Cumbria coal mine information hub document *- links on page 2*

This is a hub-page by Henry Adams[1] to help climate campaigners and XR rebels over the UK to gen up on the true evidence-based facts about the proposed Cumbria coal mine prior to taking any action. It is also online as a wordpress version: **Cumbria coal mine information hub** | henryadamsblog (wordpress.com)

This document is version 11/07/21. Online link: www.dragonfly1.plus.com/cumbriacoalmineinfo.pdf

A public inquiry is due to start on 7th September for SLACC (South Lakes Action on Climate Change) and FoE to challenge West Cumbria Mining's application for a deep coking coal mine at Whitehaven. Cumbria County Council has switched from supporting the mine to a "neutral" position at the inquiry.

WCM's coal mine would result in **over 9 million tonnes of CO2e emissions per year** at full production. This is more than the current emissions of a million UK citizens – twice the population of Cumbria. Of this, 9 Mt CO2e would be the end-use emissions of the coking coal at the blast furnace stage, and 0.4 or more Mt CO2e would be operational emissions – largely comprising fugitive methane emissions from the mine.

It is claimed that the mine would be a "climate neutral" coal mine, on the untenable assumption that every amount of coal extracted would result in the same quantity of coal left in the ground elsewhere. The mine is also claimed to be climate-beneficial due to emissions savings from shorter shipping distances of the coal, but those savings would be dwarfed by the end-use emissions, as they would at best be 1 to 2% of 9 Mt CO2e. Also there would be little to stop the coal being exported beyond Europe.

WCM plan to export 87% of their coal to mainland Europe, 13% for UK's two remaining blast furnace sites. However the use of the coal in the UK and EU is likely to be limited by its high sulphur content, and also because the UK and Europe's steel industry will be shifting away from using coal for steel-making this decade and subsequent decades (UK totally by 2035, and in the EU steel companies have committed to reduce their emissions by at least 25% or 33% by 2030 which means similar reduction in the use of coal).

Useful links on next page ...

[1] Dr Henry Adams (me), Kendal, Cumbria, is a supporter of SLACC (South Lakes Action on Climate Change), XR South Lakes and FoE. I wrote SLACC's first objection letter to Cumbria County Council back in February 2018 and spoke for them in March 2019 before I was very pleased that Maggie Mason (former CumbriaCC planning officer on minerals and wastes) took over as SLACC lead with her many years of planning experience including with the coal mine proposal from its start. I then specialised in the timeline for decarbonisation of steel-making and the climate timeline.

Useful links

SLACC (South Lakes Action on Climate Change) hub-page on the campaign against the coal mine:
Cumbria Coal Mine Campaign – SLACC https://slacc.org.uk/campaigns/cumbria-coal-mine/
This provides the latest updates on SLACC's efforts to stop the coal mine.

Web-page by SLACC to help fund SLACC's legal team against the coal mine (also includes useful updates on progress towards the public inquiry):
LAST CHANCE to STOP the CUMBRIA COAL MINE (crowdjustice.com)
https://www.crowdjustice.com/case/westcumbriamineslacc/

XR South Lakes XR South Lakes (xrsl.earth) = https://xrsl.earth/wp/ has update articles re the mine.
XR-South Lakes (@XRSL4) / Twitter

Why the Steel industry doesn't need Cumbria's coal – Dr Henry Adams
Why-the-steel-industry-doesn't-need-Cumbria's-coal.pdf (plus.com)
Also here on wordpress:
Why the Steel industry doesn't need Cumbria's coal | henryadamsblog (wordpress.com)

Email by Henry Adams to Paul Haggin and Angela Jones (CumbriaCC) on 8 March 2021:
New evidence that must be considered: on steel decarb timeline especially H-DRI production capacity by 2030 Email-HenryAdams-to-PaulHaggin&AngelaJones8mar21.pdf (plus.com)
http://www.dragonfly1.plus.com/Email-HenryAdams-to-PaulHaggin&AngelaJones8mar21.pdf

