

# Performance Measures Quarterly Report for the period ending 31 December 2012

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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:

- Secondary balancing gas volumes continue to decline and are a fraction of what they were prior to 2009. Balancing gas volumes were 264,400 GJ in calendar 2012, about 5% of the volumes experienced in 2008.
- There were about 3,200 switches per month in the last quarter, and the annual rate of switching remains about 15%. Regional switching rates are a new measure in this report; in the past two years, switching has been higher than average in Taranaki and Manawatu, and lower than average in Waikato and Bay of Plenty.
- The time required to process switches is about 5.5 days on average, a fraction of the weeks that switching used to take before the inception of the switching rules. The distribution of switching times shows that most move switches are completed within one day, while standard switches generally go through in seven days.
- Unaccounted for gas (UFG) volumes have been negative at the initial allocation in the past three months, consistent with trends in previous years. On a rolling annual basis, UFG accounts for less than 1% of allocated gas volumes.
- There have been no major movements in customer market shares over the past quarter. Genesis Energy continues to hold the largest customer market share: about 42% of customer ICPs. Contact is next, with 24%; followed by Mercury, with 16%.
- The Herfindahl–Hirschman Index (HHI) is a new measure to this report. HHI is a way of measuring market concentration by using size and number of competing firms. In all regions

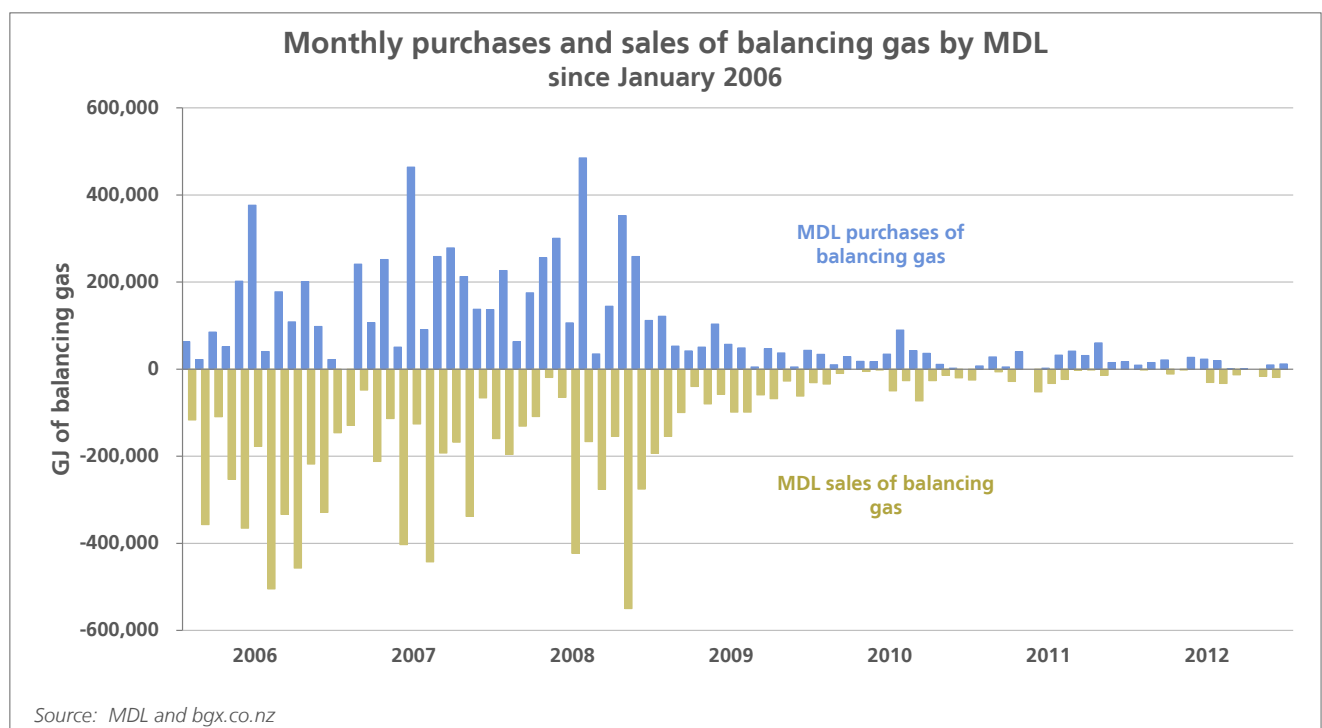
of the North Island, HHI has decreased in the past four years, reflecting the activities of new retailers entering the market and smaller retailers increasing their market share.

- In terms of market share by gas volumes, Nova and OnGas are the largest retailers, with 28% and 26%, respectively, of allocated gas volumes over the previous 12 months. This reflects their focus on the industrial and commercial sectors of the gas market (although Nova also has a presence in the mass market segment).
- Consistent with the trend over the past 18 months, the majority of gas customers are connected to a gate where least six retailers trade: over 96%, as of December 2012.

## 2 Balancing gas volumes

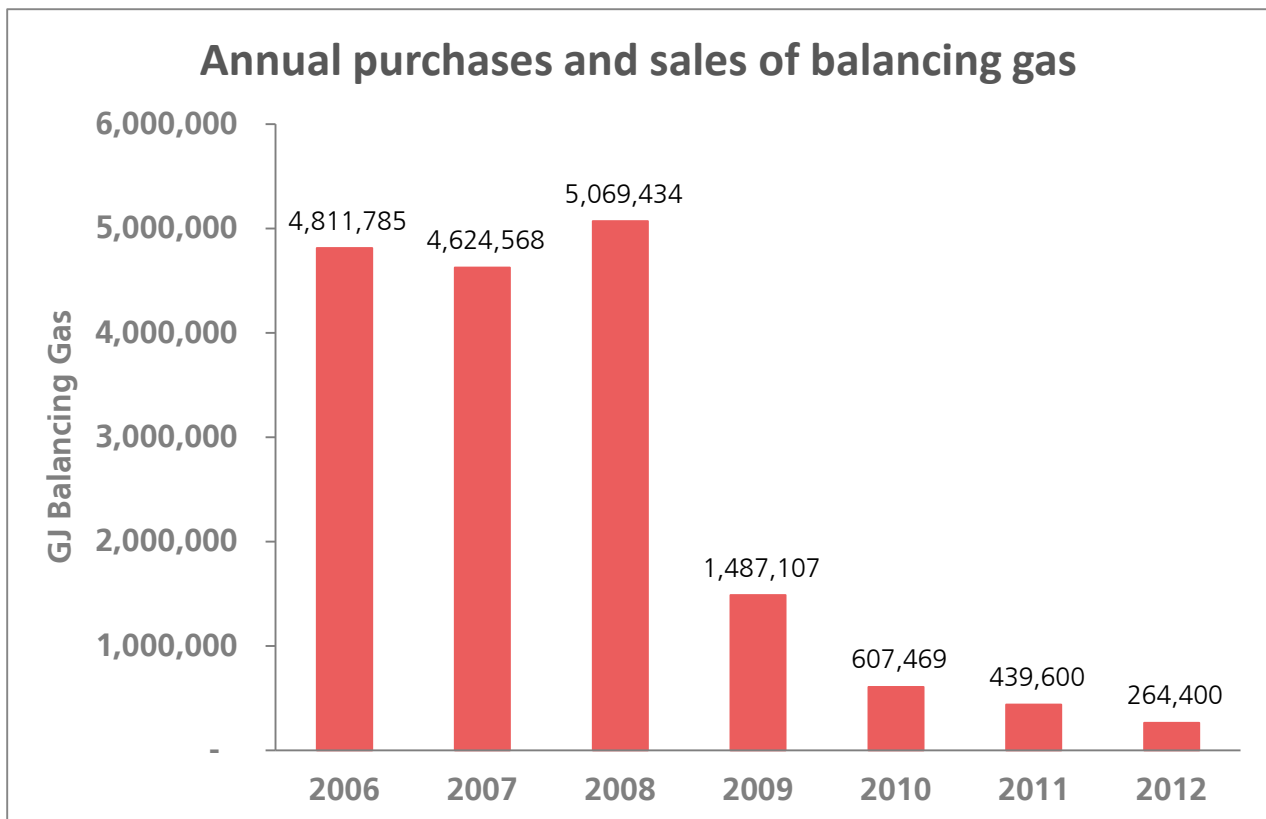
The volume of gas in a pipeline relates to the gas pressure in the pipeline and needs to be maintained below the safe operating pressure limit for the pipeline and above the minimum required to maintain the supply of gas to consumers. On the Maui pipeline, pressures will rise or fall as parties who inject 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 pipeline users are now responsible for imbalances that they create. 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.



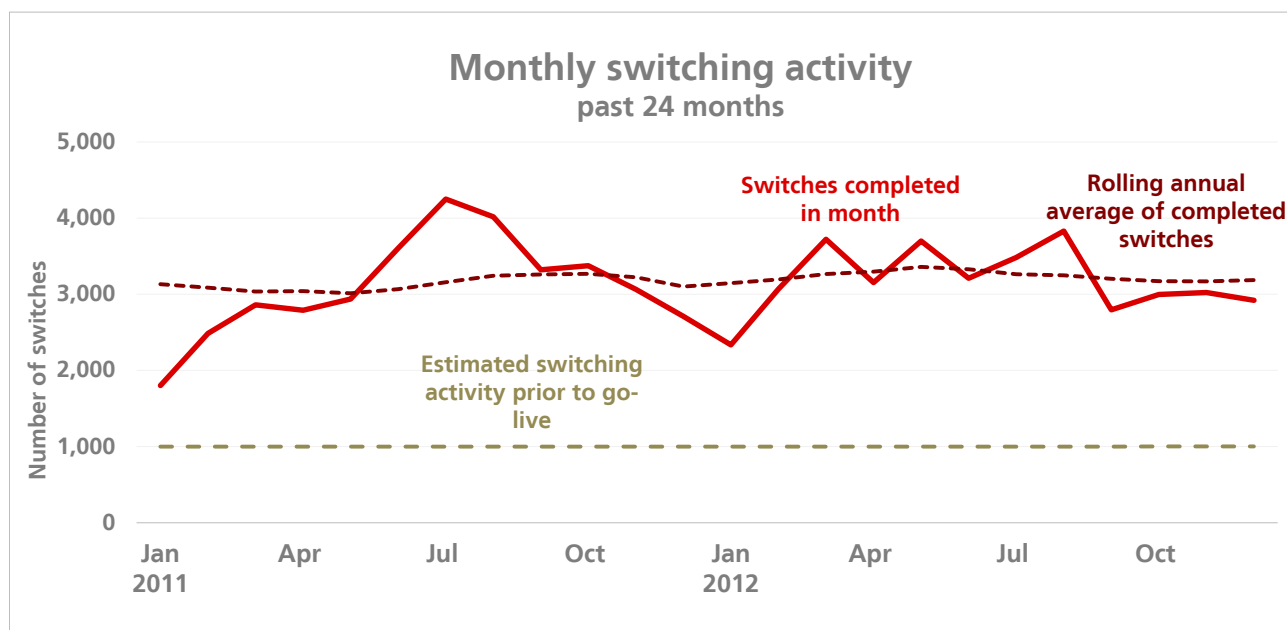
In each of the calendar years 2006, 2007, and 2008, over 4,600,000 GJ of balancing gas were bought and sold by MDL. Since then, balancing gas volumes have decreased each year. In 2012, the balancing gas purchased represents just 5% of the 2008 volumes.

