GAS INDUSTRY COMPANY LIMITED

QUARTERLY REPORT

Quarter ended March 2016

FROM THE CHIEF EXECUTIVE

The International Energy Agency's (IEA's) visit to New Zealand during April to conduct its five-yearly in-depth review of New Zealand's energy sector provides opportunity for some updated reflections on the New Zealand gas sector's place in the world; both ways in which we are isolated and unique, and also how we share global energy issues.

Our isolated New Zealand domestic gas market continues to offer both benefits and challenges. During the quarter, I spoke at the Australian Domestic Gas Outlook conference in Sydney, which was dominated by challenges flowing from its burgeoning LNG export industry. While development of the major new LNG export facilities has been remarkable and considerable benefits have been targeted, sourcing the continued new supplies of coal seam gas from inland areas has also attracted opposition from a broad coalition including farmers, indigenous peoples and environmental interests. While current gas prices are low, the prospect of the domestic Australian market price rising to match a future LNG export parity price is causing considerable concern for domestic users. New Zealand continues to be isolated from such challenges, including linkage to international gas prices.

The role of gas in relation to climate change initiatives continues to be central to the IEA's wider thinking. The New Zealand Government has made clear that its support for the 2015 Paris Agreement will be followed by a renewed focus on domestic policy, starting with a review of the Emissions Trading Scheme (ETS). It is clear that climate change response is moving much to the centre of political thinking both in New Zealand and globally, and will affect the gas sector increasingly.

Evidence of climate change response locally can be seen in the discussions surrounding the future of the two Rankine Units at the Huntly power station. Genesis' suggestion that these might close as early as 2018 was linked by commentators to achievement of the 90 percent renewable electricity generation target. However, the subsequent announcement that they would remain open till at least 2022 reflected the role for gas-fired generation at least in the short to medium term, including supporting security of supply in a renewables-dominated market and in looking forward to expected decisions on whether the Tiwai Point Aluminium Smelter will remain open. We expect that debate around these issues will continue.

Contents

Workstream developments during the quarter are summarised in this Quarterly Report. Further details of the developments have generally been reported previously through Gas Industry Co's periodic News Bulletins and are available on our website www.gasindustry.co.nz

One feature missing from the extensive commentary around the Huntly decision was distinguishing between coal and gas fuels. As the IEA's visit reminds us, gas is being looked to globally as a significant way to reduce emissions from coal-fired generation – Australia continues to produce most of its electricity from coal; Asian neighbours such as Indonesia are still planning to build significant new coal-fired capacity. If nothing else, it is important that gas-fired generation is not lumped together with coal in this context. Amongst other scenarios, a significant New Zealand gas find could be exported to displace coal-fired plants for our Asian neighbours.

We await with interest the IEA Panel's report and recommendations.

Steve Bielby
Chief Executive

HIGHLIGHTS FROM THE QUARTERLY INDUSTRY PERFORMANCE MEASURES REPORT

- The annual rate of switching for the past 12 months is 19.7 percent. Switching rates have been over 17 percent for more than two years
- Over 80 percent of customers' switches are completed within three business days, compared with a rate of 50 percent in 2009
- 57 percent of residential consumer sites, 64 percent of small commercial and 74 percent of large commercial sites have switched retailer at least once in the past five years
- Nearly 99 percent 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 percent, compared with about 2 percent in 2009
- Genesis is the largest retailer by customer share. Vector Gas and Nova Energy are the largest retailers by volume market share; Nova also has the largest share of commercial and industrial customers

See the full Performance Measures Report on Page 7

SUMMARY OF DEVELOPMENTS DURING THE QUARTER

Gas – a competitive energy choice

Gas Industry Co has released the *Consumer Energy Options Report in New Zealand - 2016 Update* (*Report*) at an industry stakeholder lunchtime seminar held in April.

The new release commissioned again by Gas Industry Co from Concept Consulting updates the 2012 *Report*, and notes that gas continues to provide a competitive energy choice for home energy and industrial heat applications. The *Report* is aimed at providing authoritative information that can be used by a range of private and public sector players in guiding consumer energy decision-making. It reflects on issues for gas and LPG as carbon fuels and finds that gas remains a superior or competitive option for home water heating and space heating, and for industrial process heat.

The *Report* analyses the relative merits of fuel/technology options for water heating, space heating and industry process heal, and looks at both cost and non-price attributes.

As well as assisting consumers to make the right fuel or technology choices, it will also be of interest to gas appliance manufacturers and retailers, gasfitters, wholesalers, retailers and distributors – to help inform their own gas promotions.

Direct gas use continues to offer benefits in terms of efficiency and lowering our carbon footprint.

The new *Report*, a key points summary document, presentation slides, and the brochure above are all available on Gas Industry Co's website.

Statement of Intent and Levy Consultation

The *Gas Industry Co Recommendation to the Minister of Energy and Resources to make Gas (Levy of Participants) Regulations 2016 (Levy Recommendation)* for FY2017 (commencing 1 July 2016), and our Draft *Statement of Intent* for FY2017-19 have been forwarded to the Minister for review and approval. Both documents were developed after consultation with industry stakeholders.

In summary, there was again a large measure of support from industry discussions and submissions for Gas Industry Co's FY2017-9 proposals. Industry input into our Strategy, Work Programme and budget development processes have again been robust and successfully underpin the co-regulatory model for the downstream gas sector.

The new *Gas (Levy of Industry Participants) Regulations 2016 (the Regulations)* are expected to come into effect on 1 July 2016, and the *Statement of Intent for FY2017-19* published.

Further information on our levy setting process is available here on our website.

Ownership of gas transmission systems changes

The provisional sale of Vector Gas Limited, including Vector's gas transmission and non-Auckland gas distribution pipelines, was announced in November 2015, followed in December by the announcement of the sale of the Maui Pipeline. The prospective purchase in both cases is First State Investments (FSI). The acquisition of Vector Gas Limited was completed on 20 April 2016, and a new trading name 'First Gas' established. The Maui Pipeline purchase remains subject to Overseas Investment Office approval at the time of writing.

The sale processes will affect the industry and Gas Industry Co's Work Programme in various ways. Gas Industry Co is in discussion with First Gas about significant workstreams, including gas transmission security and reliability and convergence of current code arrangements. Common ownership of the transmission systems should offer synergies for the industry in a number of respects, and we look forward to working with First Gas.

Commerce Commission and Gas Industry Co aligning gas transmission work programmes

In December last year, the Commerce Commission (Commission) held a joint workshop at Gas Industry Co to coincide with the Commission commencing the reset of its price-quality paths for gas transmission and distribution businesses. A key theme emerging was potential for overlap with Gas Industry Co's gas transmission access and pricing work, including convergence of current transmission code arrangements for the two gas transmission systems. The two organisations agreed to coordinate their work during 2016 to best manage the potential overlaps, and are meeting regularly to this end.

One result of this is joint workshops being programmed for 24 and 25 May.

We look forward to working closely with the Commission and the industry over the coming year.

Progress against objectives and outcomes

Good progress continues to be made in achieving the objectives and outcomes set for Gas Industry Co and the wider industry in Part 4A of the Gas Act and the Government Policy Statement on Gas Governance 2008 (GPS). An updated summary of progress is included on page 33 of this *Quarterly Report*.

INDUSTRY PERFORMANCE MEASURES

1 JANUARY – 31 MARCH 2016

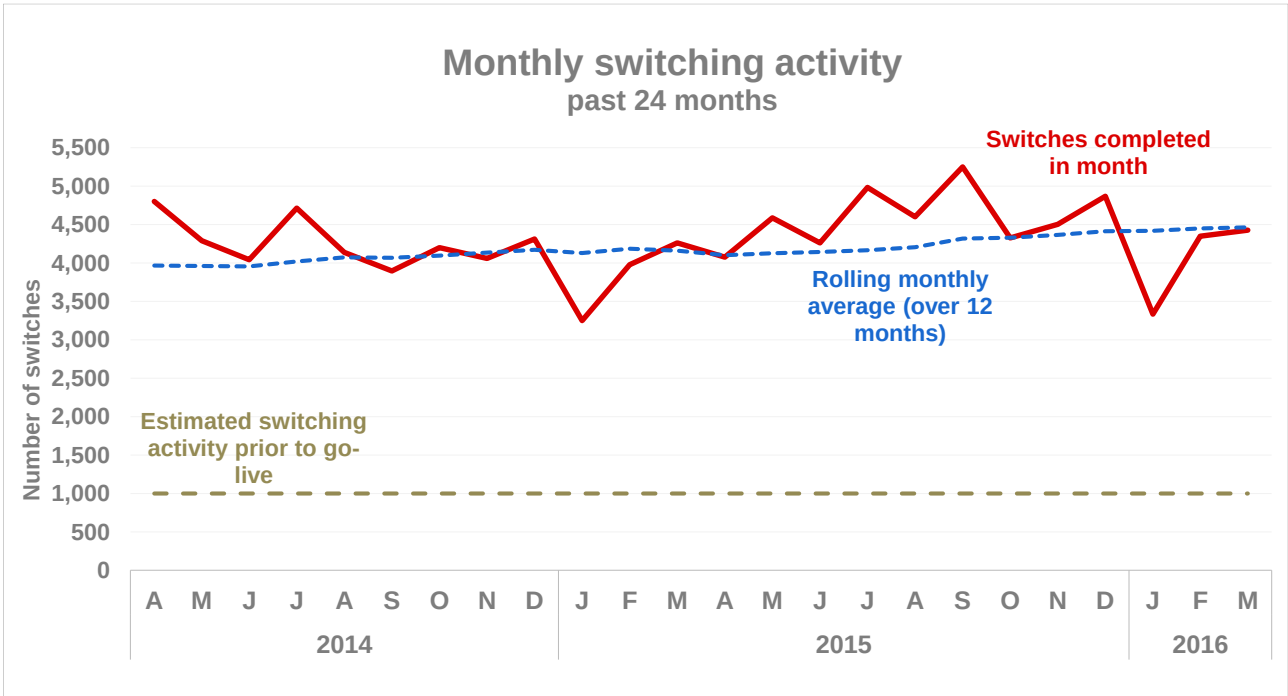
1 Summary

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.

2 Switching performance measures

Chart 1: Monthly switching activity



- On average, about 4,400 consumers switch gas supplier each month.
- The churn rate for the 12 months to March 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

