GAS INDUSTRY COMPANY LIMITED

QUARTERLY REPORT

Quarter ended 30 September 2015

From the Chief Executive

We have completed another busy quarter, with key developments including preparations for the implementation of market-based balancing (MBB) on 1 October and the associated commencement of balancing gas trading on the emsTradepoint wholesale platform (more details below).

There is still more to be done in relation to the MBB arrangements, including work by Gas Industry Co on the development of a monitoring regime.

Gas Industry Co is also progressing the trialling of a day-after delivery (D+1) allocation methodology for downstream reconciliation processes. This will also assist retailers to manage their upstream balancing arrangements.

The quarter also saw a stream of corporate activity with important implications for the immediate future of the gas sector.

The announcement of the extension to electricity supply arrangements for the Tiwai Aluminium Smelter was closely followed by announcements by Genesis Energy and Contact Energy about the retirement of thermal generation plants at Huntly and Otahuhu respectively. These added to the previously-announced closure of the Southdown power station by the end of the year.

The traffic is by no means all one way. Offsetting this imminent reduction in gas-fired generation has been Contact's planned refurbishment of the Taranaki Combined Cycle Plant and a call by Nova for expressions of interest in the possible construction of another gas-fired peaker plant.

Upstream, the effects of the drop in international oil prices are being seen in explorers reviewing their investment programmes. However, on a more positive note, the owners of the Kupe field have more recently announced a considerable increase in reserves.

There is also movement in the gas transportation sector, with both transmission systems subject to review by their owners, with resulting potential for changes in ownership.

Contents Page

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

The gas industry in New Zealand has been characterised by marked change over time and this continues to be the case. Some factors, such as fluctuating oil prices are genuinely cyclic. Others, such as the growing focus on new energy technologies may have a more fundamental effect on energy infrastructure investment. Although most immediate impacts of these changes may be felt in the electricity sector, flow-on or parallel effects are inevitable for the gas sector.

Notwithstanding the current headwinds and expectations for future change, Gas Industry Co's assessment continues to be that gas is making an ongoing major contribution to New Zealand's homes and businesses; the fundamentals of the market remain healthy for gas consumers; we continue to have over 10 years of gas reserves; and New Zealand remains an attractive destination for upstream investment in a global context. There is also scope for new market development opportunities, both in New Zealand and through potential LNG exports, if exploration efforts prove successful.

Steve Bielby
Chief Executive

This Quarterly Report includes Gas Industry Co's regular Quarterly Industry Performance report (Page seven).

The highlights are:

- Switch Utilities became another new entrant to the retail gas market in July 2015. There are now 11 retail gas brands owned by nine different retail companies.
- Nearly 99% of gas customers are connected to a gas gate where eight or more retailers trade, showing improving customer choice across the North Island.
- The annual customer switching rate for the past 12 months has increased to 19.2%, and reached a market high of over 5000 in September. Switching rates have been over 18% for the past year and a half.
- 55% of residential consumer sites have switched retailer at least once in the past five years; 64% of small commercial and 72% of large commercial sites have switched at least once.
- The average time for a switch to be completed remains at a satisfactory five days.
- Average annual unaccounted-for gas (UFG) over the past year is unchanged at about 1.0%, about half of what it was in 2009. Genesis remains the largest retailer by customer share. Nova Energy remains the largest retailer by volume market share and has the largest share of commercial and industrial customers.

CODE CHANGE ACTIVITY

The quarter ended 30 September 2015 was notable for two related gas transmission code change developments and associated work to improve reconciliation processes. Preparations were made for introduction of market-based balancing (MBB) on 1 October. Gas Industry Co progressed the parallel trial of day-following ('D+1') reconciliation arrangements. Gas Industry Co also issued its Final Recommendation on the 24 April 2015 Maui Pipeline Operating Code Amendment Process Change Request (APCR).

MBB Implementation

Transmission system balancing arrangements entered a new era on 1 October 2015 with the introduction of market-based balancing (MBB) by Maui Development Limited (MDL).

MBB aims to improve the overall balance between the amount of gas injected into the Maui pipeline by producers, and the amount drawn from the pipeline by major users and Vector's interconnecting pipelines, for on-delivery to 'mass-market' residential, commercial and industrial users throughout the North Island. MBB was developed by MDL. Its main feature is that any pipeline user who has an 'excess imbalance' at the end of a day will be balanced by MDL buying or selling that amount of gas from the pipeline user (known as a 'cash-out'). Another feature of MBB is that MDL will give priority to buying or selling any other gas it needs to balance the pipeline from an electronic trading market. On 1 October, Transpower's emsTradepoint market became the first such trading market available to MDL and its pipeline users.

Pipeline users are informed about the status of the Maui pipeline, cash-outs that have occurred, and gas prices being bid and offered on the emsTradepoint market through a web-based *Balancing Gas Information Exchange* (BGIX). The commencement of MBB is the latest development in efforts over the past six years to improve transmission system balancing arrangements.

Gas Industry Co supported *MDL's MPOC change request* to adopt MBB as it considered the proposal would be beneficial overall, particularly in terms of improving efficiency of gas transport arrangements, allowing for more competitive balancing gas transactions, signaling the cost of pipeline flexibility and, by providing more stable balancing, reducing security of supply risks.

Gas Industry Co's Final Recommendation incorporated an independent cost-benefit analysis (CBA) prepared by John Small of the economics consultancy Covec.

Following implementation on 1 October, users were initially frustrated that certain information on the BGIX did not align with information presented on MDL's main information system, the Open Access Transmission Information System (OATIS). There were also instances of incorrect cash-outs requiring correction. However, it appears that MDL has now resolved these initial problems. In addition, Vector and its shippers are progressing work to allow cash-outs to be allocated among Vector and its shippers on a daily basis. This will allow those shippers to make better informed balancing decisions.

Gas Industry Co will be keeping an eye on how the new arrangements operate. We are currently developing monitoring arrangements and propose a full post-implementation review at the end of MBB's first year of operation.

D+1 Trial

The D+1 trial continues to provide shippers with their allocations for the previous day. Two sets of results are provided each day with the first set being based on 'unvalidated' metering data and, on business days, the second set being based on validated data. The aim is for Vector to use the validated data as the basis of the daily Balancing Peaking Pool (BPP) calculations when that process commences and, if the trial otherwise proves successful, for D+1 to be formalised through amendments to the Downstream Reconciliation Rules.

APCR Final Recommendation

The APCR, submitted by Mighty River Power (MRP), proposed changes to the MPOC change process, as a response to perceived issues about the MBB and other recent MPOC change requests. MRP's change request essentially sought to align the MPOC with the recently-introduced Vector Transmission Code ('VTC') change process.

Gas Industry Co's *Final Recommendation* on the APCR did not support the proposed change because the proposed new MPOC code change arrangements were not an improvement to the existing ones, including because they were not sufficiently well defined by the APCR and had the potential to deliver inequitable and inefficient outcomes.

OTHER DEVELOPMENTS DURING THE QUARTER

Transmission Access and Pricing

In July 2015, following analysis of submissions on our *Transmission Access; Options for Improvement Paper #2,* Gas Industry Co set out proposals to develop a vision for convergence of transmission code arrangements. We subsequently notified key participants that we would not seek further industry participation while stakeholders were intensively focused on several other key areas relating to gas transmission. In the meantime, we have been developing terms of reference for industry participation which will be issued prior to Christmas. We will also be developing a seed paper that will underpin the vision development.

Switching Rules changes take effect

Amendments to the Gas (Switching Arrangements) Rules 2008 (Switching Rules) approved by the Minister took effect on 14 September 2015 following an implementation project and industry-wide data cleansing programme. The Switching Rules were amended as part of Gas Industry Co's Registry Amendments Project aimed at enhancing Gas Registry operations and customer switching arrangements.

Report on potential critical contingency

Gas Industry Co issued a report on *Potential Critical Contingency on 15th April 2015 – Analysis of Data*. The Report was conducted in response to broad stakeholder interest in the event, and limited public visibility of data surrounding it.

Market Administrator Guidelines

New *Market Administrator Guidelines* (Guidelines) under the Gas Governance (Compliance) Regulations 2008 have been published. The Guidelines focus in particular on breaches that, since 2009, have been found to be non-material; revoke the previous Market Administrator Guideline on rule 37 breaches; and incorporate the previous rule 37 Guideline's volume threshold.

2015 Levy Regulations

The *Gas (Levy of Industry Participants) Regulations 2015*, which set Gas Industry Co's wholesale and retail levy rates for the financial year ended 30 June 2016, were Gazetted in May 2015 and took effect on 1 July 2015. The Levy Regulations relate to the Work Programme which was the subject of industry consultation from November last year.

Gas Industry Co is currently investigating non-payment of levies under one significant supply contract. The Gas Act provides for Gas Industry Co to pursue any such non-payment through the courts. Neither the Gas Act nor the Compliance Regulations provide for any additional penalties. We consider such penalties would be sensible, and broadly align with the approach to matters currently covered by the Compliance Regulations. We have commenced discussions with officials about this matter.

Progress against objectives and outcomes

Gas Industry Co is making good progress against the objectives and outcomes of the Gas Act and GPS. A summary of strategic progress is included on page 31 of this Quarterly Report.

