Performance Measures Quarterly Report for the period ending 30 June 2016

1 Summary

This report provides an update on the performance measures that Gas Industry Co monitors on a regular basis. The purpose of these measures is to track the performance of the Gas (Switching Arrangements) Rules 2008 (the Switching Rules), the Gas (Downstream Reconciliation) Rules 2008 (the Reconciliation Rules), and the Gas Governance (Critical Contingency Management) Regulations 2008 (CCM Regulations), both in terms of activity related to these governance arrangements and the competitive outcomes that they foster. The Report also tracks transmission balancing actions, as a means of informing Gas Industry Co's work on this issue.

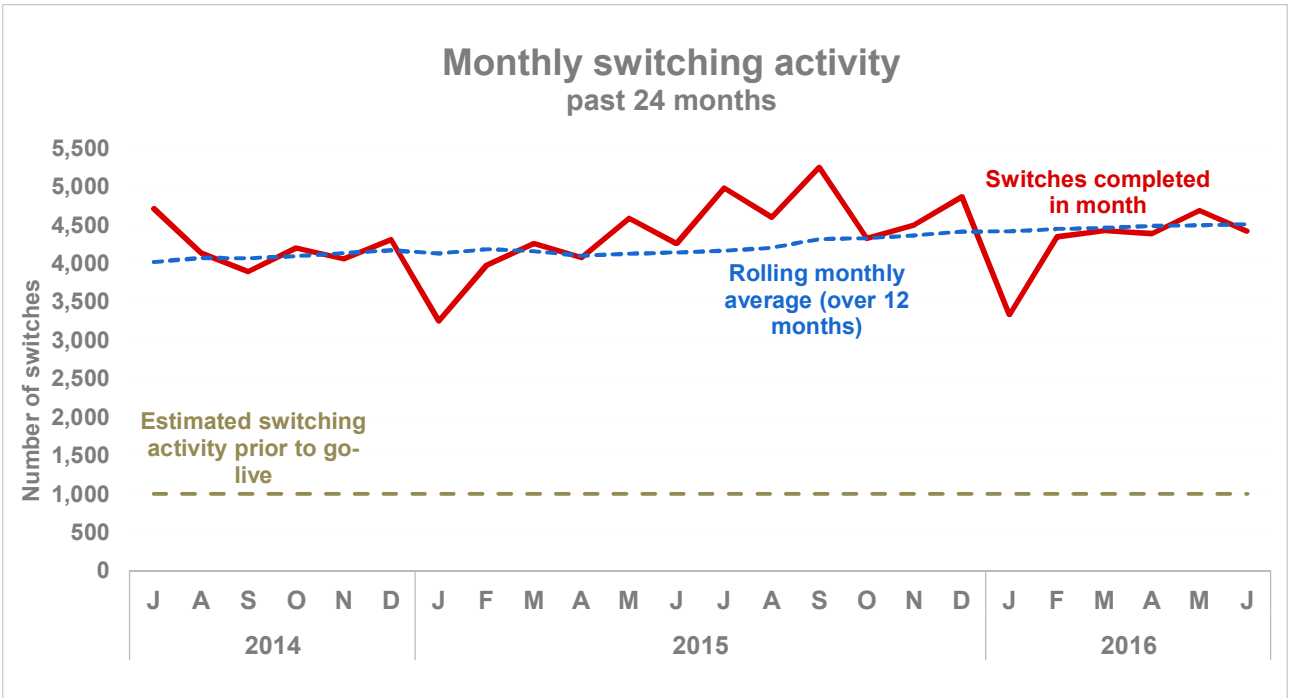
Explanatory details about the charts can be found in the Appendix to this report.

Highlights of the Report:

- About 4,500 gas consumers switch retailer each month, about 19.7% of gas consumers have switched in the past 12 months. Switching rates have been over 18% for more than two years.
- Over 80% of customer switches are completed within three business days.
- 58% of residential consumer sites have switched retailer at least once in the past five years; 64% of small commercial and 75% of large commercial sites have switched at least once.
- Nearly 99% of gas customers are connected to a gate where eight or more retailers trade, demonstrating that gas retailers generally are competitive throughout the North Island.
- Average annual unaccounted-for gas (UFG) over the past year stands at about 1.1% (compared with about 2% in 2009).
- Genesis is the largest retailer by customer share. Nova has the largest share of commercial and industrial customers.
- Genesis, Vector Gas and Nova Energy are the largest retailers by volume market share.

2 Switching performance measures

Chart 1: Monthly switching activity



- The average number of switches per month is trending upwards slightly; at the moment, about 4,500 consumers switch gas supplier each month.
- The churn rate for the 12 months to June 2016 is 19.7%, one of the highest rates of retail utility switching worldwide. Gas customers can switch retailers for many reasons, but the high level of activity in the gas retail market suggests that customers find changing retailer easy and can put pressure on retailers to offer competitive terms and pricing.
- See Chart A-1 in the appendix for a chart of switching activity since the start of the registry.

Chart 2: Regional switching activity

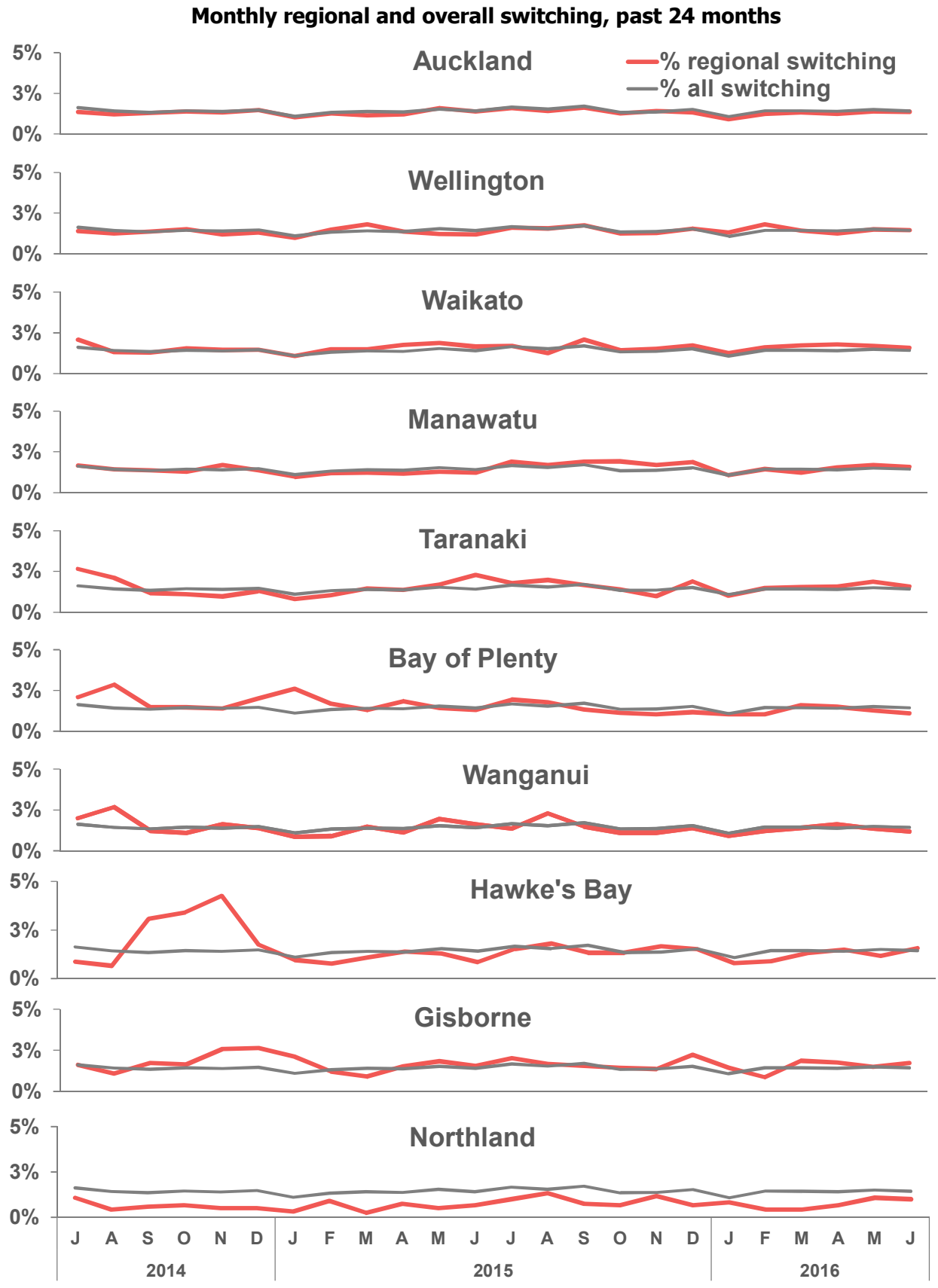
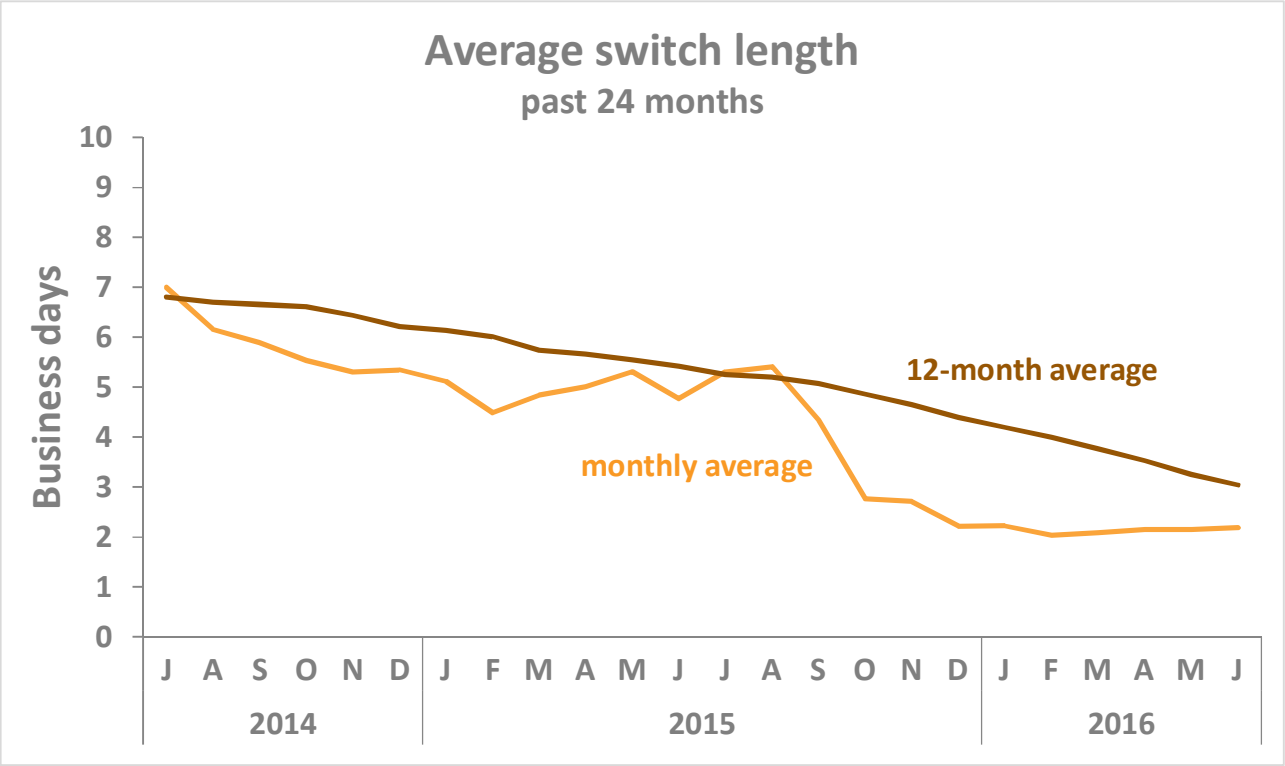
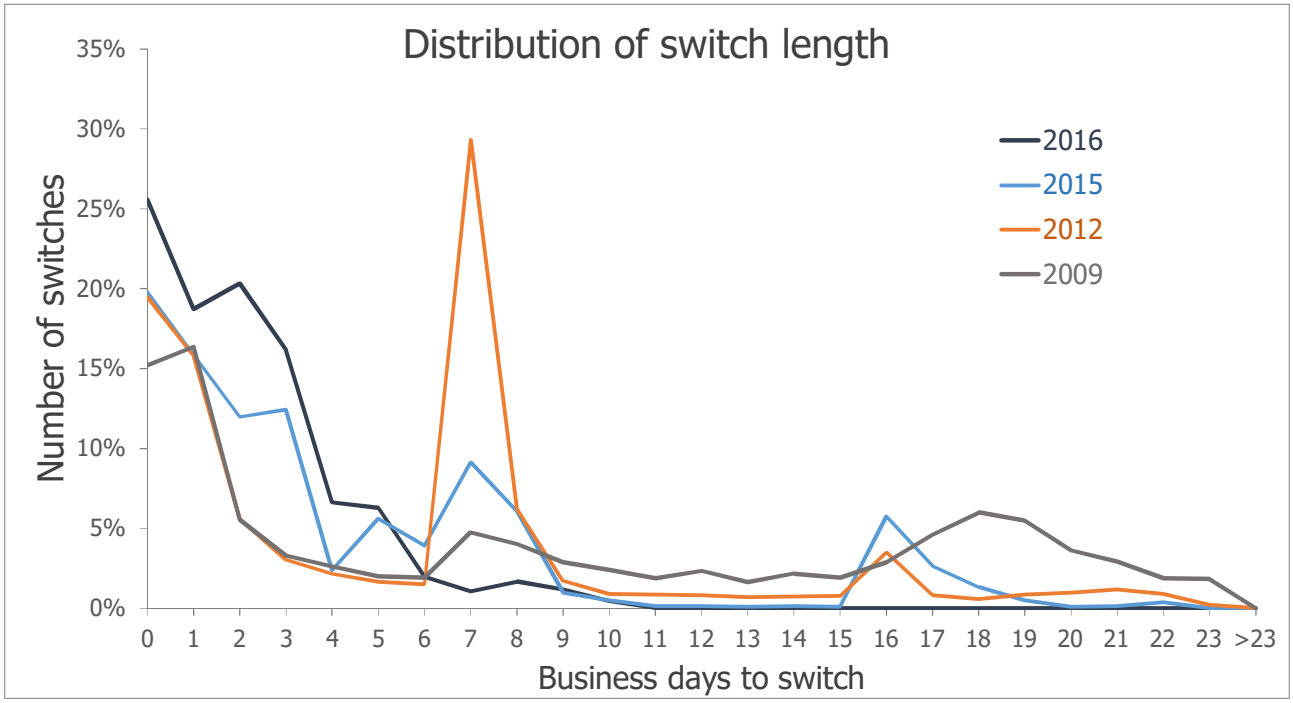


