

Summary

We are facing a climate emergency. This reality is underlined every day by extreme weather and 'natural disasters'. The steel industry produces 11% of the annual CO₂ emitted globally, contributing significantly to climate change.¹ This is largely due to the reliance on coking coal in primary steel production.

The UK government is to decide whether West Cumbria Mining Ltd can start a new large underground coking coal mine, called Woodhouse Colliery, in West Cumbria. West Cumbria Mining Ltd plan to export coking coal to European steelworks which would worsen climate change. The planning application will be decided following a Public Inquiry in Autumn 2021.

All aspects of the steel industry are globalised, including the coking coal inputs, iron ore, finished products, scrap steel, and the emissions produced. The impacts of these emissions are experienced internationally and the rest are traded globally. Solutions to decarbonise steel, therefore, must cross national borders with answers needed everywhere—so we should start taking action wherever we are based. The UK government intends to decarbonise steel by 2035, giving steel companies a central role in reducing emissions and changing the accepted standards of steel production and resource use.

In the UK, Port Talbot and Scunthorpe Steelworks are the second and third biggest single site emitters of carbon.² Both sites use the broadly two stage 'blast furnaces – basic oxygen furnaces' with metallurgical coal to make virgin steel. The other two large steel producers – Liberty Steel and Celsa recycle scrap steel in 'electric arc furnaces' which reduces the climate impact of those steel products.

Four of the five biggest global steel producers aim to reach carbon neutral steel production by 2050. To keep up, the UK's steelworks need to decarbonise as well. If not, customers aiming to reach their own climate goals will likely choose to import lower carbon steel from other European countries like Sweden and Spain who are pursuing low-emissions steelmaking projects.

Decarbonisation of the steel sector could be achieved through:

- increased use of electric arc furnaces and recycled scrap—already happening in the UK.
- using direct reduced iron production with green hydrogen in place of coke (which is produced from metallurgical coal). The HYBRIT project aims to do this at a commercial scale in Sweden by 2026, having made their first delivery of fossil free steel in August 2021.³
- reducing steel consumption through more efficient design of buildings, cars, energy infrastructure, and consumer products. Promoted by *The Use Less Group* at Cambridge University.