

SHALE GAS EXTRACTION IN THE UK: WHAT THE PEOPLE THINK

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Introduction

Global energy consumption is forecast to increase at an average annual rate of 1.6 % over the next two decades with total consumption rising from 504.7 to 769.8 quads between 2008 and 2035, according to EIA figures.¹ Notwithstanding the significant concerns about our continued dependence on fossil fuels and their impacts on the environment, they will provide much of the World's energy for the foreseeable future. It is anticipated, however, that there will be a shift in the relative balance of the fossil fuel mix with natural gas usage increasing significantly and according to a recent report by the IEA², the rapid development of 'unconventional' natural gas resources, most notably shale gas, could herald a 'golden age for gas' with demand surpassing that for coal by 2030, and by 2035 natural gas could account for 25% of all global energy use.

The emergence of shale gas on the energy landscape has been nothing short of astounding. In the space of a few years it has gone from being a little known and little used energy resource to one that has been heralded by some as a game changer not only capable of bridging the looming gap between supply and demand but also serving as a lynchpin in the transition to a low carbon economy.³ In the US, for example, the speed at which shale gas has been developed and brought to market has been spectacular. Whereas, as recently as 2000, it accounted for less than 1% of all US natural gas production, by 2011 this had risen to 20% with current forecasts suggesting that by 2035 shale gas could account for almost 50% of the country's natural gas production⁴ and, in the process, help the US to shift from being a net importer to a net exporter of gas.⁵

But while much has been made about the potential positives of shale gas, its rapid rise has not been without controversies with significant concerns being voiced about both the manner in which it is both mined and used. Arguments now rage about the potential environmental impacts of shale gas. Grass roots activists argue that the technique of hydraulic fracturing or 'fracking' to extract shale gas not only pollutes ground and surface waters, but is endangering human and animal health. The occurrences of earthquakes in areas that are being fracked have also been a cause of considerable alarm. Moreover, there are concerns that while natural gas produces only half of the GHG emissions of coal⁶, the emergence of this 'new' energy source will derail efforts to increase renewables and have a negative impact on GHG emissions and thus future climate. The furore around shale gas explorations that emerged in the US in the late 2000s has prompted a rising swell of local environmental opposition in other parts of the globe where the potential for shale gas production is being explored.

¹ <http://www.eia.gov/>

² http://www.iea.org/weo/docs/weo2011/WEO2011_GoldenAgeofGasReport.pdf

³ <http://www.greenwisebusiness.co.uk/news/environment-agency-chief-uses-keynote-speech-to-support-fracking-and-nuclear-power-3295.aspx>

⁴ http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1635280&http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1635280

⁵ http://www.iea.org/weo/docs/weo2011/WEO2011_GoldenAgeofGasReport.pdf

⁶ www.epa.gov/cleanrgy/energy-and-you/affect/natural-gas.html

In the UK shale gas developments are at a very early stage and although a number of licences have been issued and the decision to grant Cuadrilla Resources with a licence to ‘frack’ shale gas at the Bowland site near Blackpool was widely reported in the press and over the past year – shale gas, and in particular its method of extraction (fracking) has received significant media coverage (Fig. 1) with well over a 1000 articles in mainstream UK newspapers and numerous reports on news and current affairs programmes.