Chart 3: Time to process switches



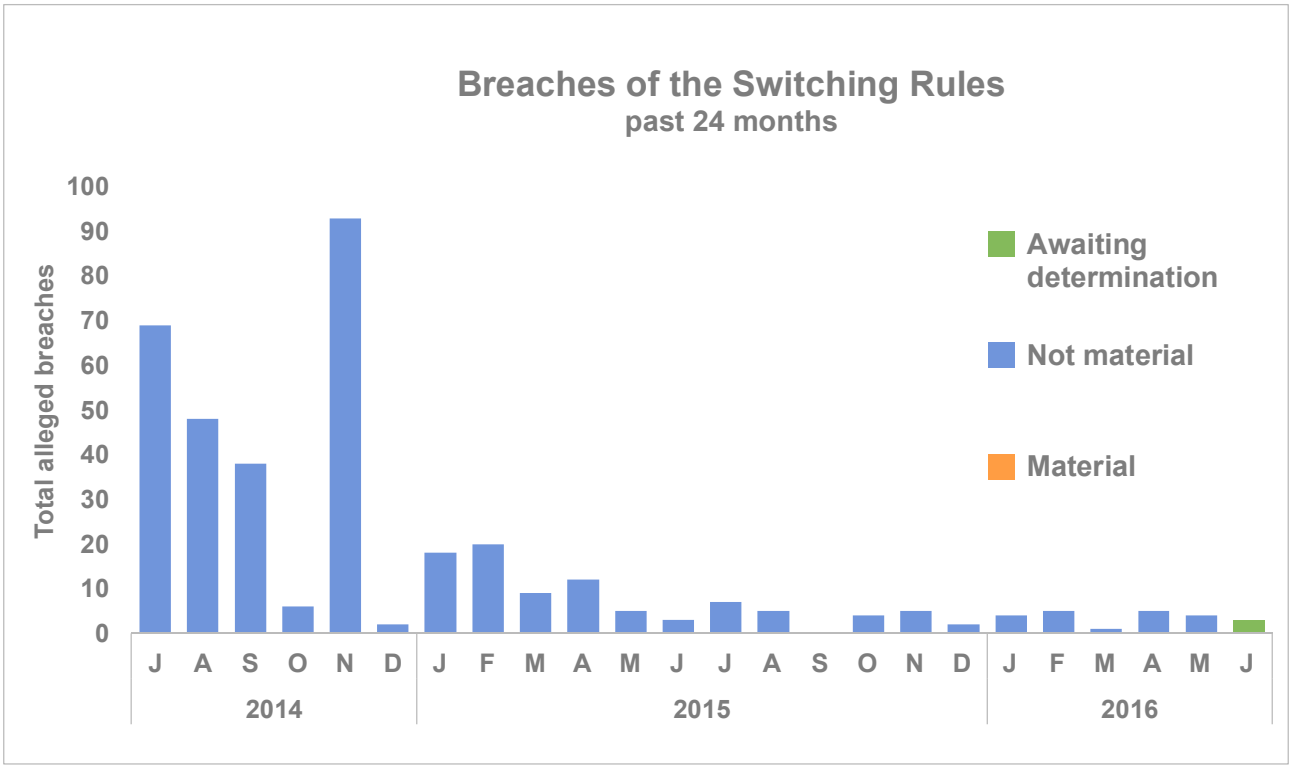
- Switching times have fallen markedly in the past two years. It now takes just over two business days, on average, for a switch to be completed.
- The 12-month average switching time stands at about 3.0 days.

Chart 4: Distribution of switching length



- This chart shows the distribution of switching times for the calendar years of 2009, 2012, 2015, and 2016.
- The chart shows the change in switch length over time. In all years, there were some switches that took place within two days. In 2009, over half of switches took at least seven days to complete. By 2012, three-quarters of switches took place in seven days or less. In 2015, there was a shift to completion within three days. So far in 2016, 81% of switches have been completed within three days.

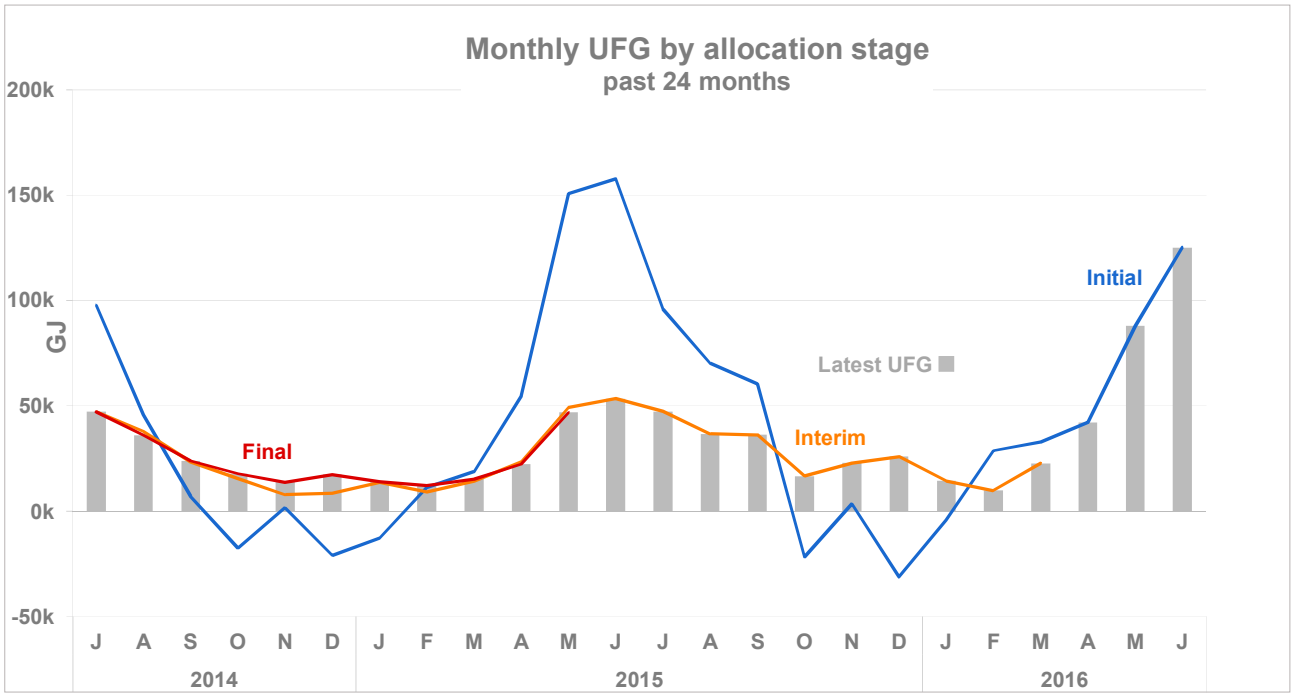
Chart 5: Number and severity of breaches of the Switching Rules



- No switching breaches have been found to be material for over two years.

