

PUBLIC PERCEPTION OF SHALE GAS EXTRACTION IN THE UK: TWO YEARS ON FROM THE BALCOMBE PROTESTS.

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Introduction

The University of Nottingham survey of public attitudes to shale gas extraction in the UK has been running since March 2012. The survey has tracked changes in awareness of shale gas, and what the public believe to be the environmental impacts of its extraction and use, as well as its acceptability as an energy source. The 10th University of Nottingham Survey was conducted between September 9th and 11th 2014 just over a year ago. Here we present the results from the 11th University of Nottingham Survey which was conducted between September 23rd and 28th 2015.

Since the 10th University of Nottingham survey (September 2014) there have been a number of notable events relating to potential UK shale gas development. The election of a majority Conservative government in May 2015 has meant a firming up in government support for shale gas development in the UK. In June 2015, however, the Development Control Committee of Lancashire County Council held a much-delayed public hearing to consider the submitted planning proposals by energy company Cuadrilla Resources to conduct hydraulic fracturing near Blackpool, Lancashire. After much deliberation and deferrals, the committee ultimately refused planning permission. **In September 2015 Cuadrilla submitted an appeal against the planning permission refusal, which at the time of writing is still pending.** At the same time the significant drop in global oil and gas prices over the last 12 months, which has brought benefits for consumers in terms of lower utility prices, will also have been challenging for the UK's nascent shale gas industry. The varied and complex debates presented by a range of stakeholders in support and opposition of the planning proposal highlighted the contested nature shale gas development in the UK. It is against such a divisive background that the 11th University of Nottingham survey is placed.

September 2015 Summary

The September 2015 survey found that there has been a significant drop in the level of support for shale gas extraction in the UK over the last year, with overall approval now standing at +10.4% compared with +21% in September 2014 and +39.5% in July 2013 - immediately before the Balcombe protests. Moreover, some of the key concerns highlighted by the protestors at Balcombe, notably the risk of water contamination continues to be a major issue for the UK public and in September 2015 we saw the number of respondents associating shale gas with water contamination increase to 48% by far the highest level since the survey began. With respect to shale being a clean form of energy the negative score, which is currently -17.2% has remained virtually unchanged since May 2014 although is significantly higher than the -3% differential seen in July 2013.

The UK public firmly believes that shale gas will bring economic benefits to the country. Furthermore, respondents remain of the view that shale gas is a 'cheap' form of energy, although the trend has moved away from shale on this indicator since Balcombe and in September 2015 stands at +21.9% down from the +33.4% in July 2013.

Yet despite the fact that there remains support for shale gas extraction in the UK and that many respondents are of the view that it will have economic benefits, shale gas is viewed as being the least acceptable energy source in the country's 2025 energy mix from a range

of renewable, fossil and nuclear fuels. These trends suggest that the sense of unease with the environmental implications of fracking is a very **live** issue for the British public.

The Surveys

In September 2015, 6742 individuals responded to our survey, by far the largest survey we have undertaken. The surveys which are conducted via YouGov are nationally representative and are weighted. The total number of people that have responded to the surveys has ranged from between 2126 and 6742 (Table 1) with the total number of people surveyed over the duration of the study being nearly 40,000.

Date of survey	# of respondents
18 th	2784
26 th	2791
17 th	2687
13 th	3530
14 th	3697
30 th	2126
20 th	3688
22 nd	3751
11 th	3657
9 th -11	3822
23 rd	6742

Table 1. The dates and number of respondents to the 11 University of Nottingham shale gas surveys run via YouGov

The survey starts by asking respondents the following:

This is a fossil fuel, found in sedimentary rock normally more than 1000 metres below ground. It is extracted using a technique known as hydraulic fracturing, or 'fracking'. Is this fossil fuel:

- a) Boromic gas
- b) Coal
- c) Xenon gas
- d) Shale gas
- e) Tar-sand oil

f) Don't know.

The important word association in this question is the term 'fracking',¹ which is almost always referred to in reports and media articles about shale gas. In our March 2012 survey only 37.6 % of respondents correctly identified shale gas from the list of real and imaginary fossil fuels. Over the last two years the percentage of people able to identify shale gas has risen significantly reaching a high of 73.7% in May 2014 and in September 2015 stands at 74.9%. This level of recognition is extremely high. In common with all of our surveys men are much more likely to identify shale gas than women. A gap of approximately 20-25% in recognition has remained throughout the surveys and in September 2015 stood at 84.9% for men and 65.1% for women.

