

Performance Measures Quarterly Report for the period ending 30 September 2014

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 2009 (the Reconciliation Rules), and the Gas Governance (Critical Contingency Management) Regulations 2008 (CCM Regulations), both in terms of activity related to these statutes and the competitive outcomes that they foster. The Report also tracks transmission balancing actions, as a means of informing Gas Industry Co's work on this issue.

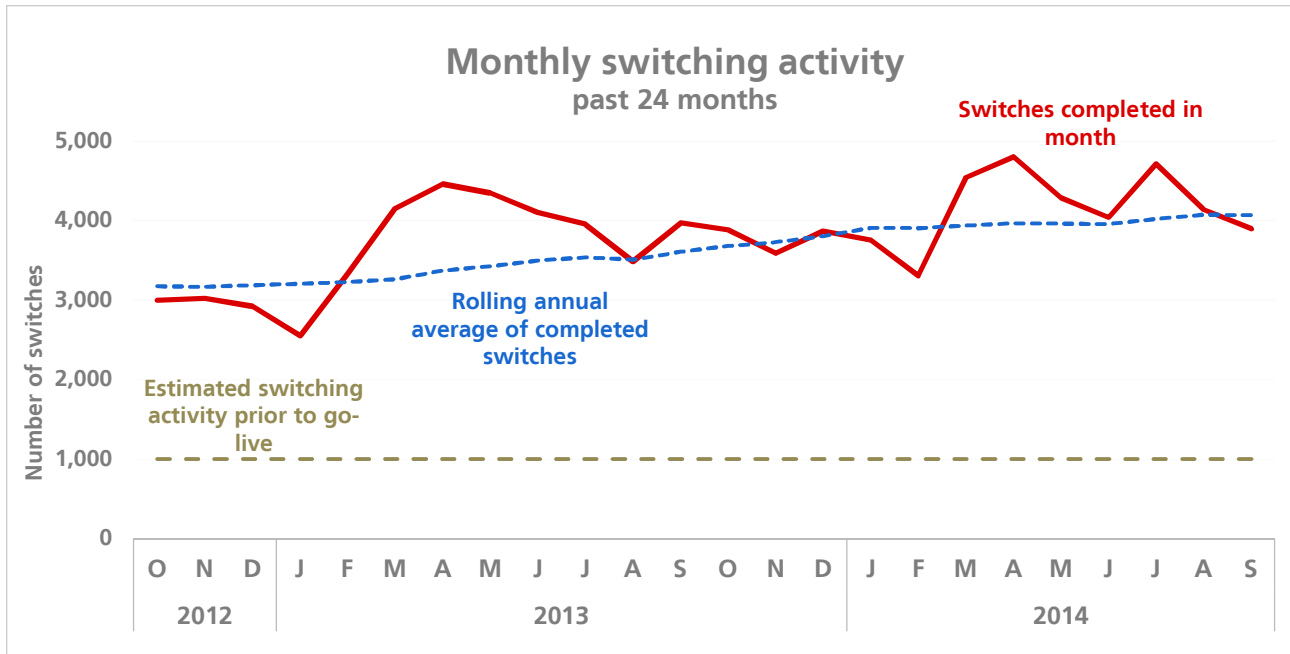
Explanatory details about the charts can be found in the Appendix to this report.

Highlights of the Report:

- The annual rate of switching is about 18%.
- Over 70% of switches are completed within seven business days.
- 50% of residential customer sites have switched retailer at least once in the past five years; 64% of small commercial and 73% of large commercial sites have switched at least once.
- Average annual unaccounted-for gas (UFG) over the past year stands at about 1.0%.
- Genesis is the largest retailer by customer share; it is also the largest retailer in the residential and large industrial markets. Nova Energy has the largest share of commercial customers.
- In all regions, the gas retail market has become less concentrated in the past five years, as measured by the Herfindahl–Hirschman Index (HHI), due to new retailers entering the market and smaller retailers increasing their market shares.
- In terms of market share by gas volumes, Nova, Genesis, and OnGas are the largest retailers, reflecting their focus on the industrial and commercial sectors of the gas market.
- Due to the entry of Trustpower late in 2013, there are now a number of gas gates where nine retailers actively trade. Nearly 99% of gas customers are connected to a gate where least six retailers trade, demonstrating that gas retailers generally are competitive throughout the North Island.

2 Switching performance measures

Chart 1: Monthly switching activity



- The churn rate for the 12 months to September 2014 is 18.4%.

Chart 2: Regional switching activity

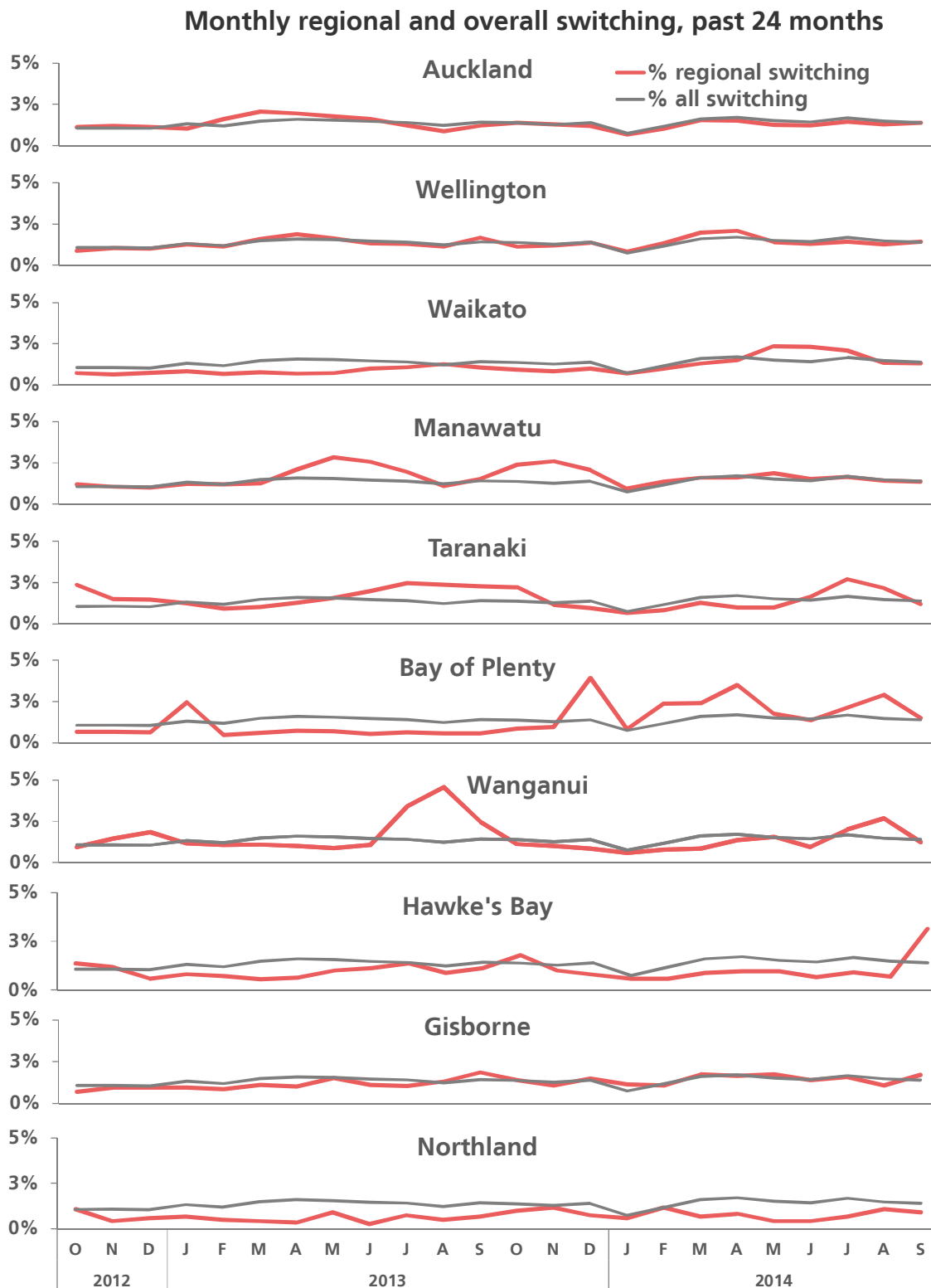
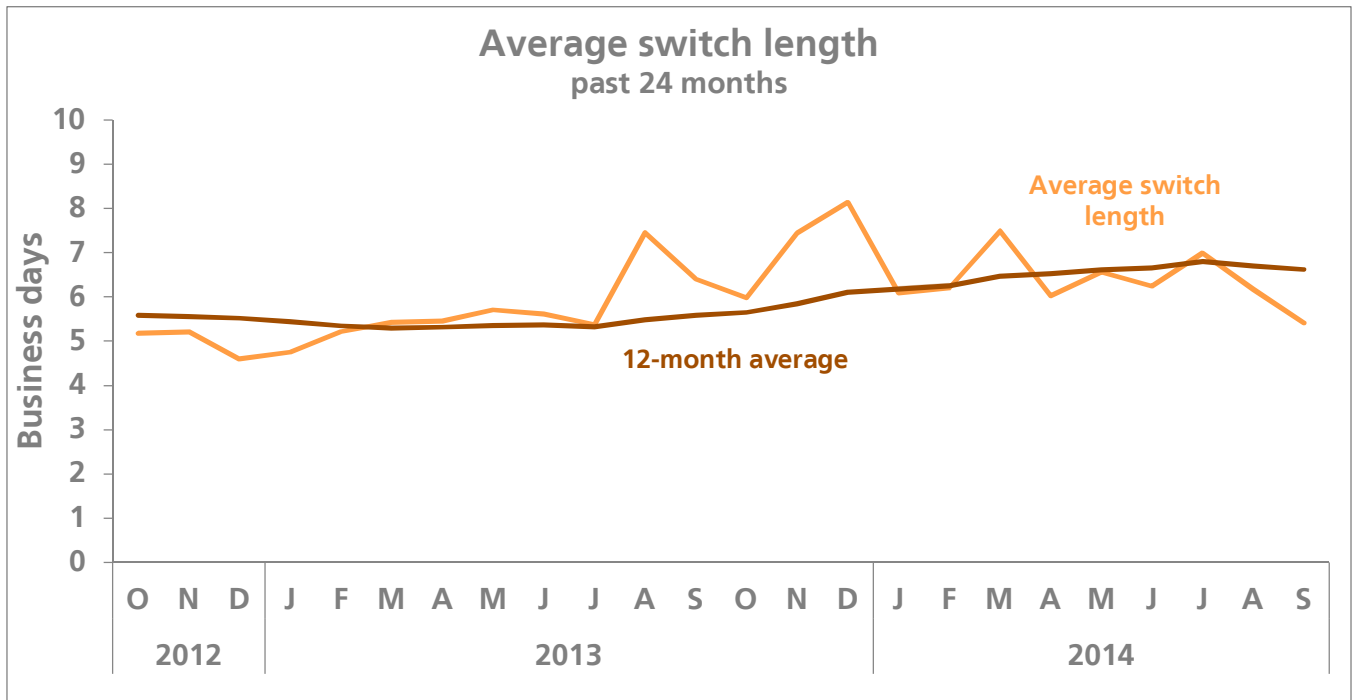


