

# Performance Measures Quarterly Report for the period ending 30 September 2013

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## 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. .

Highlights of the Report:

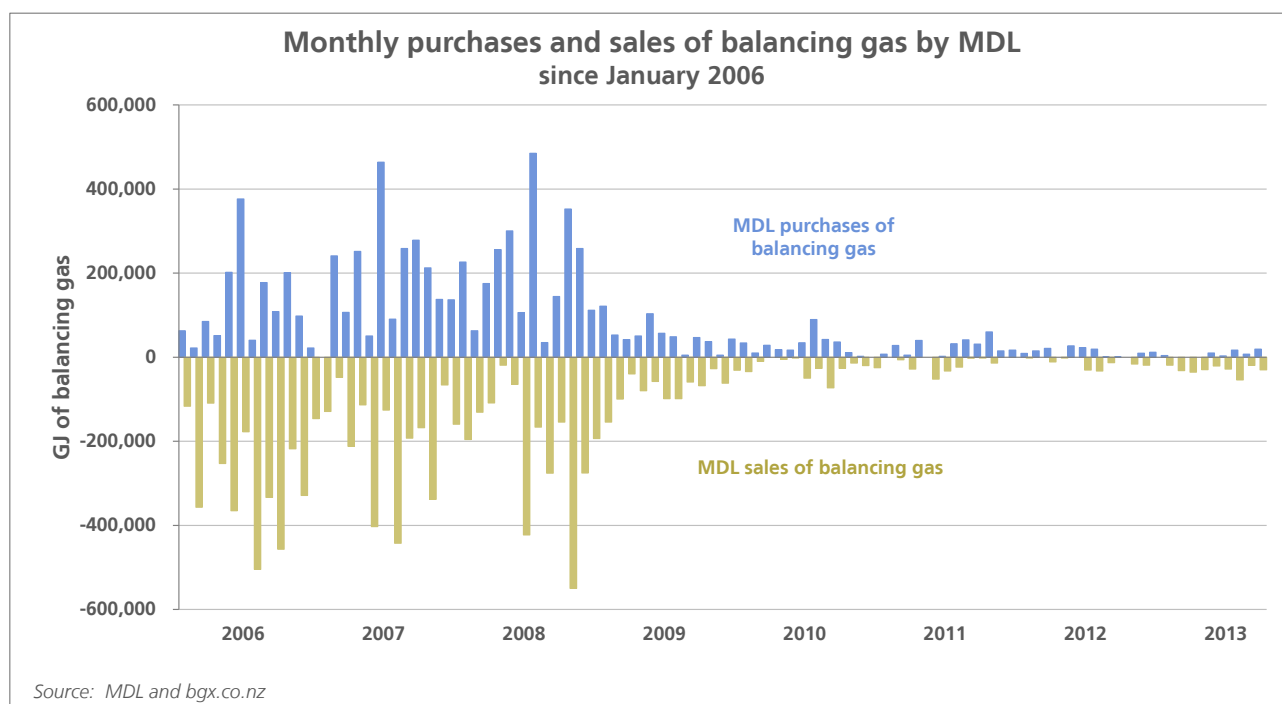
- On average, there are about 3,600 switches per month. Due to the recent upturn in switching levels, the annual churn rate is now about 16%, up from the 15% level of the previous year. Customer switching in Taranaki and Wanganui has been higher than the national average.
- The average switching time is about 5.5 business days, in contrast to the weeks or months that switching used to take prior to the inception of the switching registry.
- Unaccounted for gas (UFG) volumes have been relatively low for the past two months, as is usual for the time of year – UFG tends to be lower in spring and summer, compared to winter months. As expected, the amount of UFG recorded for the winter months has decreased with the interim allocation runs of May and June 2013. The average annual amount of UFG is about 1.3%.
- Despite the numbers of customers switching retailers, there have been no major movements in customer market share over recent months.
- The Herfindahl–Hirschman Index (HHI) is a way of measuring market concentration by using size and number of competing firms. In all regions of the North Island, HHI has decreased in the past four years, reflecting the activities of new retailers entering the market and smaller retailers increasing their market share.
- In terms of market share by gas volumes, Nova and OnGas are the largest retailers, reflecting their focus on the industrial and commercial sectors of the gas market (although Nova also has a presence in the mass market segment).

- Over 95%, of gas consumers are connected to a gate where at least six retailers trade, demonstrating that gas retailers generally are competitive throughout the North Island.

## 2 Balancing gas volumes

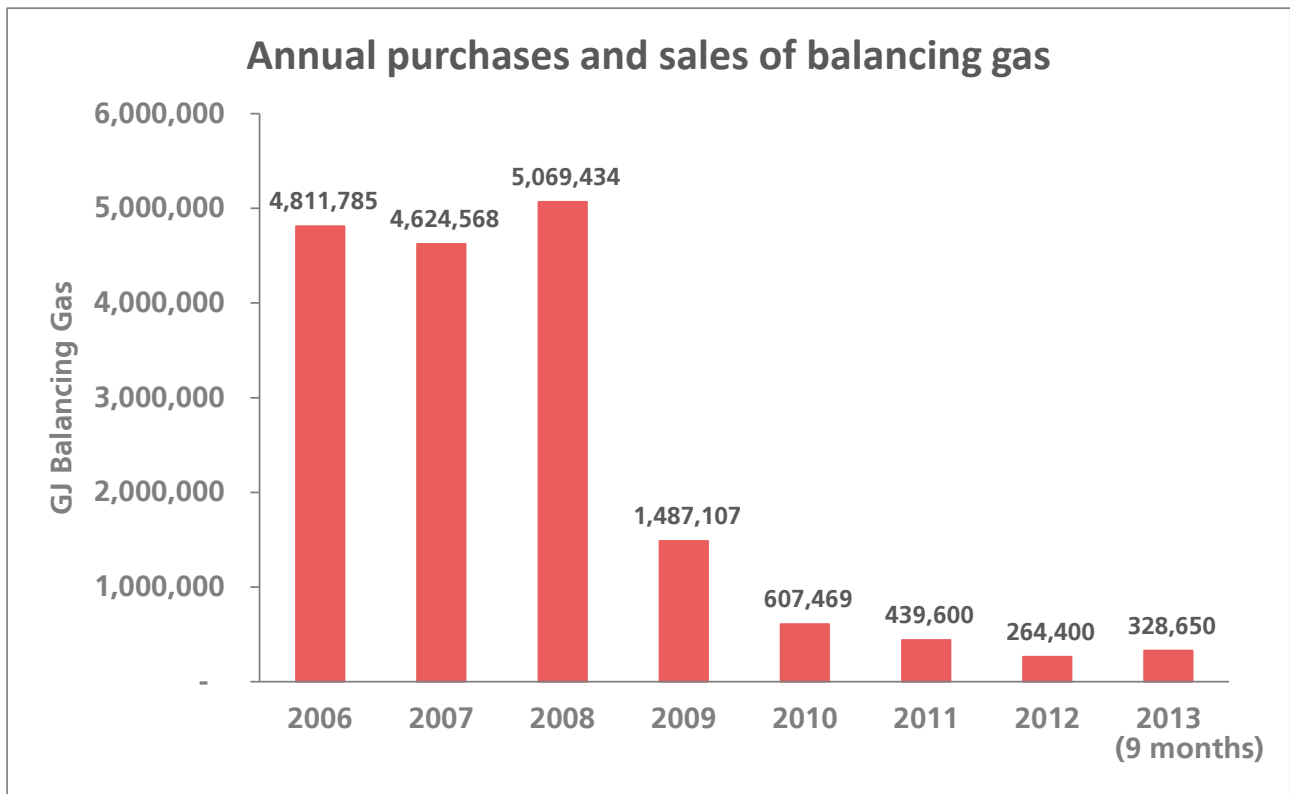
The volume of gas in a pipeline relates to the gas pressure in the pipeline and needs to be maintained below the safe operating pressure limit for the pipeline and above the minimum required to maintain the supply of gas to consumers. On the Maui pipeline, pressures will rise or fall as parties who inject 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*. 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, as can be seen in the chart above.

The chart below summarises balancing gas transactions (both purchases and sales) by calendar year.