3 Allocation and reconciliation performance measures

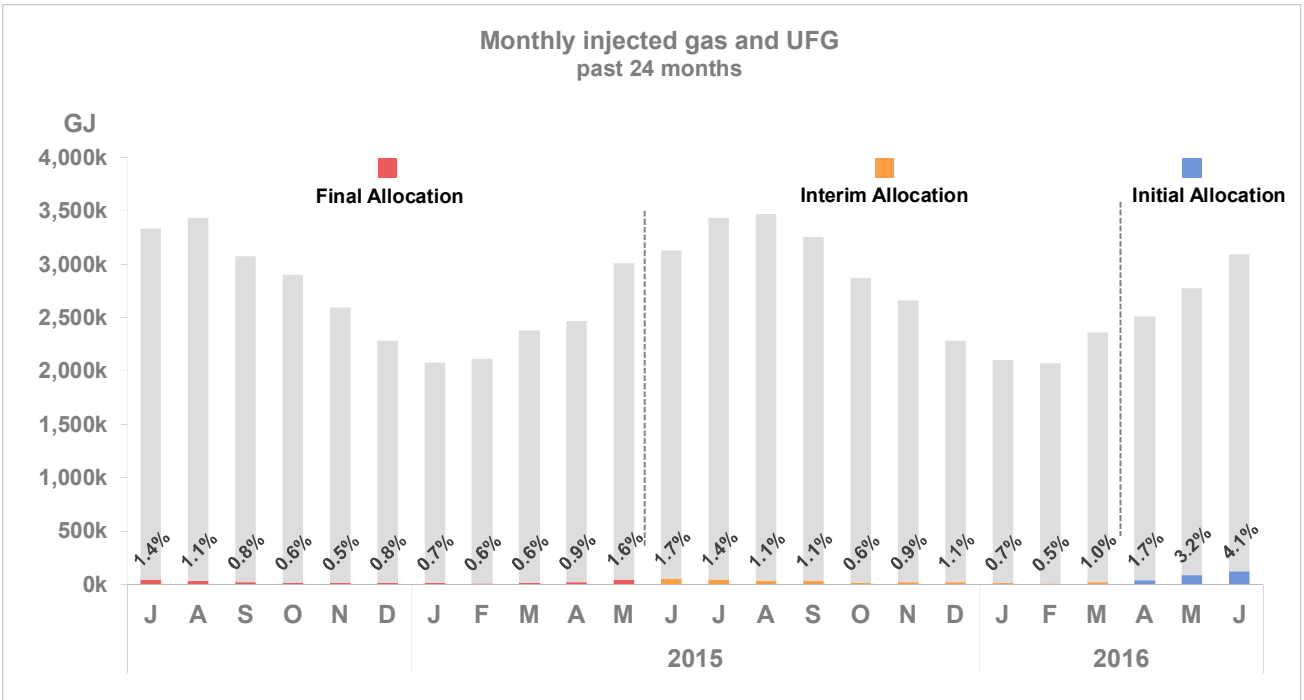
Chart 6: Volumes of unaccounted-for gas (UFG)



- As with previous years, UFG has increased in the autumn and winter months as consumption volumes have increased. Note that this chart uses the initial allocation produced by the allocation agent at the end of the month, not the D+1 allocation results.[1]
- See Chart A-2 in the appendix for a chart of UFG since the start of the Reconciliation Rules.

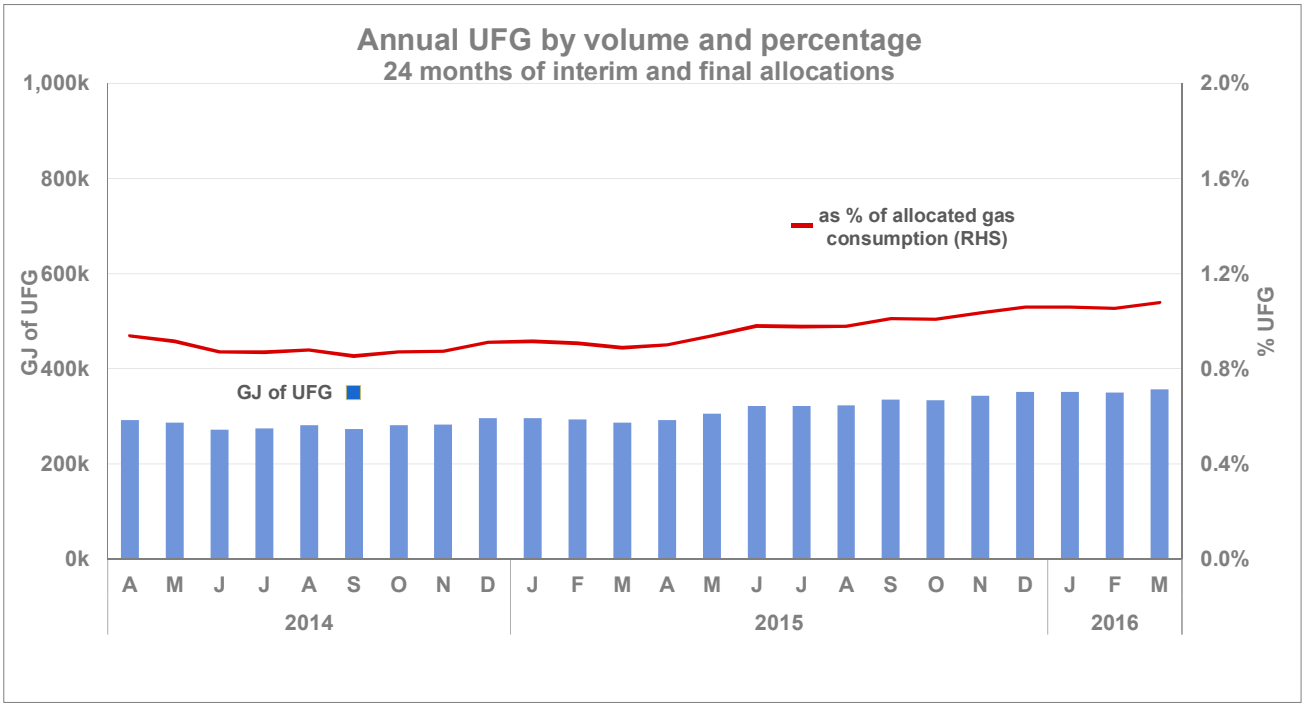
[1] The initial allocation produced by the Allocation Agent is a "bottom up" approach whereby each of the retailers submits data based on a combination of actual meter readings (historical estimates) and consumption estimates since the last meter reading (forward estimates). In that context, UFG is a meaningful measure of the difference between the aggregate estimates and the volumes that have entered the network. By contrast, D+1 is a system for dividing the network volumes among retailers and that process does not produce UFG figures that are comparable with the bottom-up approach to allocation.

Chart 7: Percentage of UFG



- UFG tends to be higher as a percentage when total volumes are high. This trend most likely due to UFG attributable to mass market consumption.

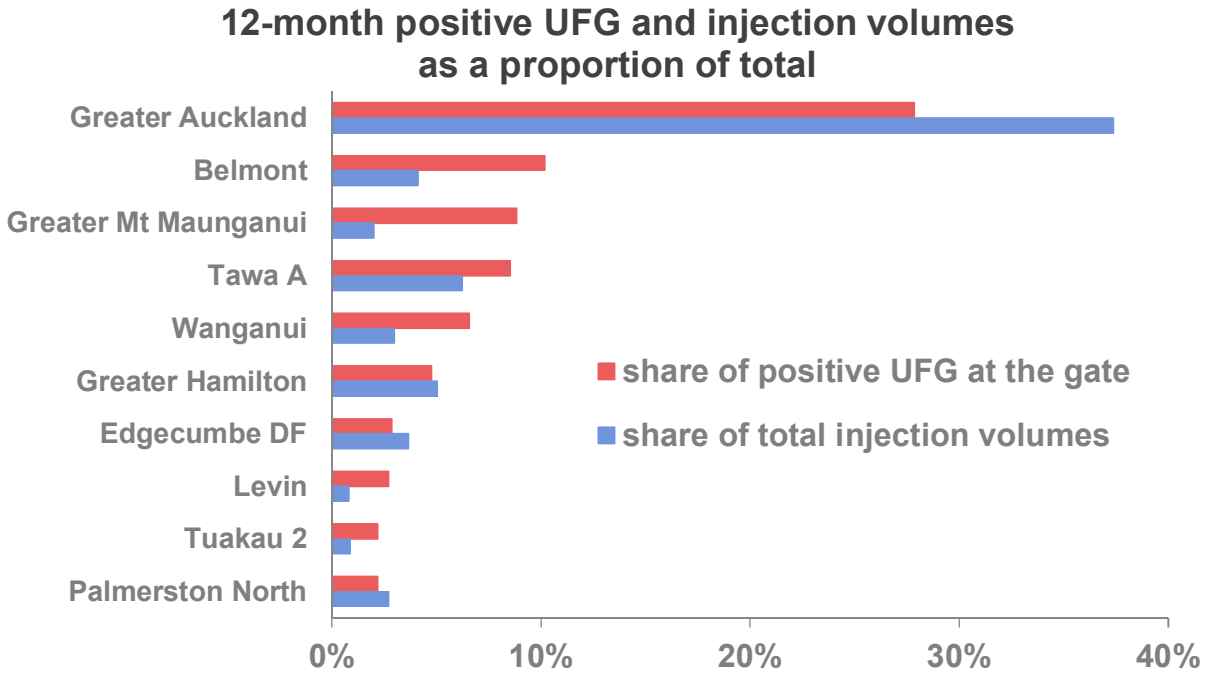
Chart 8: Rolling 12-month UFG

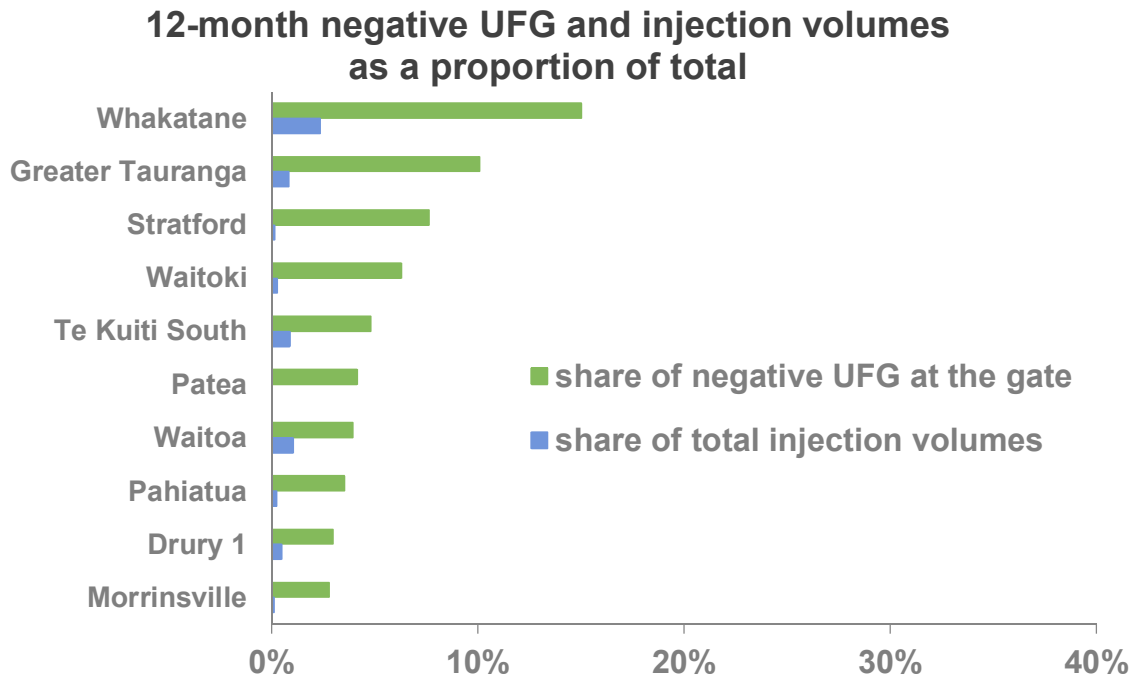


- In volume terms, annual UFG has decreased dramatically since 2009, when UFG was about 600,000 GJ per year. It now stands at about 367,000 GJ, about 1.1% of allocated gas consumption.

