

# The impact of blast furnace closures on potential for use of WCM coking coal in the UK and EU

A sequel by Dr Henry Adams to: 'Blast furnace closure plans in the EU (& UK) show no need for a new coal mine' [www.dragonfly1.plus.com/Blast-furnace-closure-plans.pdf](http://www.dragonfly1.plus.com/Blast-furnace-closure-plans.pdf)

**The UK** (the EU is in [the third document](#) of this series, as well as the first)

## RESULTS SUMMARY

By the time that West Cumbria Mining could reach full production in 2029 (according to WCM's timelines), **at most only 1 of UK's blast furnaces (BF No. 4 at Port Talbot) is likely to be able to use any of WCM's coal**, not just because of the likely high sulphur content of the coal (which makes its use at Scunthorpe highly unlikely), but also because 1 of TATA Steel's 2 blast furnaces at Port Talbot ([BF No.5](#)) reaches the end of its life around 2026/7 - just after the mine could start production at the earliest (c.2025). And [British Steel also plans](#) to close down one of its 2 active blast furnaces (at Scunthorpe) this decade – to be replaced with an Electric Arc Furnace.

**This study shows how the above factors mean that only around 3% to 5% (max ~7%) of WCM's full production could potentially be used in the UK when the mine reaches full production around 2029. Thus it is highly likely that at least 95% of WCM's full production would be for export.** And if TATA Steel closes down both its UK blast furnaces by 2030 (a possibility according to its recent statements in the [FT](#) and [Guardian](#)), that would be ZERO % in the UK.

**15sep23 update** News from TATA Steel indicates that it is very highly likely that 100% of WCM's coal would be exported because 1. The ageing coke ovens at Port Talbot are likely to close down soon:



Colin Richardson  
@C\_Rich81

Suggestions Tata could close its coke ovens as soon as January would mean the UK market for coking coal is 0t. Makes the idea of opening a new mine look a little weird [@henryadamsUK?](#)

6:11 PM · Sep 20, 2023 · 616 Views

### Relevant people



Colin Richardson

@C\_Rich81 Follows you

Following

Editor, Argus Media Worldsteel  
journalist of the year 2020

2. TATA Steel plans to add 3 million tonnes EAF capacity to be “operational at Port Talbot within 36 months of the receipt of relevant regulatory and planning approvals” to replace its blast furnaces: <https://www.tatasteeleurope.com/sustainability/green-steel-future-uk>

Port Talbot's BF No.4 will have to close down anyhow by 2035 to comply with the Climate Change Committee's 6<sup>th</sup> Carbon Budget. This means that ~100% of the mine's production would be for export from when BF No.4 closes down ~2032 (if not before), and the ~100% could potentially continue until the end of 2049 when the licenced period ends. So it is accurate to say that almost all of the overall production from the mine would be for export. (And my other documents show that Asia would be a likely target market – as suggested by WCM's consultant Wood Mackenzie)

So much for the homegrown coal for home use myth! Often expressed as “why import the coal when we can produce our own”, sometimes with the myth of “reduced emissions from shorter shipping distances”.

The screengrab from my spreadsheet on the page 3 shows how a possible scenario of UK blast furnace closure would affect the percentage of WCM coal that would be exported over 25 years of mine operation (using WCM figures for allocation of its full production of coal to UK and export). Result: 98.6% exported; 1.4% used in UK.

*The sources for blast furnace closure plans are also in the annex of [‘Blast furnace closure plans in the EU \(& UK\) show no need for a new coal mine’](#) together with more evidence on the topic.*

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West Cumbria Mining has estimated its allocation of coking coal production to the 2 blast furnace sites in the UK as 180,000 tonnes per year per site, i.e. 0.36 Mtpa in total to the UK. This is 13% of WCM’s figure for its full production of 2.78 Mtpa, though could be a higher percentage in the 4 years before full production is reached. However, because 2 of the UK’s 4 active blast furnaces are highly likely to be closed down by 2029/30 – which is when the mine is likely to reach full production (according to WCM’s timelines), this would mean that what WCM could sell to the UK would be halved for this reason alone. The resulting 6.5% for UK would then be halved again if British Steel can’t use the coal due to its high sulphur content. This calculation assumes that WCM’s 0.36 Mtpa allocation to the UK is reliant on all 4 (or at least 3) of the UK’s blast furnaces being able to use WCM’s coking coal.

The study described from page 4 onwards tests this assumption and finds it highly likely to be valid. The study also shows how the results in the summary above were obtained.

[This screengrab is referred to on page 1]