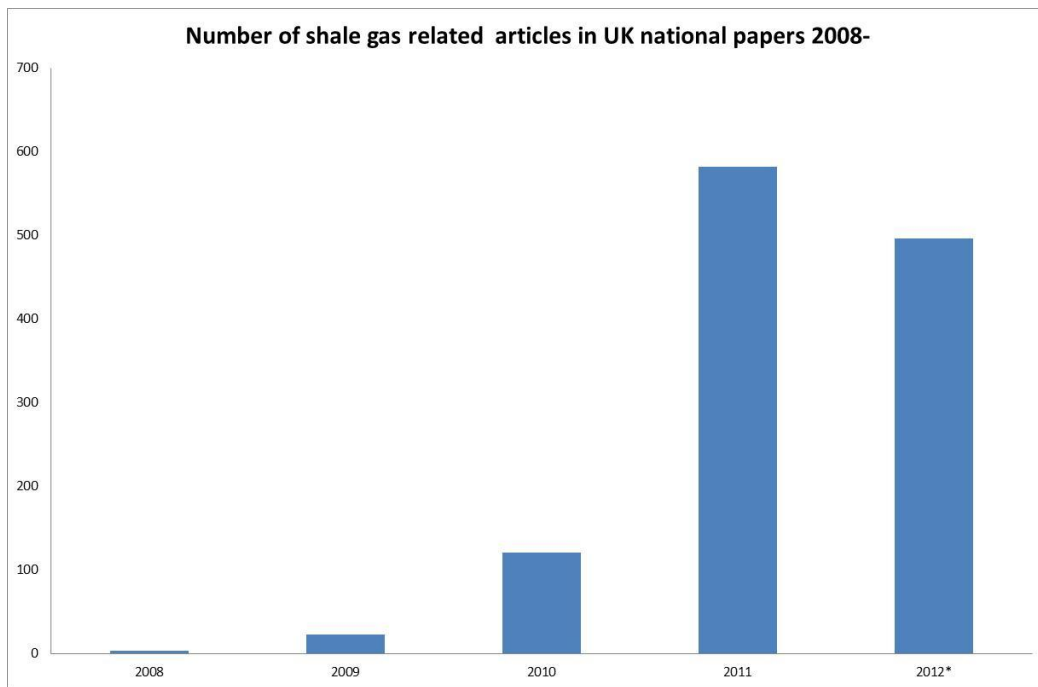


Figure 1. The number of shale gas related articles in UK national papers since 2008 (*January-May 2012)

Given the level of interest in the subject and as part of an ongoing study to investigate public perceptions of shale gas exploitation in the UK, we have undertaken three national level surveys to assess the level of knowledge and concern about shale gas and its exploitation in the UK (Table 1) . The surveys conducted by YouGov were undertaken in March, April and June 2012. Given the considerable interest in this issue we considered it pertinent to publish the broad findings from these surveys.

Date of Survey	# of respondents
18 th -20 th March 2012	2784
26 th -30 th April 2012	2791
17 th -19 th June 2012	2687

Table 1. The dates and number of respondents to the three YouGov surveys

In the survey we start 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 was the term ‘fracking’ which is almost always referred to in reports about shale gas. In our March survey a mere 38% of respondents correctly identified shale gas from the list of real and imaginary fossil fuels. Around the same proportion (39%) were ‘don’t knows’, and 17% believed the fossil fuel was ‘coal’ – the next most popular choice after shale. Recognition rose some 7% to nearly 45% in the April survey which was conducted shortly after the release of the Preese Hall Report⁷ (which resulted in a significant level of media interest and a flurry of reports (Fig. 1)), but this fell to just over 40% in the June survey (Fig.2).

