

Scottish Government call for evidence on coal extraction – analysis of responses

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Executive summary

1. The Scottish Government issued a [call for evidence on the future of coal extraction in Scotland](#). Responses to the call for evidence were intended to inform the development of a preferred policy position on the future of coal extraction 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 our 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 extraction of coal in Scotland?

The responses

3. The call for evidence received 21 responses, from 9 individuals and 12 organisations. The main types of organisational respondents were public sector bodies, academic and research bodies and groups, heritage organisations and environmental organisations. The remaining organisations comprised an independent grant giving body, an organisation focused on energy efficiency and clean energy solutions, and a campaign group focused on a move away from the use of coal and a 'just transition' for coal mining communities.
4. The responses ranged from very short statements of views to lengthier submissions presenting technical information and statistics. Eight respondents included references to third-party sources, and two respondents provided copies of reports they had prepared.

Findings

5. Respondents were divided in their overall views on the future of coal extraction in Scotland. Seven respondents (five individuals and two organisations) favoured future coal extraction, and thought coal had a place in Scotland's energy mix, at least on a transitional basis. Eleven respondents (four individuals and seven organisations) were opposed to coal extraction, with climate change being the main reason cited by this group.
6. The remaining three respondents commented on issues relevant to the call for evidence without stating an overall position on the future of coal extraction.

Support for future coal extraction

7. There were two key linked themes in the responses from those who supported future coal extraction in Scotland: (i) energy security and (ii) the continuing need for coal in different economic sectors.
8. On **energy security**, respondents thought that restarting domestic coal extraction:

- Would reduce reliance on expensive imported coal – respondents said this offered economic benefits, and avoided supply chain volatility caused by world events
- Offered a reliable and proven source of energy for use alongside renewables and / or until alternative renewable sources could fully meet energy demands.

9. Respondents also said this would (i) help preserve Scotland’s oil and gas reserves for other purposes, and (ii) help keep fuel prices at an affordable level.

10. In terms of the **continuing need for coal**, respondents highlighted its use in a number of industrial functions – e.g. in relation to steel, aluminium, cement, carbon fibre and silicon metal production – and said that, without a domestic supply, Scotland would have to rely on imported coal for many years to come. The continuing need for a small supply of coal in the heritage sector (e.g. for steam railway attractions) was highlighted.

11. Respondents in this group often acknowledged the issue of **climate change** but argued that using domestic rather than imported coal could help cut overall global carbon emissions, largely because of the shorter transportation distances involved.

Opposition to future coal extraction

12. The prime concern for respondents opposed to coal extraction was tackling **climate change**. These respondents emphasised the global challenge of climate change and the need for immediate action to reduce carbon emissions. They cited Scotland’s international obligations and evidence on this issue, and they argued that any future coal extraction would be incompatible with Scotland’s efforts to move towards becoming a low carbon economy. It would also make it harder to meet the Scottish Government’s net zero targets.

13. These respondents thought that **energy security** was best addressed through a transition to clean energy sources, the development of renewables, and improvements in energy efficiency. They also said that the **continuing need for coal**, particularly in relation to the steel industry, had to be tackled if emissions targets were to be met.

Other issues raised

14. Other themes identified in the responses to the call for evidence related to:

- Scotland’s heritage: Respondents highlighted the importance of (i) celebrating Scotland’s history of involvement in the coal industry, and the cultural and economic role of heritage sites and industrial museums in this context, and (ii) ensuring that the development of renewables was sensitive to Scotland’s historic environment.
- The legacy of the coal mining industry: Respondents highlighted the need to ensure the safety of old mining sites, the possibility of exploiting old mines as a future source of geothermal energy, and the importance of restoring sites for community benefit.
- The transition to a low carbon economy: Respondents supported a just transition for all communities, including those previously involved in the coal industry.
- Information and research: One academic body highlighted the availability of geological information that could be used to inform decision making in this area.