This table uses WCM's figures for allocation of its coal to the UK and export at full production. The table assumes UK takes priority.													
This scenario assumes BS can't use any of WCM coal due to its sulphur content (also: coke ovens closing down), and that BF No.5 at PT closes down at end of 2026 & No.4 at end of 2032							This scenario is what I'm presuming is WCM's ideal scenario, based on WCM being quoted as assuming 85% or 87% for export (the 87% from its full production data)						
Initially 2 BFs, then 1 BF in UK as from 2027 to 2032 inclusive. Assumes no use of CCS after 2035 (& probably not before then at TATA PT). Assumes each BF uses same amount of coking coal - as WCM appear to assume this (?) - or at least they appear to assume each of the 2 sites uses the same amount (but I reckon PT > BS).							21.29 At a global level there are various forecasts of coking coal demand which are considered in more detail later in this Report. However, the applicant indicates that global demand for coking coal is likely to remain broadly stable during the life of the mine. European metallurgical coal demand is forecast to remain between 50-55 Million tonnes per annum (Mtpa) in the 2021-2049 period. In the UK, demand is forecast to hold at 1.5 Mtpa over the same period. <sup>493</sup> <sup>493</sup> WCM/JT/2 para 1.35 <sup>494</sup> WCM/JT/1 and WCM/JT/2 <sup>495</sup> WCM/MAK/2 Screengrabs from PI's report <a href="https://www.gov.uk/planning-inspectorate">https://www.gov.uk/planning-inspectorate</a> Page 238						
YEAR	Mt of coal produced used in UK	Mt coal exported	checksum	No. of UK BFs using WCM coal	% used in UK	% exported	Mt of coal produced used in UK	Mt coal exported	checksum	No. of UK BFs using WCM coal	% used in UK	% for export	
2023	Construction & site remediation to start according to plan - but delayed!						Construction & site remediation to start according to plan - but delayed!						
2024	Construction after site remediation (was predicted to take 2 years)						Construction after site remediation (was predicted to take 2 years)						
2025	0.18	0.3	0.48	2	37.5%	62.5%	0.36	0.12	0.48	4	75.0%	25%	
2026	0.18	0.72	0.9	2	20.0%	80.0%	0.36	0.54	0.9	4	40.0%	60%	
2027	0.09	1.51	1.6	1	5.6%	94.4%	0.36	1.24	1.6	4	22.5%	78%	
2028	0.09	2.27	2.36	1	3.8%	96.2%	0.36	2	2.36	4	15.3%	85%	
2029	0.09	2.69	2.78	1	3.2%	96.8%	0.36	2.42	2.78	4	12.9%	87%	
2030	0.09	2.69	2.78	1	3.2%	96.8%	0.36	2.42	2.78	4	12.9%	87%	
2031	0.09	2.69	2.78	1	3.2%	96.8%	0.36	2.42	2.78	4	12.9%	87%	
2032	0.09	2.69	2.78	1	3.2%	96.8%	0.36	2.42	2.78	4	12.9%	87%	
2033	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%	
2034	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%	
2035	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%	
2036	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%	
2037	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%	
2038	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%	
2039	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%	
2040	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%	
2041	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%	
2042	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%	
2043	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%	
2044	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%	
2045	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%	
2046	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%	
2047	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%	
2048	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%	
2049	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%	
2050	0.9	62.82	63.72		3%	97%	9	54.72	63.72		17%	83%	
	1.41%	98.59%	100.00%	<<< for over 25 years overall >>>			14.12%	85.88%	100.00%				

Excel file: WCM coking coal production of UK consumption by BF at TATA PT & BS.xlsx

Note that the scenario to the left assumes that no blast furnaces in the UK will continue operating after 2034 as a result of UK's Climate Change Committee insisting that emissions from steel-making would be near zero by 2035. Although CCC has allowed 2 blast furnaces to continue operating beyond 2035 in its Balanced (compromised) Net Zero pathway, that is conditional on added CCS that is over 90% capture efficient. UK Steel does not reckon such high capture efficiency would be achievable with UK's old BF-BOF. Furthermore, though CCC reckon the Balanced NZ pathway is Paris compliant, it is not 1.5C compliant at or above 50% chance (unlike the Tailwinds NZ pathway).

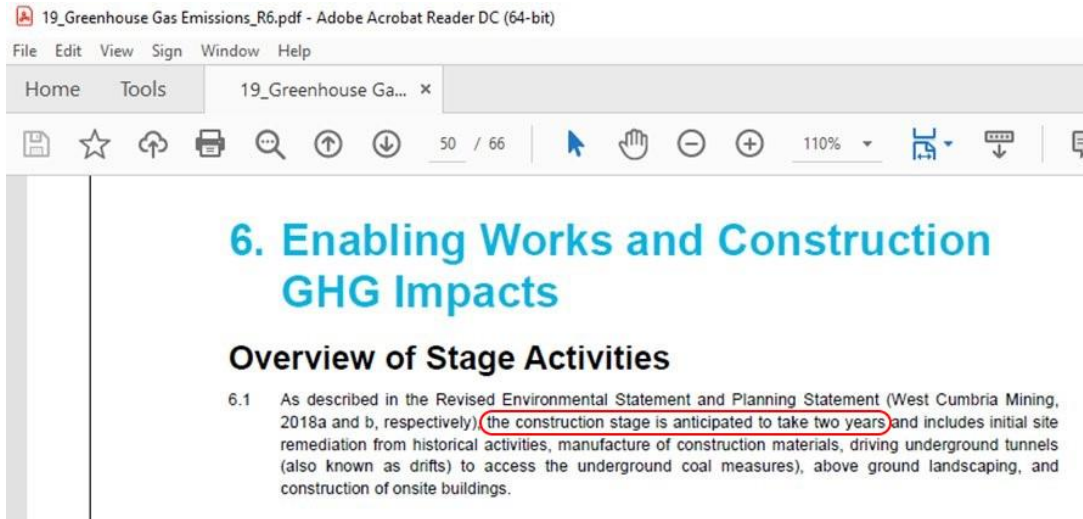
The scenario on the left also assumes that TATA Port Talbot's blast furnace No.4 stays operational until [the end of its planned life \(2032\)](#) whereas in reality it may be closed down earlier in the 2030's or even before 2030 (TATA Steel Port Talbot has stated that both its blast furnaces at Port Talbot could close down in the near future).

