timeliness of updates for the 5,624 ICPs which were connected during the audit period. 3,929 ICPs (69.8%) had distributor, address and pricing information recorded within two business days of the connection date.<br><br>I checked all 23 ICPs which had the required information populated more than 50 business days after the connection date. The latest update was 166 business days after connection. The registry was updated within two business days of Powerco receiving confirmation of the ICP being connected, because they received late notice of the connection. |
| **53.1** The distributor must update the registry parameters within two business days of identifying the parameters, so that the registry can change the ICP status to READY-GIR status | I checked the timeliness of updates for the 5,624 ICPs which were connected during the audit period and found 3,925 ICPs (69.8%) had "ready" status recorded within two business days of the connection date.<br><br>I checked a sample of updates to "ready" status and confirmed that they were made on time.<br><br>Seven ICPs were initially created at "new" and moved to "ready" at a later date. The altitude was initially unable to be confirmed from the address and GIS information, and the ICP was moved to "ready" automatically once the altitude was populated. No ICPs are currently at "new" status. |

I also checked the accuracy of new connections for all TOU new connections, ten AG4 new connections and 20 AG6 new connections by matching the data recorded on the registry to work completion paperwork. One of the 32 ICPs had an incorrect gas gate recorded, which was detected and resolved prior to the audit through Powerco's validation checks because the address was inconsistent with the gas gate.

## 3.3 Registry information management (rule 58.1 and 58.2)

*The Gas (Switching Arrangements) Rules 2008 r58.1-58.2 require the distributor must use its reasonable endeavours to maintain current and accurate information in the registry.*

**Registry synchronisation**

Registry population is automated from CWMS and the file includes all relevant fields. The registry synchronisation process imports data from the registry into CWMS at 3am each day, and exports data from CWMS to the registry at 7.30pm each day.

Information sent to and received from the registry is monitored, and automated emails are generated and reviewed each morning including:

- **Rejects from outgoing files** which shows all rejected outgoing files and the error reason codes - exceptions are checked to determine whether they are genuine; CWMS links losses

and GXPs, so a pricing and network event is sent to the registry each time either of the fields is updated although there may be no change, and genuine exceptions are worked through and resolved either by updating CWMS so that the update can be processed again or updating the registry directly where CWMS is already correct,
- **Contents of registry synch** which contains a link to all the files sent to and received from the registry; it is reviewed to check if the total number of files appears reasonable, and
- **Unacknowledged outgoing events** which will identify any files sent to the registry which have not received an acknowledgement; this typically only occurs where an invalid value is recorded in a field.

**Registry and data validation**

Powerco completes a weekly reconciliation between CWMS and the registry, and weekly data discrepancy checks each Wednesday. I walked through the validation process and reviewed the reports and exceptions.

| Weekly report | Description |
|---|---|
| Reconciliation between CWMS and the registry | This report identifies differences between registry and CWMS for each field that Powerco maintains, plus the retailer and status:<br>• **Retailer:** CWMS records the proposed retailer and then retailer in its retailer field, and any differences are usually due to timing for ICPs at "ready" status - there were five discrepancies on the report on 23 October 2023,<br>• **Status:** Status discrepancies between CWMS and the registry are resolved weekly, with the exception of some historic status issues which have been present since the ICPs were created on the registry (typically GPC vs GPM) and most other discrepancies are timing differences for new ICPs - there were 213 discrepancies on the report on 23 October 2023,<br>• **Address:** There were 23,139 ICPs with a difference in one or more addressing fields on the report on 23 October 2023; all but one related to ICPs created in 2000 or earlier and generally occurred because CWMS recorded a suburb which was not populated on the registry at the time the ICP was created - all new discrepancies are checked and resolved weekly,<br>• **Network:** Discrepancies in any network fields are identified and resolved weekly - there were no discrepancies for network fields on the report on 23 October 2023, and<br>• **Pricing:** Discrepancies in any pricing fields are identified and resolved weekly - there were 11 discrepancies for pricing fields on the report on 23 October 2023, all were "inactive" ICPs with DOA pricing where the pricing code is not recorded on the registry and are expected to be updated if the ICPs become "active". |
| Validation report | The validation report identifies potential data discrepancies each week including:<br>• **GTD connection status:** There were 111 ICPs at GTD (gas temporary disconnect - GMS remains service turned off at service valve or supply capped or plugged) on 23 October 2023, and these ICPs are monitored once they have been at this status for more than 30 days,<br>• **No altitude in CWMS:** Missing altitudes sometimes occur for ICPs where there is insufficient information to confirm the location in GIS, and these are checked to determine whether further information is available, and altitudes can be updated - there were 104 ICPs on the list on 23 October 2023, most are brand new and/or have "inactive" status, |

| Weekly report | Description |
|---|---|
| | • **CWMS GIS altitude:** This compares the GIS altitude to CWMS, and timing differences can occur when location information is updated - there was one ICP on the list on 23 October 2023,<br>• **Gas gate check:** This shows street-suburb-town combinations where ICPs are connected to more than one gas gate, and a second supporting report lists the ICPs connected - there were two streets and five ICPs on the reports on 23 October 2023, and all ICPs have the correct gas gates assigned and are situated on long streets connected to more than one gas gate, and<br>• **Backdated ICPs created:** this shows any new ICPs backdated by 60 days or more which are checked to confirm that event dates and ICP attributes are correctly assigned - there were 189 ICPs on the list on 23 October 2023. |
| Address validation report | The address validation report is run weekly and includes checks for duplicate addresses (including "inactive" ICPs). The most recent report contained 166 ICPs, which are mostly multiple connections located at single commercial sites. Powerco is continuing to work through its incomplete address information using this report. |

**Event date setting**

Event dates should reflect the date from which the attribute values for the event apply. Network pricing category codes, metering price category codes and the expected retailer/retailer (sharing one field) have event dates recorded in CWMS which are used to determine the event date.

Event dates are not recorded for any other registry fields in CWMS. The gas fixer tool is used to correct the event dates in update files prior to the file being transferred to the registry. Where this is not completed accurately, it can result in errors. When checking late updates, I saw an example of a file of network pressure changes processed without an event date correction, and the event dates were later updated.

I checked a sample of 20 network updates, 20 pricing update, 20 decommissioned status updates, and nine address updates, and confirmed they were processed from the correct event dates and with the correct attributes.

**Accuracy of registry information**

The completeness and accuracy of information within each registry field was checked:

| Field | Commentary |
|---|---|
| **Network** | |
| Responsible Distributor Code | All ICPs have the responsible distributor set to Powerco. |
| Gas Gate Code | Gas gates are determined from GIS information. If the address cannot be located in GIS (e.g., for a new subdivision) the value for the nearest address recorded will be selected. The building team add new location information to GIS. There is a web service interface between GIS and CWMS.<br>**Gas Gate Code accuracy**<br>No ICPs created during the audit period had an address town which was inconsistent with the gas gate. I checked all ICPs created prior to the audit period where the address town was inconsistent with the gas gate, and less than ten ICPs at the gas gate had inconsistent towns. |

| Field | Commentary |
|---|---|
| | All of the ICPs had the correct gas gate assigned. For 21 of the 24 ICPs checked, the town was recorded in the suburb field and the nearest large town or city was recorded in the town field (e.g., Pahiatua – Palmerston North, Kaponga – Hawera, Inglewood – New Plymouth). For the other three ICPs the town was correctly recorded as Waitara and Powerco confirmed that the ICPs were fed from the New Plymouth gas gate.<br><br>I found 24 roads had ICPs with GAS status connected to more than one gas gate, including some created during the audit period. Some related to two separate roads with the same name and the gate assignments were correct and others were long roads between two towns and the gate assignments were correct.<br><br>I re-checked the ICPs found to have incorrect gas gates during the previous audit and found they had been resolved. |
| ICP Type Code | All GAS ICPs have the ICP type code set to GN. |
| Network Pressure | Network pressure is automatically populated in CWMS using the address location, which connects to GIS to find the network pressure. Pressure is recorded in the GIS and CWMS as LP 0-7kPa (387 GAS ICPs), HLP 7-25kPa 13,004 GAS ICPs), LMP 25-210kPa (77,625 GAS ICPs), MP 210-420kPa (22,121 GAS ICPs), HMP 420-700kPa (44 GAS ICPs), LIP 700-1,200kPa (242 GAS ICPs) and HIP 1,200-2,000kPa (1 GAS ICP). The mid-point of each pressure range rounded to zero decimal places is recorded as the network pressure on the registry.<br><br>Network pressures are validated periodically using tableau reports and charts. Charts are generated showing streets in an area and their network pressures, and the reviewer can then drill down and view a chart of the network pressures for each address on the street with the addresses plotted in number order to easily identify anomalies for investigation. At the end of this section I have recommended that Powerco prioritises checking instances where a small number of ICPs connected to gas gate have a different network pressure to most ICPs connected to that gas gate, as these have a higher probability of being incorrect.<br><br>**Network Pressure accuracy**<br><br>14 gas gates had GAS ICPs with more than one network pressure, and I checked ICPs with network pressures assigned to less than 5% of ICPs connected to the gate. I found 156/229 exceptions had incorrect network pressure values. Only five of the ICPs were created during the audit period.<br><br>For each of the 156 ICPs with incorrect network pressures, I assessed the impact of the incorrect value on the temperature factor by calculating the Joule Thomson adjusted average annual temperature[2] and then calculating the temperature factor using the registry network pressure and correct network pressure. 138 differences resulted in pressure factors within the maximum permissible errors set out in NZS 5259. 18 ICPs[3] had network pressure of 950 recorded but had LMP 25-210kPa and should have been recorded with 118kPa, resulting in a correct temperature factor around 1.47% lower than the applied value based on the network pressure.<br><br>Powerco intends to update the network pressures in CWMS and the registry through a bulk update, and an excel file of exceptions has been provided. |

[2] By calculating the annual average daily temperature based on the GIC's published temperatures for the gas gate, and reducing the temperature by 0.5 degrees Celsius per 100kPa pressure drop between network pressure and meter pressure.

