



Department
of Energy &
Climate Change

Underground Drilling Access

Government Response to the Consultation on
Proposal for Underground Access for the
Extraction of Gas, Oil or Geothermal Energy

25 September 2014

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General Information

Purpose of this document:

This document sets out the Government's response to the consultation on a proposal for underground access for the extraction of gas, oil or geothermal energy, published on 23 May 2014.

Issued: 25 September 2014

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Territorial extent:

The proposals discussed in this Government response apply to England, Wales and Scotland in respect to petroleum. The proposals on deep geothermal energy also cover England, Wales and Scotland (where in Scotland, deep geothermal energy is exploited for the sole, or main purpose of electricity generation). The use of deep geothermal energy for heat only purposes is devolved to the Scottish Government. In Northern Ireland, responsibility for petroleum and geothermal energy lies with the Northern Ireland Executive's Department of Enterprise, Trade and Investment.

Additional copies:

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Quality assurance:

This consultation has been carried out in accordance with the Government's Consultation Principles, which can be found here:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/60937/Consultation-Principles.pdf

If you have any complaints about the consultation process (as opposed to comments about the issues which are the subject of the consultation) please address them to:

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Executive Summary

Introduction

- 1.1. The Government is supportive of developing our own indigenous energy sources in a safe and sustainable manner. We believe shale gas and oil, and deep geothermal energy may hold potential for adding to the UK's energy sources, helping to improve energy security, create jobs and meet carbon targets. In order to explore this potential, the Government wishes to ensure that the existing regulatory system is fit for purpose. Both industries access underground deposits by drilling deep underground wells, and we consider the existing procedures for gaining this underground access to be costly, time-consuming and disproportionate for these industries.
- 1.2. From 23 May to 15 August 2014, the Government ran a public consultation seeking views on a proposal designed to simplify the existing procedure for underground access when seeking to exploit oil, gas or geothermal resources (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/313576/Consultation_on_Underground_Drilling_Access_final_web_version.pdf)
- 1.3. The consultation document set out the technologies involved, including underground drilling, the existing framework for access, the potential options, and details of the proposed solution. Respondents were asked to consider the following questions:
 - Should the Government legislate to provide underground access to gas, oil and geothermal developers below 300 metres? (Question 1)
 - If you do not believe the Government should legislate for underground access, do you have a preferred alternative solution? (Question 2)
 - Should a payment and notification for access be administered through the voluntary scheme proposed by industry? (Question 3)

Responses

- 1.4. **A total of 40,647** respondents replied to the consultation:
 - Over 99% of all respondents opposed the proposal to legislate to provide underground access to gas, oil and geothermal below 300 metres.
 - 36,582 (approximately 90% of total responses received) responses from individuals did not address the consultation questions but instead gave their views in a more open format (referred to here as “freeform responses”). A total of 28,821 of these responses submitted one of two campaign texts which did not specifically address the consultation questions; however they all opposed the proposed underground access legislation (referred to as “campaign responses”).

- 3,983 responses addressed the three consultation questions (referred to here as “questionnaire responses”). These are mainly from individual respondents, but this group also includes small businesses, local groups and groups opposed to hydraulic fracturing.
- 82 responses were received from stakeholder organisations (referred to here as “stakeholder responses”). This group is defined as those with national or regional presence, representative bodies, public sector bodies, locally elected bodies and also bodies operating in relevant sectors such as oil and gas, energy and law. These responses provided detailed comments from the perspective of their organisation, and addressed the consultation questions.

1.5. Some responses were categorised as ‘questionnaire’ rather than ‘stakeholder’ where the groups involved were small and self-selecting rather than being representative of a broader constituency, and where in most cases it was not possible to tell whether the response was on behalf of an individual or representative rather than an organisation or group’s views.

1.6. The majority of the 36,582 freeform respondents submitted one of two campaign texts. The campaign texts were as follows:

- “Shale gas and oil won't solve the UK's energy crisis and it won't solve the climate crisis. Please focus more resources on renewable energy sources rather than one which has such a short life. Please scrap plans to drill under our homes, and scrap hydraulic fracturing in the UK. And at the very least, this consultation should be re-run as it is deeply flawed.” (16,933 submissions).
- “I object to the proposals to change trespass laws that would allow hydraulic fracturing companies to drill under people's homes and land without permission. I object to the government's support of the hydraulic fracturing industry. Changing laws that protect people's private property to aid the extraction of unconventional gas is wrong. This change to legislation is supposed to be entirely dependent on the outcome of this consultation. Polling shows 75% of people in this country oppose it. Please listen to the people and not hydraulic fracturing companies. Hydraulic fracturing won't solve the UK's energy crisis and it won't contribute to the fight against climate change. Please scrap these plans and respect people's property rights.” (11,888 submissions).

1.7. The remaining freeform responses raised very similar concerns regarding objections to hydraulic fracturing and/or the proposal to change the legislation.

1.8. The campaign responses oppose the proposed underground access legislation. We address the key messages from the campaign responses (UK energy crisis, fight against climate change and changing private property law) in the body of the Response. Of the remaining freeform (non-campaign responses) over 99% were opposed to the proposed underground access legislation and/or hydraulic fracturing.

1.9. We recognise that there is opposition to hydraulic fracturing and the use of fossil fuels in general. The consultation was not intended to address this wider issue, and focussed specifically on underground access. Mechanisms already exist whereby companies can obtain access rights for oil and gas. Responses simply stating an objection to hydraulic

fracturing, use of fossil fuels or changes to trespass laws did not provide sufficient commentary to enable us to change or refine the proposals in the consultation. Many comments which supported renewable energy but did not support the proposals; did not appear to recognise that the consultation proposals would encourage deep geothermal renewable energy projects. The remaining 4,065 responses comprising the questionnaire and stakeholder responses answered the questions posed in the consultation. A total of 92% of the respondents from the questionnaire and stakeholder groups opposed the proposed underground access legislation. When analysing the stakeholder group, we found that 24% of these respondents opposed the proposed underground access legislation, with 55% supporting.

1.10. The stakeholder organisations for the most part provided more detailed comments and arguments than other respondents. The questionnaire responses were more varied and commented more widely on issues related to hydraulic fracturing. There were also some detailed comments on the proposals themselves.

Question 1

1.11. Over 99% of the freeform responses, and all campaign responses, opposed the proposal to legislate to provide underground access to gas, oil and geothermal developers below 300 meters.

1.12. 92% of the 4,065 stakeholder and questionnaire respondents answered 'no' to the question 'Should the Government legislate to provide underground access to gas, oil and geothermal developers below 300 metres?' 7% answered 'yes' and 1% did not give an answer.

1.13. The 82 stakeholder responses shows a markedly different picture with 55% answering 'yes', 24% 'no' and 21% who did not specify.

1.14. **The main points from those who answered 'yes' included:**

- The current system is not fit for purposes and changes are required as industry cannot proceed without these, and there is a significant economic benefit in doing this.
- Increased investment potential was cited, as was the benefit of using domestically produced oil and gas during the move towards renewable energy sources, the need to move away from dependence on foreign imports and the need for cheaper energy.
- Some of the responses that supported the proposals also raised some issues and concerns. These included issues related to law, the regulatory framework, and environmental safety, as well as the need for a notification system and to ensure the regulatory process is followed.

- 1.15. In addition, exemptions were sought and the scope of the proposal was questioned.
- 1.16. **The main points made by those answering ‘no’ included:**
- Opposition to hydraulic fracturing due to environmental and/or health concerns, subsidence or other geographical instability.
 - The principle of removing land rights
 - Support for renewable energy rather than fossil fuels.
 - Provided examples they claim of environmental, health or geological damage caused by hydraulic fracturing that has been carried out either abroad or in the UK.
 - Concerns on linking geothermal and shale proposals.
- 1.17. These and more are covered in detail in the body of the Government Response.

Question 2

- 1.18. Respondents were asked ‘If you do not believe the Government should legislate for underground access, do you have a preferred alternative solution?’ and 74% respondents out of the 4,065 questionnaire and stakeholder responses submitted alternatives.
- 1.19. The main suggestions given were:
- The need to invest in or incentivise renewables, or in some cases other forms of energy.
 - Reiteration of opposition to hydraulic fracturing or to a change in the access legislation.
 - The need for legislation or incentives aimed at reducing energy consumption.
 - The need to consult every landowner.

Question 3

- 1.20. The final consultation question asked ‘Should a payment and notification for access be administered through the voluntary scheme proposed by industry?’. A total of 82% of the 4,065 stakeholder and questionnaire respondents said ‘no’, 10% said ‘yes’ and 8% did not reply.
- 1.21. Of the responses received from the 82 stakeholder organisations, 39% said ‘yes’ and 21% said ‘no’ (the remainder did not reply).
- 1.22. The main comments made by all respondents on this question were:
- Reiteration of opposition to hydraulic fracturing or to a change in the access legislation.
 - That the scheme should be statutory; that a voluntary scheme would not be effective.
 - Comments that the proposal is akin to bribery.

Summary of conclusions

- 1.23. The consultation attracted a large number of responses; the majority of respondents included campaign text opposing hydraulic fracturing and/or the proposed change to underground access legislation, and did not specifically address the questions to the consultation.
- 1.24. We acknowledge the large number of responses against the proposal and the fact that the proposal has provided an opportunity for the public to voice their concerns and raise issues. However the role of the consultation was to seek arguments and evidence to consider in developing the proposed policy. Whilst a wide range of arguments were raised and points covered, we did not identify any issues that persuaded us to change the basic form of the proposals. The full Government response to the consultation, considers each argument, and the evidence put forward, and provides a response.
- 1.25. Many of the issues that were raised in response to the consultation were identified during development of the policy proposals and were considered in depth at that stage. When reviewing responses on these points we nevertheless checked that our rationale remained sound and that no compelling new arguments were made. There were also some new issues identified that had not already been fully considered during policy development, such as that of private mineral ownership at these depths. We have considered these, discussing with other Government Departments and regulators where appropriate, and are content that the issues raised are adequately managed through existing processes rather than by amending our proposals.
- 1.26. Having carefully considered the consultation responses, we believe that the proposed policy remains the right approach to underground access and that no issues have been identified that would mean that our overall policy approach is not the best available solution.
- 1.27. We will therefore put before Parliament primary legislation to implement the policy proposals set out in the consultation paper. Parliament's scrutiny of the provisions will provide further opportunities for public engagement on the issues.

Introduction

1.29. There were a total of **40,647** responses to the consultation:

- **82** from stakeholder organisations (referred to as **stakeholder responses**).
- **3,983** from individuals and organisations who addressed the consultation questions (referred to as **questionnaire responses**).
- **36,582** who submitted comments in a freeform format (referred to as **freeform responses**), of which **28,821** included one of two campaign texts (referred to as **campaign responses**).

1.30. The following paragraphs describe each of these groups of responses in more detail.

1.31. It should be noted that in some cases percentages may not add to 100% as figures have been rounded.

1.32. We received responses about the application of the proposals to Scotland and Wales. There is already significant devolution of regulatory and planning matters to Wales and to Scotland, and the devolution settlements set out which matters are devolved to each country. We have taken into account the Scottish and Welsh Governments' representations in reaching our policy position; however these are not included within the figures on the number or percentages of respondents.

Stakeholder responses

1.33. Responses were received from 82 stakeholder respondents. These include national or major organisations representing the views of their members or providing detailed comment in relation to their sector/area. Stakeholder responses also include local authorities and town and parish councils representing the views of their residents.

1.34. As can be seen in the table below, the organisation groups with the largest numbers of responses were parish and town councils (18) and respondents from the gas, oil and geothermal industries (15).

Table 1: Stakeholder responses

| Organisation group | Number received |
|---------------------------|------------------------|
| Parish and town council | 18 |
| Industry | 15 |
| Associations | 12 |
| Local authority | 10 |
| Environment | 9 |
| Legal | 5 |
| Other | 5 |
| Energy | 3 |
| Other public sector | 3 |
| Water | 2 |
| Total | 82 |

1.35. Within these respondent groups:

- The parish and town council group also includes local council associations.
- The industry group includes companies and groups involved with the oil, gas and/or geothermal sectors.
- The associations group includes professional bodies, members' associations, unions and other representative bodies.
- The local authority group also includes local authority associations.
- The environment group covers a range of regional or national companies and organisations with a focus on the environment, landscape, nature or wildlife.
- The legal group contains individual law firms as well as professional bodies.
- The other group covers organisations and companies from a range of different sectors.
- Energy covers energy suppliers and an energy association.

- 1.36. The responses to the consultation questions given by the stakeholder group of respondents were coded and analysed using the method set out in the analysis section below. In addition, as these responses were, in most cases, more wide ranging and detailed than questionnaire responses, more in-depth qualitative analysis was undertaken; this is also described in the analysis section.
- 1.37. Findings from this group of respondents are discussed and illustrated by charts and verbatim comments in the relevant chapters of this document.

Questionnaire responses

- 1.38. 3,983 respondents submitted answers to the three consultation questions either through the online portal, by email or by post. These ‘questionnaire’ responses were assigned to a respondent group and these groups have been used to look for any differences or similarities across and between the different types of people, groups and organisations who responded.
- 1.39. In many cases, however, it was not possible to ascertain whether respondents were answering on their own behalf or on that of an organisation or group. In these cases responses were classified as an individual or organisation/group based on a combination of whether their email address matched the organisation and whether the respondent used personal pronouns.
- 1.40. The following table shows the numbers of questionnaire respondents who replied in each category; as can be seen, the majority of responses came from individuals (3,753):

Table 2: Questionnaire responses

| Questionnaire respondent group | Number received |
|----------------------------------|-----------------|
| Individuals | 3,753 |
| Local businesses | 137 |
| Anti-hydraulic fracturing groups | 54 |
| Local groups and organisations | 39 |
| Total | 3,983 |

- 1.41. The responses to the consultation questions given by this group of respondents were coded and analysed using the method set out in the analysis section below. The main themes from these responses are discussed and illustrated by charts and verbatim comments in the relevant chapters of this document.