INDUSTRY PERFORMANCE MEASURES
1 JULY - 30 SEPTEMBER 2015

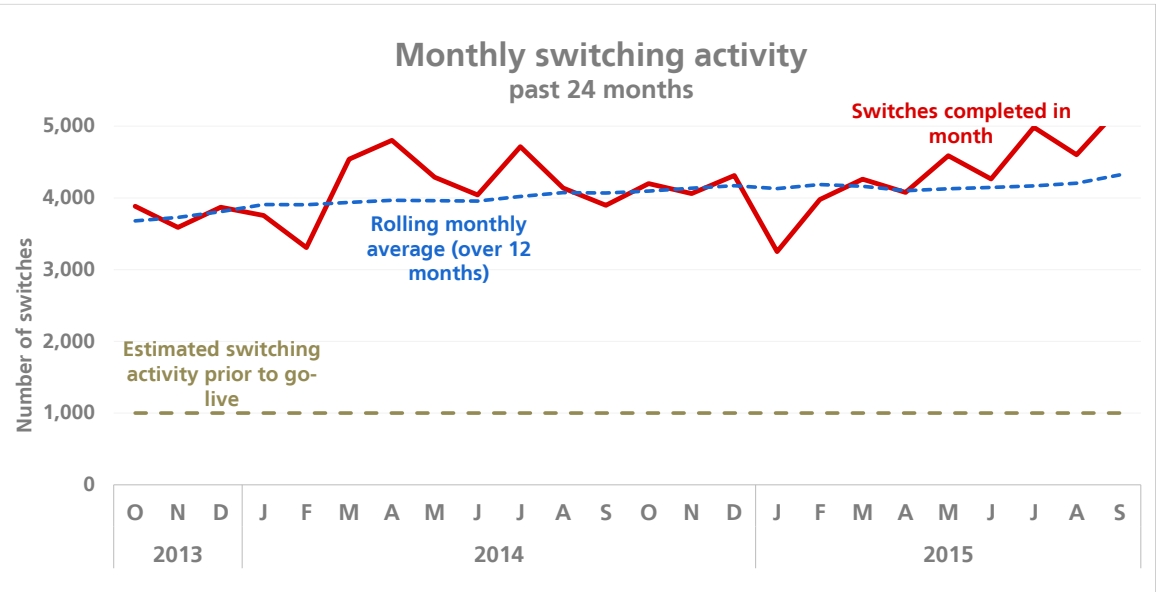
1. Summary

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.

2. Switching performance measures

Chart 1: Monthly switching activity



Over 4,000 consumers switch gas supplier per month on average.

The churn rate for the 12 months to March 2015 is 19.2%, 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.

Chart 2: Regional switching activity

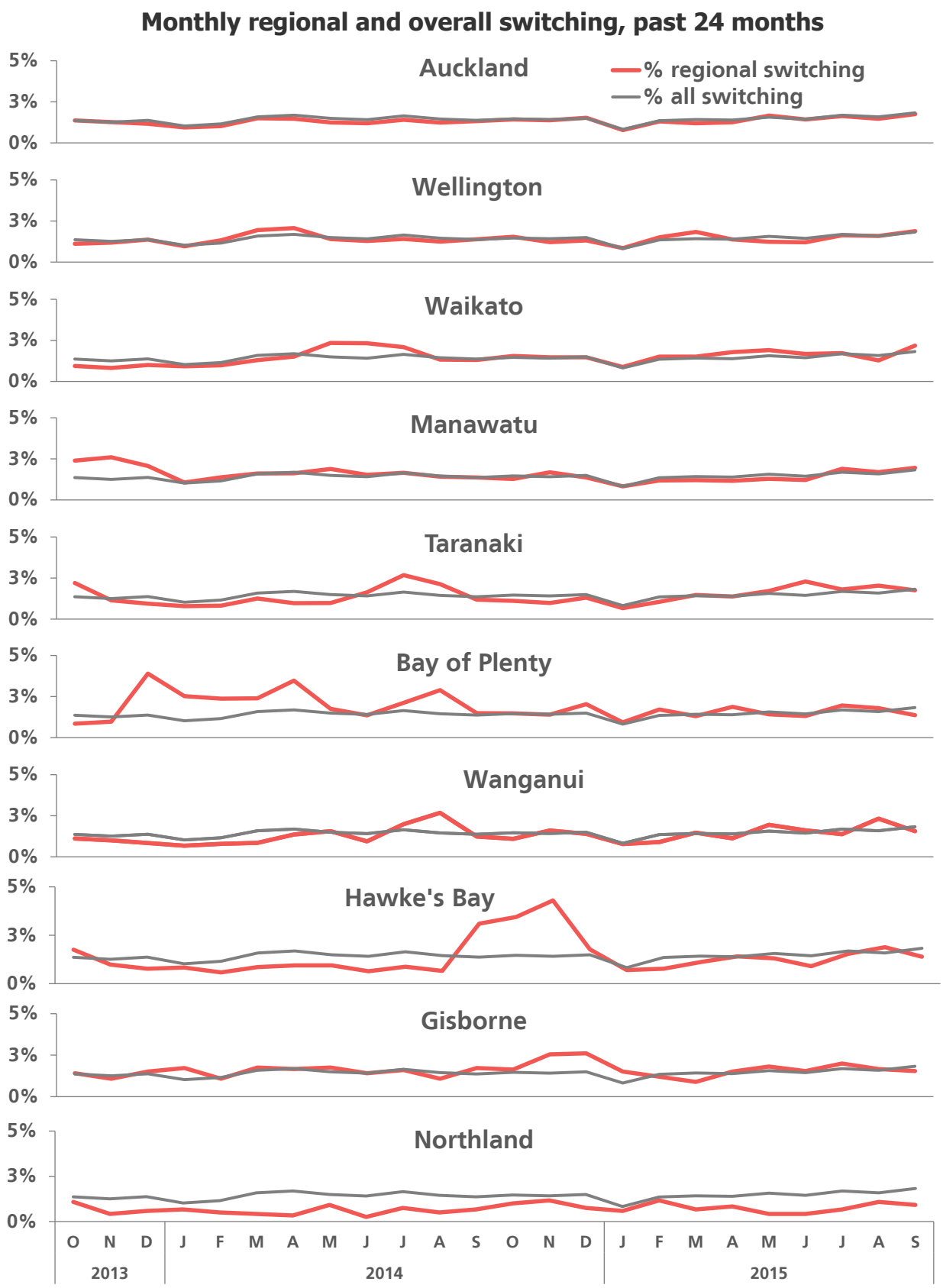
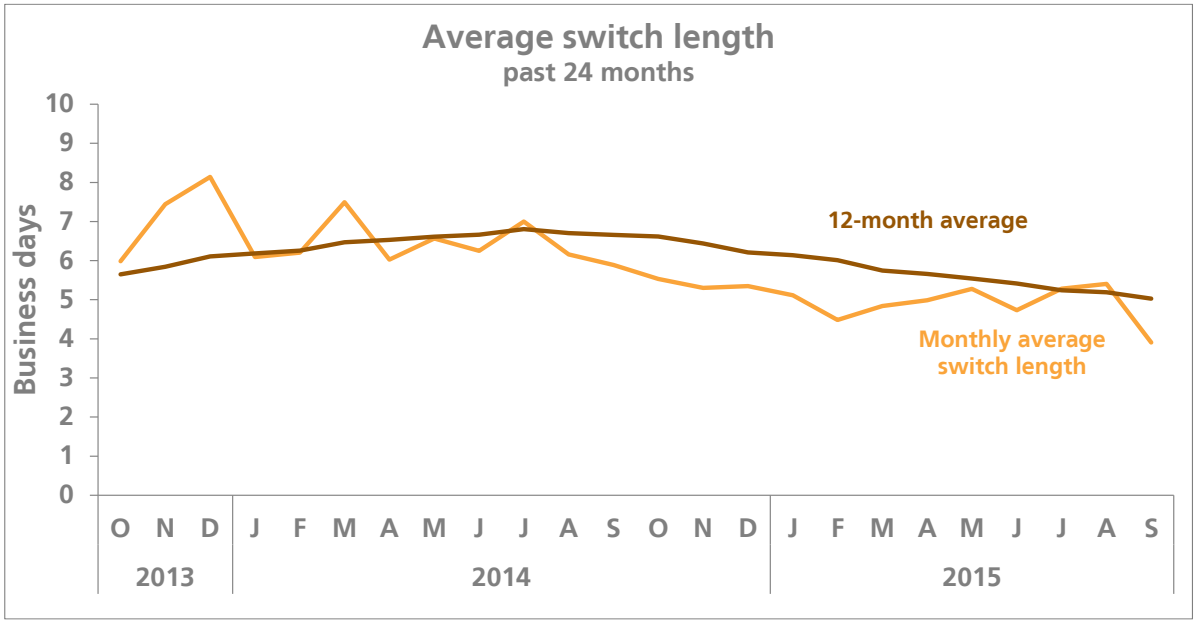


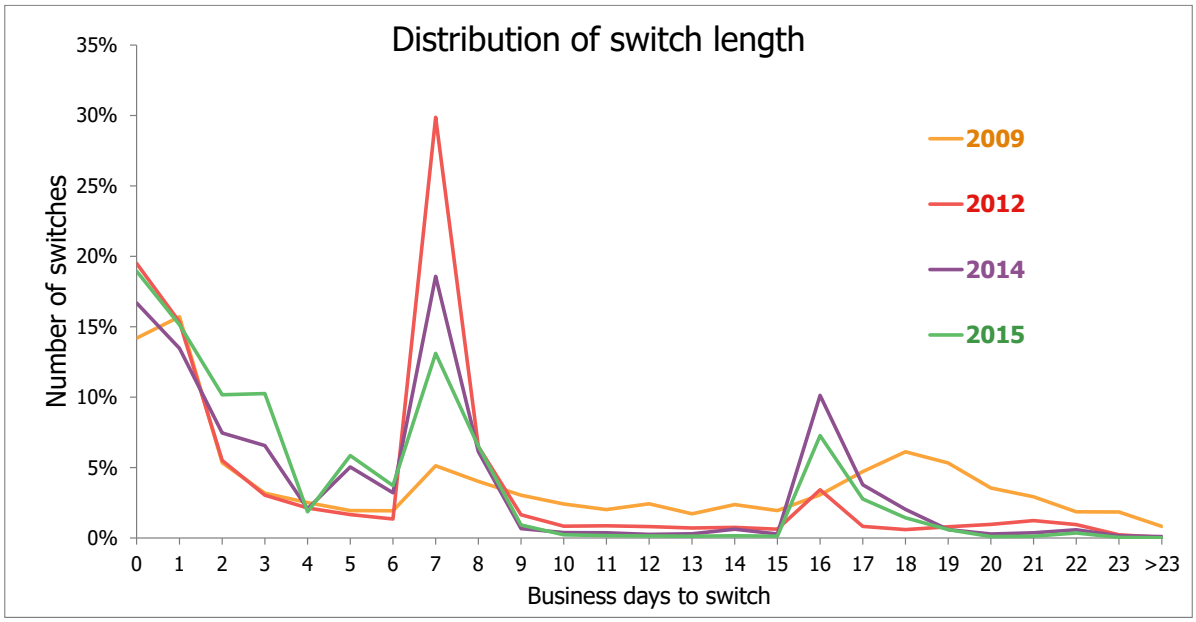
Chart 3: Time to process switches



As of September of this year, switches took less than four days to complete, on average.