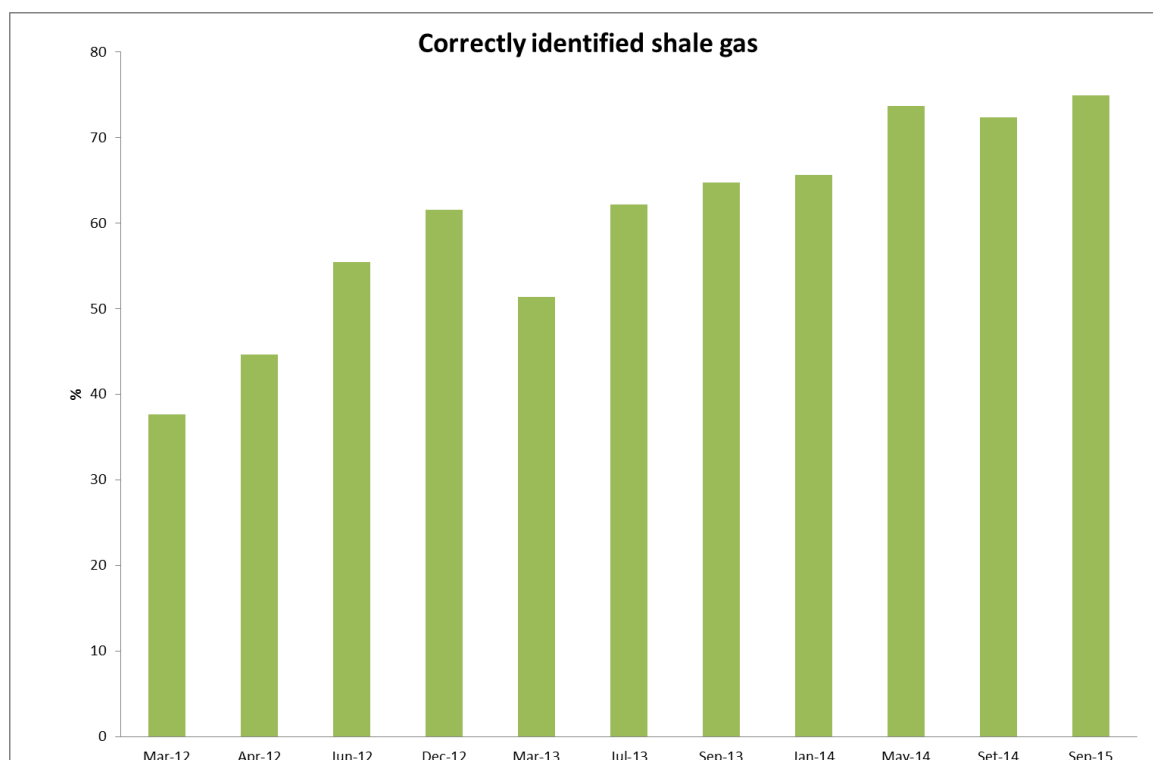


Figure 1. Shale gas recognition in the UK: March 2012 - September 2015.

Respondents who do not identify shale gas exited the survey,² while those who did were asked a series of questions about whether they associated shale gas with earthquakes, water contamination, being a clean fuel, being a cheap fuel. We also asked whether they associated shale gas with lower or higher greenhouse gas emissions and since September 2013 we have included a question about energy security. At various stages we have also included questions about sources of information about shale gas, possible impacts on the economy and whether they believe that shale gas should be part of the UK's energy mix by 2025. This two-stage process means that questions about how people perceive shale gas are only answered by those people who have heard of, and may have developed a view

¹Also spelt fracing/fraccing

² In the September 2014 and 2015 survey respondents who failed to identify shale gas were retained in the survey but for consistency with our earlier reports we are only presenting data from those that correctly identify shale.

about, this energy source. In the September 2014 and 2015 surveys all participants were asked all questions regardless of whether they correctly identified shale gas or not.

Shale gas and earthquakes

The possible link between fracking for shale gas and earth tremors has triggered considerable concern and is viewed by some as a potentially dangerous and damaging impact of shale gas exploration. Two small earthquakes in April and May 2011 in the Blackpool area (2.3 and 1.5 respectively on the Richter Scale) close to where Cuadrilla Resources were fracking for shale gas were widely reported in the media and led to the suspension of fracking at the site pending further investigation. The release of the Preece Hall report in April 2012 and an acknowledgement by Cuadrilla Resources that their activities were the likely trigger for the earth tremors was also widely reported. It is therefore not surprising that the majority of people who correctly identified shale gas also considered it to be associated with earthquakes, with the number of people making this association being high throughout. However, since its peak in April 2012 the association has declined significantly and in September 2015 stood at 48% with the differential being under +19% down significantly from a peak of +58% in April 2012.

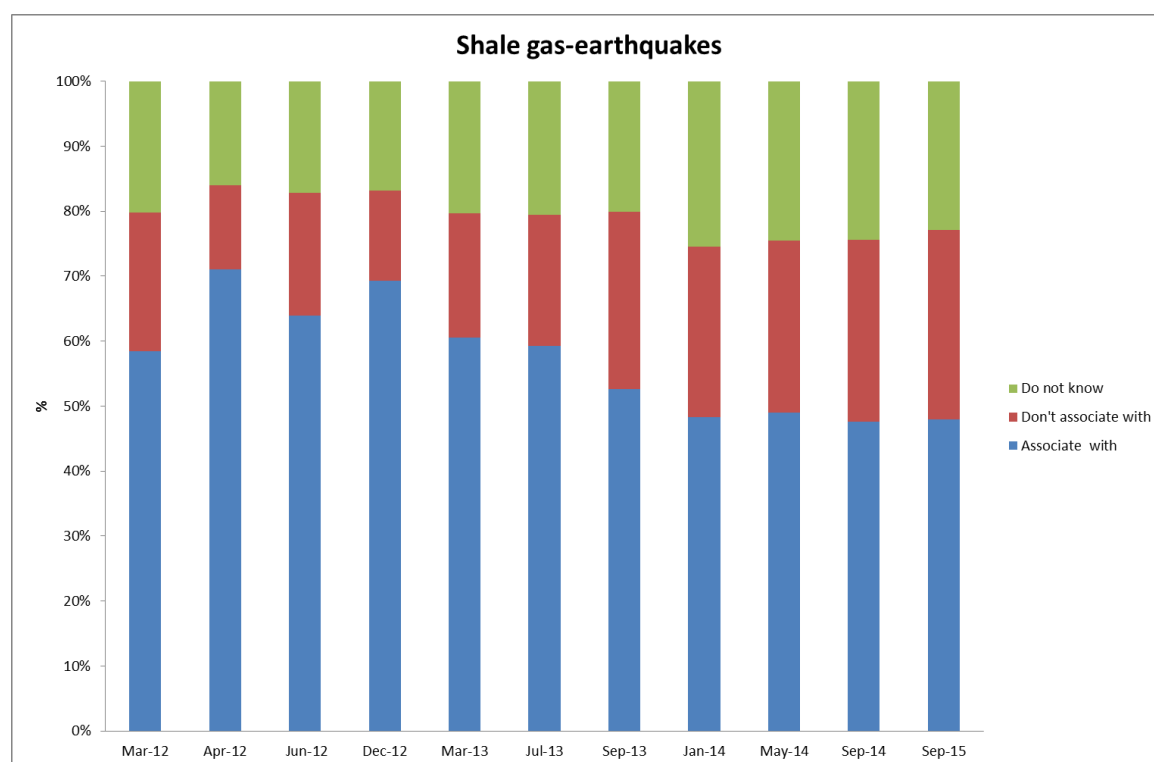


Figure 2. The association between shale gas and earthquakes in the UK: March 2012-September 2015.