### 3 Switching performance measures

#### Monthly switching activity

Consistent with recent trends, there were about 3,200 switches per month in the last quarter, and the annual rate of switching remains about 15%. As a comparison, as of the end of November, the annual electricity switching rate was about 19.2%.

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%.

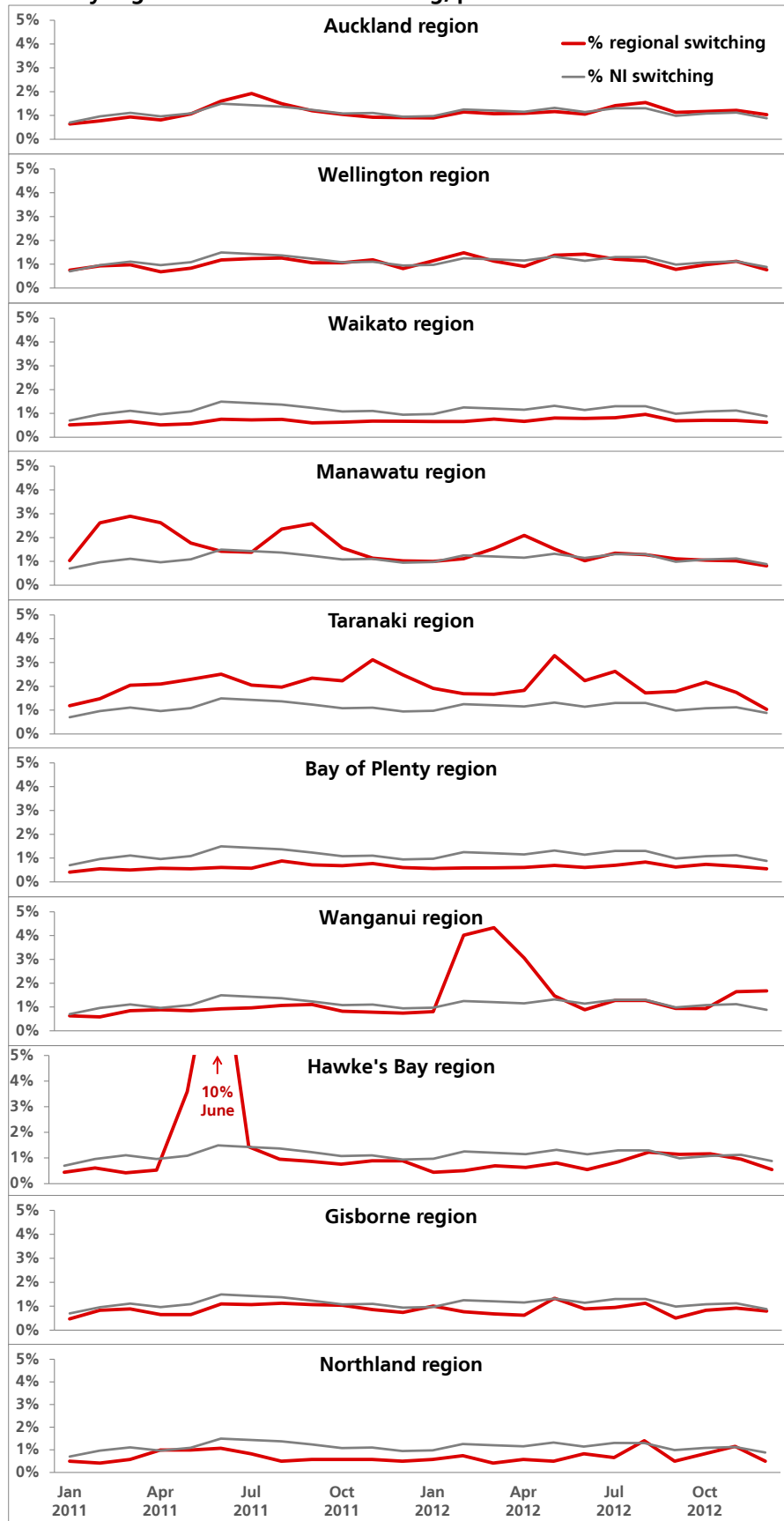


## Regional switching activity

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 1.5% per month.

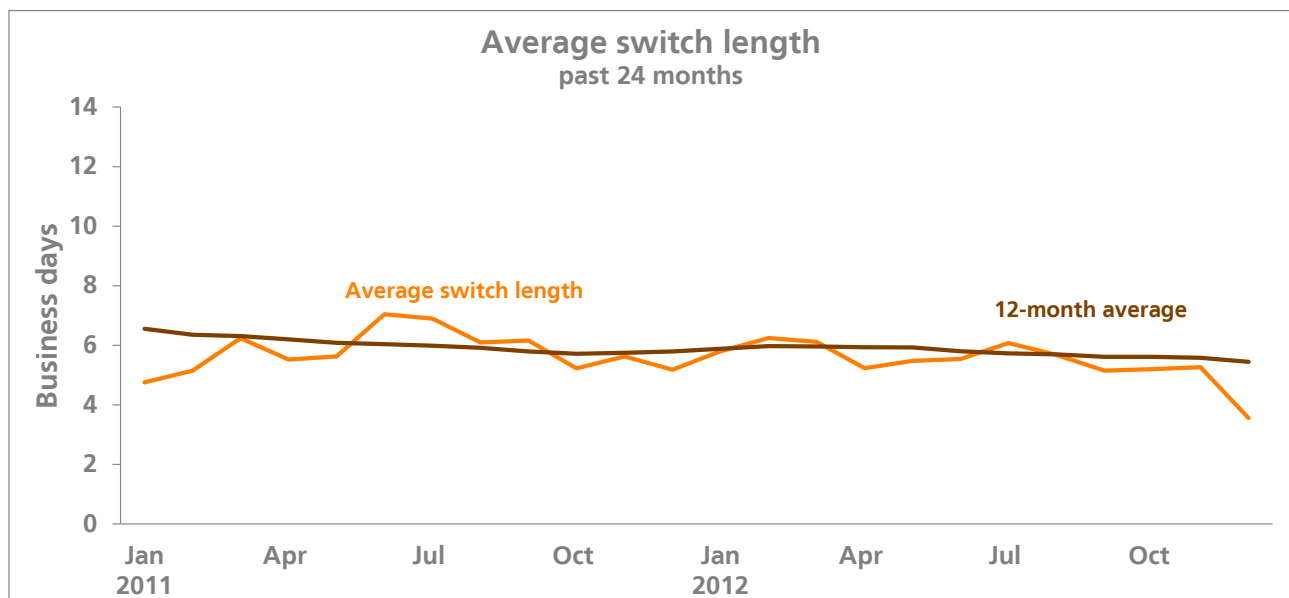
The red line in each chart shows the number of switches in that region as a percentage of ICPS in that region. As might be expected, Auckland and Wellington switching rates tend to be similar to the North Island rates. Differences emerge in the smaller regions, though: in the past 24 months, for example, switching in Taranaki has consistently been higher than the average across all consumers, while switching in Bay of Plenty is lower. There can be short-term fluctuations in switching as well, as evidenced by the spikes in switching rates seen in the Manawatu, Wanganui, and Hawke's Bay regions.

## Monthly regional and overall switching, past 24 months



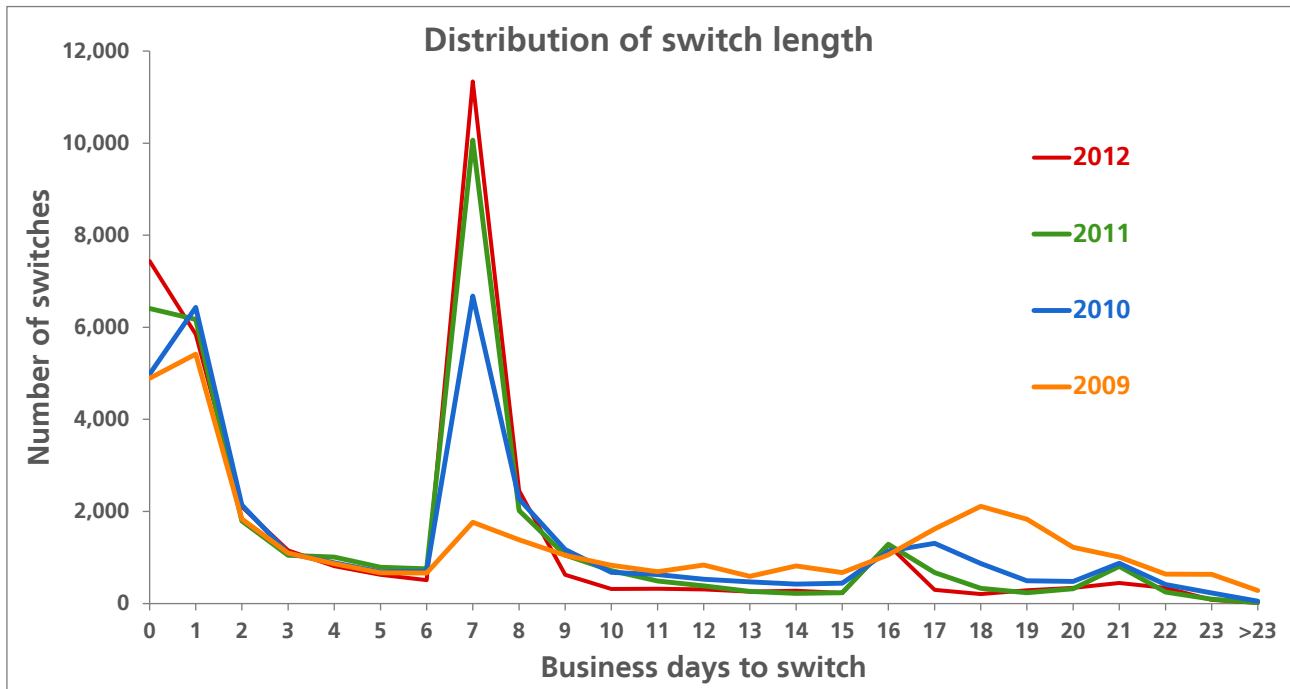
## Time to process switches

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 average time to process a switch has consistently fallen in the past two years. The twelve-month rolling average switching time now stands at about 5.5 business days. In comparison, switches could take weeks or even months to process prior to the inception of the switching registry.