[3] 0004226814NG541, 0004221889NG19D, 0004227728NGF08, 1000528793PGDD9, 0004219389NGEBF, 0004219388NG2FA, 0004219386NG161, 1000574689PG415, 1000503002PG754, 1000574809PG754, 0004225902NG587, 0004224938NG14E, 1000506598PG807, 0004224849NG152, 0004225440NG2AF, 0004224783NGB23, 0004224793NG18E and 0004010791NGE7F.

| Field | Commentary |
|---|---|
| | Network pressure exceptions identified during the previous audit have been corrected. |
| ICP Altitude | Altitude is automatically populated in CWMS using the address location, which connects to GIS to find the altitude. Where altitudes vary across a block, the GIS will apply the average altitude. If an ICP location is updated the elevation is updated in the GIS, and transferred back to CWMS.<br><br>Altitudes are validated periodically using tableau reports and charts. Charts are generated showing streets in an area and their minimum ICP altitude and maximum ICP altitude. Where there is a wide range of altitudes for a street there will be a visible gap between the average and minimum. This is used to prioritise streets to be reviewed, and the reviewer can drill down and view a chart of the altitudes for each address on the street with the addresses plotted in number order to easily identify anomalies.<br><br>**Altitude accuracy**<br><br>All GAS ICPs have a zero or non zero altitude recorded on the registry.<br><br>I reviewed the distribution of altitudes for all 113,424 GAS ICPs by gas gate and selected a sample of 17 outliers for review. I checked the altitudes recorded on the registry against Google Earth Altitudes and found that all matched within ±10m and were within the accuracy threshold set out in NZS 5259. ICP 0004213254NGBE2 initially appeared to have an incorrect altitude, but actually had an incorrect address recorded (17 instead of 117 Sweetacres Ave). The address was corrected during the audit.<br><br>I checked all GAS ICPs with zero altitudes against Google Earth records and confirmed the altitudes were accurate within ±10m and were within the accuracy threshold set out in NZS 5259.<br><br>I compared the registry altitude to the Google Earth altitude for a random sample of 75 ICPs. 73 were matched within ±10m and were within the accuracy threshold set out in NZS 5259. ICP 0004224795NG001 had an altitude of 20m recorded but should be 9m, and ICP 1000597801PGADD had an altitude of 36m recorded but should have 58m. Both exceptions are to be corrected, and are within the maximum permissible errors set out in NZS 5259.<br><br>Altitude exceptions identified during the previous audit have been corrected. |
| Load Shedding Category Code | CWMS automatically populates new ICPs with a load shedding category. It compares the customer type and estimate of annual load to an internal table which contains the load shedding rules from the Gas Governance (Critical Contingency Management) Regulations 2008.<br><br>Annually the network connections team reviews load shedding category codes 3, 4 and 6 for consistency with the volumes recorded on the retailer's network submissions, their network pricing category, and property name. The volume comparison uses consumption for the most recent 12 months excluding months where only initial billing has completed, to minimise the volume of estimated data used for the check. An error margin of ±10% is applied to avoid unnecessary changes where ICPs have consumption which is fluctuating close to the threshold. ICPs with less than 12 months of consumption history will only have load shedding category changes proposed if they have exceeded the limit for their category in during the period they have been supplied.<br><br>ICPs with a domestic load shedding category and commercial pricing are checked to ensure that the category is valid (e.g., an apartment building). ICPs with non domestic load shedding categories and their property names are scanned through to identify any potentially domestic ICPs.<br><br>A spreadsheet of proposed changes is sent to the customer team, who notify the retailer. If the retailer agrees or does not respond the load shedding category change will be made. If the |

| Field | Commentary |
|---|---|
| | retailer does not agree, they may be asked for further evidence or justification and the existing code will be retained.<br><br>Occasionally retailers will ask Powerco to update load shedding categories for ICPs, and Powerco checks any changes against the ICP's consumption history, property name and pricing category for reasonableness before making the change. If they have any concerns about the accuracy of the change they will consult with the retailer.<br><br>**Load shedding category code accuracy**<br><br>Powerco ICPs with GAS status were reviewed for potential discrepancies between the load shedding category and other ICP information, including the allocation group and address information.<br><br>• Two ICPs had load shedding category 3 (indicating load of more than 10 TJ per annum) and allocation group 6 (indicating load of less than 250 GJ per annum). Both had their load shedding categories corrected during the most recent load shedding category review, which occurred after the report was run.<br>• 28 ICPs had load shedding category 4 (indicating load of 250-10,000 GJ per annum) and allocation group 1 or 2 (indicating TOU metering is present and load is potentially over 10,000 GJ per annum). 22 were confirmed to be correct and had TOU metering and load within ±10% of 250-10,000 GJ per annum, and five were moved to load shedding category 3 during the most recent assessment. ICP 001842361QTBB8 had its consumption increase to over 10,000 GJ per annum recently. High consumption is expected to continue, and its load shedding category should be updated.<br>• 12 ICPs had load shedding category 6 (indicating load of less than 250 GJ per annum) and allocation group 1 (indicating TOU metering is present and load is potentially over 10,000 GJ per annum) or 4 indicating load of 250-10,000 GJ per annum). Three were confirmed to be correct with load within ±10% of the threshold, and nine were moved to load shedding category 4 during the most recent assessment.<br><br>I checked all ICPs with load shedding categories 3C, 5 and 7, and found they were correctly assigned. |
| Installation Details | Installation details are optional and are not recorded in CWMS, but can be manually populated on the registry for ICPs. No ICPs created during the audit period have installation details populated.<br><br>**Installation Details accuracy**<br><br>GAS ICPs 1000556121PGB91 and 1000557242PGA02 created prior to the audit period have installation details of "N/A" or "DOA". Powerco intends to remove the details for consistency with other ICPs, but compliance is recorded as the information was not inaccurate. |
| Expected Retailer Code | The expected retailer is set based on information provided on applications for new connections. Review of a sample of 52 new connections did not identify any inaccurately recorded expected retailer codes. |
| **Pricing event** | |
| Maximum Hourly Quantity | The maximum hourly quantity (MHQ) is the maximum quantity of gas in cubic metres that gas consuming equipment in the installation is capable of drawing per hour. MHQ is mandatory only where it is used to determine the distributor's network charges, and no Powerco ICPs have an MHQ pricing component. The MHQ field is normally populated as DOA.<br><br>**Maximum Hourly Quantity accuracy** |

| Field | Commentary |
|---|---|
| | Three GAS ICPs had an MHQ populated, two were correct and the MHQ for 1000580413PG078 was incorrectly recorded as 120 and was updated to DOA during the audit. 58,190 GAS ICPs have the MHQ populated as DOA and the remainder have blank MHQs. |
| Network Price Category Code | The network price category code is populated by CWMS automatically using the load information provided in the application. CWMS has a background table which holds the network pricing categories by load, which can be overwritten on to DOA on the registry if Powerco requires. From 1 May 2023 Powerco updated GAS ICPs with published pricing from a DOA price code on the registry to their actual price code.<br><br>Powerco do not routinely compare the network price category to the meter price category for consistency. Where the meter owner is not Powerco, the meter capacities and network capacities may not align. Also, where a customer has a larger meter installed than they require, they may be assigned a smaller network price category based on their actual expected usage which would complicate this validation.<br><br>**Network price category accuracy**<br><br>All active price codes have a price code region consistent with the gas gate. I compared network, load shedding and metering price codes and identified 24 ICPs with potential inconsistencies.<br><br>• Network pricing was confirmed to be correct for four ICPs<br>• For 17 ICPs[4] which are expected to have their metering replaced as part of the residential or small commercial smart meter roll out, Powerco has made a commercial decision not to update their network price category until the ICP has a smart meter deployed.<br>• ICP 1000516721PG602 has a xG11 residential price code applied and an MT140 meter with capacity of 85-140 SCMH. The meter is less than 10 SCMH and the price category has been corrected in consultation with the retailer. Compliance is recorded in this section for the correct network price category and the incorrect meter price category is recorded as non-compliance in **section 4.5**.<br>• ICPs 0079000510PG5DB and 0089206250PG482 had xG18 price codes applied (for meters with capacities 140-200 SCMH) and meter price code MT60 for meters with capacities 25-60 SCMH. Powerco consulted with the retailer and corrected the price codes for both affected ICPs during the audit. |
| Loss Factor Code | The loss factor is determined from the gas gate, which is in turn determined from GIS information on the ICP's location.<br><br>**Loss Factor Code accuracy**<br><br>All GAS ICPs have loss factor codes consistent with their gas gate. |
| Network Price Details | Network price details are optional and are not recorded in CWMS, but can be manually populated on the registry for ICPs. No ICPs created during the audit period have network price details populated.<br><br>**Accuracy**<br><br>15 GAS ICPs created prior to the audit period had installation price details of "GAS" or "DOA". Powerco removed the details for consistency with other ICPs, but compliance is recorded as the information was not inaccurate. |