Freeform responses

- 1.42. 36,582 individuals who replied to the consultation gave their views on the subject of hydraulic fracturing or the proposed change to legislation in a freeform format or as part of a campaign, rather than addressing the consultation responses.
- 1.43. 16,933 of these replies contained some or all of the following campaign text (Text A)
“Shale gas and oil won't solve the UK's energy crisis and it won't solve the climate crisis. Please focus more resources on renewable energy sources rather than one which has such a short life. Please scrap plans to drill under our homes, and scrap hydraulic fracturing in the UK. And at the very least, this consultation should be re-run as it is deeply flawed.”
- 1.44. Another instance of campaign text was also noted and 11,888 replies included some or all of the following sentences (Text B):
“I object to the proposals to change trespass laws that would allow hydraulic fracturing companies to drill under people's homes and land without permission.
I object to the government's support of the hydraulic fracturing industry. Changing laws that protect people's private property to aid the extraction of unconventional gas is wrong.
This change to legislation is supposed to be entirely dependent on the outcome of this consultation. Polling shows 75% of people in this country oppose it. Please listen to the people and not hydraulic fracturing companies.
Hydraulic fracturing won't solve the UK's energy crisis and it won't contribute to the fight against climate change.
Please scrap these plans and respect people's property rights.”
- 1.45. In addition to submitting one or other of these campaign texts, most respondents also included their personal views giving their reasons for opposing the legislation.
- 1.46. 7,761 respondents replied in a freeform format and did not include any of the campaign text mentioned above; again these responses were generally very brief and predominantly opposed to hydraulic fracturing or to the proposed change to legislation. This group includes additional campaigns where small numbers of individuals (fewer than 20) submitted the same freeform text.

Table 3: Freeform responses

| Freeform responses | Number received |
|----------------------------|-----------------|
| Containing campaign text A | 16,933 |
| Containing campaign text B | 11,888 |
| Other freeform responses | 7,761 |
| Total | 36,582 |

1.47. The main themes from the personal views submitted in freeform and campaign responses are described in the next chapter of this document.

Analysis

- 1.48. During initial indexing a number of duplicate responses were noted. These were dealt with by the following method:
- Exact duplicate; where the name, email address and the responses to every question were identical. The second response was removed.
 - Majority duplicate; where the name, email and yes/no responses were identical but there were variations in the text submitted. Responses were combined to form one response containing all text.
 - Difference duplicate; where the name and email address were identical but there were differences in the yes/no responses. The text from both responses was combined and examined to ascertain the respondent's view. In any cases where the text did not provide the answer, the yes/no response was left blank.
- 1.49. All stakeholder and questionnaire responses were processed initially using quantitative analysis. Responses submitted via the portal were imported automatically into a statistical software package. This allowed us to quantify the yes/no responses at each question. Responses submitted by email or post were manually entered.
- 1.50. Code frames were developed for the open text parts of each question (each code is a summary of similar points raised in multiple responses) and codes were developed for high-level themes (those giving the respondents overall point of view) and main themes (main reasons given by respondents for their point of view).
- 1.51. All responses were then coded and manually data entered. Respondent groups were also data entered. This produced a full database containing all stakeholder and questionnaire respondents, respondent groups, closed question responses and coded open question responses.
- 1.52. Once the coding and data entry had been verified, we produced data tables with the respondent group as a cross-break (heading). This analysis counted the instances of each theme and allowed us to see where main themes were common to all groups or specific to only one or two.
- 1.53. We focussed on the stakeholder and questionnaire responses as these respondents included detailed responses to the consultation questions, whereas the majority of campaign responses and free-form responses do not. However, we have still addressed the points made in the free-form responses in this document.
- 1.54. The majority of specific points made by questionnaire respondents were identified at Question 1 and this is reflected in the reporting. A great many respondents simply restated the points raised at Question 1 in their answers to Questions 2 and 3 and did not answer the questions directly.
- 1.55. All stakeholder responses were then analysed using qualitative analysis. Using the coding frames from the quantitative element as a starting point for an analysis matrix, each

point made in each stakeholder response was cross checked against all existing themes. Any supporting reasons, evidence or other information given in relation to each theme was noted as a sub-theme, along with any relevant contextual information. Any information falling outside of these themes or sub-themes was added to the analysis matrix as a new theme.

- 1.56. When all themes and sub-themes had been extracted, the responses were cross referenced against each other to look for commonalities and differences between stakeholders and stakeholder groups, as well as any points unique to one particular respondent.
- 1.57. After an initial examination, freeform responses were categorised using electronic qualitative analysis; firstly to identify any instances of campaign text and then to ascertain the personal views expressed in responses. The number of campaign responses submitted is reported in the section relating to freeform responses, above. Using the high-level themes that had been identified during analysis of Question 1, the personal views expressed in the freeform responses were grouped and then counted under these themes.
- 1.58. The points and arguments raised in each of the themes were then considered, as were any specific additional points raised by stakeholders.
- 1.59. We noted any issues that needed further research or clarification, such as the interaction with trespass law across the Devolved Administrations, or the principle of private mineral ownership. We discussed these issues with experts in other government departments and independent bodies. Having considered these issues in detail, we are confident that our proposals remain the right approach – our analysis of these issues is covered in this response.
- 1.60. The consultation gave everyone who wished to respond and comment the opportunity to do so. As such, we cannot make assumptions about the viewpoint of any organisation or individual who chose not to respond. Given the self-selecting nature of this type of exercise, any figures quoted here cannot be extrapolated to the wider population.
- 1.61. The following chapters document the substance of the analysis and present the main views expressed in responses. These chapters follow the order of the three consultation questions.

Legislation to provide underground access

- 2.1. A well for shale gas will usually run vertically down to the shale layer (usually over a kilometre and a half down) and then extend horizontally for some distance – US experience suggests this could be as much as 2 miles, and perhaps more. There may be a number of these horizontal extensions used to access the gas trapped in shale formations over a large surface area. Drilling for geothermal energy also involves a single point of entry at the surface and the use of a larger surface area below ground, usually requiring two wells that separate at depth. For more on underground drilling, please refer to the consultation document.
- 2.2. The consultation explained that, at present, companies wishing to drill must follow a number of steps; one of these is to gain the permission of the landowner(s) under whose land they wish to drill. Deep lateral (or horizontal) drilling can pass under land owned by many different people, all of whom must be contacted for permission.
- 2.3. In the proposal outlined in the consultation, access at the surface and down to 300 metres will remain the same. Companies are already able to obtain access under 300 metres: if they are granted permission by the landowner, or, in the case of Petroleum meet the requirements of the Mines (Working Facilities and Support Act 1966 and the court grants them permission: the proposals in our consultation merely aim to put underground access (300 meters below the surface) for oil, gas and geothermal energy on a statutory footing. Any perceived risks, whether environmental, social, or otherwise from hydraulic fracturing are no different at a site where access was obtained privately from one where the access is obtained under statute.
- 2.4. In the case of oil and gas developments, if it is not possible to obtain access rights privately, following an unreasonable refusal of access from a landowner the operator can refer the case to the Secretary of State, who may give the operators permission to apply to the courts for access.
- 2.5. In the case of geothermal energy developments, there is no similar appeal process and so a refusal of access from a landowner may mean the development cannot go ahead.
- 2.6. The Government proposes to give a statutory right of access; such as that currently offered to coal operators, to companies extracting petroleum (which includes shale gas and oil, as defined under the Petroleum Act 1998), or geothermal energy, from at least 300 metres below the surface.
- 2.7. Respondents were asked (Question 1):
 - Should the Government legislate to provide underground access to gas, oil and geothermal developers below 300 metres?
- 2.8. Looking at the 4,065 stakeholder and questionnaire responses:
 - 92% did not support the proposed legislation.
 - 7% were in favour.

- 1% did not give an answer.

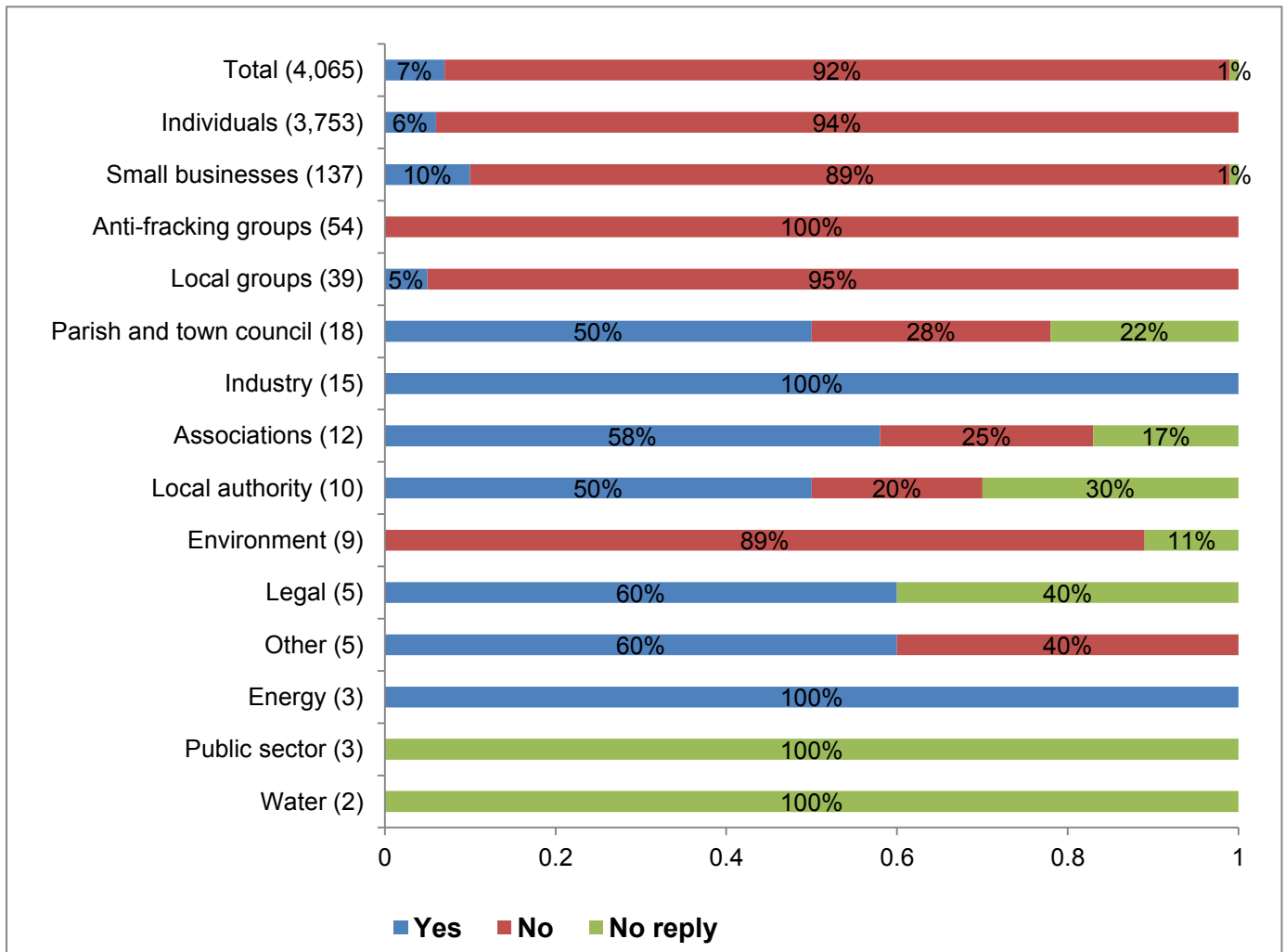
2.9. Over 99% of the freeform responses also opposed the proposals.

2.10. Figures are markedly different between the 3,983 questionnaire and the 82 stakeholder respondents:

- 94% of questionnaire respondents opposed the proposal compared to 24% of stakeholder organisations.
- 6% of questionnaire respondents supported the proposal compared to 55% of stakeholder organisations (21% of stakeholder respondents did not give an answer).

2.11. The following chart shows the answers from each of the questionnaire and stakeholder groups:

Chart 1: Should the Government legislate to provide underground access to gas, oil and geothermal developers below 300 metres?



Support for legislation to provide access

- 2.12. All companies in the industry and energy groups and most in the association, legal and other organisations groups voiced support for the proposal.
- 2.13. Many of the respondents supporting the proposal gave very short answers simply agreeing with or restating the information given in the consultation document. Industry respondents in particular stressed many of the points made in the consultation and included additional information. Supporting points are described below.

Investment potential

- 2.14. Respondents commented that this proposal will mean equality of access for all companies and that removing the uncertainty caused by the current legislation will help to attract investment.
- 2.15. A respondent from the industry group said: *“So far, potential investors have felt encouraged to invest in the UK by the Government's support for the industry. Investors, however, now need to see progress on the ground if they are to continue to invest.”*
- 2.16. A professional body commented that *“without this horizontal underground access it is much less likely that the developers will be able to build a commercial case for operations as they will be able to only drill vertically and not horizontally without a great deal of extra lost time and legal expense.”*
- 2.17. A legal respondent commented that the applicability to *“conventional”* should be mentioned as access issues are also significant for conventional operators as directional drilling is increasingly common.

Government Response

- 2.18. The Government has shown that it is committed to encouraging the safe and sustainable development of indigenous energy sources where appropriate, and the proposal would represent another in a series of steps taken recently to boost investment in our energy sector. The current process for companies wanting to gain underground access to extract petroleum and geothermal energy resources is uncertain both in the time delay and potential costs, for both the company and landowner concerned. The change proposed will bring these energy resources in line with arrangements for underground access for coal.
- 2.19. We agree that defining the proposal on the basis of different techniques or technologies employed is restrictive, and have therefore focussed our proposal on the purpose and depth of the activity, rather than limiting on the method employed.
- 2.20. The proposals would apply to any underground drilling for the extraction of geothermal energy and petroleum, which covers all oil and gas including conventional oil and gas.

Legal issues

- 2.21. Case law was mentioned by many respondents to support the case for a statutory right of access. One industry respondent commented: *“The current regime is complex, lengthy and costly and was not intended to deal with technological advances which enable the drilling of long (several kilometres) small diameter horizontal wells deep underground. The case law*

(Bocardo vs Star Energy) found that land at such depths has no real value and any use made of it will not affect the owner.”