## Distribution of switching length

The chart below shows the distribution of switching length since the start of the gas registry by calendar year. 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. These provisions seem to be the cause of the large proportion of switches being completed in seven business days.



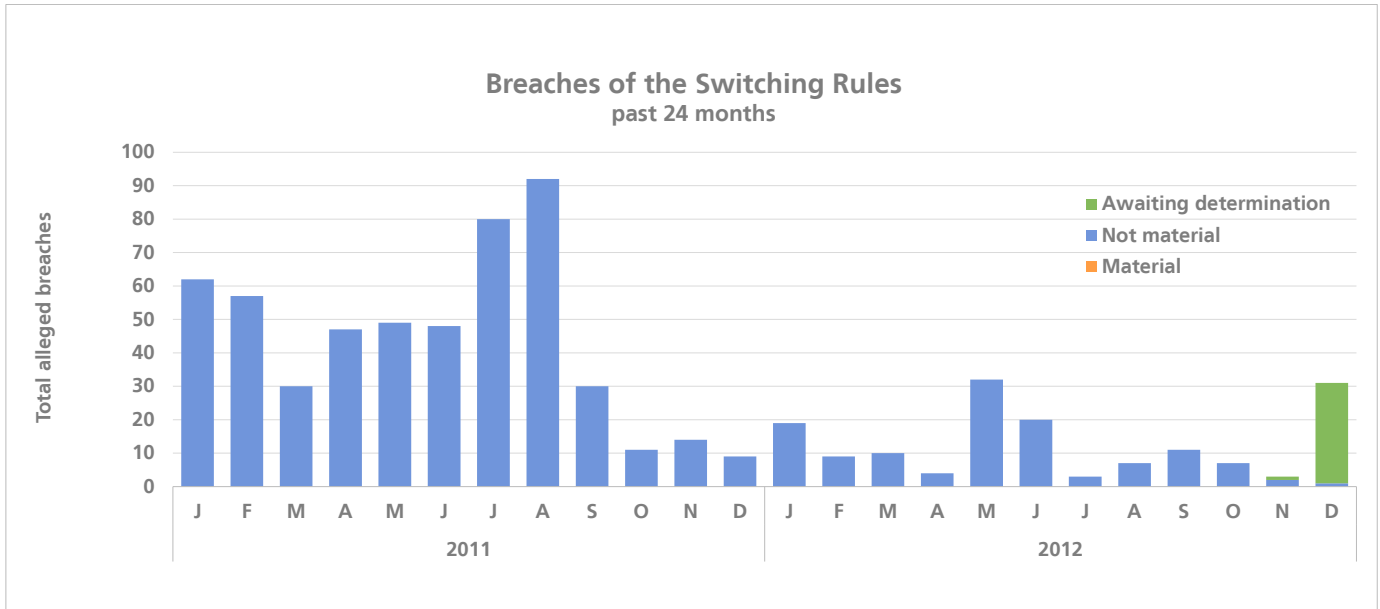
Note that the chart above excludes the transfers from E-Gas to Nova and from Auckland Gas to Nova, all of which went through in less than a day.

Further, note that all of the switching charts in this section 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.



## Number and severity of breaches of the Switching Rules

In the first year after the inception of the Switching Rules, nearly 5,500 switching breaches were alleged. Many of these breaches can be attributed to unfamiliarity with the Rules. Since that first year, the numbers of switching breaches have fallen significantly. The average number of alleged breaches per month has fallen from 450 in the first 12 months to less than 15 in the past 12 months.



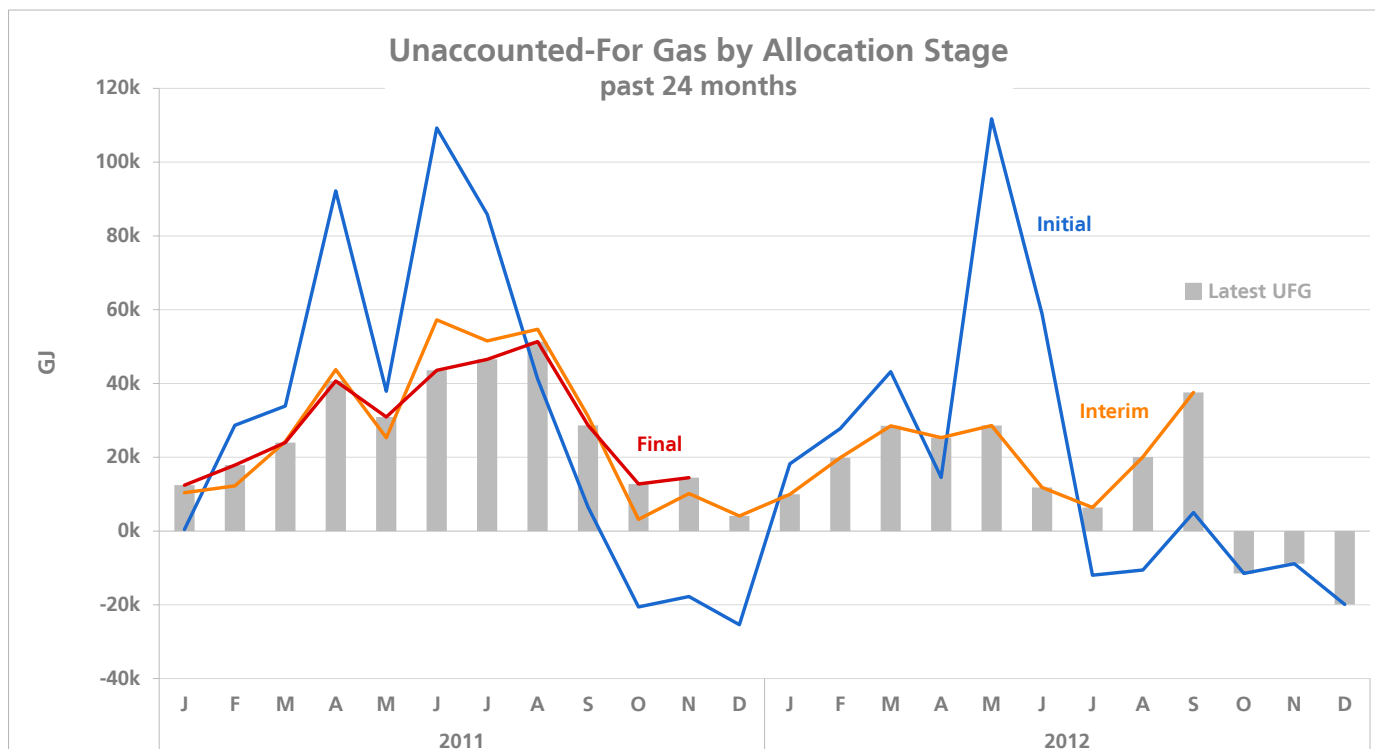
## 4 Allocation and reconciliation performance measures