- Recently, UFG has been trending upward in both volume and percentage terms, possibly due to an increase in mass market consumption volumes.

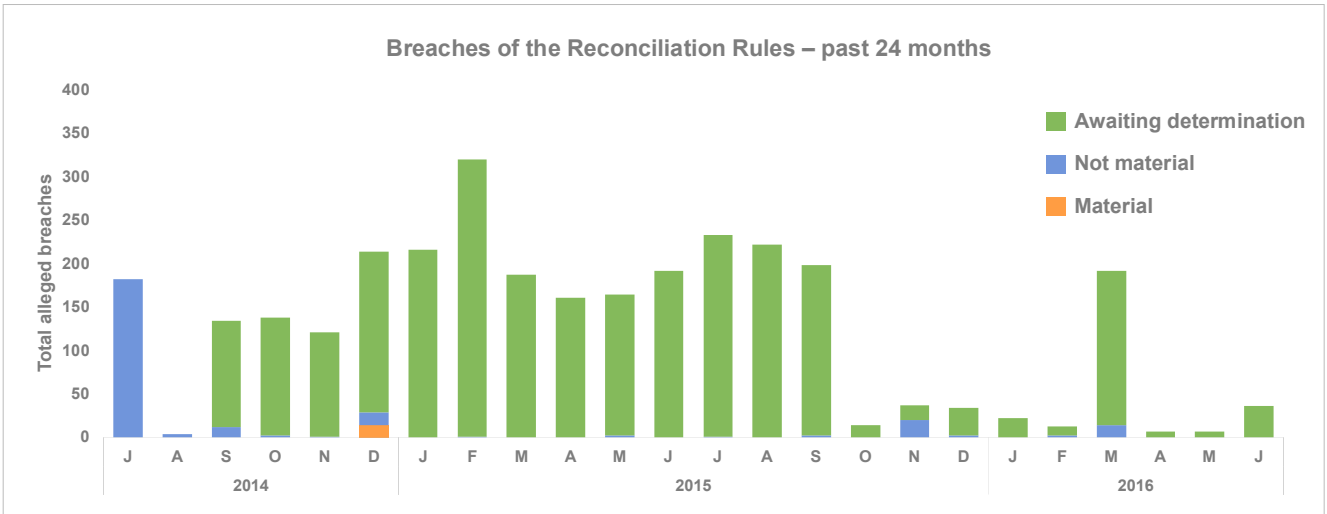
Chart 9: Gas gates where UFG is the highest





- These charts show the gates that experience the largest share of total UFG, compared to their share of total gas gate deliveries at shared gas gates. These charts use 12 months of the most recent interim and final allocation data available: in this case, April 2015 through March 2016.
- The 10 gates shown in the top chart account for 77% – about 343,000 GJ – of the positive UFG experienced over the past 12 months.
- The 10 gates shown in the bottom chart account for about 61% (about 55,000 GJ) of the negative UFG experienced in the past 12 months.
- A number of the gas gates shown have been determined to be global one-month gates, since, among other things, they have a high proportion of industrial load. The global one-month methodology assigns a share of the actual UFG experienced in a month to industrial consumers, in contrast to the usual calculation method, which assigns industrial load an annual average amount of UFG.
- In the first chart, Tuakau 2 and Edgecumbe are global one-month gates; Whakatane, Te Kuiti South, Waitoa, Pahiatua, and Drury 1 are in the second chart.

Chart 10: Number and severity of breaches of the Reconciliation Rules



- Historically, the majority of breaches have occurred in relation to rule 37 – the rule that requires initial consumption information submitted by retailers to be within a percentage of accuracy of the consumption information submitted for the final allocation.
- The very low level of alleged breaches in August 2014 can be attributed to the Allocation Agent omitting rule 37 breaches in its reporting that month. The Allocation Agent alleged the outstanding breaches in February 2015.
- In September 2015, the market administrator issued a guideline[2] on the materiality of rule 37 breaches, stating that instances where the volume involved is less than or equal to 200 gigajoules do not need to be alleged as a breach by the allocation agent, as there is no likelihood that those errors will raise material issues under the Reconciliation Rules. This change can be seen in the decrease in alleged breaches in October 2015.
- In March 2016, a number of breaches were alleged in relation to the audit of the Greater Tauranga and Greater Mount Maunganui gas gates.

[2] Available at http://gasindustry.co.nz/dmsdocument/5031.

- It has proven efficient for the Market Investigator (or, more recently, Gas Industry Co) to attempt to reach a settlement on 12-month batches of rule 37 breaches, which is why there are a large number of breaches awaiting determination.

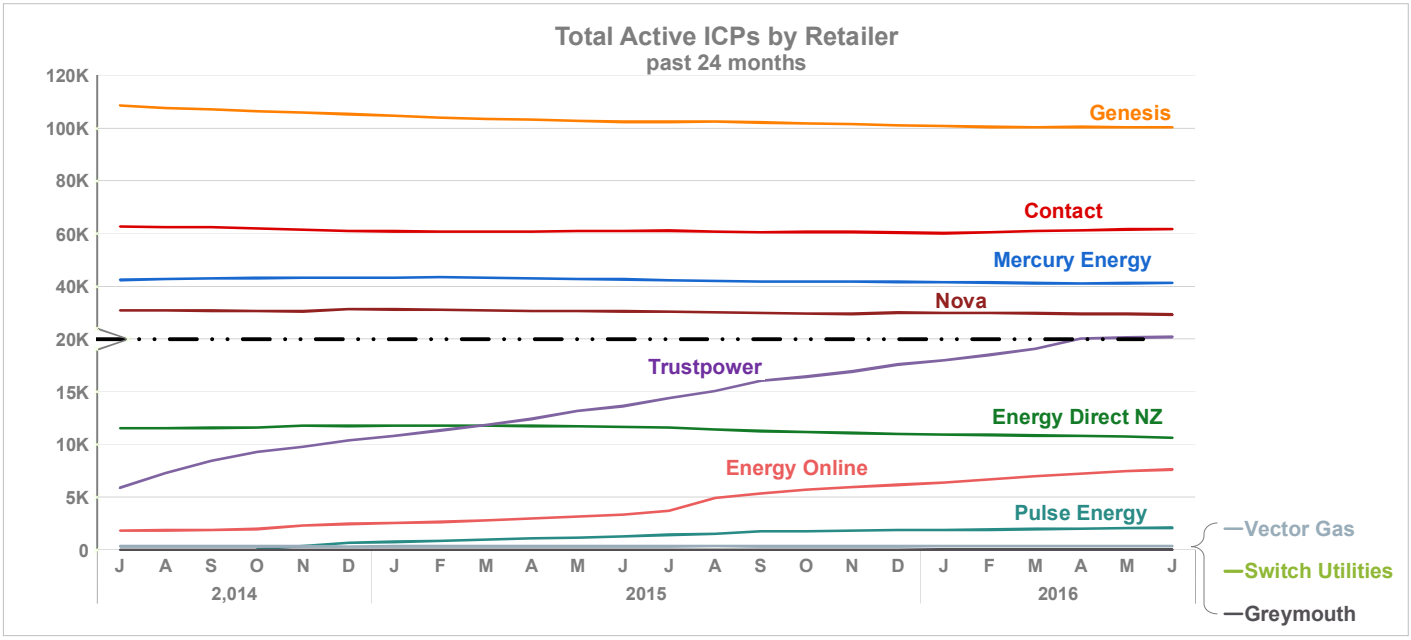
Audits commissioned

Event audits
No event audits were commissioned in this quarter.

Performance audits
The second round of retailer performance audits is complete and audit reports are available on the Gas Industry Co website.

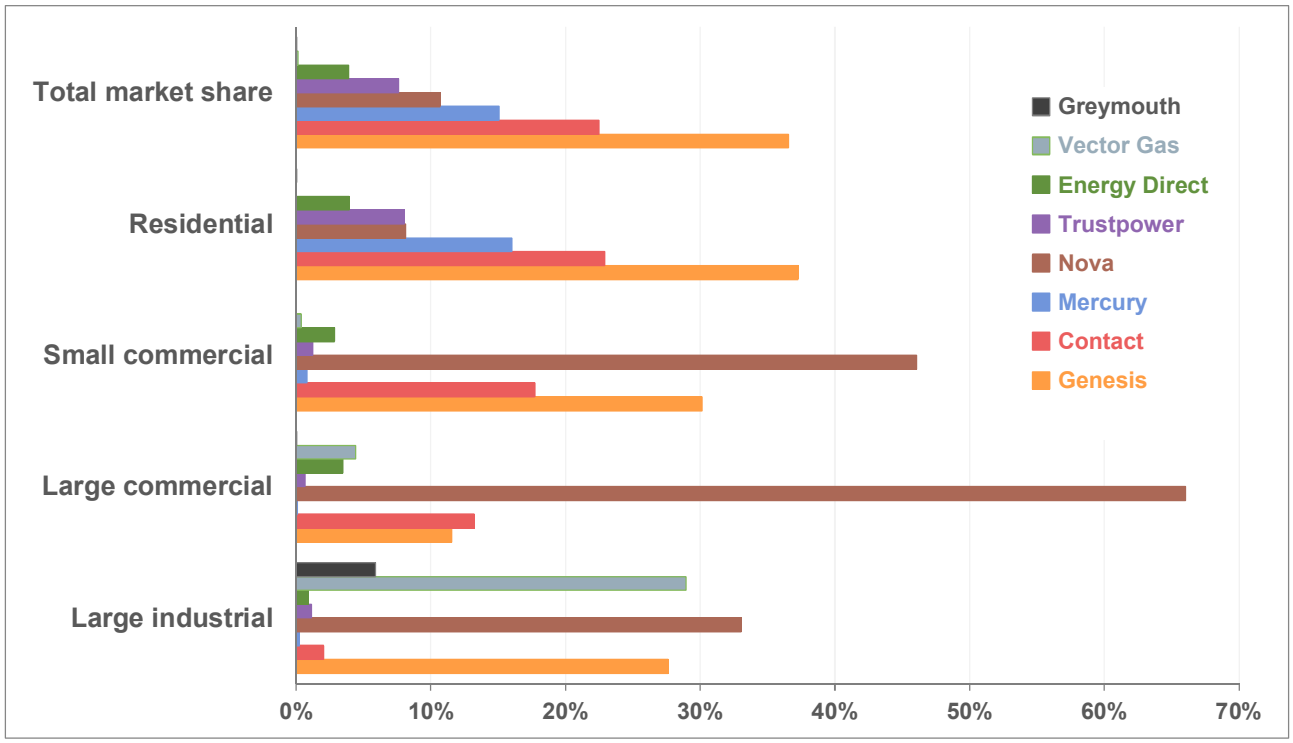
4 Market competition performance measures