[4] One ICP with network price xG06 (<10 SCMH) with a meter price indicating over 20 SCMH, eight ICPs with xG11 (<10 SCMH) with a meter price indicating over 20 SCMH, five ICPs with xG14 (20-60 SCMH) and a meter price indicating less than 20 SCMH, two ICPs with xG16 (60-140 SCMH) with a meter price indicating less than 60 SCMH, one ICP with xG18 (140-200 SCMH) with a meter price indicating less than 200 SCMH.

| Field | Commentary |
|---|---|
| **Address event** | |
| Physical Address Unit<br>Physical Address Number/ RAPID Number<br>Physical Address Street<br>Physical Address Suburb<br>Physical Address Town<br>Physical Address Post Code<br>Physical Address Region<br>Physical Address Property Name<br>Address Event User Reference | Physical addresses are determined as part of the new connection process. When an address is entered into CWMS it looks up to the GIS and returns any matches, ensuring that the address is consistent with GIS information and unique.<br>If the address cannot be determined, a new connections team member researches the address using local council and Land Information New Zealand information, and if it is in a new subdivision contacts the subdivision manager. If the address cannot be confirmed the application will be put on hold until complete and correct address information is available.<br>Occasionally retailers and/or consumers submit requests for address information to be updated or local councils may change addressing information. Powerco will confirm any new information is accurate before updating the GIS and CWMS.<br>**Address accuracy**<br>GAS ICP 1000545255PG6C4 had no property name or street number, because a more full location was recorded in the lot number and DP fields in CWMS which are not updated on the registry. The registry was updated during the audit.<br>Only GDE ICPs had street address number zero, and no GAS status ICPs had duplicate addresses.<br>When reviewing altitudes, I found one ICP with an incorrect address ICP 0004213254NGBE2 had 17 instead of 117 Sweetacres Ave. The address was corrected during the audit.<br>When reviewing gate assignment I found 24 ICPs where the address town was inconsistent with the gate, and less than ten ICPs had an inconsistent address town. For 21 of the 24 ICPs checked, the town was recorded in the suburb field and the nearest large town or city was recorded in the town field (e.g., Pahiatua – Palmerston North, Kaponga – Hawera, Inglewood – New Plymouth). Powerco intends to update the address towns to ensure that the addresses are clear, and two have already been updated. |
| **Status event** | |
| ICP Status Code<br>ICP Connection Status Code | **New connection process**<br>Once all required fields are populated in CWMS to allow the ICP to move to "ready" status on the registry, the update is produced and sent to the registry.<br>**Decommissioning process**<br>ICPs are decommissioned once the retailer has moved the ICP to "inactive – permanent" status and an application has been received from the retailer in CWMS. Powerco's Gas Hub team checks that the ICP is genuinely ready to be decommissioned and confirms that the retailer has the customer's approval for decommissioning. SalesForce cases are used to manage the decommissioning process and a weekly report of progress with gas decommissions is reviewed. Once work completion paperwork is received, CWMS is updated with the decommissioning details and the update flows through to the registry overnight.<br>**Status accuracy**<br>Each ICP must have its gas volume measured directly by a single set of metering equipment complying with NZS 5259:2015, or measured indirectly by a method approved by the industry body. |

| Field | Commentary |
|---|---|
| | I checked a sample of five or all ICPs per connection status, where the ICP's status indicated that a meter was present but the meter serial was REMOVED and Powerco was not the meter owner. Five were timing differences and a Powerco meter was installed after the report was run or the ICP moved to "inactive" status. As Powerco was not the meter owner for the other 19 ICPs, they were unable to confirm whether the meters were removed, or the correct status was applied.<br><br>I checked a sample of five or all ICPs per connection status, where the ICP's status indicated that a meter was present but the meter serial was REMOVED and Powerco was the meter owner. Five were timing differences and meters were installed after the report was run. Powerco confirmed that the other 19 ICPs had no metering and the retailer had incorrectly recorded a metered status.<br><br>I checked a sample of 20 ICPs at GNM, GSM or GVM status which indicate the meter is removed, but a Powerco GMS is recorded.<br><br>• For 12 ICPs Powerco believes the ICP is still present and their status is correct.<br>• Six ICPs relate to new connections, where the meter can be installed in advance of it being connected and consuming gas.<br>• For ICPs 0004201019NG7BA and 0043144650PG23D the meters were installed the day after the ICPs moved to "inactive" unmetered statuses, and Powerco will follow up with the retailer because they believe that the ICPs should be "active".<br><br>I checked a sample of 20 decommissions and confirmed that the correct status and event date was applied, except for one instance where a retailer switch occurred during the decommissioning process and Powerco applied the closest date they could to the actual decommissioning date.<br><br>There are 2,490 ICPs currently at GPM (Gas permanent disconnect ready for decommissioning GMS removed supply capped or plugged) which have not been decommissioned. I checked a random sample of ten ICPs and found that they were believed to be decommissioned at the time ICPs migrated to the gas registry with GPM status effective from 1 October 2008. Without conducting site visits for each ICP it is difficult to confirm whether they are decommissioned or not, so they have been conservatively left at GPM. |

I checked a further sample of 20 network updates, 20 pricing update, 20 decommissioned status updates, and nine address updates, and confirmed they were processed from the correct event dates and with the correct attributes.

**Timeliness of registry updates during the audit period**

*Rule 61.1 requires responsible distributors to update and correct registry information as soon as practicable once they become aware that information is incorrect or requires updating.*

The timeliness and accuracy of registry updates was checked:

| Update type | Commentary |
|---|---|
| Address | The event detail report recorded 8,713 address updates. 8,227 (94.4%) were made within ten business days of the event date, 8,637 (99.1%) were made within 30 business days of the event date and 8,706 (99.9%) were made within 100 business days of the event date.<br><br>483 of the 486 updates made more than ten business days after the event date related to new connections, and the timeliness of new connections is discussed in **section 3.1**. I checked all updates not relating to new connections which were made more than one business day after the event date, and found they were: |

| Update type | Commentary |
|---|---|
| | • decommissions where addresses were corrected as part of the decommissioning process,<br>• corrections to addresses which were made as soon as practicable after the address was confirmed,<br>• a failed registry update, which was identified through the registry update validation process and reprocessed the next day, and<br>• an address update which had not been successfully processed and was identified through the weekly registry validation process and corrected as soon as practicable. |
| Network | The event detail report recorded 9,037 network updates, with an average of six business days between the event date and update date. 8,379 (92.72%) were made within ten business days of the event date, 8,816 (97.55%) were made within 30 business days of the event date, 8,899 (98.47%) were made within 100 business days of the event date and 8,909 (98.58%) were made within 200 business days of the event date.<br><br>I sampled the 20 latest updates which did not relate to new connections. The timeliness of new connections is discussed in **section 3.1**.<br><br>• Five late updates were corrections to load shedding categories requested by retailers, and Powerco processed the updates as soon as practicable.<br>• Four were network pressure corrections processed as soon as practicable after Powerco confirmed the correct location for the ICP or that the network pressure was incorrect.<br>• Five were corrections to the gas network pressure for TWA35610 described above, which were processed as soon as the error was discovered.<br>• Four were corrections made as part of the decommissioning process, it is usual for ICPs to be moved off critical care load shedding categories prior to decommissioning, or network events needed to be updated to allow the decommission to be processed.<br>• One correction was backdated to the start of the retailer's time slice at the retailer's request.<br>• One was an altitude correction processed as soon as the address was confirmed.<br><br>A group of 127 late updates were made effective from 17 May 2021 on 15 March 2022. All related to a change in network pressure at gas gate TWA35610 from 4 to 16, where a script to update the network pressure was initially applied without an end date replacing the previous registry record. A correction was subsequently processed.<br><br>The late network updates sampled were processed with the correct event dates and attributes. |
| Pricing | The event detail report recorded 22,693 pricing updates. 21,778 (95.97%) were made within ten business days of the event date, 22,563 (99.43%) were made within 30 business days of the event date, 22,682 (99.95%) were made within 100 business days of the event date and 22,691 (99.99%) were made within 200 business days of the event date.<br><br>86 of the 130 updates made more than 30 business days after the event date related to new connections, which are covered in **section 3.1**. I checked the 20 lates updates not relating to new connections and found:<br><br>• ten were updated as part of the migration from the DOA price code to actual price codes on the registry; from 1 May 2023 Powerco updated ICPs with published pricing from a DOA price code on the registry to their actual |

| Update type | Commentary |
|---|---|
| | price code - some changes were completed late because they had "inactive" statuses or their new pricing needed to be confirmed,<br>• nine were delayed because there was no job relating to the price increase recorded in CWMS, and/or the work completion paperwork was late; the updates were made as soon as practicable once the correct pricing was confirmed, and<br>• ICP 0004205921NGDDF's pricing change from 5G06 to 5G11 was processed late effective 4 October 2022 on 14 February 2023.<br><br>The pricing updates were processed with the correct event dates and attributes. |
| Status | Updates to" new" and "ready" statuses are discussed under new connections in **section 3.1**.<br><br>The event detail report recorded 1,807 decommissioned status updates. 1,160 (64.2%) were made within ten business days of the event date, 1,595 (88.3%) were made within 30 business days of the event date and 1,761 (97.5%) were made within 100 business days of the event date. The latest update was made 830 business days after the event date and the second latest update was 280 business days after the event date.<br><br>I checked the 20 latest updates and found:<br>• 11 were delayed because Powerco needed the retailer to update the status to GPM from the work completion date before they could move the ICP to decommissioned status,<br>• five ICPs had delayed work completion paperwork, or incorrect work completion paperwork which required investigation before CWMS and the registry could be updated,<br>• one ICP had the wrong work type raised (riser removal instead of decommissioning) which prevented Powerco from initially realising that a decommission was required; a decommission update occurred as soon as possible once Powerco confirmed the ICP was decommissioned, and<br>• two ICPs had work completion notices which were missing a completion date and thought not to be decommissioned; a decommission update occurred as soon as possible once Powerco confirmed the ICP was decommissioned. |