1 Introduction

1.1 In June 2022, the Scottish Government issued a [call for evidence on the future of coal extraction in Scotland](#). Responses to the call for evidence were intended to inform the development of a preferred policy position on the future of coal extraction 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 exploration for, and development of, onshore conventional oil and gas 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 for coal exploration and extraction. The preferred policy position on coal extraction 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 coal extraction, comes 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. In this context, the Scottish Government sought views and evidence about coal extraction in Scotland.

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'.

Coal extraction in Scotland

1.7 Powers over coal exploitation are reserved to the UK Government. The GB-wide Coal Authority is responsible for licensing coal mining activity in Scotland, while also having responsibility for a range of other issues related to the coal industry. Environmental duties in connection with planning policy and determinations are, however, devolved to the Scottish Government.

1.8 The Coal Authority has a statutory duty under the Coal Industry Act 1994 to secure, so far as practicable, an economically viable coal mining industry in Great Britain. UK Ministers have acknowledged that this duty is at odds with the UK Government's broader climate goals. They have committed to keep the Coal Authority's duties with respect to licensing coal extraction under review but, in the light of other energy security priorities and the low demand for new coal extraction projects, they do not currently consider this the right time to make any changes.

1.9 There are currently no operational coal mines, and no coal power stations, in Scotland and no immediate prospect of coal mining taking place. There are 18 current coal extraction licences for Scotland; however, 15 relate to the Scottish Coal Company, which has been in liquidation for some time and where the authorisation to mine is no longer in place. The remaining three licences relate to sites which are either in the process of being restored or have been restored. Therefore, no future coal mining can or will take place at any of the sites covered by current licences.

1.10 However, a conditional coal mining licence is currently in place for a geographical area in Cumbria, which extends into Dumfries and Galloway. A full operational licence would need to be issued by the Coal Authority to allow coal mining operations to commence. This would require planning permission to be granted by both the Scottish and UK Governments, due to the cross-border location of the licence.

The call for evidence on coal extraction

1.11 The call for evidence paper published by the Scottish Government with regard to coal extraction 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, and current licences for coal exploration in Scotland.

1.12 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 our energy needs, statutory requirements and climate change ambitions'. The evidence paper made it clear that views were not sought on any specific coal mining proposals (e.g. in relation to the conditional Cumbria licence referred to in paragraph 1.10) as part of the call for evidence.

1.13 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 extraction of coal in Scotland?

1.14 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

1.15 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.

1.16 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.

1.17 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

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

- Chapter 2 presents information on the respondents to the call for evidence and the responses submitted.
- Chapter 3 presents an analysis of the responses received.
- Annex 1 provides a 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 and the responses submitted.

Number of responses received

2.2 The call for evidence on coal extraction received 22 responses. Seventeen responses were submitted through the Scottish Government’s online consultation hub and five were submitted by email. Following an initial review, one response was removed as it was determined to be correspondence with the Scottish Government that was outwith the scope of the call for evidence. Thus, the analysis presented here is based on 21 responses.

About the respondents

2.3 Responses were received from 12 organisations and 9 individuals (see Table 2.1).

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

Respondent type	Number
Organisations	12
Individuals	9
Total	21

Organisational respondents

2.4 Organisational respondents included public sector organisations (3), academic and research groups (2), heritage groups (2), 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 campaign group focused on a move away from the use of coal and a ‘just transition’ for coal mining communities. See Table 2.2.

Table 2.2: Organisational respondents, by type

Organisation type	Number
Public sector organisations	3
Academic / research organisations and groups	2
Heritage groups	2
Environmental organisations	2
Other organisations	3
Total	12

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

3 Findings

3.1 This chapter provides an analysis of the responses received to the Scottish Government's call for evidence on coal extraction. The first section presents a brief overview of the responses. This provides context for the remainder of the chapter, which summarises the findings of the thematic qualitative analysis.

Overview of responses

3.2 As noted in Chapter 2, a total of 21 responses were received in response to the call for evidence on coal extraction.