Chart 11: Market share of ICPs by retailer



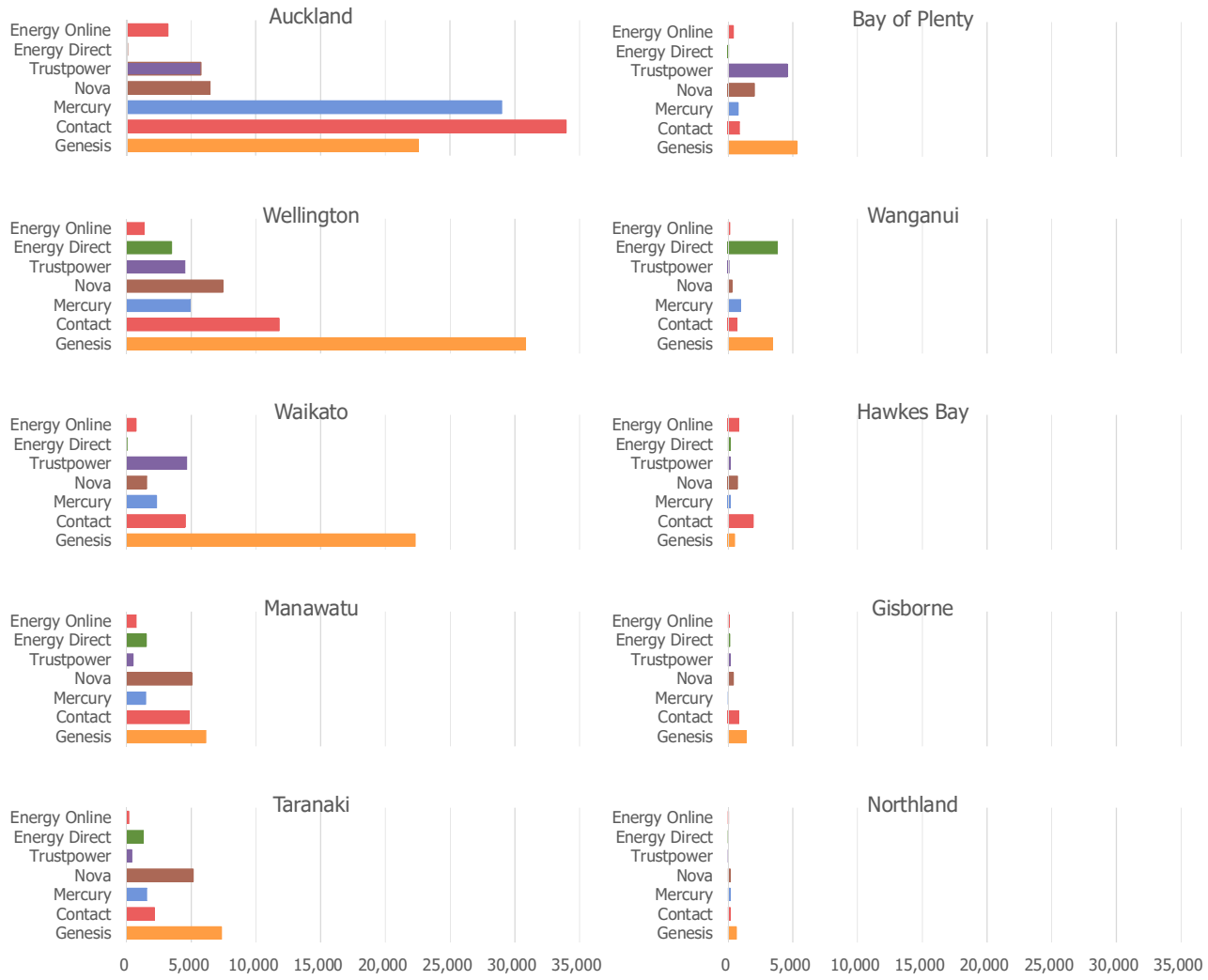
- This chart shows the contrast between the relative stability of customer numbers for the established retailers versus the growth of the new entrant retailers:
  - Trustpower, which entered the retail gas market in November 2013, now has over 20,000 customers;
  - Pulse Energy entered the market in October 2014;
  - Switch Utilities entered in July 2015.
- Energy Online is a retail brand of Genesis Energy and has also been experiencing growth in customer numbers.
- There are 11 distinct retail brands, owned by nine different retail companies (Energy Direct is owned by Trustpower; Energy Online is owned by Genesis Energy).

Chart 12: Customer market share by consumer segment



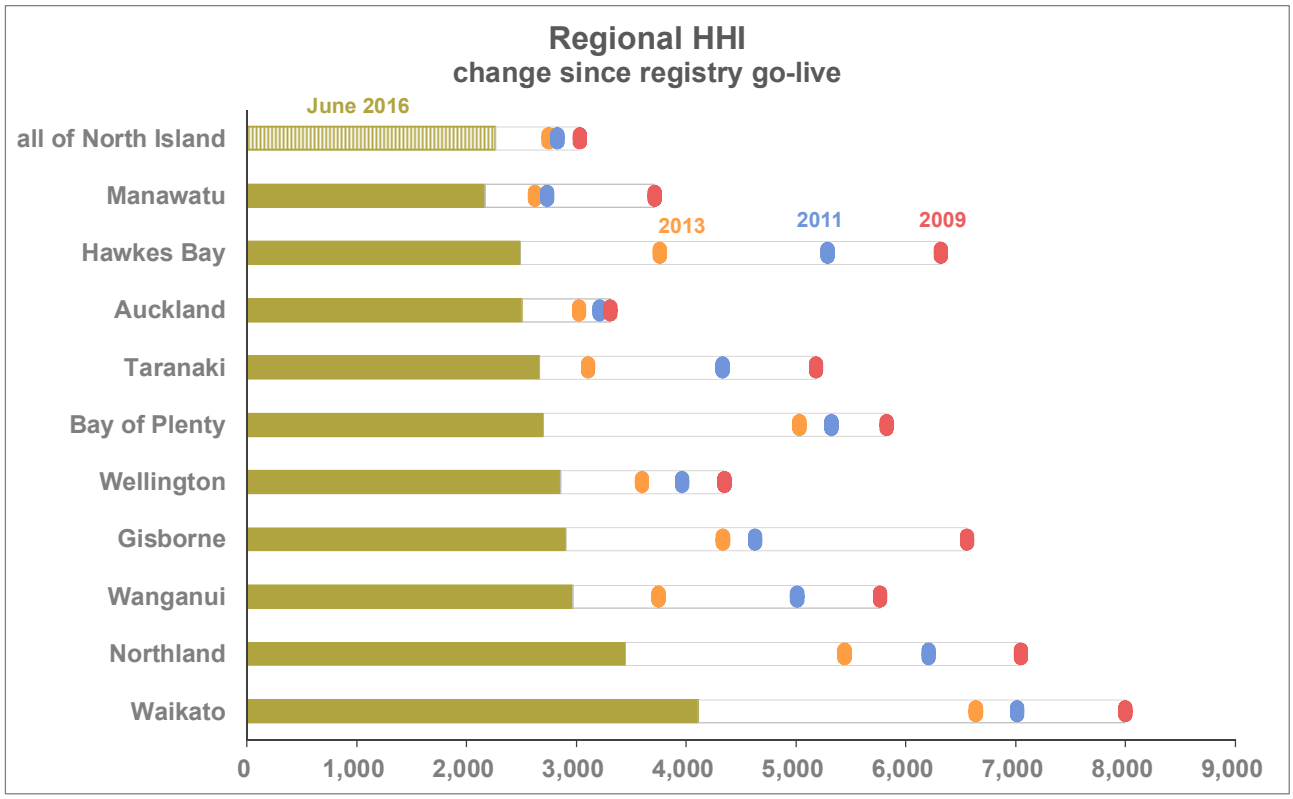
- In this chart, consumer segment is determined by the load shedding category listed on the gas registry for each consumer site. The top set of bars shows the same set of data as the previous chart. The other sets of bars show how some retailers are more dominant in specific sectors of the retail gas market. Vector Gas, for example, focusses on large industrial and commercial customers, while Greymouth has a focus on large industrial customers.
- The chart includes the retail brands that have more than 3% of market share in a category. Energy Online, Pulse Energy, and Switch Utilities, with 2.9%, 0.8%, and 0.008% of the residential market, respectively, are not shown on the chart. Switch Utilities also has 0.5% of the large commercial and 0.17% of the small commercial markets.

Chart 12a: Customer market share by region



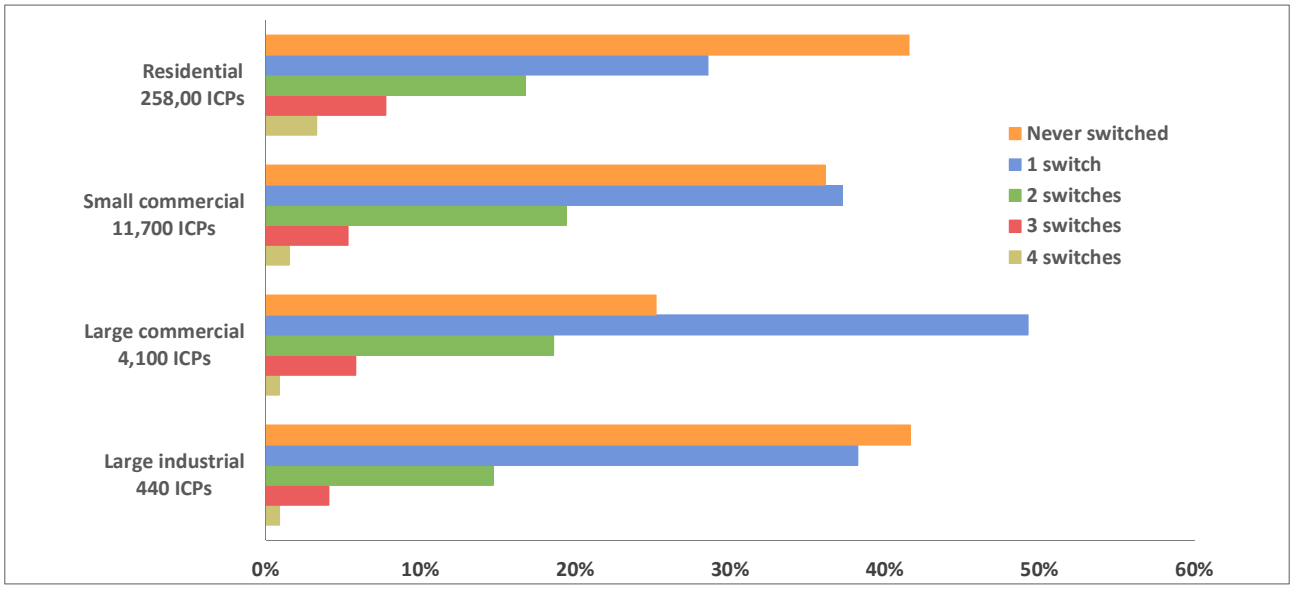
- This chart shows the number of ICPs for each retailer in each geographical region. The retailers shown each have over 1% of total customer market share.