- 2.22. A respondent from the legal group pointed out that further change will be required to legislate: *“The right will need to extinguish trespass claims not only of any surface landowners whose land sits above the lateral well, but also of any separate owners of mines and minerals within the strata of the land below the surface. Otherwise, the owner of mines and minerals could have a trespass claim but not the surface landowner”*. They also wanted to see clarification about how the right will be triggered.
- 2.23. Some respondents stated that it would be more than likely that more than one individual would refuse underground access under the current regime.

Government Response

- 2.24. When formulating the proposals made in the consultation document, the Government considered existing case law. Pursuant to section 3 of the Mines (Working Facilities and Supporting) Act 1966, a court may only make an order granting the necessary ancillary rights if it is satisfied that the grant is expedient in the national interest and if it can be shown that it is not reasonably practicable to obtain the right by private arrangement for any of the following reasons:
- the persons with power to grant the right are numerous or have conflicting interests;
 - the persons with power to grant the right, or any of them, cannot be ascertained or cannot be found;
 - the persons from whom the right must be obtained, or any of them, have not the necessary powers of disposition, whether by reason of defect in title, legal disability or otherwise;
 - the person with power to grant the right unreasonably refuses to grant it or demands terms which, having regard to the circumstances, are unreasonable.
- 2.25. For information on payment in respect to the current process for underground access see Section 4.
- 2.26. We do not intend for the underground access right to have a ‘trigger’ (i.e. a precondition that needs to be satisfied before the right becomes available). In practice, any development in relation to oil, gas or geothermal energy from below 300m would be unable to benefit from the right of access until they have the necessary regulatory approvals. This is similar to the current regime for underground access which can be privately agreed with a landowner or awarded by the court, at any point during the regulatory process.
- 2.27. The Government response on mine and minerals is contained within paragraphs 2.142-2.148.
- 2.28. We acknowledge that under the current regime opposition to an underground access agreement could come from more than one individual, and as this consultation demonstrates there is strong opposition to our proposal. However, as previously stated the current process for companies wanting to gain underground access to extract petroleum and geothermal energy resources is uncertain both in the time delay and potential costs, for both the company and landowner concerned.

- 2.29. Other industries use a variety of methods to gain access to underground land, including statutory compulsory purchase of land and compulsory rights procedures (which can include court proceedings and may be accompanied by a compensation code).
- 2.30. A similar underground access route to the one we are proposing is the method used for the extraction of coal. Given that deep coal mining has a number of similarities to the extraction of shale gas and deep geothermal energy, we have considered this in detail when developing our policy. The change proposed will bring underground access arrangements for these energy resources in line with arrangements that are established for other industries.

Regulatory issues

- 2.31. Some respondents pointed out that, as noted in the consultation document, developers will still have to follow the other steps necessary to gain permission to drill (a licence, environmental permits, planning permission etc.). They also pointed out that regulations, for example on noise, vibration and groundwater contamination, will ensure safety. To ensure this safety, a professional body suggested *“the Environment Agency and the Coal Authority are organisations with appropriate experience of regulating and enforcing safety schemes, some principles of which will be transferrable to the gas, oil and geothermal industries.”* A public sector organisation wanted to see: *“reference to the Coal Authority permitting regime in order that drilling locations and methods are assessed to ensure public safety”*.
- 2.32. A local authority wanted guarantees that regulations would be put in place saying *“members at the county council unanimously supported a Notice of Motion last year calling on the Government to put in place industry-specific regulation, and to ensure local planning control is maintained.”*
- 2.33. Many respondents commented that there should still be a requirement, as in the planning process, to consult with local councils or to consult with local groups and landowners on all access proposals.
- 2.34. A respondent from an industry group stressed that *“it is important to recognise that the proposed new legislation would not restrict existing opportunities for public engagement during the process of obtaining approvals for drilling through pre-application meetings with a potential developer, local planning consultations, and responses to published applications, as well as via more generic avenues of communication with developers, local authorities or MPs.”*
- 2.35. Safety issues were discussed in the consultation document and one industry respondent pointed out that: *“horizontal drilling and hydraulic fracturing are techniques that have been used by the oil and gas industry around the world for a number of decades. These techniques are used at depths of 1000 metres or typically much greater below the surface of the land using wellbore diameters of 6 to 9 inches.”*
- 2.36. Another, said that *“the safety of shale gas and oil extraction, as well as the potential economic benefits of developing this industry in the UK, have been thoroughly researched by a number of reputable organisations in the last few years”* and detailed many reports and studies.

Government Response

- 2.37. In terms of safety and environmental concerns these are covered in detail in the responses to questions 2 and 3 in this document.
- 2.38. The Government has published extensive information on the regulatory regime: <https://www.gov.uk/government/publications/regulatory-roadmap-onshore-oil-and-gas-exploration-in-the-uk-regulation-and-best-practice>.
- 2.39. Where industry specific regulation is required, this has been developed; an example of this is the traffic-light system to halt operations if seismic activity takes place above a pre-defined level.

Other comments

- 2.40. The main reasons given by the questionnaire group (individuals, small businesses and local groups) for their support for the proposal included:
- The need to continue to use fossil fuels during a move towards renewable energy sources
 - The need to move away from dependence on foreign imports
 - The need for cheaper energy
- 2.41. Respondents who support the change in the legislation also had a number concerns or other comments, echoing those opposed to the legislation:
- Concern for the environment
 - The need for notification of access
 - Support for renewable energy
 - The need for accountability
 - The need to ensure the planning process is followed
 - The need for guarantees of safety or tighter regulation

Government Response

- 2.42. Some respondents mentioned issues such as energy security or the move to renewables in their support for the proposals. The Government agrees that both shale gas and geothermal energy development should be viewed as part of a wider discussion considering our energy mix, low carbon generation and energy security. These technologies may help us to diversify our energy portfolio and increase resistance to any future energy shocks, whilst contributing to our move to low carbon future.
- 2.43. Some of the respondents who supported the proposals also mentioned concerns about the environment, the need for notification and support for renewable energy. These are covered in detail in the responses to Questions 2 and 3 and addressed later in this document. We agree it is important that the relevant regulatory process should be followed in full.

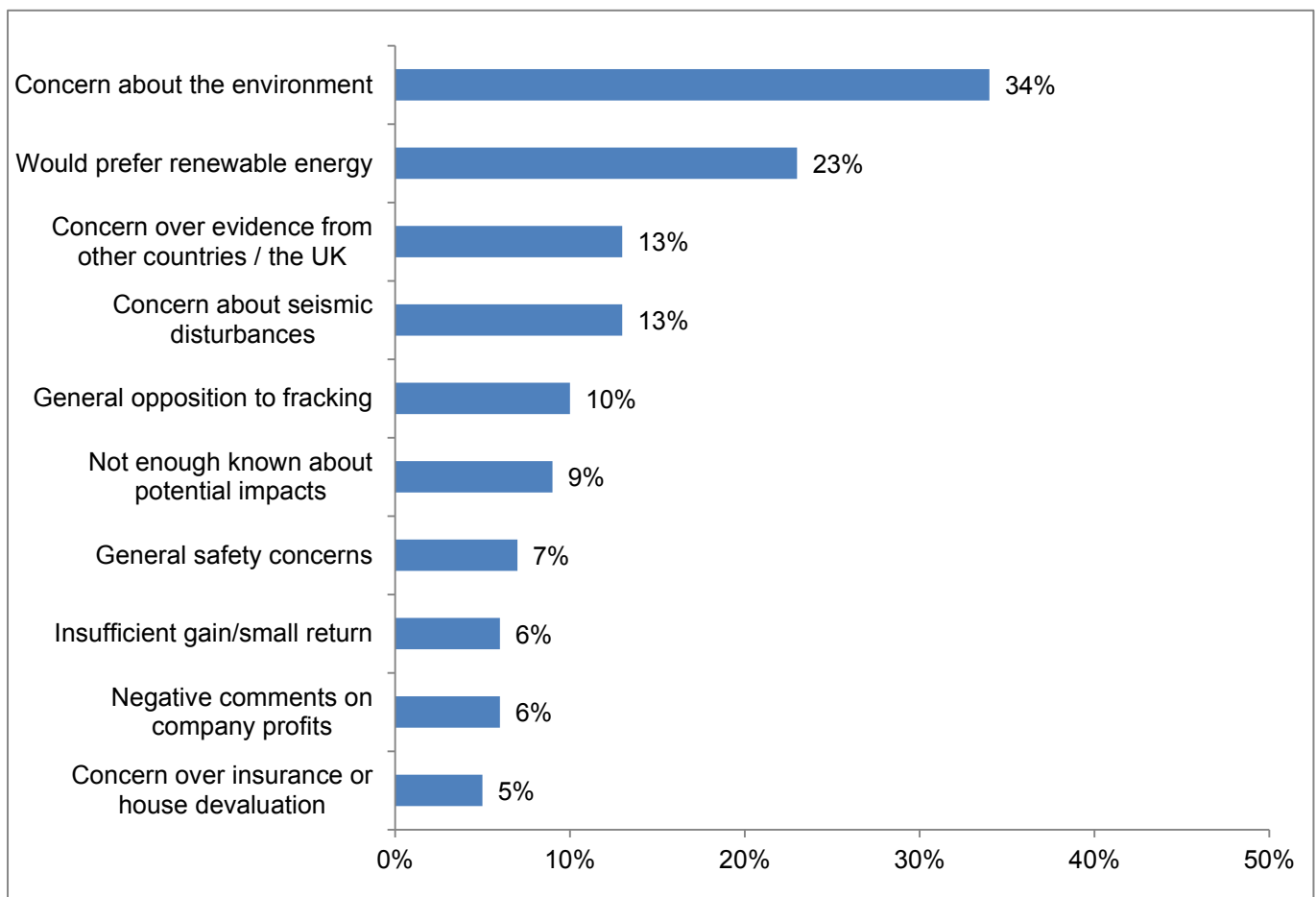
Against legislation to provide access

- 2.44. Over 99% of respondents were opposed to the Government's proposal to legislate to provide underground access to gas, oil and geothermal developers below 300 metres and a variety of reasons were put forward in support of this position. These can be summarised under two headings (opposition to hydraulic fracturing and opposition to the removal of a landowner's right to deny access) and are discussed below.
- 2.45. We acknowledge the large number of responses against the proposal and the fact that the proposal has provided an opportunity for the public to voice their concerns and raise issues. However the role of the consultation was to seek arguments and evidence to consider in developing the proposed policy. Whilst a wide range of arguments were raised and points covered, we did not identify any issues that persuaded us to change our proposed policy on underground access

Opposition to Hydraulic Fracturing

- 2.46. Most freeform respondents included either campaign text or their own text voicing their opposition to hydraulic fracturing.
- 2.47. The main reasons given by questionnaire and stakeholder respondents for their opposition are shown in the following chart:

Chart 2: Reasons for opposition to hydraulic fracturing (Base: 4,065)



2.48. Many reasons were put forward to support a widespread view among respondents that hydraulic fracturing is hazardous and these included the three topics below, which are covered together in one section in paragraphs 2.63 – 2.77 given that our existing regulatory system is designed to address all of these concerns.

Opposition to hydraulic fracturing due to concern for environmental factors

2.49. Respondents stated their opposition to hydraulic fracturing for environmental reasons and these included: concern about groundwater and air pollution; concern over what will happen with waste water; and/or concern over soil pollution. There were also many comments regarding concerns on health issues caused by pollution.

2.50. Environmental organisations along with many individuals, small businesses and local groups felt that there are no guarantees that hydraulic fracturing will not cause environmental damage and some cited examples from America and other countries that they said show hydraulic fracturing to be unsafe. Examples include:

- *“There is a wealth of scientific days [sic] that suggests it is too dangerous to go ahead with, which is why Germany, France and various states in the USA have called a moratorium on it.”* (individual)
- *“There are hundreds if not thousands of instances of accidental water (table) pollution in the USA, including a horrific recent example quoted in the Bakersfield Californian, which cites the following: ‘Seven independent oil companies have been ordered to halt state-approved wastewater injection work starting noon Monday out of concern they may be contaminating Kern County drinking water.’”* (individual)

2.51. Many respondents were concerned about the leakage of gas or contaminated water as well as about how waste water would be dealt with. The possible pollution of aquifers or groundwater during or after the hydraulic fracturing process was a major concern for a large number of respondents.

2.52. The consultation document says that there is no evidence of groundwater contamination as a result of hydraulic fracturing but this was contested by many respondents, including a trade union that said *“Reports from the US on the contrary highlight that there is in fact ‘a large body of evidence which questions the financial benefit and environmental safety of shale gas development in the USA.’”* Several different reports, documentaries and eyewitness accounts were put forward by respondents to refute this claim and to highlight other potential dangers to health, with examples from other countries of pollution from hydraulic fracturing sites causing illness in humans and wildlife.

2.53. Other environmental issues included increased traffic and other industrialisation along with the impact on the landscape of drilling rigs.

2.54. The potential impact on wildlife was also of concern to a small number of respondents, indeed one environment organisation could not support the proposal at present as there is no *“clear and definitive information on the likely impact that such underground drilling may have on important and sensitive habitats”*.