### West Cumbria Mining’s timeline

WCM state that the construction stage is anticipated to take two years (see screenshot below of one of WCM’s pdf’s, to which I have added a red mark to highlight the text).

This means that around 2025 would be a possible Year 1 for production, with full production anticipated by WCM to be reached in Year 5, i.e. 2029. The licence is likely to allow full production to the end of 2049.

The second screengrab below shows figures in tonnes per annum for WCM’s anticipated production over years 1 to 5, and a chart I’ve produced from those figures:



A screen-grab from a WCM pdf:

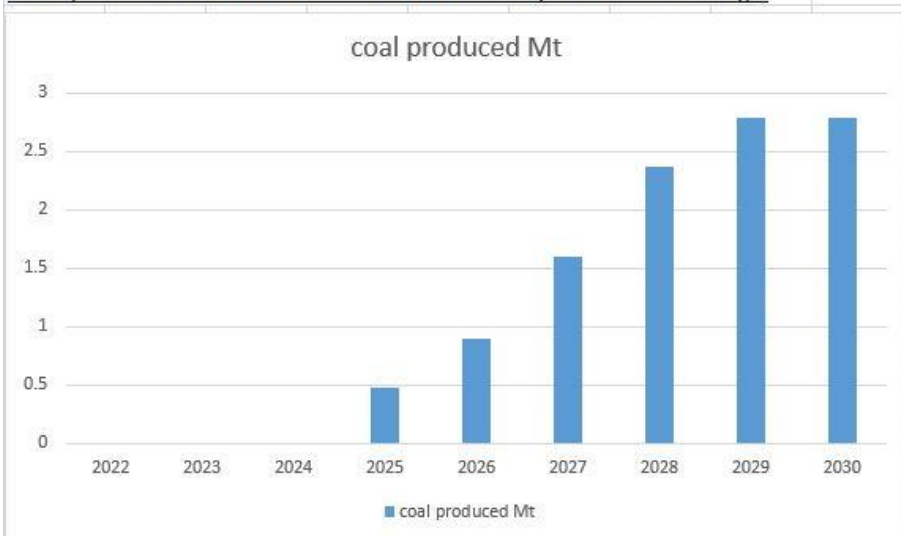
2.6 PRODUCTION DURING THE OPERATIONAL PERIOD

2.6.1 The following table provides annual production from the mine

Table 1 – Annual Production

Production	Year 1	Year 2	Year 3	Year 4	Year 5
Met Coal	480,000	900,000	1,600,000	2,360,000	2,780,000
Refuse	50,000	90,000	110,000	160,000	150,000

I have plotted the WCM data and used WCM's stated 2 year construction stage:



Note that WCM’s allocation to the UK of 0.36 Mtpa is less than WCM’s Year 1 of production, so that a higher percentage than 13% of WCM’s production could potentially be used by UK’s blast furnaces in the first 2 or so years

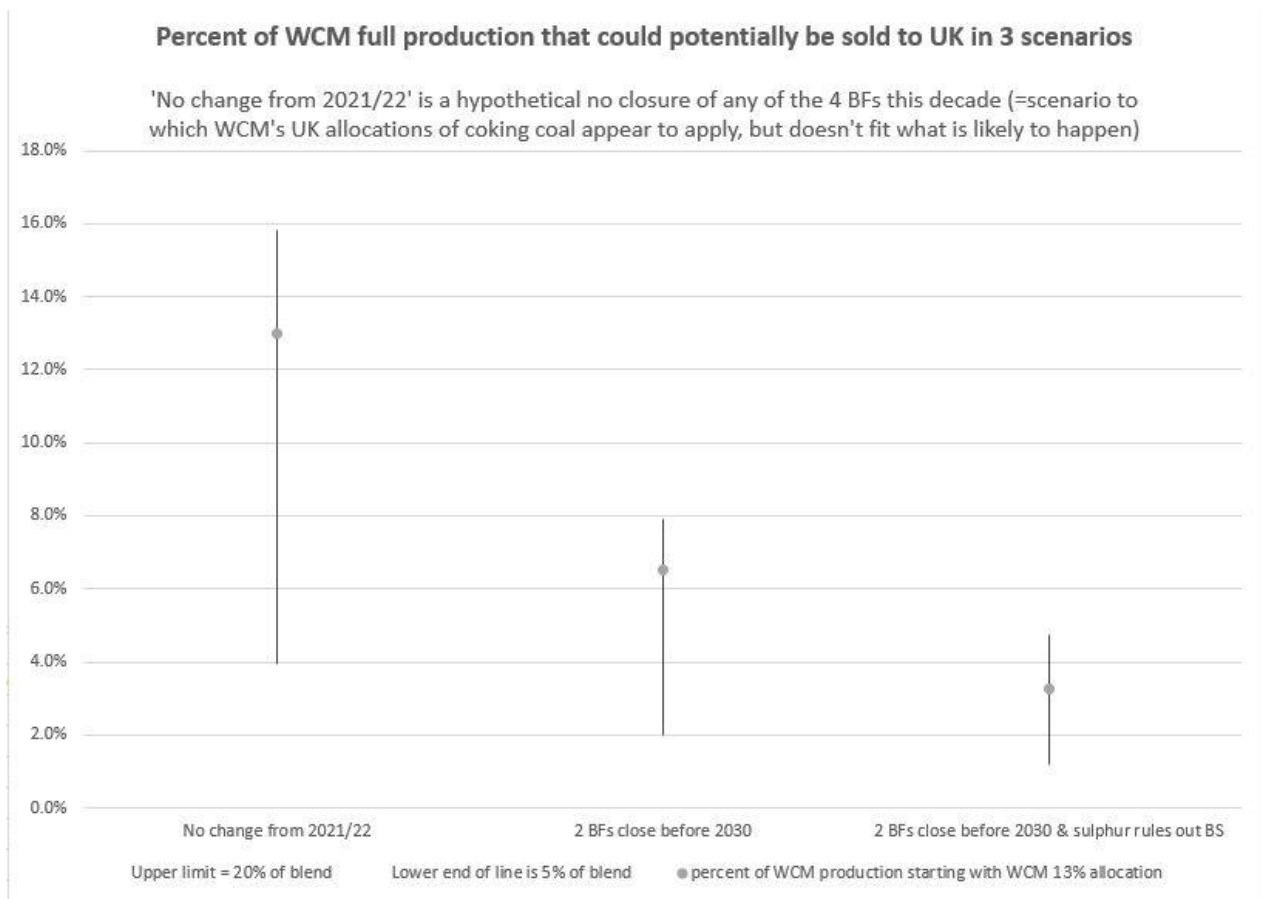
of production until the effect of blast furnace closure adds to the sulphur constraints to much reduce the percentage of WCM production that the UK could use (as explained below).