### Conclusion

| Gas (Switching Arrangements) Rules 2008 rule | Commentary |
|---|---|
| **58.1** A distributor must use their reasonable endeavours to maintain current and accurate information in the registry for ICPs and ICP parameters it has responsibility for | 156/229 ICPs with network pressures assigned to less than 5% of ICPs connected to the gate had incorrect network pressure values. Only five of the ICPs were created during the audit period. For each of the 156 ICPs with incorrect network pressures, I assessed the impact of the incorrect value on the temperature factor and found 138 differences resulted in pressure factors within the maximum permissible errors set out in NZS 5259. 18 ICPs[5] had network pressure of 950 recorded but had LMP 25-210kPa and should |

[5] 0004226814NG541, 0004221889NG19D, 0004227728NGF08, 1000528793PGDD9, 0004219389NGEBF, 0004219388NG2FA, 0004219386NG161, 1000574689PG415, 1000503002PG754, 1000574809PG754, 0004225902NG587, 0004224938NG14E, 1000506598PG807, 0004224849NG152, 0004225440NG2AF, 0004224783NGB23, 0004224793NG18E and 0004010791NGE7F.

| Gas (Switching Arrangements) Rules 2008 rule | Commentary |
|---|---|
| | have been recorded with 118kPa, resulting in a correct temperature factor around 1.47% lower than the applied value based on the network pressure.<br><br>ICP 0004213254NGBE2 had an incorrect street address number which was corrected during the audit.<br><br>ICP 0004224795NG001 had an altitude of 20m recorded but should be 9m, and ICP 1000597801PGADD had an altitude of 36m recorded but should have 58m. Both exceptions are to be corrected, and are within the maximum permissible errors set out in NZS 5259.<br><br>ICP 001842361QTBB8 (load shedding category 4) had its consumption increase to over 10,000 GJ per annum recently. High consumption is expected to continue, and its load shedding category should be updated.<br><br>ICP 1000580413PG078 had its MHQ incorrectly recorded as 120 and was updated to DOA during the audit.<br><br>ICPs 0079000510PG5DB and 0089206250PG482 had xG18 price codes applied (for meters with capacities 140-200 SCMH) and meter price code MT60 for meters with capacities 25-60 SCMH. Powerco consulted with the retailer and corrected the price codes for both affected ICPs during the audit.<br><br>GAS ICP 1000545255PG6C4 had no property name or street number, because a fuller location was recorded in the lot number and DP fields in CWMS which are not updated on the registry. The registry was updated during the audit. |
| **58.2** When entering information in the registry it must meet the requirements of schedule 1 | All information checked met the registry requirements for the field, and any data sent to the registry that does not meet the file format requirements would fail. |
| **61.1** Responsible distributors must update and correct registry information as soon as practicable once they become aware that information is incorrect or requires updating. | Compliance is recorded for most ICPs because Powerco updated CWMS and the registry as soon as they were able and/or as soon as they were aware that a registry update was required.<br><br>ICP 0004205921NGDDF's pricing change from 5G06 to 5G11 was processed late effective 4 October 2022 on 14 February 2023. |

| Recommendation | Audited party comment |
|---|---|
| During Powerco's periodic validation of network pressures, I recommend they focus on gas gates where a small number and/or proportion of ICPs connected to gas gate have a different network pressure to most ICPs connected to that gas gate, as these have a higher probability of being incorrect. During the pre-audit analysis these instances were easily identified from a registry list.<br><br>I found 14 gas gates had GAS ICPs with more than one network pressure. I checked ICPs with network pressures assigned to less than 5% of ICPs connected to the gate and | Powerco recognises the need for improvement in this area and are working towards implementing a report that will be checked regularly to identify and fix any irregularities. |

| Recommendation | Audited party comment |
|---|---|
| found 156/229 exceptions had incorrect network pressure values. | |

| Maintenance of current and accurate distributor information about ICPs | | |
|---|---|---|
| **Non-compliance** | **Description** | |
| Report section: 3.3<br>Rule: GSAR r58.1<br>From: 1 January 2022<br>To: 24 October 2024 | Audit history: Yes<br>Controls: Acceptable<br>Impact: Moderate | 156/229 ICPs with network pressures assigned to less than 5% of ICPs connected to the gate had incorrect network pressure values. The impact is moderate because the difference would cause 18 of the ICPs to have their temperature factor overstated. The correct temperature factor would be 1.47% lower than the applied factor. Only five of the 156 exceptions were created during the audit period, and none of those were over the maximum permissible error in NZS 5259.<br>ICP 0004224795NG001 had an altitude of 20m recorded but should be 9m, and ICP 1000597801PGADD had an altitude of 36m recorded but should have 58m. Both exceptions are to be corrected, and are within the maximum permissible errors set out in NZS 5259.<br>ICP 0004213254NGBE2 had an incorrect street address number and ICP 1000545255PG6C4 had no property name or street number, and both were corrected during the audit.<br>ICP 1000580413PG078 had an incorrect MHQ which was corrected to DOA during the audit. MHQ is not used for pricing and there was no impact.<br>ICP 001842361QTBB8 (load shedding category 4) had its consumption increase to over 10,000 GJ per annum recently. High consumption is expected to continue, and its load shedding category should be updated.<br>ICPs 0079000510PG5DB and 0089206250PG482 had xG18 price codes applied (for meters with capacities 140-200 SCMH) and meter price code MT60 for meters with capacities 25-60 SCMH. Powerco consulted with the retailer and corrected the price codes for both affected ICPs during the audit. |

| Remedial action rating | Remedial timeframe | Remedial comment |
|---|---|---|
| In progress | Ongoing | Powerco will review our registry validation to ensure we can pro-actively identify inaccurate network information. |

| Audited party comment | |
|---|---|
| The circumstances of the matters outlined in the breach notice. | New installations on sites where information is not yet available can lead to inaccurate information being manually input and subsequently requiring updating when information is finalised. |

| | |
|---|---|
| | The load shed category for 001842361QTBB8 was reviewed and correct as at our last assessment and usage only increased over this in the months directly preceding the audit. |
| Whether or not the participant admits or disputes that it is in breach. | Powerco admits to this breach and accepts that the identified ICPs were found to have the incorrect network pressures or pricing differences. |
| Estimate of the impact of the breaches (where admitted). | The impact is minor.<br>The incorrect network pressures resulted in temperature factors outside the maximum permissible errors in NZS 5259 for 18 ICPs, but they were close to the limits. Other differences affecting conversion were within the maximum permissible errors.<br>The pricing differences have an impact on the retailer and end consumer, but there were a small number of inaccuracies.<br>Load shedding category errors only have an impact if a critical contingency event occurs. |
| What steps or processes were in place to prevent the breaches? | We believe that Powerco's systems have adequate controls in place to ensure the majority ICPs have correct network information populated. We also conduct regular reporting to identify material errors. |
| What steps have been taken to prevent recurrence? | Specific to the network pressure inaccuracies Powerco is in the process of reviewing and implementing processes to identify these discrepancies.<br>We believe that Powerco's systems have adequate controls in place to ensure the majority of ICPs have correct network information populated. We also conduct regular reporting to identify material errors. |

| **Correction of distributor information as soon as practicable** | | | |
|---|---|---|---|
| **Non-compliance** | **Description** | | |
| Report section: 3.3<br>Rule: GSAR r61.1<br>From: 4 October 2022<br>To: 14 February 2024 | Audit history: Yes<br>Controls: Effective<br>Impact: Insignificant | ICP 0004205921NGDDF's pricing change from 5G06 to 5G11 was processed late effective 4 October 2022 on 14 February 2023. | |
| **Remedial action rating** | | **Remedial timeframe** | **Remedial comment** |
| Completed | | Completed | Completed |
| **Audited party comment** | | | |
| The circumstances of the matters outlined in the breach notice. | Meter changes are captured via a workflow process which requires users to manually populate specific information. It appears in this case a manual data error has been made. | | |

| | |
|---|---|
| Whether or not the participant admits or disputes that it is in breach. | Powerco admits to this breach |
| Estimate of the impact of the breaches (where admitted). | The impact is insignificant. One pricing change was delayed, which is expected to have a low impact on the retailer and end consumer. |
| What steps or processes were in place to prevent the breaches? | Meter changes are captured via a workflow process which requires users to manually populate specific information. It appears in this case a manual data error has been made. |
| What steps have been taken to prevent recurrence? | We will reinforce the importance of accurate and timely documentation from our contractors. |

## 3.4 Creation and decommissioning of a gas gate (rule 45.1 and 45.2)

*The Gas (Switching Arrangements) Rules 2008 r45.1-45.2 requires distributors to give 20 days' notice of any gas gate creations or decommissions to the registry operator, allocation agent and affected retailers. The notice must include the gate code, date the change takes effect and any associated ICPs created or decommissioned.*

Powerco are aware of the notification requirements for creation and decommissioning of gas gates.