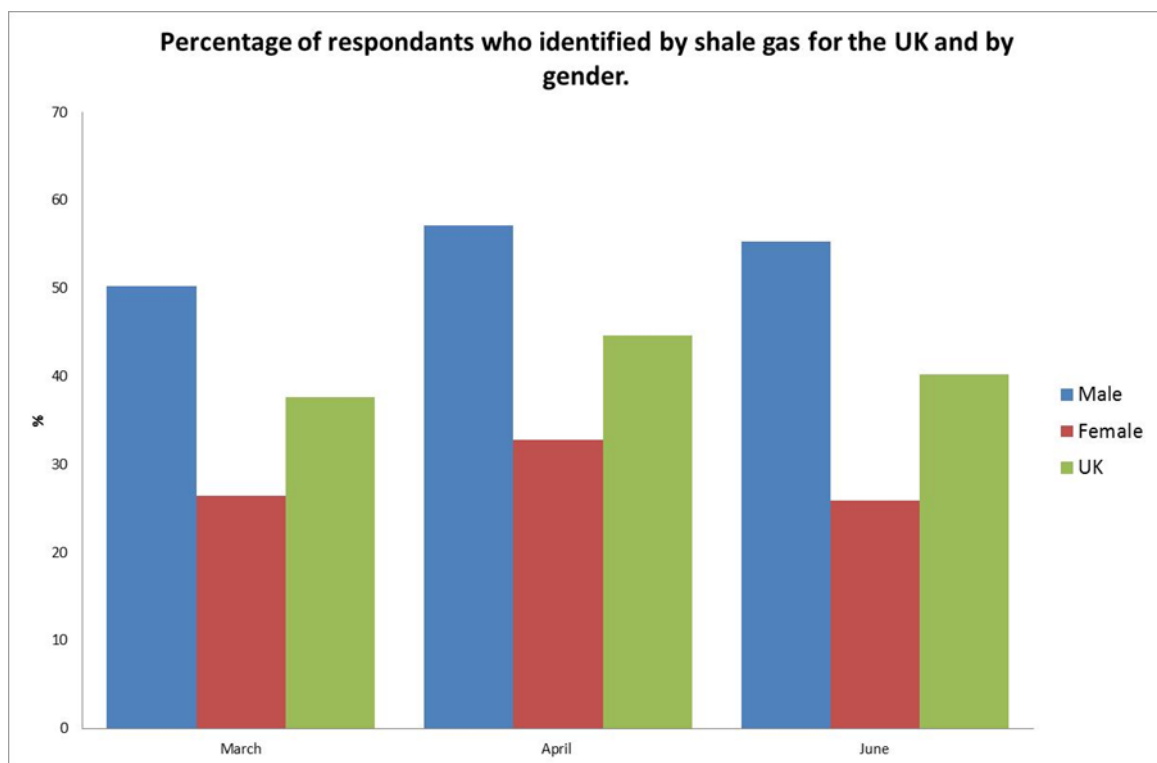


Figure 2. Shale gas recognition in the UK, March-June 2012

Interestingly, men were almost twice as likely as women to identify shale gas, and while the level of recognition rose to roughly 7% for both men and women between the March and April surveys, in June the level of recognition by women fell to below the level recorded in March. Although the percentage of male respondents who correctly identified shale gas also fell between the April and June surveys the fall was significantly less than for women, with over 55% of all males who responded to the survey in June being able to identify shale gas.

Recognition of shale gas also varied considerably with age. Figure 3 shows the percentage of each age group that correctly identified shale in the March survey. These data indicate that younger

⁷ og.decc.gov.uk/.../5075-preese-hall-shale-gas-fracturing-review.pdf

people were the least likely to identify shale gas, and that there is a strong positive correlation between age and the the level of recognition.

Individuals who identified shale gas were then asked a series of questions, including whether they associated shale gas with earthquakes, water contamination, being a clean fuel and being a cheap fuel. Figures 4-7 show the UK level results for these questions for each of the three surveys.