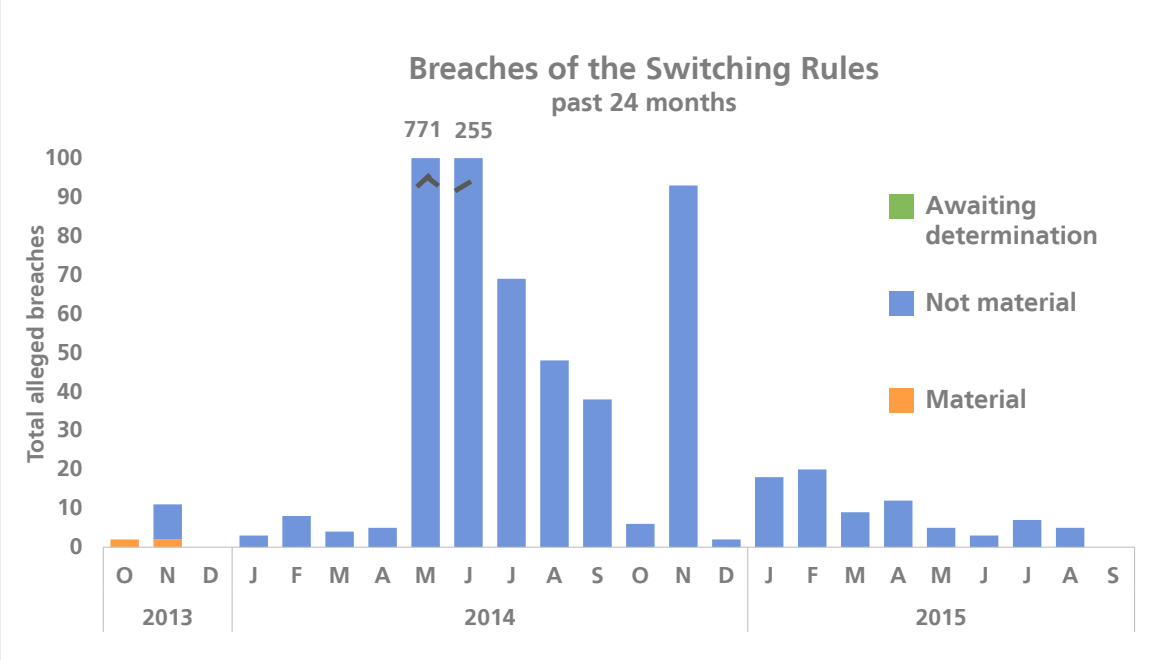
The 12-month average switching time stands at just over five business days.

Chart 4: Distribution of switching length



This chart shows the distribution of switching times for the calendar years of 2009, 2012, 2014, and the first nine months of 2015. More and more switches are being completed within three days.

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

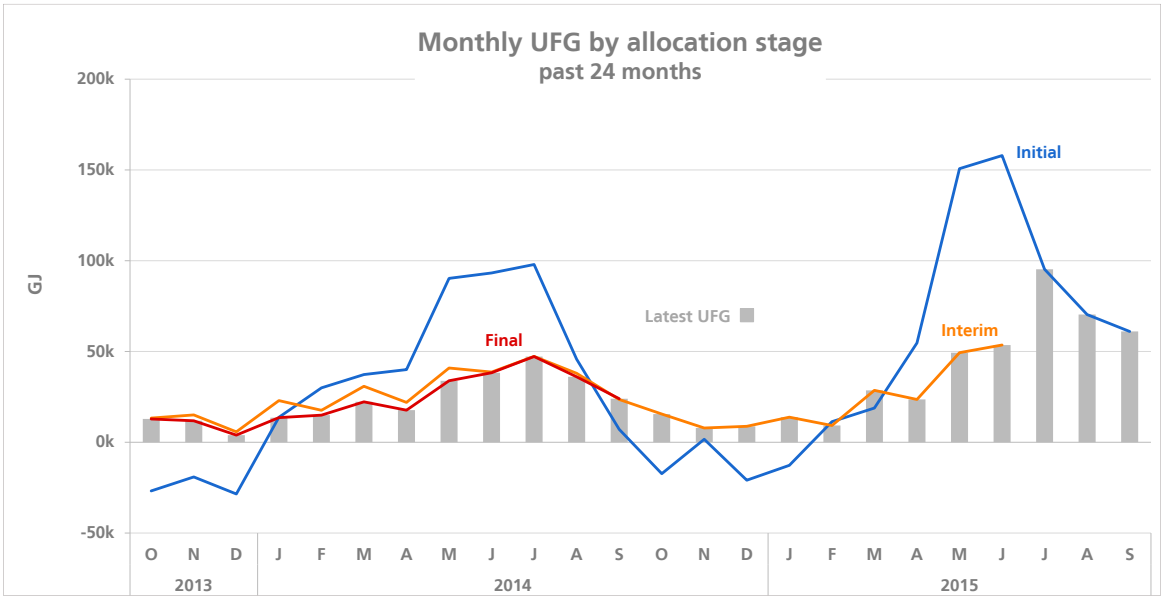


Most of the breaches in May and June 2014 relate to delays in responding to switching notices by Contact Energy, when it was in the midst of its IT upgrade.

No switching breaches were alleged for September 2015.

3. Allocation and reconciliation performance measures

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



The amount of UFG this winter is greater than that experienced in 2014 but in line with UFG in 2013 (see Chart A-2 in the appendix for a chart of UFG since the start of the Reconciliation Rules).