3.3 Most of the nine individuals who submitted responses provided short comments (no more than a few paragraphs), often containing statements of views rather than evidence *per se*. One individual provided a fuller response and an accompanying attached document.

3.4 Four individuals were opposed to coal extraction (mostly citing climate-related reasons), and five thought coal had a role, at least on a transitional basis, in meeting Scotland's future energy needs, and that this should be reflected in the refreshed Energy Strategy.

3.5 The 12 organisational responses ranged from short, single-point submissions to lengthier submissions presenting technical evidence and statistics.

3.6 Seven organisations (including public sector bodies, academic / research and environmental bodies) were opposed to future coal extraction – mainly citing climate-related reasons and expressing supported a transition to a low-carbon energy system.

3.7 Of the five remaining organisational responses, two expressed support for coal extraction for use in the heritage sector and more widely. These respondents cited economic, environmental and cultural arguments. The remaining three respondents did not express a view on future coal extraction but raised other relevant to the call for evidence.

3.8 The findings from the thematic qualitative analysis are set out below under three headings (i) support for future coal extraction (ii) opposition to future coal extraction (iii) other relevant issues. Key themes identified in the responses and addressed below included climate change and the transition to a low carbon economy, energy security and Scotland's energy mix, and the continuing need for coal in different economic sectors. The themes discussed by respondents were often interlinked; however, as far as possible, each topic is discussed in detail only once in the sections that follow.

Support for future coal extraction

3.9 There were two key linked themes in the responses from those who supported future coal extraction in Scotland: (i) energy security and (ii) the continuing need for coal in different economic sectors. Views on both of these issues are discussed below. Respondents in this group also often discussed climate change and the Scottish Government's stated policy objectives relating to the transition to a low carbon economy, and views on these issues are also presented.

Energy security and Scotland's energy mix

3.10 Respondents who supported future coal extraction argued that Scotland had plentiful coal reserves that should be exploited to improve the country's energy security. These respondents thought that domestic coal should be part of Scotland's energy mix as this would:

- Reduce reliance on expensive imported coal; offer economic, employment and environmental benefits; and avoid supply chain volatility caused by world events such as the war in Ukraine
- Offer a reliable and proven source of energy for use alongside renewables and / or until alternative renewable sources are available on a large enough scale to meet demand
- Help preserve Scotland's oil and gas reserves for other purposes (e.g. in the manufacturing and the chemical sectors)
- Help keep fuel prices at an affordable level.

3.11 Additionally, it was suggested by one respondent that coal is less vulnerable to hostile attacks than other fuel supplies such as oil and gas.

3.12 Some respondents said that the use of coal could be enhanced by ensuring it was used in the cleanest, most energy efficient and economical way.

3.13 Some respondents also called for the use of coal bed methane and coal gasification as alternative or additional sources of energy.

The continuing need for coal

3.14 Some respondents argued that, in addition to being a source of energy, coal fulfilled a number of important industrial and economic functions. They highlighted its use in the production of steel, aluminium, cement, carbon fibre and silicon metal, and its role in the manufacture of chemicals used in a range of different industrial processes. One respondent pointed to information produced by the British Geological Survey and the Centre for Sustainable Carbon detailing the various uses of coal.

3.15 Respondents made the point that there is currently no viable alternative to the use of coal in such industrial processes, and that Scotland will therefore continue to need a supply of coal for the foreseeable future. Without a domestic supply, Scotland would have to rely on imported coal. Respondents argued that imported coal was more expensive than domestic coal and had the effect of 'off-shoring' carbon emissions or even increasing them because of the distances involved in transporting such coal to its final destination.

3.16 Three respondents (two organisations and one individual) drew particular attention to the use of coal in the heritage sector. These respondents argued that:

- Heritage railways and other industrial heritage sites and attractions operating steam powered machinery have a very specific ongoing need for low volumes of high-quality coal which is currently imported at high (financial and environmental) cost.

- There is currently no alternative to using coal in this sector – one respondent said that development work was currently underway in this field but that there was no government support for research and development in this area.