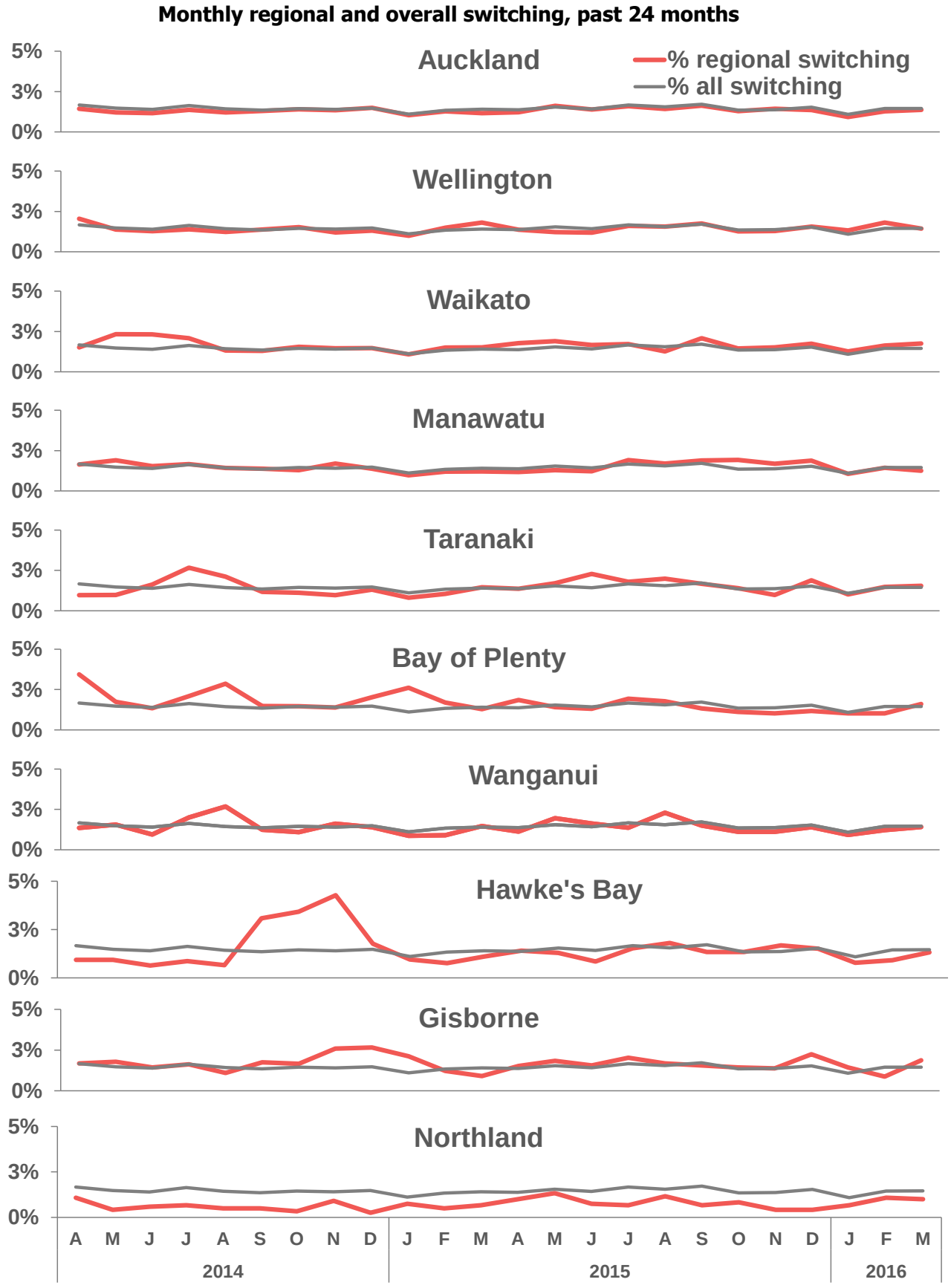
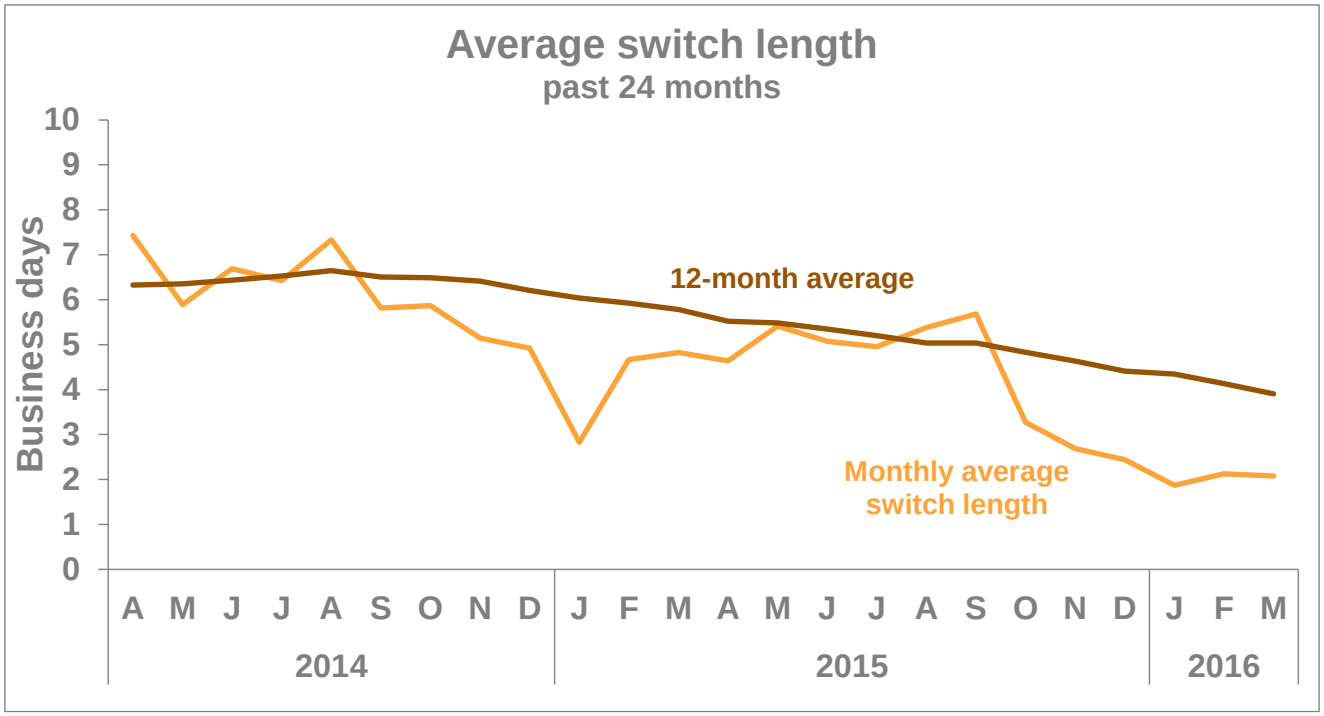
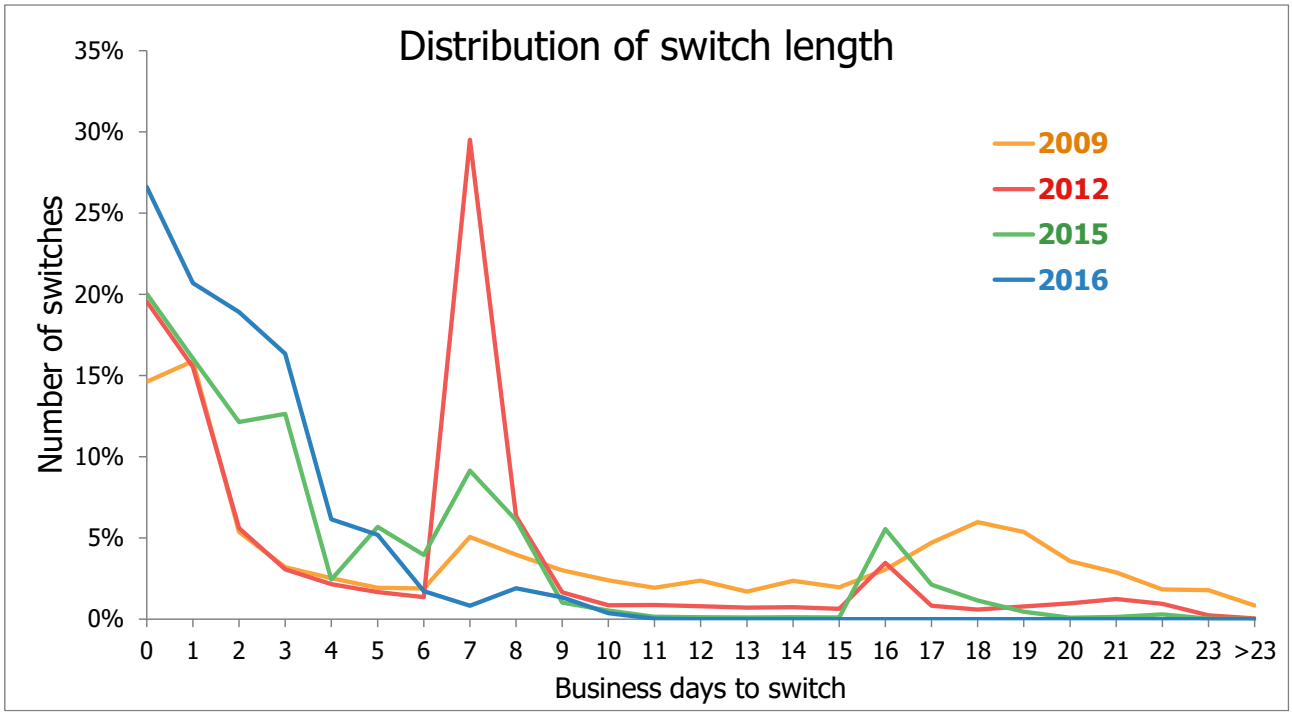


Chart 3: Time to process switches



- 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 3.9 days.

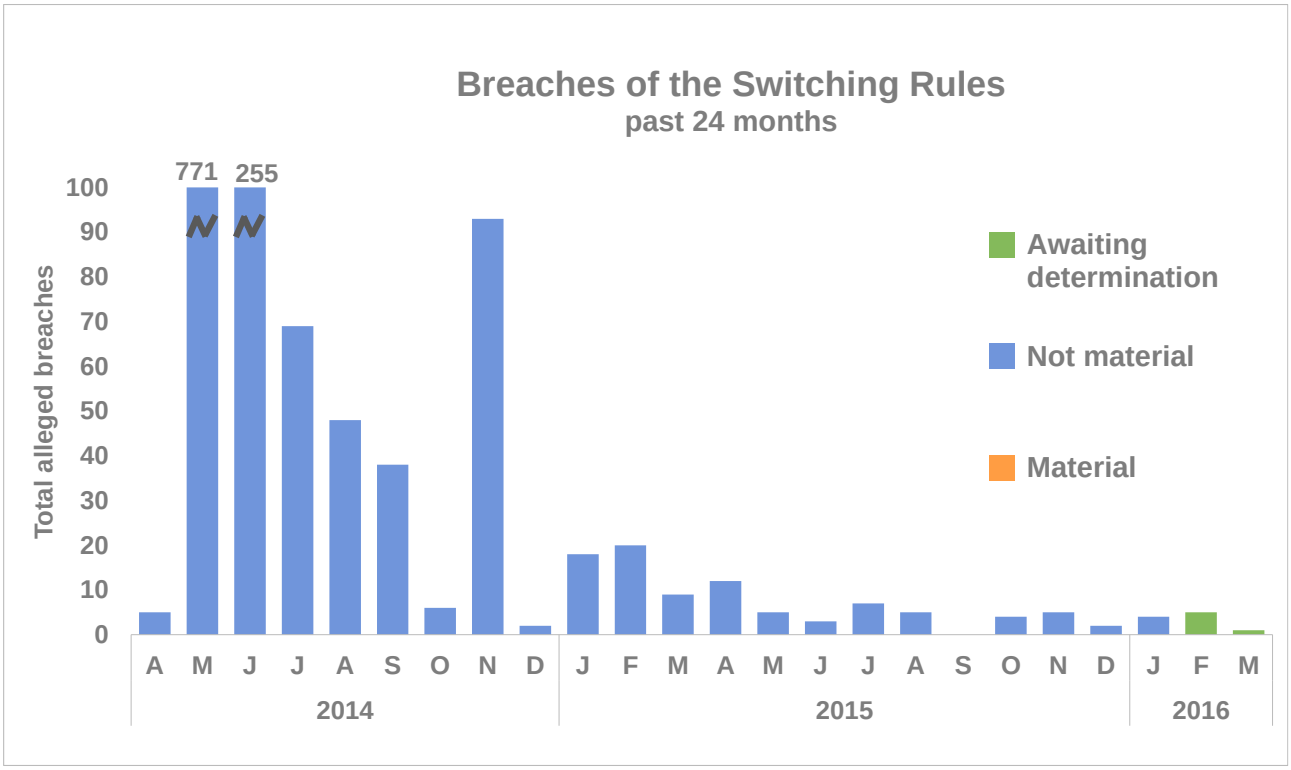
Chart 4: Distribution of switching length



- 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, 83% of switches have been completed within three days.

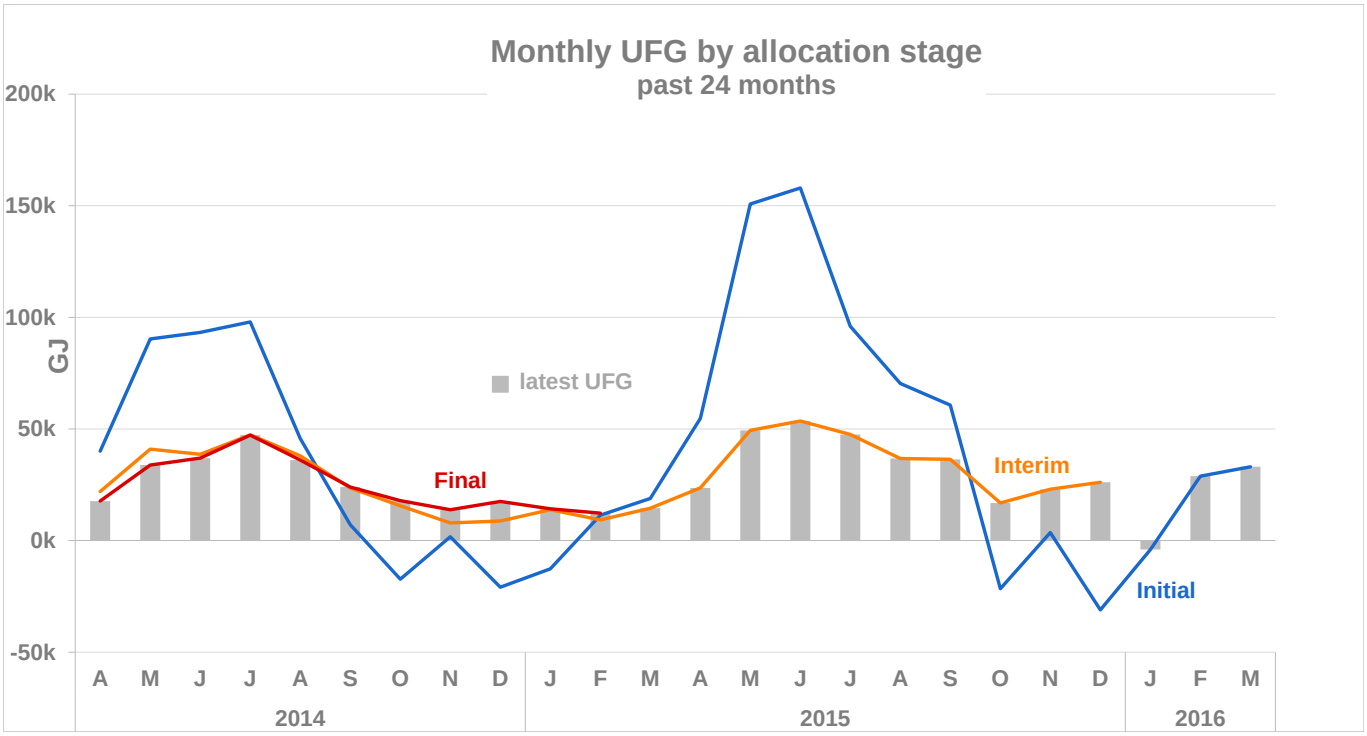
Chart 5: Number and severity of breaches of the Switching Rules



- Most of the breaches in May and June 2014 relate to delays in responding to switching notices by Contact Energy, when it was in the midst of its IT upgrade.
- No switching breaches were alleged for September 2015.