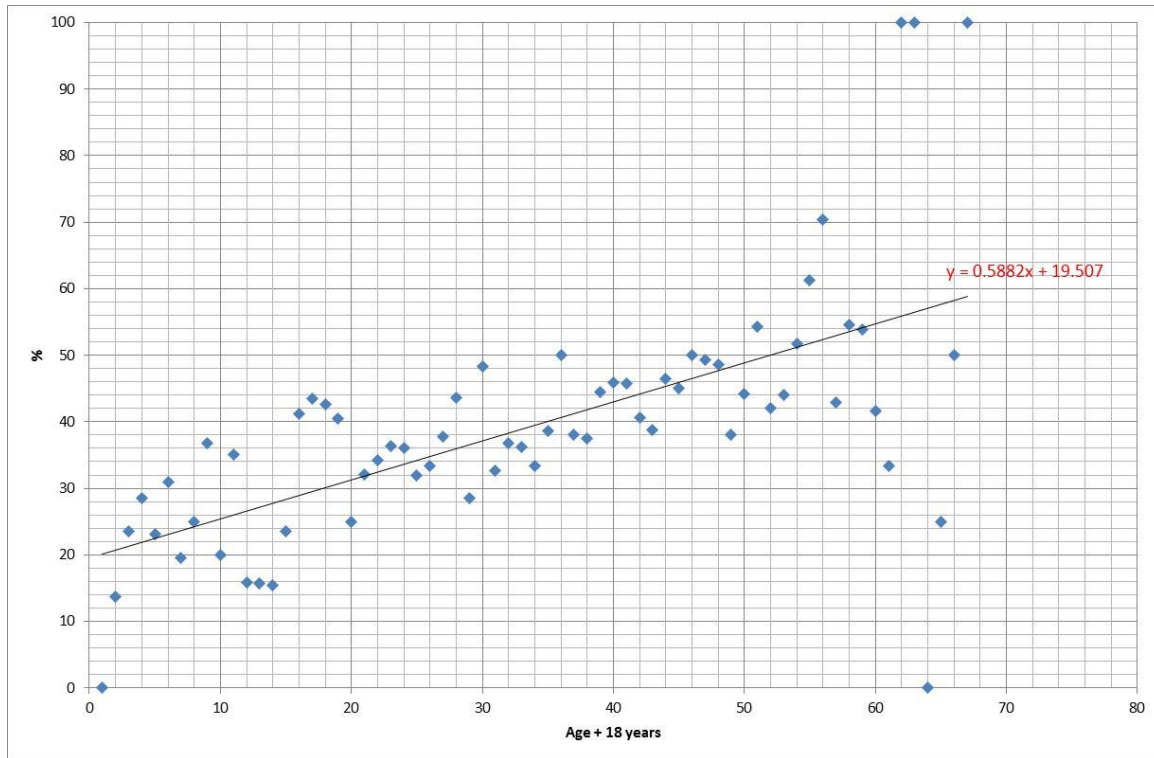


Figure 3, the relationship between age and shale gas recognition in the UK (March 2012).

Shale gas and earthquakes

The vast majority of respondents associated shale gas with earthquakes, with the figure rising from just under 59% in March to nearly 71% in April, but falling back to under 65% in the June survey. A significant number of people also associate shale gas with water contamination, although this figure dropped from 44.5% to less than 41% between March and April. It is clear that a significant proportion (around 44-45%) of the people surveyed do not consider shale gas to be a clean fuel. It is worth noting that the proportion of respondents that stated that they associated shale gas with being a clean energy or did not know whether it was clean or not was similar and remained so in both March and April. In general respondents consider shale gas to be a cheap form of energy and although there are some variations at the regional level, for the country as a whole this figure rose from 40.5% to 44.5% between the two polls.

The possible link between fracking for shale gas and small earthquakes 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 Preese Hall report and an acknowledgement by Cuadrilla that their activities were the likely trigger for the earth tremors was also widely reported. It is thus not surprising that the vast majority of people who identified shale gas also considered it to be associated with earthquakes, with this figure rising significantly from 58% to 71% between March and April, although this figure dropped to 64% in June (Fig 4).