Opposition to hydraulic fracturing due to concern for seismic events or subsidence

2.55. Respondents described issues from hydraulic fracturing in other countries and from wells that have already been drilled in the UK which, they commented, has caused seismic activity and/or subsidence (and consequent environmental issues or damage to property). Examples of comments include:

“The process is dangerous, causing earthquakes and tremors which could create subsidence and damage the integrity of the wells resulting in pollution of toxic and radioactive gases which would have an adverse effect on the environment and public health.” (anti-fracking group)

“Blackpool has already experienced seismic activity which has been traced back to the drilling which has taken place.” (individual)

2.56. Many of these respondents wanted to see detailed investigations of the specific instances cited and/or of the geology of any areas where hydraulic fracturing is proposed before any further drilling is allowed. A response that is illustrative of many comments on this issue is as follows: *“This technology is not at a stage where it can be rolled out across the country; we would prefer to see a moratorium whilst further research is carried out. Indeed, seismic events connected to both shale gas drilling and fracturing (such as the 2.3 magnitude tremor in Blackpool in 2011) have not been fully investigated.”*

2.57. A more specific point was raised by a water organisation, this respondent was concerned that hydraulic fracturing may lead to land slippage or ground movement which may then affect the main water network. They said: *“Whilst causative links resulting in either of these at this stage is un-evidenced, we feel it is noteworthy for inclusion in the consultation pending further evidencing.”*

2.58. Respondents also had a number of other concerns including:

- That their properties could be damaged by hydraulic fracturing beneath them.
- That property owners would face higher insurance costs or would not be able to access insurance; some commented that they have already been advised of this by their insurers.

Other concerns about hydraulic fracturing

2.59. A small number of respondents, including environmental organisations, said that they are not convinced that the current regulatory system is fit for purpose. Some individuals cited examples from other countries and also from the UK where monitoring had not been carried out or regulations had been breached. One individual gave the example of an exploration bore hole which, he reported, had not conformed to planning regulations. There were some concerns that current regulations and monitoring are not stringent enough to ensure that hydraulic fracturing will be carried out safely. Another said:

2.60. *“The consultation also relies heavily on the regulatory and statutory frameworks governing oil and gas exploration and production being adequate when they are patently not. Even if the regulation were sufficient, experience last summer in Balcombe shows that neither the Environment Agency nor the HSE adequately assessed or monitored the operation there. The local community there understands that the HSE, responsible for well*

integrity, did not visit the Cuadrilla site during the operation, despite the government's repeated assurances that the UK's unconventional oil and gas exploration are the most tightly regulated in the world."

- 2.61. Respondents also commented that the UK is less suited than some other countries, such as the USA, to hydraulic fracturing; some stated that the UK is a small, densely populated area or that the UK has many more faults in its rock layers than the USA.
- 2.62. Some of the respondents felt that there is not enough information or research available as to potential impacts from hydraulic fracturing and felt that no more drilling should take place until safety can be guaranteed.

Government Response

- 2.63. With regard to any risks associated with hydraulic fracturing for oil and gas extraction, we consider that it is the planning system and the environmental and health and safety regulatory regimes which provide the necessary protection and opportunities for individuals to comment on potential impacts, and not the law related to trespass.
- 2.64. These regulatory regimes, which are quite separate from considerations of underground access, address the potential impacts of the gas, oil or geothermal operations, not just those associated with potential impacts of underground or surface drilling.
- 2.65. There are already requirements for planning authorities to publicise proposals and these provide an opportunity for local engagement on the planning matters relating to proposals (although it is important to note that the planning application is a separate matter to the granting of access rights in both law and practice).
- 2.66. The regulatory regimes in place consider all aspects of the shale gas and oil or geothermal operation, but not access rights, and not just those associated with underground or surface drilling impacts.
- 2.67. All of the potential risks mentioned above: groundwater pollution, safe waste water disposal, air pollution, soil pollution, gas leaks, traffic impacts, health impacts, impacts on the landscape, impacts on wildlife, seismic events, and subsidence are considered at some point by the relevant competent authority – whether this be the environmental regulator, the local authority or the Health and Safety Executive. We consider that this regulatory framework is fit for purpose, for the reasons set out in the next paragraph.
- 2.68. The existing law related to trespass and underground access is unrelated to the regulatory system, and does not provide the landowner with any additional protection – it simply gives them the right to refuse access. The consultation did not propose to make any changes to the existing regulatory system, and so both landowners and the community will continue to be protected and engaged as they are currently. The potential risks mentioned above are not affected by consultation proposals, because they are the same whether or not the access rights are statutory, as per the proposal, or obtained (as they currently can be) by private negotiation or court order. Although these risks do not engage with the subject of the consultation, we are nevertheless providing a response for the purposes of information.
- 2.69. A number of respondents quoted studies on hydraulic fracturing from the US, or noted that they were aware of reported incidents of environmental damage attributed to shale gas

development. The development of shale gas in the US has been accompanied by debate on its environmental impacts there.

- 2.70. Many of the incidents reported have, on investigation, not been shown to be connected with oil and gas activity. There is no evidence that hydraulic fracturing or the production of shale gas or oil has led to subsidence. There is however evidence from US regulators and review bodies that gas developments there have, on occasion, led to water contamination by methane (i.e., gas) or to contamination of surface waters from inappropriate handling of materials including hydraulic fracturing chemicals. But there is no evidence that hydraulic fracturing itself, as distinct from well or surface operations, has contaminated any groundwater.
- 2.71. These instances of contamination do of course underline the need for the industry to consistently apply best practice, and the need for proper scrutiny and oversight to ensure that this is in fact done. The UK has an entirely different regulatory system to the US, and we maintain exacting standards. Our regulatory system has effectively governed onshore oil and gas for over 50 years. There has been gas production, and low-volume hydraulic fracturing onshore in the UK for many years, with no reported contamination incidents. We are confident that the regulatory system will continue to provide robust protection for the environment and the public.
- 2.72. The UK Government's position draws on reports on shale gas by the Royal Society and Royal Academy of Engineering, Public Health England, and many authoritative reports from the US, including two from the Secretary of Energy's Advisory Board.
- 2.73. The Royal Society and the Royal Academy of Engineering concluded in their 2012 review that *"the health, safety and environmental risks associated with hydraulic fracturing as a means to extract shale gas can be managed effectively in the UK as long as operational best practices are implemented and enforced through regulation."*
- 2.74. Public Health England published a draft report for comment in October 2013 and a final report in June 2014 entitled Review of the Potential Public Health Impacts of Exposures to Chemical and Radioactive Pollutants as a Result of the Shale Gas Extraction Process. This stated that *"An assessment of the currently available evidence indicates that the potential risks to public health from exposure to the emissions associated with shale gas extraction will be low if the operations are properly run and regulated."* It noted that *"Where potential risks have been identified in the literature, the reported problems are typically a result of operational failure and a poor regulatory environment."*
- 2.75. In evaluating the significance of reports of environmental and health impacts, it is necessary to take account of the particular geological, environmental and regulatory context. We look to expert bodies to provide us with advice on the relative risks here in the UK, considering all available evidence. The reports listed above have considered a wide range of evidence and have also looked at the UK's regulatory system. The advice in these reports has outlined these risks and concluded that, overall, they can be managed or are low if industry follows best practice and there is robust regulation. We recognise that the evidence on shale gas continues to develop and it is helpful to have a wide range of scientific and expert bodies looking at these issues.

- 2.76. Several respondents also made a point about the impact of hydraulic fracturing on home insurance. There is no evidence that current exploration for shale gas and oil or geothermal energy will adversely affect insurance availability in the UK. No effects of this kind have been observed in 50 years of onshore oil and gas exploration and production, and there is no reason to see why this would change for shale gas and oil or geothermal energy extraction.
- 2.77. The Association of British Insurers have confirmed to Government that *“any potential damage as a result of hydraulic fracturing, such as earthquakes, subsidence, heave and landslip are all covered, in general, under buildings insurance. There is, at present, little evidence to show a link between hydraulic fracturing and seismic activity that could cause damage to a well-maintained property; however, insurers will continue to monitor the potential for hydraulic fracturing, or similar explorations, to cause damage.”*

Depth Limit

- 2.78. Concern about the 300 metres minimum depth was also raised by a small number of respondents asking that this be increased. Various suggestions for other depths were submitted. There were comments that a safe depth will depend on the characteristics and geological make-up of the land.
- 2.79. A water organisation said: *“Although the consultation indicates that any activities will still be subject to environmental regulations and assessment, we would like assurances that this depth threshold would not become a kind of de facto minimum standard”*.

Government Response

- 2.80. Hydraulic fracturing will usually take place in shale layers over a kilometre and a half below the surface. However, we have set a minimum depth of 300 metres for underground access to include cases where the companies may need to change the direction of the drilling early. This may be required in order to avoid fault lines or difficult geological formations and should make the drilling safer overall. We do not expect the landowner to have any use for the land at this depth. In comparison, the deepest London underground station is 32 metres and the Channel Tunnel is 75 metres below ground.
- 2.81. Setting a limit at 300 metres would ensure that all deep geothermal and shale gas projects benefit from the underground access regime.
- 2.82. With regards to the safety of aquifers and groundwater at this depth, we believe that the environmental regulators are best placed to address these risks. Any minimum distances should be decided on a case by case basis by regulators with the relevant expertise. In every development proposal for shale or geothermal sites, the environmental regulator will assess the risk to water resources. Where the risk to water is deemed to be too great, it can be expected that they will not grant a permit for that development.
- 2.83. Our proposals on access rights are about removing an existing obstacle and would apply to all applicable drilling activities below 300 meters. We consider it appropriate to keep the requirement in place for an operator to agree access with the individual landowners at depths above 300 metres, but this is not intended to preclude activities at these shallower depths, and in the case of oil and gas, the existing regime under the Mines (Working Facilities and Supporting) Act 1966 would remain in place at these shallower depths.

2.84. We do not believe that any further extension of the depth limit will be needed to address the use of mines or minerals – this is explained further in paragraphs 2.142-2.148.

Support for renewable energy to be pursued in place of hydraulic fracturing

2.85. Many respondents were against any further drilling for fossil fuels and questioned whether this is in line with the Government's Sustainable Development Principles. There were comments on the need to reduce dependence on fossil fuels and an environmental organisation, along with many others, commented that the proposal is contrary to the need to move towards a decarbonised energy sector in order to meet domestic climate targets. Examples of comments on this issue include:

"Hydraulic fracturing is completely the wrong response to the dangers of climate change, and will do nothing to reduce our carbon emissions." (individual)

"In addition the issue of human induced climate change through increased greenhouse gas emissions should be reason enough to prevent further investment into fossil fuel, all our resources for energy security should be focused on renewable technology at this time." (small business)

"In terms of sustainability, the gas retrieved would only be a short term supply - 12 years max and would be adding to carbon emissions, against current EU policy" (individual)

2.86. Respondents wanted to see investment in renewable energy such as wind, wave and solar power rather than accessing additional fossil fuels. In relation to this point, one local authority commented on their concern *"that the considerable support being offered to the oil and gas sector could divert investment away from other forms of energy, including green energy."*

Government Response

2.87. The Government's view is that we can extract shale gas and meet our carbon commitments. Supporting shale does not mean that we are neglecting the development of renewables – as outlined in more detail in our response to Question 2 (paragraphs 3.8-3.17). Comments on support for renewable energy are not relevant to the consultation proposals because the Government's support for renewables is not related to whether underground access is statutory or not. However, we have provided a response for information.

Liabilities & Compensation

2.88. Respondents including a professional body wanted to see guarantees and assurances that the companies involved in drilling would be responsible for putting right any damage (many said this must not only be for the life of the well but must also apply to any issues that arise in the future). The professional body said *"it must never be possible for any authority to require a landowner in his capacity as landowner to carry out any activities of clean-up or otherwise arising from rights of access under his land."* Respondents wanted to see assurances that any damage to the land, property, property value or any other issue affecting the landowner would be the responsibility of the drilling company.

2.89. There was concern over compensatory arrangements should any negative impacts be suffered by landowners. Some respondents wanted companies to be accountable for the

future as well as during the life of the well, with compensation paid for any future issues. One individual asked: *“If a person's house collapses 20 or 30 years after a shale layer 300 metres below it was fracked, is it likely they will they be able to claim compensation from the company? Is it likely that the hydraulic fracturing company will even still be around after 30 years?”*

- 2.90. One respondent suggested that if the risks are small then the costs should also be small, therefore Government should underwrite any adverse effects or ensure the insurance scheme is in place.
- 2.91. Commenting on various provisions in the legislative framework including those relating to compensation, a members association pointed out that current legislation does not provide for compensation for a landowner suffering surface damage.

Government Response

- 2.92. The Government has been clear that wherever shale gas hydraulic fracturing is conducted it must be done in a safe and environmentally sound way. The UK has over 50 years of experience regulating the onshore oil and gas industry national and there are robust regulations in place to ensure this, which we will look to continuously improve as the industry develops.
- 2.93. When operations finish, the operator is responsible for safe decommissioning of the well(s) and for restoring the well-site to its previous state or a suitable condition for re-use. The relevant planning authority will require suitable restoration of the site as a condition of the planning permission. The Environment Agency require that a site condition report is submitted by the operator as part of its Environmental Permitting regime that demonstrates that the site is in a satisfactory state when they surrender their environmental permit.
- 2.94. Few instances are known of problems with decommissioned wells, and we know of none where significant pollution has been caused by onshore decommissioned wells.
- 2.95. In terms of groundwater contamination, a recent US study¹ analysing the gas content in 130 water wells in Pennsylvania and Texas found that contamination of water wells by upward migration of natural gas due to hydraulic fracturing or horizontal drilling could be ruled out. Instead, methane found in the water wells could be linked to failures in the casing or lining of the gas wells. The importance of rigorous well design criteria was also highlighted by a report published in March 2014 by the ReFINE group.
- 2.96. The ReFINE report looked at the 2152 hydrocarbon wells drilled onshore in the UK between 1902 and 2013. Of the 143 active UK wells producing at the end of 2000, the report noted that evidence of well integrity failure has been found in only one case.
- 2.97. We take the safety of wells very seriously and will look to learn from the report and international practices. We welcome greater transparency including the UK shale gas and oil industry's commitment to make monitoring data available for all new wells.
- 2.98. At common law, in very broad terms, when person or company 'A' causes loss to person or company 'B', 'B' can make a claim against 'A' to, among other things, pay damages or otherwise put right the wrong that has been done. In the first instance, 'B' should try to

¹ <http://www.pnas.org/content/early/2014/09/12/1322107111.full.pdf> +html

resolve the issues first with 'A', and if a solution cannot be reached then 'B' can seek a decision from the courts. Various remedies are available to 'B', including an award of damages. This is a principle which applies to petroleum and geothermal as it does to a wide range of other industries. Further, the Environmental Protection Act 1990 and the Environmental Damage (Prevention and Remediation) Regulations 2009, which provide for the remediation of contaminated land and damage respectively, are relevant to the extraction of petroleum and deep geothermal energy in the case of environmental liabilities.