3 Allocation and reconciliation performance measures

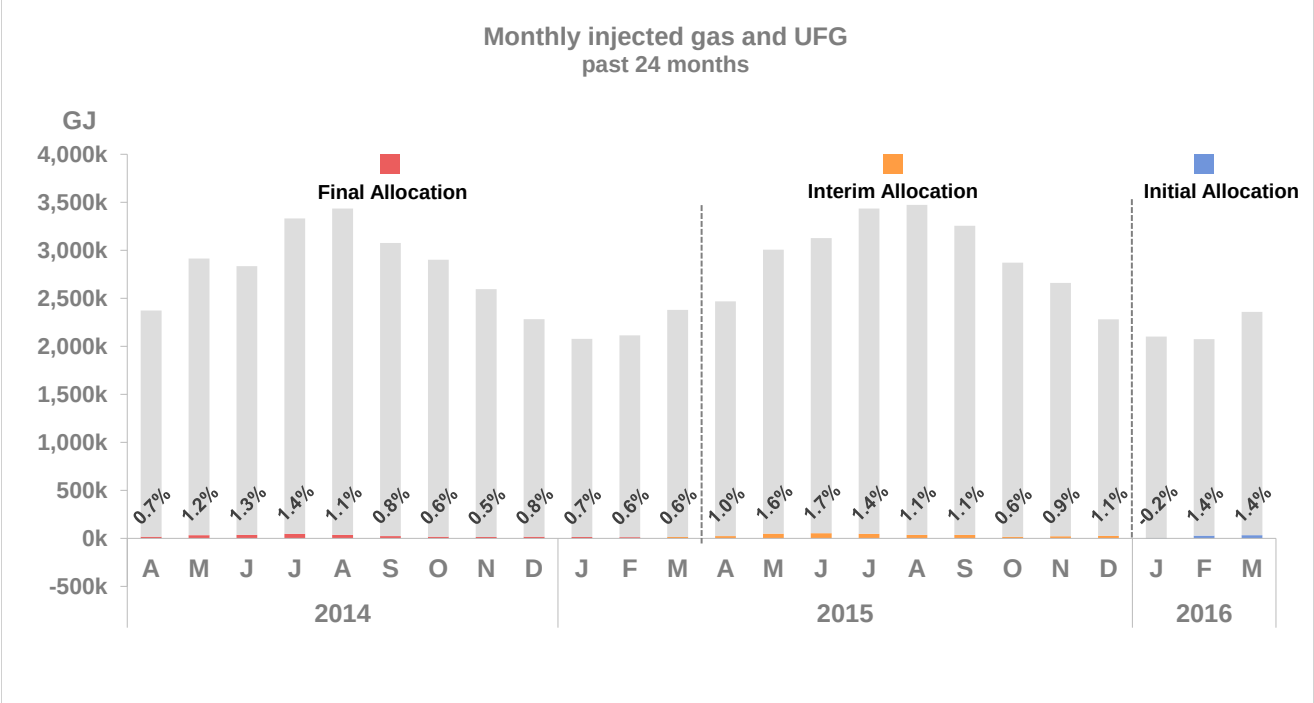
Chart 6: Volumes of unaccounted-for gas (UFG)



- The negative UFG experienced at the initial stage in October and December has been replaced with modest amounts of positive UFG at the interim allocation, consistent with trends in previous years. 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.

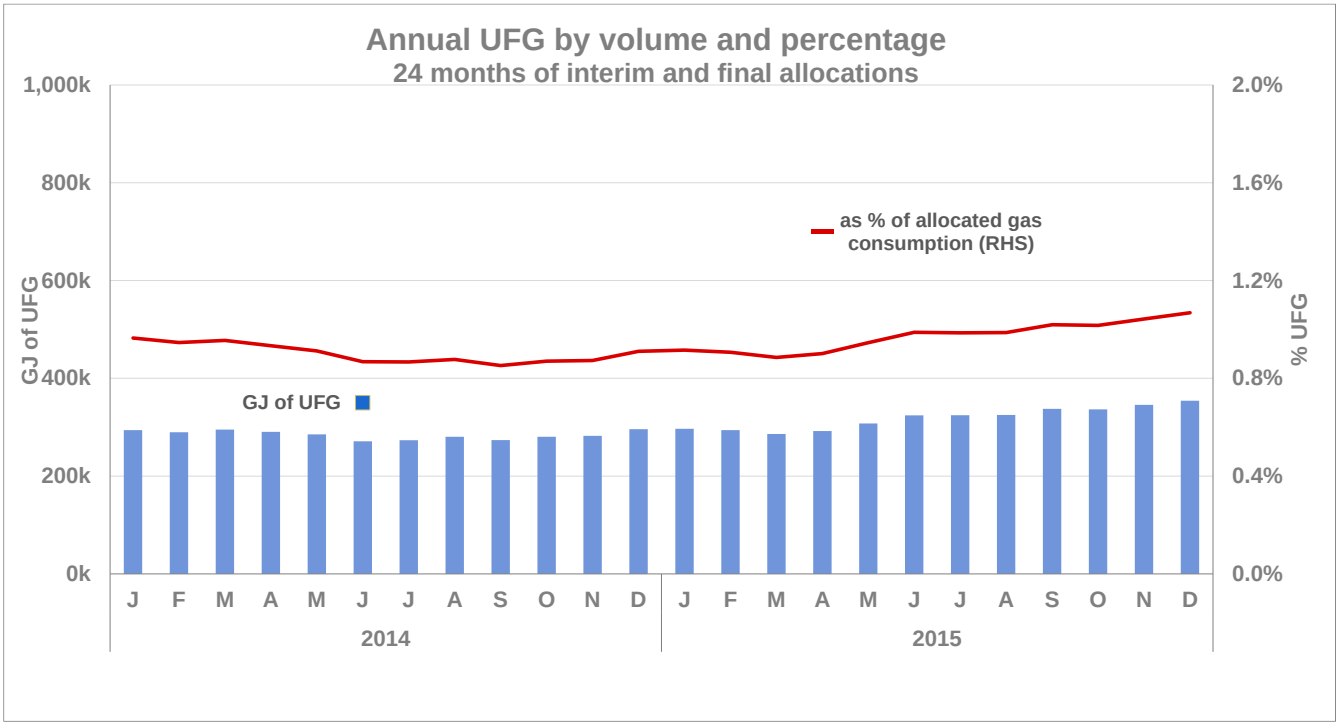
[1] The initial allocation produced by the Allocation Agent is a "bottom up" approach whereby each of the retailers submits data based on a combination of actual meter readings (historical estimates) and consumption estimates since the last meter reading (forward estimates). In that context, UFG is a 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



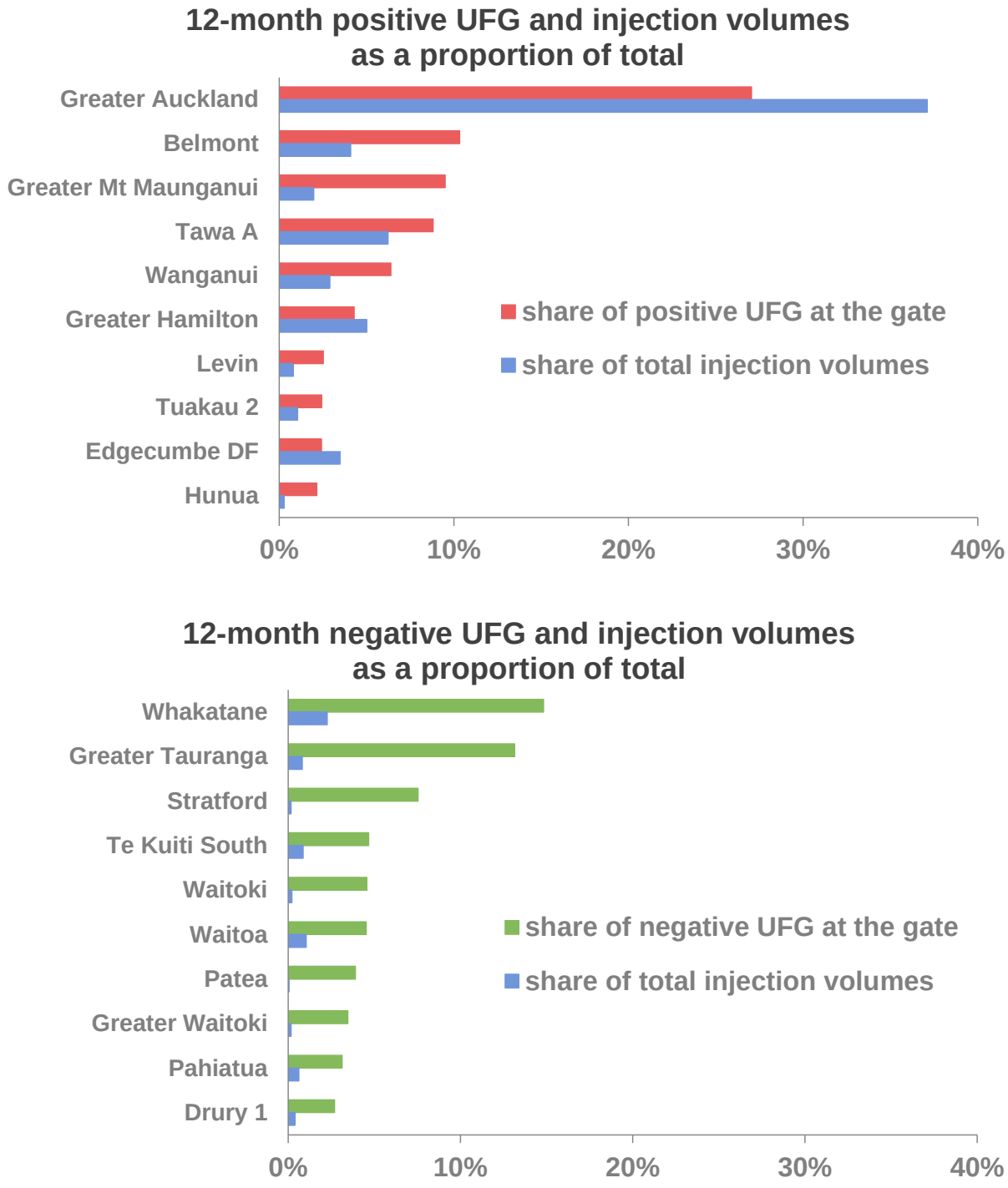
- UFG tends to be higher as a percentage when total volumes are high. This trend most likely due to UFG attributable to mass market consumption.

Chart 8: Rolling 12-month UFG



- In volume terms, annual UFG has decreased dramatically since 2009, when UFG was about 600,000GJ per year. As of early 2015, annual UFG had dropped to below 300,000 GJ. In percentage terms, UFG decreased from about 2% per year to about 1% of allocated volumes.
- Recently, UFG has been trending upward in both volume and percentage terms, possibly due to an increase in mass market consumption volumes.

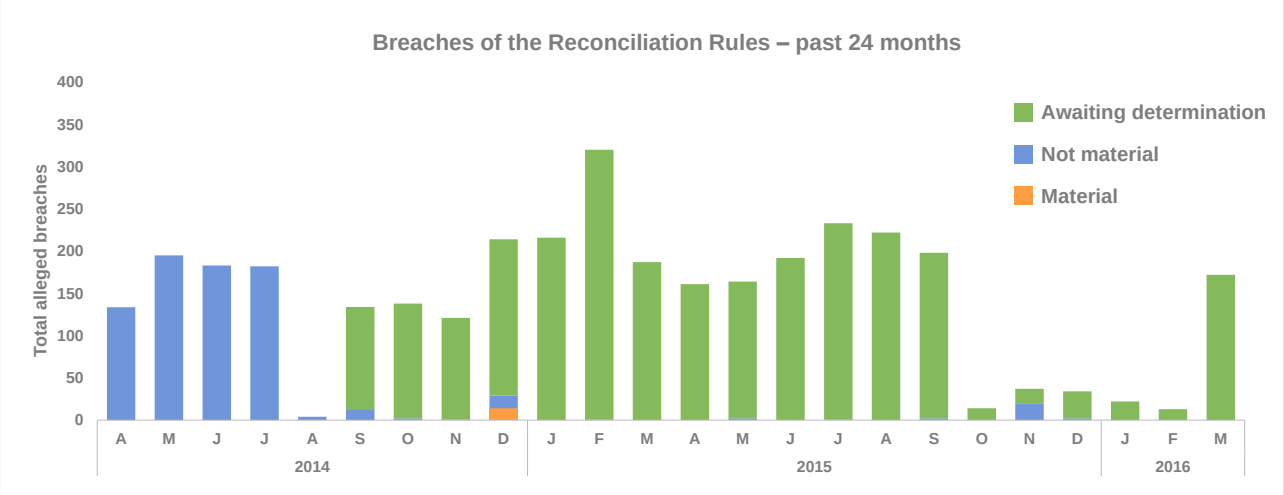
Chart 9: Gas gates where UFG is the highest



- 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, January through December 2015.
- The 10 gates shown in the top chart account for 76% – about 341,000 GJ – of the positive UFG experienced over the past 12 months.
- The 10 gates shown in the bottom chart account for about 62% (about 59,000 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, Edgecumbe, and Hunua 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.
- 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.
- 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.
- 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.

