

Scottish Government call for evidence on onshore conventional oil and gas – analysis of responses

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Executive summary

1. In June 2022, the Scottish Government issued a [call for evidence on the exploration for, and development of, onshore conventional oil and gas in Scotland](#). Responses to the call for evidence were intended to inform the development of a preferred policy position on the future of onshore conventional oil and gas in Scotland, which will be included in the Scottish Government's forthcoming Energy Strategy and Just Transition Plan (ESJTP).
2. The call for evidence invited views and evidence that would allow the Scottish Government to deliver a robust and fully-evidenced policy position in line with Scotland's energy needs, statutory requirements and climate change ambitions. Respondents were asked to address a single question:
 - Considering the information presented in this call for evidence paper, and your own knowledge and experience, what are your views on the exploration for, and development of, onshore conventional oil and gas in Scotland?

The responses

3. The call for evidence received 24 responses from 15 organisations and 9 individuals. The main types of organisational respondents were oil and gas industry bodies, public sector bodies, academic and research groups and environmental organisations. The remaining organisational respondents comprised an independent grant giving body, an organisation focused on energy efficiency and clean energy solutions, and a faith group.
4. The responses ranged from short, single-point submissions to lengthier submissions presenting technical evidence and statistics. Eight respondents included references to third-party sources.

Findings

5. Respondents were divided in their views on the desirability of any future onshore conventional oil and gas development in Scotland. Nine respondents (5 individuals and 4 organisations) thought that onshore conventional oil and gas should have a role in Scotland's refreshed Energy Strategy, mainly for reasons of energy security and the perceived economic benefits of doing so. Twelve respondents (4 individuals and 8 organisations) opposed the development of onshore conventional oil and gas, mainly for reasons relating to climate change.
6. Three organisational respondents did not express a view for or against onshore conventional oil and gas development, but instead discussed issues relating to future information and data needs and the place of oil and gas in heritage / historical attractions.

Support for the development of onshore conventional oil and gas

7. Respondents who supported the development and extraction of onshore conventional oil and gas in Scotland gave two main reasons relating to: (i) energy security and (ii) climate change. They also highlighted potential economic benefits.

8. Regarding **energy security**, this group suggested that a domestic supply of oil and gas in Scotland would provide greater security in the context of uncertainties relating to the ongoing war in Ukraine and fluctuations in the worldwide price of oil and gas. They also argued that oil and gas production was necessary – at least in the short to medium term – until Scotland’s energy needs could be fully met through renewables.

9. Regarding **climate change**, it was noted that onshore domestic oil and gas production would be less carbon intensive than off-shore production or importing oil and gas. This group also saw potential **economic benefits** for Scotland and local communities in terms of tax receipts and job creation.

Opposition to the development of onshore conventional oil and gas

10. Respondents opposed to the development of onshore conventional oil and gas in Scotland mainly highlighted the issue of climate change. Additional themes raised by this group related to: (i) energy security, (ii) perceived negative economic impacts, and (iii) the need for a just transition to a net zero economy.

11. In relation to **climate change**, this group argued that (i) any new onshore conventional oil and gas developments would be inconsistent with Scotland’s stated climate change ambitions, (ii) pursuing such a policy would undermine Scotland’s international obligations, and (iii) the Scottish Government’s focus should continue to focus on developing and investing in renewables and other clean energy sources whilst supporting reductions in energy consumption.

12. Regarding **energy security**, this group thought onshore conventional oil and gas extraction would **not** give Scotland greater energy security since the resources available were likely to be small (based on historical drilling and previous borehole exploration) and because of the lengthy timescales between oil and gas exploration and production. This group also suggested that the global wholesale price of oil and gas was driving the current energy crisis and resulting in **negative economic impacts**. They commented a continued reliance on oil and gas was impoverishing people in Scotland.