### Volumes of Unaccounted-for Gas

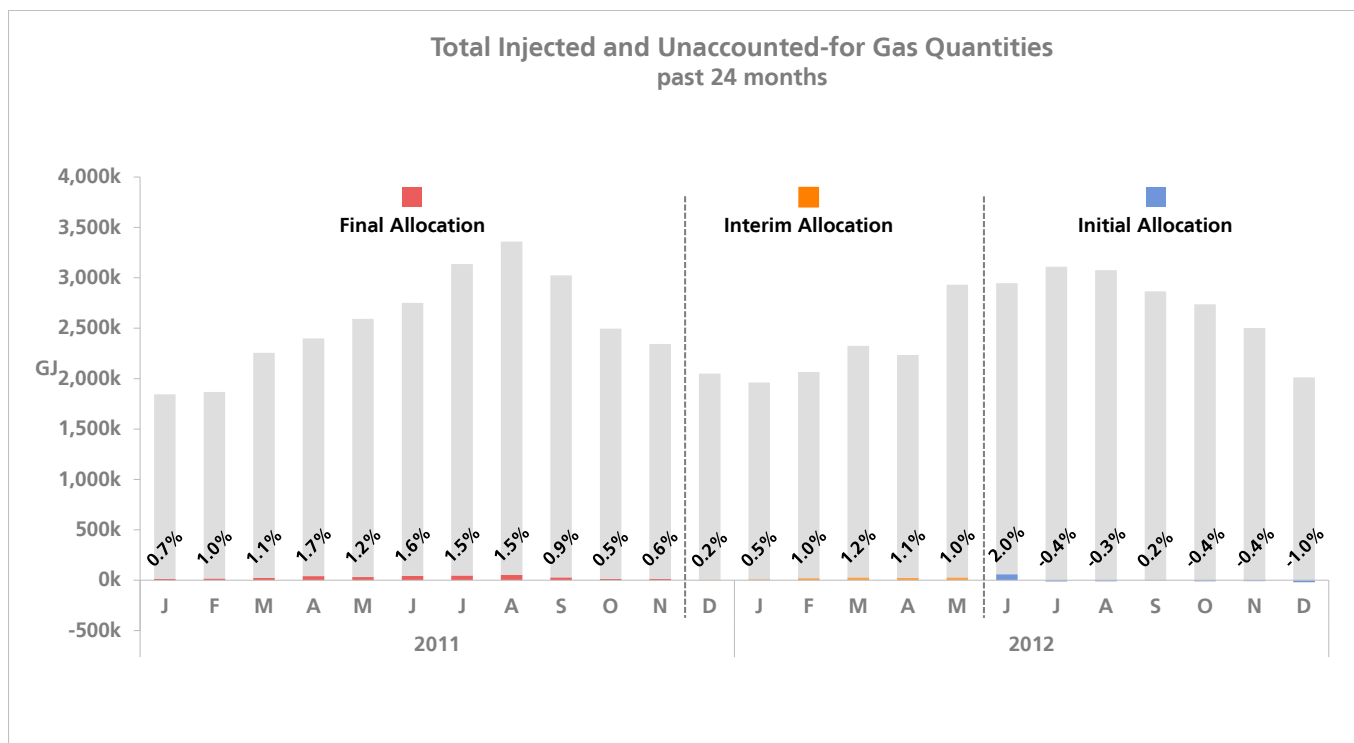
Under the Reconciliation Rules, the amounts of gas that retailers estimate their customers have used are subtracted from the amounts of gas leaving the transmission system. The difference is UFG, which arises from technical losses on the system, metering inaccuracies, and retailer estimation errors. 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. This effect can be seen in October and November 2011 in the chart below for negative UFG and April through July 2011 for positive UFG.

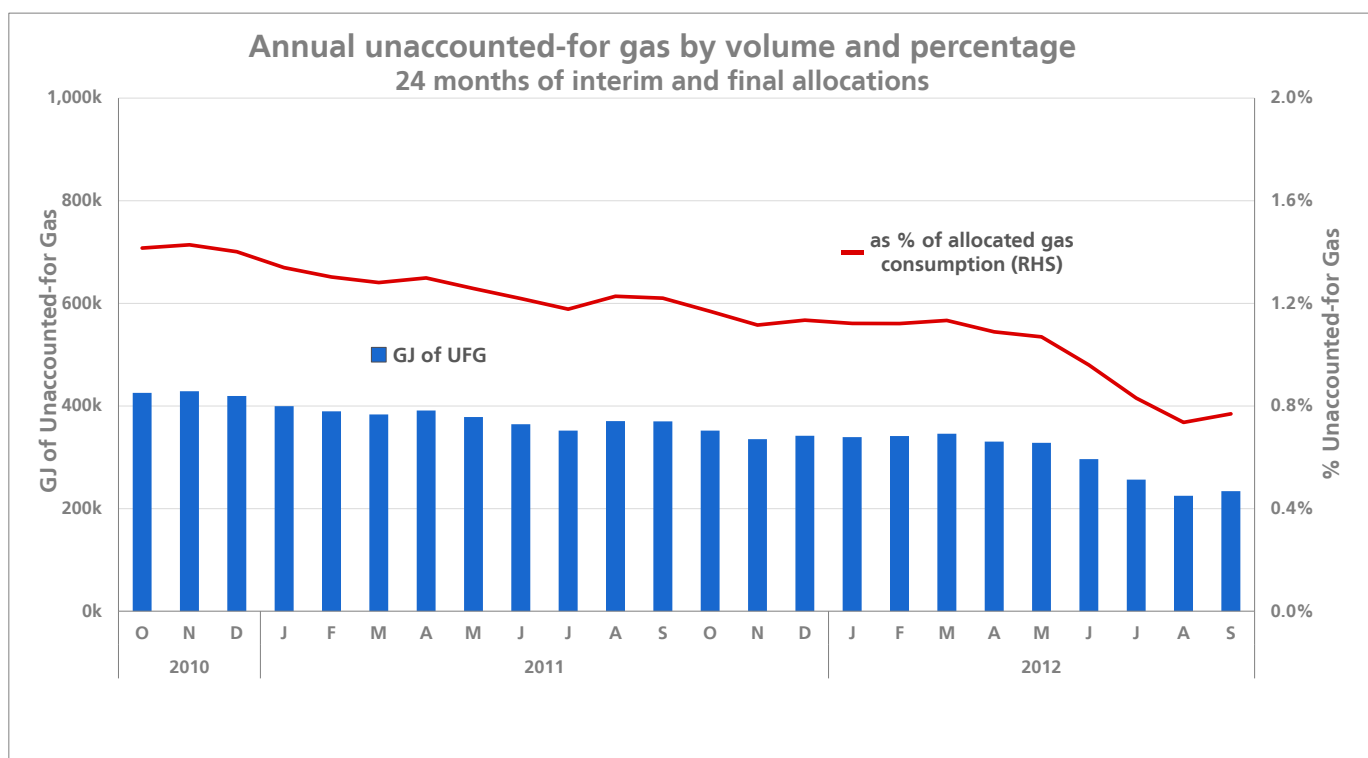


The chart below shows the amount of unaccounted-for gas in comparison to the total amount of allocated gas consumed each month. The grey bars show gas consumption at allocated gas gates, which follows a seasonal pattern: higher in winter and lower in summer. UFG as a percentage of volume follows a similar seasonal pattern.



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 September 2012 total is based on nine interim results and three final results, while the December 2011 total is based on twelve final allocation runs.

For the first year after the Reconciliation Rules came into effect, annual UFG was about 2%. The proportion of UFG has been falling steadily over the past two years, and now stands at less than 1%.



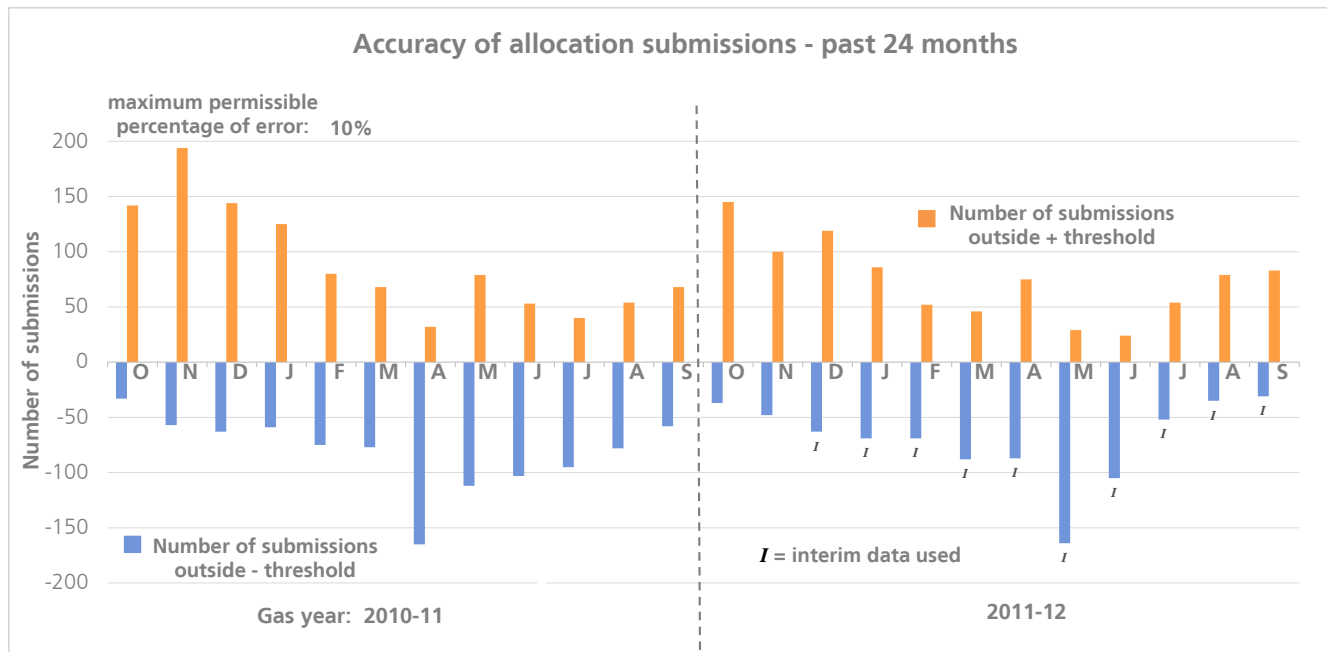
### Accuracy of submission data

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 all retailers at the affected gate and affects 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.