Chart 3: Time to process switches

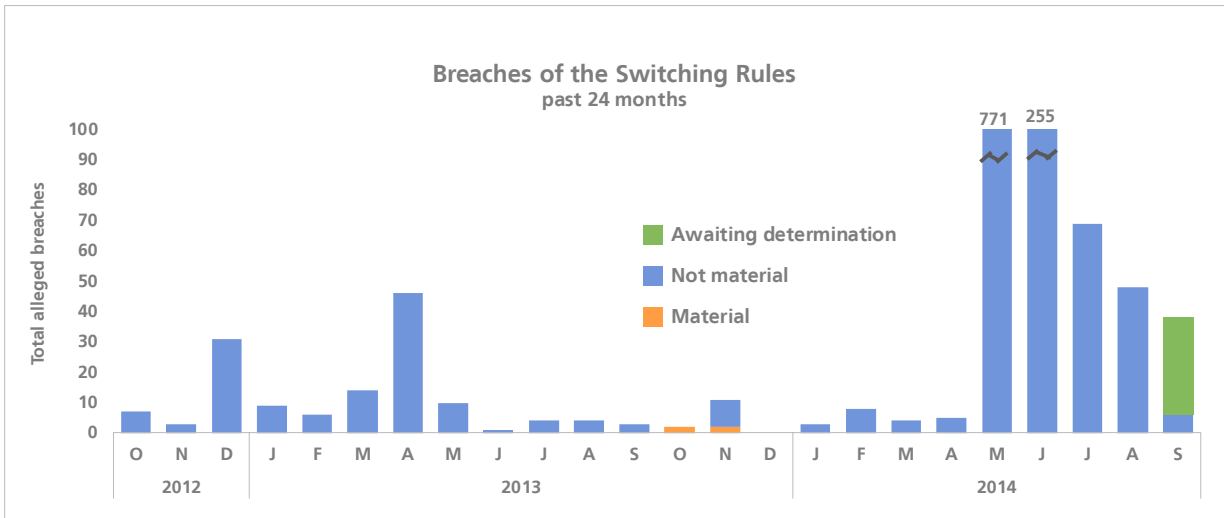


- Average switching time stands at about 6.6 days.
- The spikes in switching time in the second half of 2013 may be related to changes in the electricity registry and electricity retailers' systems, which could have had a follow-on effect on gas switching for dual-fuel retailers.

Chart 4: Distribution of switching length



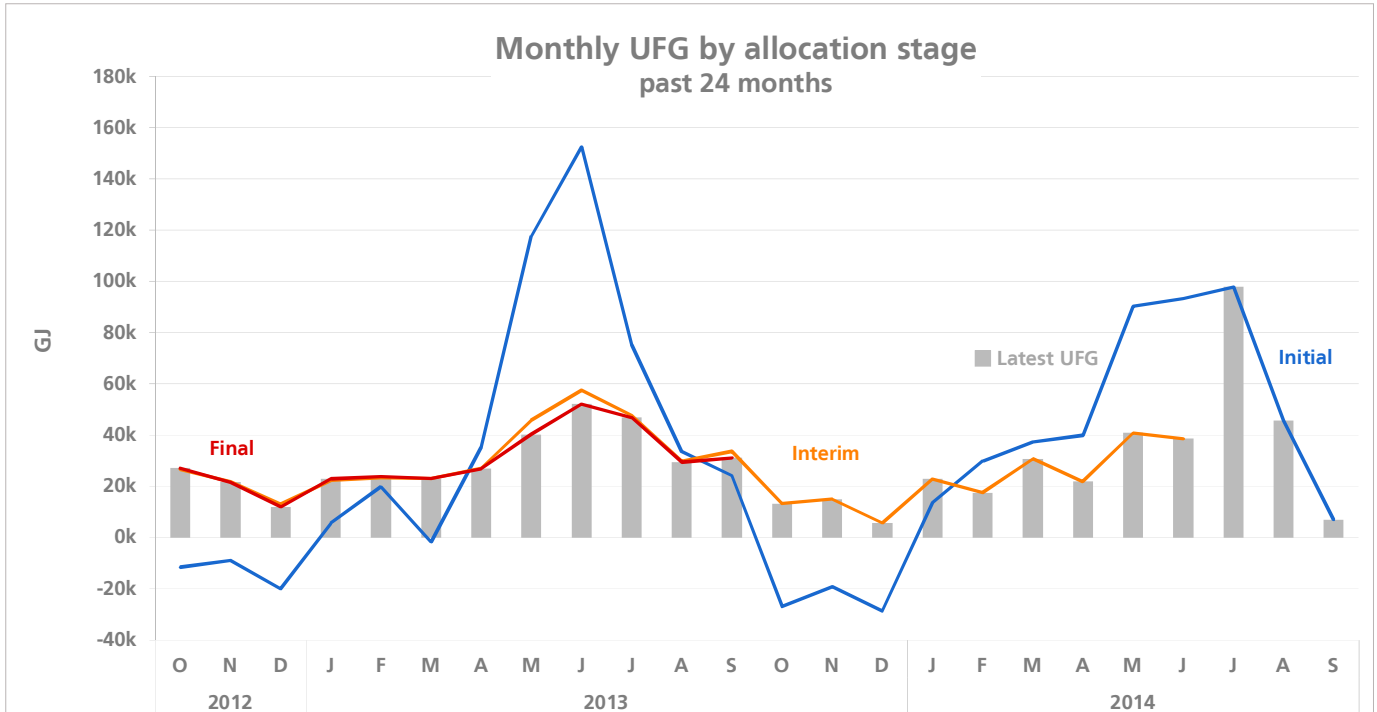
Chart 5: Number and severity of breaches of the Switching Rules



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

3 Allocation and reconciliation performance measures

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



- UFG stayed below 100,000 GJ per month this winter, in contrast to last year.