The following chart shows the percentage of WCM’s full production of 2.78 Mtpa in 2029/30 that the UK could potentially use under 3 different scenarios according to how many blast furnaces are closed by 2030 (the most likely being 2 closed out of 4) and if British Steel cannot use WCM’s coal due to its high sulphur content (most likely it cannot – as shown by a letter to Cumbria County Council from British Steel).

The first scenario of the UK using 13% of WCM’s coal in 2030 is hypothetical because at least one and most likely 2 blast furnaces will be closed by 2030. The first grey spot from the left marks the 13%, and the 2<sup>nd</sup> grey spot half of 13%, and the 3<sup>rd</sup> grey spot shows a quarter of 13% on the initial assumption that WCM’s allocation of 0.36 Mtpa to the UK was based on supply to all 4 active blast furnaces.

The vertical bars are calculated without using WCM’s figure of 180,000 tonnes pa allocated to the UK so as to test whether the grey spots calculated from the allocation are as expected from the assumption that they are based on all 4 blast furnaces being required.

As I hope you can see, the spots are roughly where you would expect them to be from the assumption being valid, as the spots are towards the maximum of the range of % of blend that the blast furnaces are potentially able to use (using Wood Mackenzie’s range of 5% to 20% of blend of coking coal):



<b>Results arranged for chart above</b>				
The 5% and 20% limits of % of blend are figures used by Wood Mackenzie for WCM	No change from 2021/22	2 BF's close before 2030	2 BF's close before 2030 & sulphur rules out BS	
Upper limit = 20% of blend	15.8%	7.9%	4.7%	
Lower end of line is 5% of blend	4.0%	2.0%	1.2%	
percent of WCM production starting with WCM 13% allocation	13%	6.5%	3.3%	

In the annex p.9 a similar chart is shown that incorporates a conversion factor. I have yet to clarify from steel experts whether the extra conversion factor is required or not.

How the vertical bars were calculated:

## METHOD

How I calculated how much of WCM's full production of coking coal that UK blast furnaces could use, without simply using WCM's UK allocation, so I could compare the two.

1. I have assumed that the UK's 4 active blast furnaces together consume **2.2 Mtpa** coking coal.

A flowchart by MakeUK (2021) states that "Imported Coking Coal 2.1 Mtpa" and "Coke Production & Imports 2.2 Mtpa" <https://www.makeuk.org/insights/publications/uk-steel-key-statistics-guide-2021>  
I show in the annex a screenshot of the flowchart. MakeUK (2022) version shows a lower figure for 2021 of 1.4Mt for Imported Coking Coal though Coke Production and Imports stays the same at 2.2Mt.

Because the source is unclear if the 2.2 Mtpa is coking coal or coke I repeated the analysis (see appendix) on the assumption of it being coke, and using the conversion factor 1.5 : 1 of coking coal : coke, the consumption of coking coal would be **3.3 Mtpa**.

<https://ectltd.com.au/can-we-make-steel-without-metallurgical-coal>

Can we make steel without metallurgical coal? - ECT

Extrapolated, this theoretically displaces 22.5 million tonnes of coke (equivalent to around 33.75 million tonnes of metallurgical coal, as it takes about 1.5t metallurgical coal to make 1 tonne of coke). For context, Australia currently supplies around 200 million of the world's 320...

<https://www.thoughtco.com/what-is-metallurgical-coal-2340012>

What You Should Know About Metallurgical Coal - ThoughtCo

Approximately 1.5 metric tons of metallurgical coal are required to produce one metric ton (1,000 kilograms) of coke. Coke in Steelmaking Basic oxygen furnaces (BOF), which account for 70% of steel production worldwide, require iron ore, coke, and fluxes as feed material in...

2. I then divided this 2.2 Mtpa between UK's 4 operating BF's according to a 1.5:1 ratio of their site production capacities (one of several ratios from several sources).

From this, a TATA Port Talbot BF is assumed to consume approximately **0.66 Mtpa** coking coal and a British Steel Scunthorpe BF is assumed to consume **0.44 Mtpa** coking coal (as coke).

Other estimates for a Port Talbot BF calculated from ratios obtained from other sources included for example 0.62, 0.63, 0.65, 0.67 Mtpa, but as this study tries to estimate the maximum amount of WCM coal that a PT BF could use, I have shown here the results for 0.66 Mtpa.