Chart 13: Herfindahl–Hirschman Index (HHI)



- The HHI has decreased in all regions since 2009, indicating that the retail market is becoming less concentrated across the North Island.
- Nationally, the HHI stands at 2,261, in comparison to 3,033 in February 2009 (the start of the registry).

Chart 14: Switching by consumer sites since 2009

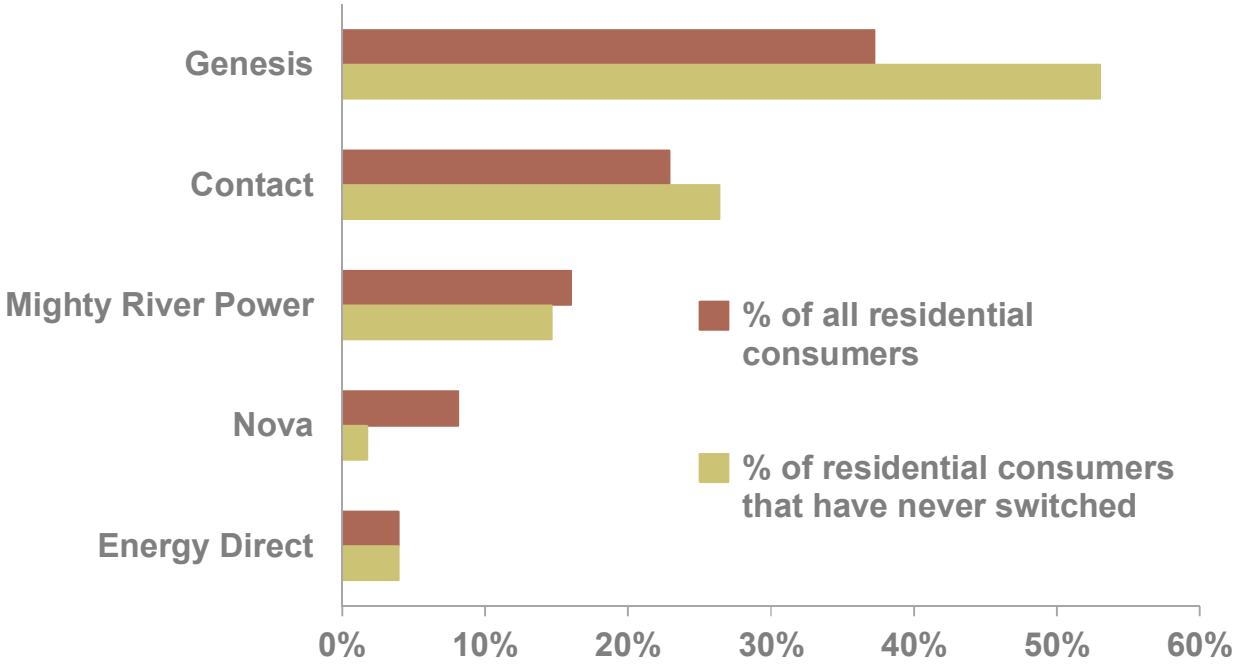


As with Chart 12, consumer sites in this chart and Chart 15 are categorised based on the load shedding category recorded in the gas registry.

- 58% of residential consumer sites
- 64% of small commercial sites
- 75% of large commercial sites; and
- 58% of large industrial sites

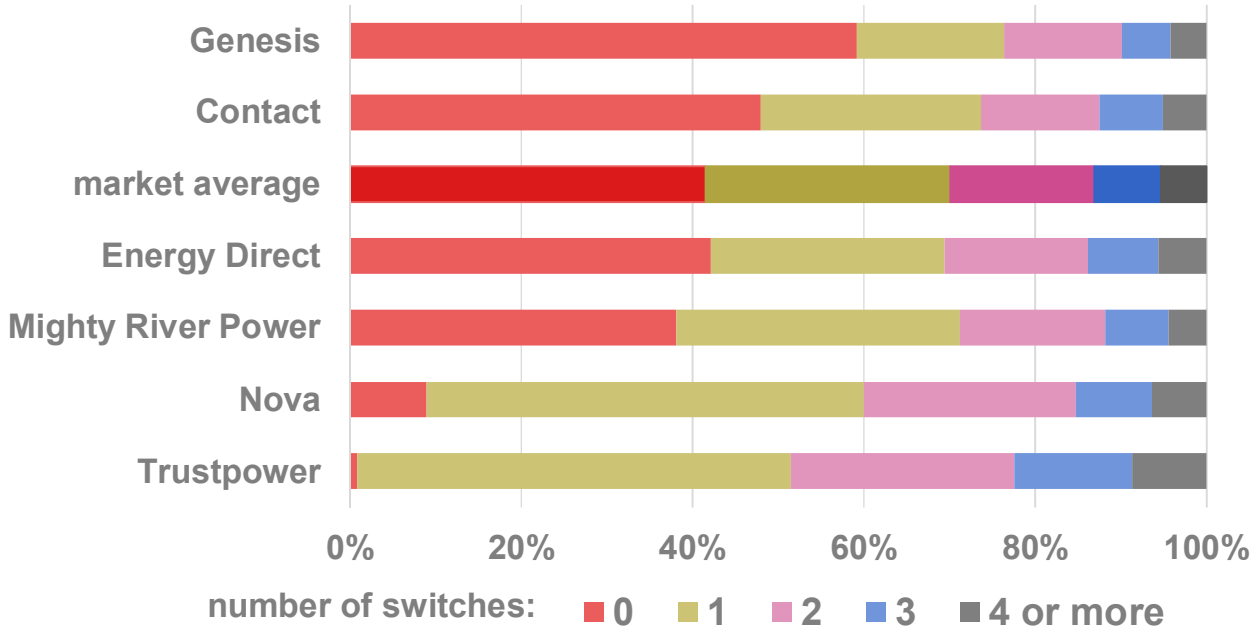
have switched retailer at least once since the start of the gas registry (February 2009).

Chart 15: Residential consumer sites that have never switched



- This chart compares retailers' market share of all residential consumers with their share of residential consumers that have never switched. It shows, for example, that Genesis has about 37% of the total residential market, and about 53% of the residential consumers that have not switched retailer since the start of the gas registry in February 2009.
- The chart focuses on the incumbent retailers that were in operation at the start of the gas registry. .

Chart 15a: Residential customers by number of switches



- This chart provides another way to think about residential customer switching. The third bar repeats the data on residential switches from chart 14 above: 42% of residential consumer sites have never switched retailer; 29% have switched once; 17% have switched twice; 8% three times, and 5% four or more times.
- The other bars enable comparison with retailers' residential customer bases. 59% of Genesis customers, for example, have never switched; the proportion is 48% for Contact customers.
- In contrast, Trustpower has built its customer base almost entirely through switching: 51% of its customers have switched once; 26% twice; and 14% three times. (Trustpower is also retailer to a small number of newly-created ICPs that have never switched.)