Chart 7: Percentage of UFG

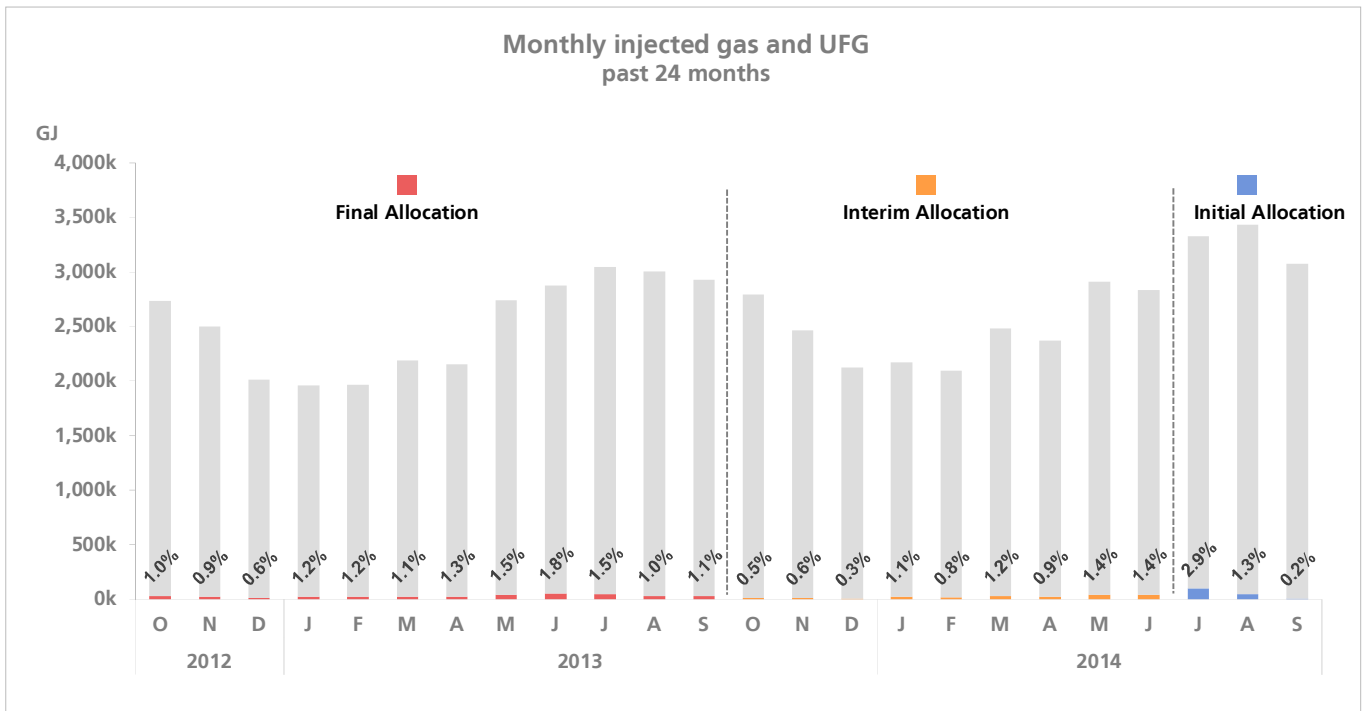
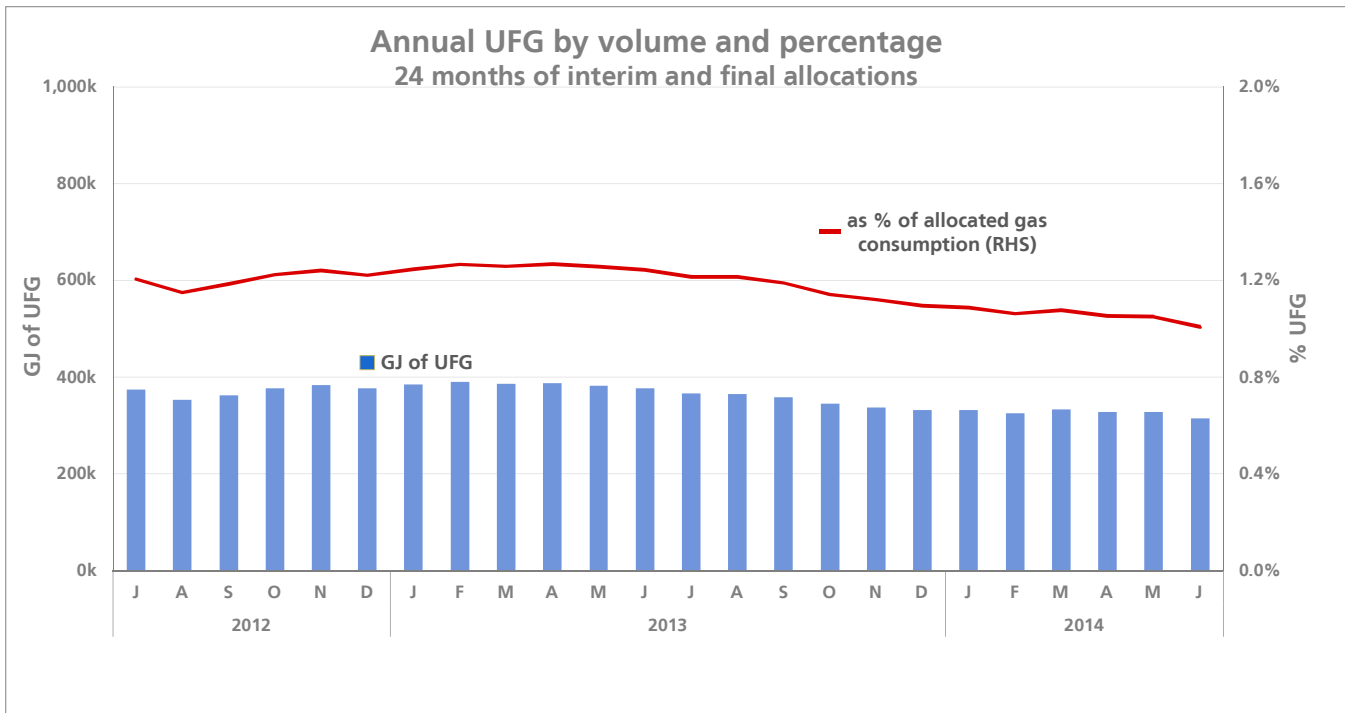
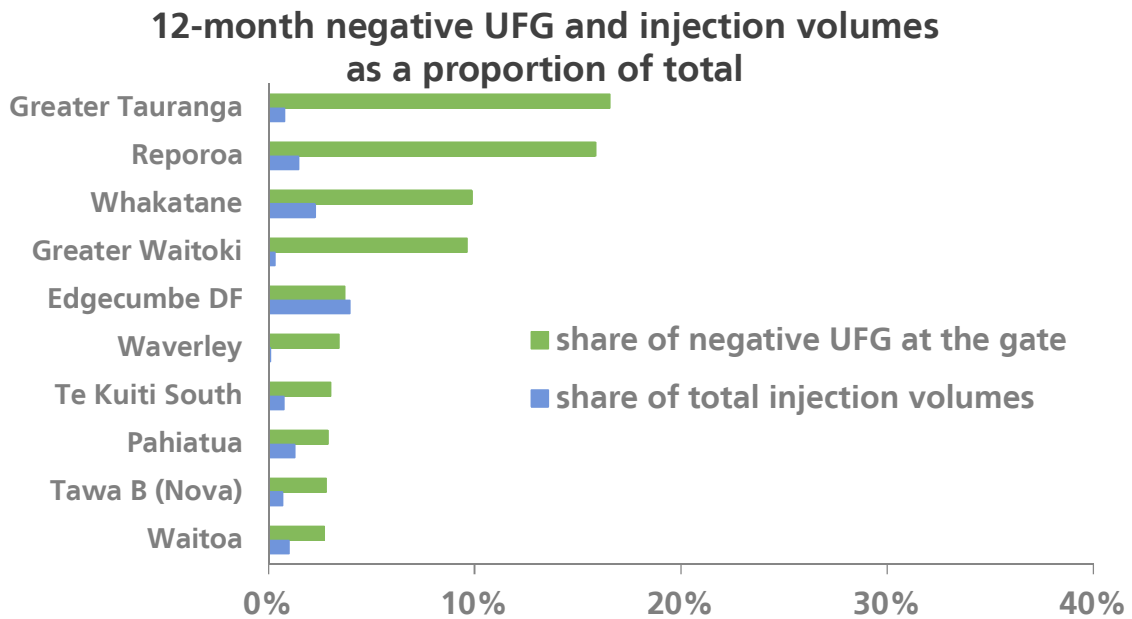
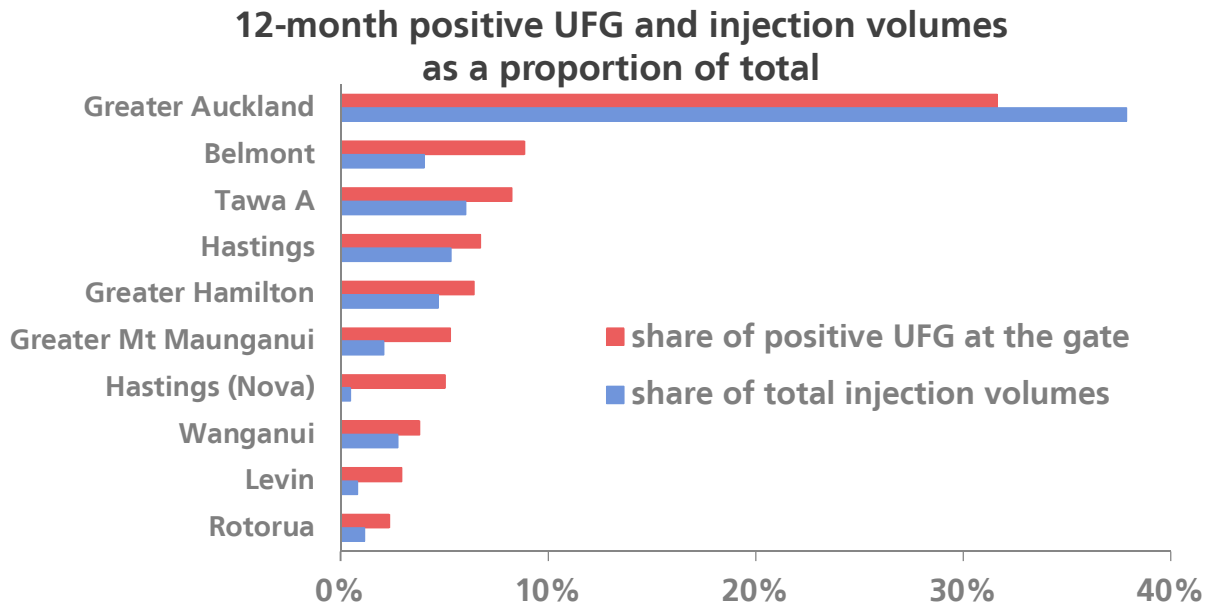


Chart 8: Rolling 12-month UFG



- Annual UFG stands at about 1.0%, using interim and final allocation data.