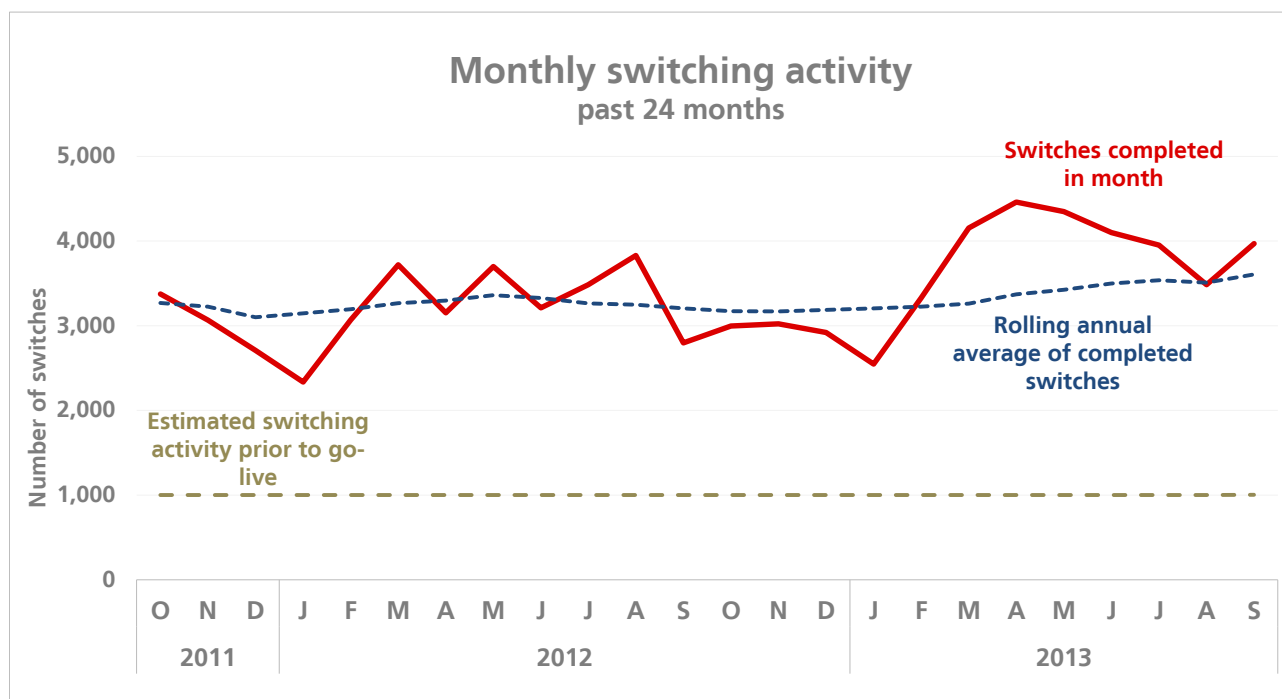
In 2013, overall balancing gas volumes have increased relative to recent years. The Maui pipeline has experienced larger than usual volumes of negative UFG this year, which has required MDL to sell (put) more gas than usual to manage linepack levels. MDL has advised that such temporary trends in UFG can be caused by small variances in accuracy in the receipt and delivery meters even though they remain within specification. MDL monitors the level of UFG on the Maui pipeline and requires that meters be checked regularly. The average UFG volume does not exceed 0.5% of total gas volumes.

### 3 Switching performance measures

#### Monthly switching activity

On average, there are about 3600 switches per month. Due to the recent upturn in switching levels, the annual churn rate is now about 16%, up from the 15% level of the previous year. As a comparison, the annual churn rate for electricity is about 19%.

Prior to the gas registry going live in March 2009, approximately 1,000 switches were processed on a monthly basis, and the annual churn rate was approximately 4.8%.



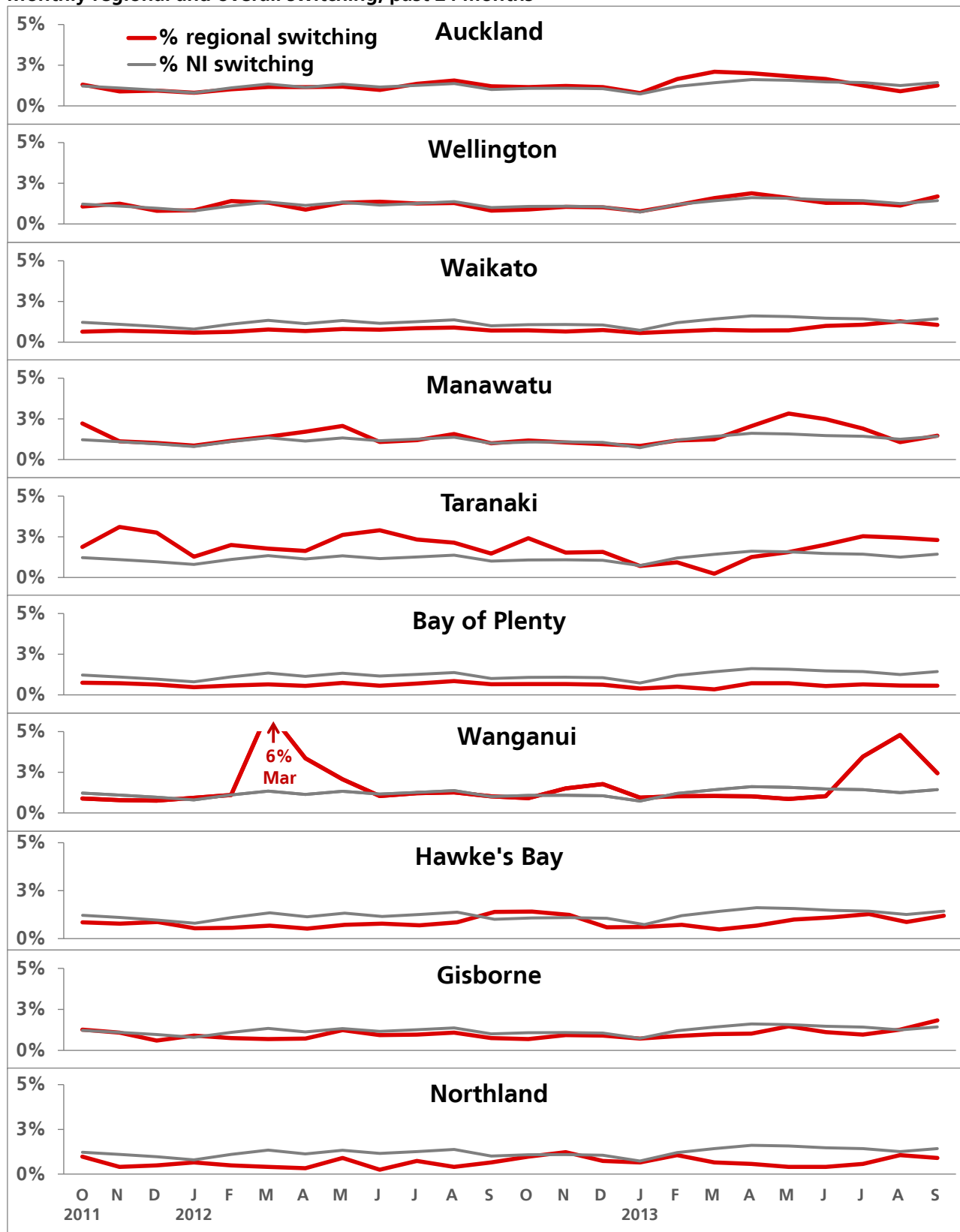
## Regional switching activity

The charts below compare regional switching rates with total switching rates. The grey line is the same in all the charts below and shows number of switches (both move switches and standard switches) in a month as a percentage of active-contracted and active-vacant ICPS across all North Island gas consumers. As that line shows, monthly switching varies between about 0.7% and 1.6% per month.

The red line in each chart shows the number of switches in that region as a percentage of ICPS in that region. As might be expected, Auckland and Wellington switching rates tend to be similar to the North Island rates. Differences emerge in the smaller regions, though: in the past 24 months, for example, switching in Taranaki has generally tended to be higher than the average, while switching in Bay of Plenty, Hawke's Bay, and Northland has tended to be lower. The short-term spikes in switching rates in Wanganui appear to be due to targeted retailer marketing campaigns.

Note that the figures in the chart below do not include transfers of Auckland Gas and Bay of Plenty Energy customers to Nova.

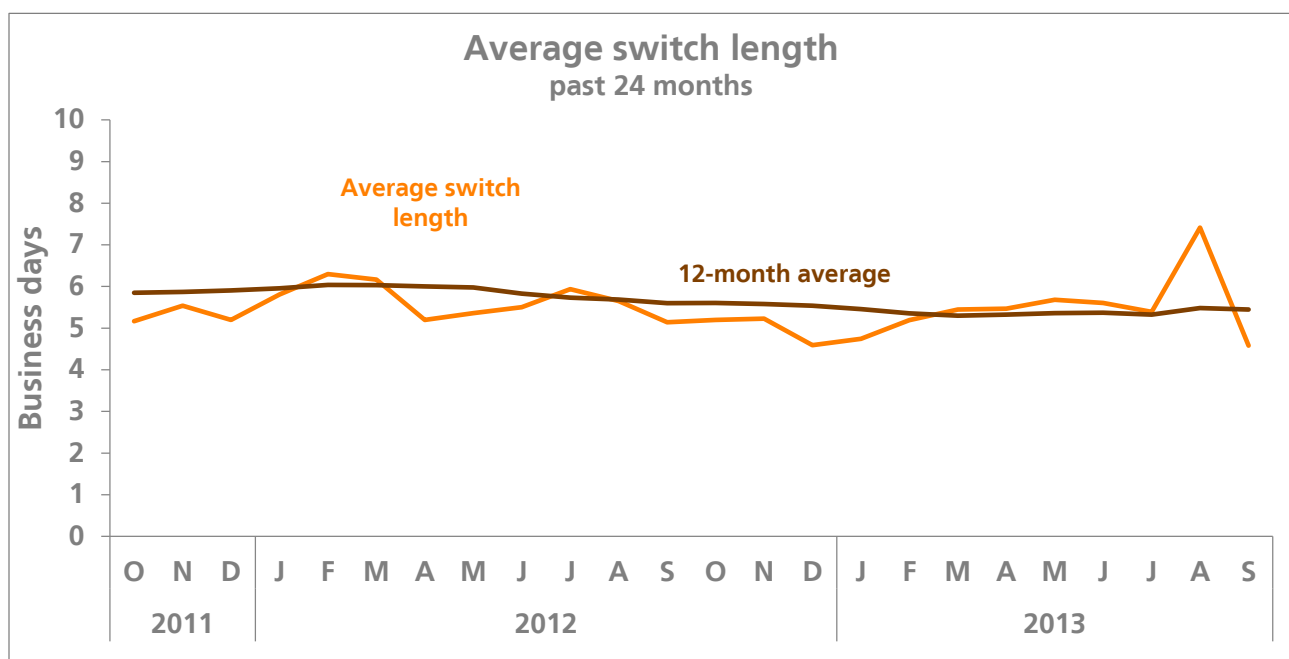
Monthly regional and overall switching, past 24 months