3.17 These respondents said domestic coal extraction should be allowed to meet the needs of this niche low-emission sector.

3.18 Two of the respondents involved in the heritage sector also argued that coal had a place in Scotland's energy mix more generally, for economic and environmental reasons.

Climate change and the transition to a low carbon economy

3.19 Respondents who favoured further coal extraction often acknowledged the issue of climate change and / or the need to cut carbon emissions (or they accepted the Scottish Government's commitment to acting on these issues). However, these respondents argued that using domestically sourced rather than imported coal could contribute to an overall reduction in global carbon emissions, because of the shorter transportation distances involved. One respondent described the assumption that a ban on coal extraction in Scotland would reduce emissions as 'seriously flawed'.

3.20 These respondents made the point that coal would continue to be used within Scotland for many years to come (see paragraphs 3.14 to 3.18 above), and they claimed that relying on imported coal would 'commit the Scottish Government to nearly a quarter of a century of higher overall emissions for residual users of coal and substantial off-shoring of emissions'.

3.21 Respondents also made the following additional points:

- There was scope for mining operations to become carbon neutral, using electrical power and carbon off-setting
- The Government's net zero policy was out of step with the availability of suitable alternative energy sources such as renewables, and exploiting domestic carbon fuel sources would be required meantime
- Ensuring that people could afford to heat their homes should be prioritised over achieving net zero targets.

3.22 Respondents argued for (i) a strategy that differentiated between a position that was opposed to **any** extraction of fossil fuels and one that allowed **some** (limited) coal extraction, and (ii) an approach that recognised the different coal extraction processes, and the associated risks involved, and considered each application on its merits.

3.23 One individual said that further public debate was required on this issue.

Opposition to future coal extraction

3.24 As noted above, around half of respondents to the call for evidence expressed opposition to further extraction of coal in Scotland. The prime concern for these respondents was tackling climate change.

3.25 In general, these respondents emphasised the global challenge of climate change and the need to take immediate action on this issue. They highlighted Scotland's international climate change obligations and endorsed the Scottish Government's policy activity in this area. They argued that any future coal extraction would be incompatible with Scotland's wider efforts to move towards becoming a low carbon economy and would make it harder to meet the Scottish Government's net zero targets.

3.26 Respondents referred to the legally binding [Paris Agreement](#) on climate change and the scientific work of international bodies such as the Intergovernmental Panel on Climate Change (IPCC) and the International Energy Agency (IEA), which has highlighted the urgency of moving away from fossil fuel extraction and use. They also highlighted statements from the United Nations and the IEA calling for immediate action on this issue.

3.27 In making their case, several respondents drew attention to the particularly high carbon emissions associated with the extraction and burning of coal relative to other fossil fuels. The risks posed to human health and the environment from burning coal were also noted.

3.28 Respondents also countered some of the arguments put forward (above) by respondents who supported coal extraction, as follows:

- On the issue of **energy security**, respondents opposed to coal extraction argued that energy (and economic) security would be best addressed through a transition to clean energy sources, the development of renewables, and improvements in energy efficiency. One organisation cited work by the IEA which had concluded that it was possible to transition to a net zero stable and affordable energy system providing 'energy access and economic growth' without further coal exploration and extraction.
- On the issue of the **continuing use of coal**, one respondent highlighted the use of coal in the steel industry as a major contributor to carbon emissions in the UK. This respondent argued that any effort to address carbon emissions had to address the decarbonisation of the steel industry too, albeit that this had to be tackled on an international level because of the global nature of the steel industry. This respondent expressed opposition to coal imports as well as domestic coal extraction.

3.29 In addition to highlighting the impact on climate change, respondents in this group also noted the negative effect of coal mining and coal use on the environment (e.g. in terms of water and air pollution), nature, and human health.

3.30 Respondents in this group were united in their view that the Scottish Government should take steps to prevent any future coal extraction in Scotland. Respondents urged the Scottish Government to:

- Adopt a policy position of no support for coal extraction in Scotland, and to enforce this using the powers available to them through the planning system
- Prioritise the achievement of existing net zero targets and ensure a 'managed and just transition' away from fossil fuels.