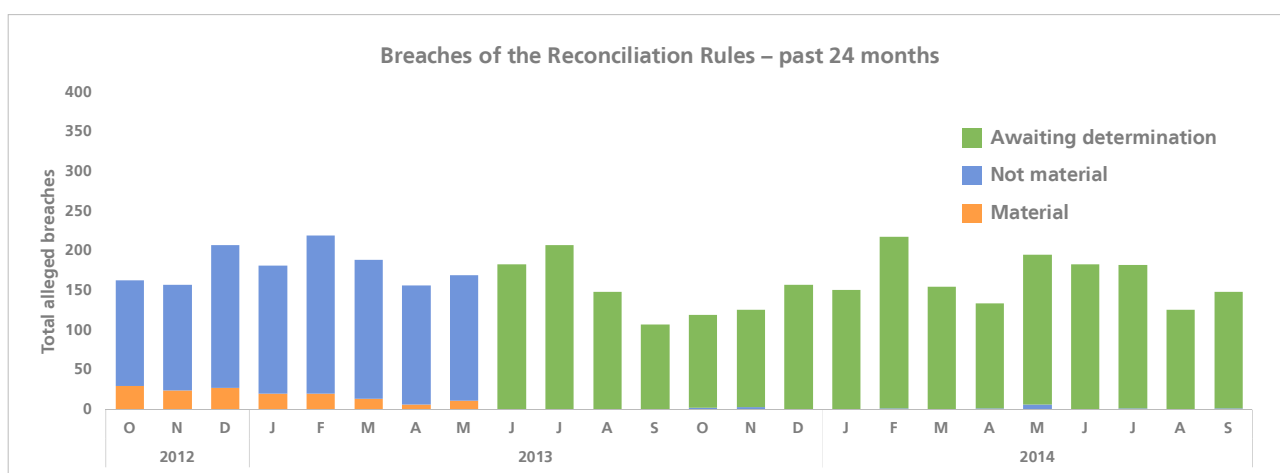
Chart 9: Gas gates where UFG is the highest



- 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 2013 to June 2014.
- The 10 gates shown in the top chart account for 81% – about 338,000 GJ – of the positive UFG experienced over the past 12 months.

- The 10 gates shown in the bottom chart account for about 70% (about 71,000 GJ) of the negative UFG experienced in the past 12 months. Seven of the gas gates shown – Reporoa, Whakatane, Edgecumbe DF, Waverley, Te Kuiti South, Pahiatua, and Waitoa – 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



- 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.

Audits commissioned

Event audits

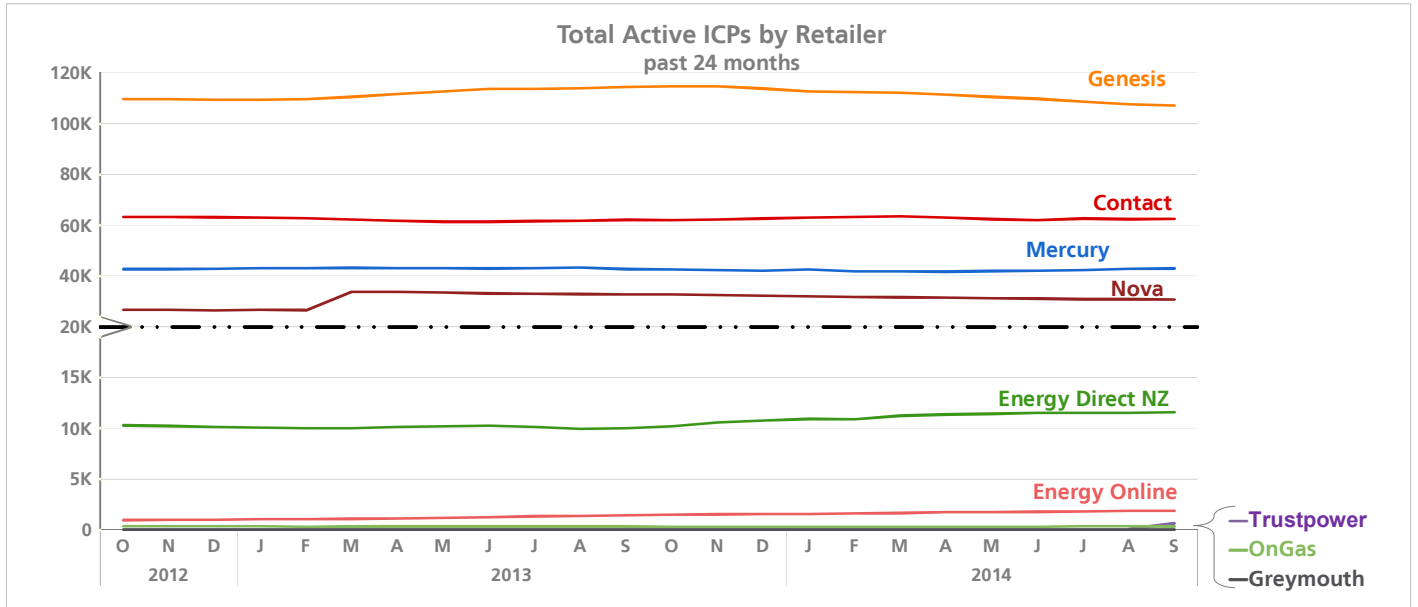
There have been no incidents requiring that event audits be commissioned in the past quarter.

Performance audits

A second round of retailer performance audits has been commissioned under the Reconciliation Rules. To date, the performance audits of Greymouth Gas, Mighty River Power, OnGas, and Trustpower have been completed and published on the Gas Industry Co website. The audit report for Contact Energy’s system change has also been completed and published.

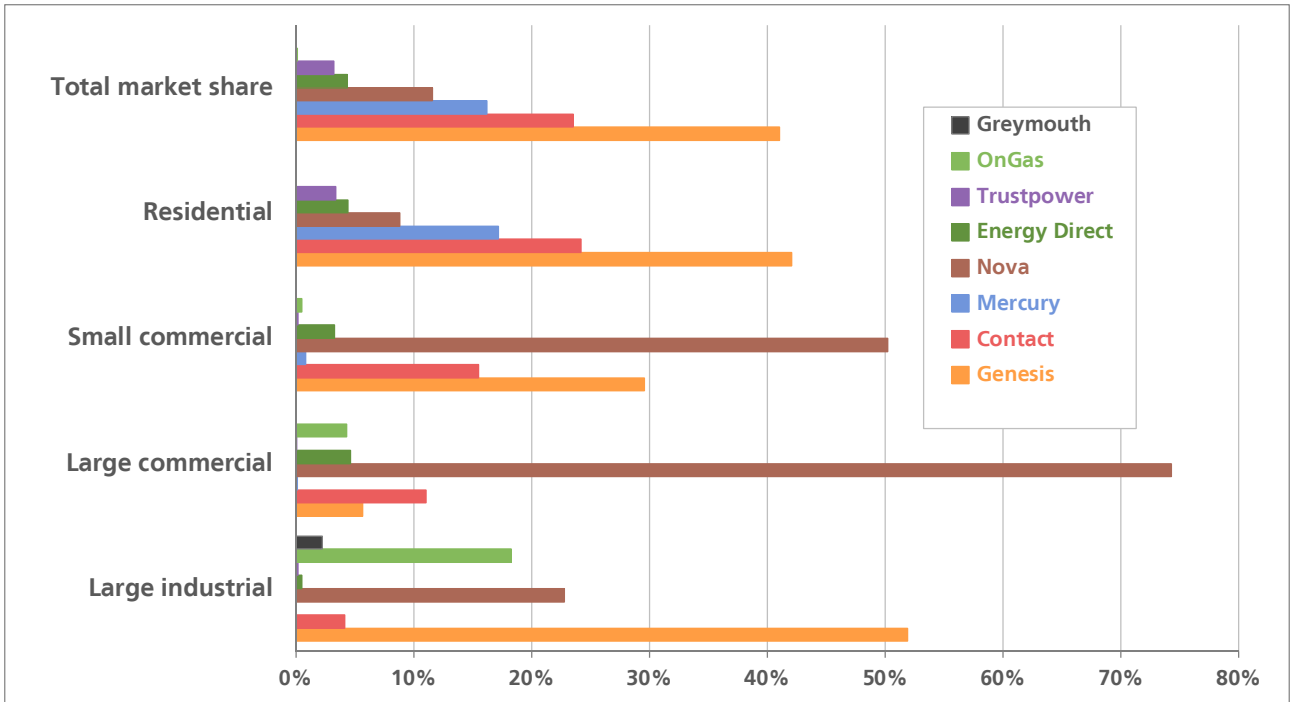
4 Market competition performance measures