13. In terms of creating a fair and **just transition** to a net zero economy, respondents in this group highlighted the importance of supporting oil and gas workers to retrain and obtain employment in other sectors. The importance of working towards a ‘nature positive’ just transition was also noted.

Other views and issues raised

14. Two academic / research bodies emphasised the importance of preserving and sharing historical information about Scotland’s onshore geology, which has been produced in previous searches for, and the development of, onshore oil, gas and coal.

15. One respondent highlighted the role that the oil and gas industry has played in the ‘story of modern Scotland’ and suggested this role should be recognised as part of Scotland’s transition away from fossil fuels. The residual requirement for oil and gas in Scotland’s heritage attractions featuring historic machinery and modes of transportation was also noted.

1 Introduction

1.1 In June 2022, the Scottish Government issued a [call for evidence on the exploration for, and development of, onshore conventional oil and gas in Scotland](#). Responses to the call for evidence were intended to inform the development of a preferred policy position on the future of onshore conventional oil and gas in Scotland, which will be included in the Scottish Government's forthcoming Energy Strategy and Just Transition Plan (ESJTP).

1.2 The call for evidence was published on 21 June 2022 with a deadline of 02 August 2022 for submissions. This report presents findings from an analysis of responses to that call for evidence. A separate [call for evidence on the future of coal extraction in Scotland](#) was issued at the same time. Findings from an analysis of the responses to that call for evidence are presented in a separate report.

Policy context

1.3 The Scottish Government has set a target – in legislation – to achieve [net zero emissions](#) of all greenhouse gases by 2045.¹ This represents a 75% reduction in emissions from a 1990/95 baseline. In addition, Scotland is one of the few countries that has set legally binding economy-wide interim emissions targets for every year from now until 2045. The Scottish Government's [Programme for Government 2021/22](#) states that 'unlimited extraction of fossil fuels is incompatible with our climate obligations and meeting the aims of the Paris Agreement'.

1.4 At the same time, the Scottish Government has made a commitment to achieving a net zero and climate resilient future in a way that is fair for everyone – recognising that the process of reducing carbon emissions could have unequal economic impacts on households, communities and regions.

1.5 Scotland's first [Energy Strategy](#) was published in 2017. The Scottish Government is now in the process of updating this strategy and developing its first 'just transition' plan. The strategy will include a comprehensive range of policy positions for related areas including onshore conventional oil and gas exploration and development. The preferred policy position on onshore conventional oil and gas will be included in the required impact assessments of the wider ESJTP, with the finalised policy position being confirmed on conclusion of this process.

1.6 The updating of the Strategy, and the call for evidence on onshore conventional oil and gas, come at a time when there is a heightened awareness of climate change and the impacts of global geo-politics on the energy security of nations. More recently, the invasion of Ukraine by Russia has highlighted Europe's dependence on Russian oil. On the one hand, the Ukraine conflict puts in jeopardy climate change commitments across Europe; on the other, it has also had the effect of galvanising efforts to reduce reliance on fossil fuels.

¹ The United Nations defines 'net zero' as 'cutting greenhouse gas emissions to as close to zero as possible, with any remaining emissions re-absorbed from the atmosphere, by oceans and forests for instance'.

In this context, the Scottish Government sought views and evidence about the exploration for, and the development of, onshore conventional oil and gas in Scotland.

Conventional and gas exploration and extraction in Scotland

1.7 Conventional oil and gas refers to petroleum, or crude oil, and raw natural gas extracted from the ground by conventional means and methods (i.e. by drilling a well and allowing oil or gas to flow out under its own pressure).

1.8 Oil and gas exploration and extraction in the UK takes place under government licensing arrangements. Since February 2018, responsibility for onshore licences in Scotland has been devolved to the Scottish Government, although issues relating to payment for licences continue to be reserved.

1.9 Thus, Scottish Ministers are the licensing authority for the two onshore licences currently held in Scotland. However, there is currently no onshore oil and gas production in Scotland.