Another source of error is the coke or coking coal uncertainty. If the 2.2Mtpa is coke then a TATA BF would be assumed to consume 0.99 Mtpa coking coal (as coke) and a Scunthorpe BF 0.66 Mtpa coking coal (as coke)

The way I have allocated the 2.2 Mtpa between Port Talbot and Scunthorpe, and from there to individual blast furnaces, uses the assumption that the ratio of coking coal consumption will be similar to the ratio of site production capacities and actual site production figures.

Differences between TATA PT and British Steel Scunthorpe in factors such as % scrap usage (or even re PCI coal consumption) may make this assumption only very approximate.

I repeated the methods using several of the above ratios but the end-results differed so little from those below that the conclusions are the same. I will show these results when/if I have time.

If I find (or am provided by a trustworthy expert source) a much more accurate figure I will recalculate.

I also obtained ratios from figures of Met coal imports for 2020 for comparison, which provided a ratio nearer to 1.3:1 (and thus 0.622 Mtpa for a PT BF).

3. I then used **Wood Mackenzie's range of 5% of blend to 20% of blend** to calculate likely typical limits of use of WCM coal if it is used, for each scenario. (Wood Mackenzie were one of WCM's consultants for the 2021 Inquiry). These result in the upper and lower ends of the vertical bars in the chart above. The upper limit of 20% of blend is the main one that concerns us here.

From this, the upper limit of 20% of blend for a TATA PT BF is **0.132 Mtpa** and for a British Steel BF is **0.088 Mtpa**. The 5% of blend figures were likewise calculated.

(upper limit 0.198 Mtpa for a TATA PT BF if the 2.2 Mtpa is coke not coking coal)

4. It is then easy to add up the total potential limits of consumption of the UK blast furnaces of WCM coal under the differing scenarios of blast furnace closure and sulphur constraint as described on the chart.

The most likely scenario (the third one) is that an initial potential max sale of  $2 \times 0.132 = 0.264$  Mtpa (all to TATA PT) will be halved to just 0.132 Mtpa from around 2027 when BF No.5 closes.

5. It is then even easier to calculate the percentage of WCM's full production of 2.78 Mtpa that can be used in each scenario in the chart on page 3 applying to 2029/30:

- no BF closure (hypothetical as unlikely): range 4% to 16% of WCM's full production, within which the 13% figure fits where expected thus backing up the assumption that WCM's allocation of 13% of full production relies on 4 blast furnaces using it (or maybe 3 if at ~20% of blend).
- 2 blast furnaces closing by 2030 (but no sulphur constraint): range 2% to 8% of WCM's full production.
- 2 blast furnaces closing AND BS Scunthorpe can't use WCM coal due to its high sulphur: 1% to 5% of WCM's full production. This is the most likely scenario.

The lower end of each range is of course not a limit as it could be zero if the steel company chooses not to purchase any!

**Thus the most likely scenario for 2029/30 is that the UK could only use a maximum of around 3% (a quarter of 13%, rounded) to 5% (@ 20% of blend) of WCM's coal at full production.**

If the MakeUK figure of 2.2Mtpa was coke not coking coal then the maximum goes up from 5% to 7% (@ 20% of blend)

In quantities this would be a **maximum of around 90,000 tonnes per annum** (a quarter of WCM's allocation of 0.36 Mtpa to the UK) **to around 130,000 tonnes per annum** (=20% of the approximate coking coal consumption of TATA Port Talbot's BF No.4 as estimated above).

*For those who like formulae: (final figures best rounded to 1 or 2 sig figs when used, to avoid false precision)*

$2.2 \times 0.6 \times 0.5 \times 0.2 = \mathbf{0.132 \text{ Mtpa} = 130,000 \text{ tpa}}$ $0.132 / 2.78 = \mathbf{5\%}$	and	$0.36 / 4 = \mathbf{0.09 \text{ Mtpa} = 90,000 \text{ tpa}}$ $0.09 / 2.78 = \mathbf{3\%}$
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If the MakeUK figure of 2.2Mtpa was coke then you would need to add a "x1.5" after the 2.2

It's important to note that the above analysis is simply to give approximate figures for the likely maximum amounts of WCM coking coal that the UK could use under the stated assumptions. In reality there will likely be other constraints such as year to year variations in the sulphur content of WCM coal according to which seams are being exploited and of course how much of WCM's coal that TATA Steel Port Talbot or British Steel (Jingye) at Scunthorpe actually choose to purchase.

Another factor of interest is that WCM claim that its coal bears most resemblance to coking coal from the US, so the current percentage of the blends that comes from the US is an important factor I do not have at the moment, but would be useful to use as being probably more realistic and relevant than Wood Mackenzie's 20% of blend.

## After 2030

The present study mainly focuses on how much of West Cumbria's coking coal could be used in the UK around 2029 when the mine would reach full production according to WCM's anticipated production time-line, and the years up to then. Beyond 2030 the 2 (or possibly 1) last remaining UK blast furnaces would reach end-of-life by 2040, and the Climate Change Committee advise that all UK blast furnaces (and thus scope for using WCM coal) should close down by 2035. But there is a possibility (due to a CCC

loophole re CCS) that the last remaining active blast furnace at Scunthorpe could have its life prolonged for a few years beyond 2035 if it has costly CCS attached which has a high enough capture efficiency (unlikely). This would be a climate-bad consequence of CCS if it results in prolongation of use of a blast furnace because (a) CCS would most unlikely have an adequately high capture efficiency of CO<sub>2</sub>, and (b) CCS of course ignores the significant fugitive coal mine methane emissions associated with imported coal that would have to be most of a blend if WCM coal is used as part of a blend. I hope that decision-makers see sense by 2035 and ensure that all blast furnaces close down by 2035 and have been replaced with EAFs, and also by one or more Hydrogen Direct Reduction Furnaces (H-DRI furnaces) if required. In 2021 Kwasi Kwarteng said he assumed all blast furnaces would close by 2035. I hope that's the case; if so it would mean zero potential UK use of WCM coking coal in the UK at some point before 2035.