Chart 11: Market share of ICPs by retailer



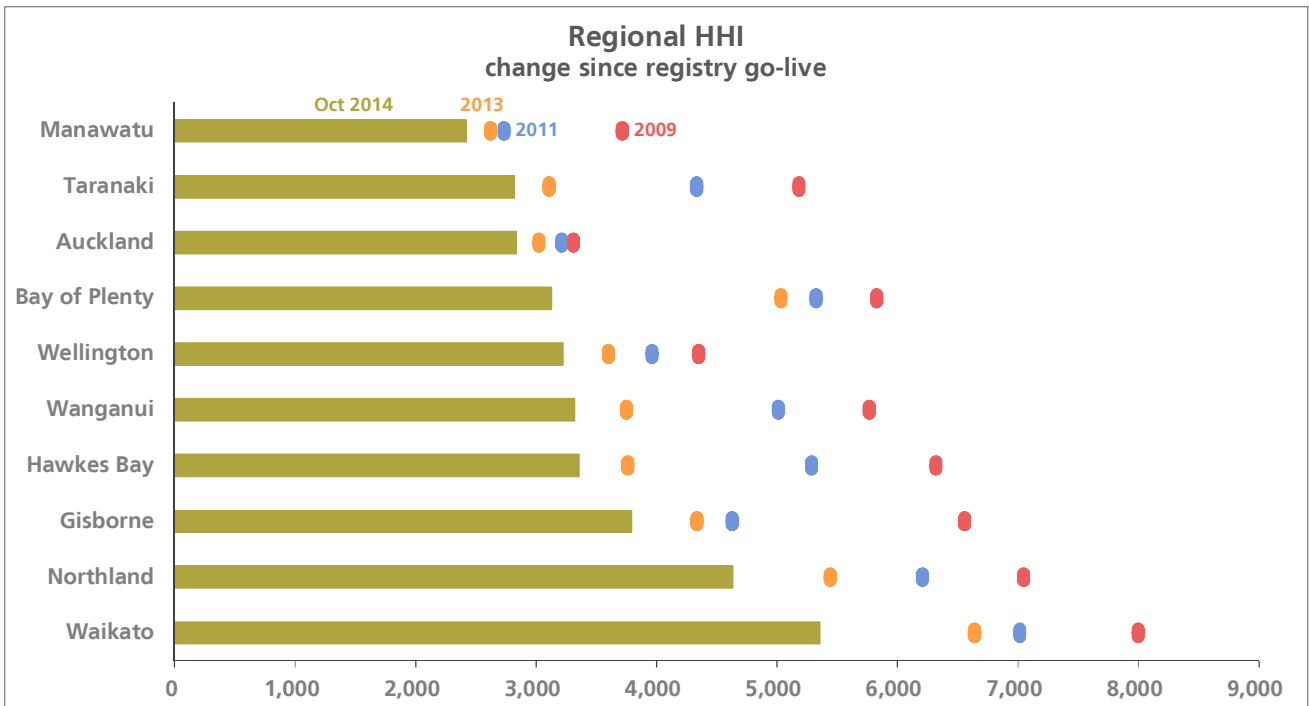
- In November 2013, Trustpower entered the retail gas market under its own brand, following the company's acquisition of Energy Direct in July 2013.
- There are nine distinct retail brands, owned by eight different retail companies (Energy Online is owned by Genesis Energy).

Chart 12: Market share by customer segment



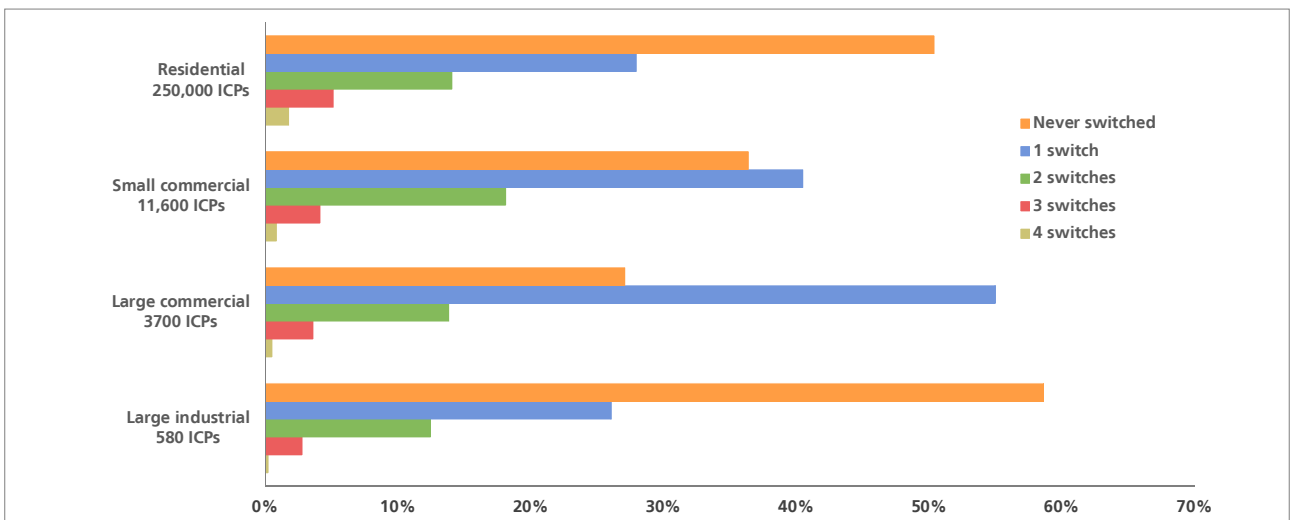
- In this chart, customer segment is determined by the load shedding category listed on the gas registry for each customer site. (Energy Online is included in the total for Genesis in this chart.)

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.

Chart 14: Switching by customer sites since 2008



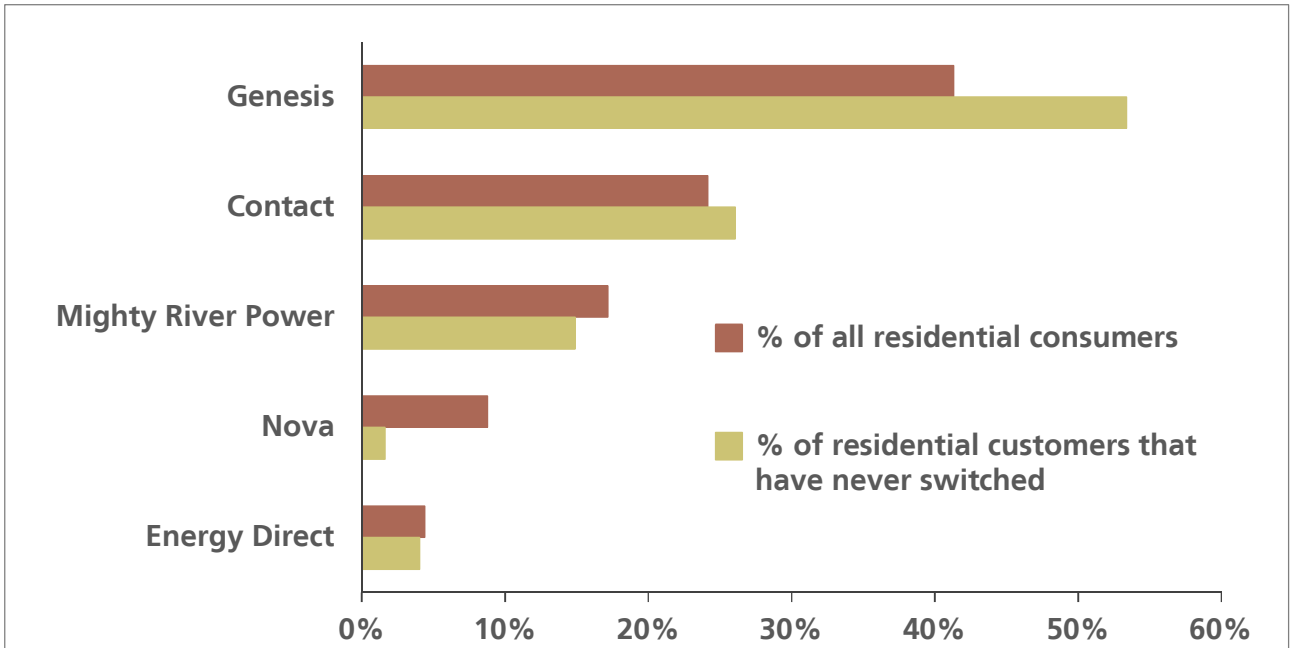
As with Chart 12, customer sites in this chart and Chart 15 are categorised based on the load shedding category recorded in the gas registry.

- 50% of residential customer sites
- 64% of small commercial sites

- 73% of large commercial sites; and
- 41% of large industrial sites

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

Chart 15: Residential customer sites that have never switched



- Of the 50% of residential consumer sites that have not switched retailer since March 2008, over half are Genesis customers – a proportion larger than Genesis’s market share of residential customers.