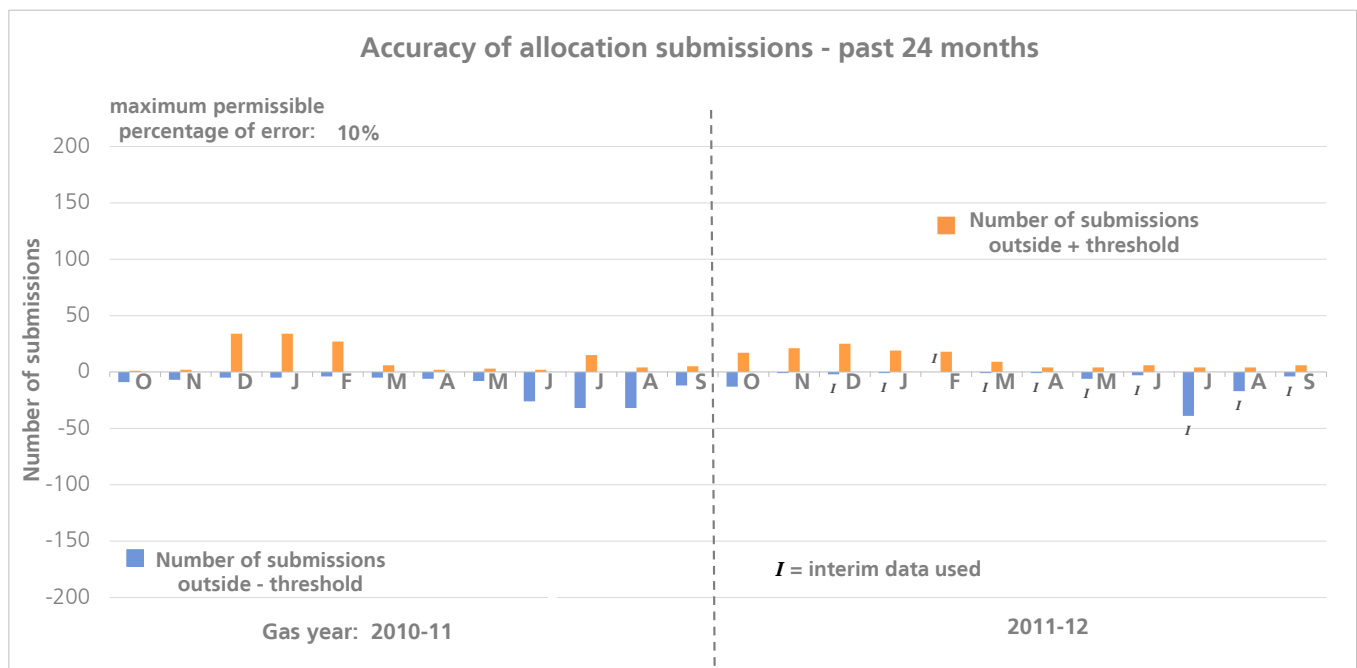
The chart below shows the number of retailer submissions that were outside the maximum permissible error threshold in the last 24 months for which data are available. For this analysis, final submissions were compared to initial allocation submissions for the months they were available (October 2010 – November 2011). 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 for both gas years 2010-11 and 2011-12 is 10%.

There is a pattern of retailers oversubmitting 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 also tend to undersubmit 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.

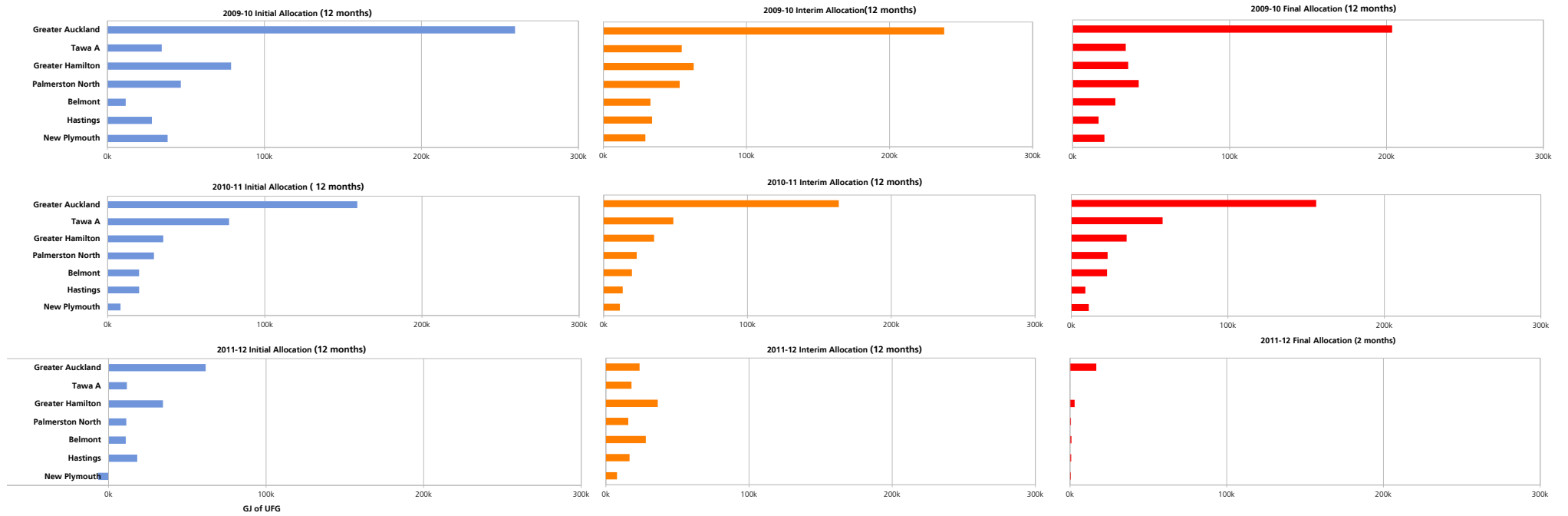


### Gas gates where UFG is the highest

Greater Auckland gas gate is consistently the largest contributor of all the gas gates to UFG volumes, followed by Tawa A, Greater Hamilton, Palmerston North, Belmont, and Hastings. These gates are also the largest gates in terms of consumption volumes, so it is not surprising that they are relatively large contributors to UFG. The pattern is roughly consistent over all three allocation cycles and across gas years.

The charts below compare UFG across time and across allocation stages. All allocations have now been performed for the 2009-10 and 2010-11 gas years and are shown in the top two rows. For the 2011-12 gas year, shown in the third row, all twelve initial and interim allocations have been performed. As can be seen from the charts, there is a general trend of decreasing UFG both from year to year and across allocation stages. An exception to the trend can be seen with the final allocations for 2010-2011: as shown in the Unaccounted-for Gas by Allocation Stage chart above, in a number of months during the year, the final allocation resulted in slightly greater volumes of UFG.

Gas year 2012-13 has not been included in the charts below, as only three initial allocations have been performed for that year.





## **Audits commissioned**

### **Event audits**

There have been no event audits commissioned in the past quarter.

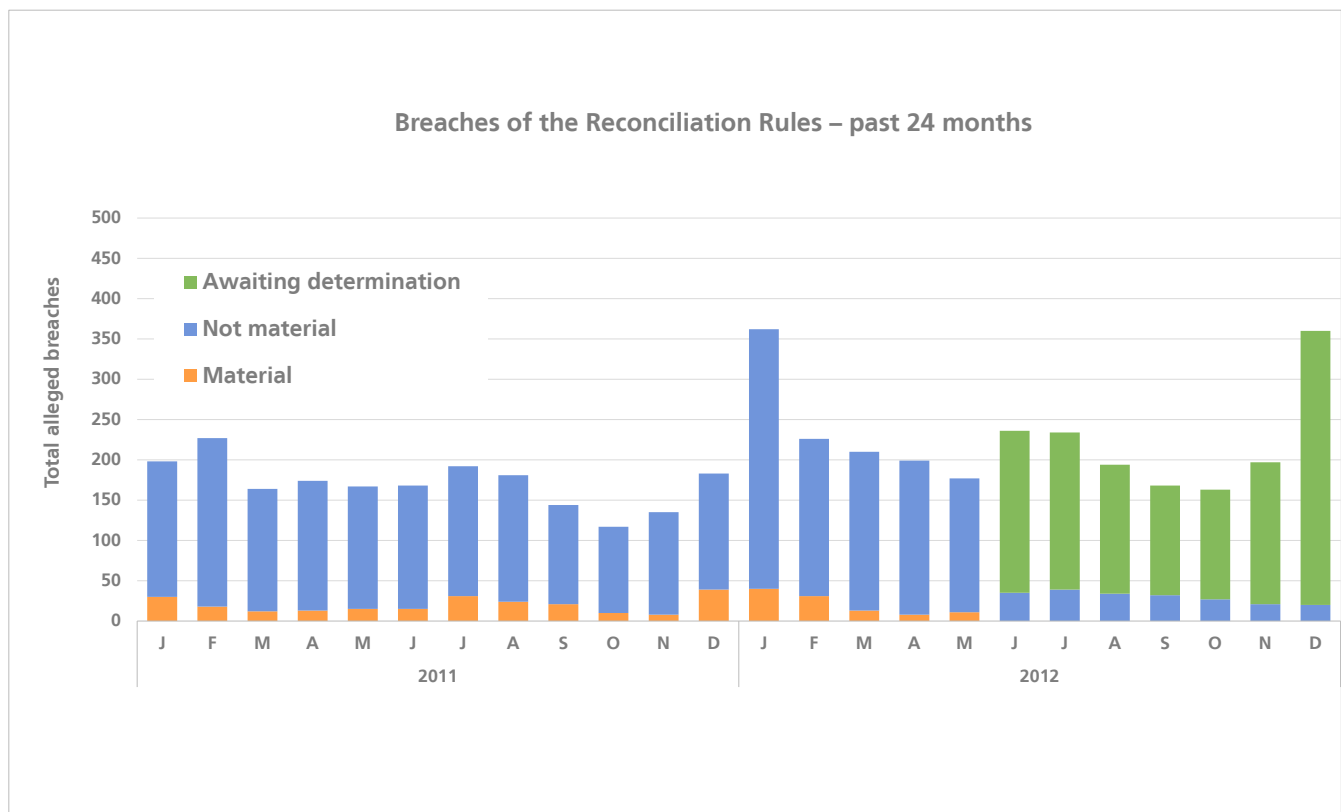
### **Performance audits**

There have been no performance audits commissioned this quarter.

## Number and severity of breaches of the Reconciliation Rules

On average, about 85% of breaches alleged under the Reconciliation Rules relate to rule 37, the rule that requires the accuracy of consumption information provided at the initial allocation stage to be within a specified tolerance level of the information provided at the final allocation stage.