Chart 7: Percentage of UFG

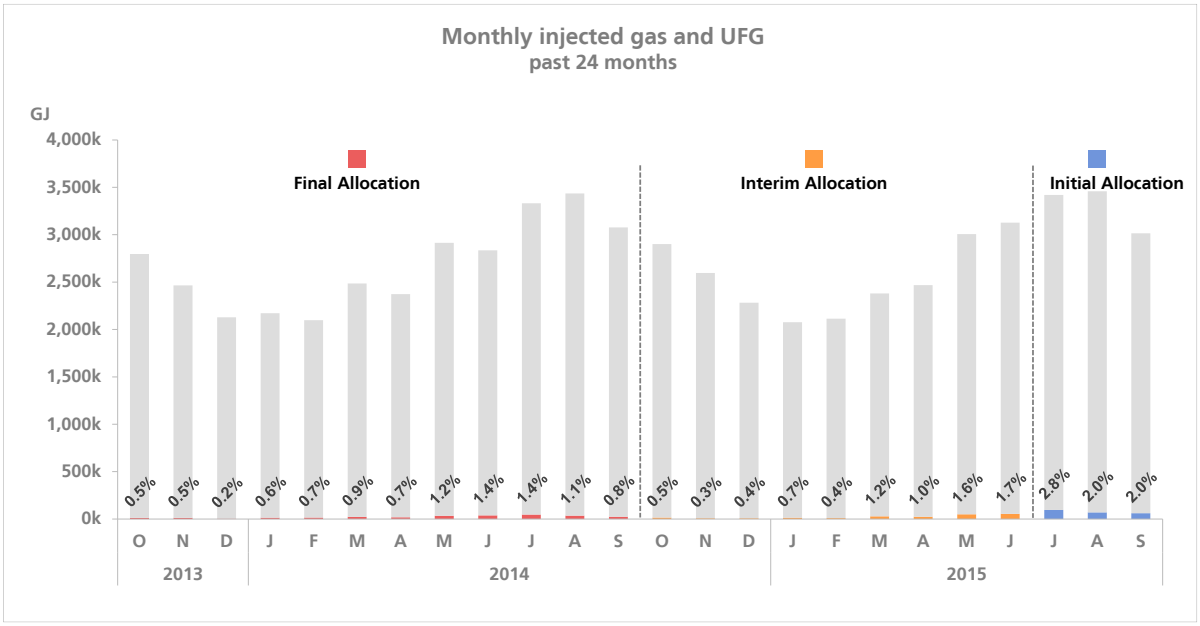
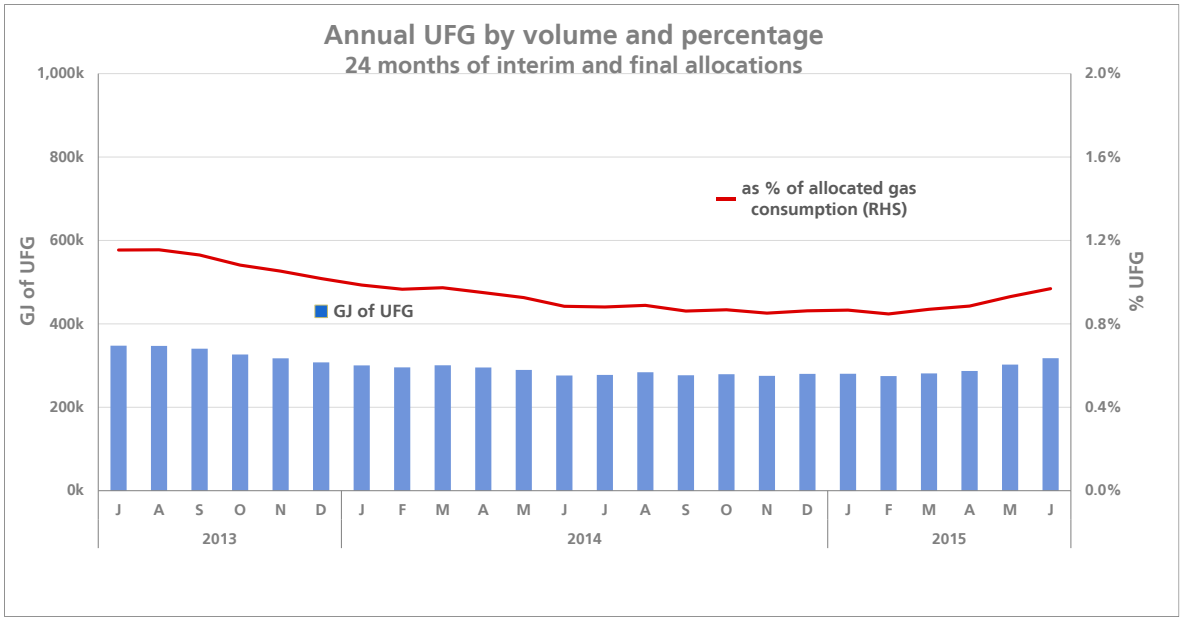
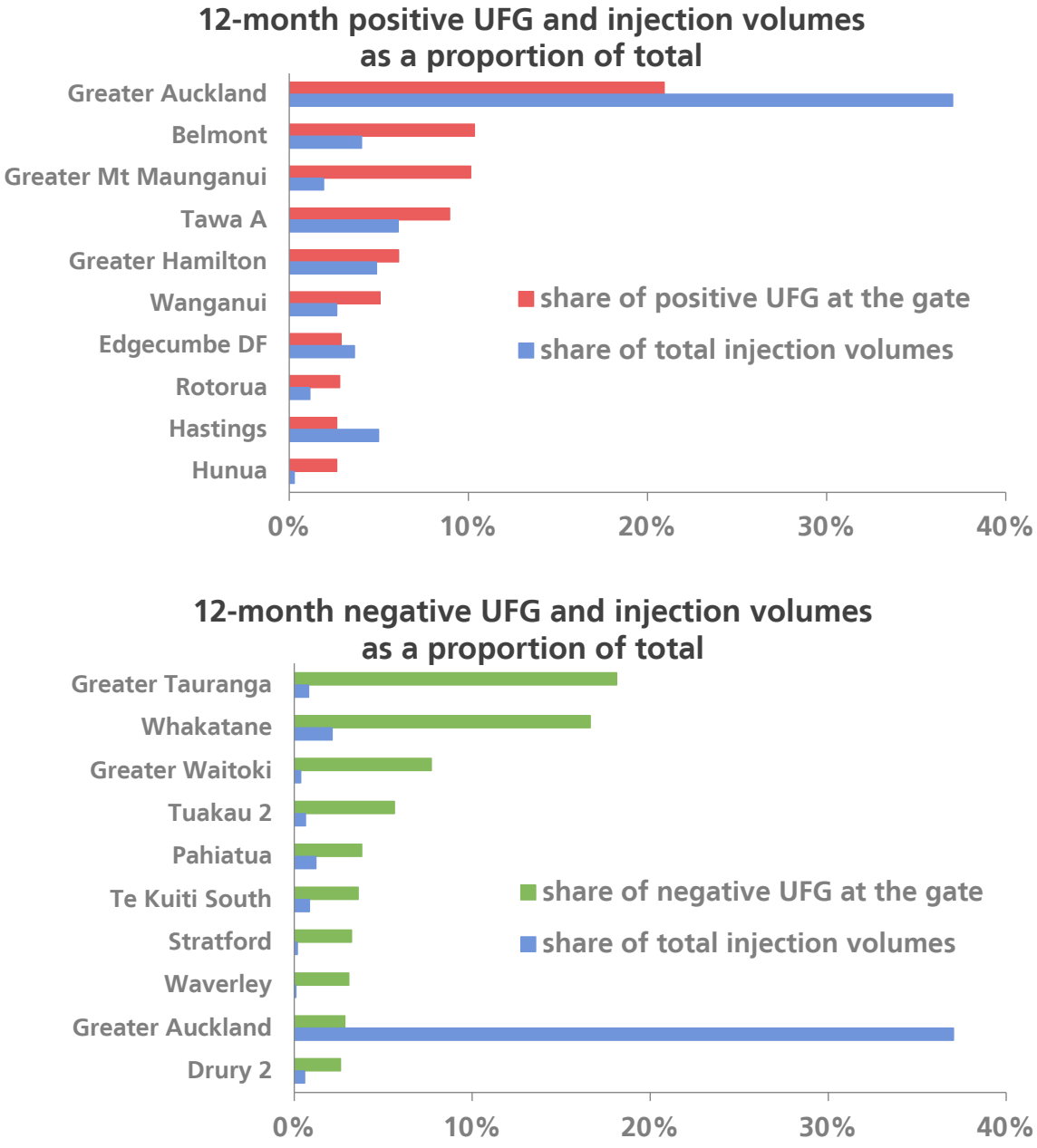


Chart 8: Rolling 12-month UFG



In volume terms, annual UFG has halved since 2009, decreasing from about 600,000GJ per year to about 300,000 GJ. As a percentage of allocated gas, annual UFG has also halved, decreasing from about 2% per year to about 1%.

Chart 9: Gas gates where UFG is the highest



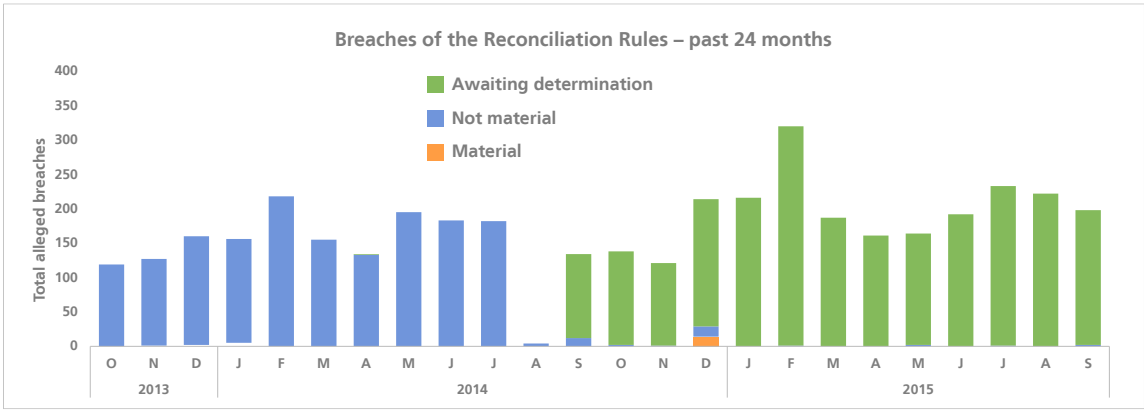
These charts show the gates that experience the largest share of total UFG, compared to their share of total gas gate deliveries at shared gas gates. These charts use 12 months of the most recent interim and final allocation data available: in this case, July 2014 through June 2015.

The 10 gates shown in the top chart account for 73% – about 298,000 GJ – of the positive UFG experienced over the past 12 months.

The 10 gates shown in the bottom chart account for about 67% (about 63,000 GJ) of the negative UFG experienced in the past 12 months. Six of the gas gates shown – Whakatane, Tuakau 2, Pahiatua, Te Kuiti South, Waverley, and Drury 2 – 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.

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



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.

About 98% of alleged breaches of the Reconciliation Rules in the past year 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.

It has proven efficient for the Market Investigator 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

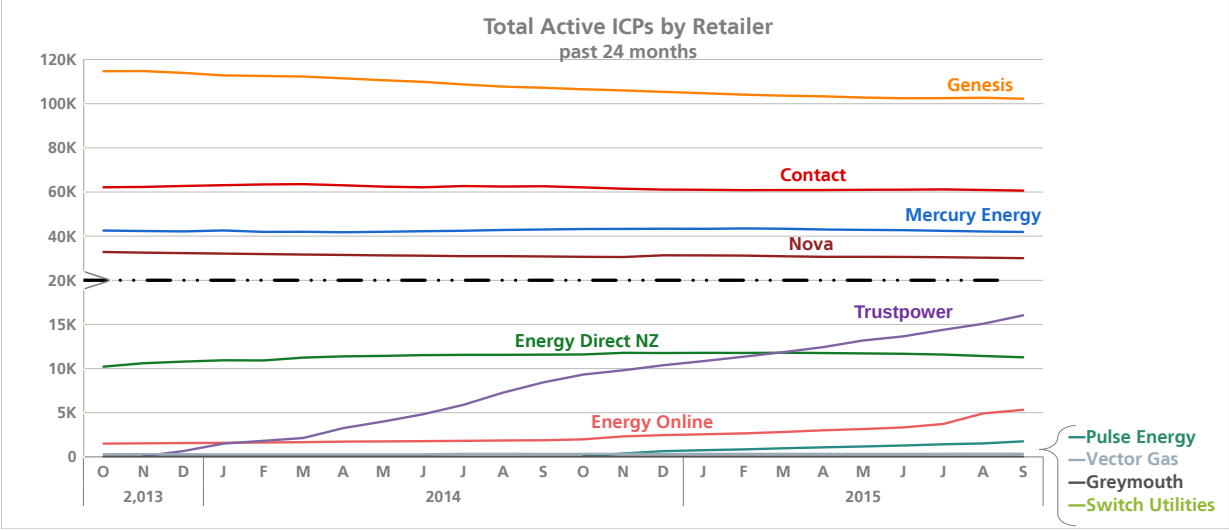
Gas Industry Co has commissioned an event audit to investigate the higher than average levels of UFG experienced at Greater Mt Maunganui (GMM08001) and Greater Tauranga (GTT07701).