Chart 16: Switching activity by retailer

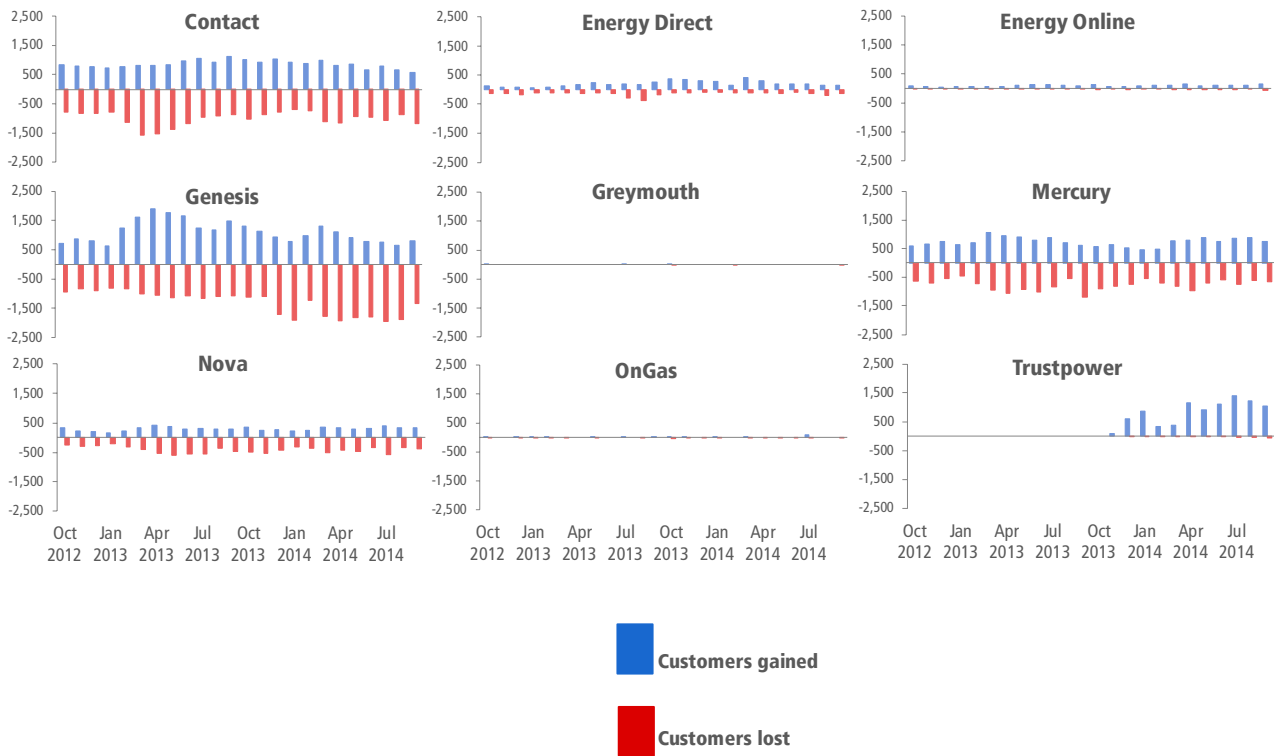
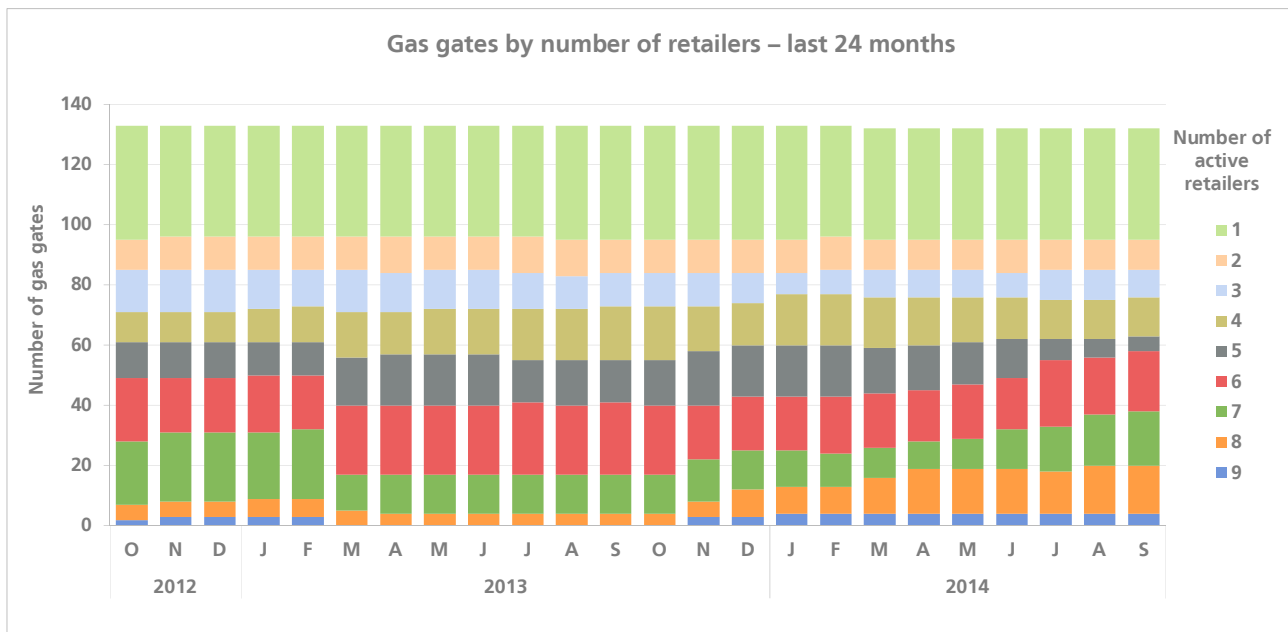
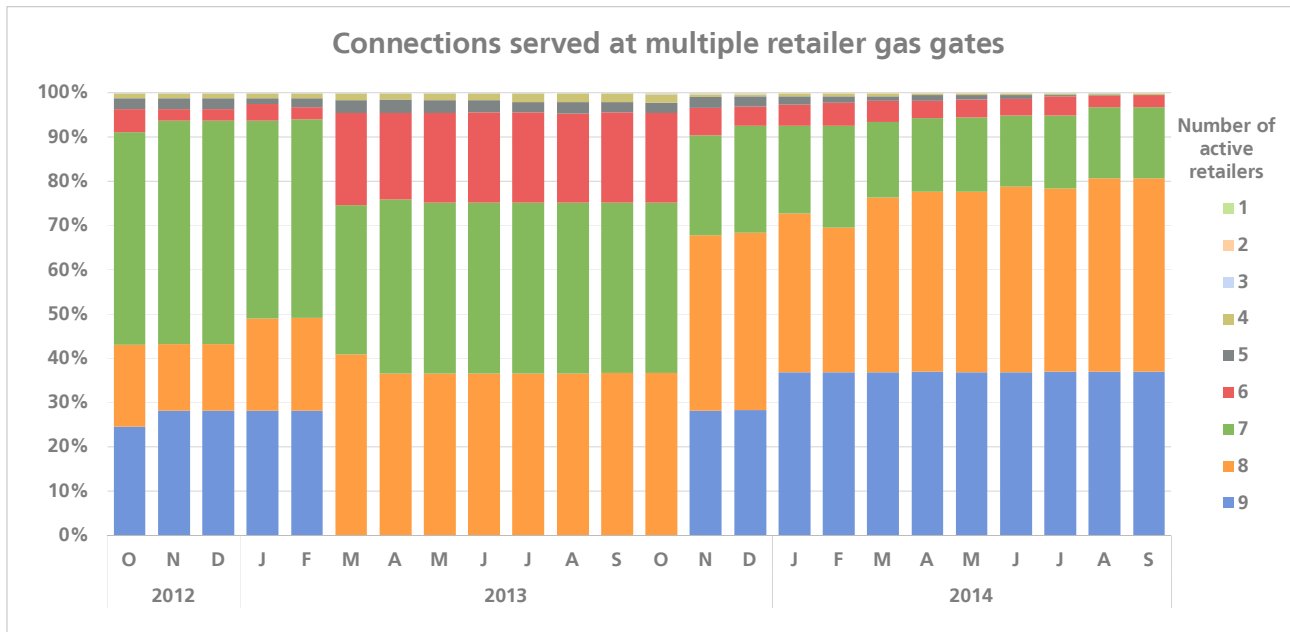