The call for evidence on onshore conventional oil and gas

1.10 The call for evidence paper published by the Scottish Government with regard to onshore conventional oil and gas included sections on (i) climate change, (ii) just transition (to energy systems not based on fossil fuels), and (iii) energy security. The paper also discussed current licensing arrangements in Scotland for the development of onshore conventional oil and gas. In addition, the paper briefly covered current arrangements relating to onshore unconventional oil and gas extraction and CO₂ storage and noted that views on both these issues were not being sought as part of the call for evidence.

1.11 The call for evidence did not advocate a preferred Scottish Government position or policy, but, rather, invited views and evidence that would allow the Scottish Government to deliver a robust and fully-evidenced policy position in line with Scotland's energy needs, statutory requirements and climate change ambitions.

1.12 The call for evidence included a single open question for respondents to address:

- Considering the information presented in this call for evidence paper, and your own knowledge and experience, what are your views on the exploration for, and development of, onshore conventional oil and gas in Scotland?

1.13 The call for evidence paper could be accessed via the Scottish Government's online consultation hub. Respondents could complete an online consultation questionnaire or submit an offline response by email or post.

About the analysis

1.14 This report presents an analysis of the responses submitted to the call for evidence. The aim of the analysis is to identify the main themes and the full range of views, and to explore areas of agreement and disagreement in views between different groups of respondents.

1.15 It is important to bear in mind that the views of those who have responded to the call for evidence are not representative of the views of the wider population. For this reason, the approach to the analysis is qualitative in nature. Its main purpose is not to identify how **many** people held particular views, but rather to understand the range of views expressed.

1.16 Finally, it is important to note that some of the responses to this call for evidence (especially those from organisations) contained technical information and references to other published and unpublished material. Information of this type is not analysed in any detail but is catalogued in an annex to the report.

The report

1.17 The remainder of this interim report is structured as follows:

- Chapter 2 presents information on the respondents to the call for evidence on onshore conventional oil and gas and the responses submitted.
- Chapter 3 presents an analysis of the responses received.
- Annex 1 provides a full list of organisational respondents.
- Annex 2 provides a list of references (reports, articles, etc.) referred to by respondents in their responses.

2 Description of the responses and respondents

2.1 This chapter provides information about the respondents to the call for evidence on onshore conventional oil and gas and the responses submitted.

Number of responses received

2.2 The call for evidence received 24 responses. Nineteen responses were submitted through the Scottish Government's online consultation hub and five were submitted by email.

About the respondents

2.3 Responses were received from 15 organisations and 9 individuals. (Table 2.1).

Table 2.1: Responses included in the analysis, by respondent type

Respondent type	Number
Organisations	15
Individuals	9
Total	24

Organisational respondents

2.4 Organisational respondents included oil and gas industry bodies (4), public sector bodies (3), academic and research groups (3) and environmental organisations (2). The three 'other' organisations comprised an independent grant giving body, an organisation focused on energy efficiency and clean energy solutions, and a faith group. See Table 2.2 below.

Table 2.2: Organisational respondents, by type

Organisation type	Number
Oil and gas industry bodies	4
Public sector organisations	3
Academic / research organisations and groups	3
Environmental organisations	2
Other organisations	3
Total	15

2.5 A full list of organisational respondents is shown in Annex 1.

3 Findings

3.1 This chapter presents the main findings from an analysis of the responses to the call for evidence on onshore conventional oil and gas. An initial descriptive overview of the responses is provided. This is then followed by a qualitative, thematic analysis of the responses.

Overview of responses

3.2 Of the nine individuals who submitted responses to the call for evidence, all submitted very short comments (in some cases, just a line or two) containing views, rather than evidence *per se*. Among these respondents, four were opposed to the development and / or extraction of onshore conventional oil and gas (for climate-related or other reasons), and five thought it should have a role in Scotland's refreshed Energy Strategy for reasons of energy security.