- 2.99. We believe that the existing law is robust and do not believe there is a substantive reason why liabilities in respect of the petroleum or geothermal industries should be subject to additional burdens or special measures that are not imposed on other industries.
- 2.100. It is possible, but unlikely, that a scenario arises in which it is difficult to identify a company against which a claim can be made, for instance in the case of a company that becomes insolvent. In practice, there may not be a benefit to be had from making a claim in these circumstances, so we have been working with the trade body for the onshore oil and gas industry (UKOOG) to develop an industry scheme to provide cover should these circumstances arise. As with the oil and gas industry, any deep geothermal project that proceeds to drilling will be covered by third party public liability insurance and liability insurance may also be available through the drilling contractor.

Opposition to legislation to provide access

- 2.101. Around a third (30%) of respondents from the stakeholder and questionnaire group including individuals, small businesses and local groups, parish and town councils, environmental organisations and some other stakeholders, opposed the change in legislation as they did not want to see the Government remove the law giving them the right to deny access to drilling beneath their land.
- 2.102. Over 99% of freeform responses, including those who submitted campaign text, opposed the proposed change in legislation.

Ownership of Land

- 2.103. Respondents commented on the fact that their understanding is, and in some cases their title deeds state, that they own not only the land at the surface but also the land and space above and below their property. Examples include:

"This legislation would remove our right to stop companies drilling under our home. This would be in direct contradiction of the Magna Carta our oldest legal frame work. "No free man shall be seized or imprisoned, or stripped of his rights." (individual)

"The rights to my house and garden including access under my land are mine and my husband's" (individual)

"I do not want anyone going under my property. My house is also my business, my livelihood and my future. It was built in the 17th century with no foundations. Do I really need someone digging underneath it?" (individual)

"The owner of the land should decide what happens underneath it. I don't want anyone drilling under my house, thank you very much!" (individual)

- 2.104. These respondents felt that it would be undemocratic of the Government to remove these rights and called for a full consultation or referendum.
- 2.105. The case of *Bocado SA v Star Energy UK Onshore Ltd and another* [2011] 1 AC 380 was widely quoted as setting out the legal principle that the land owner has a right to possession of the strata and that the energy company had, by laying pipelines, trespassed on their land. The view was that the Government's proposal, therefore, would change a principle of land ownership.
- 2.106. In addition, there were numerous comments that the removal of the opportunity for a court to hear an application could contravene Article 6 of the European Convention on Human Rights (ECHR) in Schedule 1 to the Human Rights Act (HRA) 1998 on the right to a fair hearing (both for the individual or in order to establish the public benefit case) and that, in contravention of Article 1 Protocol 1 of the ECHR, depriving them of the peaceful enjoyment of their possessions (in this case their land and property) cannot be said to be in the public interest or proportionate. For example:
- “Legislating against my right to oppose hydraulic fracturing would destroy my right to a peaceful family life and contravenes the laws of Human Rights.”* (individual)
- “The removal of the opportunity for a court to hear an application for access to private property raises questions of compliance with Article 6 of the European Convention on Human Rights (ECHR) in Schedule 1 to the Human Rights Act (HRA) 1998 on the right to a fair hearing. Landowners would be deprived of an opportunity to make representations about proposed activity which could affect their property. While there may be an opportunity to challenge a decision to grant a licence by way of judicial review, this would only be on the basis of unlawfulness and there would be no opportunity to challenge the merits of the decision.”* (environmental organisation)
- 2.107. Many respondents included wording from the campaigns, stating that they refuse permission for companies to drill beneath their property.
- 2.108. There were also concerns about what may be happening under the land with respondents making negative comments about the working practices of hydraulic fracturing companies, for example one individual said: *“I bought this house and I want to have a say as to what goes on below it. How will I know they are lower than 300 meters?”*

Government Response

- 2.109. We believe that the underground access proposal is consistent with the European Convention on Human Rights (ECHR).
- 2.110. Article 1 of the First Protocol of the ECHR provides that: *“Every natural or legal person is entitled to the peaceful enjoyment of his possessions. No one shall be deprived of his possessions except in the public interest and subject to the conditions provided for by law and by the general principles of international law.”*
- 2.111. We believe that there is an argument that the proposal will not deprive the landowners of their *“possessions”*. We are not proposing to deprive land owners of ownership of underground land, and expect that the landowner is very unlikely to have any use of land below 300m. We do not believe the drilling itself would have any negative impact on the landowner's use of the land as described in the consultation. The landowner will therefore

still have full use of their land and freedom to carry out activities on it. We also consider that this proposal would allow development which we believe to be in the public interest. (See more on this in the section below).

2.112. Article 6 of the ECHR provides that: *“In the determination of his civil rights and obligations or of any criminal charge against him, everyone is entitled to a fair and public hearing within a reasonable time by an independent and impartial tribunal established by law.”*

2.113. The new access proposals would determine the civil rights of landowners and developers through legislation passed under the democratic legislative process. This is a common result where Parliament has legislated in respect of private law rights, and does not give rise to a breach of Article 6 of the ECHR. It would remain open to a landowner to challenge, through the courts, whether a developer in fact had an access right under the proposed legislation (for example, if the landowner suspected that they were drilling for a different purpose).

2.114. There is no question of changing the existing regime governing access to surface land without landowners' permission, nor are we changing the existing rights of landowners to the land immediately under their property. The right to make representations and bring appeals under other regulatory regimes would also remain unchanged.

National Interest

2.115. The issue of national or public interest was raised in a small number of responses, mainly from stakeholders, with one environmental organisation commenting that there is no real evidence that the proposal will lead to any major economic benefit or decarbonisation benefits. Talking about the lack of a clear strategy for the UK's energy supply, a local authority said *“The government's implied assertion that the extraction of unconventional hydrocarbons is in the national interest is not, therefore, something that the Council can agree with, based upon the available evidence.”*

2.116. A number of respondents pointed out that hydraulic fracturing will produce a very small supply of energy. Respondents felt that the input would not be justified by the return, that any jobs created would be short term and that the short life-span of wells did not justify the resources and upheaval. There was also concern over resources used in the process, in particular the amounts of water that are used. One individual said: *“Food and Water Watch reports that the massive amount of water required by hydraulic fracturing will exacerbate the global water crisis as contaminated water used in hydraulic fracturing cannot be returned into the natural water cycle”*.

2.117. An environmental organisation suggested that, while utilities are necessary and so should have the right of access, the same cannot be said for hydraulic fracturing as there are other forms of energy that could be used.

2.118. One other theme emerged in responses with individuals, small businesses and local groups questioning the Government's motives (for example that the Government is putting profit before people or that some members will profit personally from the change in legislation).

Government Response

- 2.119. The consultation states that under the current arrangement we would expect access to be granted by the courts, partly because enabling these projects to take place would be judged expedient in the national interest. This is a requirement in the Mines (Working Facilities and Support) Act 1966² that would be used to determine whether access should be granted.
- 2.120. Some respondents questioned whether these proposals would be considered to be in the national interest, and how we came to this conclusion.
- 2.121. If a court was unsure on whether a case was in fact in the national interest it would be likely to take representations from the Secretary of State and put a significant amount of emphasis on these when making a decision.
- 2.122. The exploitation of key onshore resources, whether petroleum or deep geothermal, is desirable in the interests of security of supply and transitioning to a low carbon economy. A third of UK energy demand is met by gas, and as we will use less coal in the next 10-15 years for electricity generation, gas will help fill the gap alongside renewable and nuclear electricity, helping the UK reduce carbon emissions. We forecast that in 2030, the UK's gas consumption will be around the same level as it is today, so we will continue to need gas for many years³.
- 2.123. By 2025 we expect to be importing close to 70% of the gas we consume, assuming we do not develop shale⁴. To secure our energy supply we must maximise domestic production of fuels we need, including gas, increase generation from renewables and new nuclear and use our energy more wisely. We expect that the carbon footprint of UK produced shale gas would likely be lower than imported Liquefied Natural Gas (LNG).
- 2.124. Further benefits of supporting a domestic onshore oil and gas industry are the potential for the creation of many new jobs and increased tax revenues. Communities themselves can benefit by payments for access and increased employment, and the UK as a whole can too, from increased investment in UK industry. The Institute of Directors⁵ estimated that UK shale gas production would be a net benefit to public finances, could attract annual investment of £3.7 billion and support up to 74,000 jobs directly, indirectly and through broader economic stimulus. Taking all factors into consideration, we consider that there is a strong case that these proposals will be in the public interest.
- 2.125. Further to this, the courts usually give wide discretion to those enacting legislation (i.e. Parliament) to reach a decision about what is in the general interest unless the courts consider that judgment to be manifestly without reasonable foundation.

² In addition to one or more of the following criteria: a) that the persons with power to grant the right are numerous or have conflicting interests b) that the persons with power to grant the right, or any of them, cannot be ascertained or cannot be found c) that the persons from whom the right must be obtained, or any of them, have not the necessary powers of disposition, whether by reason of defect in title, legal disability or otherwise d) that the person with power to grant the right unreasonably refuses to grant it or demands terms which, having regard to the circumstances, are unreasonable.

³ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/239937/uep_2013.pdf

⁴ DECC www.gov.uk/oil-and-gas-uk-field-data

⁵ The Institute of Directors, *Getting shale gas working*, May 2013

Other comments

2.126. Some of the larger organisations and individuals with a particular interest commented on specific additional issues that they wish to see considered.

Exemptions and Scope

2.127. Exemptions for sensitive areas including National Parks and Areas of Outstanding Natural Beauty were suggested by a number of respondents.

2.128. There was a response requesting that Bath's hot springs are excluded from the proposed legislation.

2.129. A water organisation wanted to ensure that dams and reservoirs regulated under the Reservoirs Act 1975 are exempted.

2.130. A representative body asked that gas storage facility development be included in the legislation.

2.131. One respondent raised that buffer zone that may be required by planning authorities for shale gas and oil developments may exceed the 300 metres proposed.

Government Response

2.132. The approach considering planning applications for unconventional hydrocarbon development in National Parks, the Broads and Areas of Outstanding Natural Beauty and World Heritage Sites has been made clear in planning guidance published in July. Great weight should be given by planning authorities to conserving landscape and scenic beauty in these areas and, where applications represent major development, planning permission should be refused except in exceptional circumstances and where it can be demonstrated they are in the public interest.

2.133. For cases such as Bath's hot springs the existing regulatory framework would address any prospective threats to the environment e.g. the Environment Agency will not permit any activity which might pose a threat to groundwater.

2.134. Likewise, sensitive structures, for example reservoirs, would be considered through the wider regulatory framework which we do not intend to change as part of this proposed policy e.g. the traffic-light system employed to halt operations if seismic activity takes place above a pre-defined level.

2.135. One response suggested that we expand the scope to include underground gas storage, which can also require deep horizontal drilling. The Government is supportive of the development of storage and there are some underground access similarities with shale and geothermal. However, there are also key differences in how the industry is regulated and how the storage is designed. We would therefore need further research to confirm that this access proposal would be the most appropriate solution.

2.136. In our consultation document, we stated that we did not intend for the proposals to apply to coal bed methane (CBM) development. However, we have given this further thought and now consider that, in some cases, these proposals would benefit some CBM operations too. CBM requires a Petroleum Licence as this activity is subject to licensing under the Petroleum Act 1998, and would also require a coal access agreement with the Coal

Authority to enter the coal seam. CBM is focussed on coal seams, but, if access to underground land outside of a coal seam is required then this currently would require an access agreement from those landowners in possession of that particular piece of land, via the same procedure as other oil and gas developments.

- 2.137. Therefore, these proposals on underground access could be used to grant underground access (to land below 300 metres) for the purpose of CBM extraction. The requirements of a Petroleum Licence and coal access agreement would remain unchanged.
- 2.138. With regards to extending the scope to Underground Coal Gasification (UCG), this is not classed as petroleum, as defined in the Petroleum Act, because it uses an industrial process to create gas rather than extracting the gas that pre-exists naturally. Because these proposals cover only petroleum and geothermal energy, UCG is not within scope.

Other Minerals

- 2.139. A professional body was concerned that the consultation did not consider disruption to underground assets including mineral ownership, and suggested that parties with underground assets must be compensated for any loss incurred. A number of other respondents brought up similar concerns that these assets could be ‘sterilised’, i.e. become unusable.
- 2.140. One individual commented that legislation would have to clarify what legal form the right of access will take and also asked for clarification on the subject of mineral rights:
“Presumably the proposed legislation will override all proprietary rights but it may need to be made clear they are not just those of the freeholder of the surface.”
- 2.141. Similarly, the Coal Authority wanted to ensure that coal seams and coal mine workings are exempted from an automatic right of access and voiced concern that blanket access could risk existing and future mining operations, suggesting a number of changes to legislation that could ensure this will not occur.

Government Response

- 2.142. With the exception of energy minerals (oil, gas and coal) and precious metals (gold and silver), minerals are mostly in private ownership in Great Britain. The ownership of mineral rights normally lies with the surface owner, but occasionally the minerals may be owned by another party. Information on mineral rights, where available, is held by the Land Registry together with details of land surface ownership.
- 2.143. The proposals in the consultation are not intended to impact upon minerals in private ownership across Great Britain. The vertical well pads used for shale oil and gas and geothermal energy extraction take up a small surface site area, whilst any lateral wells used for extraction are very narrow and deep (typically a kilometre and a half below the earth’s surface and around 15cm wide). Given that many minerals like brick clay, silica sand and gravel are located in geological strata near the surface (and are extracted mostly by surface quarrying), the extraction of shale oil and gas and geothermal energy is unlikely to impact upon private mineral extraction.
- 2.144. However, we are aware that a company may seek to drill through privately owned minerals in order to access shale gas and oil, or deep geothermal energy. Some

respondents raised concerns that this could result in a loss of income for any minerals owner looking to exploit the resource.