## Time to process switches

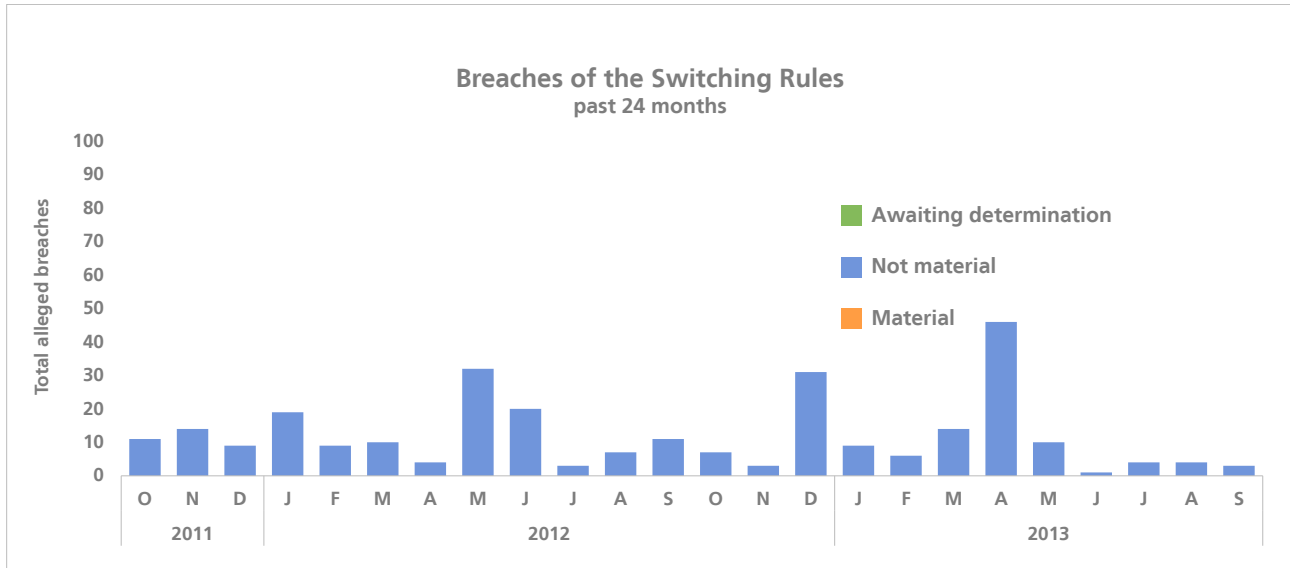
The chart below shows the average length of time it has taken to process the switch requests that have been received in a month. The twelve-month rolling average switching time now stands at about 5.5 business days, in contrast to the weeks or months that switching used to take prior to the inception of the switching registry.

The spike in switching time shown in August appears to be related to the implementation of Part 10 of the Electricity Industry Participation Code, which required changes to electricity participants' systems and entailed a suspension of the electricity registry. It is likely that the resulting delay in processing electricity switches had a follow-on effect in processing gas switches for dual fuel retailers in that month.



## Number and severity of breaches of the Switching Rules

In the first year after the inception of the Switching Rules, there were about 450 switching breaches alleged per month. In the past quarter, there have been a total of 11 breaches alleged. None of the switching breaches alleged in the past two years have been determined to be material by the market administrator.



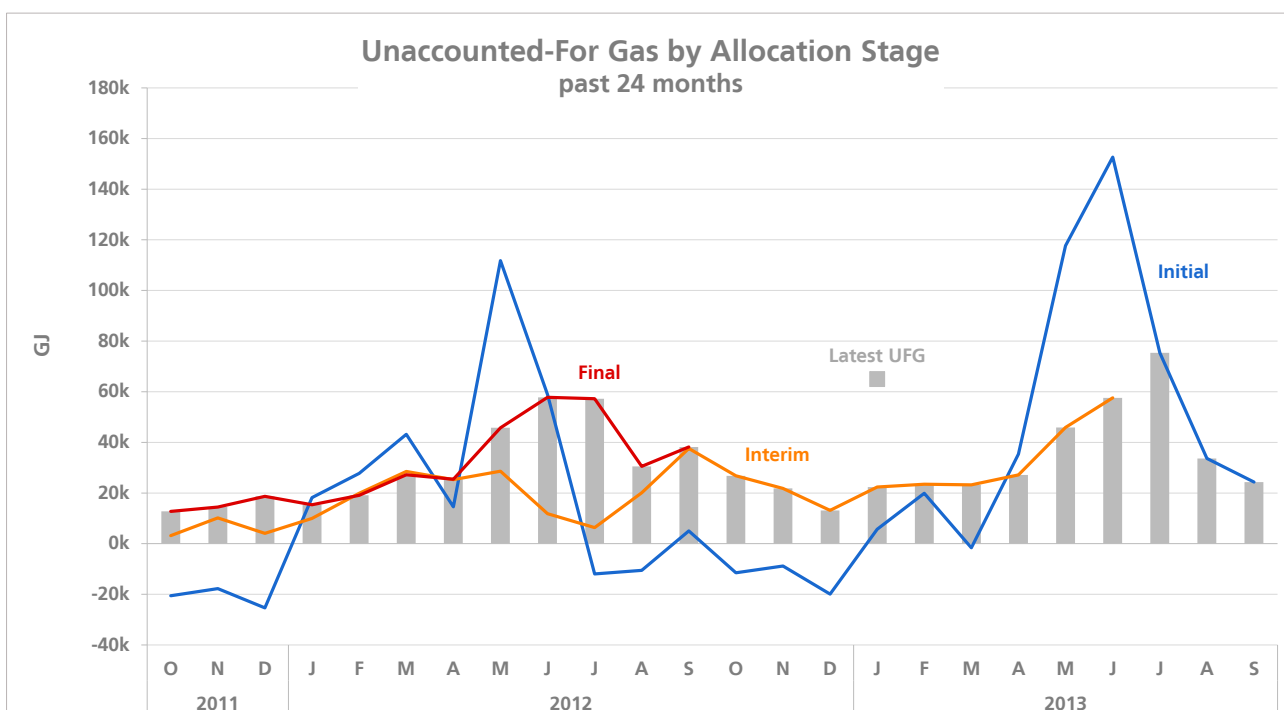
## 4 Allocation and reconciliation performance measures

### Volumes of Unaccounted-for Gas

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.

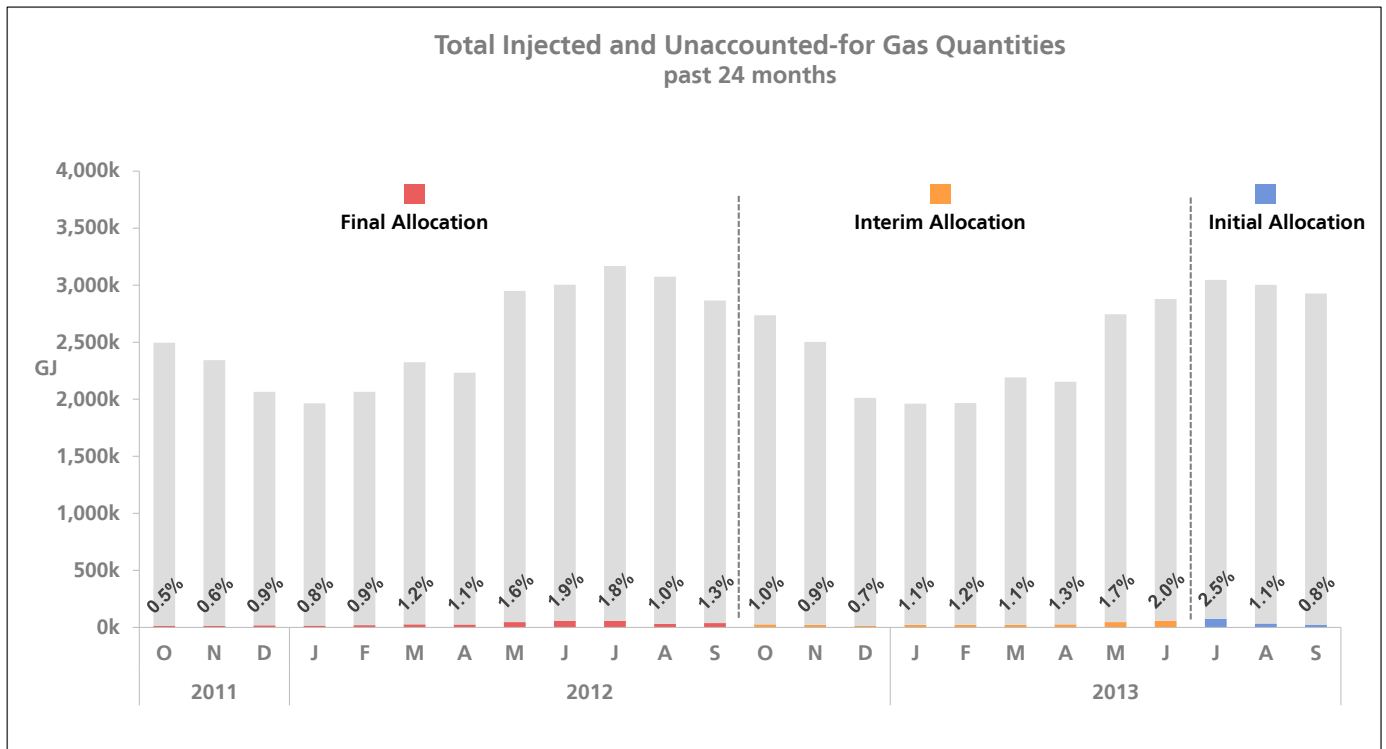
The chart below compares total UFG quantities by consumption month and allocation stage (initial, interim or final). The grey bars show UFG based on the most recent data available.