Contamination of drinking water

There are considerable concerns that the extraction of shale gas could result in the contamination of drinking water sources either by chemicals used in fracking fluids, or by methane escape as a result of the fracking process itself and/or poor well integrity. Again, the issues and debates around drinking water contamination have been widely reported in

the media and a large number of respondents to our survey associate the two together. This said we have seen a significant change in the public's opinion on this issue over the last two years. In March 2012 44.5% of respondents associated shale with water contamination, and only 23.9% did not, with nearly a third of respondents saying that they didn't know. In July 2013, immediately prior to the Balcombe protests the respective figures were 35.2%, 29.8% and 35%. If we take water contamination to represent disapproval there was shift from -20.6% to -5.4% over this period (Fig. 3) which suggests that concerns about the possible contamination of water supplies were declining in the period prior to the Balcombe protests. Immediately after the protests, where much of the debate focused on potential water contamination the negative differential increased to -10.5% and in September 2015 stands at -17.5%. Significantly the percentage of respondents who associate shale gas with water contamination now stands at 48% the highest level since the University of Nottingham Shale Gas Survey began. Over the same time the number of people stating that they don't know what the impact has been has decreased significantly and is now 22.9% down from 35% in July 2013. These findings suggest that as people hear more about shale gas and the way in which it is extracted they are more persuaded that shale gas extraction will have a deleterious impact on drinking water.

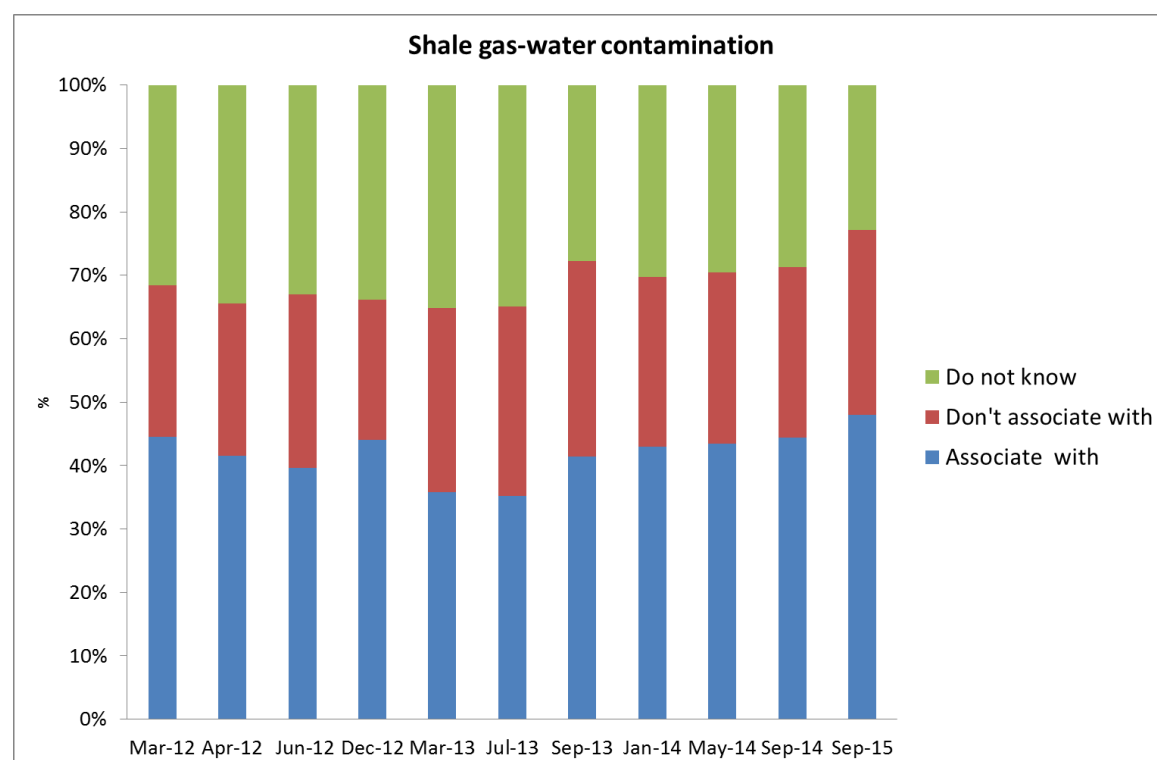
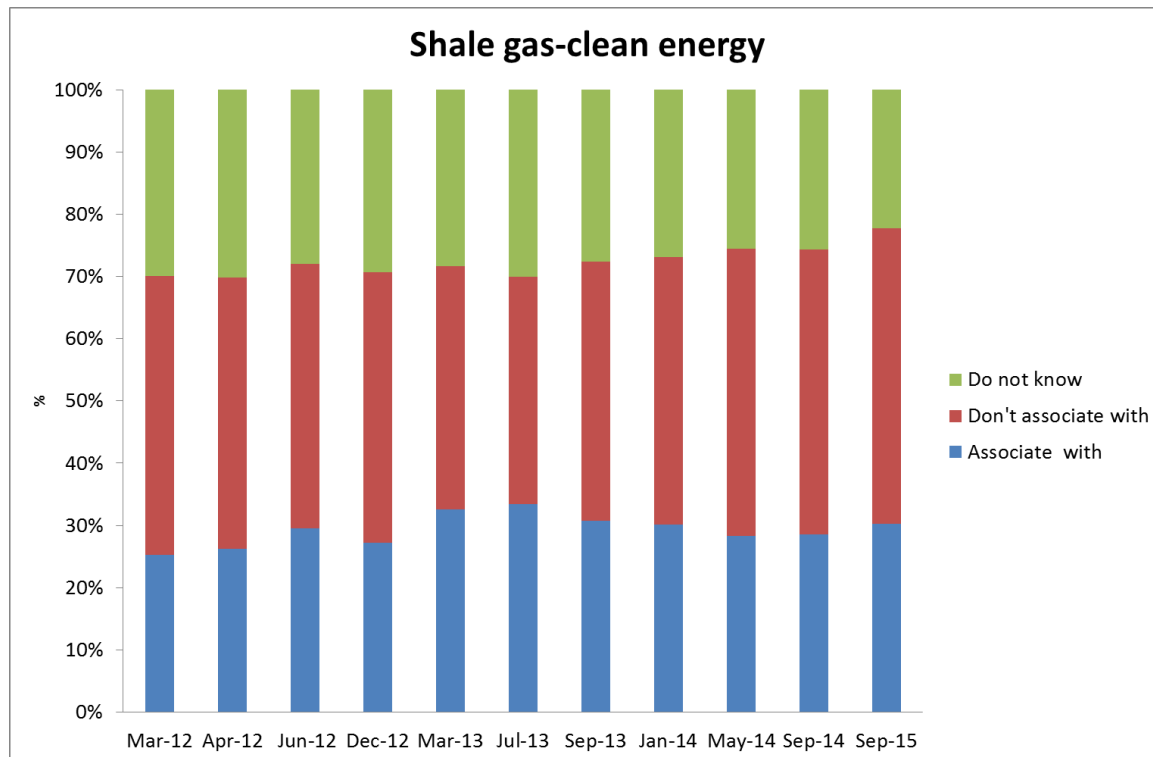