- 2.145. There may be planning concerns when the extraction of one mineral affects the extraction of another. This would be taken into account by a mineral planning authority when considering whether to grant planning permission for a new development.
- 2.146. The Mines (Working Facilities and Support) Act 1966 would continue to have effect over minerals above 300m and requires those intending to extract minerals (above 300m) which are in private ownership to request individual landowner permission for the rights to access the mineral.
- 2.147. Regarding coal seams, the Coal Authority is a statutory consultee on planning applications for development within defined coal mining areas. If coal seams are likely to be accessed by oil and gas, and geothermal developments, the developers will need to apply to the Coal Authority for prior authorisation, as such activities are likely to intersect, disturb or enter any of the Coal Authority's coal interests. This authorisation can take the form of either a licence, an access agreement or a permit, depending upon the activity carried out.
- 2.148. Our proposal does not change this requirement, however it does remove the requirement to agree access with landowners for land below 300 metres, which may or may not contain coal seams, and which may or may not be owned by the Coal Authority. We agree with the reasons given by the Coal Authority on the requirement for a Coal Authority Permit if accessing coal seams, however we do not see the need to explicitly refer to the Coal Authority Permitting regime within our legislation nor a requirement to change the Coal Industry Act 1994 to require all drilling to apply for a Coal Authority Permit, as both of these are already covered as part of the wider planning processes.

Support for geothermal

- 2.149. A small number of stakeholder and questionnaire respondents (2%) were concerned that geothermal drilling had been included in the same consultation with hydraulic fracturing. Respondents pointed out that geothermal energy is renewable and low carbon and that the process for extraction is different to that of shale gas and oil. Some added that this, therefore, gives geothermal a much stronger case for being in the national interest.
- 2.150. In addition, there was acknowledgement that while current processes and legislation may delay oil and gas developments they can completely halt geothermal projects. One organisation involved in the sector commented that the proposal will “*remove a significant and disproportionately high barrier to the development of deep geothermal projects*”.
- 2.151. For these reasons many did not feel it suitable for both geothermal and oil and gas to be covered by the same legislation; some said that while they could not support hydraulic fracturing they did support allowing access for geothermal drilling.
- 2.152. Some respondents also questioned the legal status of heat, and whether the landowner might have any claim to it.

Government Response

- 2.153. The geothermal industry is at an important juncture. Driven by Government support for low carbon heating, such as through the Renewable Heat Incentive and practical and financial support for local authorities through the establishment of the Heat Networks

Delivery Unit, a number of district heat network schemes with a deep geothermal heat source are in planning or are proposed.

- 2.154. The deep geothermal industry has raised the issue of underground access as a key constraint to development of these urban projects. The shale industry has raised the exact same issue.
- 2.155. Although the technologies are different the need to drill directionally is the same. This is an issue confronting both industries now which will have an immediate impact on their potential development. Therefore it makes sense to address this issue jointly.
- 2.156. UK law is silent on the ownership of deep geothermal heat. According to case law, geothermal heat is not capable of ownership. Specifically, English law does not recognise ownership in percolating underground water so there can be no ownership of geothermal water in deep aquifers. There is also case law and legislation in relation to minerals supporting the principle that geothermal heat cannot be classified as a 'mineral' as it is not a "*substance*". Therefore, no right could be created, whether by easement or otherwise, in relation to heat, or water, or heat in water. A company wishing to access geothermal energy would not be infringing any legal rights, including those of the landowners above.

Government Response - Additional Comments

- 2.157. During the consultation, we received a few queries on the interaction of our proposals with existing trespass law, both in England and across the Devolved Administrations. In England and Wales, any unauthorised entry onto privately owned land is a trespass. In Scotland, although trespass is governed by Scottish law, it is similar in that trespass denotes any temporary physical intrusion in the land of another without his permission; it is an infringement of a person's right to the exclusive use and occupation of his land.
- 2.158. The purpose of our proposals is not to change trespass law but the effect of the proposals is that trespass law would not apply to land deeper than 300 metres where a company had obtained an automatic right of access and was in compliance with any conditions attached to that right. In terms of the law of trespass in Scotland, the proposals are the same as in England and Wales and the effect is the same.
- 2.159. In line with concerns raised as to the questions of the legal status of heat, one organisation suggested a system of utilisation licence permits as employed in Iceland. Any holder of such licence needs to reach an agreement with the landowner on compensation or obtain permission for expropriation and request assessment. Developing a full licensing regime would be complex given the current status of the sector. In 2011, the Environment Agency introduced changes to the abstraction licence procedures to provide greater certainty to deep geothermal investors for those projects accessing groundwater resources. Existing planning and environmental measures, combined with new measures on underground access, should offer sufficient regulatory support for the development of new deep geothermal projects in the short to medium term, though the Government will keep this under review.

Alternative solution to legislating for underground access

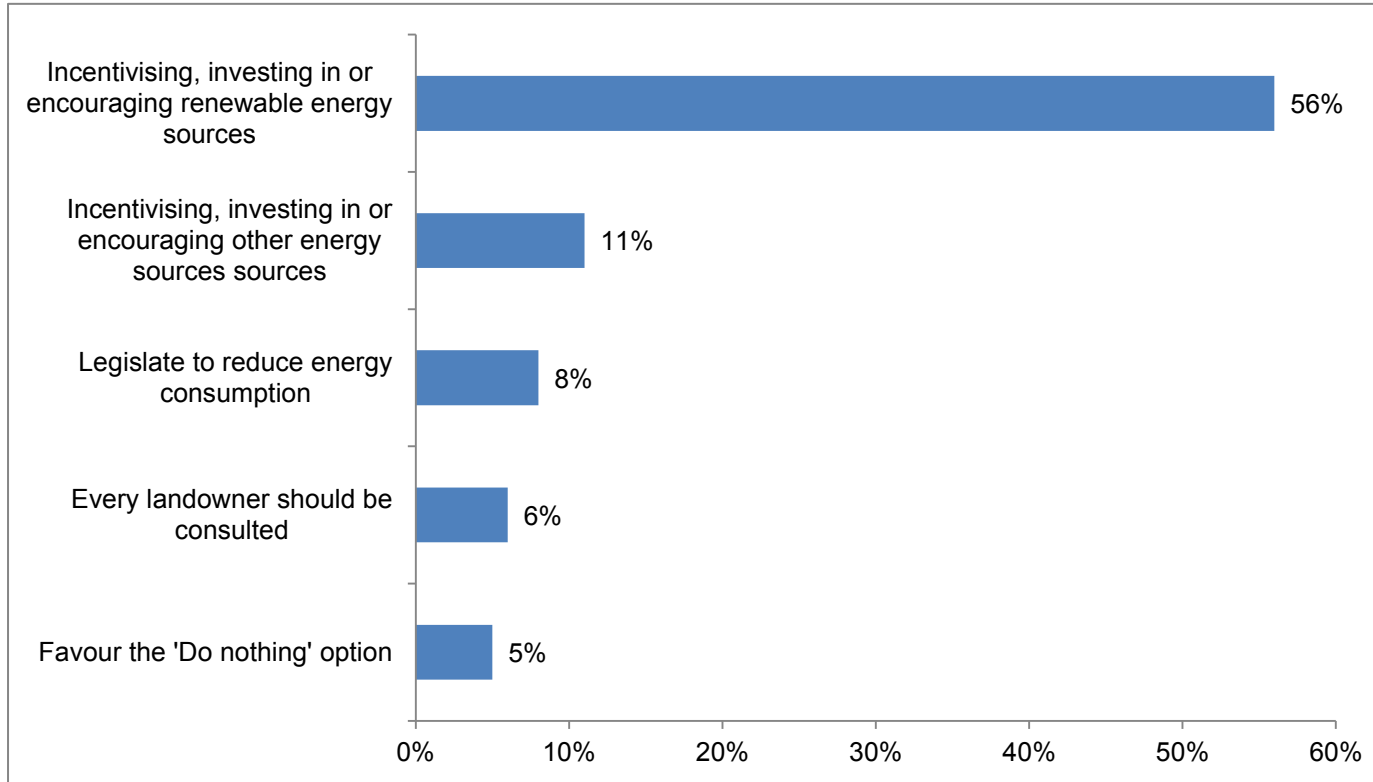
Alternative solutions

3.1. Respondents were asked:

- If you do not believe the Government should legislate for underground access, do you have a preferred alternative solution?

3.2. While there were comments in 3,459 of the 4,065 questionnaire and stakeholder responses, many simply restated opposition to hydraulic fracturing or to the Government's proposals. 3,024 of the respondents suggested an alternative; this included only 19 of the stakeholder respondents. Few stakeholder respondents (19 out of 82, mainly from the environmental, parish and town council and associations groups) made suggestions at this question (a small number also reiterated support for the Government's proposals) and suggestions were similar to those made by the questionnaire responses. The main suggestions are shown in the table below:

Chart 3: Alternative suggestions (Base: 3,024)



A move to renewables/other energy policy

3.3. Of the 3,024 questionnaire respondents who provided an alternative, the majority suggested that there should be more focus on and investment in renewables rather than drilling for fossil fuels. This was also picked up in some of the stakeholder responses.

3.4. Examples of comments include:

“Follow Germany, France, Holland and Bulgaria. Form a coalition to develop renewable energy farms across Europe and end this madness. If others can do it, so can we!”
(individual)

“Invest in renewable energy - plenty of evidence exists that we can become a zero carbon nation with technologies already in existence.” (small business)

“We should emulate the German policy of investing heavily in renewables, which is already resulting in the lowest wholesale energy prices in Europe, and will enable them to achieve their goal of 100% renewable energy by 2055.” (individual)

“Sustainable, renewable, clean sources.... incl solar panels, solar glass windows on EVERY house particularly new build, Solar tiles on every new house build, small wind turbines to every home and business premises. Example, Glyndebourne Opera House and grounds in Sussex has its own wind turbine and it works very efficiently.” (individual)

“Considerably greater investment in renewable energy [is needed] along the lines of the energy policies of Germany.” (environmental group)

3.5. A smaller number commented on the need to invest in other sources of energy, including some specific mentions of nuclear energy:

“Invest in green energy, cutting waste and developments in nuclear/new technologies.”
(individual)

“Cheap cost effective proven renewables- PV/ biomass and nuclear.” (individual)

“Buy gas on international market, support investment in nuclear and renewables.”
(individual)

3.6. There were also calls for legislation or incentives aimed at reducing energy consumption:

“Concentrate resources on non-fossil fuel means to solve the UK’s energy problems by continuing to: improve the efficiency of energy use, reduce energy demand (distinguish between need and want).” (individual)

“Intensive efforts to increase energy efficiency-it is worth the cost, better for health and puts more money in hands of the consumers whose expenditure fuels the economy.” (individual)

3.7. A few questionnaire respondents wanted to see every landowner consulted and some felt that there should be no change to current legislation (the ‘Do nothing’ option outlined in the consultation document).

Government Response

3.8. The UK is legally committed to cutting greenhouse gas emissions by at least 80% by 2050, and to meeting renewable energy targets by 2020. Most importantly, UK Government support for shale gas does not detract from our support for renewables. We will continue to

incentivise low carbon investment and deployment, and drive ambitious action on climate change at home and abroad. UK shale development is compatible with these goals and we will continue to support any responsible, sustainable development of our home grown energy resources.

- 3.9. Gas is the cleanest fossil fuel. A recent report titled 'Potential Greenhouse Gas Emissions Associated with Shale Gas Extraction and Use' by David Mackay and Tim Stone, concluded that the carbon footprint of UK produced shale gas would likely be significantly less than coal when used for electricity generation and also lower than imported Liquefied Natural Gas (LNG). The report also concluded that the overall effect of UK shale gas production on national emissions is likely, with the right safeguards, to be relatively small. Globally, increased use of gas, shale or otherwise if produced and processed in a well regulated regime, could help reduce emissions in the short term by directly displacing the global demand for coal as we have seen in the US.
- 3.10. The UK will be moving away from coal significantly in the coming years as power stations reach end of life, and to meet requirements of relevant emissions legislation. We will have to replace this capacity with lower carbon sources including gas. The most important part of this will be to manage this transition in the most cost-effective way. Consumers will not support the move to low carbon if it is more expensive than is necessary. If shale proves commercially viable and cost effective then it could play a key role in doing this, which would be good for consumers and the environment. The Government's view is that Britain will continue to need gas as part of a diverse energy mix, including renewable sources, to facilitate our transition to a low carbon future.
- 3.11. We need gas powered generation to replace coal-generated electricity while we continue to develop low carbon generation. Similarly we need gas for domestic use while we develop and deploy renewable heating.
- 3.12. The Government is taking action to reduce the UK's greenhouse gas emissions. We are helping consumers to insulate their homes and switch to renewable heating, and replacing old polluting power stations with cleaner alternatives. The Government is investing over £1 billion on innovative low-carbon generation and energy efficiency technologies. This money enables the UK to develop technologies that reduce our need for gas, whilst driving down costs, and create sustainable supplies of affordable energy for consumers and businesses.
- 3.13. We are committed to the global fight against climate change. The UK accounts for less than 1.5% of global emissions, so keeping the average global temperature rise below 2°C requires global collective action. The most effective way to ensure the required level of action is through the United Nations Framework Convention on Climate Change (UNFCCC).
- 3.14. This is why the UK is working with countries across the world to achieve in 2015 an agreement to address climate change that is ambitious, legally-binding, and applicable to all. At the climate talks in Warsaw last year, the world agreed a timetable and work plan for this process.
- 3.15. The UK has led calls in Europe for urgent agreement of an EU 2030 Framework for climate and energy policy that includes an ambitious greenhouse gas target of at least 40%, rising to 50% in the context of a global deal.

- 3.16. The UK is also engaging bilaterally with big emitters such as the US, China and other emerging economies, to share expertise on national energy and climate change policies, abate carbon and highlight that a shift to low carbon is in countries' best interests.
- 3.17. The UK is also providing £3.87 billion through the International Climate Fund between 2011 and 2016 to reduce poverty by helping developing countries adapt to the impacts of climate change, move to low carbon growth trajectories, and to address deforestation.