No new gas gates were created during the audit period.

MGK05401 (Mangatainoka) was decommissioned effective from 13 December 2023 and notice was provided on 29 August 2023 as required by the rules. ICP 0002043581QT61E connected to MGK05401 has had GPM (gas permanent disconnect ready for decommissioning GMS removed supply capped or plugged) status since 14 November 2023, and no other ICPs are connected to the MGK05401 gas gate. Powerco confirmed that the district regulating station (DRS) was decommissioned at the same time as the gas gate and no gas can flow to ICP 0002043581QT61E. I recommend Powerco checks with the retailer for ICP 0002043581QT61E to confirm whether it can be moved to "decommissioned" status.

| Recommendation | Audited party comment |
|---|---|
| Liaise with the retailer for ICP 0002043581QT61E to determine whether it can be decommissioned for consistency with its gas gate status. | Powerco needs the meter removed to be able to Decommission this ICP (The site is currently in the Inactive Permanent INACP status).<br><br>There is still a Meter shown on the registry which is not owned by Powerco but by First Gas Limited (VCTX).<br><br>We have followed up with the last Retailer who will check with his team what work occurred there when the site became INACP as there is still a Meter shown on the registry. They will get back to us in the new year. |

## 3.5 Management of network price category codes (rule 46)

*The Gas (Switching Arrangements) Rules 2008 r46 requires distributors to determine, publish, and maintain a schedule of their network price categories and charges, except where the distributor requires disclosure on application in accordance with rule 50.*

Powerco's network price category codes are recorded on the registry and no price category code additions, deletions or changes have occurred since 2009.

The charges for standard price category codes xG06 – xG18 are published on Powerco's website under https://www.powerco.co.nz/who-we-are/disclosures-and-submissions/gas-pricing.

For ICPs with individual pricing codes xG30 and xG40, a DOA price code is recorded on the registry and prices are disclosed on application. This process is discussed in **section 3.6** below.

## 3.6 Disclosure on application (rule 50)

*The Gas (Switching Arrangements) Rules 2008 r50 allows distributors to not publish pricing and disclose pricing on application where they does not have a reasonably practicable alternative method of protecting its commercial interest in that information to the extent necessary to protect that interest. They must confirm whether they will disclose the pricing within one business day of receiving a request, and if they agree to disclose the information it must be provided within a further business day.*

From 1 May 2023 Powerco updated ICPs with published pricing from a DOA price code on the registry to their actual price code. DOA is only used for individually priced ICPs with xG30 or xG40 pricing categories, where the pricing is commercially sensitive and for some inactive ICPs.

Powerco have a portal through which they receive pricing requests for DOA ICPs for meter and/or network pricing. Powerco responds to them with pricing as soon as they are received. I reviewed a sample of requests during the audit period and confirmed Powerco provided a response (including pricing) within one business day of receiving the request.

## 3.7 The addition or deletion of loss factor codes (rule 48)

*The Gas (Switching Arrangements) Rules 2008 r48 requires distributors to give 20 days' notice of any loss factor changes to the registry operator, allocation agent and affected retailers.*

Powerco are aware of the notification requirements. No loss factor code additions, deletions or changes have occurred since 2009.

# 4. Obligations as meter owner

Powerco is the meter owner for 80,897 ICPs with GAS status, all are on the Powerco network except one. There are 39,145 AMI meters and 71 TOU meters.

The focus of this audit is predominantly the Gas (Switching Arrangements) Rules 2008, but it extends to the Gas (Downstream Reconciliation) Rules 2008 with respect to Powerco as meter owner, in particular to rules 26.5 and 27. These rules specifically require meter owners to support compliance with and verify accuracy in accordance with NZS 5259.

## 4.1 Compliance with NZS 5259

*Under rule 27, every meter owner must ensure that all metering equipment used to collect that volume information complies with NZS 5259. Metering equipment which has a margin of error of less than the relevant margins of error specified in NZS 5259 is considered to be accurate, and any verification of accuracy must be in accordance with NZS 5259.*

Powerco's processes are designed to be compliant with the requirements of NZS 5259. I checked processes to achieve compliance, and reviewed a sample of events and documentation to confirm the processes are followed and documentation is retained.

| Requirement | Commentary |
|---|---|
| Performance – GMS suitability and design[6] | All new connections to the Powerco network are required to have Powerco meters installed. The new connection application process collects information on the and appliances to be installed which is used to determine the GMS, regulator and pressure requirements according to Powerco's Gas Operations Standards. The standards cover processes to select and/or build and test a suitable GMS and are consistent with the requirements of NZS 5259 and the rules.<br><br>Larger connections are referred to the commercial, asset strategy and engineering teams for review to ensure that the maximum load and pressure requested can be supplied. Powerco's Gas Operations Standards are used to determine the type of meter installed and whether it is required to be individually designed by the metering team, including pipe diameters and the interactions between components.<br><br>I checked a sample of 52 new connections and confirmed that suitable metering was installed as required by the rules and NZS 5259. |
| Performance – competency[7] | Powerco confirmed that people involved in selection, installation, maintenance and testing of a GMS and components are trained and experienced to accepted regulatory and industry standards, or are adequately supervised by a person who is. |
| Performance – documentation[8] | Records are maintained to demonstrate compliance with NZS 5259. I reviewed documentation for a sample of metering events and tests to confirm this. |
| Performance - conversion[9] | Powerco does not complete any conversions from CM to energy. |
| GMS testing[10] | Powerco provided copies of their Gas Operations standards for GMS including GMS fabrication, operation, maintenance, testing and decommissioning. The standards cover acceptance testing, in service testing, as found testing and statistical sampling and are consistent with the requirements of NZS5259:2015 and the rules.<br><br>I checked the accuracy of sample of metering changes from throughout the audit period including 52 new connections, 20 meter pressure changes, 20 |

[6] NZS 5259 2.1-2.6, 3.3, 3.5

[7] NZS 5259 2.9

[8] NZS 5259 2.8

[9] NZS 5259 2.11-2.15

[10] NZS 5259 3.4

| Requirement | Commentary |
|---|---|
| | meter removals, 20 meter changes, and ten meter reinstallations where the meter serial had previously been recorded at another ICP. Nine of these were meter serial number corrections rather than physical meter replacements. Testing was consistently completed as set out in Powerco's Gas Operations Standard, and was compliant with NZS5259:2015.<br><br>I checked the processes for statistical sampling of meters with capacities less than or equal to $25m^3$ and found that it was compliant and consistent with NZS5259:2015. Most meters with capacities less than less than or equal to $25m^3$ are expected to be replaced as part of the advanced metering deployment. |

The 2021 audit found that Powerco did not technically comply with NZS5259 with regard to some non-TOU meters which had passed their certification date, because statistical sample testing was temporarily suspended. I confirmed that statistical sampling has resumed from 2022 with the roll out of AMI meters, and all meters with expired certifications are eventually expected to be replaced as part of the roll out.

### 4.1.1 Documentation

*NZS 5259 2.8 requires documentation be kept to demonstrate conformance with the requirements of the standard, including suitability, GMS component information, and testing.*

Blueworks is used to manage testing and maintenance processes and staff must answer a list of questions for each GMS, and the data is synchronised back to SAP. Emailed certificates from testing laboratories are automatically loaded into SAP against the ICP as long as the naming conventions applied meet the process requirements. If a meter certificate cannot update automatically, it will be reviewed through the error handling process. Separate emails are used for tests which have passed and failed, and all failures are manually reviewed. I checked a sample of records and confirmed that inspections were completed as scheduled, and paperwork was loaded in SAP. Paperwork and testing information was available for all new connections, meter pressure changes, meter removals, meter changes, and ten meter-reinstallations sampled.

Powerco does not complete conversions from CM to energy and does not need to keep documentation on this.

**TOU changes**

There was one upgrade to TOU metering during the audit period and I confirmed that the upgrade process was correctly followed. An error was made when updating the registry and the ICP had the TOU flag applied from 26 August 2023 instead of 22 June 2023, and the data was corrected during the audit. The issue occurred because a temporary GMS was installed until the permanent one was built.

I checked two downgrades from TOU to non TOU and confirmed that the downgrade process was correctly followed and the registry was updated correctly.

One TOU ICP was moved to non TOU for one day during a corrector and meter change and I confirmed that this was correctly reflected in Powerco's systems and on the registry.

### 4.1.2 Operation and maintenance

Powerco provided copies of their Gas Operations standards for GMS including GMS fabrication, operation, maintenance, testing and decommissioning. The standards are consistent with the requirements of NZS 5259and the rules.

I checked the process to schedule and complete maintenance in SAP's Blueworks and found it followed Powerco's operations standards. A maintenance plan is designed for each region and month, and then ICPs are added to the plan.

Blueworks is used to manage the process and staff must answer a list of questions for each GMS, and the data is synchronised back to SAP. Emailed certificates from testing laboratories are automatically loaded into SAP against the ICP as long as the naming conventions applied meet the process requirements. If a meter certificate cannot update automatically, it will be reviewed through the error handling process. Separate emails are used for tests which have passed and failed, and all failures are manually reviewed. I checked a sample of records and confirmed that inspections were completed as scheduled and paperwork was loaded in SAP.