Chart 16: Switching activity by retailer

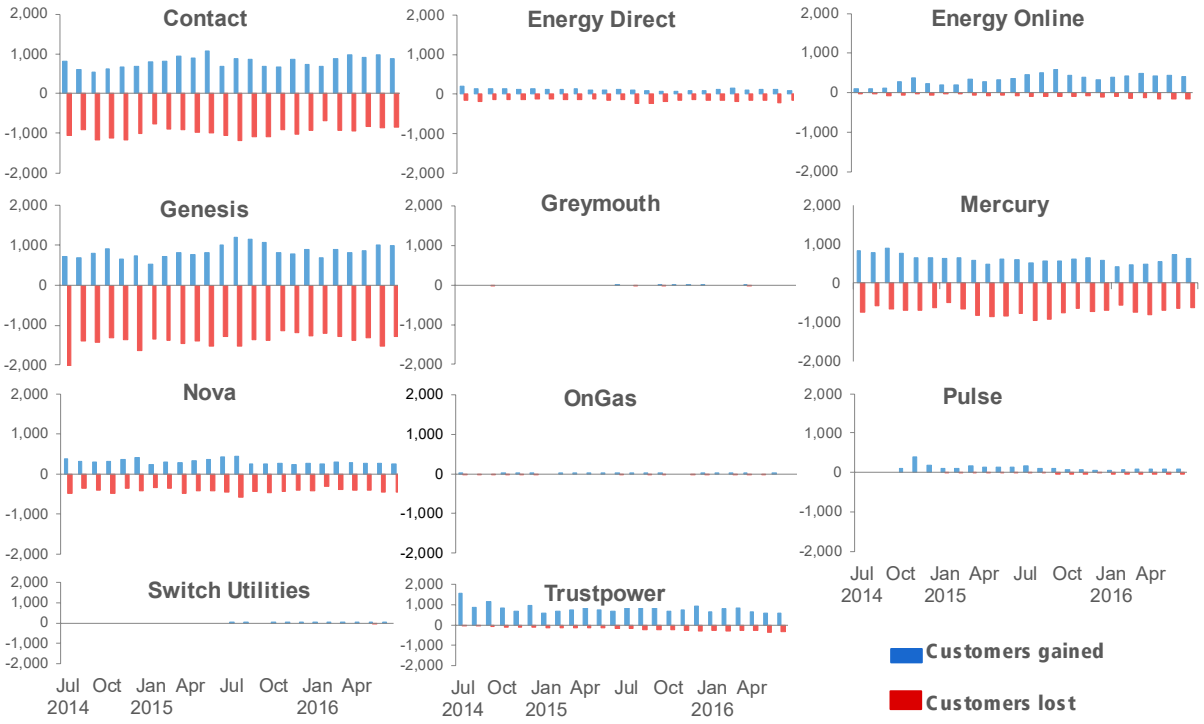
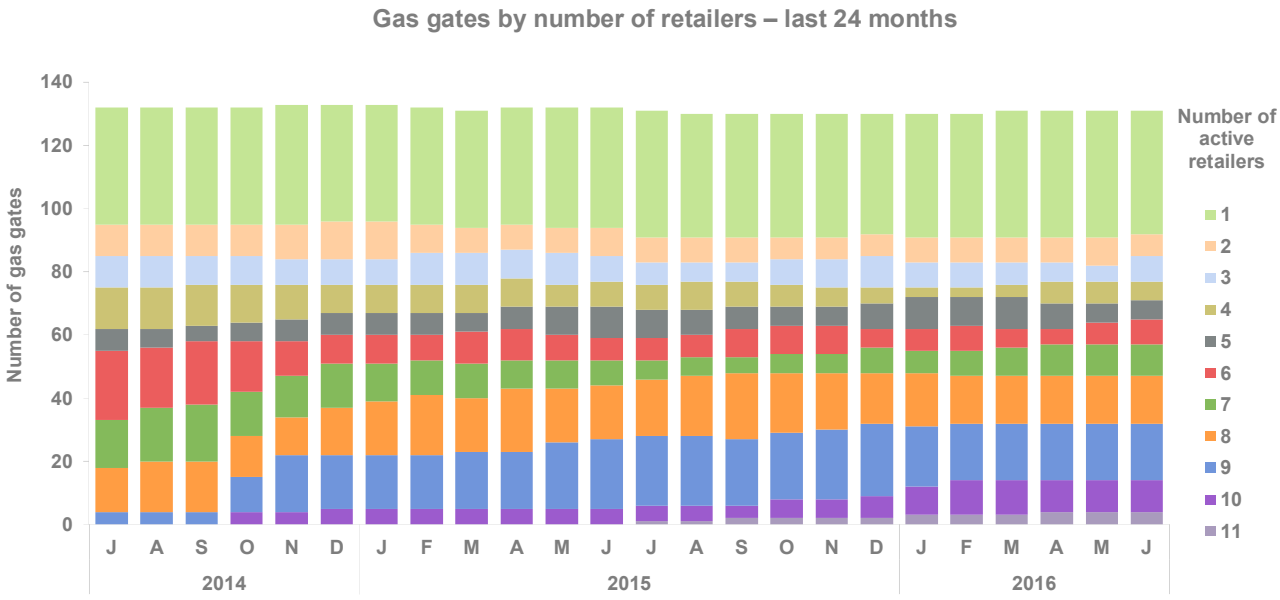
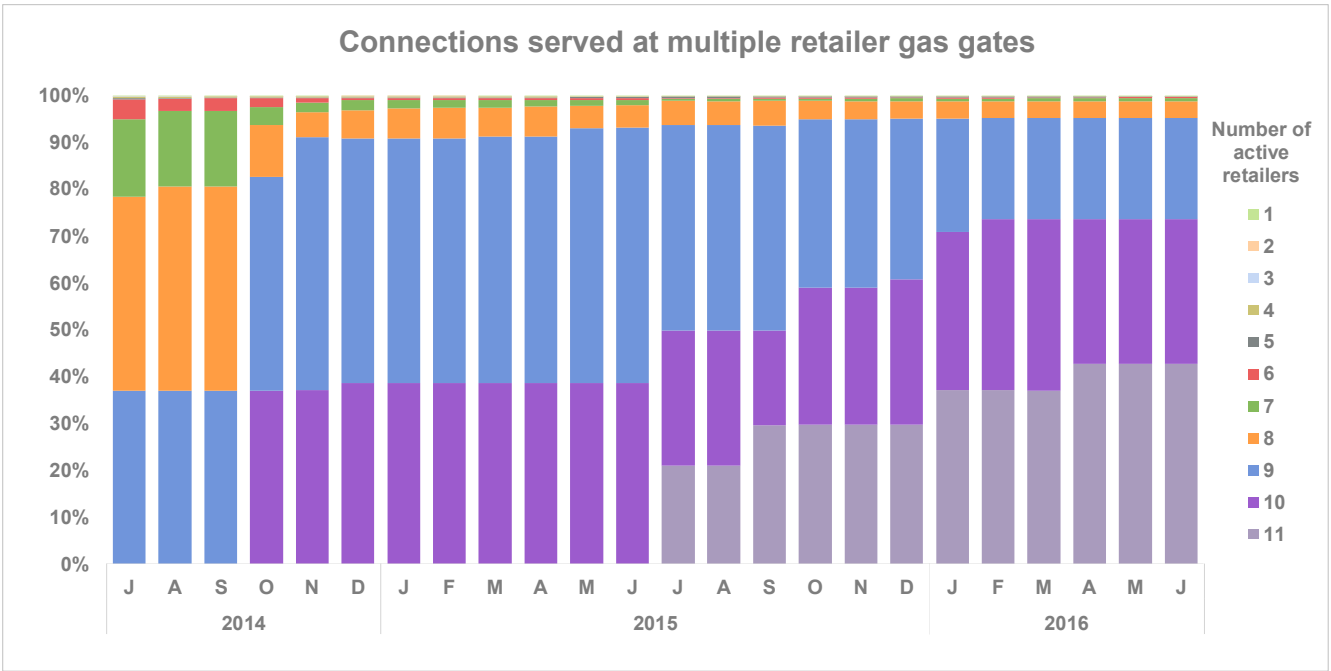


Chart 17: Gas gates by number of retailers



- Due to Switch Utilities entering the retail gas market in July 2015, there are now 11 retailers trading at some gas gates in the Wellington and Auckland regions.
- The chart also shows the step change due to Pulse Energy's entry into the retail gas market in October 2014.

Chart 18: Connections served by multiple retailers



- Nearly 99% of gas consumers are connected to a gate where eight or more retailers trade.

Chart 19: Total gas volumes

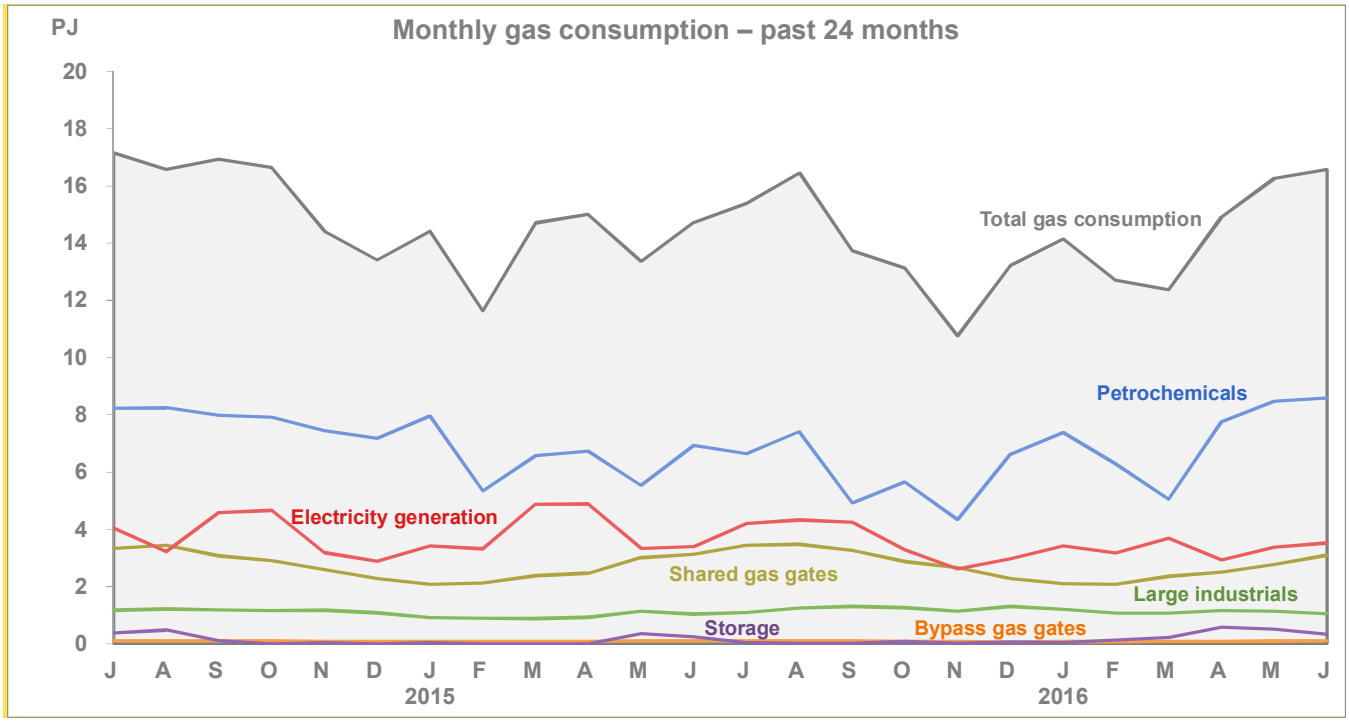
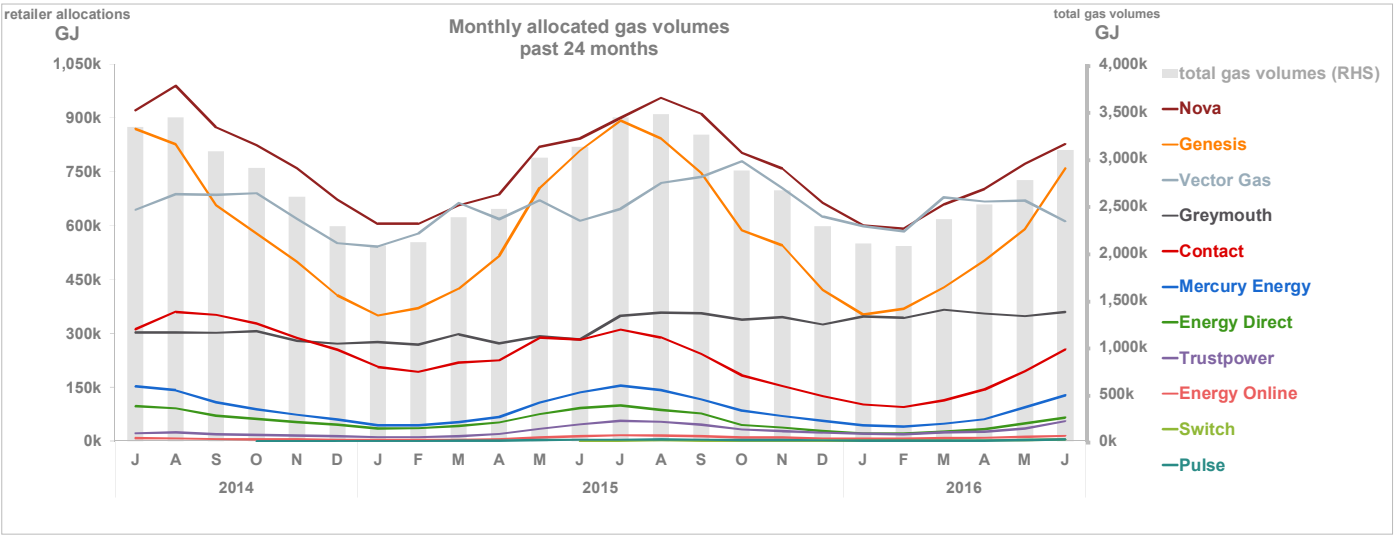
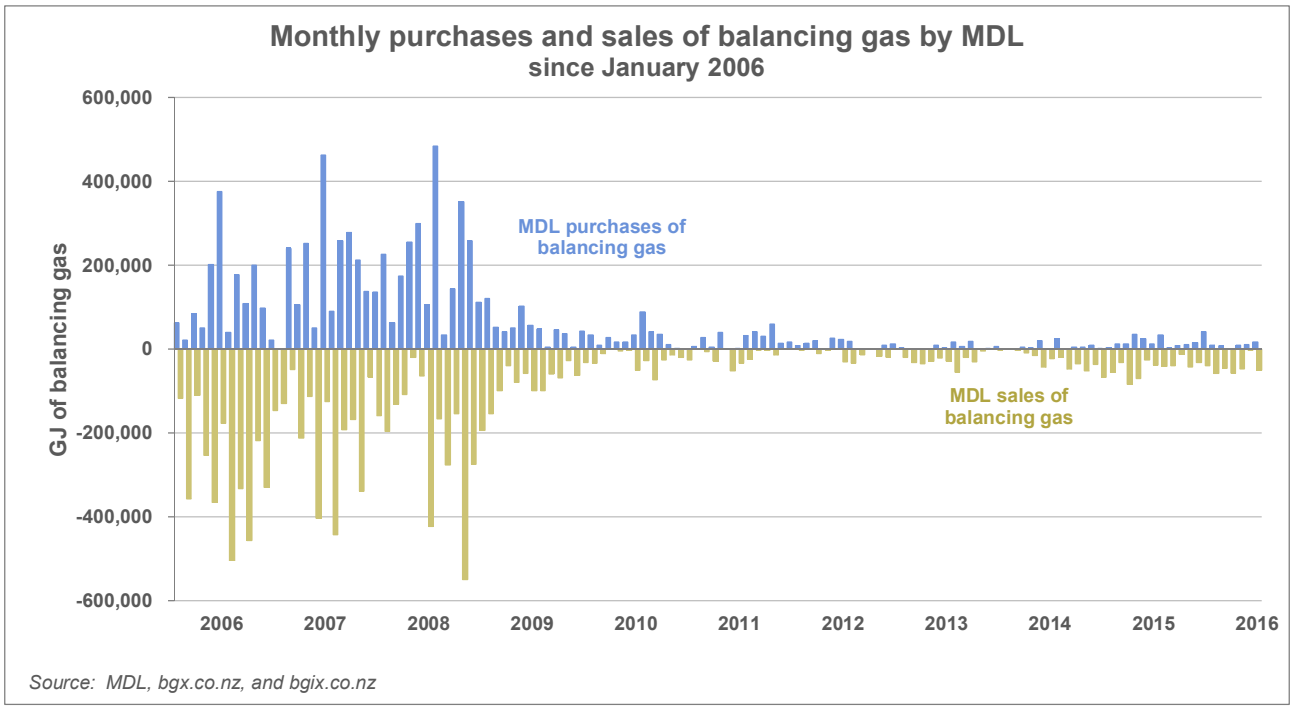