Keep Existing Framework

- 3.18. A few questionnaire respondents wanted to see every landowner consulted and some felt that there should be no change to current legislation (the 'do nothing' option outlined in the consultation document). Some stakeholder respondents also suggested the 'do nothing' option and thoughts that judgements should be made on a case by case basis.
- 3.19. One association commented that *"With the option posed by the consultation our preference is to retain the law as it currently stands and established by the Star Energy v Bocardo [2010] judgement with respect to trespass. As set out above, we believe the government is forcing through legislative changes that serve the interests of the extraction companies and at the expense of local community interests and concerns. We also believe there should be a mechanism for the public to challenge drilling under public spaces and particularly where there may be schools or hospitals for example. However we believe there should be bans on drilling under public buildings."* An environmental respondent said that "existing legislation is robust for granting access for underground drilling and the system should be maintained. If the Government does legislate to provide underground access, then there should be safeguards for sensitive sites, following the precedent set with additional planning guidance for national parks, the Norfolk Broads, AONBs and world heritage sites".
- 3.20. One association suggested that the approach used in the water industry be adopted *"which sees all parties served with notification that works are taking place and which protects the compensation position of those directly affected, which is considered to be a significantly fairer approach than that proposed in the consultation."*
- 3.21. Another association saw no need to change the current legislation, but made a suggestion in the event that it is changed. This would involve the company publicising details of where it intends to hydraulically fracture and inviting landowners to note interest and demonstrate ownership. The company would then invite them to agree to entry on a set of industry wide, voluntarily agreed standard terms as to payment and various rights and responsibilities. They accepted that the landowner has no rights over the gas, and therefore it is unlikely that any significant loss in value is suffered by the landowner from drilling at the depths proposed, and this would be reflected in any payment made. However, they said that it is important to acknowledge that property rights have been infringed and that where a landowner is agreeing access, be it by individual negotiation or a standard agreement, a payment should be made for the provision of access.
- 3.22. There was some reiteration of opposition to hydraulic fracturing or the change in legislation, for example *"hydraulic fracturing is extremely short-termist. For the sake of a decade of extra energy, we are talking about the potential ruin of our country's geological integrity."* (parish and town council)

3.23. Some respondents did not see that the shale or geothermal industries faced any serious barriers with regard to access, and suggested that perhaps the Government should hold off on any action until such barriers become evident.

Government Response

- 3.24. We agree that the existing procedures are appropriate for many types of access arrangements. We will continue to rely on these for access to surface land (and all land above 300 metres) to ensure that landowners retain the right to negotiate access to land that will have some noticeable impact on their use or enjoyment of the land. However, we do not agree that these procedures are proportionate for the type of underground drilling that is the subject of our consultation, given the size of the underground area involved and the potential numbers of landowners.
- 3.25. Whilst we recognise that voluntary negotiated industry-wide standard terms might simplify the existing procedure, we do not believe it addresses the fundamental issue: that a single landowner or small group of landowners could hold up the development by refusing access, or in the case of geothermal project, prevent an entire project going forward.
- 3.26. The suggestion also retains the administrative burden of contacting and awaiting a period of time for the landowners to consider the request, even if the negotiations are based on standard terms.
- 3.27. With regards to how much of a barrier access rights currently present to the shale and geothermal industries, we consider that there is a clear problem, given the large land areas involved in horizontal drilling, in continuing to allow a single landowner or small group of landowners to refuse access and force companies to seek access via the courts (or block them entirely in the case of geothermal projects). We do not propose to wait for this problem to manifest itself in the form of a delayed shale or geothermal project before acting, given that we believe the likelihood of this risk materialising to be very high. Further to this it is likely that this barrier is averting investment in such projects within the UK and so it may be that without a change to the existing procedure no projects will proceed to the point whereby a test case presented itself.
- 3.28. Some respondents suggested the Government should do more to support deep geothermal development. The Government is prioritising support for deep geothermal heat projects through the Renewable Heat Incentive and by supporting the development of heat networks, including through the work of the Heat Networks Delivery Unit. The Government will continue to work with the industry to explore how other barriers to geothermal development can be overcome to support the industry's development.
- 3.29. As an alternative to the Government proposals, some stakeholders suggested that the existing possibility available for petroleum developers to be granted ancillary rights under the Mines (Working Facilities and Support) Act 1966 may be extended to geothermal energy developers. The Government is of the opinion that applying the Mines (Working Facilities and Support) Act 1966 does not adequately address the challenges faced by the industry. As previously stated, the Government considers the existing procedure for gaining underground access to be costly, time-consuming and disproportionate for the petroleum and geothermal energy industry. Geothermal schemes that link with district heating networks need to be sited near areas with a high demand for heat, given the cost and

wastefulness of transporting heat over more than short distances. Geothermal schemes will therefore invariably be located in or near heavily populated areas and developers would need to negotiate with a large number of individual landowners (potentially totalling thousands).

Voluntary scheme proposed by industry

Voluntary scheme for payment and notification of access

4.1. The consultation explains that the Government favours a voluntary community payment scheme in order to provide a payment to communities living above underground drilling.

4.2. The shale and geothermal industries have proposed a voluntary scheme which would provide a £20,000 one-off payment to communities for each unique lateral (horizontal) well that extends by more than 200 metres laterally. The Government supports this scheme.

4.3. Respondents were asked:

- Should a payment and notification for access be administered through the voluntary scheme proposed by industry?

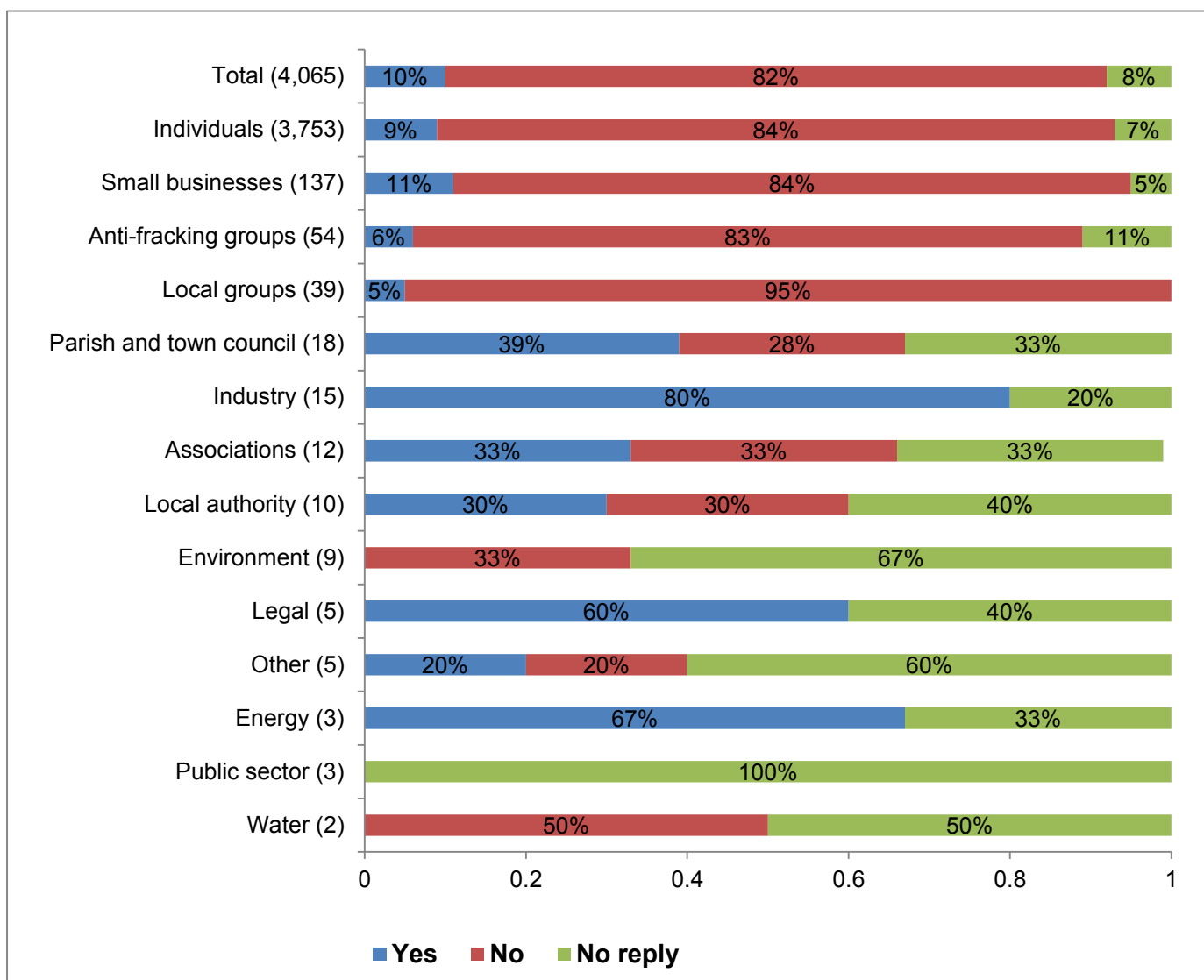
4.4. Again, there were differences between questionnaire and stakeholder respondents:

- 84% of questionnaire respondents opposed the proposal compared to 21% of stakeholder organisations.
- 9% of questionnaire respondents supported a voluntary scheme compared to 39% of stakeholder organisations (7% of questionnaire and 40% of stakeholder respondents did not give an answer).
- Amongst stakeholder organisations, views were mixed with industry and legal respondents showing most support for the scheme.

4.5. As can be seen in the chart on the following page, overall:

- 82% of the 4,065 questionnaire and stakeholder respondents said 'no'
- 10% said 'yes'
- 8% did not reply

Chart 4: Whether a payment and notification for access should be administered through the voluntary scheme proposed by industry (Base: 4,065)



The need for regulation

- 4.6. Many questionnaire respondents took the opportunity when answering this question to restate their opposition to hydraulic fracturing or to changes in legislation.
- 4.7. The main comment to emerge, in the questionnaire responses, was a belief that voluntary schemes or self-regulation do not work. Some also wanted more detail over what would happen if the voluntary scheme fails.
- 4.8. Some questionnaire respondents commented on the need for independent monitoring of the scheme, and some wanted to see a mandatory notification of access for landowners.
- 4.9. Respondents gave a number of reasons for their support of a statutory rather than voluntary scheme, some examples include:

“Schemes should be statutory. Voluntary industry codes do not work. The structure of our land is too important to be administered by voluntary schemes.” (individual)

“These kinds of things need to be legally binding, not voluntary-- it is shocking to me that something as fundamental to our legal system as the protection of private property rights would be treated through a voluntary scheme.” (individual)

“The Government is proposing to take away private rights of owners in return for a voluntary community payment from which the owner may gain no benefit. As the courts have shown, any interference by a public authority with the right to property, must strike a fair balance between the demands of the general interest of the community and the requirements to protect an individual’s fundamental rights (Sporrong v Sweden (1982) 5 EHRR 35). While clearly it is important that the effect of hydraulic fracturing on a community is acknowledged, we suggest that the proposal fails to strike a fair balance and is insufficient compensation for the loss of a private property right. Community compensation should rightly be considered within the planning framework whereas access for drilling concerns negotiation about private rights and compensation should be dealt with on an individual case by case basis.” (environmental organisation)

“Current arrangements should be retained but if legislation is enacted to provide access for gas, oil and geothermal developers, the payment and notification scheme needs statutory underpinning to provide assurances for landowners.” (environmental organisation)

Government Response

- 4.10. The key advantage of the voluntary approach is to enable flexibility on the detailed arrangements for different sites depending on their characteristics.
- 4.11. Some core features, such as the payment amount, can be fixed, but others will benefit from local discussions. For example, defining the recipient community might be different for an urban site than for a rural one, and for a site with only one village nearby to one near several. A voluntary industry approach ensures that the payment scheme can be flexible, and therefore provide a better deal for communities.
- 4.12. Many other access arrangements that include statutory payment were designed with one project or industry in mind. Some offer no payment at all (coal and airspace) and others, for example, the Crossrail and HS2 payment schemes were tailor-made for their specific projects
- 4.13. We do not think this kind of approach is appropriate for the shale or geothermal industries – they are both at a formative stage and it is not yet clear exactly what development may look like. In addition, the geographical and social scope of a development will depend on the local geology and other variable factors, so any approach that is set in statute now may not be fit for purpose at different sites once the technologies are more developed. As such, a payment scheme will be more effective if it retains flexibility and can adapt to changing circumstances. Setting a statutory payment level removes some of this flexibility as it would need to include broad requirements which may not be suitable for every situation, and it would be more difficult to alter in future.
- 4.14. We are proposing to take a reserve power in the legislation to enforce the voluntary agreement on payment and notification through regulations if the scheme is not honoured.

The use of this power will be at the Government's discretion, and any such regulations would be subject to a separate consultation. However, some examples of when we might choose to use the power would be:

- If either the shale or geothermal industries withdrew their voluntary agreement:
- If there was evidence that any company had failed to make payment and was not willing to promptly put this right; or
- If there were on-going difficulties with the scheme that suggested it was not working as intended.

4.15. Details on how a payment scheme may operate are still being developed by industry, and we expect that this will be piloted in the first few sites, and then free to evolve over time to meet demand. Details of these payments will be available to communities and published on industry websites. Each year, operators will publish evidence detailing how the commitments within the access payment scheme are being met. DECC will regularly monitor this evidence to ensure that the scheme is working well - we would not expect communities or local authorities to have to police the scheme themselves.

Support for the Voluntary Scheme

4.16. Support for the scheme mostly came from industry representatives. An industry respondent commented that *"if nominal financial amounts (£50) were distributed among landowners it would have a negligible effect on the community. With the payment of £20,000 per lateral well this amount of money can a significant impact on the community and should the voluntary payment is not honoured there is provision made by a reserve power in the legislation to enforce payment through."* A respondent from the parish and town council group said: *"This appears to be a cost effective and equitable system."*

Role of Councils

4.17. Some respondents suggested that parish councils would be the most appropriate community body to receive the funds. One stated *"We believe that the payment should be made to a relevant community body and in all Parished areas, that should automatically be the Parish Council."* (parish and town council). Alternative ideas were proposed on how this could be implemented including transferring the underground land rights to the Parish Council, who then would negotiate the percentage of production revenue in return for underground access.