Figure 3. The association between shale gas and contamination of drinking water in the UK: March 2012-September 2015

Is shale gas a clean energy?

Despite industry claims that shale gas is a clean energy resource, especially compared to other fossil fuels such as oil and coal, the British public have not been convinced. In our first survey in March 2012 only 25.3% considered shale gas to be clean, compared with

44.8% who did not, giving a negative rating of -19.5%. But the UK public seemed to be shifting its opinion, and in the July 2013 survey a third (33.5%) of the respondents who recognised shale gas considered it to be a clean energy source compared to 36.5% who believed the opposite, leaving an negative rating of -3% (Fig. 4). Post-Balcombe the differential rose to -9.9% and now stands at -17.1%, which is virtually unchanged since May 2014.



Is shale gas a cheap energy resource?

One of the potentially attractive features of shale gas is that, compared with other sources of energy, it may be seen as cheap at the point of sale and initially much was made of this fact by various commentators on the subject. Although such views have been repeatedly challenged, they appeared to be resonating with the British public and the proportion of people who associated shale gas with being a 'cheap fuel' rose in each of the first six surveys from 40.5% in the March 2012 survey to 55% in July 2013 (Fig. 5), and the positive rating for shale (the 'do associate' minus the 'don't associate') in July 2013 was +33.4%, up from +11.4 % in March 2012. But this reversed after the Balcombe protests and in September 2015 stands at +22%, lower than in July 2013, but considerably higher than in our early surveys.

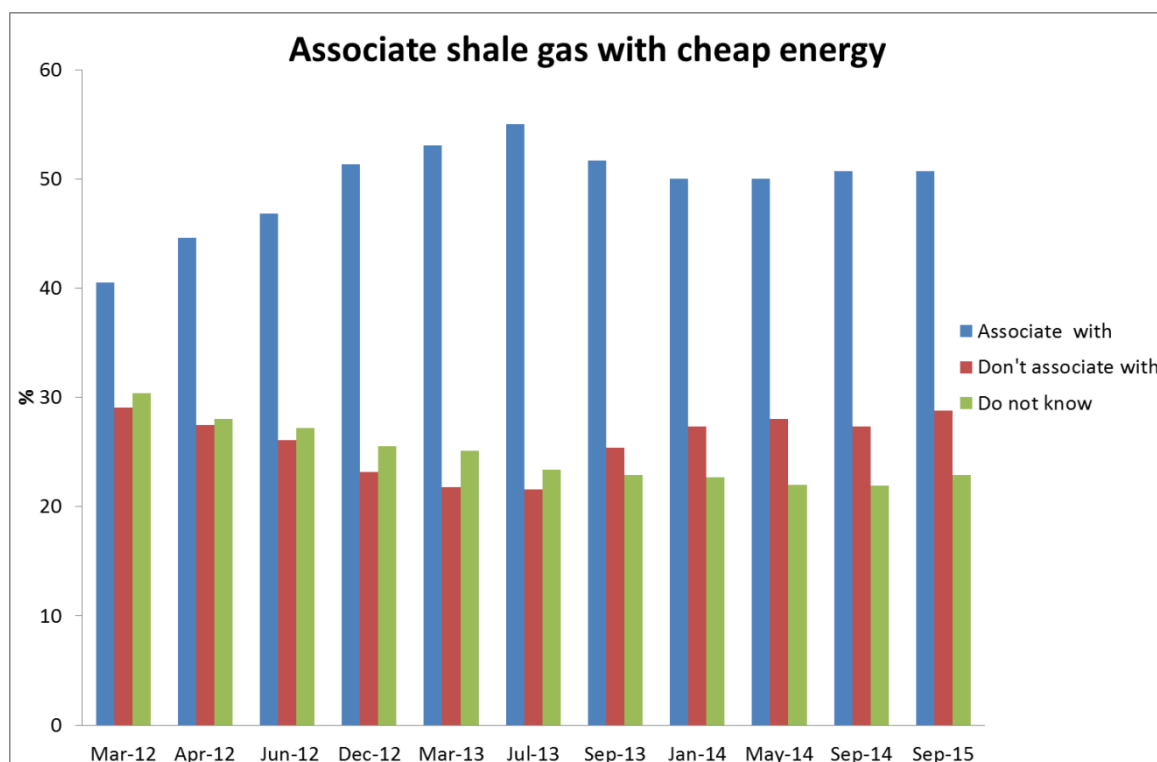


Figure 4: The association between shale gas and clean energy in the UK: March 2012-September 2015.