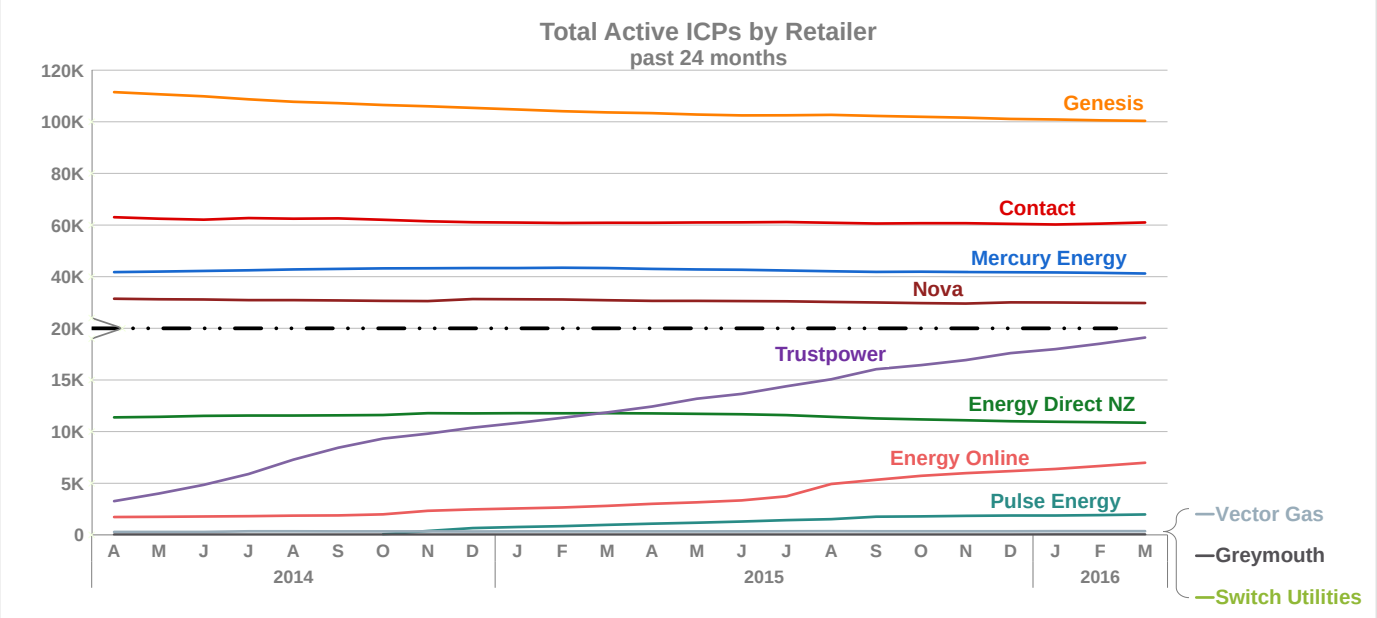
Performance audits

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

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

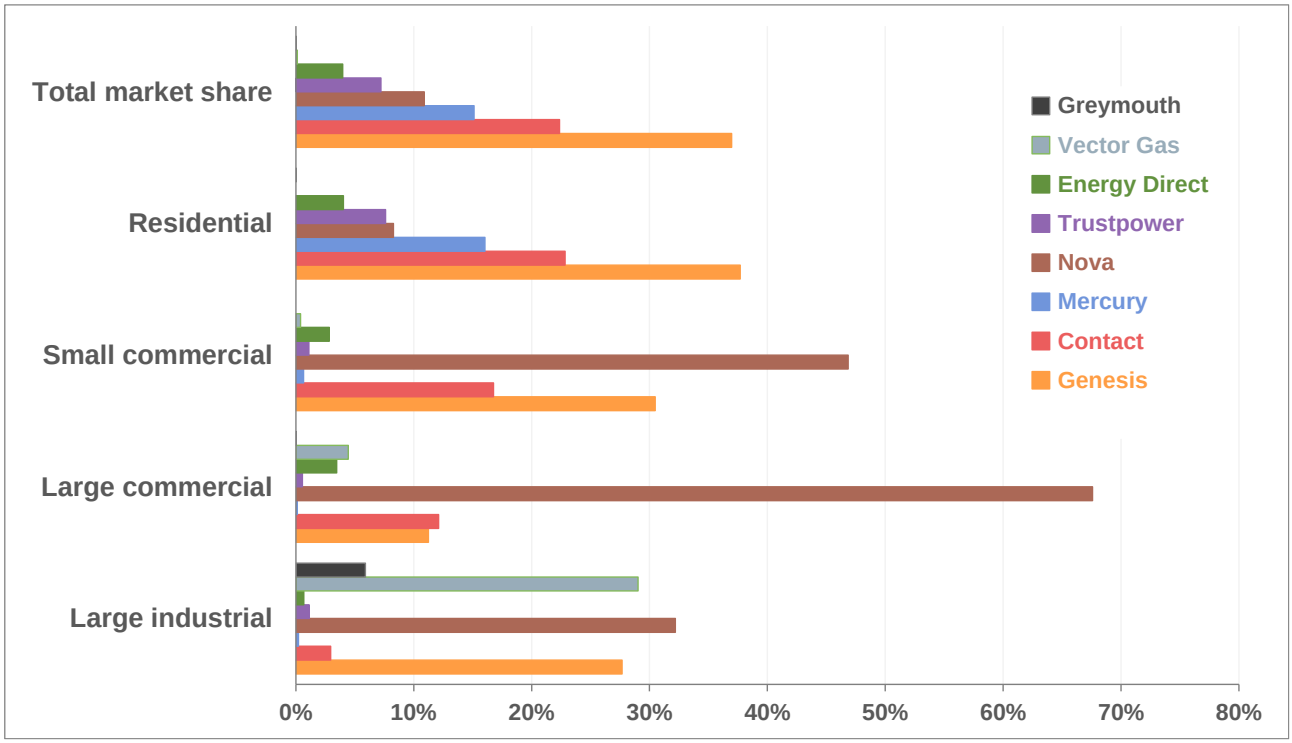
4 Market competition performance measures

Chart 11: Market share of ICPs by retailer



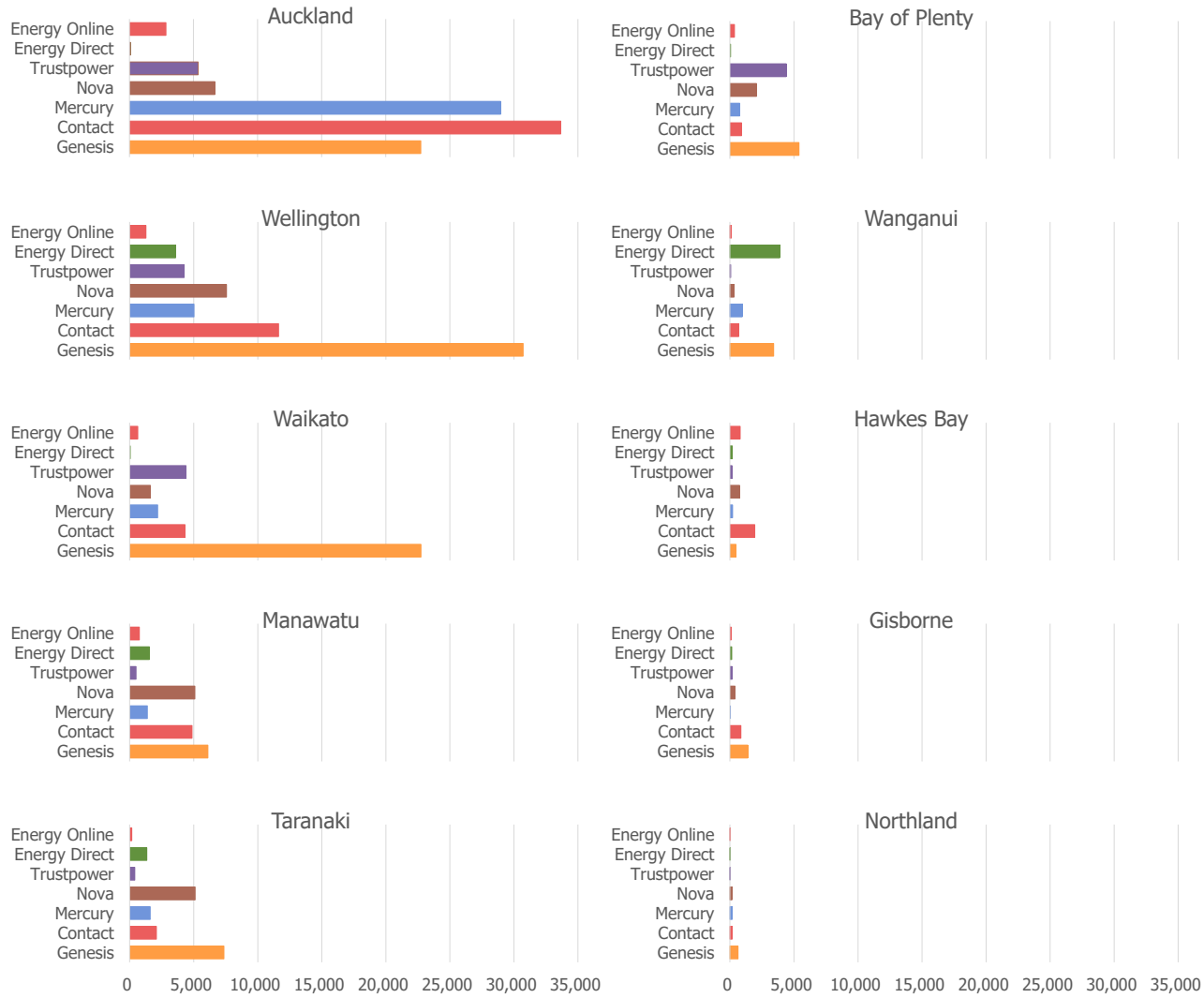
- There have been a number of new entrants to the retail gas market in the past few years:
  - Switch Utilities in July 2015;
  - Pulse Energy in October 2014; and
  - Trustpower in November 2013, following the company's acquisition of Energy Direct in July 2013. Trustpower has grown its customer base from 80 to over 19,000 customers. It is now the fifth largest retailer.
- 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



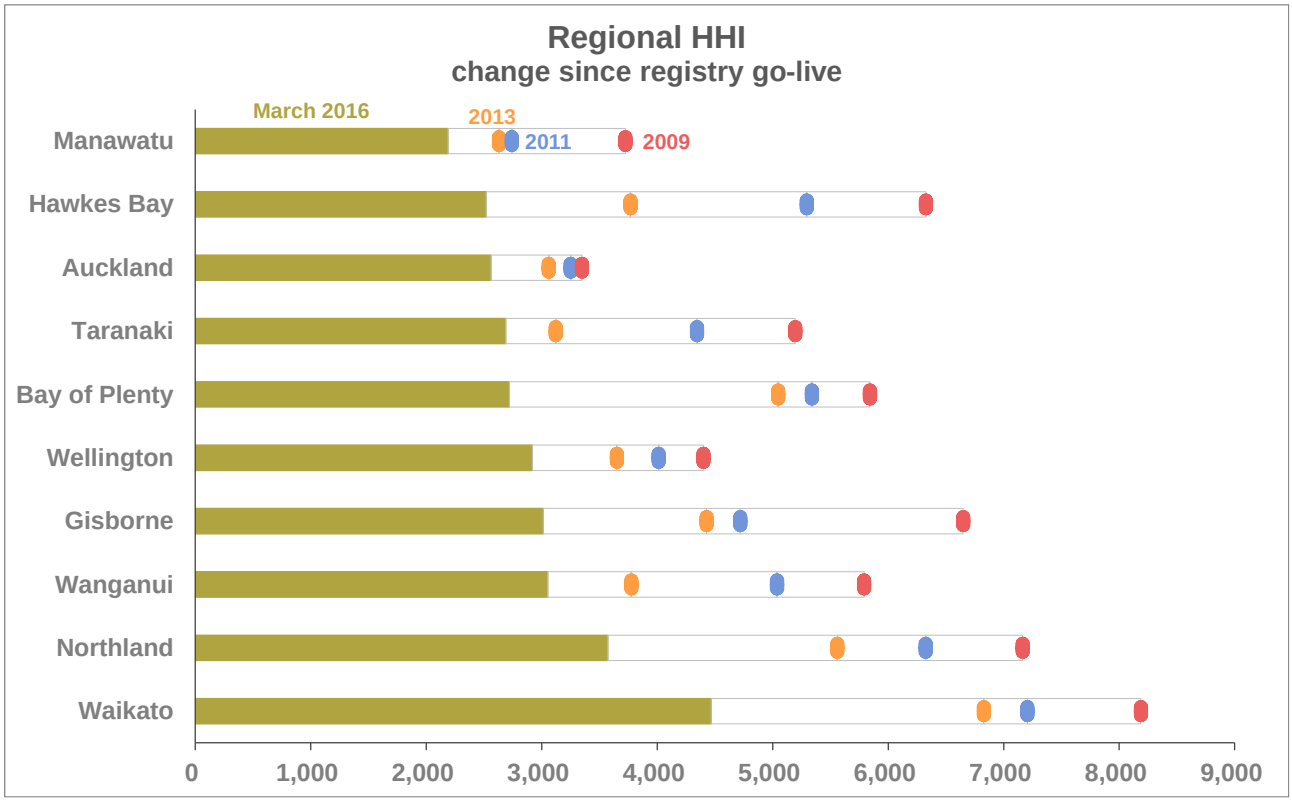
- In this chart, consumer segment is determined by the load shedding category listed on the gas registry for each consumer site. The top set of bars shows the same set of data as the previous chart. The other sets of bars show how some retailers are more dominant in specific sectors of the retail gas 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 2.7%, 0.8%, and 0.004% of the residential market, respectively, are not shown on the chart. Switch Utilities also has 0.4% of the large commercial and 0.12% of the small commercial markets.