Definition of Community

4.18. Comments on this topic included: *"Definition of communities for the purpose of making such payments is an evolving concept, both in unconventional gas production and elsewhere, such as the renewable energy sector and radioactive waste disposal. A framework of legal or advisory effect, to assist developers and communities in managing this process would be of assistance."* (association) and *"DECC should administer a database of these community bodies, so it is clear to each developer which body should benefit from payments for wells in any locality, and should also audit the accounts of these bodies"*.

Government Response

- 4.19. Transferring the rights of underground access to a parish or town council to negotiate the level and type of payment does not remove the issue that negotiations would delay projects. Further to this if the council decided not to grant access the developer would have to go via the court procedure in the case of shale, or not continue with the project in the case of geothermal. The basis of the procedure for setting a payment level gives no certainty to industry, nor individuals or communities, on the level or type of payment they may receive.
- 4.20. The existing voluntary community benefit package that has been established by the shale industry would already provide wider benefits to the community from the industry, the proposal of council-negotiated payment for access could result in the council extracting disproportionate payments and thereby harm the development of these industries with wider knock-on effects on energy policy.
- 4.21. We agree with those respondents who had concerns about how we might define the 'community' to which the payment should be made. Clearly this would be difficult to draft standardised instructions for, and an element of flexibility is important to ensure that each payment is made to the appropriate community. We have consulted with other government departments and policy teams who advised against attempting to include a definition of a community in legislation.
- 4.22. This is why we believe a voluntary approach is the best way to achieve this as each payment can be the subject of local consultation and discussed on a case-by-case basis. The industry, potentially through the UK Community Foundations or some other third party, will identify and work with each community during the pre-application planning period. As mentioned above, DECC will regularly monitor this allocation to ensure that the scheme is working well.

Information and Notification

- 4.23. Some respondents were concerned that landowners should be notified that drilling will take place on their property: "*The [respondent] does not agree with or like the voluntary scheme proposed, whereby a one-off lump sum payment is made to a 'relevant community body'. Landowners will be particularly affected due to the location of wells, and it is only right that payments should be made individually to landowners affected.*" (association).
- 4.24. Others noted the need for a process for notifying local councils and local communities where developments are planned: the need to "*agree an appropriate process for notifying local communities when developers are planning deep geothermal projects.*" (energy organisation).

Government Response

- 4.25. The notice and publicity requirements relating to the planning and environmental permitting processes already ensure proposals are brought to the attention of the public concerned (<http://planningguidance.planningportal.gov.uk/blog/guidance/making-an-application/> and <https://www.gov.uk/government/collections/environmental-permitting-notice-of-applications-made>).
- 4.26. Landowners and prospective buyers (including conveyancers) have access to publicly available information about proposals both at the application stage and when consented.

Our proposal for an access notification would be in addition to, but quite separate from, these existing requirements. The company concerned would be expected to outline matters such as the relevant area of underground land, coupled with details on the payment that will be made in return for the access.

Use of the Payment

4.27. There were also queries over how funds will be allocated and for what purpose they will be used: “*Funds should be directed to support local communities who experience any disruption to enable them to invest in local amenities.*” (environmental organisation).

Government Response

4.28. Industry have agreed that they will discuss the exact payment mechanism with local communities at the time of pre-consultation.

The Payment Amount

4.29. A few respondents commented that the £20,000 figure is too low, and some asked how it had been arrived at.

Government Response

4.30. Both industries have made voluntary commitments to make a one-off payment of £20,000 for each unique lateral (horizontal) well that extends by more than 200 metres. Where lateral wells vertically coincide payment will be made only once. If the Secretary of State is not satisfied with this scheme, then he may introduce regulations to set up a statutory payment mechanism.

4.31. An exploratory shale gas or oil site would only be likely to have a few wells, and these may not have lateral extensions. Therefore, at exploration stage the underground access payment would probably reach around £20,000-80,000 (for a site with 1 – 4 wells). Deep geothermal developers generally use two wells per scheme, consequently the community payment would be set at £40,000.

4.32. With regards to those respondents who did not consider £20,000 per well to be adequate, we disagree on the basis that the payment for access awarded by a court under the current system would most likely be only nominal.

4.33. This argument is based on existing case law, including *Bocardo v Star Energy* 2010. In this case an award of £1000 was ultimately made to compensate for the trespass, but the court also considered what the payment might have been had Star Energy negotiated the access before trespassing and concluded that “*compensation under section 8(2) would have been assessed at no more than £82.50*”.

4.34. This amount is comprised of: the basic £50 standard compulsory purchase compensation paid for a deep tunnel, plus £25 which the Court of Appeal suggested would be made by a court assessing compensation, and a 10% uplift. In practice, following this case, we would expect such compensation to be nominal given the limited nature of the underground rights being vested in the applicant.

4.35. Although we are proposing a community payment, rather than the individual payment awarded in the *Bocardo* case, we consider that the same logic applies and that any

payment for access would be nominal, and therefore that a community payment of £20,000 per lateral well is appropriate.

4.36. However, it is important to note that the voluntary payment for underground access is a separate payment to the existing community benefit package for shale, and is only intended to provide a payment in return for access.

4.37. The existing community benefits package that the shale industry has committed to includes:

- At exploration stage, £100,000 in community benefits will be provided per site where hydraulic fracturing takes place
- 1% of revenues at production stage will be paid out to communities.
- You can see the press release and find more information on this scheme at <http://www.ukoog.org.uk/about-ukoog/press-releases/68-united-kingdom-onshore-operators-group-announces-next-steps-in-the-formation-of-its-community-benefits-scheme>

4.38. Although the two payment schemes are separate, we expect that they may be distributed in a similar fashion, as both will be paid to a community (although not necessarily the same community), and could be administered in the same way.

Individual Payments

4.39. A number of respondents questioned why a payment was being made to the community instead of the individual, claiming that the existing system provides individual payments, and so this arrangement should provide the same.

Government Response

4.40. Under the existing procedure, landowners tend to be paid a fee for access to underground land – this is a private arrangement between the company and the individual. We believe a payment for underground access should be granted but have attempted to design the most effective and proportionate system. We have selected a community payment rather than an individual landowner payment due to the higher administrative burden of individual payments and the nominal sums that would be involved in an individual payment. We recognise that this removes the direct link of a payment to the landowner, but consider that our approach provides more benefits overall for those concerned.

4.41. Some respondents appeared to believe that individual payments would be sizeable, whereas we expect that any individual payment is likely to be set at a nominal value by a court (as explained in paragraphs 4.32-4.35 above). We believe it is therefore more meaningful to provide a lump sum payment which can be spent on larger projects to benefit the community.

4.42. Furthermore, the intention of these proposals is to improve on the existing system for access. Whilst a pre-determined individual payment might be a slight improvement on the existing system, it is still considerably more burdensome to distribute than a community payment, as the company would still have to identify, notify and arrange payment with every relevant landowner. This approach would therefore undermine some of the benefit of our proposed policy.

Other issues

4.43. Other comments on this question came from small numbers of questionnaire respondents and included:

- That the payment is bribery
- The need to consider any businesses that may be affected as well as communities.
- Concerns that the amounts proposed would be insufficient to compensate for damages.

Government Response

4.44. The proposed access payment is not a bribe – it is intended to ensure that local people see value added to their communities in return for access rights being provided to companies. Individual landowners were already likely to receive some kind of payment through negotiation with the company for access to underground land. We are proposing that this be made to the community instead.

4.45. We acknowledge that local businesses may also be within scope of these proposals, as they may own the land on which they operate. We anticipate that these businesses will be consulted alongside communities during the first pilot schemes to distribute the payment. They will also be able to have a say in what the money is spent on to best benefit the area and the community.

4.46. The proposed access payment is not intended to have any bearing on potential future claims for compensation due to damage. Although we believe that any damage is extremely unlikely, such claims should be dealt with separately through the normal procedures (see section on liability, paragraphs 2.92-2.100). The proposed payment is purely for the right of access itself, and is not intended to compensate the landowner for any potential damage.

4.47. There were in addition some questions raised as to whether the access payments would only be distributed at exploration stage for shale gas projects, or whether they might continue at production stage. We can confirm that we expect a payment to be made whenever any new underground land is accessed (other than where wells overlap vertically) – whether this is at exploration, appraisal or production stage.

Conclusion and next steps

- 5.1 We are grateful to those who took the time to respond to this consultation. It is clear that the issue of underground access for shale and geothermal projects generated a lot of public interest.
- 5.2 We acknowledge the large number of responses against the proposal and the fact that the proposal has provided an opportunity for the public to voice their concerns and raise issues. However the role of the consultation was to seek arguments and evidence to consider in developing the proposed policy. Whilst a wide range of arguments were raised and points covered, we did not identify any issues that persuaded us to change the basic form of the proposals.
- 5.3 Having carefully considered the consultation responses, we believe that the proposed policy remains the right approach to underground access and that no issues have been identified that would mean that our overall policy approach is not the best available solution.
- 5.4 We will therefore put before Parliament primary legislation to implement the policy proposals set out in the consultation paper. Parliament's scrutiny of the provisions will provide further opportunities for public engagement on the issues.
- 5.5 If you would like to find out more about shale gas in the UK, how it is regulated and how the Government approaches development, please visit the links on the next pages.

More Information

Information on Shale

The Department of Energy and Climate change recently produced a [series of booklets](#) designed to provide guidance and answers to frequently asked questions about shale oil and gas and hydraulic fracturing.

- <https://www.gov.uk/government/publications/about-shale-gas-and-hydraulic-fracturing-fracking>

Shale potential

The [British Geological Survey](#) has information on shale gas and groundwater on its website, including information on the national methane baseline study.

- <http://www.bgs.ac.uk/research/groundwater/shaleGas/home.html>

The BGS have also conducted a series of independent studies of the unconventional resources of shale gas and shale oil in the [Midland Valley of Scotland](#), the [Weald Basin](#), and the [Bowland Shale](#).

- <https://www.gov.uk/government/publications/bgs-midland-valley-of-scotland-shale-reports>
- <https://www.gov.uk/government/publications/bgs-weald-basin-jurassic-shale-reports>
- <https://www.gov.uk/government/publications/bowland-shale-gas-study>

Shale processes

The Department of Energy and Climate Change, Environment Agency (England), Scottish Environment Protection Agency and Health and Safety Executive have worked with the UK Onshore Operators Group to agree best practices for onshore shale gas wells. The UK Onshore Operators Group's UK Onshore [Shale Gas Well Guidelines](#) provide a description of the Hydraulic Fracturing Programme.

- <http://www.ukoog.org.uk/onshore-extraction/industry-guidelines>

Industry's commitment to communities

The onshore oil and gas industry body, the UK Onshore Operators Group has committed companies to engage with local people, residents and other stakeholders in their [Community Engagement charter](#).

- <http://www.ukoog.org.uk/images/ukoog/pdfs/communityengagementchartersversion6.pdf>

Regulation

The Environment Agency and Health and Safety Executive have [published an agreement](#) that

More Information

explains their joint approach to the regulation of unconventional oil and gas developments.

- <http://www.hse.gov.uk/aboutus/howwework/framework/aa/hse-ea-oil-gas-nov12.pdf>

The Health and Safety Executive have also produced a [FAQ](#) on their regulation of shale gas.

- <http://www.hse.gov.uk/shale-gas/assets/docs/shale-gas.pdf>

The [Scottish Environment Protection Agency](#) has more information on environmental regulation in Scotland. [Natural Resources Wales](#) has more information on environmental regulation in Wales.

- http://www.sepa.org.uk/customer_information/energy_industry/unconventional_gas.aspx
- <http://naturalresourceswales.gov.uk/?lang=en>

DECC published a set of [regulatory roadmaps](#) that aim to help operators understand the regulation process for onshore oil and gas (shale gas) exploration in the UK.

- <https://www.gov.uk/government/publications/regulatory-roadmap-onshore-oil-and-gas-exploration-in-the-uk-regulation-and-best-practice>

An overview of the risks and how they can be managed

[Shale gas extraction in the UK: a review of hydraulic fracturing](#) June 2012 Royal Society & Royal Academy of Engineering

- <https://royalsociety.org/policy/projects/shale-gas-extraction/report/>

Public health

Public Health England's [report](#) on shale gas and [radon map](#) for England and Wales.

- <https://www.gov.uk/government/publications/shale-gas-extraction-review-of-the-potential-public-health-impacts-of-exposures-to-chemical-and-radioactive-pollutants>
- <http://www.ukradon.org/information/ukmaps>

Shale and climate change

A [recent study](#) by DECC's Chief Scientist looked at the potential greenhouse gas emissions from shale gas production and discusses its compatibility with global climate change targets.

- <https://www.gov.uk/government/publications/potential-greenhouse-gas-emissions-associated-with-shale-gas-production-and-use>

Geothermal Potential

A [report](#) commissioned by DECC and carried out by Atkins Ltd to assess the potential for deep geothermal power generation in the UK.

- <https://www.gov.uk/government/publications/deep-geothermal-review-study>

More Information

Gas Generation

The Government has published a [Gas Generation Strategy](#) setting out why we believe gas will be important for UK energy security and as part of our low carbon transition.

- https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/65654/7165-gas-generation-strategy.pdf

Planning

To find your planning authority and find out more about planning across the UK there is more information on the [Planning Portal](#).

- http://www.planningportal.gov.uk/wps/portal/genpub_LocalInformation?docRef=LocalInformation&scope=202&langid=0

[Guidance on the role of planning system](#) in handling applications for all phases of development in England is available on GOV.UK. Information is also available on the planning framework for minerals in [Scotland](#) and [Wales](#).

- <http://planningguidance.planningportal.gov.uk/>
- <http://www.scotland.gov.uk/Topics/archive/National-Planning-Policy/themes/minerals>
- <http://wales.gov.uk/topics/planning/policy/minerals/mineralsplanning/?lang=en>

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