**NB:** The licence for the coal mine is likely to go up to 2050. This would mean that 100%, or near 100%, of WCM coal production would be exported from when Port Talbot's BF No.4 is closed down (if not before), which could happen before 2030 if not before 2035.

Unfortunately the figures for % of WCM coal for export stated by Lord Deben (Chair of Climate Change Committee) – such as 85% for export – fails to take into account the fact that only 1 UK blast furnace is likely to be able to use any of the coal. However the figure of 85% is often quoted even though it is unrepresentative of the most likely reality.

*Link to similar analysis applied to the EU:*

**The impact of blast furnace closures on potential for use of WCM coking coal in the UK and EU:  
The EU [www.dragonfly1.plus.com/How-blast-furnace-closures-would-affect-potential-for-use-of-Cumbria-coal-in-EU.pdf](http://www.dragonfly1.plus.com/How-blast-furnace-closures-would-affect-potential-for-use-of-Cumbria-coal-in-EU.pdf)**

*Annex starts on next page*



## Annex

**TATA Port Talbot** 25may21 - Chris McDonald (MPI) speaks re end-of-life of the blast furnaces at TATA Steel Port Talbot, one this decade, the other in the 2030's (one of several sources I read that stated that BF No.5 would reach end of life mid-2020's <https://parliamentlive.tv/Event/Index/d9916d7a-cc66-4e97-9f24-e52d46c7b6b5> And before that:

30jan19 [Tata Steel restarts blast furnace in Port Talbot after life extension project - PES Media](#) (Blast Furnace 5 )

14sep18 [Work begins on life extension project for Tata Steel blast furnace | Tata Steel in Europe \(tatasteelurope.com\)](#)

2022 updates: (frustratingly neither the FT nor Guardian give an explicit date or 'date by' for closing the BFs)

22jul22 [Tata 'needs £1.5bn in subsidies' to keep Port Talbot steelworks open | Tata | The Guardian](#)

'The decarbonisation plans would include the closure of the two blast furnaces, which would stop primary steelmaking, as the two electric arc furnaces are built. **Tata wants to begin the conversion process in 2025.**

Unions are fearful of job losses, given **it takes about two years to build an electric arc furnace**, which require fewer workers.'

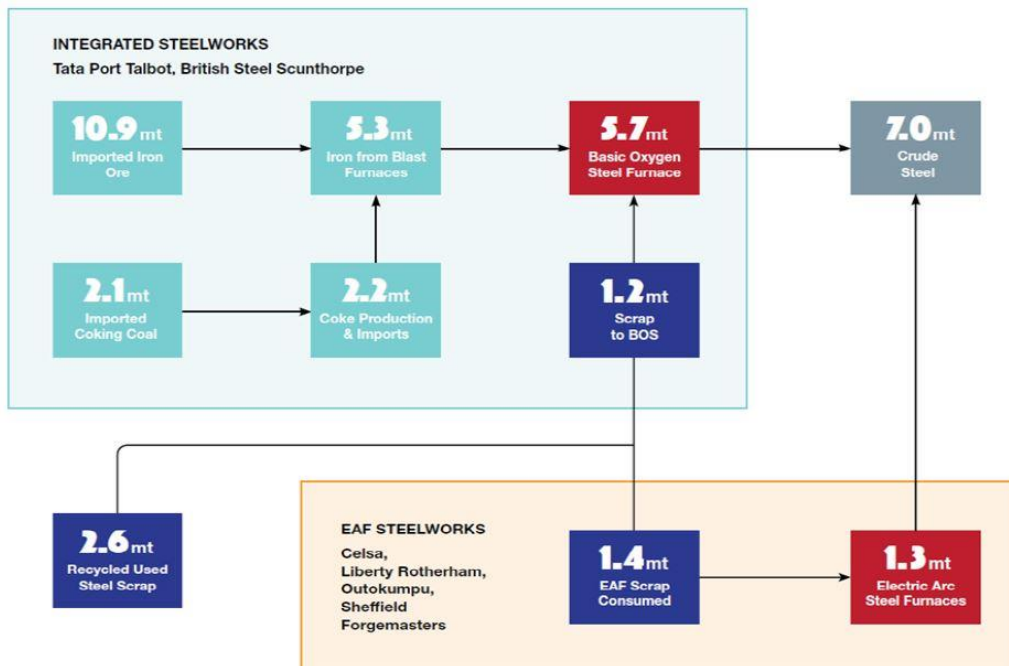
21jul22 [Tata threatens to close Port Talbot steelworks without £1.5bn of aid \(FT\)](#) 'Under decarbonisation plans, **Tata would close its two blast furnaces at Port Talbot, stop primary steelmaking and instead build two electric arc furnaces**, said people familiar with the details. These furnaces recycle scrap steel and are less carbon intensive than blast furnaces.'