3.3 The 15 organisational responses were more variable in nature and length – ranging from short, single-point submissions to lengthier submissions presenting technical evidence and statistics. Four organisations (all from the oil and gas industry) supported further exploration and exploitation of onshore oil and gas by conventional means (for economic and energy security reasons). Some also supported development of unconventional oil and gas. As the subject of unconventional oil and gas was out of scope in relation to this call for evidence, this material has not been analysed. Eight organisations (including public sector bodies, academic and environmental bodies) were not supportive of the development of onshore conventional oil and gas reserves (primarily for climate-related reasons). The latter group thought Scotland should stay focused on transitioning fully towards a low-carbon energy system. The three remaining organisational respondents did not express a view for or against onshore conventional oil and gas development in Scotland, but rather discussed issues relating to future information and data needs, and the place of oil and gas in heritage / historical attractions.

3.4 The main points made in response to the call for evidence are summarised below. Key themes in the responses related to climate change, energy security, economic impacts, the need for a just transition to a net-zero economy, information and data and its importance for future decision-making, and the role of oil and gas in heritage sites and attractions.

Support for the development of onshore conventional oil and gas

3.5 Respondents who expressed support for the development and extraction of onshore conventional oil and gas in Scotland gave two main reasons: (i) that it was in the interests of Scotland's energy security – as least in the short to medium term, and (ii) that significant carbon reductions would result from developing a domestic source of onshore conventional oil and gas. This group also highlighted the potential economic benefits for Scotland.

Energy security

3.6 Respondents in favour of developing onshore conventional oil and gas production highlighted the ongoing uncertainty of the war in Ukraine and the way in which this was

putting Scotland's energy security at risk. They suggested that there was an opportunity for Scotland to develop its own oil and gas supply that is not subject to price fluctuations on the world market and would provide a security of supply.

3.7 Moreover, this group argued that it would be necessary to continue oil and gas production in the short to medium term, until Scotland's energy needs could be fully and securely met from renewable sources. It was suggested that onshore oil and gas exploration licences could be awarded with specific end dates so that, as Scotland required less oil and gas, production could be reduced and finally stopped.

3.8 One respondent from the oil and gas industry pointed out that production of oil and gas in the North Sea is declining. This respondent suggested that, by 2035 Scotland's use of gas may be higher than the gas being produced from the Scottish sector of the North Sea. Thus, there is an ongoing need to source additional oil and gas supplies to meet Scotland's energy demands, at least on a transitional basis. This, it was suggested, needs to be recognised in forward planning.

3.9 However, at the same time, there was a recognition that exploration (i.e. 3D seismic surveys) would be required to assess the full potential for onshore conventional oil and gas production in Scotland, and there was also an acknowledgement that, based on historical drilling, Scotland's onshore conventional oil and gas reserves are likely to be 'modest' in quantity.

Climate change

3.10 Respondents who supported the development of onshore conventional oil and gas in Scotland frequently pointed to the potential environmental benefits of pursuing a policy that enabled this to go ahead. They suggested that allowing some limited onshore conventional oil and gas production would be a step towards achieving Scotland's net zero ambitions, as onshore production in Scotland could replace oil and gas production with higher associated emissions.

3.11 This group noted that energy imports to Scotland have increased in recent years, and they argued that onshore domestic oil and gas production would be less carbon intensive than importing oil and gas. Furthermore, it would also result in fewer carbon emissions than current offshore domestic production, since workers would be able to travel by bus instead of helicopter and it may be possible to pipe onshore gas directly into the local gas grid, rather than spending energy on pumping it from offshore.

3.12 They also suggested that onshore oil and gas production would complement and facilitate other forms of clean energy, in particular geothermal energy, as it may be possible to repurpose oil and gas boreholes for borehole thermal energy storage (BTES).

