

**ANNEX 1:**

*In re: Proposed Whitehaven Coal Mine: Council Ref: 4/17/9007*

**Letter of Professor Paul Ekins OBE**



# UCL

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**To whom it may concern**

BY EMAIL

**The economics of coal and steel, as relating to the proposal for a mine at Woodhouse Colliery, Cumbria**

I have been asked to offer my expert opinion on the planning application for a coal mine at Woodhouse Colliery, Cumbria.

My research focuses on the conditions and policies for achieving an environmentally sustainable economy. I hold a Ph.D. in economics from the University of London and I am currently Professor of Resources and Environmental Policy at University College London. I am Director of the UCL Institute for Sustainable Resources. Until May 2019 I was also Deputy Director of the UK Energy Research Centre. My areas of expertise include energy-environment-economy (E3) interaction and environmental policy, including: sustainable development assessment methodologies; resource productivity; sustainable energy use; E3 modelling and scenarios; the adjustment of national accounts to take account of environmental impacts; environmental economic instruments and ecological tax reform; sustainable consumption; and environment and trade. I attach a brief biography with the titles of some my longer publications as an appendix.

I have been asked to review assertions by Cumbria County Council in relation to the likely greenhouse gas (GHG) impacts of the proposed planning permission for a new underground metallurgical coal mine and associated development at Whitehaven (Council Ref. 4/17/9007). In the reports of March and October 2019 in relation to the proposed mine, Cumbria County Council make claims about the impact of the mine on emissions of GHGs. I detail the main claim below, and comment on its validity.

**Claim: Increases in coal production in the UK would result in decreases in production overseas and would therefore not add to global GHG emissions.**

The report of October 2019 states that coal from the new mine, sold in the UK or elsewhere, would result in a reduction in coal sold from mines overseas. It is claimed that the total amount of coal burned would therefore remain the same.

In the words of the reports:

*“the opening of the mine would be unlikely to create additional demand for coking coal as the demand for coking coal is led by the demand for steel. Therefore, it is reasonable to assume that coking coal produced from a mine in the proposed location is very likely to end up as a substitute for coking coal produced further away”*

*“if the coking coal from Whitehaven proved more competitive because it is located closer to steel manufacturing plants of the UK and Europe than the rest of the world, then mining operations elsewhere would be very likely to reduce their output by a similar level of production, leaving CO2 emissions from extraction and processing in balance globally. Furthermore, if the coal from Whitehaven became less financially competitive than alternative sources, then there would be no market for its product, which would mean it would then remain in the ground, leading once again to a carbon neutral situation.”*

There is no evidence to suggest that coal from the new mine would result in reductions in coal extracted from mines overseas. Basic economic theory suggests that (absent special – and rare – circumstances where the demand for a product is considered to be entirely “inelastic”) an increase in the supply of a commodity such as coking coal will reduce the price of the commodity, leading to increased demand, and therefore increased emissions. This is a normal feature of economic markets and to refute the assumption that greater supply of a product will lead to increased demand would require a very strong argument (and evidence) that the coal market has one or more rare features (such as a cartel which sets prices independently) which override normal economic forces. I am aware of no such claim or evidence here.

Furthermore, the claim that demand for coking coal is somehow constant because it is “led by the demand for steel” is again contrary to basic economic theory. There is no reason why the demand for steel would not be responsive to the price of the inputs to steel production. Cheaper coking coal will, in the absence of policy incentives, result in more steel being produced through the traditional blast furnace method, and discourage investment in alternatives, even though, as I discuss below, such alternatives exist. Thus an additional coking coal mine is highly likely to result in additional carbon emissions.

Without effective ‘supply side’ policies which limit fossil fuel extraction to a particular level (which currently do not exist in any exporting country cited by the Council), there is no reason to expect that there will be a corresponding reduction in supply upon the opening of the Whitehaven mine. A recent report from the United Nations Environment Programme states that such policies are insufficient or, in the case of many countries, non-existent. Their ‘Production Gap’ report notes “governments are planning to produce about 50% more fossil fuels by 2030 than would be consistent with a 2°C pathway and 120% more than would be consistent with a 1.5°C pathway.”<sup>1</sup>

The only grounds on which it would be safe to assume that new coal production in Cumbria would not lead to an overall increase in coal production would be if one or more coal mines elsewhere could be identified which would shut down production as the coal from the new mine came on stream. Such mines elsewhere have not been identified, and, in the absence of policies or legislation to restrict the extraction of coal elsewhere, it can safely be assumed that the result of the new coal mine in Cumbria would be an overall increase in emissions, as per the argument above.

My own research, published in the journal *Nature* in 2015<sup>2</sup>, states that over 80 per cent of current coal reserves must remain unused in order to stabilise global average temperatures to 2°C; note that the target adopted in the Paris Agreement has a more stringent ‘well below’ 2°C. It makes no climate sense to open new coal capacity in this situation, especially as it seems to be the case that it is envisaged that the coal mine in Cumbria will be producing well past the 2050 date by which the UK Government has a legal commitment to reduce greenhouse gas emissions to net zero.

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<sup>1</sup> The Production Gap: The discrepancy between countries’ planned fossil fuel production and global production levels consistent with limiting warming to 1.5°C or 2°C, UNEP, November 2019

<sup>2</sup> McGlade, C., Ekins, P., 2015. The geographical distribution of fossil fuels unused when limiting global warming to 2 °C. *Nature* 517, 187–190.

A further argument against increasing coal production, with the likely resulting decreasing coal prices, is that this is likely to depress investment in alternatives to the carbon-intensive blast furnace steel production. Such alternatives, including reuse and remanufacture of steel; recycling of steel in electric arc furnaces (EAFs); the direct reduced iron process (DRI) which uses gas to make new steel; and producing steel with hydrogen; are all technically feasible. However, the relatively low price of blast-furnace steel production has inhibited the development of these alternatives. Again, in the absence of policy or legislation, increasing the supply of coking coal will further discourage the deployment of these alternatives.

As the UK progresses toward its statutory target of net-zero emissions by 2050, UK steel production will be required to shift to the low-carbon alternatives described above. From the arguments above it is clear that the coal produced by the Cumbria mine is likely both to increase emissions and to hamper the development and deployment of low-carbon technologies in this industry, thereby supporting the continuance of high-carbon steel production and contributing to dangerous climate change.

### **Conclusion**

I conclude that the claims made by Cumbria County Council, that the mine would not result in additional carbon emissions, are entirely unfounded. On the contrary, I would expect the mine to result in considerable additional carbon emissions.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Paul Ekins', with a long, sweeping underline stroke extending to the right.

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