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

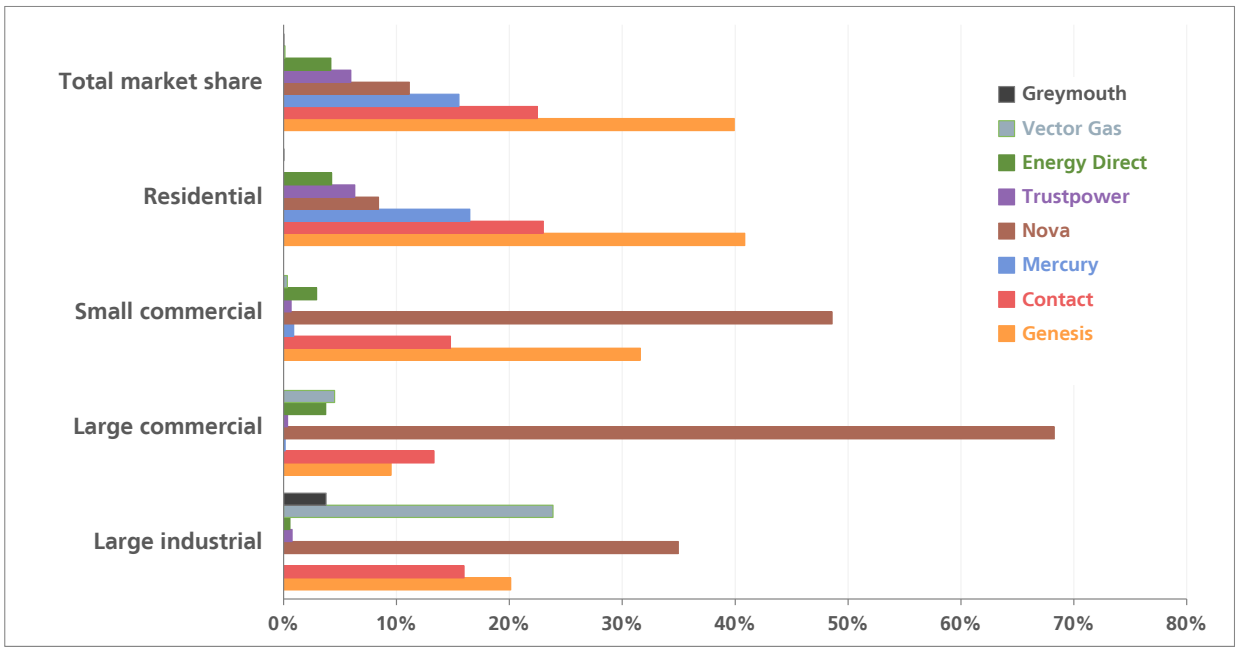


There have been a number of new entrants to the retail gas market in the past few years:

- 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.

There are now 11 distinct retail brands, owned by nine different retail companies (Energy Online is owned by Genesis Energy).

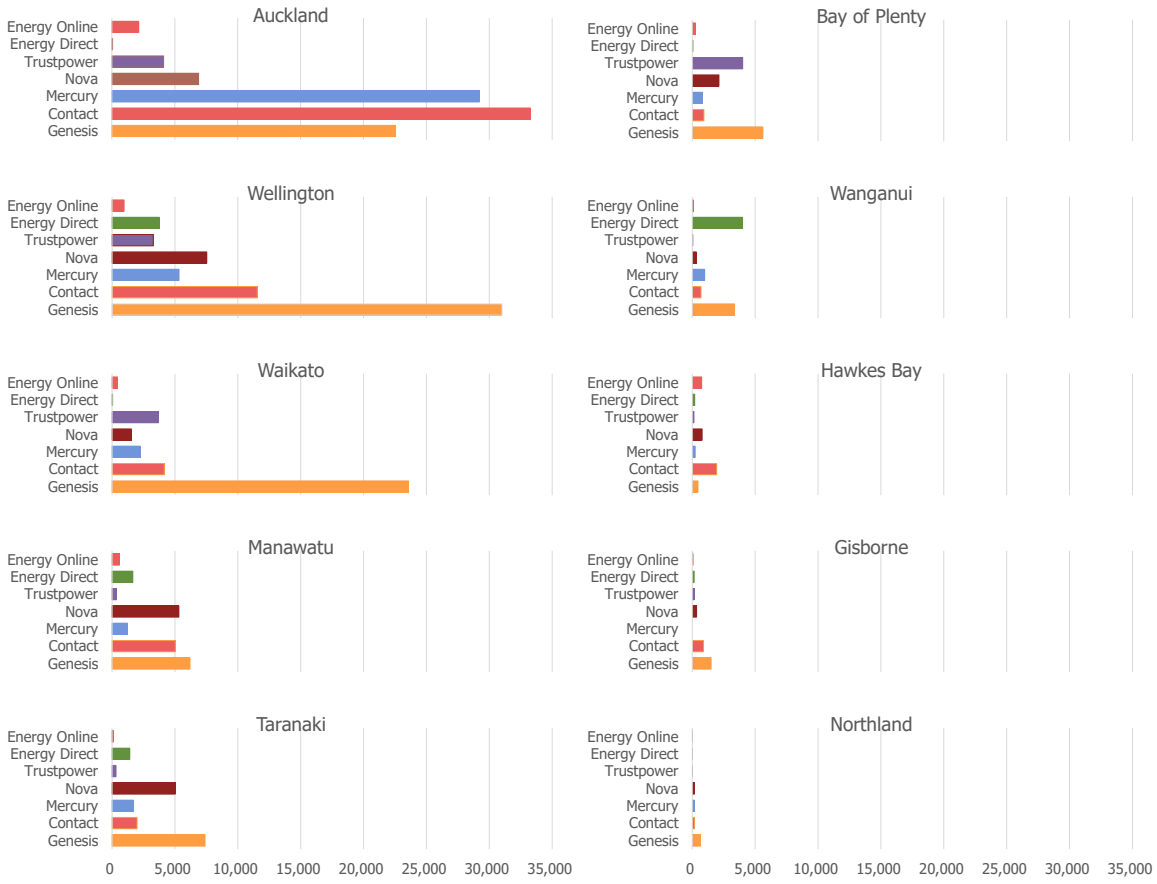
Chart 12: Customer market share by consumer segment



In this chart, consumer segment is determined by the load shedding category listed on the gas registry for each consumer site. (Energy Online is included in the total for Genesis in this chart.)

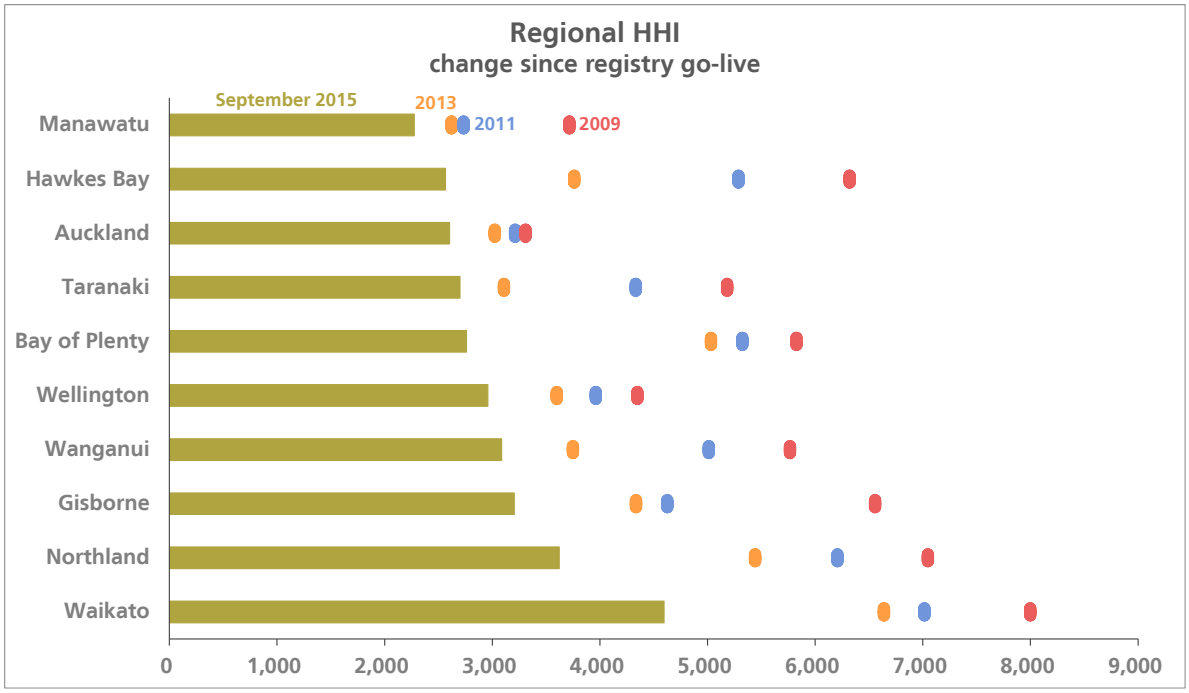
Note that Pulse Energy, which has about 0.7% of the residential market at present, and Switch Utilities, with 0.004%, are not shown on the chart.

