

Cumbria County Council planning application no.: 4/17/9007  
Planning Inspectorate call-in reference: APP/H0900/V/21/3271069  
(West Cumbria Mining, Cumbria)

## **Response from Scientists for Global Responsibility (SGR)**

[main text]

I am writing on behalf of Scientists for Global Responsibility to strongly object to the above application.

### **1. About myself**

1.1 I am an environmentalist scientist, with 30 years' experience of research and advocacy work on climate change and energy issues. My scientific background includes: a PhD in climate change science from Lancaster University; five years as a post-doctoral research fellow in climate and energy policy at Surrey University; a year as an expert reviewer for the United Nations advisory body, the Intergovernmental Panel on Climate Change; and 18 years as executive director of Scientists for Global Responsibility. In particular, my work at Surrey University and Scientists for Global Responsibility has involved assessing the greenhouse gas emissions of energy and industrial projects, and critiquing the methodologies used. This work has involved collaboration with government bodies, industry, academia, and civil society organisations – and has particular relevance for this submission, as discussed later.

### **2. About Scientists for Global Responsibility (SGR)**

2.1 SGR is an independent UK membership organisation promoting ethical concerns related to science and technology, including related to energy and environmental issues. Our membership currently includes approximately 600 science and technology practitioners (as well as additional supporters). We were formed in 1992, and our main office is in Lancaster. Further information about the organisation and the professional background of the staff, national co-ordinating committee and patrons can be found on our website (see letterhead).

### **3. Grounds for objection**

3.1 The main grounds on which we object to WCM's planning application for Woodhouse Colliery is that it will fuel global climate change, including undermining the UK's commitments under the 2008 Climate Change Act (CCA) and international commitments under the 2015 Paris Climate Agreement to hold "the increase in the global average temperature to well below 2°C above pre-industrial levels" and pursue "efforts to limit the temperature increase to 1.5°C above pre-industrial levels".<sup>1</sup> We agree with Lord Deben, chair of the Climate Change Committee, that "the opening of a new deep coking coal mine in Cumbria will increase global emissions and have an appreciable impact on the UK's legally binding carbon budgets".<sup>2</sup> Specifically, our concerns are as follows.

3.2 The application states that a total of nearly 2.8 million tonnes of coal will be extracted per year during the main production phase (which is due to be reached in the fifth year after the coal mine opens). Cumbria County Council approved planning permission for up until 2049, meaning the lifetime of the mine could be 28 years.<sup>3</sup> Coal is a highly polluting fuel, especially in terms of greenhouse gas (GHG) emissions. Each tonne of coal used for steel production currently emits approximately 3 tonnes of carbon dioxide (CO<sub>2</sub>).

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<sup>1</sup> United Nations (2015). Paris Agreement. [https://unfccc.int/sites/default/files/english\\_paris\\_agreement.pdf](https://unfccc.int/sites/default/files/english_paris_agreement.pdf)

<sup>2</sup> Lord Deben (2021). Letter: Deep Coal Mining in the UK. 29 January. <https://www.theccc.org.uk/publication/letter-deep-coal-mining-in-the-uk/>

<sup>3</sup> It is worth noting that the original planning application for this mine stated a lifetime of 50 years.

Based on the latest official figures for conversion factors, we estimate that the combustion of the coal from this mine will lead to emissions of about 9.0 million tonnes (Mt) of CO<sub>2</sub> equivalent each year during the main production phase<sup>4</sup> – or a total over the lifetime of the mine of at least 200 Mt.<sup>5</sup> The figure of 9.0 Mt is currently similar to the annual territorial GHG emissions of over 1.3 million British citizens or approximately 2.0% of UK's territorial emissions<sup>6</sup> – and the latter figure will rise over the lifetime of the mine as UK emissions fall in line with national targets. Because it is planned to export much of the coal, most of the associated emissions will appear in the 'environmental accounts' of other European countries – not the UK – but nevertheless they will add to global GHG emissions, and hence should be considered to be a material planning consideration.

3.3 The application concedes that the coal mine – in common with all coal mines – will emit significant levels of methane, a GHG with a much stronger heating effect than CO<sub>2</sub>. Such emissions are notoriously hard to control. The applicant proposes using 'methane capture and drainage' to deal with this problem, but does not specify how effective it might be or provide evidence that it has been used effectively elsewhere. The application estimates that the average annual GHG emissions from the unabated methane would be approximately 0.3 Mt of CO<sub>2</sub> equivalent<sup>7</sup> (nearly 3 times the size of any claimed emission reductions from reduced shipping of the coal from the USA). This would add approximately 3% to the figure for total annual GHG emissions calculated in point 3.2 above.