3.13 It was suggested that 'limited (rather than unlimited)' onshore production would help achieve Scotland's climate change targets, and there was a view that, 'if the Scottish Government decided to ban onshore oil and gas production, it could be criticised for not being serious about climate change'.

Potential economic benefits

3.14 Respondents in favour of onshore conventional oil and gas suggested that onshore oil and gas would bring economic benefits to Scotland and to local communities, which would, in turn, bring social and health benefits.

3.15 One respondent in this group commented that companies involved in onshore production would pay significant sums in business rates and would also pay tax at a rate of 65%. Furthermore, oil and gas operations would create jobs and stimulate economic activity. Reference was made to the prosperity that the oil and gas industry brought to Aberdeenshire, which has a greater life expectancy and fewer areas of multiple deprivation than other parts of Scotland.

Other points raised

3.16 Other points made by respondents supporting onshore conventional oil and gas – in most cases, usually by just one or two respondents – were that:

- Oil and gas are not only needed for energy, but also for the pharmaceutical industry and a range of manufacturing purposes. It was suggested that 'it makes no sense' to import these resources when Scotland has the raw materials in the ground.
- The oil and gas industry pledged (in October 2021) to work towards net zero in its operations. Targets have been set to halve greenhouse gas emissions by 2030, to achieve a 90% reduction by 2040, and to reach net zero by 2045. As these targets would be easier to achieve in onshore production (as compared with offshore), it may be possible to meet these targets earlier in onshore development.

Opposition to the development of onshore conventional oil and gas

3.17 In general, respondents who were opposed to the development and extraction of onshore conventional oil and gas in Scotland focused their arguments on the issue of **climate change**. Other themes frequently arising in the responses from this group related to: (i) **energy security**, and (ii) the need for a **just transition** to a net zero economy. Less often, respondents discussed the potential economic impacts of any possible onshore conventional oil and gas development, which, in the views of this group, were largely negative.

Climate change

3.18 There were three recurring points made by respondents in this group regarding the issue of climate change. The first point was that any new onshore conventional oil and gas developments would be inconsistent with Scotland's stated climate change ambitions. The second was that pursuing such a policy would undermine Scotland's international obligations. The third, and final point was that the Scottish Government should continue to focus on developing and investing in renewables and other clean energy sources, and reducing energy consumption.

Inconsistent with Scotland's stated net zero ambitions

3.19 First, respondents argued that the development of new onshore conventional oil and gas reserves would be inconsistent with Scotland's stated ambitions to achieve net zero by 2045 and would decrease the likelihood of Scotland achieving this target. Respondents described any possible onshore conventional oil and gas development as a 'backward step'.

3.20 They argued that such a policy would also conflict with expert scientific advice on reaching net zero and undermine the Scottish Government's credibility with the public. The point was made that public credibility is important given that, in order to achieve Scotland's targets, the public will be increasingly asked to make changes in their own lives (for example, in reducing personal car use and replacing fossil fuel boilers).

3.21 Respondents in this group wanted the Scottish Government to continue to adopt an approach that would fully support the delivery of the current Climate Change Plan² and align with the position set out in the draft Fourth National Planning Framework (NPF4), which states that 'planning applications that seek to explore, develop and produce fossil fuels will not be supported other than in exceptional circumstances'.³

3.22 This group emphasised that a policy of no support for onshore conventional oil and gas would ensure that (i) the Scottish Government's net zero targets do not become unnecessarily harder to meet, (ii) the Scottish Government is seen to be consistent with its own stated ambitions, and (iii) the Government's approach is in line with expert advice.

3.23 One academic respondent pointed out that, as the level of carbon emissions produced by the UK is lower than the global average, there could in theory be some environmental 'advantage' to developing onshore domestic oil and gas production. However, this same respondent also noted that the UK is not outperforming its biggest import partner, Norway, which has significantly cleaner operational production. Furthermore, they commented that the UK Government's stance in relation to continued domestic production has drawn criticism from climate change policy analysts.