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.

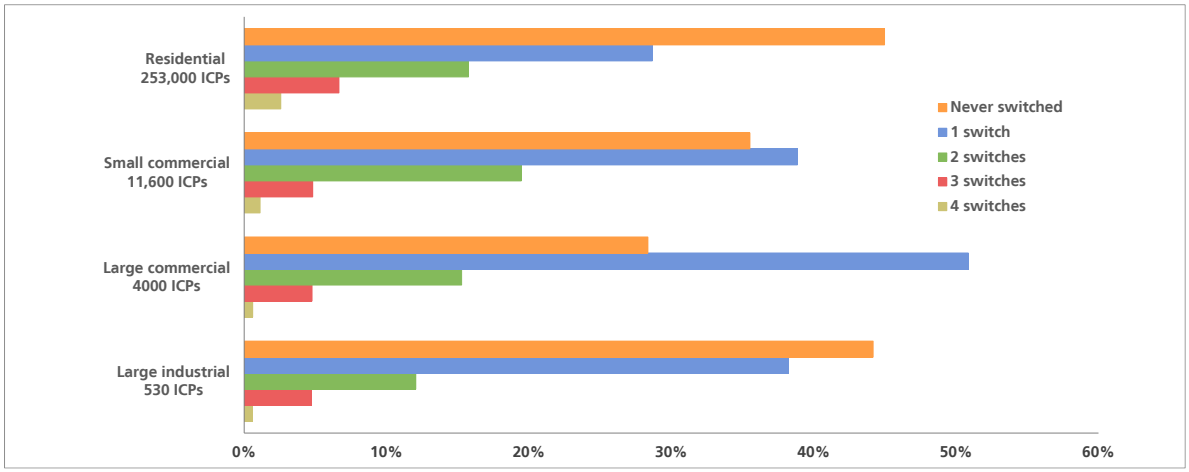
Chart 13: Herfindahl–Hirschman Index (HHI)



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 2,365, in comparison to 3,033 in February 2009 (the start of the registry).

Chart 14: Switching by consumer sites since 2008



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.

55% of residential consumer sites

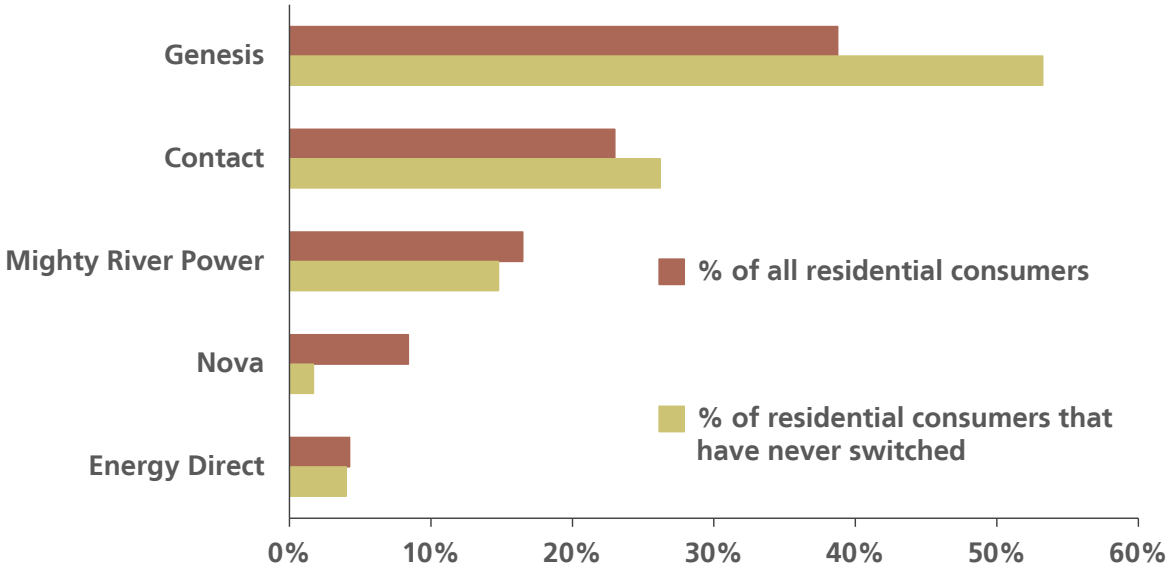
64% of small commercial sites

72% of large commercial sites; and

56% of large industrial sites

have switched retailer at least once since the start of the gas registry (March 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 40% 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 March 2008.

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

Chart 16: Switching activity by retailer

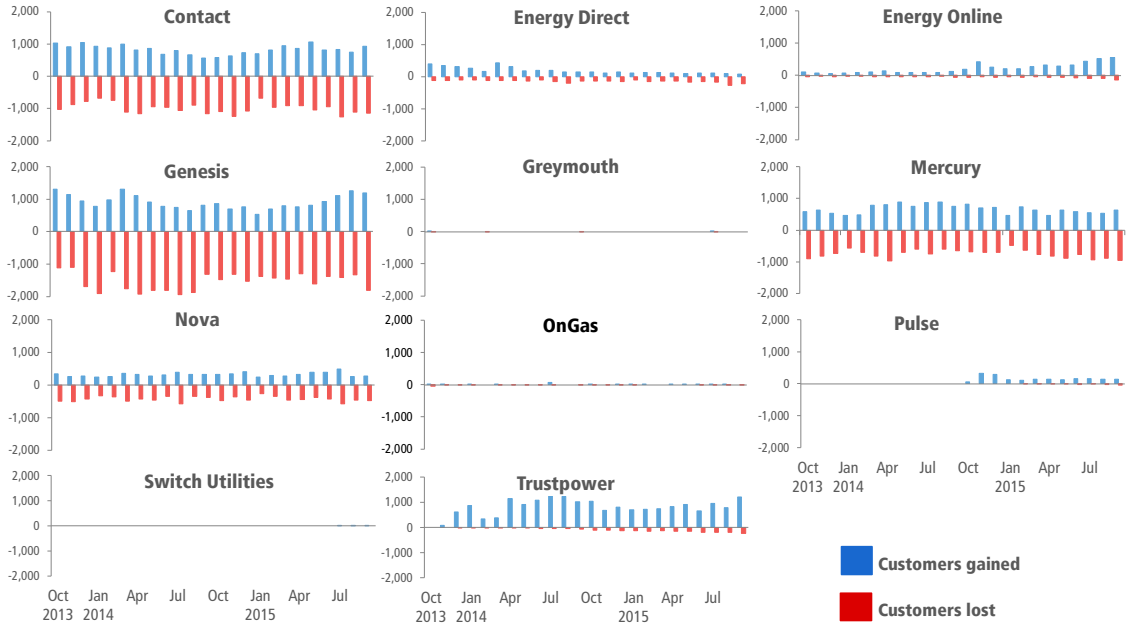
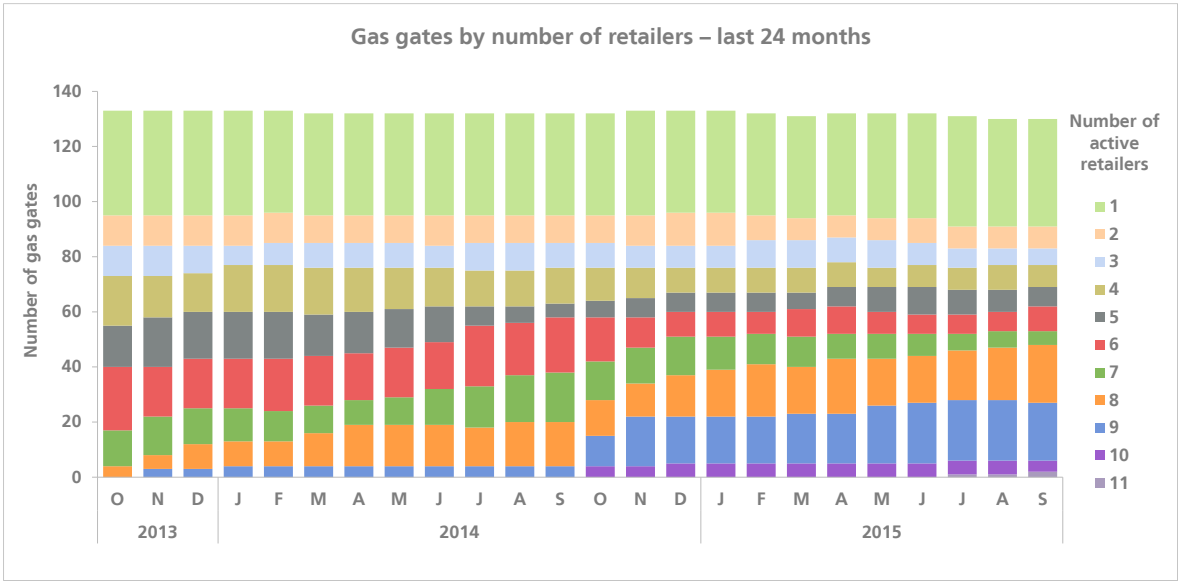