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.



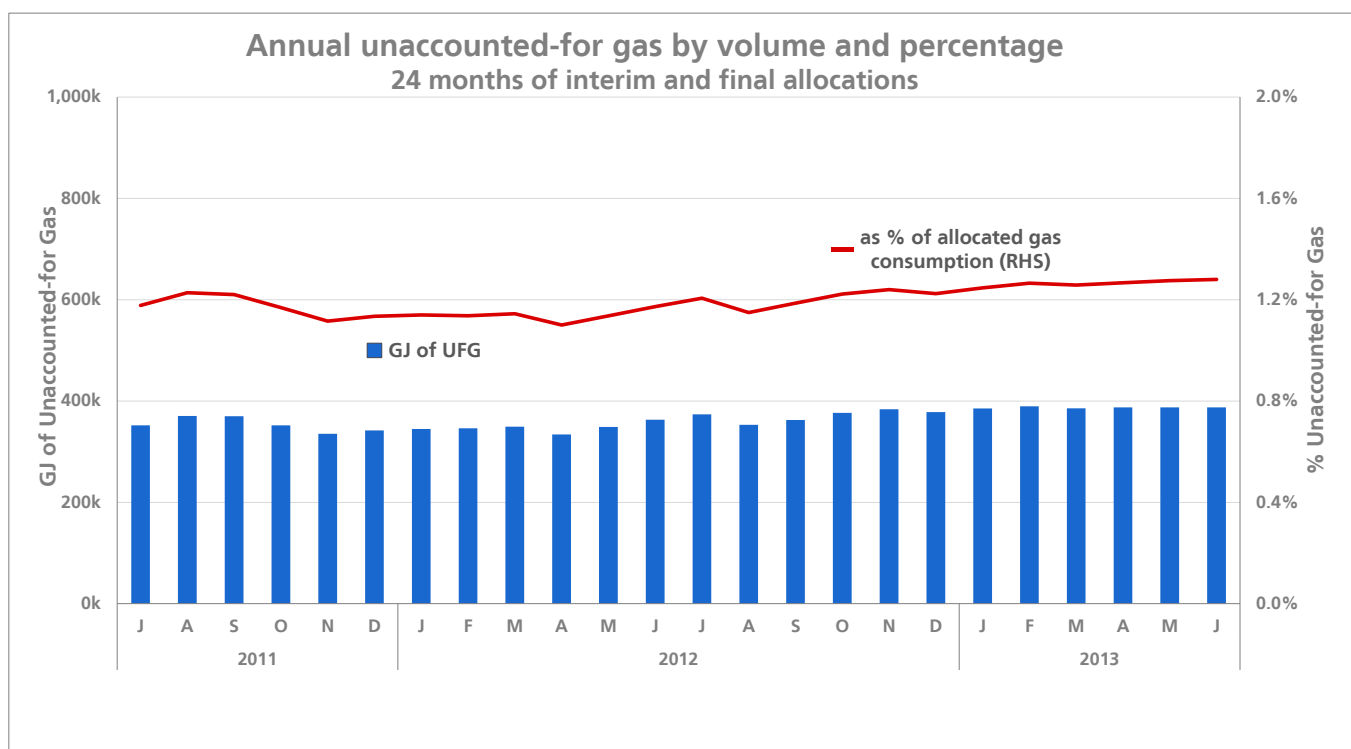


The chart below shows the amount of unaccounted-for gas in comparison to the total amount of allocated gas consumed each month. The grey bars show gas consumption at allocated gas gates, while the coloured bars show UFG volumes, by allocation stage. The labels show the percent of UFG as a proportion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



Another way to think about UFG is the amount recorded over a 12-month period. The chart below shows rolling 12-month UFG figures, both as a GJ total and as a percentage of gas consumed. 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, so, for example, the June 2013 total is based on nine interim results and three final results, while the September 2012 total is based on twelve final allocation runs.

For the first year after the Reconciliation Rules came into effect, annual UFG was about 2%. Average UFG now stands at about 1.3%.