3.4 The application argues that GHG emissions from the use of the coal in steel-making can be disregarded because this coal will directly and completely substitute for coal imported to the UK and mainland Europe from the USA.<sup>8</sup> It argues that this displaced US coal will not be used in steel-making elsewhere because there are currently no other proven export markets for it (e.g. in Asia), mainly due to the travel distances involved. Furthermore, it implies that the displaced coal will not be used elsewhere during the entire lifetime of the coal mine. In short, the application argues that extraction and use of an equivalent amount of US coal would completely cease for at least 28 years solely due to this project. We do not regard this as a credible argument for the following reasons:

- The coal would still be available for use within the US steel-making industry and simple supply and demand economics could lead to it being used to slow a shift to lower-carbon steel production.
- Other export markets may become viable for the US coking coal in the future – not least in geographically closer nations in Latin America – if stronger international efforts are not pursued to reach the Paris climate goals.

When I was a research fellow at Surrey University, my work involved developing and critiquing GHG assessment methodologies such as those used in this study – especially the use of baseline or 'do nothing' projections. The view we formed during our work was that the use of baselines could never be objective, that their use was subject to gaming behaviour by the project developer and any consultants it engaged, and no baseline could be considered credible for more than 10 years.<sup>9</sup> The need to use a 28-year baseline for this project – including numerous speculative and questionable assumptions – demonstrates the major flaws in the application of this methodology.

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<sup>4</sup> The application states that 2.78 million tonnes (Mt) of metallurgical coal for iron and steel production would be extracted per year during the main production phase. Each tonne of metallurgical coal emits 3.22 tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e) during its use. Hence the use of the coal from this mine would lead to emissions of approximately 8.96MtCO<sub>2</sub>e each year. GHG conversion factors can be found in: BEIS (2020). 2020 Government GHG Conversion Factors for Company Reporting. Department for Business, Energy and Industrial Strategy. <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020>

<sup>5</sup> Assuming that the main production phase lasts for 23 out of the 28-year lifetime.

<sup>6</sup> The latest official figures for UK territorial GHG emissions are for 2019, when they were 454.8 MtCO<sub>2</sub>e, with a corresponding population of 67.53 million. Data sources: Department for Business, Energy and Industrial Strategy (2020). Final UK greenhouse gas emissions national statistics: 1990-2019. <https://www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-national-statistics-1990-to-2019> and Worldometers (2021). UK population. <http://www.worldometers.info/world-population/uk-population/> (data is extrapolated from official national statistics)

<sup>7</sup> P.55 of: West Cumbria Mining (2020). Woodhouse Colliery Planning Application 4/17/9007 Environmental Statement: Chapter 19 - Greenhouse Gas Emissions.

<sup>8</sup> Appendix 1 (pp.19-30) of: West Cumbria Mining (2020) – as note 7.

<sup>9</sup> See, for example: Jackson T, Begg K, Parkinson S (2001). Flexibility in Climate Policy: Making the Kyoto Mechanisms Work. Earthscan.

- 3.5 The high sulphur content of the coal produced from this mine will significantly restrict its use in steel production, both in the UK and beyond. British Steel has already stated, in correspondence with Cumbria County Council, that it would have difficulties using the coal for this reason.<sup>10</sup> Within the UK, this leaves Tata Steel whose usage may only be 180,000t/y<sup>11</sup> – 6.5% of the total annual production from the mine. This indicates that 93.5% of the coal would likely be exported to Europe or further.
- 3.6 The application is based on an assumption that the demand for coking coal within the UK and/or the EU will not be significantly disadvantaged by changes in policy, technology or economics over the lifetime of the coal mine. There are major reasons to doubt this, as follows.
- a) Even before the COVID-19 crisis, steel production in the EU and UK had been struggling, first due to the 2008 financial crisis and then due to international competition. In the EU (28 countries), crude steel production fell from 199 Mt in 2008 to 157 Mt in 2019 (21% decrease). In the UK, it fell from 13.5 Mt to 7.2 Mt (47% decrease) during the same period.<sup>12</sup>
  - b) UK steel production using blast furnaces – fed by coking coal – is especially under pressure. There remain only two steel plants using blast furnaces in the UK – at Port Talbot (run by Tata Steel) and Scunthorpe (run by British Steel) – and the recent major upheavals in the sector mean their future is likely to remain under question.
  - c) There are several existing and emerging technological processes which reduce or eliminate the need for coking coal. The most significant are those which are coking coal-free: recycling steel using electric arc furnaces (EAFs); and steel production using hydrogen-based direct reduction of iron ore (H-DR).
    - i) The level of steel recycling using EAFs is likely to rise markedly, driven by environmental legislation and economic pressures. The EU has been an above average performer in this field, and its rate is increasing.<sup>13</sup> Indeed, the UK exported 9.4Mt of scrap steel in 2017,<sup>14</sup> which could have been recycled here, had British industry invested more in this technology.
    - ii) There has been a recent upsurge in industry interest in H-DR. The latest developments have been summarised on the Green Steel Tracker website<sup>15</sup> which shows many major steel producers planning full-scale production using H-DR by the mid-2020s. The data shows that global iron and steel production using H-DR is projected to reach around 14 Mt/y by 2026 – with most of it based in Europe – and then could more double during the following five years. UK R&D in this area is also proceeding rapidly.<sup>16</sup>
  - d) In the UK, the government has recently announced its Sixth Carbon Budget under the CCA, which includes a legally-binding commitment to reduce emissions by 78% by 2035.<sup>17</sup> In relation to this, the Climate Change Committee has stated that “Coking coal use in steelmaking could be displaced completely by 2035, using a combination of hydrogen direct reduction and electric arc furnace technology to meet our recommendation that UK ore-based steelmaking be near-zero emissions by 2035”.<sup>18</sup>
  - e) There are also major policy initiatives in the EU and more broadly which are highly likely to drive down coal use in steel-making – and accelerate the use of the coking coal-free technologies discussed above. Most significantly, the European Green Deal<sup>19</sup> – published in December 2019 – sets out a strategy to