Chart 17: Gas gates by number of retailers



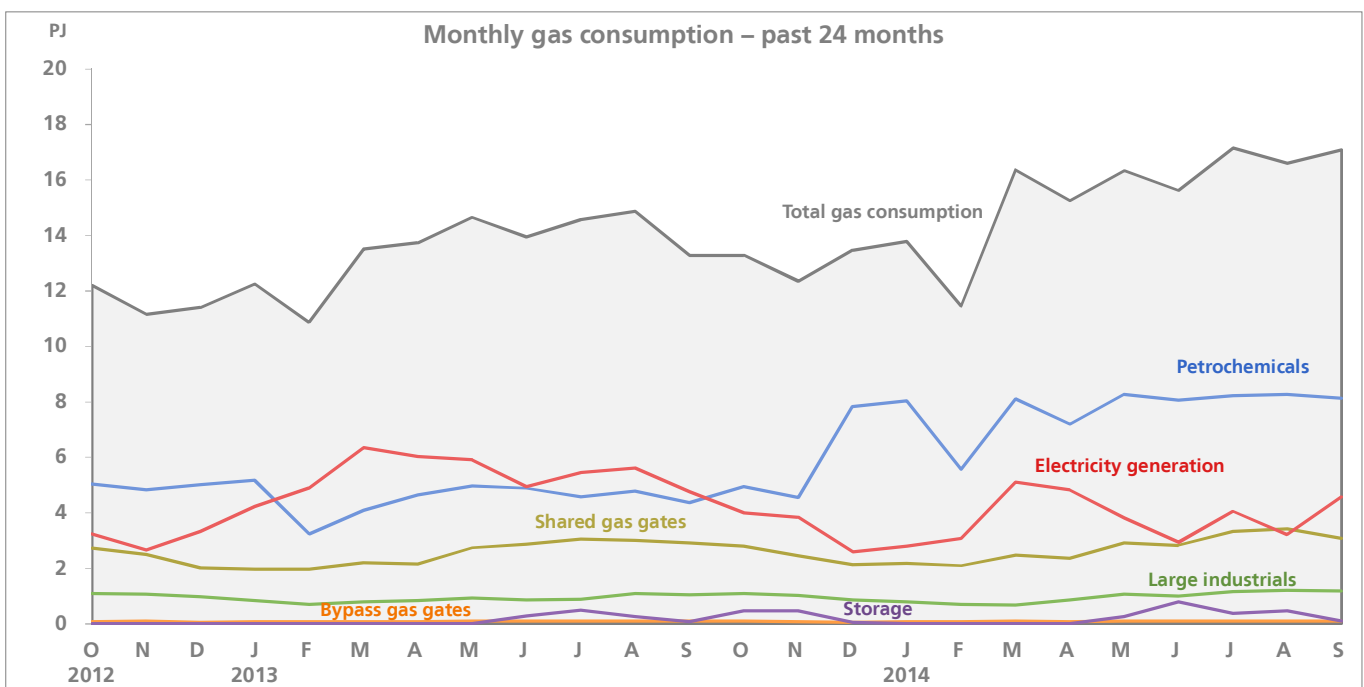
- Trustpower’s entry into the retail gas market in November 2013 means that there are now nine retailers active at some gas gates.

Chart 18: Connections served by multiple retailers



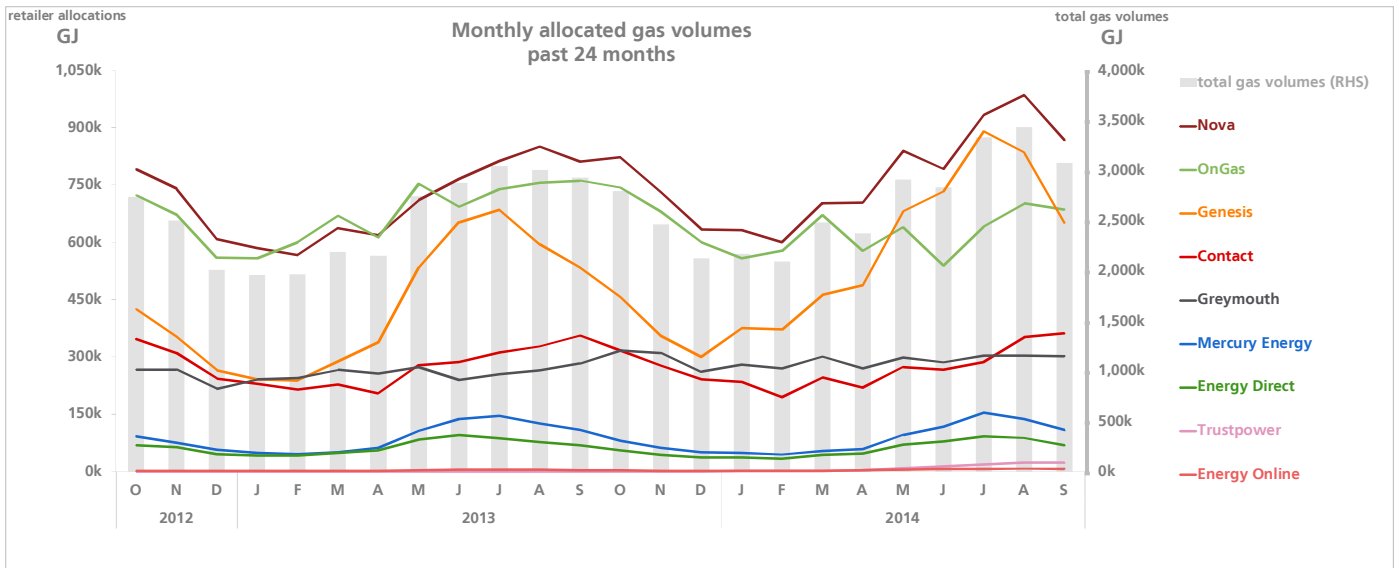
- Over 99% of gas customers are connected to a gate where least six retailers trade.

Chart 19: Total gas volumes



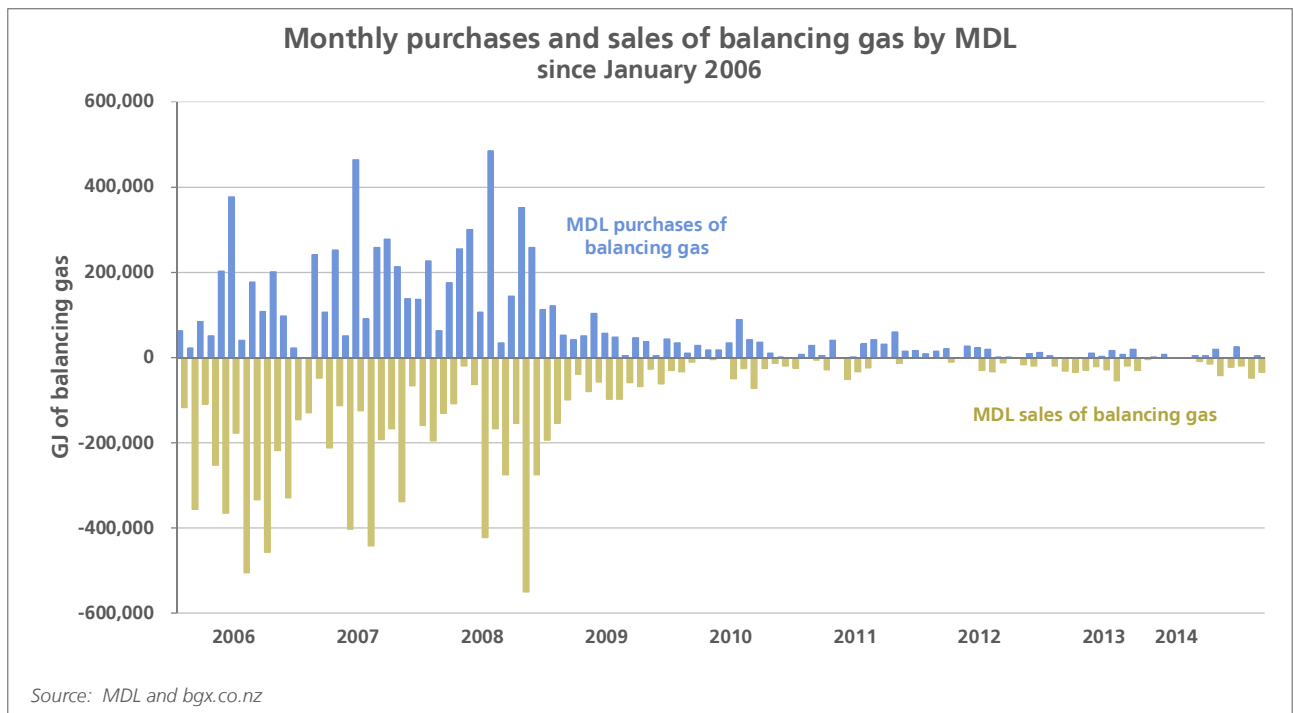
- Gas used for petrochemicals has increased since the end of last year due to the restart of Methanex’s Waitara Valley plant and increased capacity at its Motunui site.