### British Steel

28jan22 <https://agmetalmminer.com/2022/01/28/british-steel-moving-to-eaf-production-to-meet-carbon-emissions-targets/>

**MakeUK** flowchart: Table A2.6 Summary of UK steel production and material flows by production route F <https://www.makeuk.org/insights/publications/uk-steel-key-statistics-guide-2021>

**Table A2.6 Summary of UK steel production and material flows by production route (from MakeUK, 2021)**

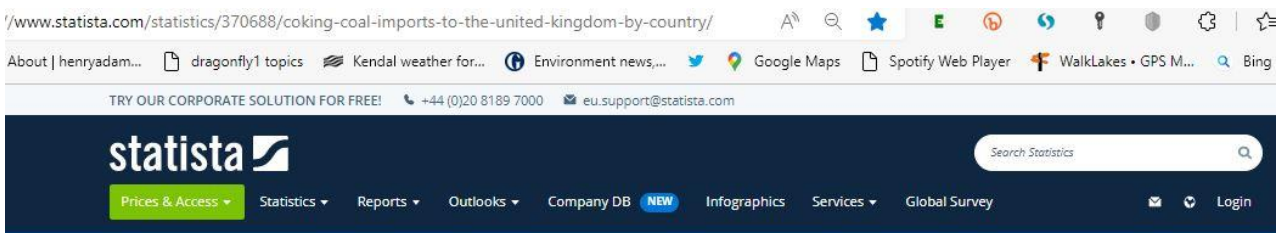


The material flows between Integrated Steelworks and Electric Arc Furnaces can be complex; Table 2.6 shows the current flows in the UK. However it is understood that crude steel from Blast Furnaces can also be added into EAF production to improve some characteristics of the steel produced<sup>12</sup>.

The absence of PCI coal from this flowchart is frustrating.

From WCM's figures for full production:  
(now shown to be >95% for export)

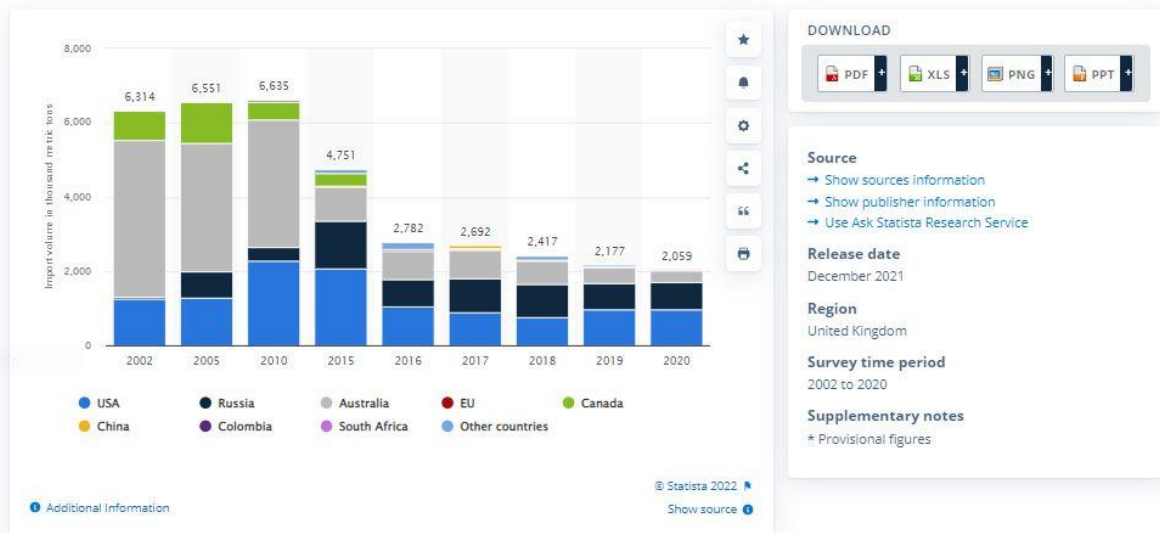
9	<b>End use emissions in Mt</b>	
10		Mt: pa
11	<b>End-use</b>	met coal (
12	In UK BF's etc	0.36
13	In EU BF's etc	2.42
14	<b>Total</b>	<b>2.78</b>
15		
16	% in UK BF's etc	13%
17	% exported to EU	87%



Chemicals & Resources > Fossil Fuels

### Leading supplier of coking coal to the United Kingdom (UK) from 2002 to 2020

(in 1,000 metric tons)