Will shale gas help the UK's energy security?

The issue of energy security for the UK has been much debated and one of the arguments that has been made by both government and energy companies alike is the role that indigenous shale gas could play in the UK's energy security. Because this issue has become increasingly important in debates around the shale gas issue, in September 2013 we began asking respondents whether they associated shale gas with energy security. In January 2014 of the approximately 65% people who correctly identified shale gas in our gateway question over 61% stated that they associated shale gas with energy security compared to less than 20% who did not, giving a positive association of +41.5%. This figure has shifted quite significantly since May 2014 (Fig. 6) and in September 2015 approximately 47% of respondents associated shale gas with energy security compared to over 30% who do not. Although there remains a positive association, currently +16.6%, this figure has fallen significantly since its peak in January 2014.

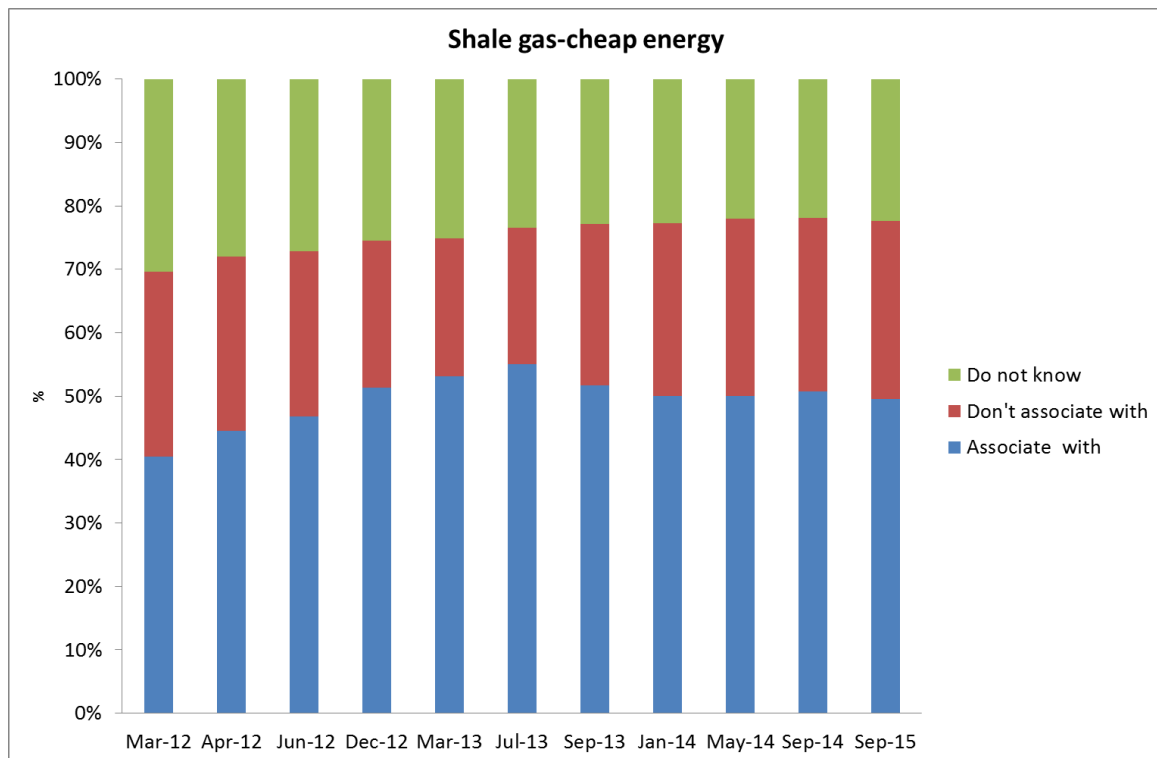


Figure 5: The association between shale gas and cheap energy in the UK: March 2012-September 2015.