This is an excellent long-read overview on the coal mine proposal in its wider political and social context, by Professor Becky Willis:

27may21 **'Dig coal to save the climate': the folly of Cumbria's plans for a new coalmine**
Supporters of a new coalmine have argued that it will reduce global warming and create green jobs. How could such absurd claims have gained any credibility? by Rebecca Willis
'Dig coal to save the climate': the folly of Cumbria's plans for a new coalmine | Coal | The Guardian
https://www.theguardian.com/environment/2021/may/27/dig-coal-to-save-the-climate-the-folly-of-cumbrias-plans-for-a-new-coalmine

Green jobs

It's important to provide a positive green alternative to the coal mine – especially to win hearts and minds in West Cumbria. This report is very timely:
12mar21 **'Cumbria could create 9,000 green jobs, CAfS report shows'**
Cumbria could create 9,000 green jobs, CAfS report shows - CAfS
https://cafs.org.uk/2021/03/12/cumbria-could-create-9000-green-jobs-cafs-report-shows/
"Green industries and investment could create 9,000 jobs over the next 15 years as Cumbria seeks to hit its 2037 net-zero target, according to a new independent report by Cumbria Action for Sustainability (CAfS). The report, entitled *The potential for green jobs in Cumbria*, calculates that around 9,000 jobs could be created for local people during a 15-year 'transition period' towards the county reaching net-zero, and 3,800 jobs in the longer term across sectors including transport, industry, retrofitting, renewable heat, renewable electricity and waste. ..."
FoE have now started a project in West Cumbria to engage local residents in the green jobs potential.

Both FoE and the Coal Action Network are working hard against the coal mine.
Marianne of Radiation Free Lakeland has been fighting the coal mine from the start from a nuclear angle.

Further details from my research

For those who know all the above and want to go into more depth and detail:

Why CCS added to BF-BOF is a bad choice for steel decarbonisation

West Cumbria Mining claim that coal-consuming Blast Furnaces can continue using coal over coming decades by fitting carbon capture equipment to blast furnaces and associated coke ovens etc. Also the Climate Change Committee's 'Balanced Pathway' in its 6th Carbon Budget report allows some (though limited) scope for this option. I collated and summarized the very strong points against this option in the following document: **Why-CCS-BF-BOF-is-bad-choice-for-steel-decarb.pdf (plus.com)**
http://www.dragonfly1.plus.com/Why-CCS-BF-BOF-is-bad-choice-for-steel-decarb.pdf
I list a number of points, one of the most important ones being the residual emissions that would remain even if hypothetically all of the BF-BOF emissions are captured (technically most unlikely), that include principally the significant fugitive methane emissions from coal mines. It must be borne in mind that as WCM coking coal could only form part of a blend (if at all) for a BF-BOF plant, that means that not only the significant fugitive emissions from WCM's mine must be considered, but also the fugitive emissions from all the other coal mines in the blend. And that's not all...

The timeline for the decarbonisation of steel-making

West Cumbria Mining and its associated consultants and supporters claim that direct reduction of iron ore using hydrogen (H-DR) won't reach a significant commercial scale for decades. But my assessment provides strong evidence otherwise:

[on the next page a screengrab of part of my report this Spring]

Table (by HA) summarizing examples of plans for H-DRI plants in Europe - Spring 2021 update

Mtpa = million tonnes per annum = Megatonnes per annum
Highlighted = announced since 2oct20. Figure is for i = iron, s = steel