Chart 12a: Customer market share by region



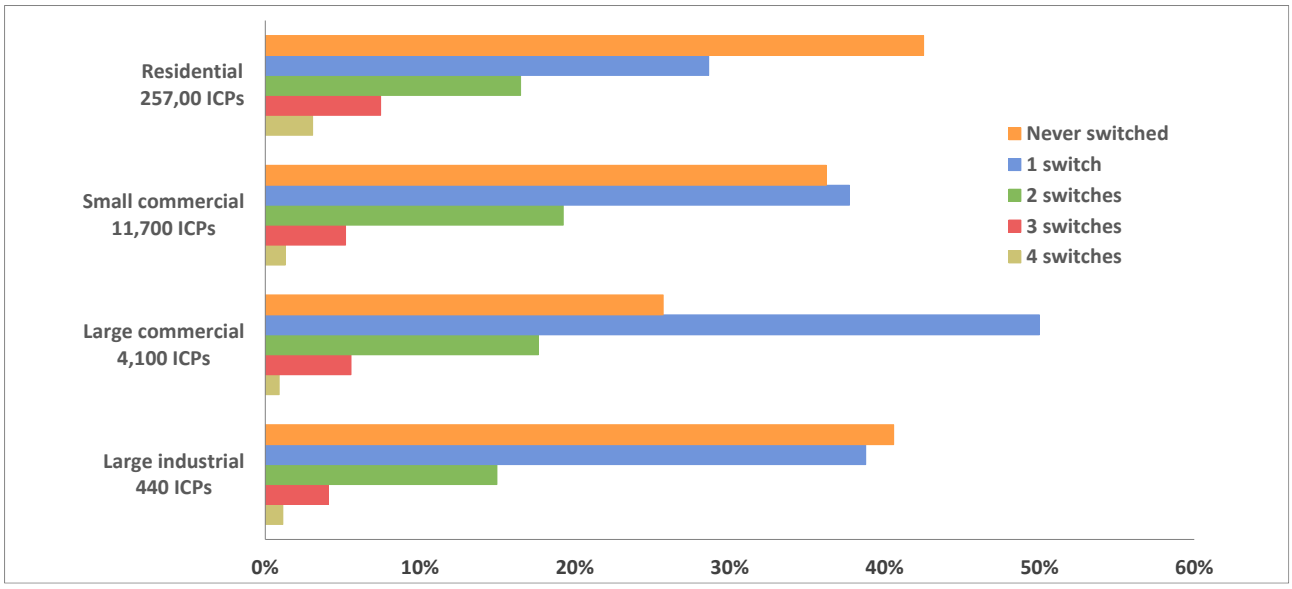
- This chart shows the number of ICPs for each retailer in each geographical region. The retailers shown each have over 1% of total customer market share.

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 2,286, in comparison to 3,033 in February 2009 (the start of the registry).

Chart 14: Switching by consumer sites since 2009



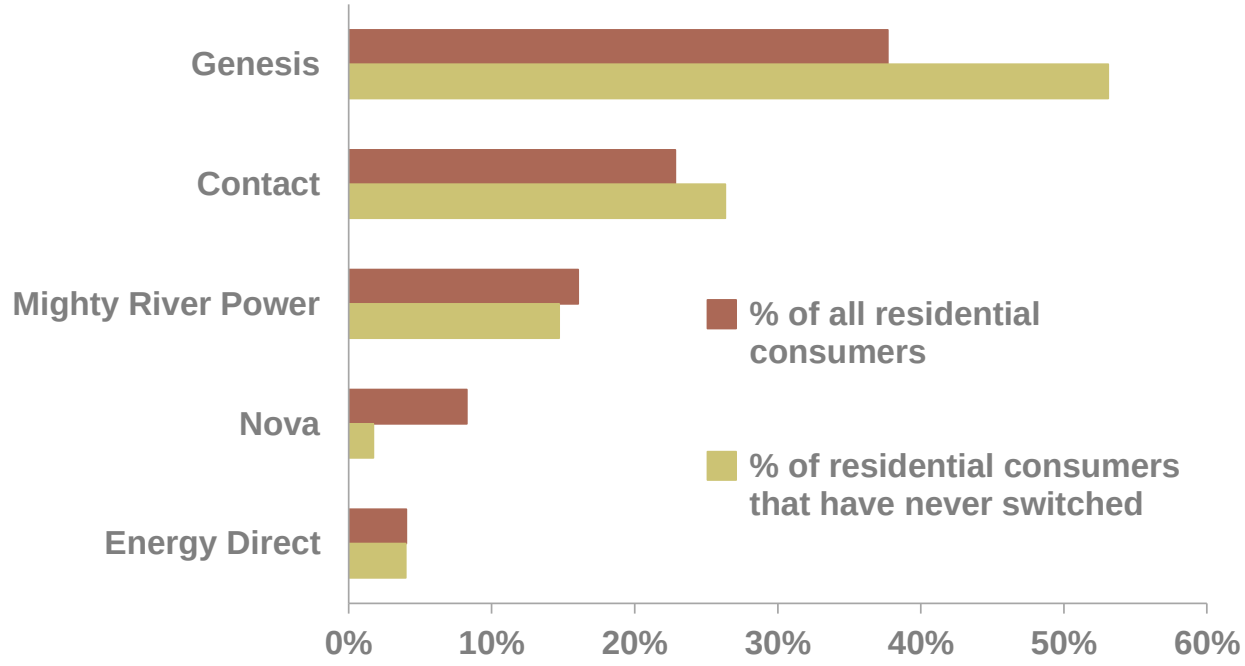
As with Chart 12, consumer sites in this chart and Chart 15 are categorised based on the load shedding category recorded in the gas registry.

- 57% of residential consumer sites
- 64% of small commercial sites
- 74% of large commercial sites; and

- 59% of large industrial sites

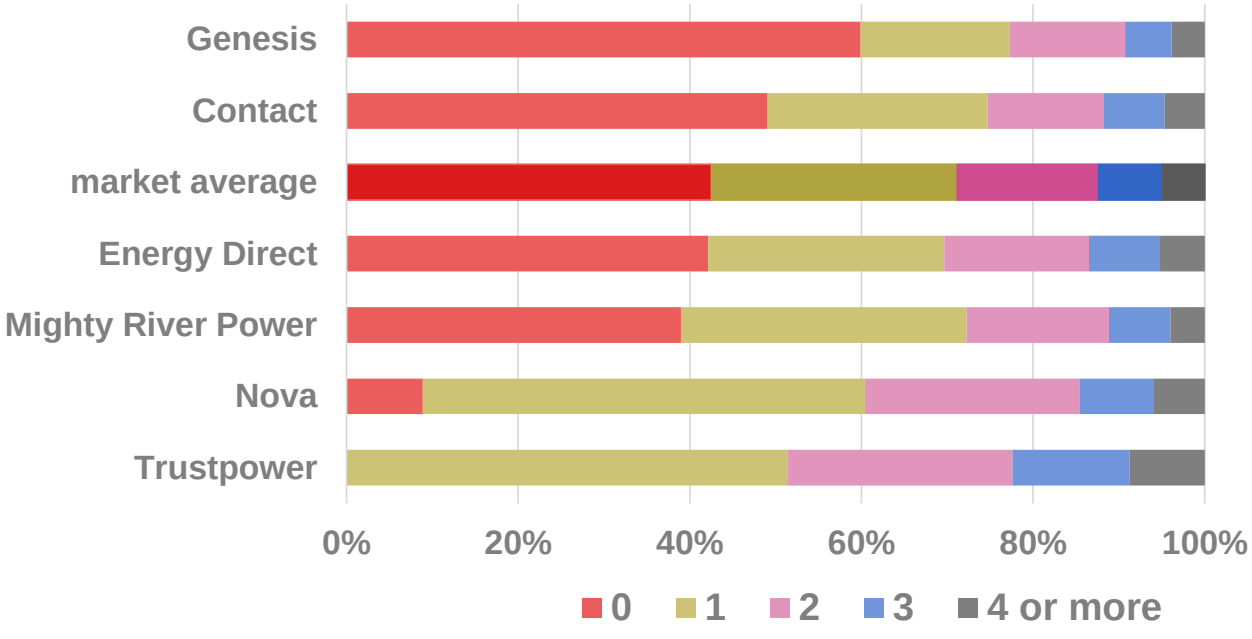
have switched retailer at least once since the start of the gas registry (February 2009).

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 38% 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 excludes Trustpower, Pulse Energy, and Switch Utilities, as all of their customers have made at least one retailer switch.

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: 43% of residential consumer sites have never switched retailer; 29% have switched once; 16% have switched twice; 7% three times, and 5% four or more times.
- The other bars enable comparison with retailers' residential customer bases. 61% of Genesis customers, for example, have never switched; the proportion is 49% for Contact customers.
- In contrast, Trustpower has built its customer base entirely through switching: 51% of its customers have switched once; 26% twice; and 14% three times.

Chart 16: Switching activity by retailer

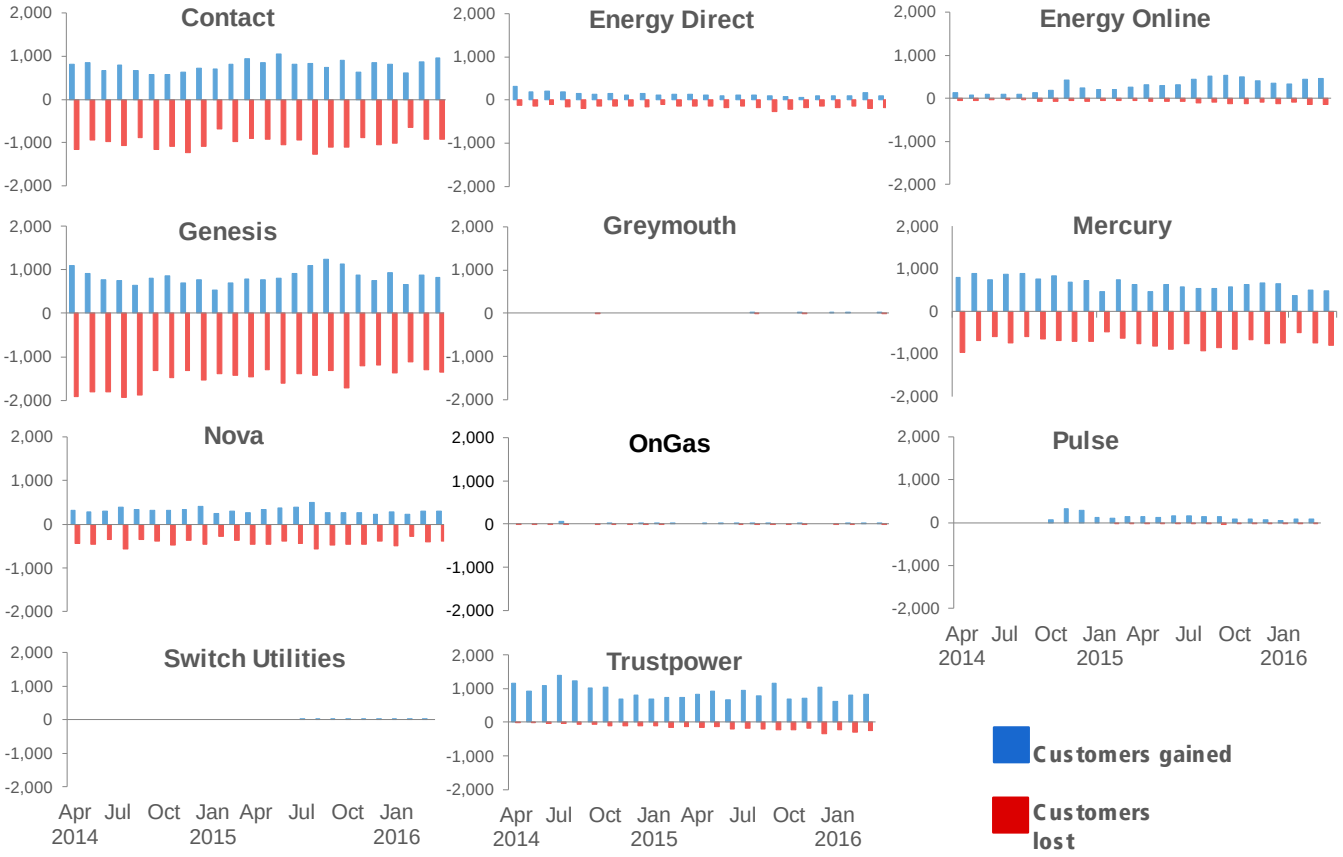
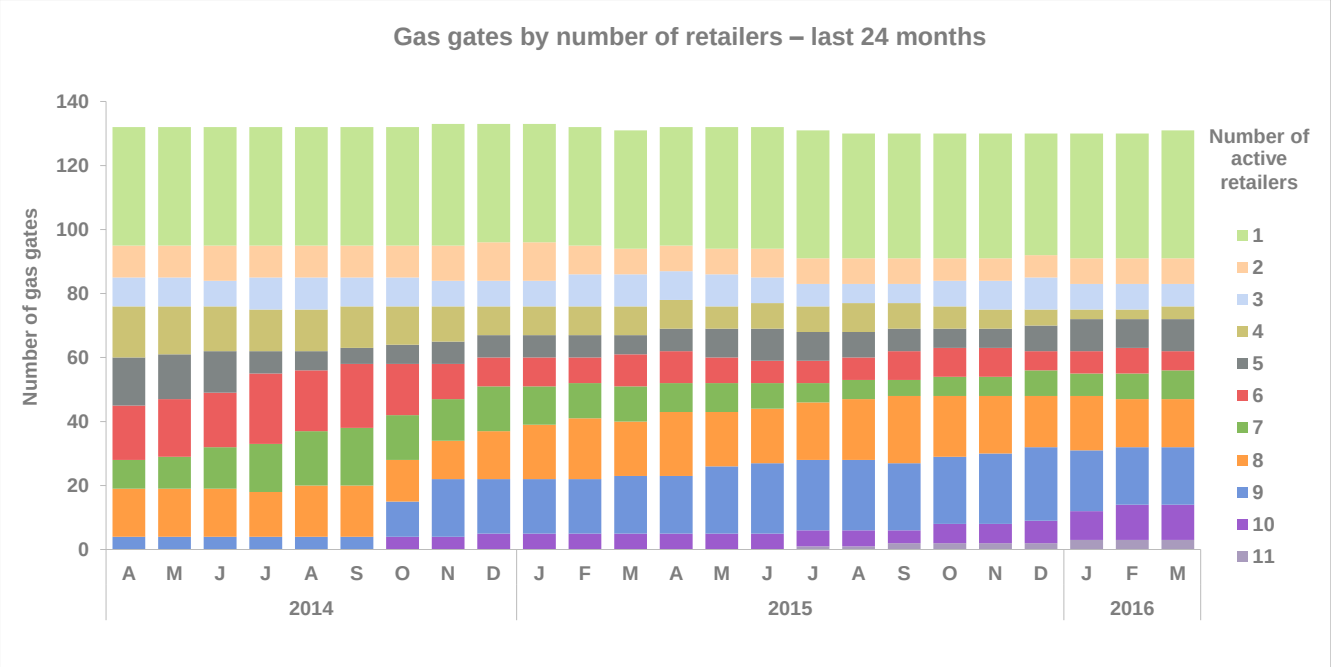
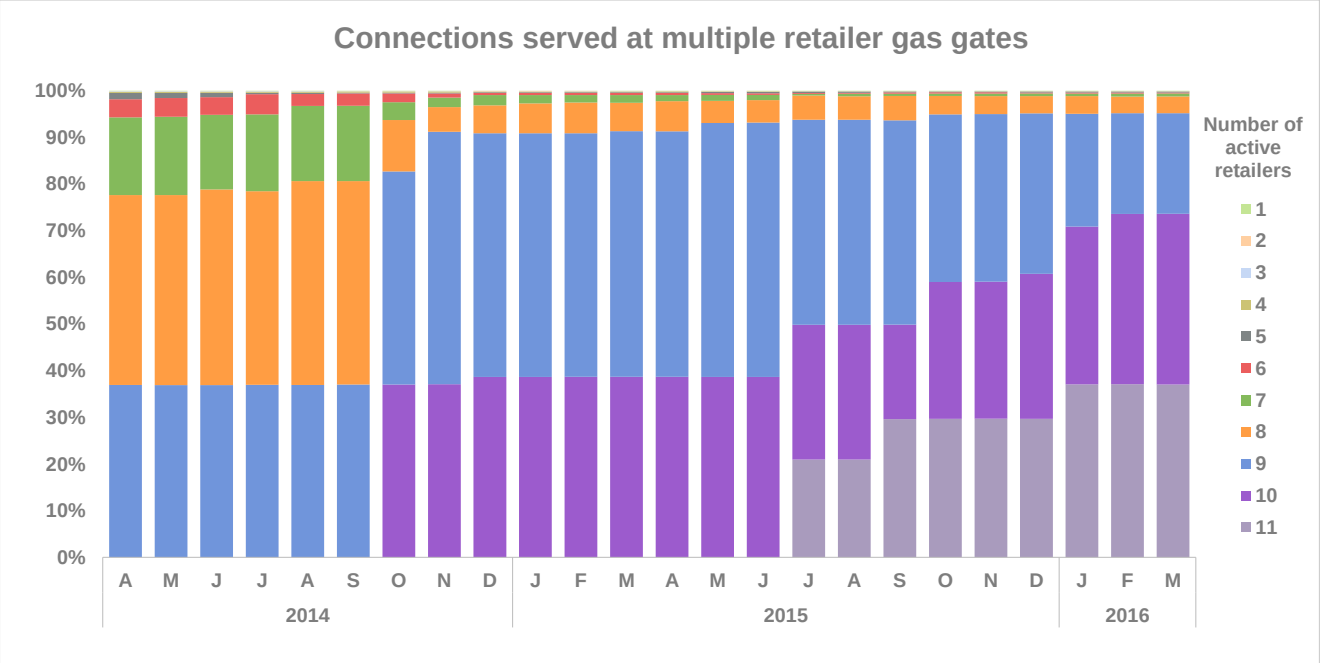