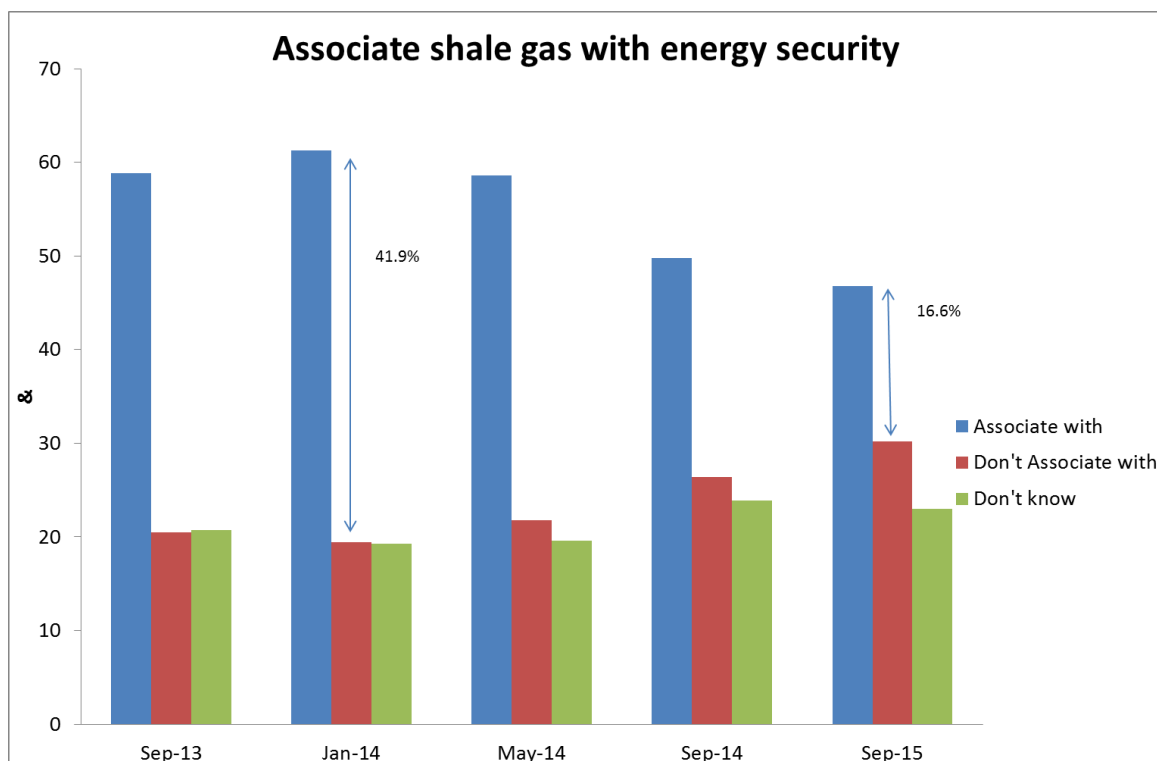


Figure 6: The association between shale gas and energy security in the UK: September 2013-September 2015.

Shale gas and greenhouse gas emissions

The survey respondents were also asked about their views on whether they considered if the use of shale gas would result in lower or higher greenhouse gas emissions (GHG). In all 11 surveys a plurality of respondents stated that they don't know whether shale gas had a positive or negative impact on GHG emissions, with the figure varying between approximately 40% and 48% (Fig. 7). But significantly, while almost an equal number of respondents in our first survey stated that shale gas would result in either lower or higher GHG emissions, there had been a subtle shift in peoples' view on this issue with an increasing proportion of respondents believing that shale gas will result in lower GHG emissions (Fig. 7). Although this has remained true post-Balcombe the differential has decreased from 13.5% in July 2013 (the maximum over the surveys thus far) to just over 5% in September 2015. This shift is due to a decline in the number of respondents stating that they do not know what the impact will be with a concomitant increase in the number of people stating that they believe that shale gas will result in higher GHG emissions.

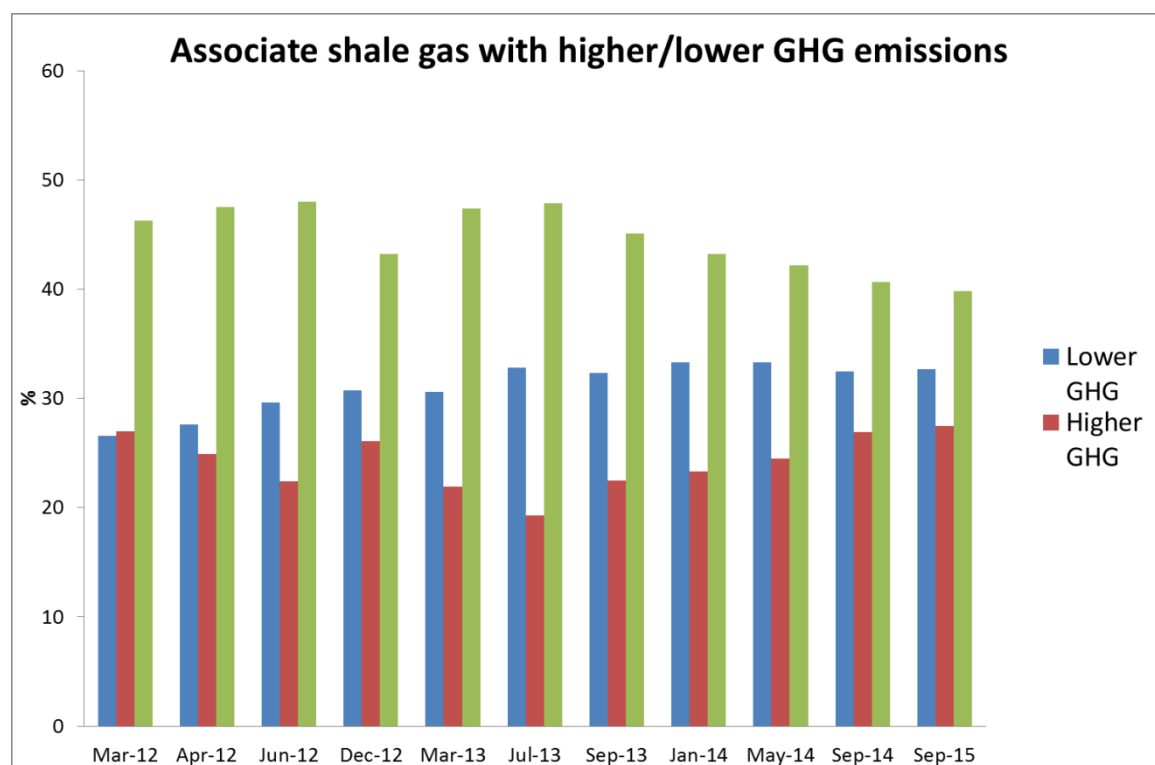


Figure 7: The association between shale gas and greenhouse gas emissions in the UK: March 2012-September 2015.