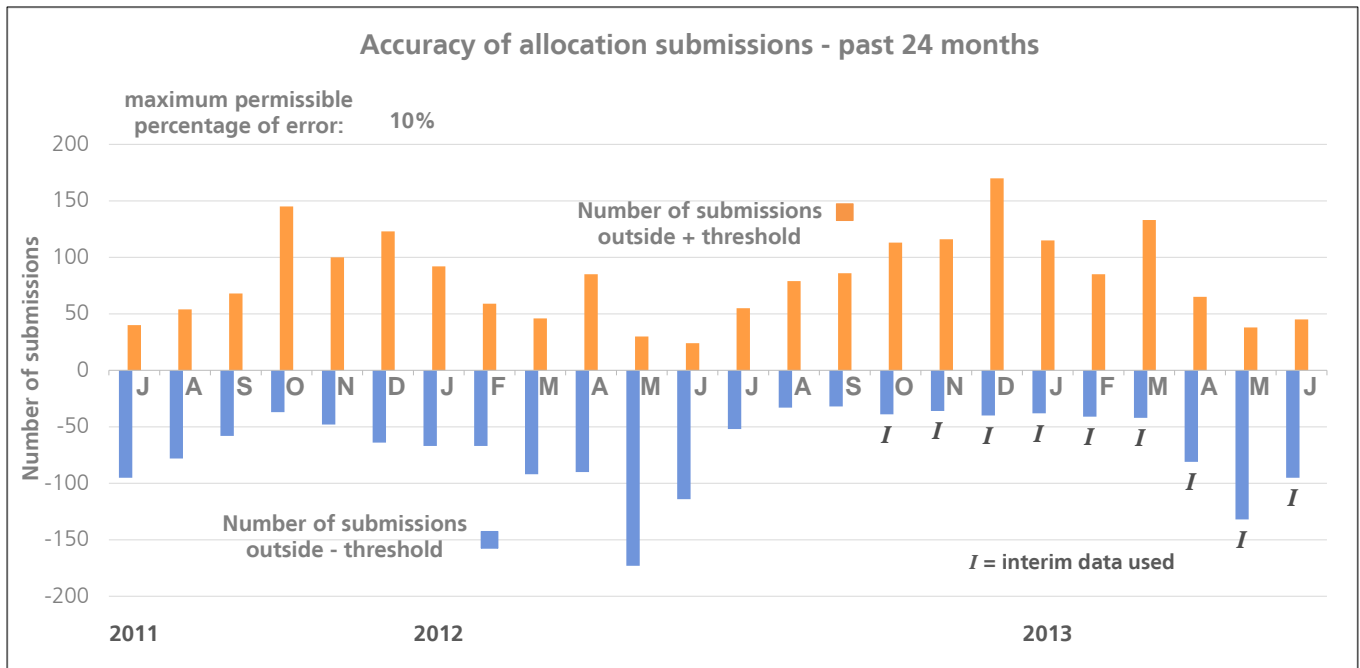


### Accuracy of submission data

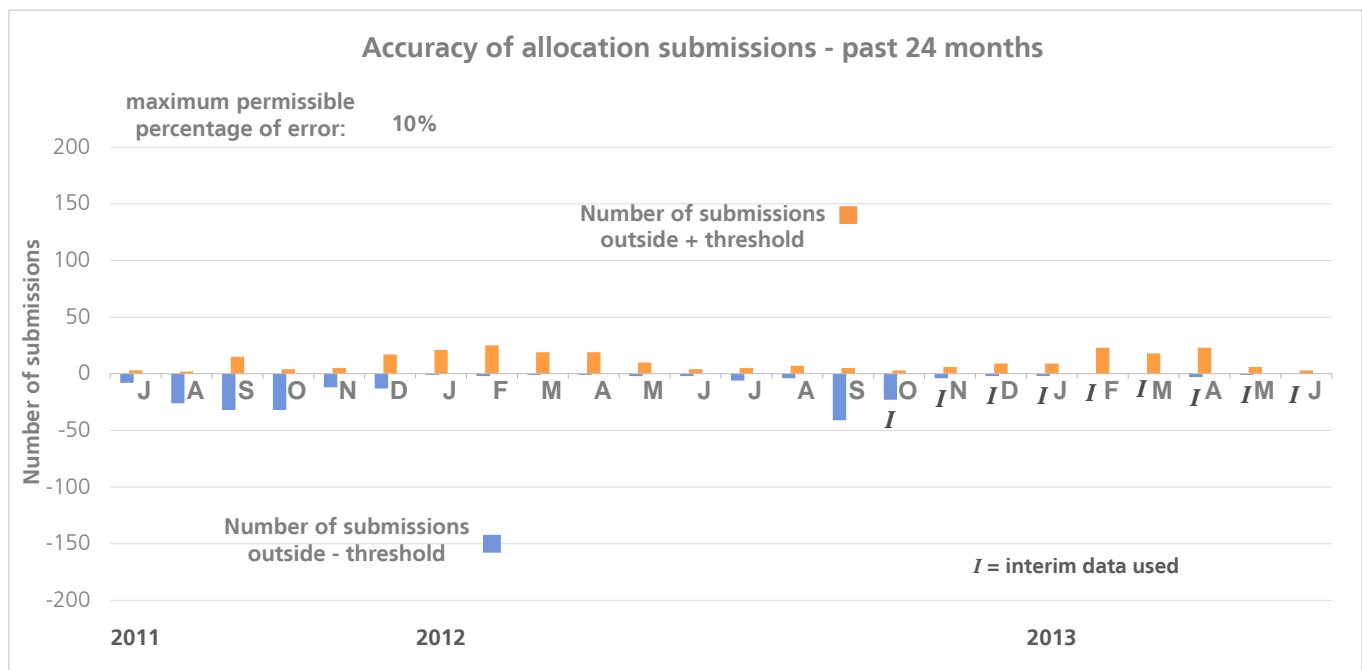
The accuracy of initial submissions is important, as balancing and peaking charges on the Vector transmission system are levied on the basis of initial allocation results and are not subsequently washed up. This means that the UFG created through inaccurate initial consumption submissions falls onto other retailers at the affected gate, affecting their exposure to balancing costs. To limit the impact of this effect, the Reconciliation Rules require that initial consumption submissions are within a specified percentage of the final (and most accurate) consumption submissions.

The chart below shows the number of retailer submissions that were outside the maximum permissible error threshold in the last 24 months for which data are available. For this analysis, final submissions were compared to initial allocation submissions for the months they were available (July 2011 - September 2012). Other months use interim submissions (in place of final) for the comparison data and are marked with 'I'. The percentage of error used to measure accuracy is 10%.

There is a pattern of retailers over-submitting in October through January (shown by the orange bars), which corresponds with the negative UFG seen at the initial allocation stage in the preceding charts. Retailers tend to under-submit in the months of April through June (as seen in the blue bars), which corresponds with the high levels of UFG experienced in those months.



The market administrator uses a volume threshold of 200 GJ as a means of differentiating those breaches that are likely to have had a materially adverse effect on other market participants. The chart below shows the number of accuracy breaches that involve gas quantities larger than 200 GJ. As a comparison of the two charts illustrates, there is a significant proportion of accuracy breaches that have involved less than 200 GJ. Deeming these breaches not material allows industry participants to focus on addressing the harm caused by larger volume estimation errors.



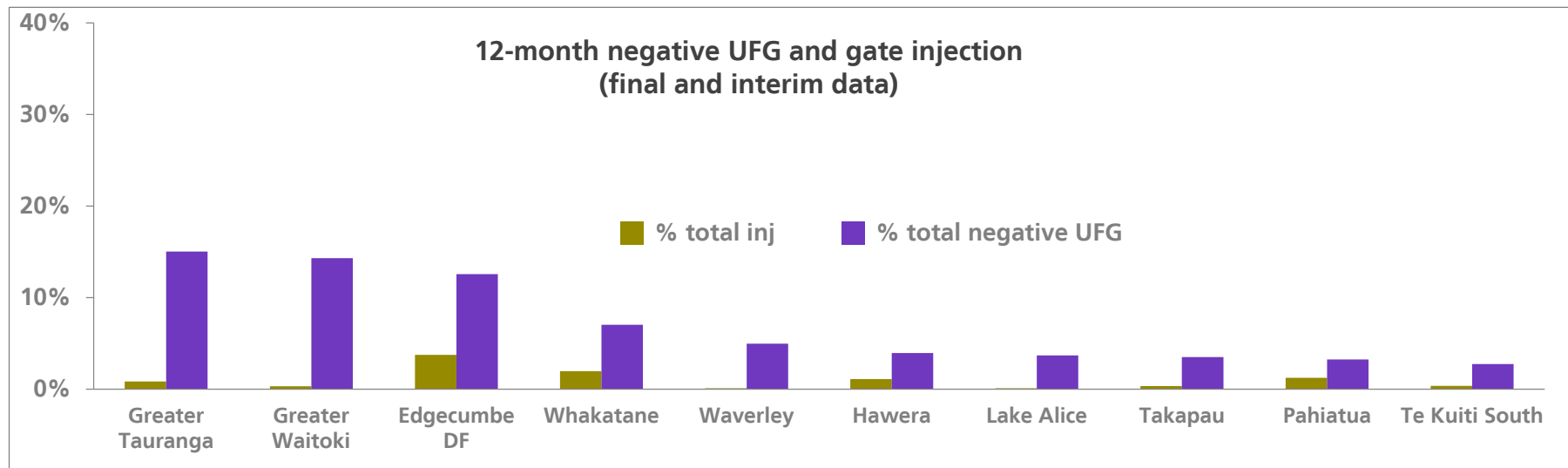
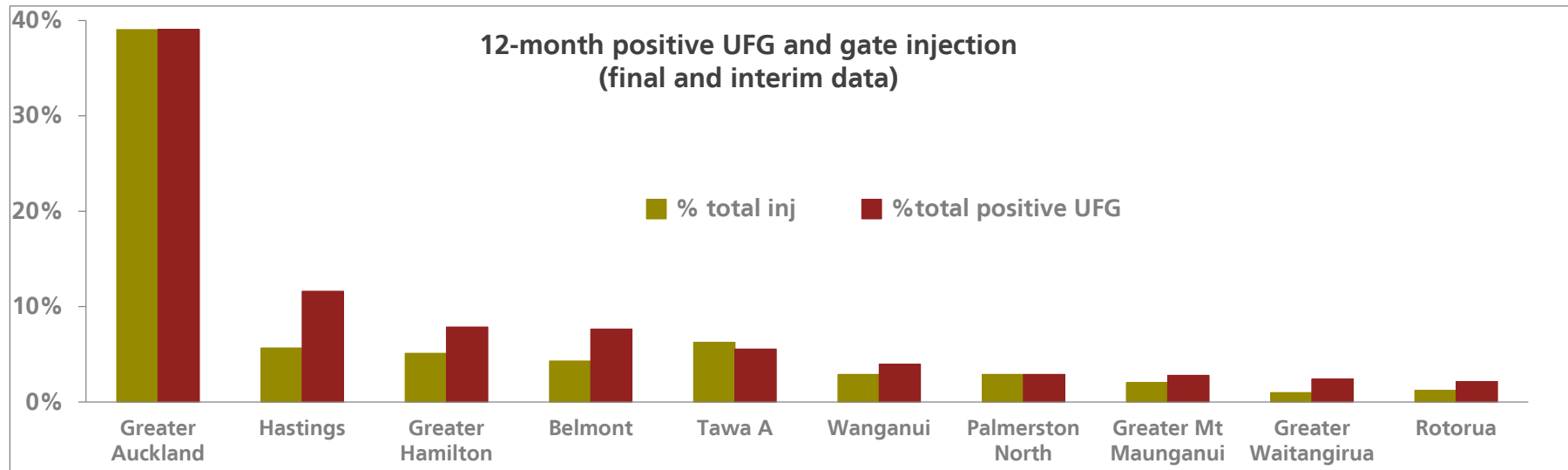
## Gas gates where UFG is the highest

The charts below show the gates with the largest volumes of positive and negative UFG over the 12 months from July 2012 to June 2013, according to the most recent (final and interim) data. In those 12 months, a net of 387,382 GJ of UFG has been allocated: 455,848 GJ of positive UFG; and 68,466 GJ of negative UFG.

About 86% of positive UFG has occurred at the ten gas gates shown in the first chart below. For context, the chart also shows the percentage of total gate injections each gate represents; that is, the proportion of total gas consumption that is drawn from those gates. The chart shows, for example, that nearly 40% of gas from shared gas gates was consumed in Greater Auckland, and about the same percentage of positive UFG occurred there. Conversely, Hastings accounted for about 6% of gas consumption and 12% of positive UFG.