Undermines international obligations

3.24 Second, respondents argued that any future extraction of oil and gas in Scotland would be contrary to, and undermine, Scotland's international obligations. This group pointed to the legally binding Paris Agreement (signed by the UK Government), recommendations of the Intergovernmental Panel on Climate Change (IPCC) which called for an end to all new development of fossil fuels, and the endorsement of the IPCC recommendations by the United Nations.

3.25 Some respondents also commented that other countries (including Denmark, Costa Rica, Ireland, France, etc.) have all ended support for new fossil fuel extraction within their territories.

² Scottish Government (2020) [Update to the Climate Change Plan 2018–2032](#).

³ Scottish Government (2021) [The Draft Fourth National Planning Framework \(NPF4\)](#). See in particular, Part 3 (National Planning Policy), Policy 22: Minerals.

Prioritise clean energy sources and reduce consumption

3.26 Finally, respondents who were opposed to the development of new onshore conventional oil and gas reserves repeatedly stated that the Scottish Government's priorities and investment should be focused on producing green energy and reducing energy demands. One Central Belt local authority respondent commented that, in terms of future planning within their area, the focus would continue to be on these issues, rather than developing oil and gas facilities or refineries.

3.27 Some respondents highlighted specific areas where the Scottish Government should focus its efforts. These included: improving the energy efficiency of Scotland's housing stock, facilitating the electrification of heating, and exploring the opportunities of geothermal energy.

Energy security

3.28 Respondents who were opposed to the development of onshore conventional oil and gas argued that such development would not provide greater energy security.

3.29 One respondent cited research which indicated that onshore conventional oil and gas resources in Scotland were likely to be very small. This respondent noted that the only areas with proven petroleum systems in Scotland were located in Skye, Easter Ross, the Sutherland Coast and the Midland Valley, all of which have previously been tested by well bores. This same respondent commented that, given the time required between exploration success and field development approval, any Scottish onshore licences awarded **now** were unlikely to contribute to a supply of oil and gas until the 2030s. Thus, in the short term, onshore conventional oil and gas will not improve Scotland's energy security.

The negative economic impacts of new onshore oil and gas production

3.30 Respondents who were not supportive of the development of onshore conventional oil and gas in Scotland argued that a continued reliance on oil and gas was impoverishing people in Scotland.

3.31 These respondents argued that the primary driver of the recent surge in the cost of energy bills was the international wholesale cost of gas. They pointed out that there would be no guarantee that any gas extracted in Scotland would remain in the UK; instead, they suggested, oil and gas operations were carried out by private companies and any supplies would be sold on the global market to the highest bidder. They noted that UK households in the UK were being pushed into fuel poverty because of the sudden shortage of oil and gas elsewhere in the world.

3.32 They also pointed out that any suggestion that the development of new onshore conventional oil and gas reserves in Scotland would address the current energy crisis failed to take account of the timescales involved (as discussed in paragraph 3.29 above). Given that any onshore conventional oil and gas development would be unlikely to produce a supply of oil and gas before the 2030s, a policy supporting such a development would not alleviate the current energy crisis. Instead, it was suggested that the simplest solution to the current crisis was to use less gas. This would require a 'concerted and rapid effort' to

improve the energy efficiency of Scottish homes, increase the energy generation capacity of renewables, and support the transition in domestic heating systems from gas to heat pumps.

3.33 In addition, one respondent cited evidence suggesting that any onshore oil and gas operations in Scotland were likely to be relatively small, and therefore the associated employment potential of such operations would be limited.

Just transition to a net zero economy

3.34 In terms of creating a fair and just transition to a net zero economy, some respondents discussed the need to support oil and gas workers to gain training and employment in other sectors such as the renewables industry. Those who raised this issue argued that continuing to pursue the expansion of fossil fuels would undermine the wider strategy needed to ensure a well-managed phase-out of the fossil fuels industry in Scotland. This, in turn, could put the livelihoods of oil and gas workers at risk.