**Faults**

Powerco uses an outage management system (OMS) to manage faults. End consumers and retailers can raise faults with the Network Operations Centre (NOC) who have a 24 hour seven day per week roster, and ensure that faults are promptly investigated especially if there is a safety risk. Commercial and industrial customers sometimes raise faults with their account managers, who then liaise with the NOC.

Non-urgent faults including those relating to meter accuracy are normally received from retailers after they have completed an initial investigation to determine whether they are likely to be genuine meter issues.

Field work required for faults is logged in CWMS and tracked using SalesForce through to completion. Faults for commercial and industrial meters are also recorded in SAP. The results of any field work and investigation relating to faults is communicated to the retailer. The previous audit recommendation to consistently track faults and monitor work through to completion has been adopted, and this is managed using SalesForce.

I checked 21 examples of faults during the audit period including potentially stopped or faulty meters which meter accuracy was disputed, meters damaged by corrosion, and meters which could not be read due to condensation or damaged perspex covering the index. Powerco attended and checked and/or replaced the meters for all of the faults. Appropriate testing was conducted where it could be completed, and the retailer was advised of the outcome of the testing and fieldwork. For some seized meter registers, Powerco could only confirm that the meter was not recording consumption and was not able to test the degree of accuracy.

**Provision of meter data**

Powerco does not provide meter readings for any of its non-TOU meters. Readings are obtained by meter readers on behalf of retailers.

Powerco does not provide meter readings for any of its AMI meters. Bluecurrent has arranged for Powerco to replace its NGCM non AMI meters with capacities less than 25 SCMH on the Powerco network with Powerco AMI meters. Bluecurrent collects the AMI data and provides it to the retailer as their meter reader.

Powerco does not provide meter readings for its TOU meters with telemetry. The readings are pushed to Landis+Gyr except for approximately ten GMS with PLUM corrections which are read by MetSolv. The reading files are reformatted and sent to Bluecurrent who provide the data to the retailer as their meter reader.

Powerco staff visit TOU sites to manually download GMS data for its TOU ICPs without telemetry on the first and second working day of each month. They note if there are any physical issues with the meter and will raise a fault if they have concerns. The data is provided to the Gas TOU team who validate the data by pasting it into a master sheet and graphing it to identify any missing data or unexpected values. If data is missing it is queried with the staff member who obtained the data, and they are asked to attempt to read the meter again. If any unusual data is identified checks are completed to try to determine the reason. The raw data is then emailed to the retailer, along with supporting information on any anomalies or missing data. The data provided to the participants is consistent with the raw data. A sample of downloads were provided, and no issues were identified. Powerco does not complete estimations or corrections on behalf of retailers, and does not convert CM to energy.

For any TOU site without telemetry, retailers can arrange for their own meter reader to visit the ICP and download the meter data.

### 4.1.3 Testing

Powerco provided copies of their Gas Operations standards for GMS including GMS fabrication, operation, maintenance, testing and decommissioning. The standards cover acceptance testing, in service testing, as found testing and statistical sampling and are consistent with the requirements of NZS5259:2015 and the rules.

I checked the accuracy of sample of metering changes from throughout the audit period including 20 new connections, 20 meter pressure changes, 20 meter removals, 20 meter changes, and ten meter reinstallations where the meter serial had previously been recorded at another ICP. Nine of these were meter serial number corrections rather than physical meter replacements.

Testing was consistently completed as set out in Powerco's Gas Operations Standard, and was compliant with NZS5259:2015.

I checked the processes for statistical sampling of meters with capacities less than or equal to $25m^3$ and found that it was compliant and consistent with NZS5259:2015. Most meters with capacities less than less than or equal to $25m^3$ are expected to be replaced as part of the advanced metering deployment.

## 4.2 Provision of metering price codes

*The Gas (Switching Arrangements) Rules 2008 r49.1 requires meter owners to determine, publish and maintain a schedule of its metering price codes applicable to all ICPs where it is the responsible meter*

*owner and provide a copy of that pricing schedule to registry participants it contracts to, unless the pricing is disclosed on application under r50.*

Powerco supplied a copy of their meter pricing schedule, which is sent to all retailers as part of the yearly pricing updates and is also available on request.

## 4.3 Disclosure on application

*The Gas (Switching Arrangements) Rules 2008 r50 allows meter owners to not publish pricing and disclose pricing on application where they does not have a reasonably practicable alternative method of protecting its commercial interest in that information to the extent necessary to protect that interest. They must confirm whether they will disclose the pricing within one business day of receiving a request, and if they agree to disclose the information it must be provided within a further business day.*

Powerco withholds meter pricing information from the registry at some larger sites due to commercial sensitivity.

Powerco have a portal through which they receive pricing requests for DOA ICPs for meter and/or network pricing. Powerco responds to them with pricing as soon as they are received. I reviewed a sample of requests during the audit period and confirmed Powerco provided a response including pricing within one business day of receiving the request.

## 4.4 Registry information for new ICPs

*The Gas (Switching Arrangements) Rules 2008 r56 require the meter owner to enter metering details on the registry within two business days of confirming the metering equipment is installed, or has been notified that a meter is installed.*

The ICP application and creation process is discussed in detail in **section 3.1**. All new connections to the Powerco network are required to have Powerco meters installed. The new connection application process collects information on the and appliances to be installed which is used to determine the GMS, regulator and pressure requirements according to Powerco's Gas Operations Standards. The standards cover acceptance testing and are consistent with the requirements of NZS 5259 and the rules.

As part of the new connection process a work order is created in SAP for metering to be installed and the ICP connected. Once work completion paperwork is received it is uploaded into SAP and manually entered into CWMS. Once all required fields are populated in CWMS to allow the ICP to move to "ready" status on the registry, the update is produced and sent to the registry overnight.

| Gas (Switching Arrangements) Rules 2008 rule | Commentary |
|---|---|
| **56.1 and 56.2** The responsible meter owner must update the registry within two business days of confirming that metering equipment has been installed. | A sample of 52 new ICPs created during the audit period were checked and I confirmed that metering details and event dates were correctly recorded compared to work completion notices. All updates checked were found to be completed as soon as practicable once work was completed.<br><br>I checked the timeliness of updates for the 5,624 ICPs which were connected during the audit period. 3,929 ICPs (69.8%) had metering information recorded within two business days of the connection date. I checked all 23 ICPs which had the required information populated more than 50 business days after the connection date. The latest update was 166 business days after connection. In all cases, the registry was updated within two business |

| Gas (Switching Arrangements) Rules 2008 rule | Commentary |
|---|---|
| | days of Powerco receiving confirmation of the ICP being connected, because they received late notice of the connection. |
| **56.3** If an ICP has an ICP status of "new" or "ready" and no responsible meter owner, any meter owner who has installed metering equipment must enter the meter details on the registry and become the meter owner. | All new connections to the Powerco network are required to have Powerco meters installed. The process is closely managed to ensure that Powerco is recorded as the responsible meter owner and metering details are updated on the registry as soon as they become available. |

## 4.5 Maintenance of ICP information

*The Gas (Switching Arrangements) Rules 2008 r58.1-58.2 require the meter owner must use its reasonable endeavours to maintain current and accurate information in the registry.*

**Maintenance of registry information**

Fieldwork relating to metering is managed using SalesForce cases, and work is monitored through to completion by the Gas Hub team.

For work that does not relate to the AMI meter roll out, work completion notices are emailed to Powerco by the contractor and passed to the retailer, and the update is manually processed in CWMS and then transferred to the registry. For some faults and meter tests, paperwork is provided via Blueworks.

For the AMI meter roll out, installation contractors provide an excel report showing the ICP, new meter serial number, make, model, date installed, location, whether the meter is operating at network pressure, meter pressure, number of dials, multiplier and the removed meter details. The file is imported through Blueworks into SAP, and imported into CWMS. Exceptions are generated if the old meter information does not match and/or the systems cannot be updated. The exceptions are reviewed and resolved manually.

As discussed in **section 3.3**, registry population is automated from CWMS and the file includes all relevant fields. The registry synchronisation process imports data from the registry into CWMS at 3am each day, and exports data from CWMS to the registry at 7.30pm each day. Information sent to and received from the registry is monitored, and automated emails are generated and reviewed each morning to identify failed updates.

**Registry and data validation**

Powerco completes a weekly reconciliation between CWMS and the registry, and weekly data discrepancy checks each Wednesday. I walked through the validation process and reviewed the reports and exceptions.

| Weekly report | Description |
|---|---|
| Reconciliation between CWMS and the registry | This report identifies differences between registry and CWMS for each metering field that Powerco maintains. Discrepancies are checked to determine whether they are timing differences; or require investigation and/or correction. The 23 October report contained 154 metering exceptions, five had occurred within the past day and the remainder were known historic differences. |

| Weekly report | Description |
|---|---|
| Validation report | The validation report identifies potential data discrepancies, which are investigated and resolved each week including:<br>• **Missing meter serial numbers**: this shows ICPs where Powerco is the meter owner and the connection status indicates a meter is present and no meter serial is recorded; the exceptions are checked to confirm whether they are timing differences or action is needed - there were ten discrepancies on the report on 23 October 2023,<br>• **AMS smart meters**: this shows ICPs with a smart meter make and model which is not on a xxS smart meter pricing code - there were four discrepancies on the report on 23 October 2023,<br>• **Incorrect digits:** this report shows meters with an unusual number of digits for their meter make and model; discrepancies are checked and resolved by reviewing installation paperwork if available and checking with the metering team - there were 78 discrepancies on the report on 23 October 2023, of which, most relate to older meter installations, and<br>• **Meter pricing final dates:** this shows ICPs with multiple meter pricing codes and whether there is an end date for earlier code (CWMS does not usually apply pricing end dates, and automatically considers the previous price category to be end dated the day before the new pricing category starts, and the most recent meter price category code is recorded on the registry with the corresponding start date); the Juniper system is used for billing and requires an end date on the old pricing category when an ICP moves to smart meter billing to ensure that it is billed correctly - there were 194 discrepancies on the report on 23 October 2023 and only two related to smart meter ICPs which required correction. |

**Event date setting**

Event dates should reflect the date from which the attribute values for the event apply. CWMS contains an install date, pressure set date and meter price category code start date. Meter price category codes changes have the meter price category code start date applied as the event date, and meter pressure changes have the pressure set date applied. The install date is applied as the event date for any other metering attributes as they are always expected to apply from the meter installation date.