The second chart concerns negative UFG. The ten gates shown account for about 71% of the negative UFG experienced in the twelve months; and again the percentage of gate injections is shown for each of the gates. Five of the gas gates shown – Edgecumbe DF, Pahiatua, Takapau, Te Kuiti

South, and Waverly – 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 will commence with the new gas year in October 2013.



## **Audits commissioned**

### **Event audits**

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

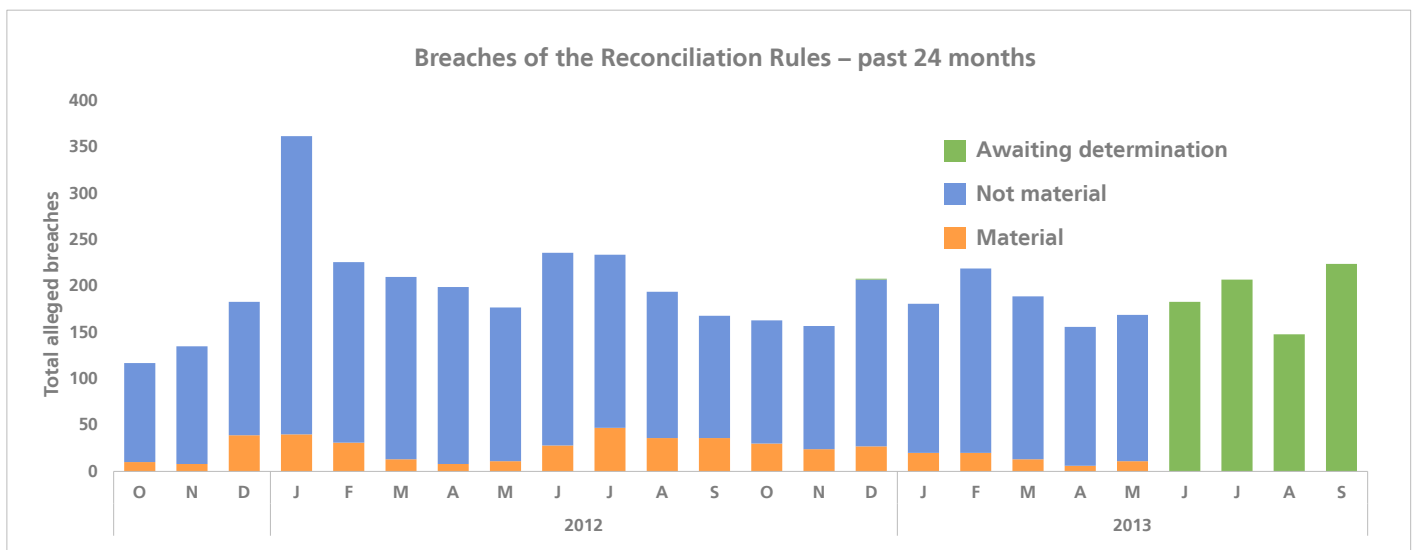
### **Performance audits**

There have been no performance audits commissioned this quarter. However, Gas Industry Co is commencing a programme of performance audits that will cover all allocation participants over the next year.

## Number and severity of breaches of the Reconciliation Rules

Since the Reconciliation Rules were changed as of June this year, alleged breaches of the Reconciliation Rules have only 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 settlements in yearly batches of rule 37 breaches. The previous batch, encompassing material breaches alleged from June 2012 to May 2013, was settled in August.

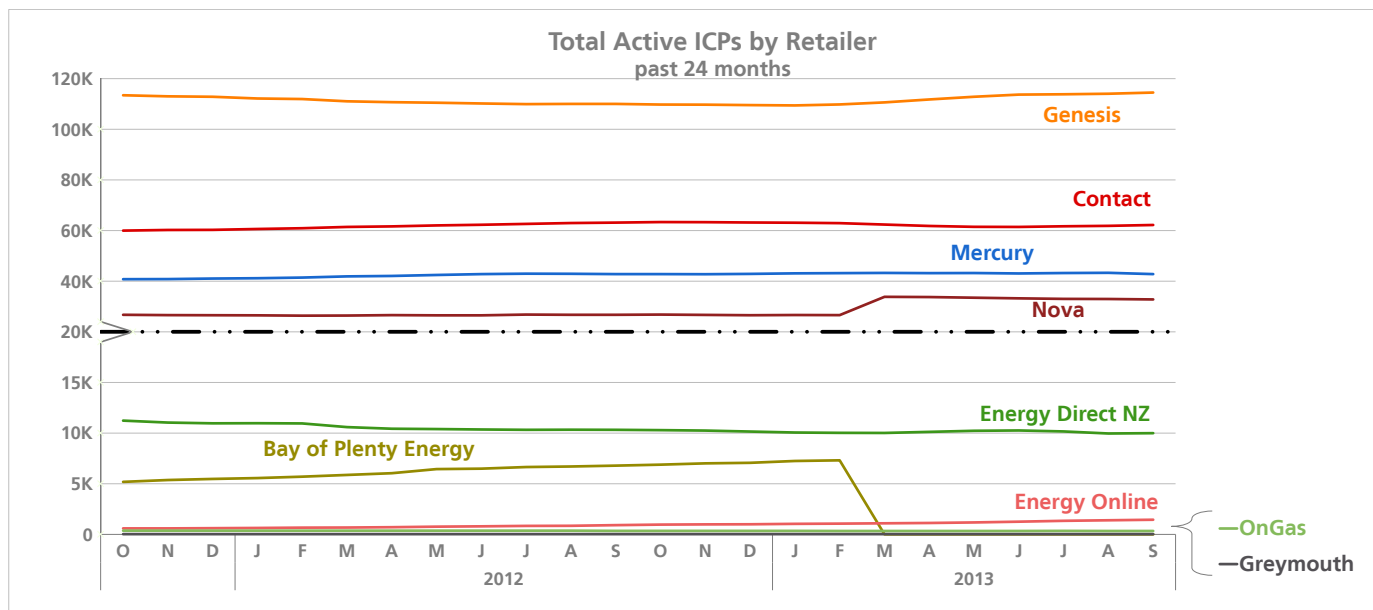




## 5 Market competition performance measures

### Market share of ICPs by retailer

In March, Nova transferred all of its ICPs under the Bay of Plenty Energy brand to its Nova brand. As of 1 July, TrustPower acquired Energy Direct's customers, although the Energy Direct retailer brand continues. There are now eight different gas retail brands in the market. There have been no major movements in market share among the other retailers.



Note that all three of the ICP share charts above include data from ICPs on open-access distribution networks only.

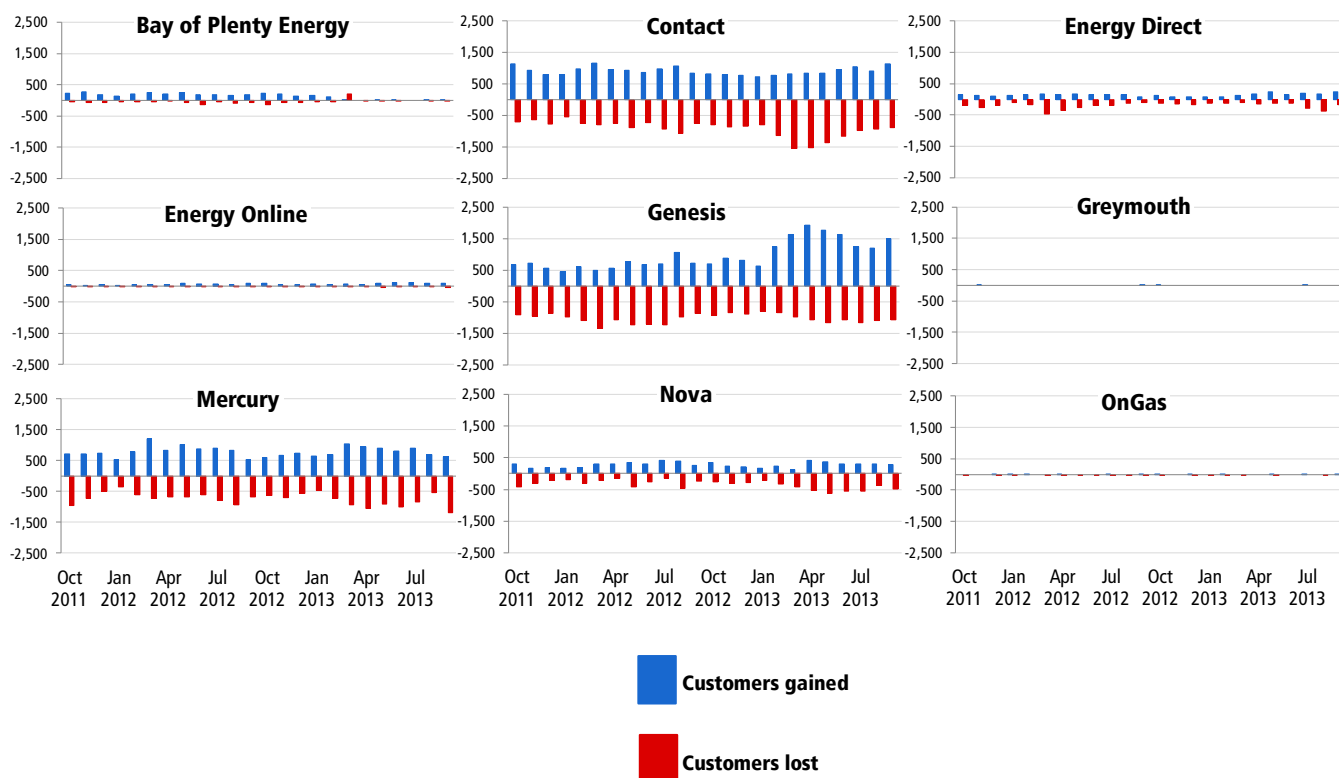
### Switching activity by retailer

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.