Chart 17: Gas gates by number of retailers



- 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

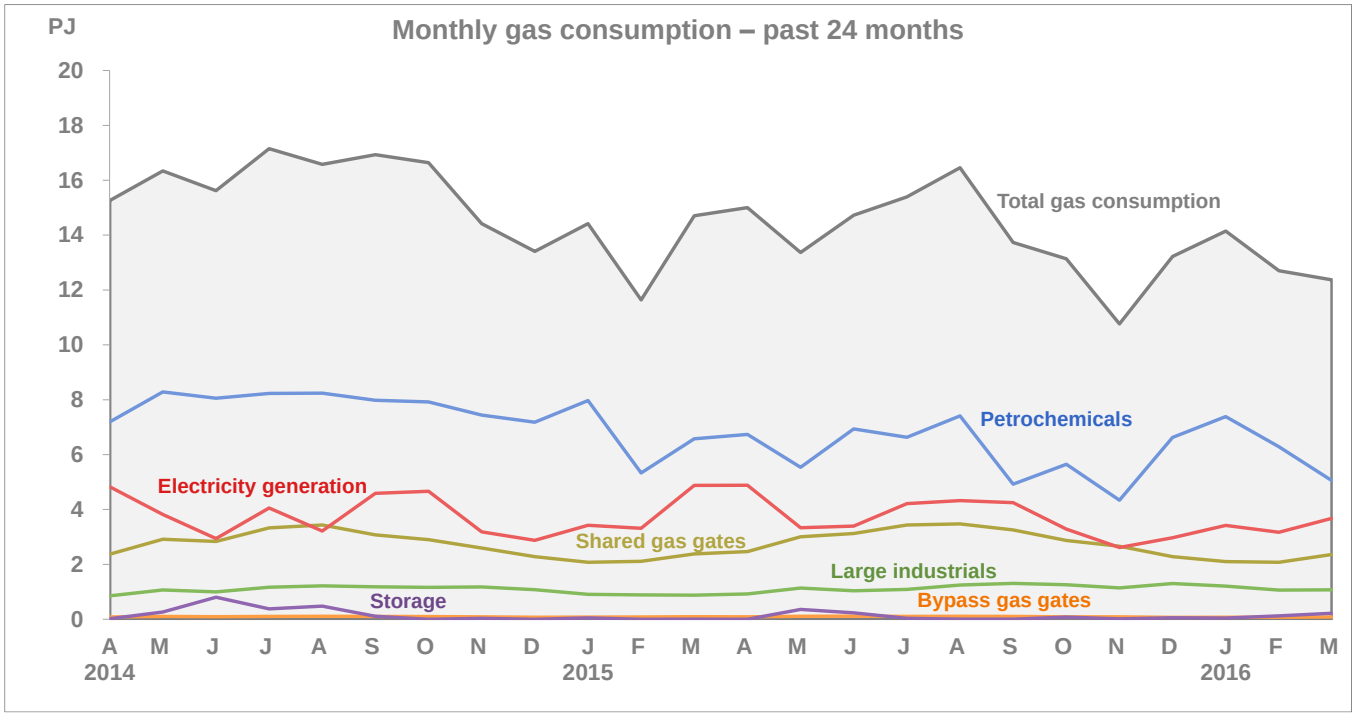
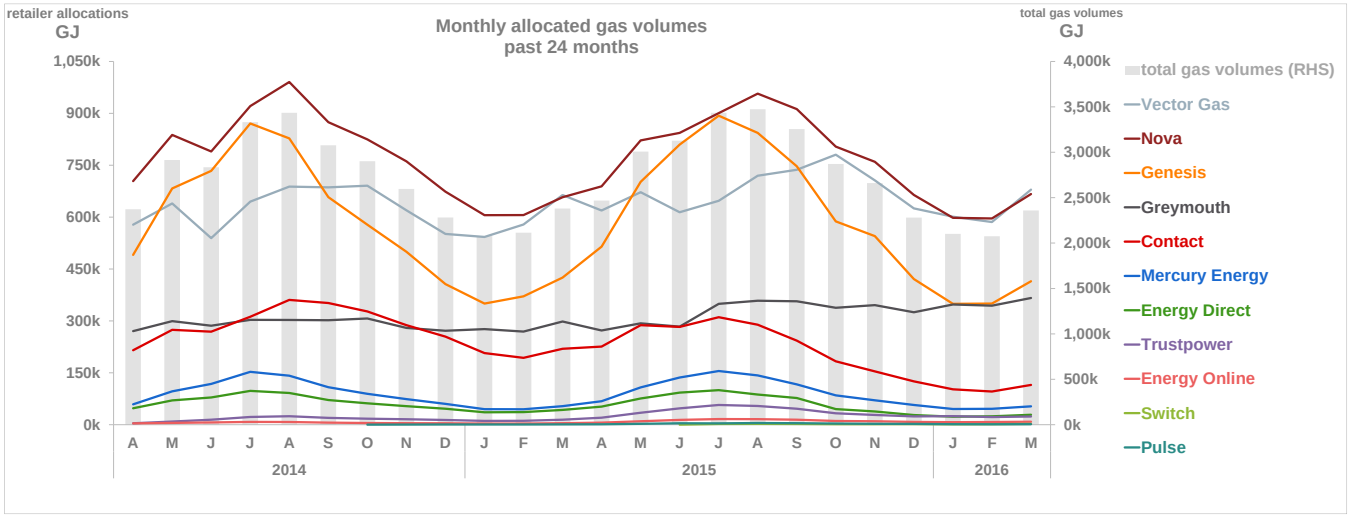
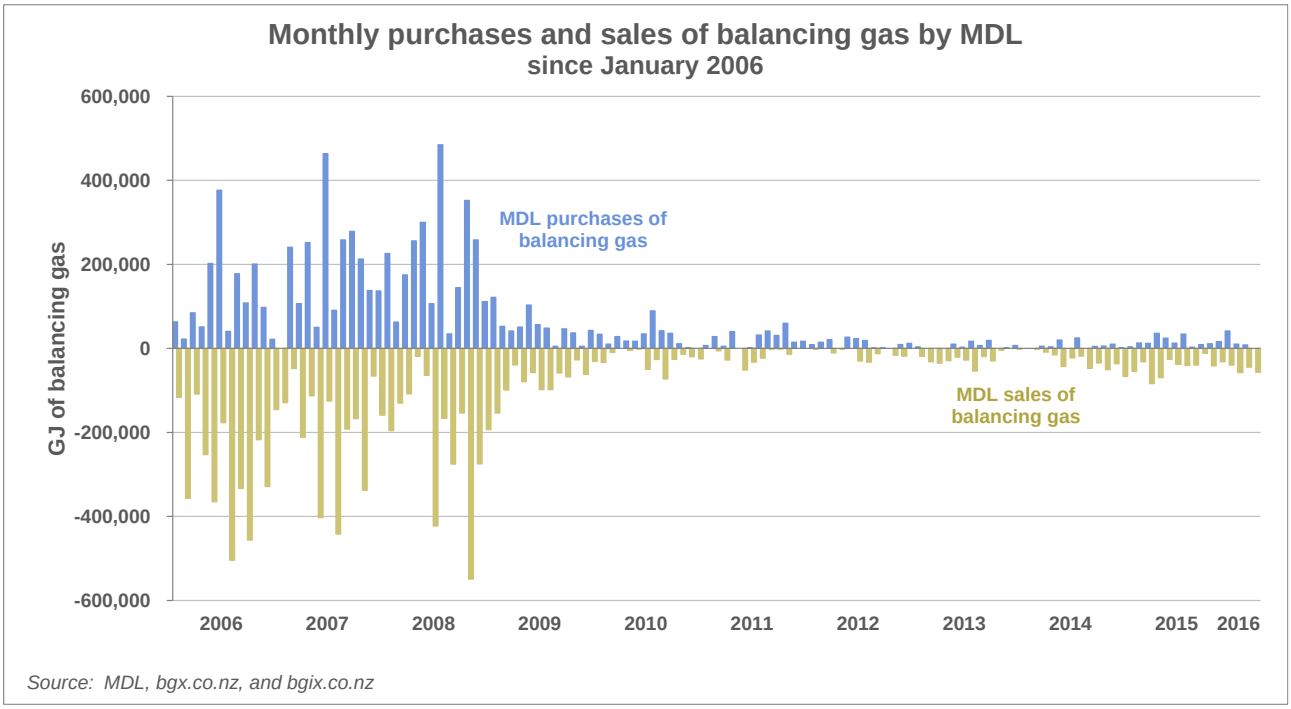


Chart 20: Allocated gas volumes



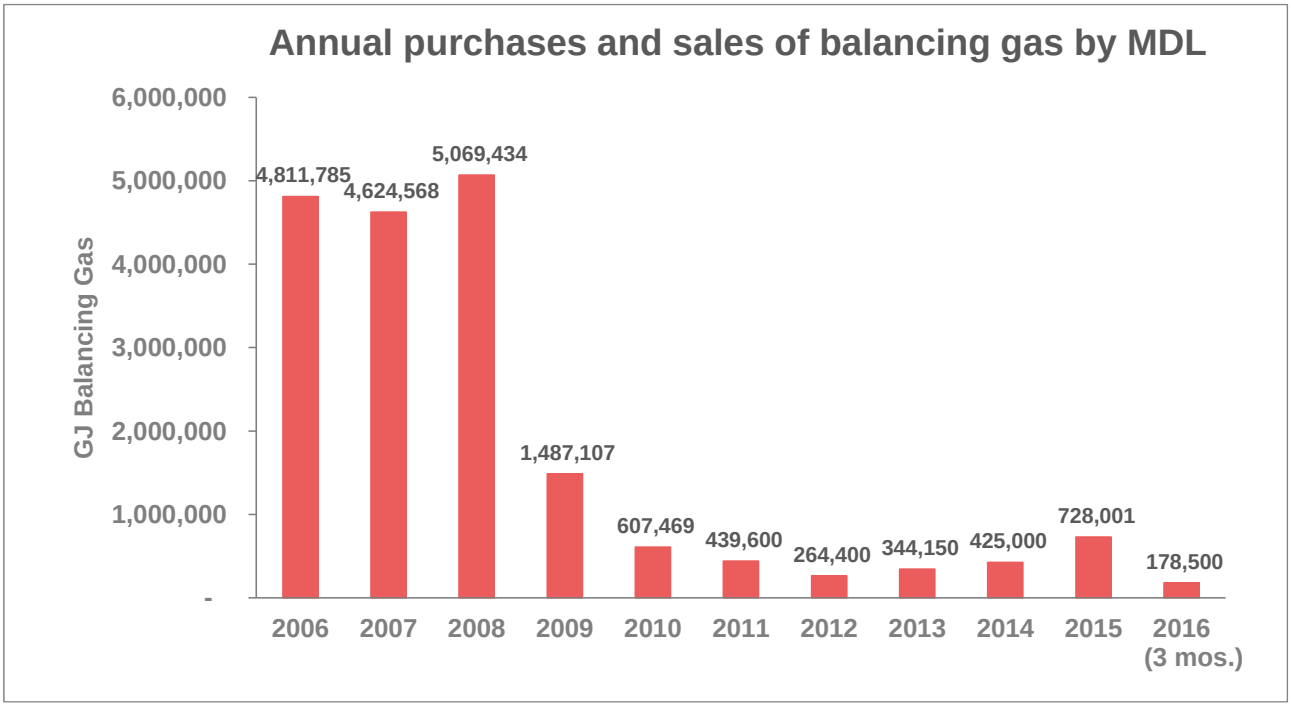
- The data are from a mix of allocation stages: Final through February 2015; Interim for March 2015 through December 2015; and Initial for January through March 2016. Note that the initial allocation data are those initially produced by the allocation agent, not the D+1 allocations that were used to 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 who are out of balance. Given that the new system has had little time to settle down and for the pipeline users to become familiar with it, 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

There were no critical contingencies in the previous quarter.