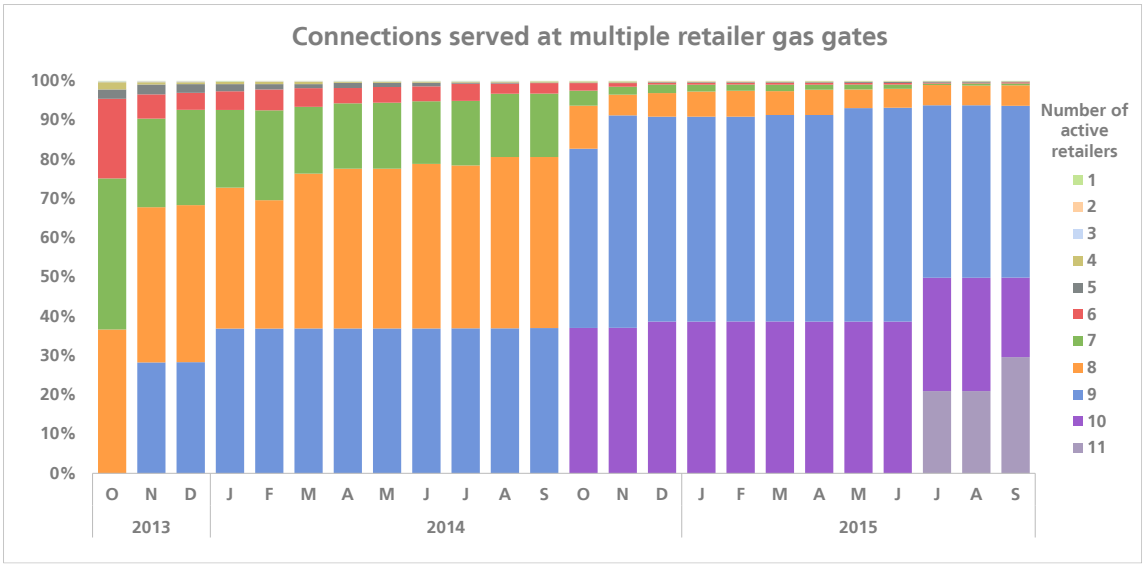
Chart 17: Gas gates by number of retailers



Due to Switch Utilities entering the retail gas market in July 2015, there are now 11 retailers trading at some gas gates. The gates with all 11 retailers are in the Greater Auckland area.

The chart also shows the step changes due to Trustpower's and Pulse Energy's entries into the retail gas market in November 2013 and October 2014, respectively.

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

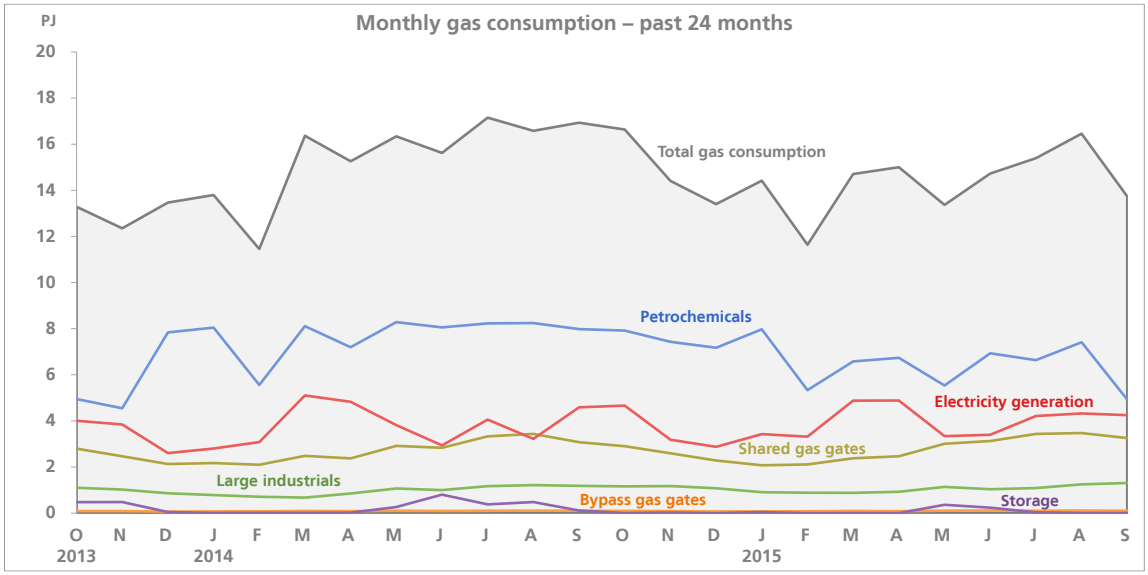
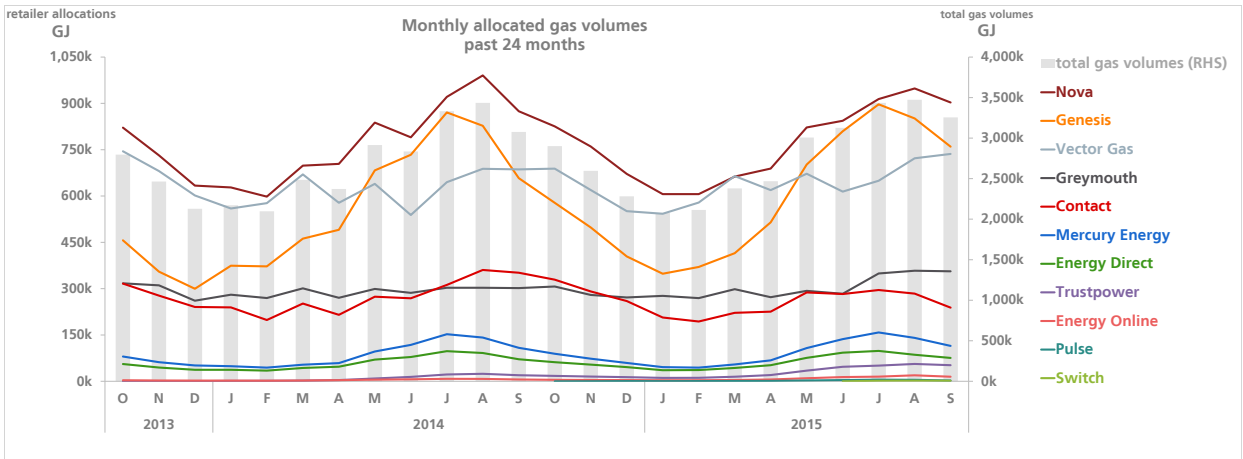


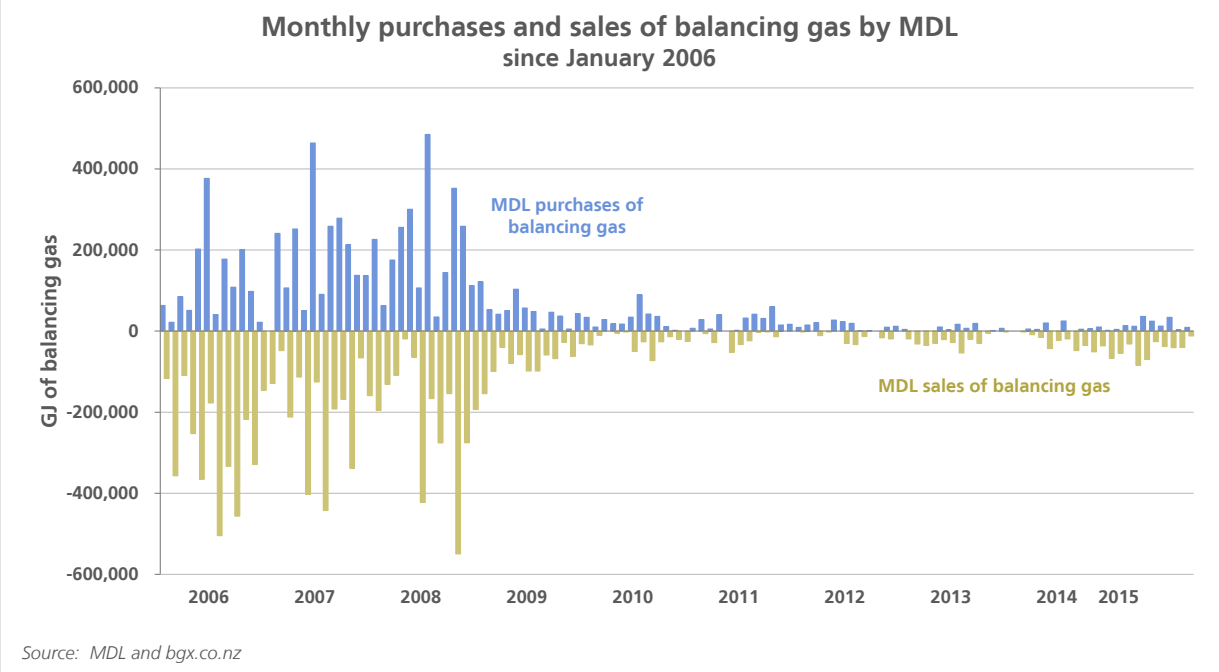
Chart 20: Allocated gas volumes



Nova and Genesis have experienced increases in allocated volumes in recent months, consistent with previous yearly trends.