Note that the figures in the chart below do not include transfers of Auckland Gas and Bay of Plenty Energy customers to Nova.

## Switching activity by retailer

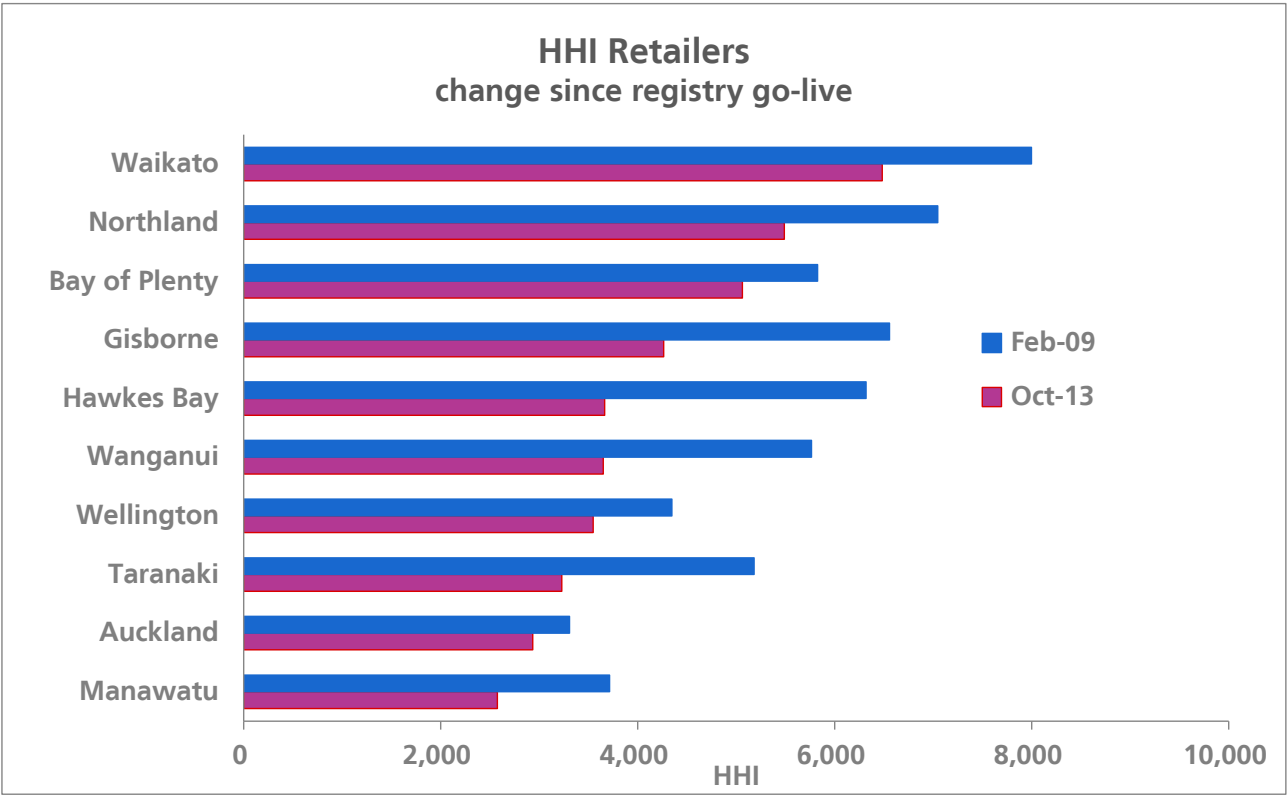


## Herfindahl–Hirschman Index

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 is 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.

The chart below shows the HHI of the retail gas market as at the time the registry went live, in February 2009, and as of 1 October 2013. In all regions, the HHI has decreased, indicating that the retail gas markets in these regions have become less concentrated.

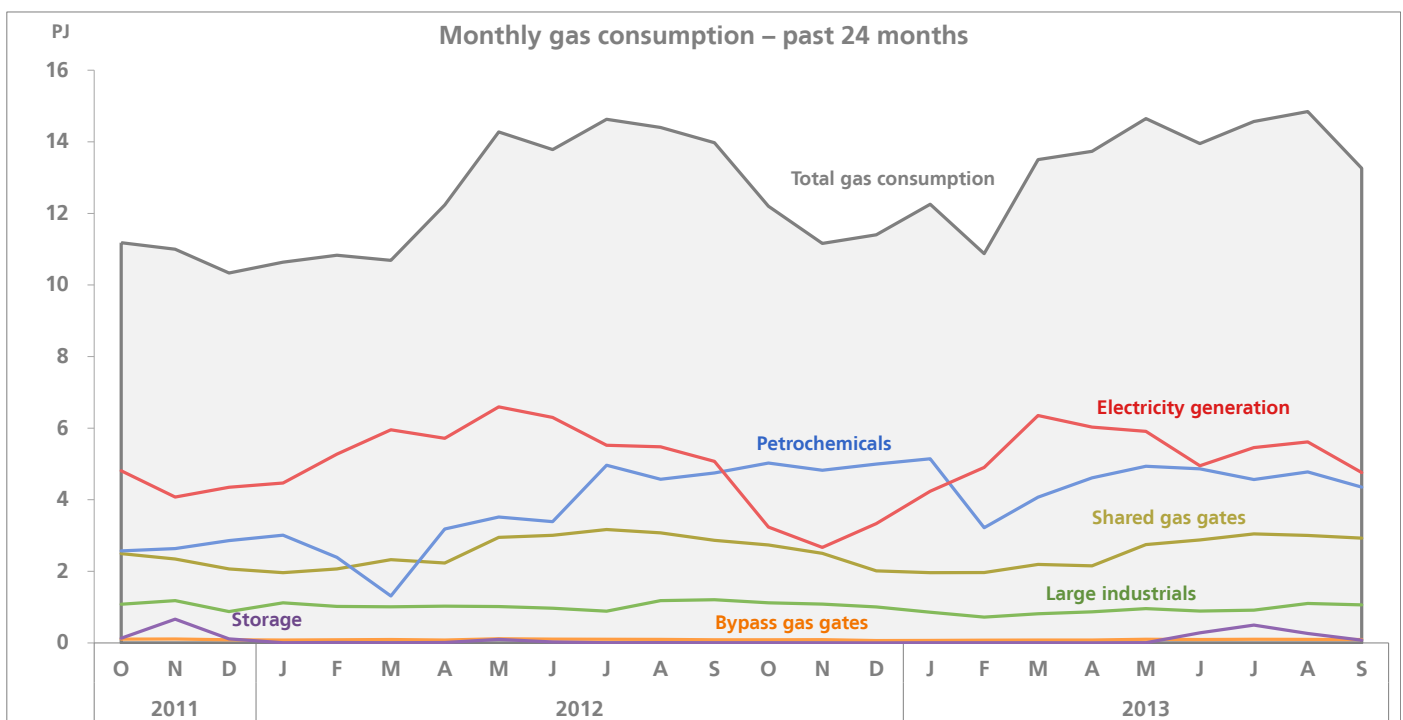
Until 1992, when the new Gas Act disestablished local exclusive franchise areas, gas retailing occurred through local vertically-integrated monopolies. With the consequent onset of retail competition, and as in the electricity sector, these former monopoly providers became 'incumbents', subject to competing retailers vying for customers in their areas. 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.



## Total gas volumes

The chart below 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.