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<sup>10</sup> British Steel consultation response, 3/8/20. Cumbria County Council has thus concluded that British Steel cannot use any of the coal – see para. 7.328 of: DCR Committee (2020). A report by the Executive Director – Economy and Infrastructure. 2 October.

<sup>11</sup> As stated on p.53 (Appendix 2) of: West Cumbria Mining (2020) – as note 7.

<sup>12</sup> World Steel Association (2018/20). Steel Statistical Yearbooks: 2018 (full); 2020 (concise). <https://www.worldsteel.org/steel-by-topic/statistics/steel-statistical-yearbook.html>

<sup>13</sup> World Steel Association (2020) – as note 12.

<sup>14</sup> World Steel Association (2018) – as note 12.

<sup>15</sup> Vogl et al (2021). Green Steel Tracker, Version 04/2021. Stockholm. <https://www.industrytransition.org/green-steel-tracker/>

<sup>16</sup> See, for example: The Chemical Engineer (2019). £20m boost for UK steel and biotech. 11 February.

<https://www.thechemicalengineer.com/news/20m-boost-for-uk-steel-and-biotech/>

<sup>17</sup> The emissions target is relative to 1990 levels. HM Government (2021). UK enshrines new target in law to slash emissions by 78% by 2035. 20 April. <https://www.gov.uk/government/news/uk-enshrines-new-target-in-law-to-slash-emissions-by-78-by-2035>

<sup>18</sup> Lord Deben (2021) – as note 2.

<sup>19</sup> European Commission (2019). A European Green Deal. [https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal\\_en](https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en)

reduce the EU's GHG emissions to net zero by 2050. The specific policies relating to the steel industry are under negotiation, but it is already clear that major reductions in coal use will need to be pursued as it is a high-emissions sector. Examples of how such policies can be put into practice are given by the Science Based Targets initiative,<sup>20</sup> which has developed a decarbonisation pathway for the international steel industry. This pathway is related to a target of limiting global temperature change to 2°C. Applying a target of 1.5°C – which is actively under consideration due its specification in the Paris Climate Agreement – would lead to a much larger cut in coal use. Further arguments are that low carbon materials will increasingly be substituted for steel in certain circumstances – and that overall consumption of energy-intensive materials will also need to fall.

- f) The COVID-19 crisis is causing considerable economic damage to major users of steel products, not least the aviation sector – and some of this demand may not recover if climate targets are seriously pursued.

Hence, we think it highly unlikely that this mine would be economically viable for anything close to its claimed 28-year lifespan. It would therefore become a 'stranded asset'.

3.7 The applicants – in common with many in industry and government – significantly underestimate the speed and scale of GHG emissions reduction that would be necessary to meet the Paris targets. For example, Prof Kevin Anderson of the world-renowned Tyndall Centre at Manchester University has estimated<sup>21</sup> that the UK will only meet its share of these targets with a much faster transition than currently envisaged by the Climate Change Committee. A key focus within this is major cuts in consumption of energy and materials across the whole economy – including coal and steel – not merely, as the application implies, steady technological change over several decades. Hence, our view is that this coal mine would further undermine UK and international action, increasing the risk of 'dangerous' climate change, including extreme storm and flood events of the type of which Cumbria has experienced in recent years.

3.8 The UK government is chairing the 26<sup>th</sup> Conference of the Parties to the UN Framework Convention on Climate Change (COP26) this November. Approval of a coal mine – especially one as large as that proposed by WCM – would send entirely the wrong message to the world about the seriousness of the climate threat and the scale of action needed to tackle it.

#### **4. Summary**

4.1 In summary, approval of this application for a large coal mine would be a major step backwards for efforts to tackle global climate change (and other environmental problems). From an investment perspective, there are many more promising options involving the development and use of coking coal-free and low-carbon steel production processes. From a policy perspective, this application undermines the credibility of the UK's commitment to major reductions in carbon emissions. Scientists for Global Responsibility therefore strongly urges that this application be rejected.

Sincerely

Dr Stuart Parkinson  
Executive Director  
Scientists for Global Responsibility

*[submitted: 5 May 2021]*

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<sup>20</sup> <https://sciencebasedtargets.org/>

<sup>21</sup> See, for example: Anderson K (2019). Hope from despair: transforming delusion into action on climate change. Presentation at SGR conference, November. <https://www.sgr.org.uk/resources/hope-despair-transforming-delusion-action-climate-change>