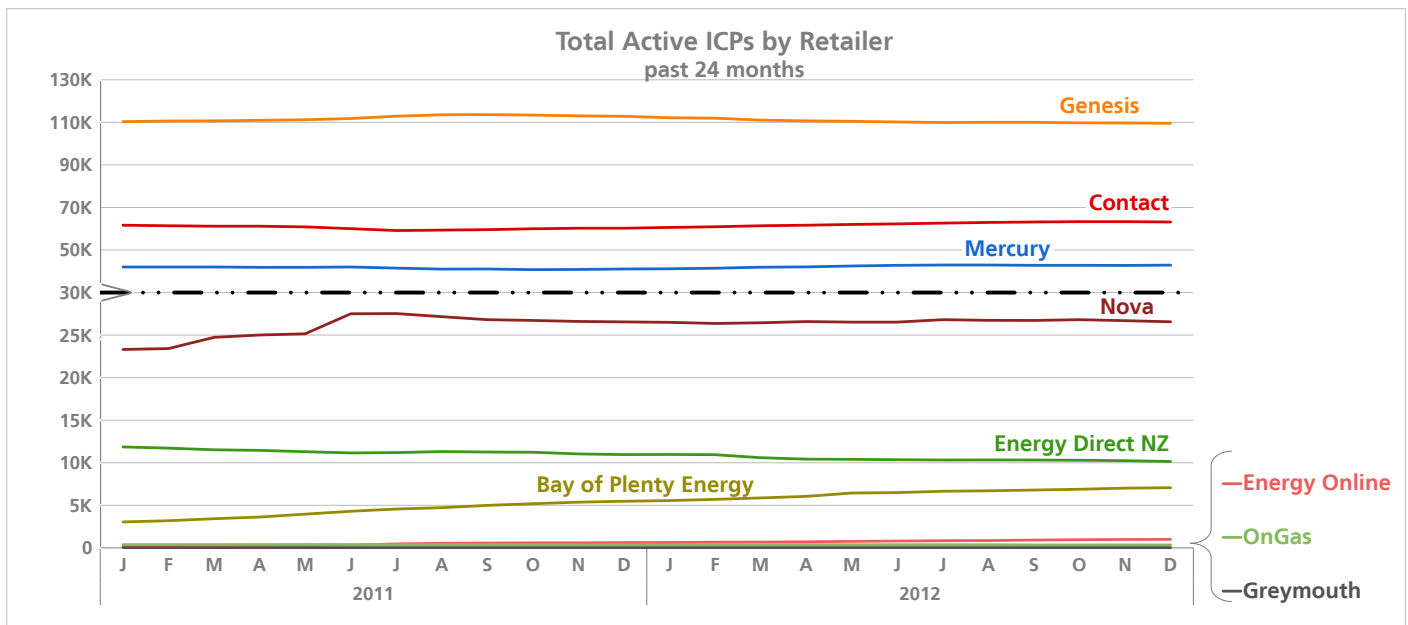
It has proven efficient for the Market Investigator to attempt to reach a settlement on batches of rule 37 breaches. In September, the Rulings Panel approved a settlement of a batch of rule 37 breaches relating to consumption months December 2009 to March 2011 (and alleged February 2011 to May 2012).



## 5 Market competition performance measures

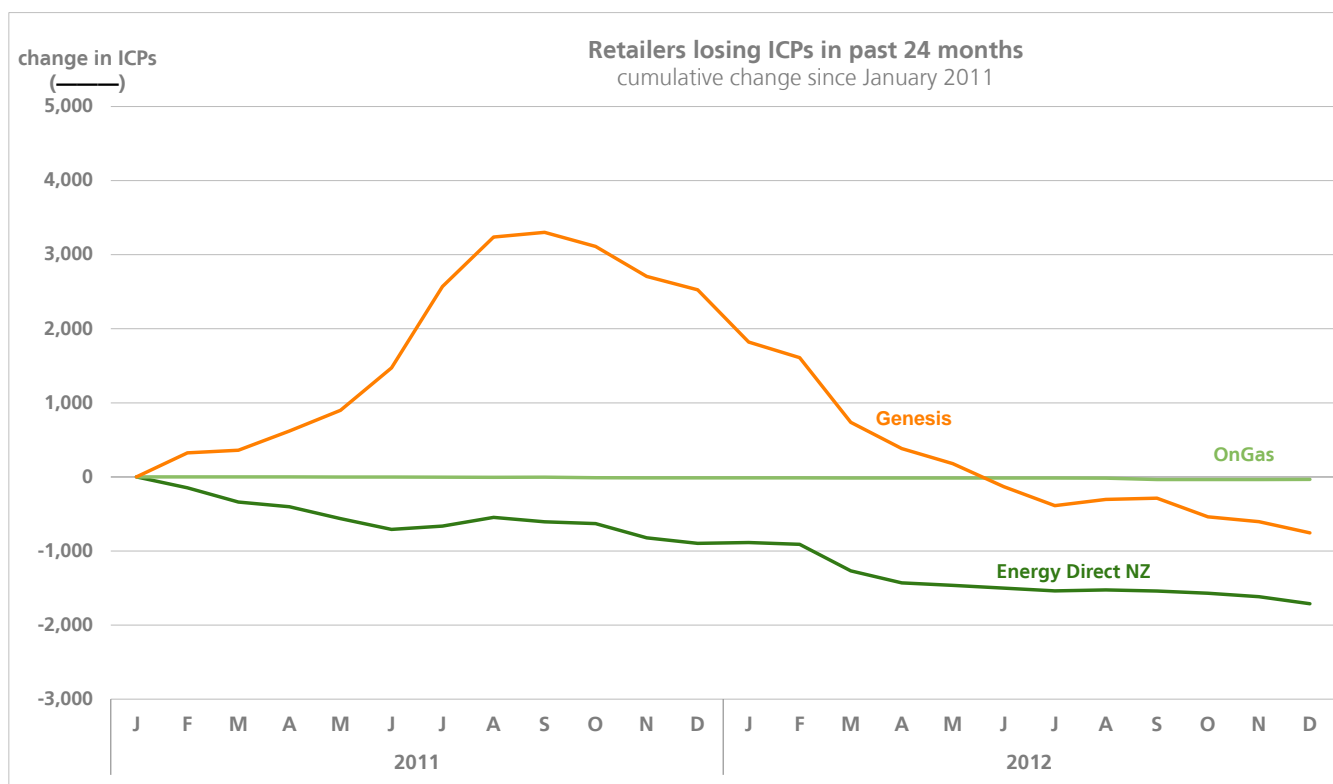
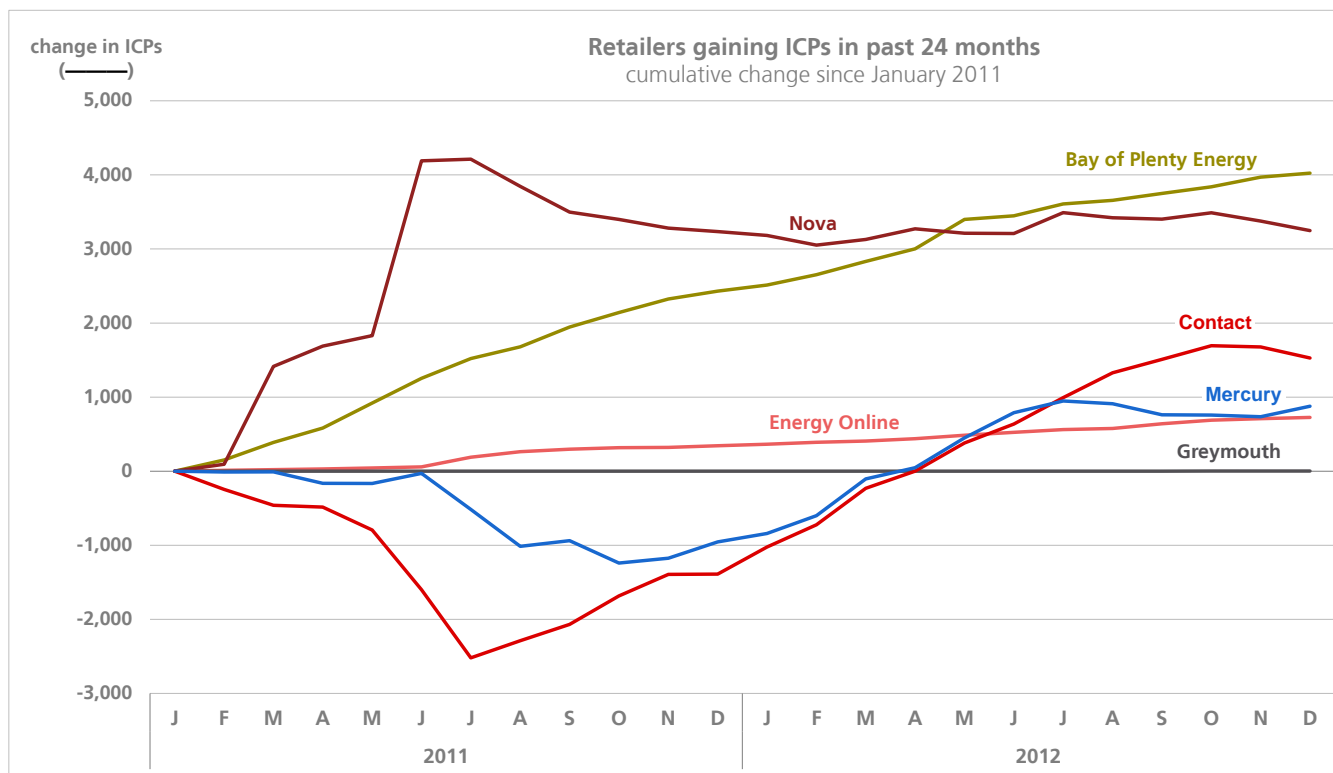
### Market share of ICPs by retailer

Market share of ICPs has been relatively constant over the past year, as illustrated by the chart below. The increase in Nova customers reflects the acquisition of E-Gas customers in October 2010 and the amalgamation of the Nova and Auckland Gas brands in November 2010 and June 2011.



The two charts below are drawn from the same data set. The first chart shows the change in numbers of ICPs, and the second chart shows the percentage change in ICPs, relative to October 2010.

Six retailers have experienced a net gain of customers over the past two years, as shown in the first chart below. The three retailers who have a net loss of customers over the past two years are shown in the second chart.