Economic benefits for the UK

For the first time in September 2014 we asked respondents whether they associated shale gas with economic benefits for the UK. Just under 61% of respondents were of the view that it would be a benefit compared to just under 20% who said it would not benefit the UK's economy giving a positive differential of +41%. Although the differential has fallen to +35% it is clear from these data that the UK public remain strongly of the view that shale gas will benefit the UK economy (Fig.8).

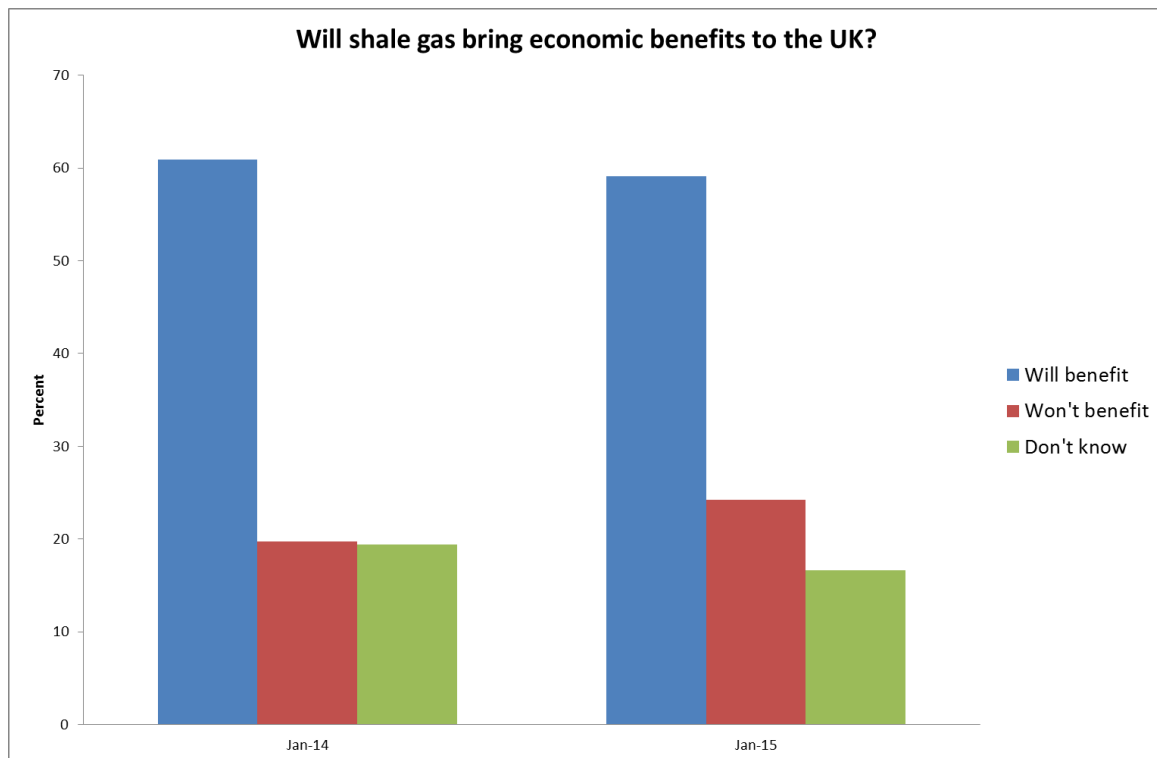


Figure 8: The association between shale gas and economic benefits for the UK: September 2014-September 2015.

Should shale gas exploration be allowed in the UK?

The public have also been asked whether shale gas extraction in the UK should be allowed, a question intended to capture people's 'all-things considered' judgement on shale. This question was first asked in June 2012, with 52.6% in favour and 27% against (+25.6%); in July 2013, these figures stood at 58.3% and 18.8% (+39.5%). Post-Balcombe we saw a decline in 'yes' and an increase in 'no' responses with the differential in September 2013 being +30.2% and by September 2014 the differential had fallen to +21%.

September 2015 has seen a further significant decline in approval and although a plurality of respondents, 46.5%, remain of the view that shale gas should be extracted in the UK this is by far the lowest percentage since the University of Nottingham Shale Gas Survey began. Moreover the differential between those in favour and those against now stands at only +10.4% (Fig.9). There is, however, a significant gender divide and while 58% of men are in favour of shale gas extraction only 31.5% of women are with the yes/no differential for women now standing at -12.8%.