Company (+ = with other co.s)	Date to start production	H-DRI production capacity pa (by 2030)	Country	Source	Comments
HYBRIT: SSAB + LKAB + Vattenfall	2026 i	1.3 Mtpa 2026, to 2.7 Mtpa by 2030	Sweden	31aug20 24mar21	The pilot plant started production in 2020. Demo plant to start 2026, Goal: "to full industrial scale of 2.7 Mt by 2030"
H2GS H2 Green Steel	2024 s	5 Mtpa by 2030	Sweden	24feb21	H2 Green Steel is a new consortium
LKAB (state-owned iron ore co.)	"by 2029" i	I have yet to find a figure by LKAB. Safe to guess c.1.3 by 2030?	Sweden	23nov21 10dec20	The potential production capacity of H-DRI by 2035 is huge. To avoid double-counting with Hybrit I won't add 1.3 to total below.
Arcelor Mittal	2026 s	3.5 Mtpa + 0.1 Mtpa Hamburg	Germany	5mar21 16sep19	Bremen & Eisenhüttenstadt (& Hamburg) Starting with CH4 then to H2.
Thyssenkrupp (at Duisburg)	2025 s	(0.4 Mtpa to) 1.2 Mtpa (aim 3 Mtpa by 2030?)	Germany	1sep20 28aug20	To build a new DR plant capacity 1.2Mtpa (starting at 0.4Mtpa). Aim: 3 Mtpa "climate neutral steel" by 2030. But may use CH4 until sufficient H2.
Salzgitter SALCOS project	By 2030 but H2 & CH4	(100kg/hr but unclear per year)	Germany	10dec20 5jan21	plan to make green hydrogen & also have commissioned Tenova to build H-DRI plant.
Voestalpine +	2021 (pilot) s	Initially pilot scale 0.25 Mtpa	Austria	11nov19 26jun19	plan to make green hydrogen and build H-DRI plants this decade. With Primetals (part of MHI)
Liberty Steel Group +	Likely to be by 2030 i	2 Mtpa	Dunkerque France	22feb21	Only at MoU stage at present, and Liberty is having financial problems now. Initially H2+CH4 then 100% H2
Liberty Galati	2023-2025 i	2.5 Mtpa	Romania	10jun20	NG-DRI to H-DRI as H2 becomes available

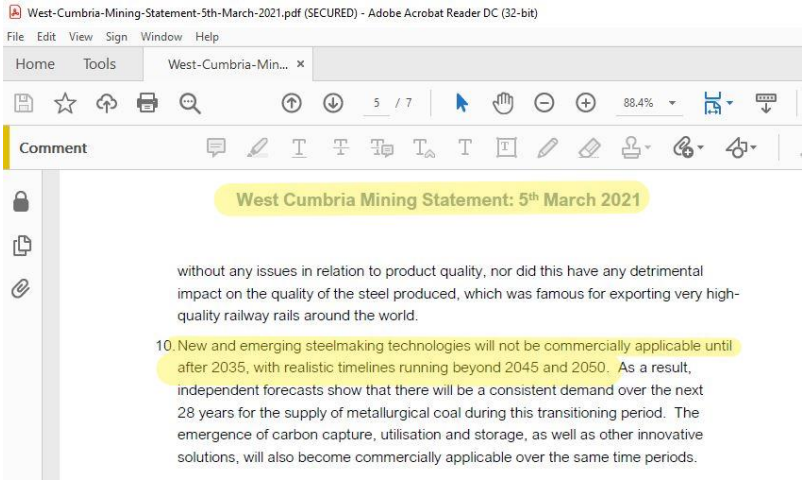
TOTAL production capacity: (12.8 to) 17.3 Mtpa by 2030 for those targets companies have announced.
(The 12.8 is what the total would be if the 2 Liberty-involved projects don't go ahead due to GFG/Liberty's financial problems.)
At lower end of what's possible by 2030 as some companies or steel mills might wish to delay decisions or plans or announcements until later this decade (a DRI plant takes c.3 years to build).

To provide a yardstick for comparison: **17 to 18 Mtpa** is 19%, or **near to a fifth**, of the figure by Eurofer for EU's crude steel production in 2019 in the blast furnace "BOF & other" category (as opposed to the "Electric" (EAF) category. European Steel in Figures 2020 My total is only a rough provisional figure of magnitude[1].

More H-DRI based steel capacity is very likely to be added to this figure by 2030.

And H-DR is just one of several parallel routes for the decarbonisation of steel-making...

Now compare with a fairly recent statement by West Cumbria Mining, with respect to both the alternatives to coal and blast furnaces and carbon capture:



Obviously inaccurate to put it politely.