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.

Appendix A - Explanatory Notes

1 Introduction

This appendix provides context and additional information about the industry performance measures contained in the body of the report. Section numbering is consistent with the main report.

2 Switching performance measures

All of the switching charts include only switches that occurred on open-access distribution networks; switches from open-access to bypass networks (or vice versa) would not be recorded as a switch in the gas registry. The charts also exclude bulk transfers of customers associated with events such as retailer amalgamation or the purchase of a retail customer base. Specifically, the charts exclude the transfer of E-Gas customers to Nova Energy in November 2010 and the amalgamations of Auckland Gas (June 2011) and Bay of Plenty Energy (March 2013) with Nova Energy.

Chart 1: Monthly switching activity

Prior to the gas registry going live in February 2009, there were approximately 1,000 switches per month, and the annual churn rate was approximately 4.8%.

Since registry go-live, switching rates have more than quadrupled to over 4,000 per month. The churn rate (defined as the number of switches in 12 months divided by the total number of gas consumers) has varied in that time from 14% to over 19%. By comparison, electricity switching rates vary from about 16% to about 20%.

For context, the chart below shows customer switching trends since March 2009, the first full month following registry went go-live.

Chart A- 1: Monthly switching since March 2009

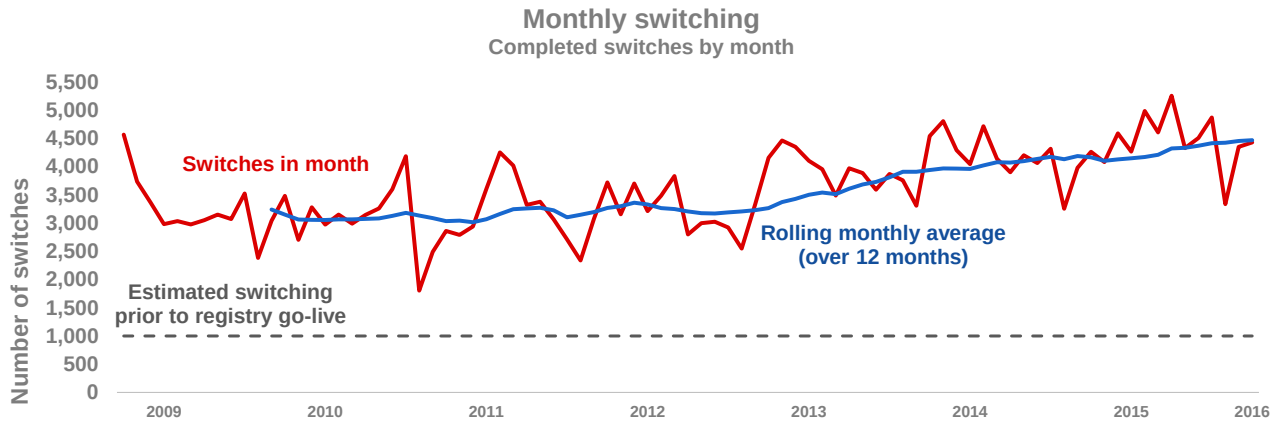


Chart 2: Regional switching activity

These charts compare regional switching rates with total switching rates. The grey line is the same in all the charts and shows the number of switches in a month as a percentage of active customer sites (that is, customer sites that either have a contract with a retailer or that recently had a contracted consumer but is temporarily vacant) across all North Island gas consumers. The data include both move switches (where a property is switched at the request of an incoming tenant or homeowner) and standard switches (where a gas customer decides to switch the retailer that supplies their existing location). As that grey line shows, monthly switching in the past two years has varied between 1.1% and 1.7% of total North Island gas customers.

The red line in each chart shows the number of switches in that region as a percentage of ICPs in that region. Auckland and Wellington switching rates tend to be similar to the North Island rates, since a large proportion of gas customers are located in those regions. Differences emerge in the smaller regions and show both long-term trends and the effects of regional marketing campaigns.

Chart 3: Time to process switches

The time to process switches has fallen markedly since the commencement of the Switching Rules and the associated inception of the gas registry. Prior to those events, switching could take weeks or months to complete. Once the registry went live, switching times dropped to about 10 days, and since then, switching times have dropped further, to an annual average of less than about four business days.

Chart 4: Distribution of switching length

These charts show the distribution of switching length since the start of the gas registry by calendar year. Since the start of the registry, switches have tended more and more to occur either in zero or one day; or in seven days. Switches taking zero to two business days generally are move switches (where a property is switched at the request of an incoming tenant or homeowner), while the majority of switches taking three or more business days are standard switches (where a gas customer simply decides to switch the retailer that supplies their existing location). Switching times have recently fallen to about three or four business days, similar to the switching times seen in the electricity industry.

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

Most breaches of the Switching Rules are alleged by the registry operator, though a few have been alleged by other market participants.

3 Allocation and reconciliation performance measures

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

Under the Reconciliation Rules, the amounts of gas that retailers estimate their customers have used are subtracted from the amounts of gas leaving the transmission system. The difference is UFG, which arises from technical losses on the system, metering inaccuracies, and retailer estimation errors. UFG imposes a cost on the market: it is gas that retailers are allocated and must pay for, but cannot sell. Tracking UFG is a way of monitoring these costs and the efficiency of the retail market. This transparency should assist the industry to take steps to reduce UFG where it is efficient to do so.

The chart compares total UFG quantities by consumption month and allocation stage (initial, interim or final). The grey bars show UFG based on the most recent data available.

Changes in UFG from one allocation stage to another are largely due to mass market retailers' consumption submissions becoming more accurate at later allocation stages. UFG tends to be most extreme at the initial allocation stage: in summer, UFG tends to be negative due to retailers' overestimations of customer consumption; and in winter, UFG tends to be positive due to retailers underestimating consumption. Generally, UFG volumes diminish considerably from the initial to the interim allocation stages. The final allocation stage reflects further minor adjustments to retailers' data, which can result in slightly more or less UFG, as shown by the orange and red lines in the chart below.

For context, the chart below shows UFG trends since October 2008, when the Reconciliation Rules went into effect.

Chart A- 2: UFG since October 2008

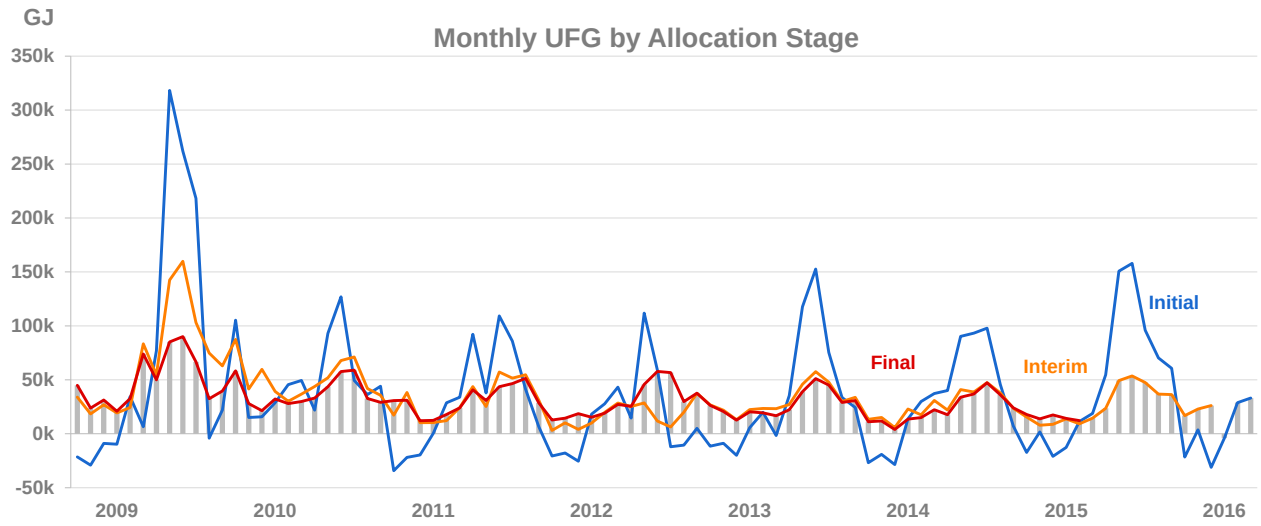


Chart 7: Percentage of UFG

This chart shows the amount of UFG in comparison with the total amount of allocated gas consumed each month. The grey bars show gas consumption at allocated gas gates, while the coloured bars show UFG volumes, by allocation stage. The labels show the percent of UFG as a proportion of total allocated gas.

Chart 8: Rolling 12-month UFG

Another way to think about UFG is the amount recorded over a 12-month period. This chart shows rolling 12-month UFG figures, both as a GJ total and as a percentage of gas consumed. That is, each data point shows the amount of UFG recorded for that month and the preceding 11 months. As initial data are often inaccurate, the chart includes only consumption months for which interim or final data are available. The figures in the chart are based on the best data available at the time of publication.

Chart 9: Gas gates where UFG is the highest

These charts show the gates with the largest volumes of positive and negative UFG over 12 months, according to the most recent final and interim data.

The first chart shows the 10 gas gates that had the highest volume of UFG, in terms of the percentage of total positive UFG experienced over the same time period. As a comparison, the

chart also includes the percentage of total gate injections each gate represents; that is, the proportion of total gas consumption that is drawn from those gates.

The second chart shows negative UFG compared with gate injections.

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

Most breaches of the Reconciliation Rules are alleged by the Allocation Agent. Rule 37 breaches tend to be considered and settled in yearly batches.

4 Market competition performance measures

Chart 11: Market share of ICPs by retailer

This chart shows the number of active contracted customer sites associated with each retailer over the past two years, as recorded by the gas registry.

Chart 12: Market share by consumer segment

This chart shows market share by consumer type, as shown in the gas registry. Note that the chart shows retailers that have more than 3% of the market share of any category.

Chart 12a: Market share by geographical region

This chart shows the number of customers served by each retailer by geographical region. For simplicity, the charts include only those retailers with over 1% of total customer market share.

Chart 13: Herfindahl–Hirschman Index

The Herfindahl–Hirschman Index (HHI) is one way of measuring market concentration by using size and number of competing firms. The index ranges from 0 to 10,000. A low score indicates a low level of market concentration, which arises when there are a large number of small firms in the market, each with a small proportion of market share. Conversely, an HHI score of 10,000 represents a market with a single retailer. The measure is used because market concentration is often inversely related to market competition; that is, the more retailers there are, and the more that market share is spread among them, the greater the competition for customers is thought to be.

As a point of reference, the United States Department of Justice considers markets in which the HHI is between 1,500 and 2,500 to be moderately concentrated. Markets with an HHI of greater than 2,500 are considered highly concentrated.[3]

The bars in the chart shows the HHI of the retail gas market as at December 2015; for comparison, the HHI for 2009, 2011, and 2013 are also shown. In all regions, the HHI has decreased, indicating that the retail gas markets in these regions have become less concentrated.

Until 1992, when the new Gas Act disestablished local exclusive franchise areas, gas retailing occurred through local vertically-integrated monopolies. With the consequent onset of retail competition, these former monopoly providers became 'incumbents', subject to competing retailers vying for customers in their areas. (A similar change occurred in the electricity sector). In most regions, there is still a dominant retailer, but the decrease in HHI shows that they have become less dominant in the past six years. With the introduction of the Switching Rules, new retailers have entered the market and smaller retailers have increased their market share.

[3] http://www.justice.gov/atr/public/guidelines/hhi.html accessed 1 May 2014.

Chart 14: Switching by consumer sites since 2009

This chart shows the proportion of active contracted consumer sites by the number of times they have switched since the start of the registry, broken down by consumer type (as indicated by load shedding category in the registry).

Chart 15: Residential consumer sites that have never switched

This chart shows, for the residential consumer sites that have never switched retailer (since the start of the gas registry in February 2009), the proportion served by each retailer, compared to that retailer's market share of residential consumers. In essence, it shows that switching activity has not occurred equally among all retail customer bases.

Chart 15a: Residential customers by number of switches

This chart breaks down retailers residential consumers by the number of times they have switched and compares those proportions with switches for the residential consumer market as a whole.

Chart 16: Switching activity by retailer

This chart shows the numbers of ICPs gained and lost by retailers over the past two years. The blue bars show the number of customers gained by the retailer each month, and the red bars show the numbers of customers lost.

As shown by these charts, although the net changes in number of customer ICPs may not change significantly from month to month for some retailers, there is a lot of underlying switching activity, particularly for the mass market retailers Contact, Genesis, and Mercury.