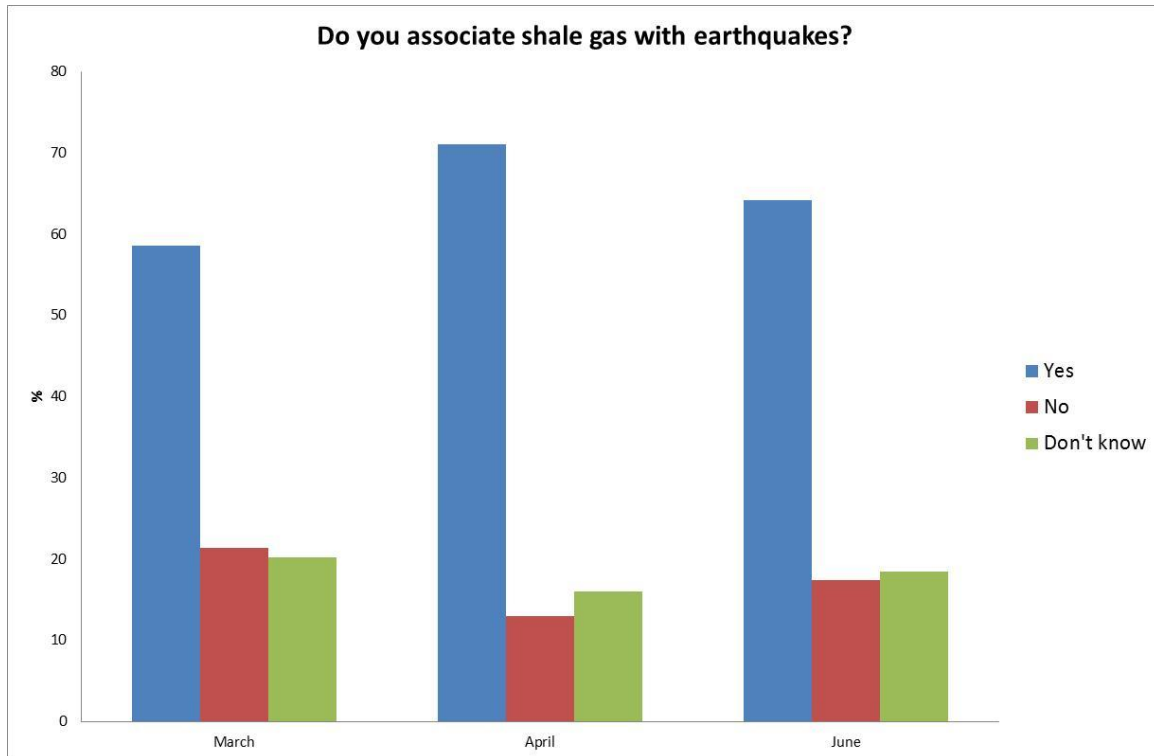


Figure 4. The association between shale gas and earthquakes in the UK (March-June 2012)

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 and/or by methane escape as a result of the fracking process itself. The issues and debates around drinking water contamination have been widely reported in the media (often with reference to the controversial film *Gasland*)⁸ and it is clear that a large number of respondents to our survey associate the two together. This said there appears to be increasing uncertainty on this issue with the proportion of respondents that believe there is an association between the two falling from 45% to 40% over the period with an increasing number of people stating that they don't know. The number of people who do not consider there to be a link between the two also increased and stood at 27% in June (Fig. 5).

Is shale gas a clean energy?

A significant proportion of respondents to our survey stated that they do not associate shale gas with being a clean energy resource but this said the figure fell slightly over the three surveys with just under 43% of our survey holding this view in June. The number of people who consider it to be a

⁸ <http://www.gaslandthemovie.com/>

clean energy source rose over the period but was still less than 30% with a large number of people again stating that they do not know whether shale gas is a clean energy resource or not.