3.35 The point was also made that, given that there is currently no onshore oil and gas production in Scotland, there can be no impact on workers from a policy of not supporting onshore conventional oil and gas.

3.36 One respondent also highlighted the importance of working towards a 'nature positive' just transition. This respondent said that, as well as facing a climate crisis, the world is also facing a 'nature crisis' and they expressed concern that an increasing reliance on renewables may put increasing pressure on environmentally sensitive areas. It was suggested that the transition to a low-carbon economy should not be at the expense of nature or the natural environment. Specific concern was expressed about the use of increasingly taller turbines, which has created pressure on the natural environment and also on the way Scotland's historic environment is understood, appreciated and experienced. It was suggested that, as Scotland comes to rely more and more on renewable energy, that efforts needed to be made to ensure that renewable energy systems are 'appropriately sited and designed'.

Other points raised

3.37 Among those opposed to the development of onshore conventional oil and gas, there was one further point made, which was unrelated to those discussed above. One respondent suggested that oil and gas provided a 'precious finite source of long-chain molecules', which are highly valuable and cannot always be synthesised in a laboratory.

Other views and issues raised

3.38 As noted above, three respondents made submissions to the call for evidence, but did not express a view in favour of, or opposed to, the development of onshore conventional oil and gas. Two of these respondents discussed issues relating to data and information needs, and one discussed matters relating to Scotland's history, heritage and visitor attractions.

Data and information needs

3.39 Two academic / research bodies emphasised the importance of preserving and sharing historical information about Scotland's onshore geology, which has been produced in previous searches for, and the development of, onshore and inshore oil, gas and coal.⁴ It was noted by one of these respondents that important information on historical wells and boreholes is not necessarily easily or freely available to the general public (because of current licencing arrangements), and that action was needed to ensure that this important information is not lost and can inform future decision-making by the Scottish Government.

3.40 Such information would be crucial during Scotland's transition away from fossil fuels. It would help to inform decisions – not only about future developments of conventional (or unconventional) oil and gas – but also in the search for appropriate locations for the underground storage of carbon dioxide and hydrogen, or for possible sources of geothermal energy.

3.41 It was also suggested that this information should be made available in a form that members of the public could also access and understand without the need for complex and expensive software.

Heritage sites and attractions

3.42 One respondent highlighted the role that the oil and gas industry has played in the 'story of modern Scotland'. This respondent suggested that this role should be recognised as part of Scotland's transition away from fossil fuels. The way in which Scotland's coal mining history has been preserved was held up as an example of how this might be done.

3.43 This respondent also highlighted that there was likely to be some residual requirement for oil and gas in order to maintain Scotland's heritage attractions which feature historic machinery and modes of transportation – such as heritage railways. It was noted that these attractions are important aspects of Scotland's visitor economy and can encourage the study of STEM subjects and the development of traditional skills.⁵

⁴ One respondent identified Scotland's inshore waters as areas such as the Firth of Forth, the Firth of Clyde, the Solway Firth, the Sea of Hebrides, the Minches, etc.

⁵ STEM = Science, technology, engineering and maths.

Annex 1: Organisational respondents

Fifteen (15) organisations responded to the call for evidence. These are listed here.

Oil and gas industry bodies (4)

- IGas Energy plc
- Reach Coal Seam Gas Limited
- Selgovia Limited
- UKOOG

Public sector bodies (3)

- Aberdeen City Council
- Historic Environment Scotland
- South Lanarkshire Council

Academic / research bodies and groups (3)

- British Geological Survey
- ETP Transition from Oil & Gas Theme Group
- UK Onshore Geophysical Library

Environmental organisations (2)

- Friends of the Earth Scotland
- RSPB Scotland

Other organisation types (3)

- Energy Saving Trust
- Church of Scotland
- MCS Charitable Foundation

Annex 2: Catalogue of evidence

Eight respondents (all organisations) provided references to published material as part of their response to the call for evidence. This annex provides a list of the reports, articles, and other resources drawn on or cited by respondents. These are listed below under the headings: (i) climate change, (ii) energy security, (iii) economic impact, and (iv) just transition. It should be noted that, in some cases, respondents included information and statistics in their responses without providing details about the source of the information.