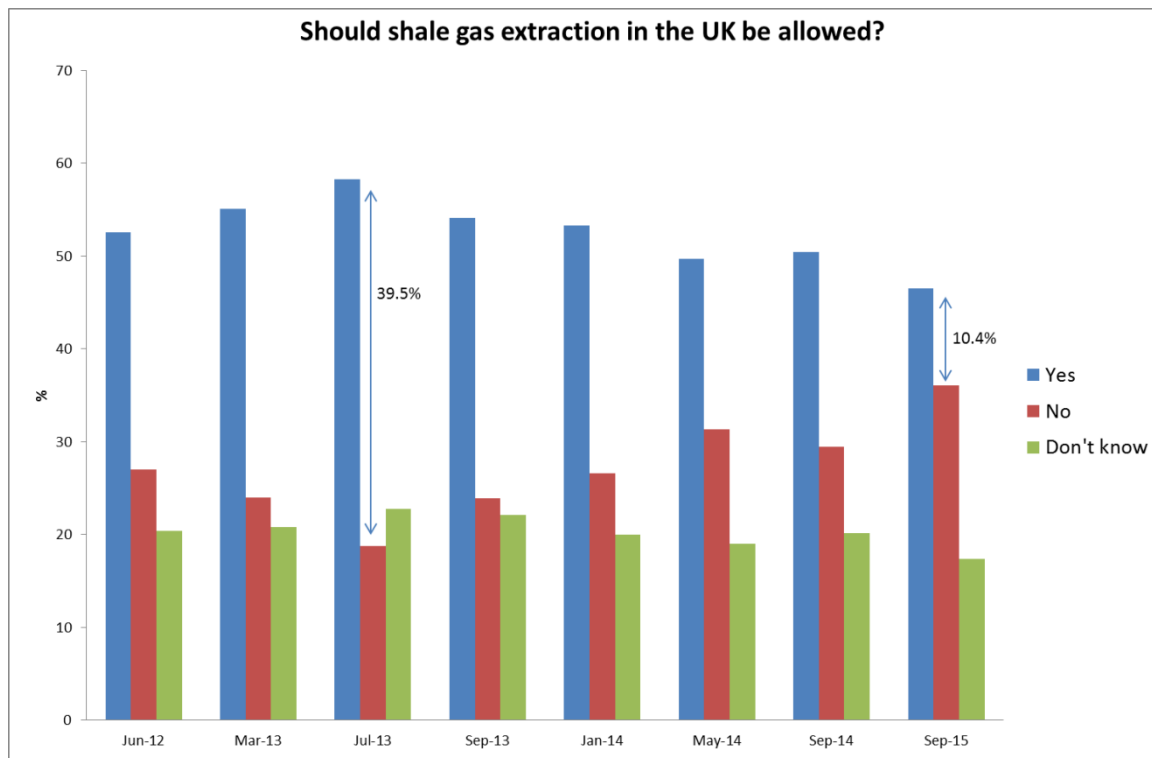


Figure 9: Should shale gas extraction in the UK be allowed: March 2012-September 2015.

Should shale gas be part of the UK energy mix?

In July 2013 we asked respondents (for the first time) to state whether shale gas should be part of the UK's energy mix in 2025 putting it against a range of alternatives including fossil fuels, nuclear and renewable energy sources. We repeated the question in September 2013 and again in September 2014 and 2015 (Fig. 10). These data clearly demonstrate that the overwhelming majority of the respondents believe that we should be making use of renewables with support for tidal, solar, hydropower and wind being very high. With respect to fossil fuels conventional gas is also viewed as more preferable to other fossil fuels with at least three quarters of respondents believing it should be part of the energy mix. Shale gas, however, lags behind significantly and since September 2013 has dropped from approximately 62% to 47% and remains the energy source the UK public are least likely to want in the UK's 2025 energy mix.

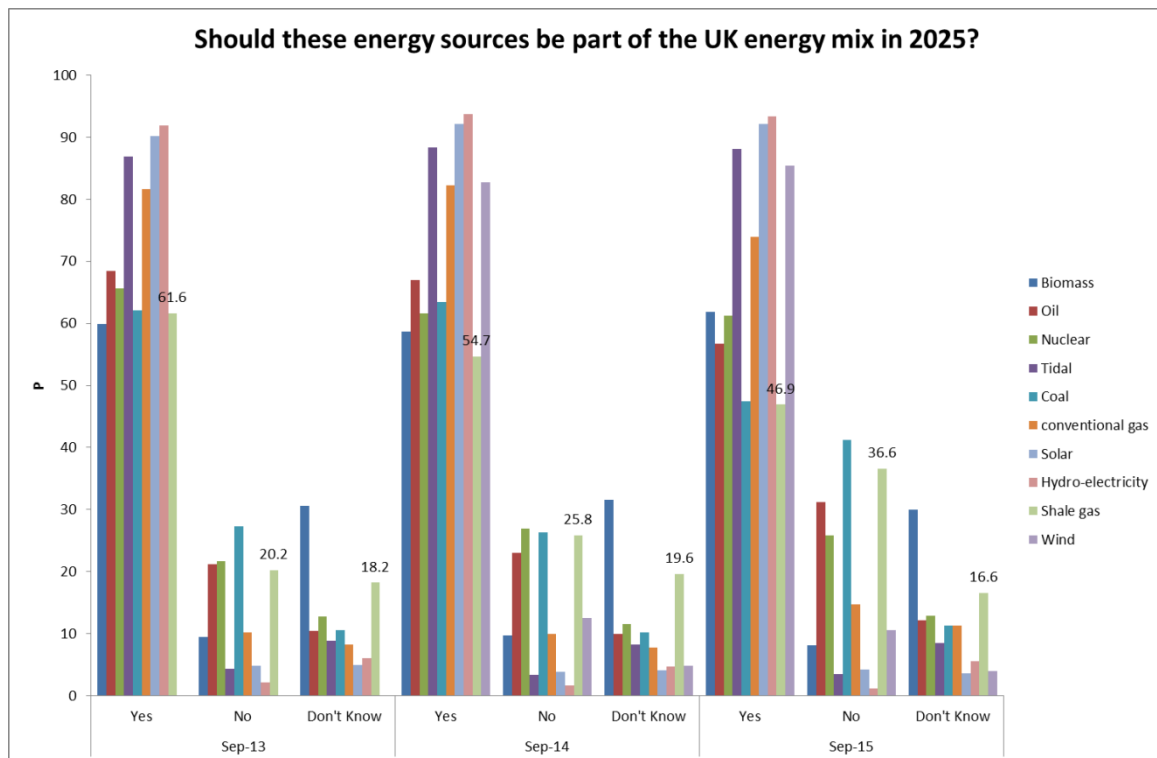


Figure 10: Should the following energy sources be part of the UK's energy mix in 2025?

Summary of the survey results

Over the last 12 months there has been a significant shift in how the UK public views shale gas and while it is clear that it still very much associated with being a cheap energy and one that could bring significant economic benefits to the UK a growing part of the country is opposed to its extraction in the UK. The driver behind this shift is the firming up of views on shale gas amongst women who as a group believe that shale gas will have significant environmental impacts and should not be extracted. Moreover, a growing proportion of the population do not believe that shale gas should be part of the UK's energy mix. If the government pushes forward with its plans to fast track shale gas developments it must be prepared for significant levels of opposition from grass roots activists.