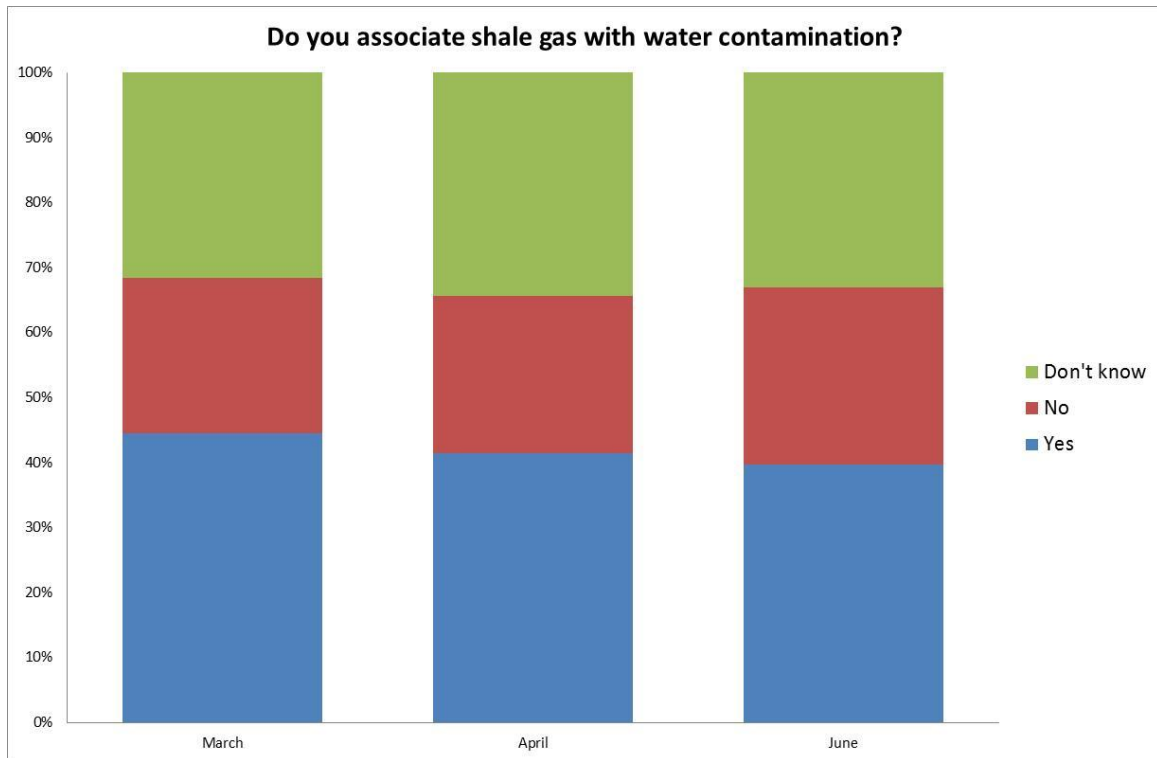


Figure 5: The association between shale gas and water contamination (UK, March-June 2012)

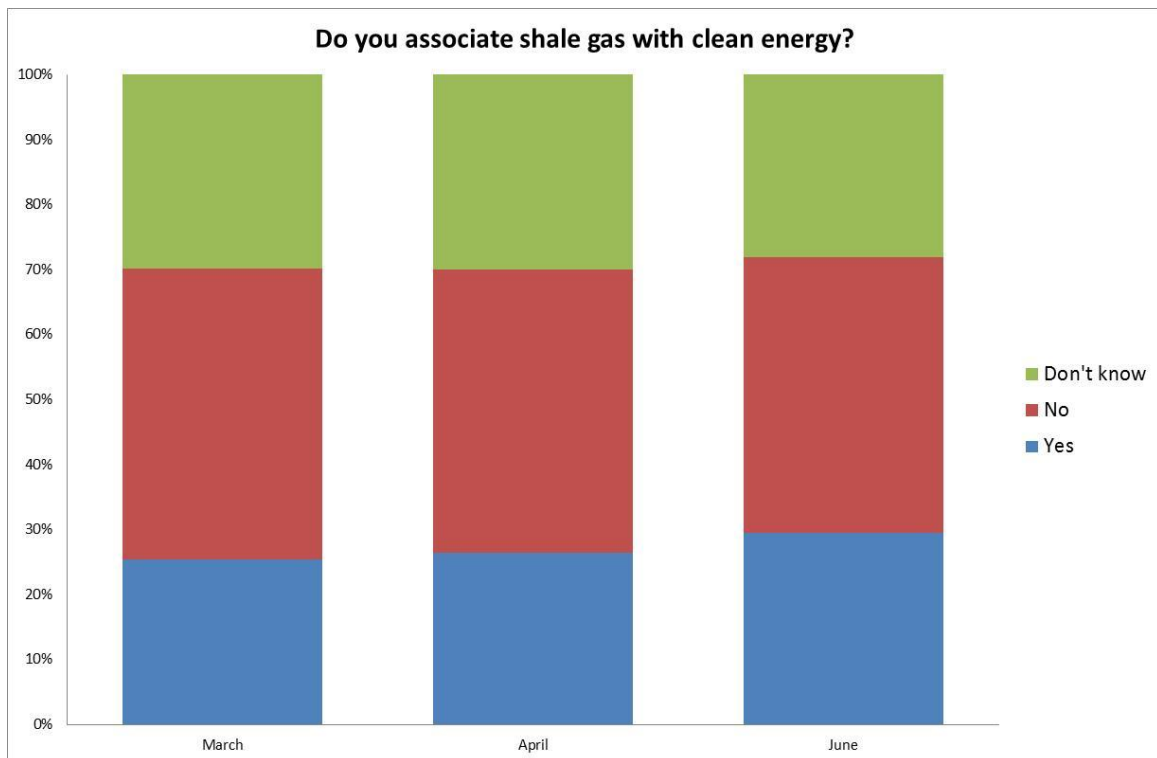


Figure 6: The association between shale gas and clean energy (UK, March-June 2012)