3.31 One organisational respondent suggested that the Welsh Government's 2021 *Coal Policy Statement* might provide a starting point for the Scottish Government in developing its own policy.

Other views

3.32 One individual provided a somewhat different view in their short response to the call for evidence. They made two points, suggesting that (i) coal extraction should not be considered until 'cleaner' processes for extraction were available, and that (ii) hydrocarbons (i.e. coal) represented a valuable and finite resource and should be reserved for processes other than energy production.

Other issues raised

3.33 Four further themes identified in the responses related to (i) Scotland's heritage, (ii) the legacy of the coal mining industry, (iii) the need for a just transition to a low carbon economy, and (iv) information and research. Each of these are discussed briefly below.

Scotland's heritage

3.34 A number of responses to the call for evidence discussed issues related to aspects of Scotland's heritage. These issues were raised by respondents in favour of further coal extraction, and those who did not offer a view on this overall issue.

Scotland's industrial heritage

3.35 Several respondents focused on industrial heritage in their responses and noted the importance of celebrating Scotland's long history of involvement in the coal industry, and the contribution made by miners and mining communities to the country's industrial and cultural heritage. These respondents drew attention to the importance of heritage sites and industrial museums in this context – highlighting the benefits they brought to the tourism sector and the economy as a whole, their role in encouraging interest in science and technology in new generations, and their ongoing need for some residual coal supply. There were calls for this to be recognised in any policy.

Scotland's historic environment

3.36 One public sector respondent noted that the move away from carbon fuels would necessarily entail a greater reliance on renewable energy sources, including wind farms. This respondent called for future developments in this area to be implemented sensitively. They highlighted the impact such development could have on the way the historic environment is 'understood, appreciated, and experienced', and called for 'a mix of appropriately sited and designed renewable energy sources...deployed to meet our future energy needs'.

The legacy of the coal mining industry

3.37 Organisational respondents raised three issues with regard to dealing with the legacy of former coal mining sites: ensuring safety, exploiting sites as a future energy source, and restoring sites for community benefit. These issues were raised by respondents opposed to

further coal extraction, and those who did not offer a view on this overall issue. Both positive and negative legacy issues were identified. Each issue is discussed briefly below.

- **Ensuring the safety of former coal mining sites:** The ongoing challenge of ensuring the safety of old mine works was raised by some respondents. It was particularly noted that polluted water discharging from old mines could contaminate the local water system and have a negative impact on local ecology and the environment. Current post-mining monitoring and mitigation activity was said to involve significant resources. This activity would be required for some time into the future and adequate future provision would have to be made for this to ensure a safe and 'nature positive' transition to a low carbon economy.
- **Exploiting former coal mines as a future energy source:** Two respondents noted that the water in abandoned mines could be used as a source of clean geothermal energy that could help Scotland meet its net zero emissions target. One respondent said that the heat energy contained in the water in former mines could provide up to 30% of Scotland's heating needs, and that developing this resource could bring social and economic benefits. A second academic respondent highlighted their own research facility which was already investigating the potential to use the 'proven but not widely realised' technology of mine-water heat abstraction.
- **Restoring old coal mining sites for public benefit:** Several respondents noted the importance of transforming old mining sites 'from environmental liabilities into assets for local communities', providing green spaces for people and habitats for encouraging wildlife and nature. Respondents cited examples in Scotland that could provide lessons for future restorative work. However, one respondent expressed concern that the standard of such remedial work may suffer because of a shortfall in funding.

Ensuring a just transition to a low carbon economy

3.38 Two organisational respondents emphasised the importance of achieving a 'just' transition to a low carbon economy – both for communities affected by historical mining activities and for those employed in high carbon industries. In relation to this latter group, these respondents said there should be support so that people can gain the necessary skills to take up employment in new fields such as the renewables sector. They also called on the Scottish Government to work with the trade unions and with workers themselves in addressing this issue, and to use the Just Transition Fund to provide training for industries of the future. However, it was pointed out that the fact that there was currently no coal extraction in Scotland would mean that a policy position opposed to future extraction would not have any direct impact on people working in these industries.