Chart 20: Allocated gas volumes



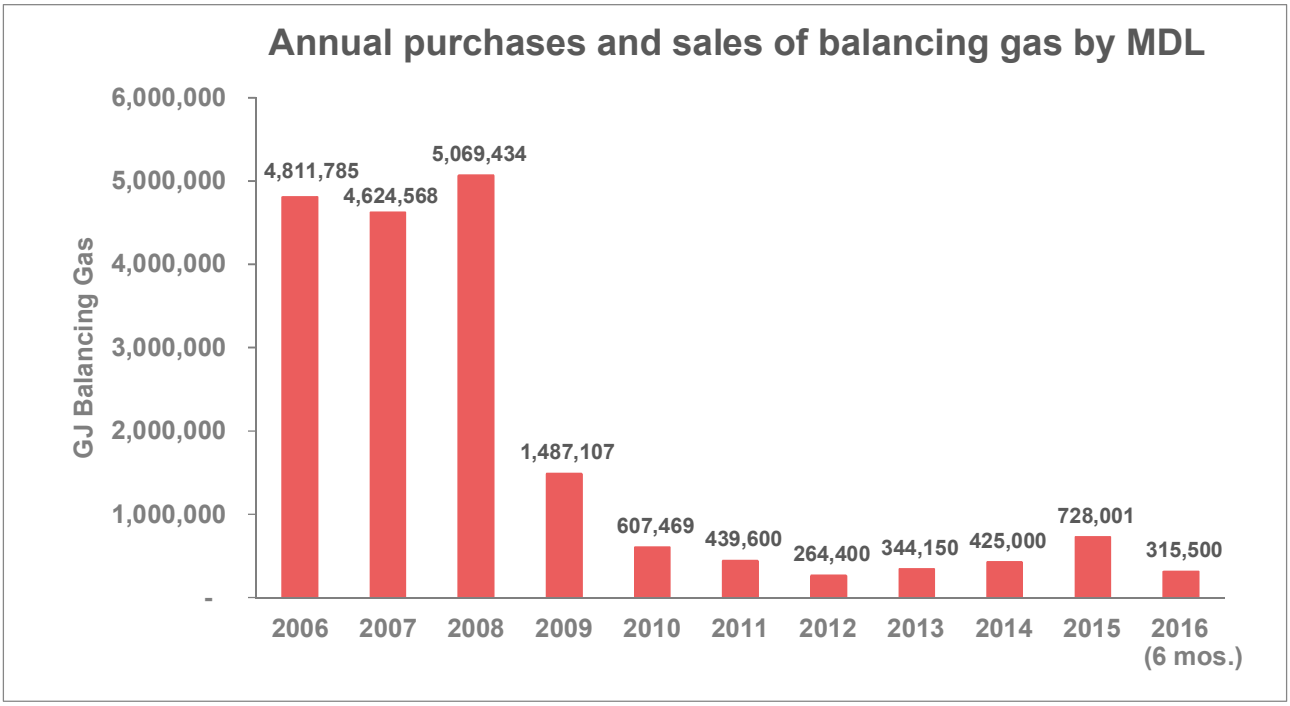
- The data are from a mix of allocation stages: Final through May 2015; Interim for June 2015 through March 2016; and Initial for March through June 2016. Note that the initial allocation data are those initially produced by the allocation agent, not the D+1 allocations that were used to replace the initial allocations.

Chart 21: Balancing gas volumes



Source: MDL, bgx.co.nz, and bgix.co.nz

Chart 22: Annual volumes of balancing gas



October 2015 saw the first month of Market Based Balancing (MBB). This new set of arrangements is designed to more accurately target the costs of secondary balancing (i.e. balancing undertaken by the transmission operator) to parties that are out of balance. The change is relatively new, and it is too early to draw any conclusions on its effectiveness. However, as the transmission operator is required to "cash-out" excess imbalance on a daily basis, it is likely that we shall see an uptick in secondary balancing activity. That change may explain the increase in the 2015 and 2016 purchases and sales of balancing gas by MDL.

5 Critical Contingency Management performance measures

Pohokura Production Station Unplanned Outage on 24 May 2016

At 16:20 on the 24th May, Pohokura Production Station suffered an unplanned outage. The loss of gas production combined with the large gas demand at the time resulted in depleting linepack and pressures such that the critical contingency threshold of 3 hours to 37.5 barg at the Kapuni Gas Treatment Plant (KGTP) was breached.

At 18:05, the Critical Contingency Operator (CCO) determined that the critical contingency conditions required to declare a critical contingency had occurred. The critical contingency declaration notice was posted at 18:30.

In cases where the critical contingency is declared to be non-regional, that is, affecting the entire gas transmission system, the CCM Regulations incentivise producers to increase production and large consumers to decrease consumption. This incentive appears to have been effective: in response to the critical contingency determination, SENZL increased production from Oanui and Todd increased flows from McKee/Mangahewa. In addition, Methanex and Contact Energy's Ahuroa storage facility decreased their flows of gas from the pipeline.

The response by industry participants, together with the recovery of the affected production stations, meant that the system recovered without the CCO needing to curtail any consumers. At 22:45, the CCO consulted with the transmission system operator (TSO) to determine if the system could be considered stable, and both parties agreed that the Critical Contingency could be terminated at 23:00 hours. The CCO issued a notice of termination at 23:00.

In its draft performance report, the CCO considered that the regulations and industry preparations for a critical contingency achieved the purpose of the regulations. Recommendations stemming from the event include:

- Reviewing the pressure thresholds at which a critical contingency is triggered;
- Formalising co-location of the CCO at the TSO's control room as a preferred operating mode for an event when circumstances allow.

Exercise Kakama, 22 June 2016

The CCO is required by regulation 34 of the CCM Regulations to instigate test exercises that assess:

- that the Critical Contingency Management Plans (CCMPs) comply with regulation 25 and achieve the purpose of the regulations;
- that the CCMPs contain the contact details required by regulation 25 and that they are current; and
- that the Retailers' list of emergency contact details required by regulation 43 are current.

An exercise needs to be instigated every 12 months (unless there has been a critical contingency in that 12 months). Although a critical contingency had occurred in the previous month, it did not result in curtailment instructions being issued, so a key component of the CCMPs was not adequately tested as required by the regulations. The CCO therefore conducted the test exercise as planned.

The exercise started at 9:00am and ran until 3:30pm. The exercise simulated accidental damage to the First Gas Ltd 100 pipeline south of Turakina, resulting in an uncontrolled gas escape. This resulted in the transmission pipeline system south of Turakina to Wellington and east to Hastings being isolated for 24 hours while repairs were carried out. In order to conserve linepack and pressure in the system, the CCO issued curtailment instructions affecting consumers in Bands 3, 4, 5 & 6.

The CCO is expected to publish an exercise report shortly.

Glossary

Critical contingency	A state of emergency on the transmission system characterised by falling or extremely low gas pressures. In such situations, the critical contingency operator has the authority to require consumers to stop using gas in order to balance the system, as set out in the Gas Governance (Critical Contingency Management) Regulations 2008.
Direct connect consumers	Large industrial consumers who are supplied gas directly from the transmission system via a dedicated gas gate.
Distribution system	System of lower pressure pipelines conveying gas from the transmission system to consumer sites.
Gas gate	A place where gas leaves the transmission system. Gas gates (most commonly) lead to distribution systems, which supply a number of different consumers. Some gas gates are direct connects, meaning that they supply a single large industrial consumer. A few gas gates supply private gas networks, which supply the customers of a single retailer.
Herfindahl–Hirschman Index (HHI)	Measure of market concentration. Generally, markets in which the HHI is between 1,500 and 2,500 are considered moderately concentrated. Markets with an HHI of greater than 2,500 are considered highly concentrated. For more information, see the Appendix.
ICP	Installation Control Point: the point where a consumer installation is connected to the distribution system. Used to describe a consumer site.
Move switch	A switch where the retailer supplying gas to a consumer site is changed to another retailer at the request of an incoming tenant or homeowner.
Reconciliation	The processes by which the volume of gas leaving the transmission system is allocated on a gate-by-gate basis to retailers with consumers at those gates; governed by the Gas (Downstream Reconciliation) Rules 2008. Reconciliation is done on a monthly basis, and each consumption month is calculated three times: in the month immediately after consumption month *(initial allocation)*; four months after consumption month *(interim allocation)*; and 13 months after consumption month *(final allocation).*
Registry	Database of information on consumer sites, including metering information, associated gas gate, and responsible retailer. Used to facilitate efficient and accurate switching.
Standard switch	A switch where a gas customer decides to switch the retailer that supplies its existing location.

Switching	The processes by which the retailer supplying a customer site is changed to another retailer, governed by the Gas (Switching Arrangements) Rules 2008.
Transmission system	System of high pressure pipelines that convey gas from gas processing facilities to a distribution system or to a direct connect consumer.
Unaccounted-for gas (UFG)	The difference between the amount of gas leaving the transmission system and retailers' estimates of their consumers' consumption. It is made up of technical losses on the system, metering inaccuracies, and retailer estimation errors. For more information, see the Appendix.