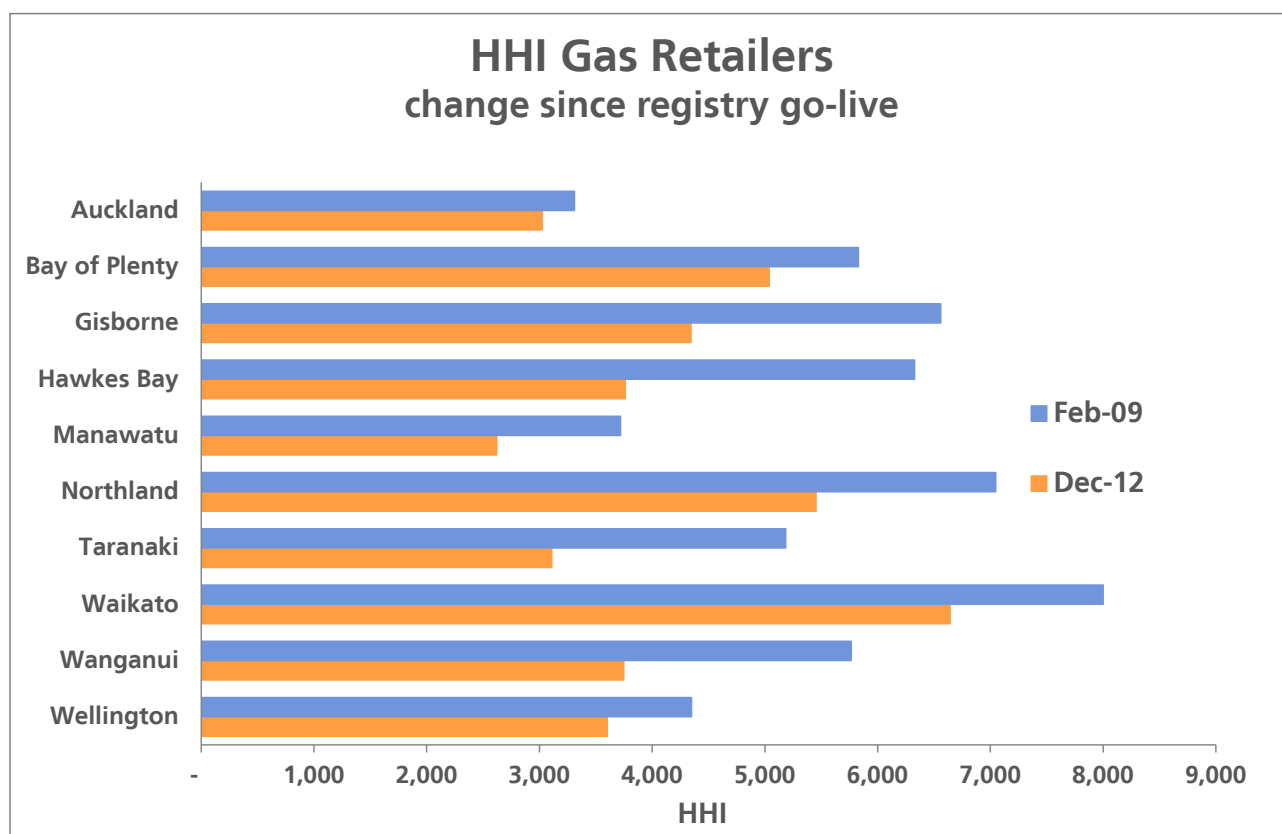
Note that all three of the ICP share charts above include data from ICPs on open-access distribution networks only; information about ICPs on bypass networks is not available in the Gas Registry.

## Herfindahl–Hirschman Index

The Herfindahl–Hirschman Index (HHI) is one way of measuring market concentration by using size and number of competing firms. Generally, the lower the level of market concentration, the more competitive the market is thought to be. The index ranges from 0 to 10,000; a low score indicates a low level of market concentration and large number of small firms in the market, each with a small proportion of market share, while an HHI score of 10,000 would represent a market with one single firm (with 100% market share).

The chart below shows the HHI of the retail gas market as at the time the registry went live, in February 2009, and as at the end of December 2012. In all regions, the HHI has decreased from 2009 to 2012, 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, as new retailers have entered the market and smaller retailers have increased their market share.

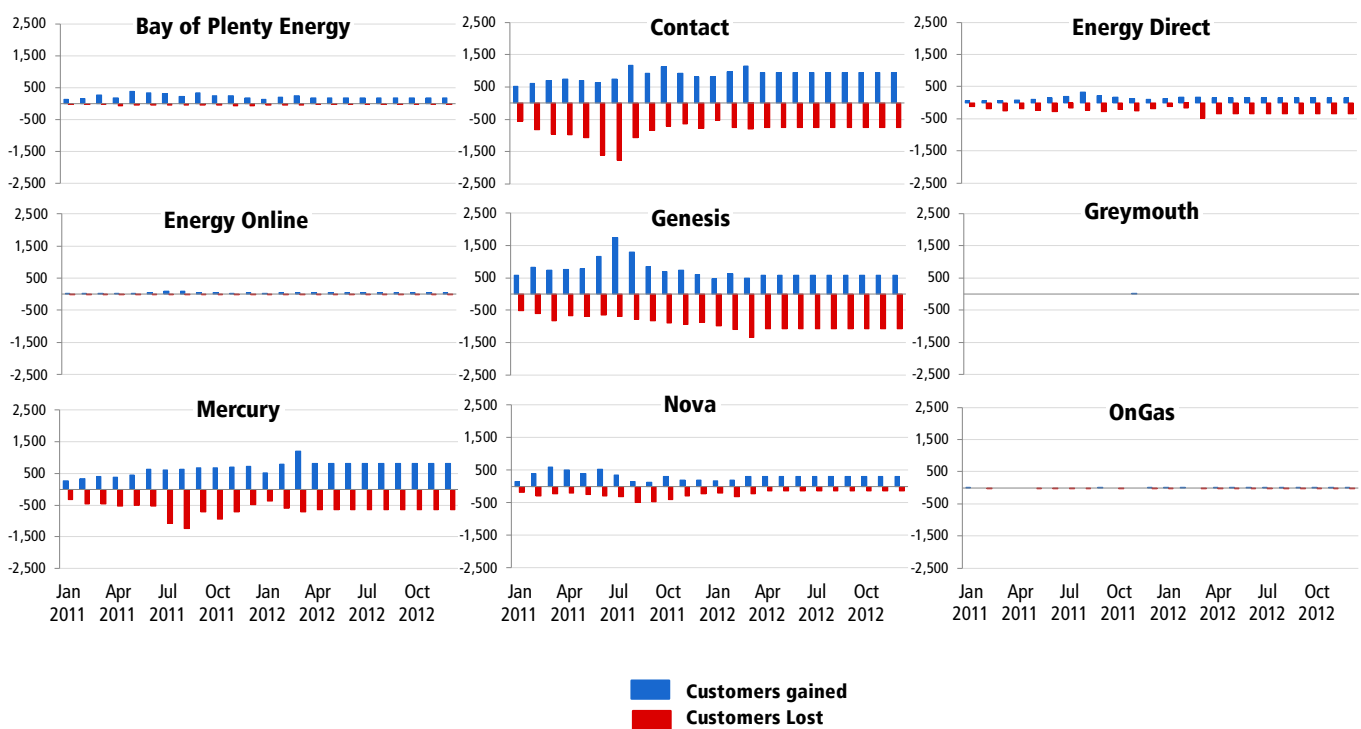


## Switching activity by retailer

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.