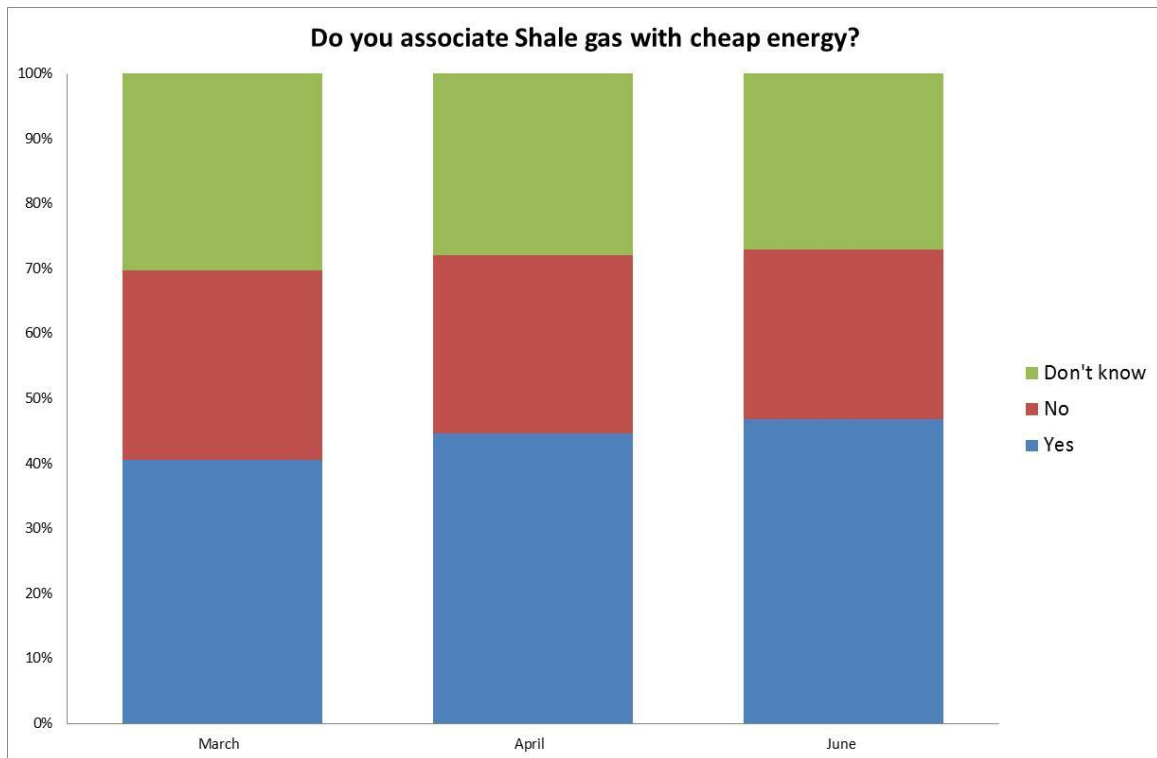


Figure 7: The association between shale gas and cheap energy (UK, March-June 2012)

Is shale gas a cheap energy resource?

A small but significant shift in the proportion of respondents who consider shale gas to be a cheap form of energy was noted in the three surveys rising from just over 40% to nearly 47% between March and June. At the same time there was a decline in the number of don't knows (from 30% to 27%) with the number of people who do not consider shale gas to be a cheap resources falling to 26% in the June survey.

Shale gas and greenhouse gas emissions

The poll respondents were also asked about their views on greenhouse gas emissions (GHG). Significantly, 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 46% and 48% of those surveyed. An almost equal number of respondents in the March survey stated that shale gas would result in either lower or higher GHG emissions but since then there has been a subtle shift in people's views with an increasing proportion of respondents being of the view that shale gas will result in lower GHG emissions (Fig. 8).