3.39 One respondent argued that action was needed to ensure a just transition globally, as well as within individual countries.

Information and research

3.40 Finally, one academic organisation highlighted the availability of detailed geological information on mineral resources in Scotland that could be used to inform decision making in this area.

Annex 1: Organisational respondents

Twelve (12) organisations responded to the call for evidence. These are listed here.

Public bodies (3)

- Aberdeen City Council
- Historic Environment Scotland
- SEPA

Heritage groups (2)

- Heritage Railway Association
- Strathspey Railway Company

Environmental organisations (2)

- Friends of the Earth Scotland
- RSPB Scotland

Academic / research bodies and groups (2)

- British Geological Survey
- Common Weal & The Energy Poverty Research initiative (joint response)

Other organisation types (3)

- Coal Action Network
- Energy Saving Trust
- MCS Charitable Foundation

Annex 2: Catalogue of evidence

Eight respondents (seven organisations and one individual) provided references to published material as part of their response to the call for evidence.² This annex provides details of the reports, articles, and other resources drawn on or cited by respondents. 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.

- British Geological Society (2010) Commodity Profile. [Coal](#).
- British Geological Survey (2021) Mineral Planning Factsheet. [Coal](#).
- Calverley D and Anderson K (2022) [Phaseout Pathways for Fossil Fuel Production Within Paris-compliant Carbon Budgets](#). University of Manchester.
- Coal Action Network (2021) [Coal in Steel: Problems and Solutions](#).
- Climate Change Committee (2020) [Letter from Lord Deben, Climate Change Committee, to Roseanna Cunningham MSP](#). 9 December 2020.
- Department for Business, Energy and Industrial Strategy (2022) [2021 UK Greenhouse Gas Emissions, Provisional Figures](#).
- Gasparotto J and Da Boit Martinell K (2021) [Coal as an energy source and its impacts on human health](#). *Energy Geoscience*, 2(2), pp. 113–120.
- Global Energy Monitor (2022) [Environmental impacts of coal](#). Updated 22 July 2022.
- 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.
- 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](#).
- Intergovernmental Panel on Climate Change (2021 / 2022) [Sixth Assessment Report](#).
- International Energy Agency (2019) [Global Energy & CO2 Status Report 2019: Emissions](#).
- International Energy Agency (2021) (May 2021, revised October 2021) [Net Zero by 2050: A Roadmap for the Global Energy Sector](#).
- Reid, I (2021) [Advances in Non-Energy Products from Coal. CCC/311](#). IEA Clean Coal Centre.
- Scottish Government (2019) [Ministerial Statement] [Unconventional oil and gas: Ministerial statement](#). October 2019.

² One individual provided a copy of an (unpublished) development proposal they had prepared. The references included within the proposal are not listed in this annex.

- Scottish Government (2021) A Fairer, Greener Scotland: Programme for Government 2021–22. [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](#).
- Scottish Tourism Alliance (2020) [Scotland Outlook 2030 Responsible Tourism for a Sustainable Future](#).
- SEI, IISD, ODI, E3G and UNEP (2021) [The Production Gap](#) 2021 Report.
- United Nations [press release] [Secretary-General calls latest IPCC climate report ‘Code Red for Humanity’, stressing ‘irrefutable’ evidence of human influence](#). 9 August 2021.
- Welsby D, Price J, Pye S and Ekins P (2021) [Unextractable fossil fuels in a 1.5°C world](#). *Nature*, 597, pp. 230–234.
- Welsh Government (2021) [Coal Policy Statement](#).
- Wood G and Baker KJ (eds) (2019) [The Palgrave Handbook of Managing Fossil Fuels and Energy Transitions](#). Palgrave Macmillan.



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