I checked the accuracy of sample of other metering updates from throughout the audit period including 20 meter pressure changes, 20 meter removals, 20 meter changes, and ten meter reinstallations where the meter serial had previously been recorded at another ICP. All had the correct event dates recorded.

**Accuracy of registry information**

The completeness and accuracy of information within each registry field was checked:

| Field | Commentary |
|---|---|
| **Metering** | |
| Meter Identifier | A meter identifier is populated for all ICPs except those with a status which indicates that the meter is removed. |
| Meter Location Code | A meter location is populated for all ICPs except those with a status which indicates that the meter is removed. 6,744 ICPs have an “unknown” meter location, and were |

| Field | Commentary |
|---|---|
| | mostly created prior to CWMS and the registry being implemented. Only five ICPs with unknown meter locations were created after 2016, and none were created after 2020. Meter locations are required for any meter replacements so as these meters are replaced, their locations will be updated. |
| Meter Pressure | A meter pressure between 1 and 170 kPa is populated for all ICPs except ICPs which are indicated to be TOU, which have a blank meter pressure. |
| Register Multiplier | No Powerco ICPs have register multipliers greater than one. A register multiplier of one is populated for all ICPs except ICPs which are indicated to be TOU, which have no multiplier recorded. |
| Meter Pressure Operating at Network Pressure Flag | This is optional and not populated for Powerco metered ICPs. |
| Register Reading Digits | Meter register digits are populated for all ICPs except ICPs which are indicated to be TOU, which have no digits recorded and removed meters which have zero digits. |
| Standard Meter | Standard meter is set to yes for all ICPs. |
| Prepay meter | Prepay meter is set to no for all ICPs. |
| Advanced Meter & Advanced Meter Owner | All ICPs with AMI metering have the advanced meter flag set to yes, and the advanced meter owner set to POCO. This information is automatically populated when an advanced meter make and model is selected to ensure consistency.<br><br>An AMI meter reconciliation is run weekly and worked through monthly, to ensure that information is consistent and accurate. It compares data received from the smart meter team against CWMS and identifies differences in serial numbers, installation dates and pressures. Differences mainly occur where data has changed since the initial installation, usually because poor pressures have been detected and fixed.<br><br>I compared advanced meter owners and metering price categories to identify potentially incorrect metering information. Three ICPs had MT10S smart meter codes without a smart meter owner populated, because an incorrect meter make and model was recorded in CWMS. The affected ICPs have been corrected and the correct advanced meter owner is now recorded in the registry.<br><br>ICP 1000616255PGBE4 has Powerco recorded as the advanced meter and telemetry owner and a MT10 meter pricing code. It appears that the contractor may have recorded the wrong meter type on the WCN, and the details will be checked and updated once the correct details are confirmed. |
| Meter owner | Meter owner is set to Powerco for all ICPs where Powerco is the meter owner. |
| TOU Meter | All 71 TOU ICPs correctly have TOU meter set to yes. |
| Logger Owner | 19 TOU ICPs have the logger owner set to yes. All of the ICPs had a logger owner recorded prior to the current audit period and are believed to be correct. |
| Corrector Owner | All 71 TOU ICPs correctly have the corrector owner set to yes. Powerco confirmed that they are the corrector owner for all their TOU meters. |

| Field | Commentary |
|---|---|
| Telemetry Owner | All ICPs with AMI metering have the telemetry owner set to POCO. This information is automatically populated when an advanced meter make and model is selected to ensure consistency. |
| Metering Price Category | Pricing is linked to meter models to ensure that AMI meters are assigned an "S" smart meter pricing code.<br><br>I compared network price categories, load shedding categories, advanced meter owners, and metering price categories to identify potentially incorrect metering price categories.<br><br>For 17 ICPs which are expected to have their metering replaced as part of the residential or small commercial smart meter roll out, Powerco has made a commercial decision not to update their network price category until the ICP has a smart meter deployed and the metering price categories are correct.<br><br>ICP 1000516721PG602 has a xG11 residential price code applied and an MT140 meter with capacity of 85-140 SCMH. The meter is less than 10 SCMH and the price category has been corrected in consultation with the retailer.<br><br>Three ICPs had MT10S smart meter codes without a smart meter owner populated, because an incorrect meter make and model was recorded in CWMS. The affected ICPs have been corrected and the correct advanced meter owner is now recorded in the registry.<br><br>ICP 1000616255PGBE4 has Powerco recorded as the advanced meter and telemetry owner and a MT10 meter pricing code. It appears that the contractor may have recorded the wrong meter type on the WCN, and the details will be checked and updated once the correct details are confirmed. |
| Metering Details | Metering details are optional and are not recorded in CWMS, but can be manually populated on the registry for ICPs where adding further information on the meter location is helpful.<br><br>1,278 GAS ICPs have text in this field to provide further location information, such as "Dockway Meter Cupboard", "Amesbury Side of Building" or "behind music room" or a reference number. |

One off network ICP had Powerco recorded as the meter owner, because the retailer had made an error when selected the responsible meter owner. The meter owner was later corrected to NGCM.

I checked the accuracy of sample of 30 backdated metering updates, 20 new connections, 20 meter pressure changes, 20 meter removals, 20 meter changes, and ten meter reinstallations where the meter serial had previously been recorded at another ICP. Nine of these were meter serial number corrections rather than physical meter replacements. Three of the 120 records had at least one incorrect metering attribute; including one incorrect pressure change, one incorrect corrector change and one incorrect TOU field. The incorrect meter pressure was identified and corrected during the audit, and the other two errors were identified and corrected through Powerco's validation processes. All three were corrected as soon as practicable after Powerco became aware that the information was incorrect, and the retailer was advised so they could process corrections. Correction was prior to the final reconciliation submission being provided so there is no market impact.

Under the rules each ICP must have its gas volume measured directly by a single set of metering equipment complying with NZS 5259:2015, or measured indirectly by a method approved by the industry body. I checked a sample of five or all ICPs per connection status where the ICP's status

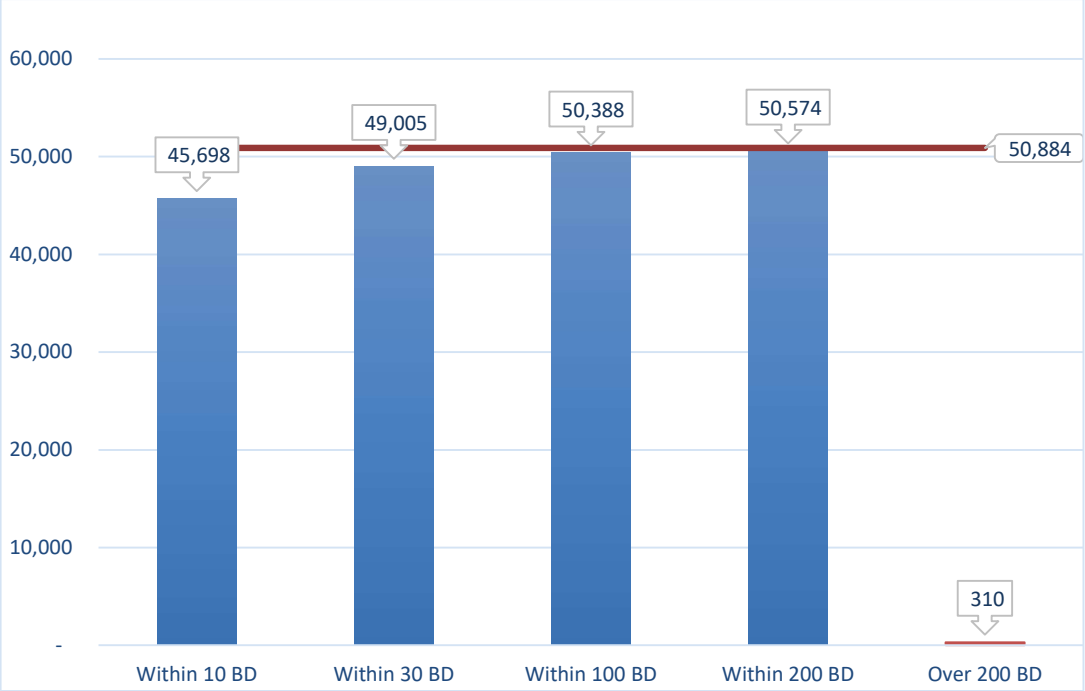
indicated that a meter was present but the meter serial was REMOVED and Powerco was the meter owner. Five were timing differences and meters were installed after the report was run. Powerco confirmed that the other 19 ICPs had no metering and the retailer had incorrectly recorded a metered status.