Chart 20: Allocated gas volumes



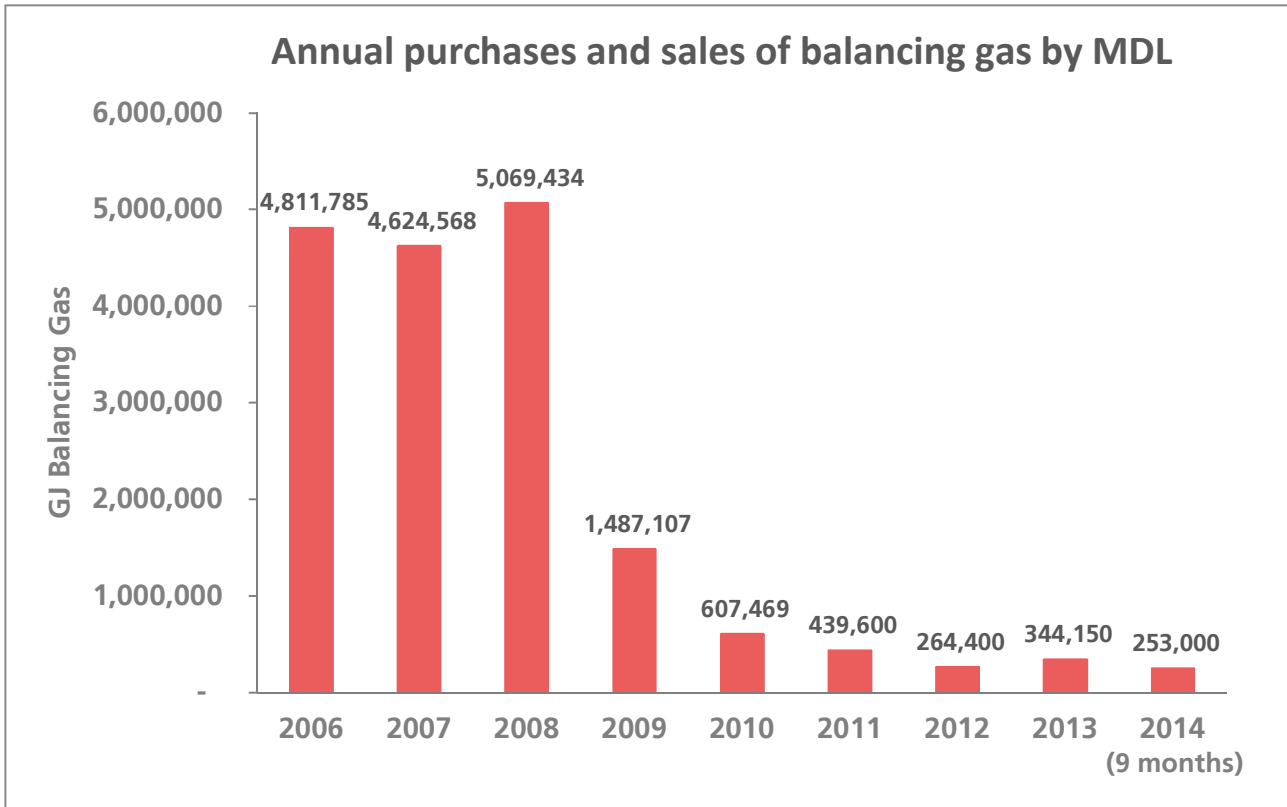
- As of June 2014, Nova had the largest share of allocated gas volumes, followed by OnGas and Genesis.
- The data are from a mix of allocation stages: Final through September 2013; Interim for October 2013 through June 2014; and Initial for July 2014 through September 2014.

Chart 21: Balancing gas volumes



Source: MDL and bgx.co.nz

Chart 22: Annual volumes of balancing gas



- On average, balancing gas volumes purchased by MDL have decreased over 90% from pre-2009 levels.

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 customer sites.
Gas gate	A place where gas leaves the transmission system. Gas gates can (most commonly) lead to distribution systems, which supply a number of different customers. Some gas gates are direct connects, meaning that they supply a single large industrial customer. 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 customer installation is connected to the distribution system. Used to describe a customer 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 customers 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 (<i>initial allocation</i>); four months after consumption month (<i>interim allocation</i>); and 13 months after consumption month (<i>final allocation</i>).

Registry	Database of information on customer 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 their 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 customer.
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 more than tripled to an average of between 3,000 and 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 about 18%. 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

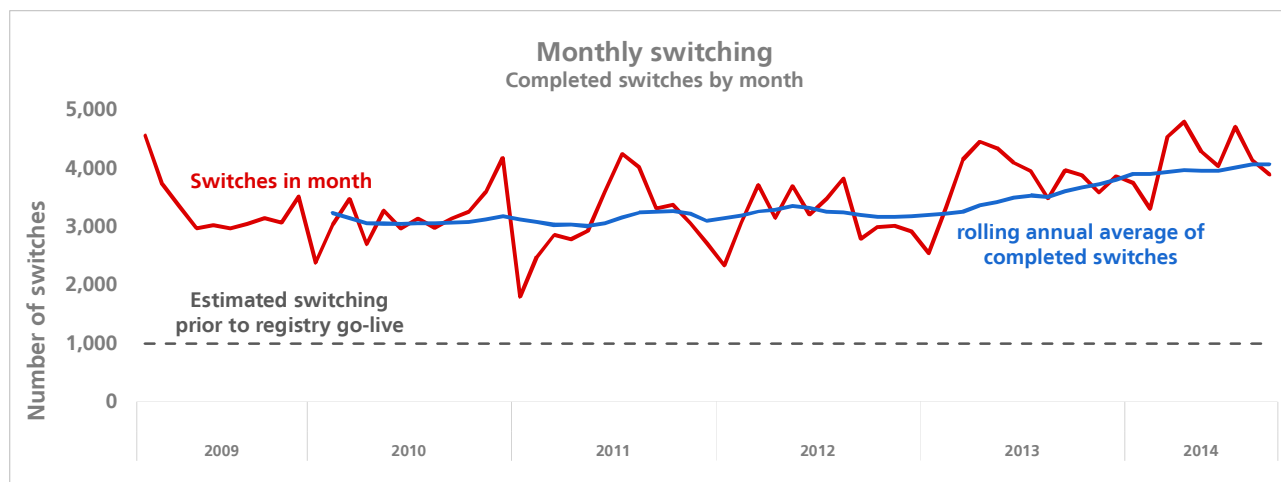


Chart 2: Regional switching activity

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 or six 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 number of recent breaches have been alleged by the auditor conducting performance audits.

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

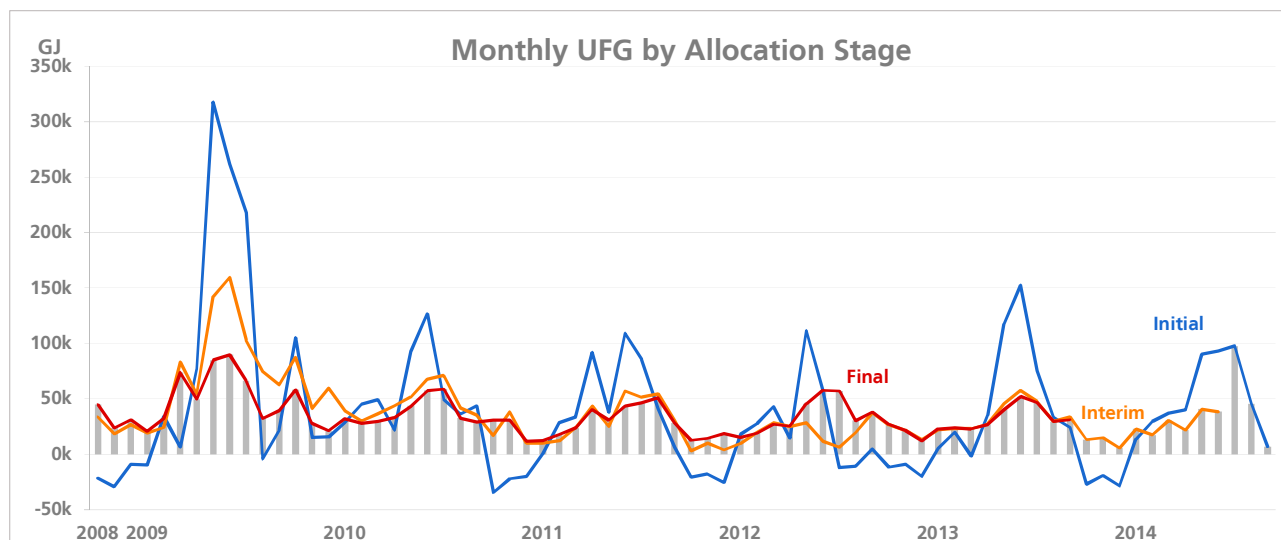


Chart 7: Percentage of UFG

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. Over 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. It has proven efficient for the market investigator to attempt to reach settlements in yearly batches of rule 37 breaches.

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 customer segment

This chart shows market share by customer type, as shown in the gas registry. Note that, because of the small size of its customer base, Energy Online’s customer share is combined with its parent company, Genesis.

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 October 2014; 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

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

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 customer sites since 2008

This chart shows the proportion of active contracted customer sites by the number of times they have switched in the past five years, broken down by customer type as shown in the registry.

Chart 15: Residential customer sites that have never switched

This chart shows, for the residential customer 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 customers.

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 32 gas gates are direct connect gates, meaning that they serve only one customer, generally a large industrial customer, and can have only one retailer active at that gate.

The majority of gas gates – 100 at last count – serve multiple customers. 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 customers who are served from the gas gates in the chart above; that is, customers served at gas gates where multiple retailers trade. This chart shows, for example, that while all nine retailers are active at only a handful of gas gates, those gates tend to be the largest ones, since about 37% of all gas customers are connected at these gates.

This chart shows the March 2013 step change caused by the amalgamation of Bay of Plenty with Nova and the entry into the gas retail market by Trustpower in November 2013.

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 seasonal peaks and troughs in gas used for thermal electricity generation.
- Consumption for petrochemicals is shown in blue.
- The tan line shows the amount of gas used by customers connected to shared gas gates. This represents the majority of commercial and residential customers. 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 customers. This includes gas consumed by industrial, commercial, and residential customers, but it excludes gas volumes from direct connect gas gates; that is, from gas gates that supply a single customer 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 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.

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.