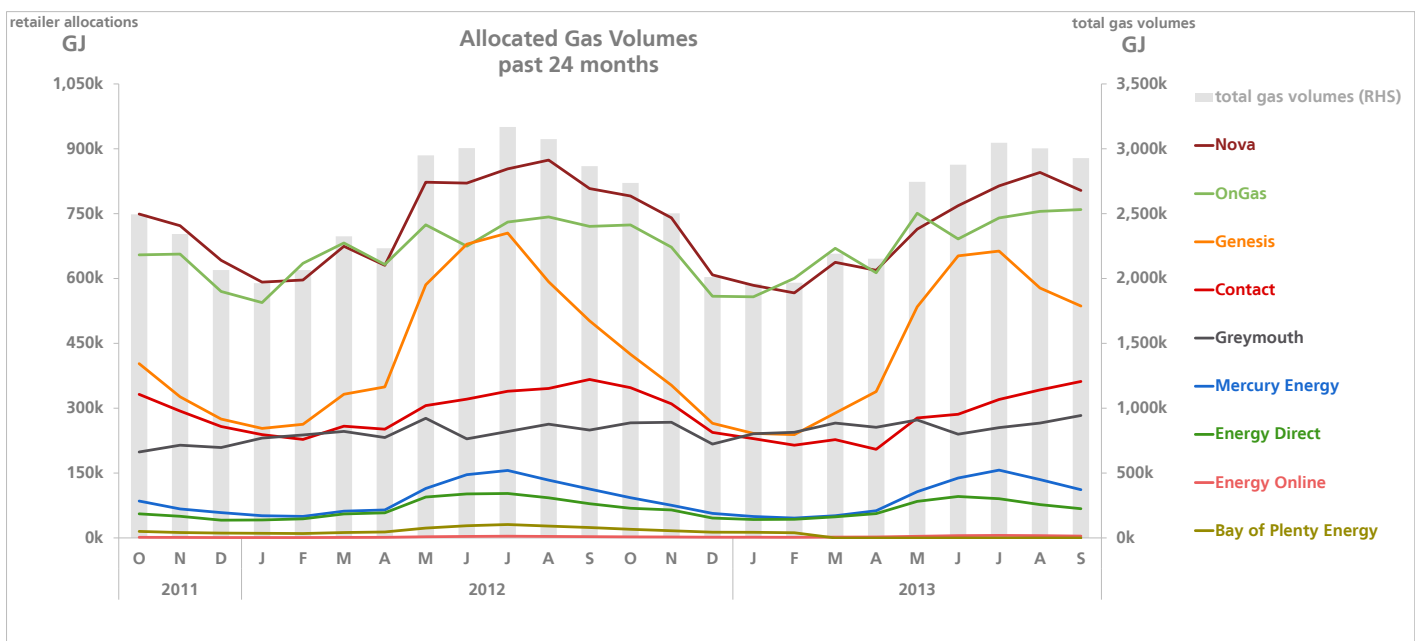
- The red line shows the seasonal peaks and troughs in gas used for thermal electricity generation.
- Consumption for petrochemicals is shown in blue.
- The tan line shows the amount of gas used by customers connected to shared gas gates. This represents the majority of commercial and residential customers. There is a seasonality trend to the consumption, higher in winter and lower in summer. These allocated gas volumes are broken down by retailer in the next section.
- 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.



## 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, oil refinery, and paper and chemical factories are not included in the chart below.

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, followed by OnGas. Genesis, the third largest retailer by volume, 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.

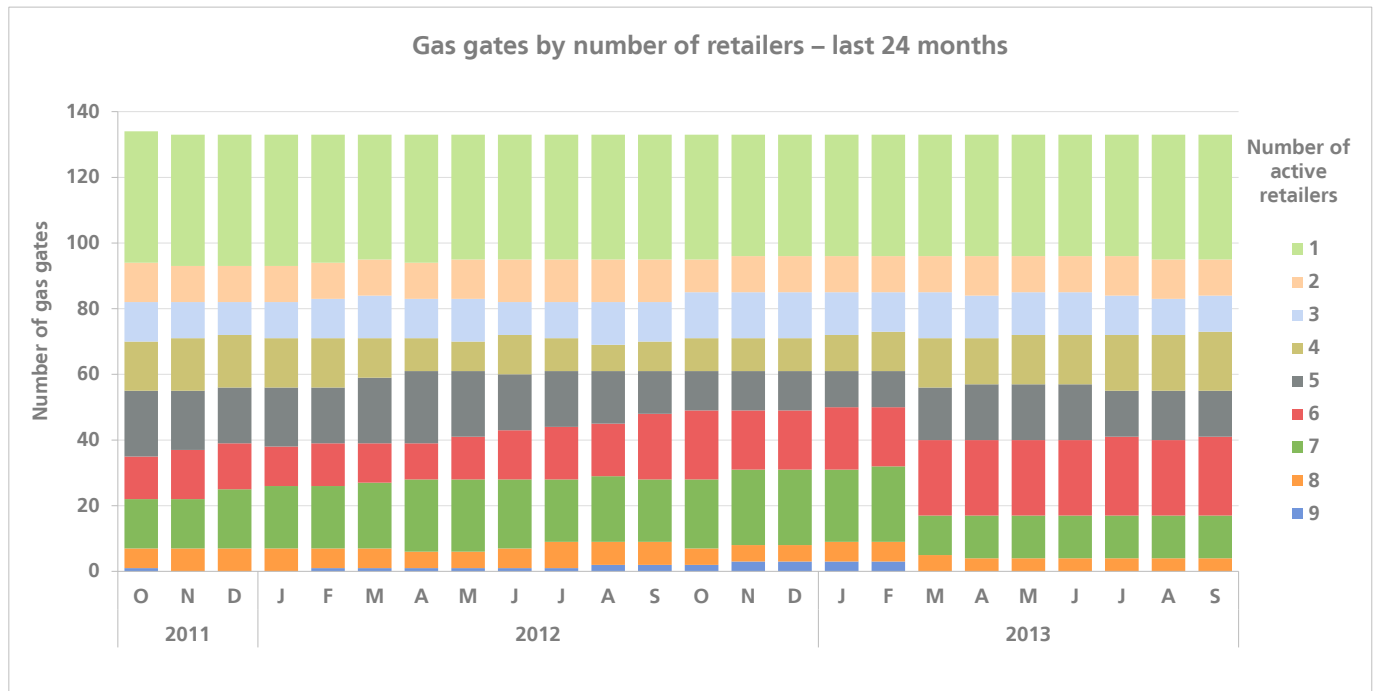


The data are from a mix of allocation stages: Final through September 2012; Interim for October 2012 through June 2013; and Initial for July 2013 through September 2013.

## Gas gates by number of retailers

This chart shows, by month, numbers of gas gates by the number of active retailers. The greater the number of retailers that trade at a gas gate, the greater is the potential competition for customers.

The largest number of retailers operating at a gas gate is now eight, following the amalgamation of Bay of Plenty Energy into the Nova Energy brand.

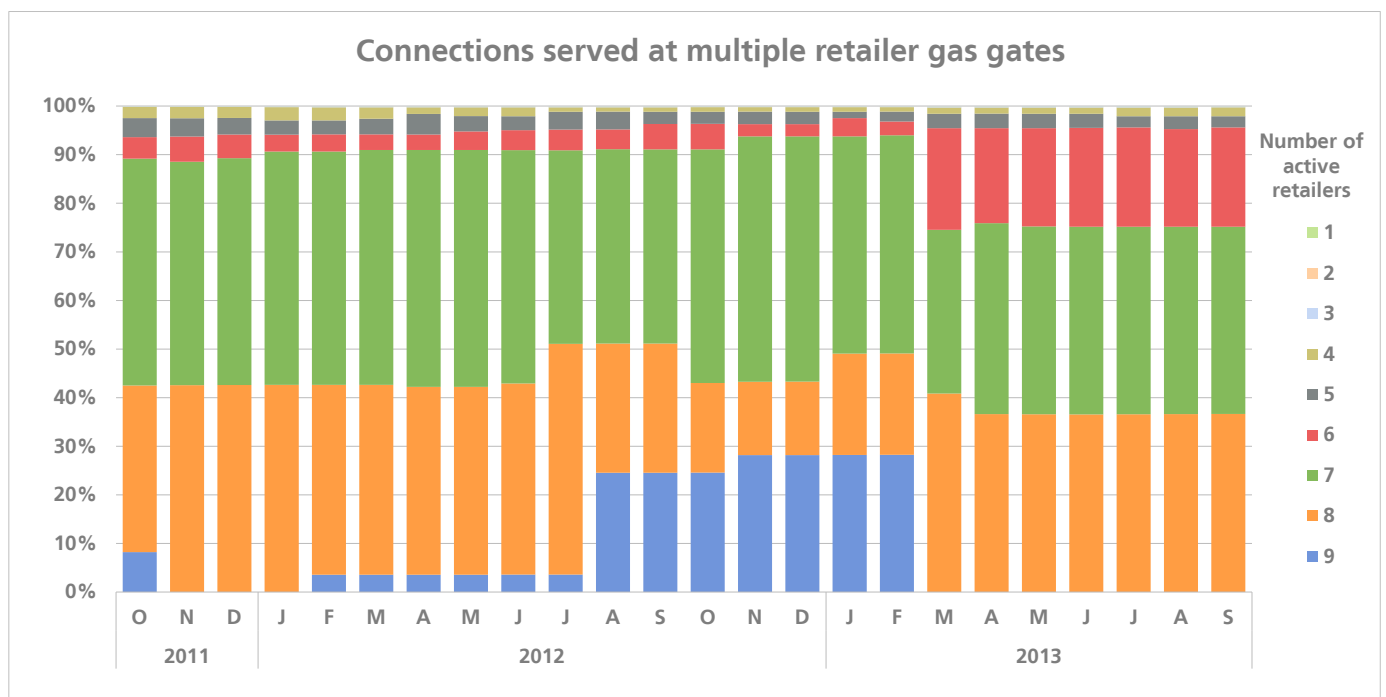


## Connections served by multiple retailers

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 also shows the March 2013 step change caused by the amalgamation of Bay of Plenty Energy into Nova.

Over 95% of gas customers are connected to a gate where least six retailers trade.



Note that the above chart includes data from ICPs on open-access distribution networks only; information about ICPs on bypass networks is not included as those networks are not open access, i.e. they are used by a single retailer.

## 6 Critical Contingency Management performance measures

There were no critical contingencies in the previous quarter.