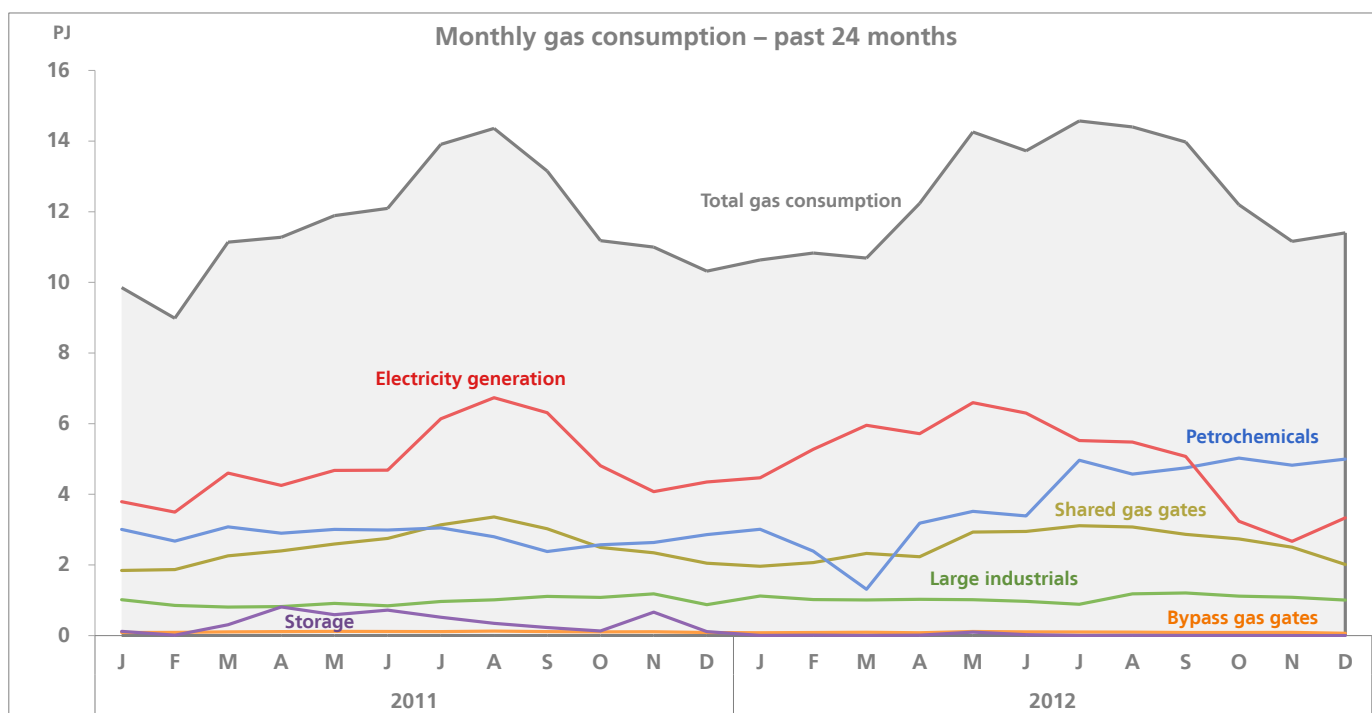
## Switching activity by retailer



## 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.

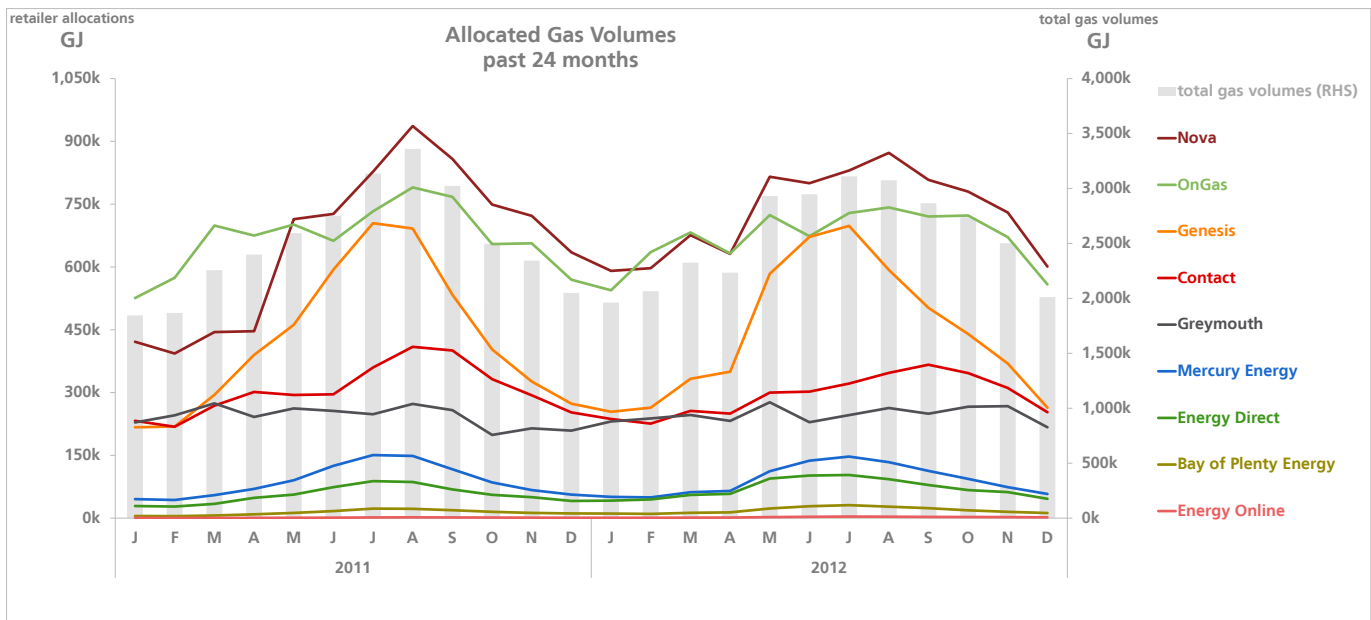
- The red line shows the seasonal peaks and troughs in gas used for thermal electricity generation.
- Consumption for petrochemicals, in blue, was relatively flat until March 2011. The dip in petrochemical gas consumption in March was caused by scheduled and unscheduled outages of the Pohokura production station during the month. Since July, consumption has increased under the widely reported gas sale agreement between Methanex and Todd Energy.
- 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.
- 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.



## Allocated gas volumes

This chart shows the gas volumes allocated to retailers at shared gas gates over the past two years. This is 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.

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.



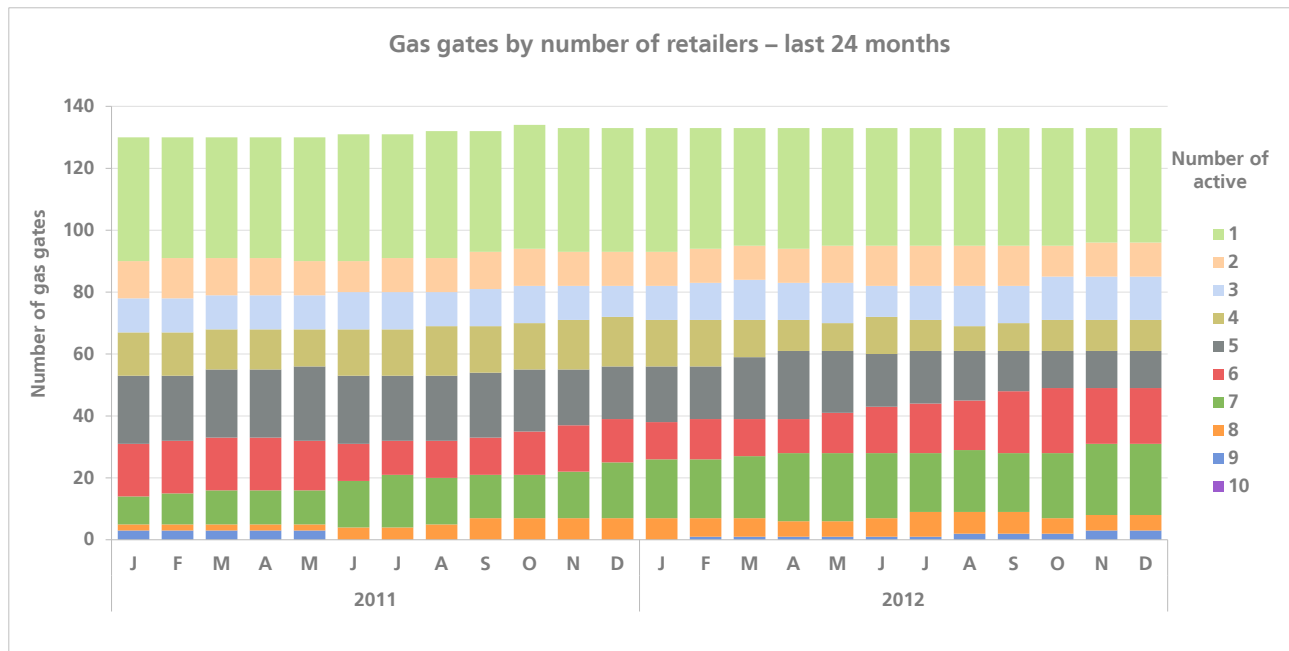
The data are from a mix of allocation stages: Final through November 2011; Interim for December 2011 through September 2012; and Initial for October through December 2012.



## 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 chart shows that there has been a slight increase in retailers' activity at gas gates in the past year and a half. The number of gas gates with six or more retailers (the red band and below in the chart) has increased from 31 in June 2011 to 49 in December 2012.

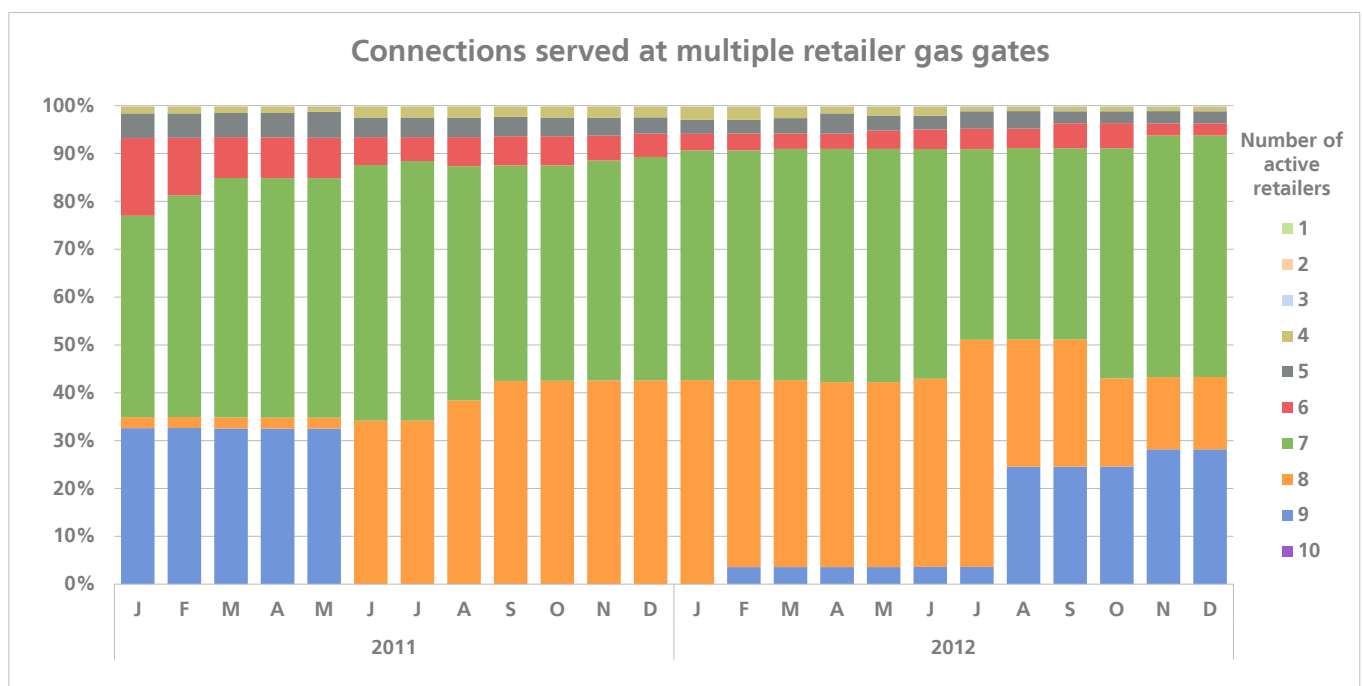


## Connections served by multiple retailers

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.

In June 2011, Nova Energy amalgamated with its Auckland Energy subsidiary, producing the step change shown in the chart below. Since then, existing retailers have slowly started moving into gas gates where they did not previously trade. There are now three gas gates at which nine retailers trade, two in the Auckland region and one in Wanganui.

Most gas customers are connected to a gate where least six retailers trade: over 96%, as of December 2012.



Note that the above chart includes data from ICPs on open-access distribution networks only; information about ICPs on bypass networks is not available in the Gas Registry.

## 6 Critical Contingency Management performance measures

There were no critical contingencies in the previous quarter. The Critical Contingency Operator is planning a test exercise of the critical contingency management arrangements in March, consistent with the requirements of the CCM Regulations.