I checked a sample of 20 ICPs at GNM, GSM or GVM status which indicate the meter is removed, but a Powerco GMS is recorded:

- for 12 ICPs Powerco believes the ICP is still present, and their status is correct,
- six ICPs relate to new connections, where the meter can be installed in advance of it being connected and consuming gas, and
- for ICPs 0004201019NG7BA and 0043144650PG23D the meters were installed the day after the ICPs moved to "inactive" unmetered statuses, and Powerco will follow up with the retailer because they believe that the ICPs should be "active".

**Timeliness of registry metering updates during the audit period**

I checked the timeliness of the 50,884 registry updates during the audit period by comparing the event date to the update date. The results are shown on the chart below.




I checked the 30 latest updates which did not relate to new connections and found they were caused by:

- late works completion notices,
- incorrect or incomplete works completion notices which required investigation to confirm the correct details before the registry could be updated,
- backdated corrections to meter serial numbers where the meter serial number effective from the meter's installation date, and
- changes where a meter pricing end date was updated in CWMS, which reversed the previous meter event and immediately replaced it with a record with the same attributes.

The Gas (Switching Arrangements) Rules 2008 r61.1 require distributors to correct or update information in the registry as soon as practicable after becoming aware that information is incorrect

or requires updating. For the sample of late updates checked, I confirmed that Powerco did meet this requirement.

**Conclusion**

| Gas (Switching Arrangements) Rules 2008 rule | Commentary |
|---|---|
| **58.1** A meter owner must use their reasonable endeavours to maintain current and accurate information in the registry for ICPs and ICP parameters it has responsibility for | ICP 1000516721PG602 has a xG11 residential price code applied and an MT140 meter with capacity of 85-140 SCMH. The meter is less than 10 SCMH and the price category has been corrected in consultation with the retailer.<br>Three ICPs had MT10S smart meter codes without a smart meter owner populated, because an incorrect meter make and model was recorded in CWMS. The affected ICPs have been corrected and the correct advanced meter owner is now recorded in the registry. |
| **58.2** When entering information in the registry it must meet the requirements of schedule 1 | All information checked met the registry requirements for the field, and any data sent to the registry that does not meet the file format requirements would fail. |
| **61.1** Responsible meter owners must update and correct registry information as soon as practicable once they become aware that information is incorrect or requires updating. | Compliance is recorded because Powerco updated CWMS and the registry as soon as they were able and/or as soon as they were aware that a registry update was required. |

| **Maintenance of current and accurate meter owner information about ICPs** | | |
|---|---|---|
| **Non-compliance** | **Description** | |
| Report section: 3.3<br>Rule: GSAR r58.1<br>From: 1 January 2022<br>To: 24 October 2024 | Audit history: Yes<br>Controls: Acceptable<br>Impact: Minor | ICP 1000516721PG602 has a xG11 residential price code applied and an MT140 meter with capacity of 85-140 SCMH. The meter is less than 10 SCMH and the price category has been corrected in consultation with the retailer.<br>Three ICPs had MT10S smart meter codes without a smart meter owner populated, because an incorrect meter make and model was recorded in CWMS. The affected ICPs have been corrected and the correct advanced meter owner is now recorded in the registry. |

| **Remedial action rating** | **Remedial timeframe** | **Remedial comment** |
|---|---|---|
| Complete | Complete | Complete |

| **Audited party comment** | |
|---|---|
| The circumstances of the matters outlined in the breach notice. | Powerco was able to confirm that the codes were shown incorrectly for the ICP's detailed in the audit report which appears to have been due to processing errors. |

| | |
|---|---|
| Whether or not the participant admits or disputes that it is in breach. | Powerco admits to this breach. |
| Estimate of the impact of the breaches (where admitted). | The impact is minor. The pricing differences have an impact on the retailer and end consumer, but there were a small number of inaccuracies. All inaccuracies have not been corrected with the retailer's agreement. |
| What steps or processes were in place to prevent the breaches? | Meter changes are captured via a workflow process which requires users to manually populate specific information. It appears in these cases a manual data error has been made. |
| What steps have been taken to prevent recurrence? | We will review our validation reports to ensure we capture future discrepancies of this type. |

# 5. Conclusion

Powerco continues to have a high level of compliance, and all previous audit recommendations have been adopted. Compliance is built into Powerco's standards, policies and procedures, which well understood and closely followed by their team members.

There are good validation processes in place, and I saw evidence that exceptions are promptly identified and corrected, and where new or better information becomes available (such as updated address details) Powerco's systems and the registry are updated. Powerco's validations cover all required fields, and the checks completed are for each field type are reasonable.

Overall, Powerco's registry data was on time and there was a high degree of accuracy. Some isolated data accuracy errors were identified, and I found the majority of the errors were created prior to the current audit period and the data recorded in CWMS and the registry matched. Most of the errors had an insignificant or minor impact, but some affecting pricing had a moderate impact on retailers, and their customers and some affecting network pressure resulted in temperature factors outside the maximum permissible error set out in NZS 5259.

One alleged breach is made for late distributor information, and eight breach allegations are relating to data accuracy exceptions (six as a distributor and two as a meter owner).

Two recommendations are made. One to liaise with the retailer for ICP 0002043581QT61E to determine whether it can be decommissioned for consistency with its gas gate status, now that MGK05401 (Mangatainoka) has been decommissioned. The other is to refine the focus for Powerco's network pressure validations, to target ICPs which have a higher likelihood of an inaccurate network pressure.

Powerco is motivated to check and correct the exceptions identified, and a number of corrections have already been processed.

# 6. Recommendations

As a result of this audit, I have made two recommendations:

| Report section | Recommendation |
|---|---|
| 3.3 | During Powerco's periodic validation of network pressures, I recommend they focus on gas gates where a small number and/or proportion of ICPs connected to gas gate have a different network pressure to most ICPs connected to that gas gate, as these have a higher probability of being incorrect. During the pre-audit analysis these instances were easily identified from a registry list.<br>I found 14 gas gates had GAS ICPs with more than one network pressure. I checked ICPs with network pressures assigned to less than 5% of ICPs connected to the gate and found 156/229 exceptions had incorrect network pressure values. |
| 3.4 | Liaise with the retailer for ICP 0002043581QT61E to determine whether it can be decommissioned for consistency with its gas gate status. |

# Appendix 1 – Control Rating Definitions

| Rating | Definition |
|---|---|
| Ineffective | The design of controls overall is ineffective in addressing key causes and/or consequences.<br>Documentation and/or communication of the controls does not exist (e.g., policies, procedures, etc.).<br>The controls are not in operation or have not yet been implemented. |
| Needs improvement | The design of controls only partially addresses key causes and/or consequences.<br>Documentation and/or communication of the controls (e.g., policies, procedures, etc.) are incomplete, unclear, or inconsistent.<br>The controls are not operating consistently and/or effectively and have not been implemented in full. |
| Acceptable | The design of controls is largely adequate and effective in addressing key causes and/or consequences.<br>The controls (e.g., policies, procedures, etc.) have been formally documented but not proactively communicated to relevant stakeholders.<br>The controls are largely operating in a satisfactory manner and are providing some level of assurance. |
| Effective | The design of controls is adequate and effective in addressing the key causes and/or consequences.<br>The controls (e.g., policies, procedures, etc.) have been formally documented and proactively communicated to relevant stakeholders.<br>The controls overall, are operating effectively so as to manage the risk. |

# Appendix 2 – Impact Rating Definitions

| Rating | Definition |
|---|---|
| Insignificant | A small number of issues with registry file timeliness and/or accuracy. Negligible impact on other participants or consumers. Did not prevent the process completing.<br>A small number of issues with the accuracy and/or timeliness of files to the Allocation Agent. Corrections were made by the interim allocation.<br>A small number of issues not related to registry or allocation information. |
| Minor | Some issues with registry file timeliness and/or accuracy. Minor impact on other participants or consumers. Did not prevent the process completing.<br>Some issues with the accuracy and/or timeliness of files to the Allocation Agent. Corrections were made by the interim allocation.<br>A small number of issues not related to registry or allocation information. |
| Moderate | A moderate number of issues with registry file timeliness and/or accuracy. Moderate impact on other participants or consumers. Did prevent some processes completing.<br>A moderate number of issues with the accuracy and/or timeliness of files to the Allocation Agent. Corrections were not made by the interim allocation.<br>A moderate number of issues not related to registry or allocation information. |
| Major | A significant number of issues with registry file timeliness and/or accuracy. Major impact on other participants or consumers. Did prevent some processes completing.<br>A significant number of issues with the accuracy and/or timeliness of files to the Allocation Agent. Corrections were not made by the interim allocation.<br>A significant number of issues not related to registry or allocation information. |

# Appendix 3 – Remedial Rating Definitions

| Rating | Definition |
|---|---|
| Completed | The alleged breach and impact have been resolved. Systems and processes are now compliant. |
| In progress | Steps are being taken to resolve the alleged breach and impact and ensure systems and processes are compliant. |
| No action | Participant undertakes no action to resolve or address auditor controls or impact assessments for commercial reasons. |

# Appendix 4 – Powerco Comments

Powerco's comments have been added to the remedial action and audited party comment sections of the non-compliance and recommendation boxes within this report.