Climate change

- Beyond Oil and Gas Alliance [Redefining Climate Leadership](#).
- Calverley D and Anderson K (2022) [Phaseout Pathways for Fossil Fuel Production Within Paris-compliant Carbon Budgets](#). University of Manchester.
- Climate Change Committee (2020) [Letter from Lord Deben, Climate Change Committee, to Roseanna Cunningham MSP](#). 9 December 2020.
- Dunne D (2022) [Fact check: Can new UK oil and gas licences ever be 'climate compatible'?](#) Carbon Brief. 24 February 2022.
- Cran-McGreehin S (2022) [Insulation and gas prices](#), Energy & Climate Intelligence Unit. 16 June 2022.
- Gluyas J, Adams C and Busby J et al. (2018) [Keeping warm: a review of deep geothermal potential of the UK - JG Gluyas, CA Adams, JP Busby, J Craig, C Hirst, DAC Manning, A McCay, NS Narayan, HL Robinson, SM Watson, R Westaway, PL Younger, 2018 \(sagepub.com\)](#) *Proceedings of the Institution of Mechanical Engineers, Part A: Journal of Power and Energy*, 232(1), pp. 115–126.
- The Guardian (2021) [No new oil, gas or coal development if world is to reach net zero by 2050, says world energy body](#). 18 May 2021.
- HotScot network [HotScot Blog](#)
- Intergovernmental Panel on Climate Change (2022) [Climate Change 2022: Impacts, Adaptation and Vulnerability](#).
- Intergovernmental Panel on Climate Change (2022) [Climate Change 2022: Mitigation of Climate Change](#).
- International Energy Agency (2021) (May 2021, revised October 2021) [Net Zero by 2050: A Roadmap for the Global Energy Sector](#).
- Rosenow J (2022) [Analysis: Running costs of heat pumps versus gas boilers](#). Regulatory Assistance Project (RAP). February 2022.
- Scottish Government (undated) [Renewable and low carbon energy – Geothermal energy](#).
- Scottish Government (2019) [Unconventional oil and gas: Ministerial statement](#). October 2019.

- Scottish Government (2021) [A Fairer, Greener Scotland: Programme for Government 2021–22](#).
- Scottish Government (2021) [news item] [Unlimited recovery of hydrocarbons not sustainable](#).
- Scottish Government (2021) [speech] [COP26 – Scotland’s priorities: First Minister’s speech – 25 October 2021](#).
- SEI, IISD, ODI, E3G and UNEP (2021) [The Production Gap](#). 2021 Report.
- United Nations (2021) [press release] [Secretary-General calls latest IPCC climate report ‘Code Red for Humanity’, stressing ‘irrefutable’ evidence of human influence](#). 9 August 2021.
- United Nations Environment Programme (2022) Stockholm 50+. [Key recommendations for accelerating action towards a healthy planet for the prosperity of all](#). June 2022.
- US Energy Information Administration (2021) [Russia – Analysis – Energy Sector Highlights](#). Updated 13 December 2021.
- Walker A and Abesser C (2022) [Research briefing: Geothermal energy](#). UK Parliament.
- Welsby D, Price J, Pye S and Ekins P (2021) [Unextractable fossil fuels in a 1.5°C world](#). *Nature*, 597, pp: 230–234.
- Westaway R (2016) [Repurposing of disused shale gas wells for subsurface heat storage: preliminary analysis concerning UK issues](#). *Quarterly Journal of Engineering Geology and Hydrogeology*, 49, pp. 213–227.

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