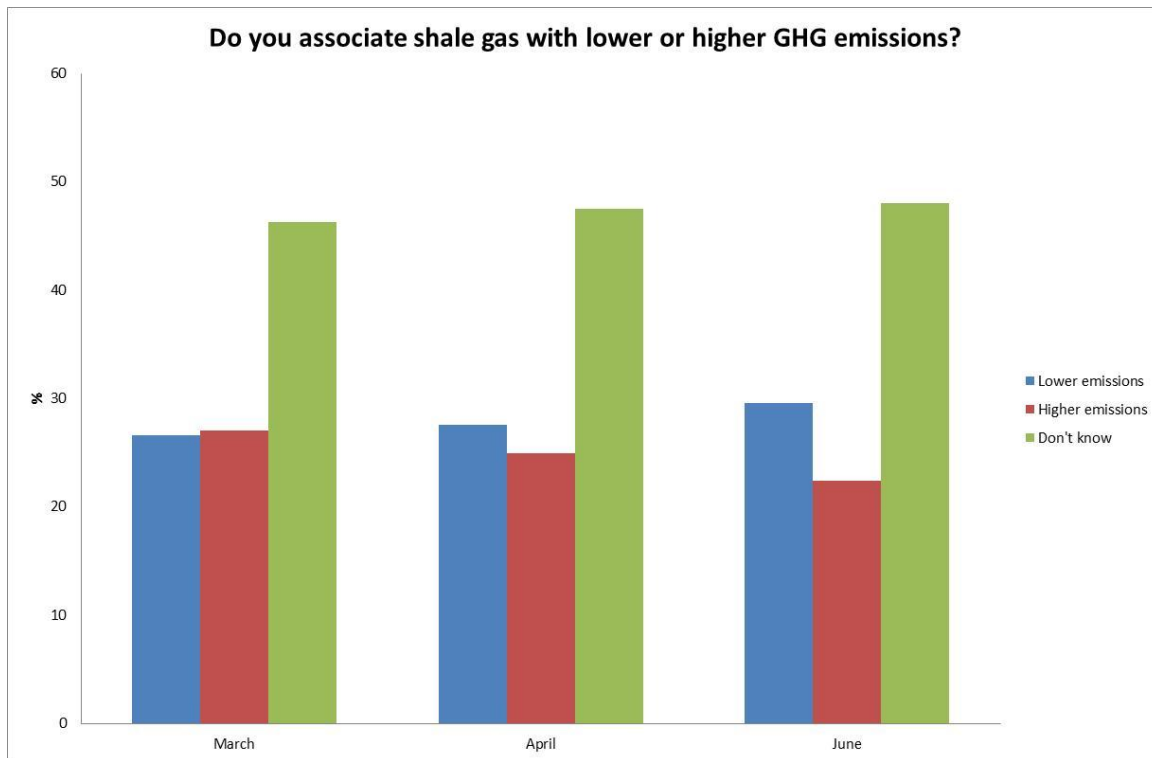


Figure 8: The association between shale gas and greenhouse gas emissions (UK, March-June 2012)

Should shale gas exploration be allowed in the UK?

In the June survey we added an additional question asking individuals who had identified shale gas to state whether they thought that extracting natural gas from shale should be allowed. Nearly 53% of all respondents were in favour with a further 20% stating that they did not know. Only 27% of our respondents stated that natural gas should not be extracted from shale. The difference between male and female respondents was again significant. Whereas just over 60% of men stated that natural gas extraction from shale should be allowed, the figure for women was less than 37% with just over 30% stating that they did not know.

Summary of the survey results

Our surveys indicate that despite the growing level of interest in shale gas in the UK and the flurry of media attention in recent months well over half of the people that we surveyed are neither aware of this resource nor the controversies that are emerging around it. Although the majority of respondents who are able to identify shale gas associated it with earthquakes, it is clear from our surveys that there is a high level of uncertainty as to the exact implications of its extraction and use on the environment. While there are concerns that shale gas may result in the contamination of drinking water and that it is not a 'clean' fuel, these views are not held by the majority. Moreover there is an indication that people's concerns are shifting with an increasing number of people seeing shale gas a cheap fuel - the majority of the people who we surveyed who could identify shale gas believe we should be allowed to extract natural gas from shale deposits in the UK. On greenhouse gas emissions, there is again a high level of uncertainty, with a clear plurality of 'don't knows' in all three surveys. Amongst those who do state a belief, we see a small trend towards the view that

shale gas would lead to lower greenhouse gas emissions. Overall, shale gas appears to be a fuel source over which the public has yet to make up its mind.