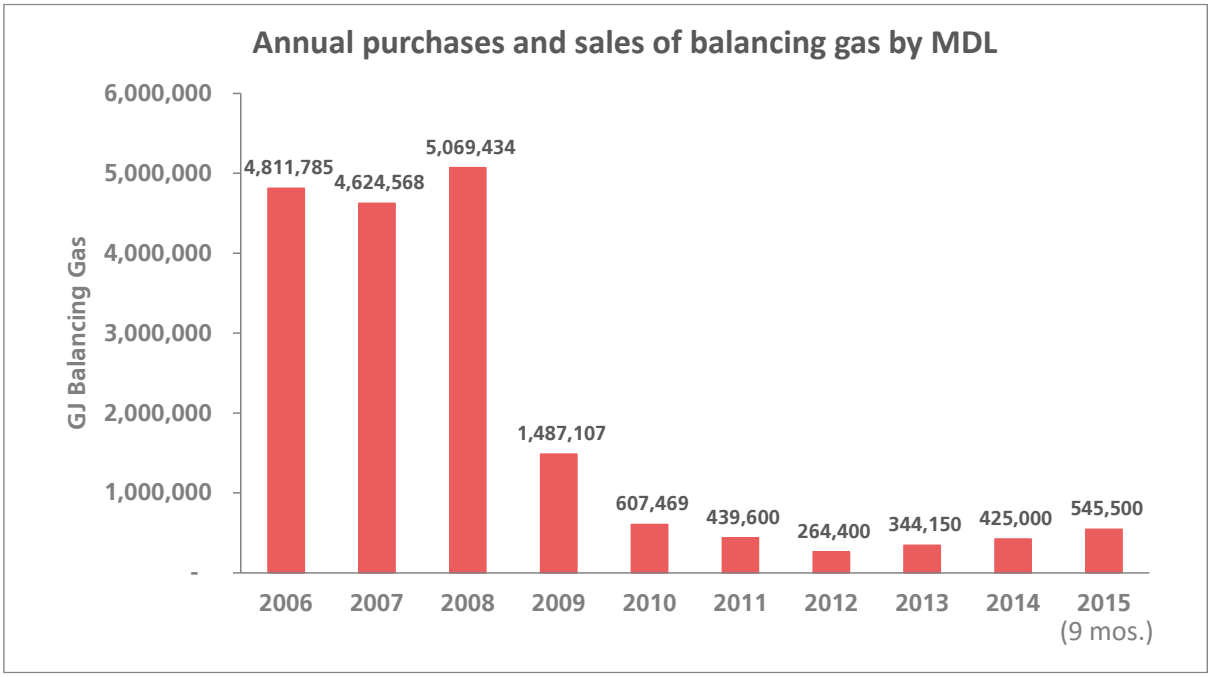
The data are from a mix of allocation stages: Final through September 2014; Interim for October 2014 through June 2015; and Initial for July through September 2015.

Chart 21: Balancing gas volumes



Source: MDL and bgx.co.nz

Chart 22: Annual volumes of balancing gas



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 – 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 amalgamation 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 March 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 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, when the registry went live.

Chart A- 1: Monthly switching since March 2009

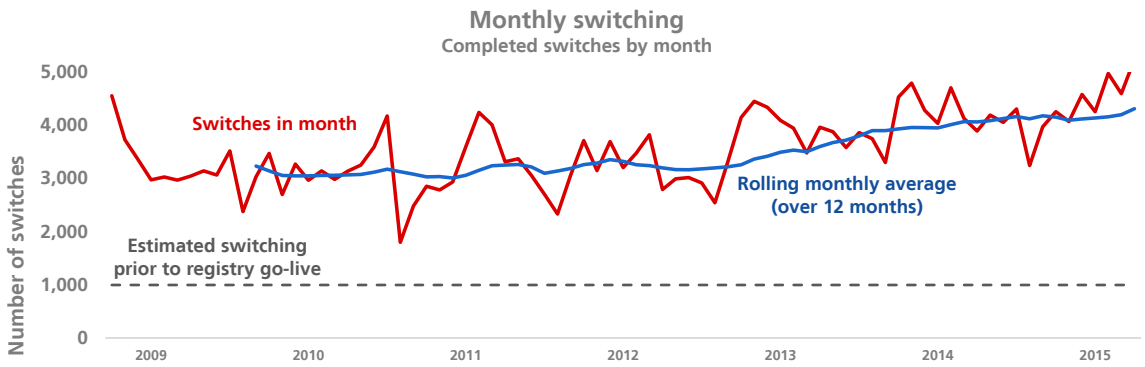


Chart 2: Regional switching activity

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 generally involves between about 0.7% and 1.6% of total North Island gas customers in a month.

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.

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 average of about five 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 seven business days are standard switches (where a gas customer simply decides to switch the retailer that supplies their existing location). The Switching Rules stipulate that, for a standard switch, the new retailer can request a switch date that is not less than seven business days after the inception of the switch, and in most cases this request must be honoured by the existing retailer. This provision may explain the large proportion of switches being completed in seven business days.

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

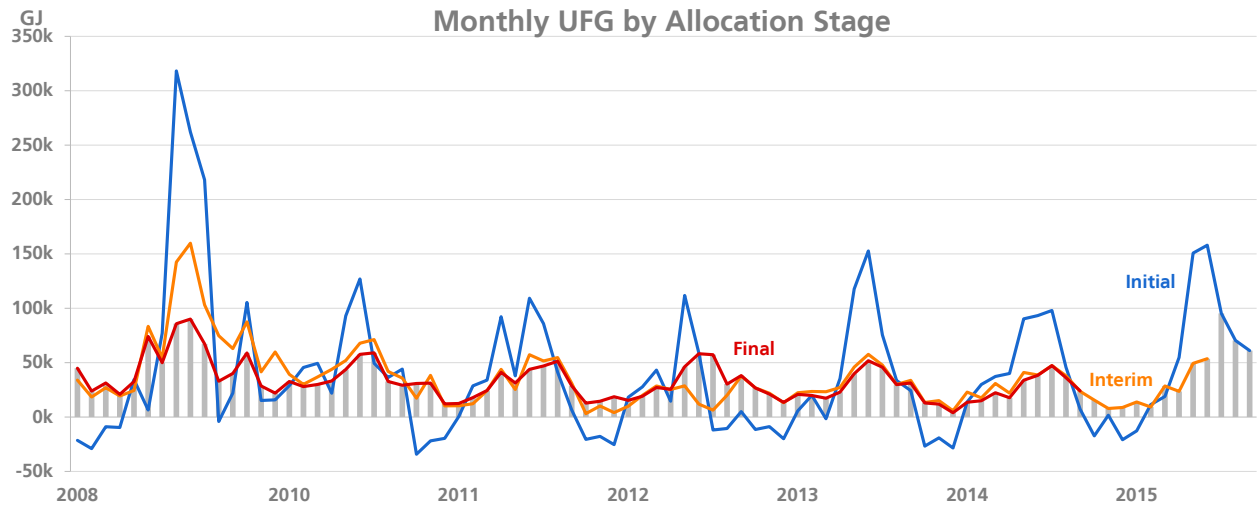


Chart 7: Percentage of UFG

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.

For the first year after the Reconciliation Rules came into effect, annual UFG was about 2%. Average UFG now varies from about 1.0% to 1.3%.

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. About 98% of alleged breaches of the Reconciliation Rules in the past year relate 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. 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, because of the small size of its customer base, Energy Online's market share is combined with that of its parent company, Genesis.

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.[1]

The bars in the chart shows the HHI of the retail gas market as at September 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 four years. With the introduction of the Switching Rules, new retailers have entered the market and smaller retailers have increased their market share.

Chart 14: Switching by consumer sites since 2008

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 not switched retailer in the past year, the proportion served by each retailer, compared to that retailer's market share of residential consumers.

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 38

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

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 – 97 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 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 will 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.

Note that, 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. The charts in this report cover the period up to the introduction of market-based balancing.

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.

STRATEGIC PROGRESS 1 JULY – 30 SEPTEMBER 2015

This report provides an update of progress towards Gas Industry Co's strategic goals. These reflect the Government's objectives and outcomes for the gas industry, as set out in the Gas Act 1992 and the April 2008 Government Policy Statement on Gas Governance, as implemented through the Company's FY2015-2017 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.	• MDL's MPOC Change Request introducing market-based balancing, which was supported by GIC in its final recommendation, took effect on 1 October 2015.
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.

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.	• A trial of day-after (D+1) allocations is continuing through calendar 2015. • The Minister has approved changes to the Switching Rules and Gas Registry, and to the Switching Rules and Reconciliation Rules relating to retailer insolvency. • Following consultation on proposed switching and reconciliation thresholds under the Compliance Regulations, GIC has now implemented the thresholds regime, and the Market Administrator has issued Guidelines under rule 19A.
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 final document has been issued and will be reviewed and updated by GIC as required in the future.

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.	• The Minister has accepted GIC's recommendation that permanent backstop regulations are not necessary, and has approved minor changes to each of the Switching and Reconciliation Rules that facilitate the gas retailer insolvency management regime. Gas Retailer insolvency management framework is now complete with the release of GIC's Final Decision Paper and the 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'.

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 Market-Based Balancing Change Request proposed by MDL was supported by GIC in April 2015 Final Recommendation, and introduced on 1 October 2015. • 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 not been implemented. submission on has withdrawn a congestion management change request with respect to the Vector transmission code to enable further consultation. This is the first under an amended VTC Change Request Process in which GIC no longer has an appellate role but is able to make submissions.
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 Electricity & Gas Complaints Commission 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.	• The fourth assessment of retailers' standard published contracts with small consumers as at 1 July 2015 is underway. Results expected in late October 2015. • This is the first assessment since the substantial review of and changes to the Scheme, which introduced a three-yearly rather than annual assessment, and introduced a set of Reasonable Consumer Expectations. It is also the first to be conducted by the newly appointed Independent Assessor Palairet Law. • Since the retail scheme's introduction in 2010, retailers' overall rating has increased from 'Moderate' to 'Substantial' alignment with the benchmarks.

Project	Rationale	Activity	Status
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.	• Transmission Access; Options for Improvement Paper #2 was issued for consultation in May 2015 followed up by an analysis of submissions paper in July 2015. • OP2 focuses on developing a vision for converged transmission arrangements, a concept that received wide support in submissions. Terms of reference for industry participation in the design of a vision of converged access arrangements will be issued prior to Christmas.

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 Reconciliation) Rules 2008.	• Gas reconciliations performed each month. • Long-term UFG has flattened out at approximately 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.	• 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 third update issued in March 2015. • Gas Story roadshow presentations conducted in October 2015 in Wellington, Auckland and Taranaki (continuing the practice started in 2014). • Regular liaison with MBIE, Electricity Authority, and other relevant regulators.
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.	• CCO activities monitored and reviewed quarterly. • Critical contingency management exercise (Exercise Validation) conducted on 24 June 2015.