Chart 17: Gas gates by number of retailers

This chart shows, by month, numbers of gas gates by the number of active retailers. In this case, an active retailer means a retailer that has at least one active contracted ICP at that gas gate. About 40 gas gates are direct connect gates, meaning that they serve only one consumer, generally a large industrial consumer, and can have only one retailer active at that gate.

The majority of gas gates – 98 at last count – serve multiple consumers. The greater the number of retailers that trade at a gas gate, the greater is the potential competition for customers.

Chart 18: Connections served by multiple retailers

This chart plots the proportion of gas consumers who are served from the gas gates in the chart above; that is, consumers served at gas gates where multiple retailers trade. This chart shows, for example, that while ten or eleven retailers are active at only a handful of gas gates, those gates tend to be the largest ones, since about half of all gas consumers are connected at these gates.

Chart 19: Total gas volumes

This chart shows the total amount of gas consumed over the past two years by all gas users. The top grey line shows total consumption; the coloured lines provide a breakdown by type of use.

- The red line shows the variability of gas usage for thermal electricity generation.
- Consumption for petrochemicals is shown in blue.
- The tan line shows the amount of gas used by consumers connected to shared gas gates. This represents the majority of commercial and residential consumers. There is a seasonality trend to the consumption, higher in winter and lower in summer.

- The green line represents volumes of gas used by large industrials, including steel, wood products, dairy processing, and oil refining.
- The purple line shows the volumes of gas going to storage.
- The orange line represents gas used by consumers connected to the private pipelines owned by Nova.

Gas used by consumers connected to distribution pipelines (the tan line) is allocated by retailer and shown in the next chart.

Chart 20: Allocated gas volumes

This chart shows the gas volumes allocated to retailers at shared gas gates over the past two years, i.e. gas gates connected to a network that supplies multiple consumers. This includes gas used by industrial, commercial, and residential consumers, but it excludes gas volumes from direct connect gas gates; that is, from gas gates that supply a single consumer directly from the transmission system. For this reason, gas volumes supplied through direct connect gas gates to such industrial sites as thermal power stations, the oil refinery, and paper and chemical factories are not included in the chart.

The grey bars in the chart show total volumes of allocated gas (using the right-hand scale); company volumes are denoted by coloured lines and use the left-hand scale. The bars show the seasonality of gas consumption: higher in winter and lower in summer, and many of the retailers show similar patterns in their allocated volumes. Nova Energy is generally the largest retailer by allocated volumes. Genesis has a load profile that peaks in winter and troughs during the summer. Contact, Mercury, and Energy Direct all show similar – but less pronounced – winter peaking patterns. Greymouth's share of allocated gas, in contrast, is relatively steady throughout the year, reflecting its position as largely a supplier to industrial loads.

5 Balancing gas

The volume of gas in a pipeline relates to the gas pressure in the pipeline and needs to be maintained below the safe operating pressure limit for the pipeline and above the minimum required to maintain the supply of gas to consumers. On the Maui pipeline, pressures rise or fall as parties who inject gas into the pipeline over- or under-inject, and as parties who receive gas from the pipeline under- or over-take relative to their respective scheduled volumes. When a transmission owner, or operator, manages the gas inventory in a pipeline, it is referred to as *secondary* or *residual balancing*. Maui Development Limited (MDL) buys and sells balancing gas in order to manage gas volumes and thus maintain gas pressure within safety and operational limits.

Prior to 2008, secondary balancing services were essentially free to holders of legacy Maui gas contracts, but changes implemented at the end of 2008 to the Maui Pipeline Operating Code, together with the arrangements in the Vector Transmission Code, mean that the costs associated with secondary balancing are generally recovered from pipeline users. In 2009, MDL instituted the Balancing Gas Exchange, an online platform that displays pipeline balance conditions and enables parties physically interconnected to the Maui pipeline to post offers to buy and sell balancing gas. These two changes appear to have provided gas transmission customers with an incentive to self-balance and greater information on which to base their balancing decisions.

The outcome is the significantly reduced volumes of gas needed to be purchased or sold by MDL to balance the Maui pipeline since 2009.

On 1 October 2015, MDL introduced market-based balancing on the Maui pipeline, wherein welded points are cashed out at the end of each day for imbalances over a tolerance limit. Balancing gas transactions are now posted on the Balancing Gas Information Exchange, bgix.co.nz.

Chart 21: Balancing gas volumes

This chart shows the purchases and sales of balancing gas by MDL by month since January 2006.

Chart 22: Annual volumes of balancing gas

This chart uses the same data as chart 21, but the data are shown as annual volumes of total purchases and sales.

PROGRESS TOWARDS OBJECTIVES AND OUTCOMES

1 JANUARY – 31 MARCH 2016

This section provides an update of progress towards objectives and outcomes for Gas Industry Co the gas industry body, as set out in the Gas Act 1992 and the April 2008 Government Policy Statement on Gas Governance, particularly as implemented through the Company's FY2016-2018 Statement of Intent.

Project	Rationale	Activity	Status
Strategic Goal: Efficient Use of, and timely investment in infrastructure			
Transmission Pipeline Balancing	• Improved industry arrangements. Gas industry participants and new entrants are able to access transmission pipelines under reasonable terms and conditions.	• Assess balancing market developments. • Provide advice to Minister on balancing market developments as appropriate.	• Gas Industry Co awaits the agreement on one remaining party to the release of pipeline and trading information that will allow it to assess the performance of the Market Based Balancing regime.
Interconnection	• Improved industry outcomes. Gas industry participants and new entrants are able to access transmission pipelines under reasonable terms and conditions.	• Monitor two new interconnection arrangements on each open access transmission pipeline (Vector, MDL). • Review transmission pipeline interconnections and consult on any issues by the end of 2013. • Investigate the extent, if any, of issues relating to access to private pipelines.	• No new interconnections in the quarter. Continue to monitor any new connections and related activity.

Project	Rationale	Activity	Status
Strategic Goal: Build efficient, competitive, and confident gas markets			
Rule Changes	• Improved industry governance through regular review of existing arrangements and recommending changes where appropriate.	• Maintain rule change registers. • Review industry feedback on options paper on Reconciliation Rules. • Review the effectiveness of the CCM Regulations following any events/exercises. • 2015 changes to Switching Rules have reduced maximum switching times. • Market Administrator Guideline published with associated drop in reported breaches.	• A pilot of day-after (D+1) allocations and daily BPP information delivery is continuing. This will be reviewed once the form of transmission convergence is determined and a longer-term solution derived.
Gas Quality	• Maintain an acceptable standard of gas quality. • Ensure costs of gas quality incident are met efficiently. • Achieve improved transparency on gas quality incidents.	• Ongoing review of industry arrangements for managing gas quality. • Consider options for improving gas quality arrangements.	• *Gas Quality: Requirements and Procedures Document* has been issued and will be reviewed and updated by GIC as required. GIC to monitor any remaining quality issues.

Project	Rationale	Activity	Status
Insolvent Retailer Arrangements	• Following recommendation to revoke 2010 temporary Insolvent Retailer Regulations, consider whether generic regulatory solution is required to address retailer insolvency.	• Prepare Issues and Options paper for industry consultation.	• Gas Retailer insolvency management framework is now complete. • The Minister accepted GIC's recommendation that permanent backstop regulations are not necessary, and approved minor changes to each of the Switching and Reconciliation Rules that facilitate the gas retailer insolvency management regime. • GIC has issued its Final Decision Paper and accompanying drafting instructions to support any future process to manage a retailer insolvency.
Gas Distribution Principles	• Improved industry outcomes. Gas industry participants and new entrants are able to access distribution pipelines on reasonable terms and conditions. • Ensure consistency in distribution services arrangements.	• Monitor and report annually to Minister on status of distribution arrangements. • Develop and publish distribution contract Principles. • Encourage publication of network services agreements. • First assessment of contracts conducted as at 1 February 2013. Arrangements not progressed as well as expected, but positive indication from industry as to completion. • Report on second assessment of distribution contracts issued in May 2014. Overall alignment improves from 'Moderate' to 'Substantial'.	• GIC is monitoring distributors/retailers progress with the signing of new distribution contracts. Review during May 2016.

Project	Rationale	Activity	Status
Transmission Code Change Requests	• Ensure ongoing relevance and efficiency of multilateral terms of access to transmission pipelines. • GIC has different roles in relation to MPOC and VTC changes. It has a contractual role to review proposed MPOC changes. It has no contractual role in relation to VTC changes, but may choose to make submissions to Vector and its shippers on proposed VTC changes.	• Process each MPOC change request in accordance with the Memorandum of Understanding (MoU) between MDL and GIC. • Consider each VTC change request and make a GIC submission to Vector and its Shippers where warranted. • The MPOC Amendment Process Change Request proposed by MRP was not supported by GIC in its October 2015 Final Recommendation. • The VTC Congestion Management Change Request proposed by Vector was commented on in a June 2015 submission by GIC. The proposed change has been withdrawn by Vector. This was the first under an amended VTC Change Request Process in which GIC no longer has an appellate role but is able to make submissions.	• Sale of the Maui Pipeline to First Gas Limited is pending. On 13 April 2016 the existing owner, MDL, submitted a Change of Ownership Change Request (COCR) aimed at facilitating the change in ownership and operation of the pipeline. • On 14 April 2016, Gas Industry Co published the Change Request, together with a Draft Recommendation supporting it, and called for submissions. • Submissions from Vector Limited, and Methanex New Zealand Limited, both concur with the Draft Recommendation supporting the COCR. The submission from Genesis Energy Limited raises some issues which are addressed in this Final Recommendation. We conclude that, while Genesis has raised valid concerns, they are not of sufficient weight to prevent us supporting the COCR.
Compliance	• Statutory role under the Compliance Regulations. • Improved industry operations through provision of a compliance and dispute resolution process for industry participants.	• Oversight of Gas Governance (Compliance) Regulations 2008.	• Gas Industry Co continues to fulfil its role as Market Administrator under the Compliance Regulations. • Breach activity has been low; a positive indicator of industry compliance.

Project	Rationale	Activity	Status
Customer Issues	• Enhanced consumer benefits through complaints process for small gas customers.	• Liaise with the Electricity & Gas Complaints Commission (the approved complaints scheme), and other relevant regulators to remain aware of consumer complaint issues.	• Regular liaison with the EGCC and other relevant regulators. Gas-related inquiries and complaints statistics included in GIC's Annual Report.
Retail Contracts	• Enhanced consumer outcomes by providing clarity around the respective roles and obligations of consumers and industry participants involved in the supply of gas to small users.	• Administer the Retail Gas Contracts Oversight Scheme. • Annual assessment of alignment of retail contracts with contract Benchmarks. • Report to Minister on the results of the 2012 assessment.	• Results from the fourth assessment of retailers' standard published contracts with small consumers as at 1 July 2015 were published in October 2015 and shows further improvements in alignment with the contract benchmarks. • Since the Retail Scheme's introduction in 2010, retailers' overall rating has increased from 'Moderate' to 'Substantial' alignment with the benchmarks.
Transmission Pipeline Capacity	• Improved consumer outcomes by addressing short and long-term competition issues arising from the North Pipeline capacity constraint. • Enhanced industry/consumer outcomes by improved level, and quality, of information on which to base business/energy use decisions.	• Address by regulatory and/or non- regulatory options any lessening of competition due to transmission constraints. • Implement the Gas Transmission Investment Programme (GTIP). • Improve the quality and availability of pipeline security standards and supply/demand information. • Promote changes to commercial and regulatory arrangements so the GTIP objectives can be met.	• GIC's 2015 *Options for Improvement Paper #2* (OP2) proposed developing a vision for converged transmission arrangements, a concept that received wide support in submissions Timing and process being influenced by transmission pipeline sales).

Project	Rationale	Activity	Status
Strategic Goal: Deliver effectively on accountabilities			
Downstream Reconciliation	• Statutory role under Reconciliation Rules. • Improved industry arrangements and consumer outcomes through the objective of fairly allocating, and reducing, unaccounted-for-gas (UFG) and its associated costs.	• Oversight of Gas (Downstream Rreconciliation) Rules 2008.	• Updated Billing Factors Guidelines published in December 2015. • Gas reconciliations performed each month. • Long-term UFG has flattened out at approximately 1.1%.
Switching and Registry	• Statutory Role under Switching Rules 2008. • Efficient retail market and improved consumer outcomes by facilitating market contestability through customer switching between retailers.	• Oversight of Gas (Switching Arrangements) Rules 2008.	• Registry Amendments Project post-implementation activities have included data cleansing processes and monitoring of retailers' switching accuracy. • Customer switching facilitated through Rules and Gas Registry processes. • Switching statistics report issued monthly.
Performance Measures	• Improved industry and consumer outcomes through the provision of public information on industry performance. • Monitor the effectiveness of governance arrangements.	• Determine and publish information on each gas governance arrangement that has been implemented.	• Performance measures computed and reported quarterly.

Project	Rationale	Activity	Status
Industry Facilitation	• Facilitate nexus between industry and Government. • Maintain informed industry participants and other stakeholders.	• Facilitate, influence and communicate with the industry and Government. • Liaise with other regulatory bodies, agencies and associations with responsibilities and interests encompassing the gas industry.	• *NZ Gas Story* fourth edition released December 2015. • *NZ Gas Story* roadshow presentations held in October 2015 in Wellington, Auckland and Taranaki (continuing the practice started in 2014). • Regular liaison with MBIE, Electricity Authority, and other relevant regulators. • *NZ Gas Story* updated regularly to reflect changes in the market.
Critical Contingency Management	• Statutory role under Gas Governance (Critical Contingency Management) Regulations 2008. • Improved industry outcomes through increased market confidence in industry's ability to manage critical events.	• Manage Critical Contingency Operator (CCO) via service provider agreement. • Review effectiveness of the Regulations following any events/exercises. • Operate critical contingency pool following an event. • Critical contingency management exercise (Exercise Validation) was conducted on 24 June 2015.	• CCO activities monitored and reviewed quarterly. • Next exercise scheduled for June 2016.