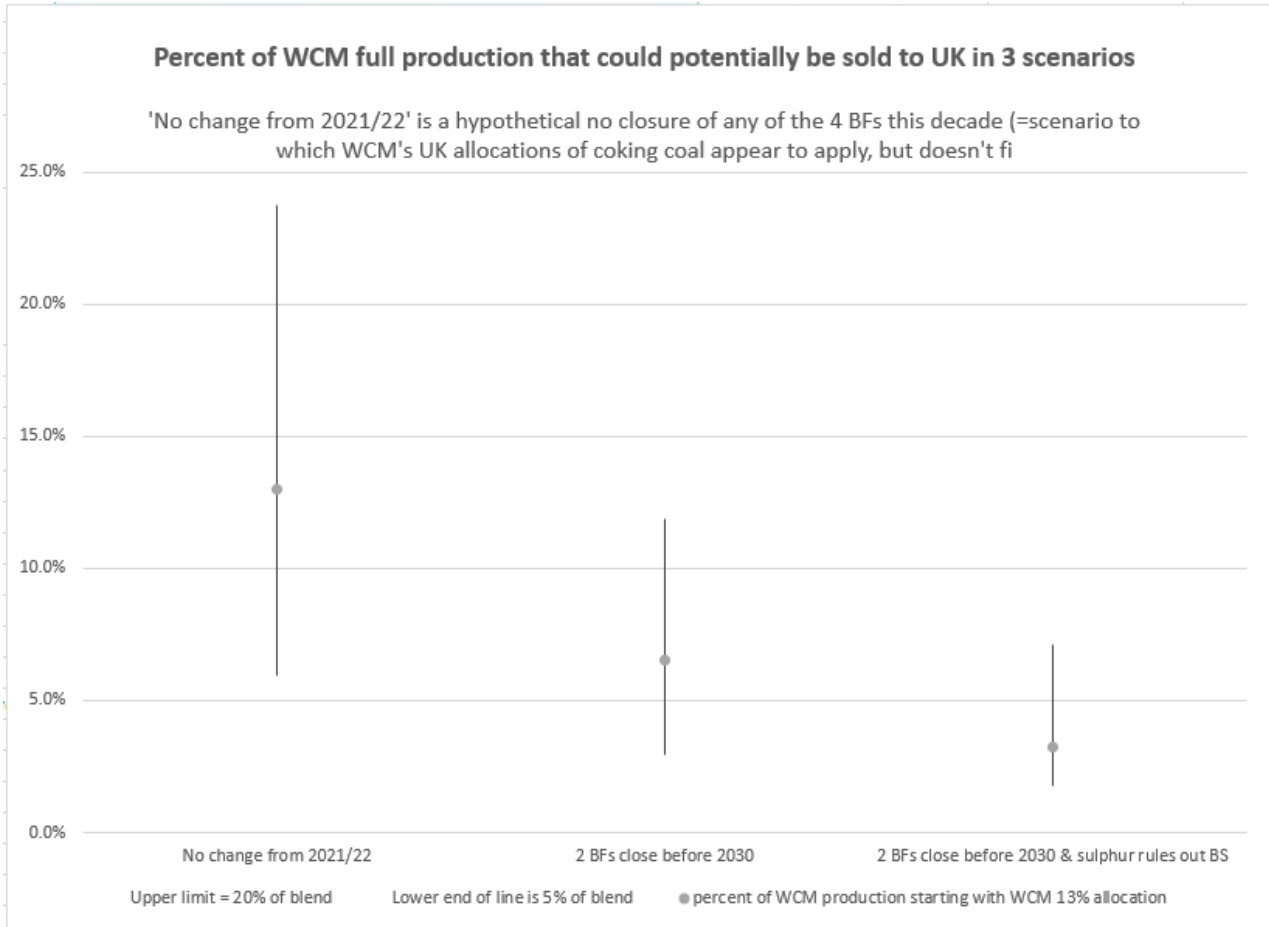
#### Coking coal imports to the United Kingdom (UK) 2002-2020, by country

Published by [M. Garside](#), May 6, 2022

This statistic shows the main source countries of coking coal imports to the United Kingdom between 2002 and 2020. Imports of coking coal from Australia have been decreasing during this period, dropping from 4.2 million metric tons in 2002 to 0.32 million metric tons in 2020. The U.S. was the leading supplier in 2020.

If MakeUK's 2.2 Mtpa is for coke not coking coal, then for the equivalent coking coal the 2.2 Mtpa would need to be multiplied by 1.5 to get the coking coal consumption.

This would result in the following:



<b>Results arranged for chart above</b>				
The 5% and 20% limits of % of blend are figures used by Wood Mackenzie for WCM	No change from 2021/22	2 BF's close before 2030	2 BF's close before 2030 & sulphur rules out BS	
Upper limit = 20% of blend	23.7%	11.9%	7.1%	
Lower end of line is 5% of blend	5.9%	3.0%	1.8%	
percent of WCM production starting with WCM 13% allocat	13%	6.5%	3.3%	

Alternative scenarios: next page

Alternative scenarios

This less likely scenario assumes that Port Talbot’s Blast Furnace No.5 ends its life a year later than expected and that No.4 ends its life at the end of 2035, 2 to 3 years later than expected from TATA Steel’s plans for these BFs.

This table uses WCM's figures for allocation of its coal to the UK and export at full production. The table assumes UK takes priority.												
This scenario assumes BS can't use any of WCM coal due to its sulphur content (also: coke ovens closing down), and that BF No.5 at PT closes down at end of 2027							This scenario is what I'm presuming is WCM's ideal scenario, based on WCM being quoted as assuming 85% or 87% for export (the 87% from its full production data)					
Initially 2 BFs, then 1 BF in UK as from 2028 to 2034 inclusive. Assumes no use of CCS after 2035 (& probably not before then at TATA PT).							21.29 At a global level there are various forecasts of coking coal demand which are considered in more detail later in this Report. However, the applicant indicates that global demand for coking coal is likely to remain broadly stable during the life of the mine. European metallurgical coal demand is forecast to remain between 50-55 Million tonnes per annum (Mtpa) in the 2021-2049 period. In the UK, demand is forecast to hold at 1.5 Mtpa over the same period. <sup>493</sup>					
Assumes each BF uses same amount of coking coal - as WCM appear to assume this (?) - or at least they appear to assume each of the 2 sites uses the same amount (but I reckon PT > BS).							Screengrabs from PI's report <sup>493</sup> WCM/JT/2 para 1.35 <sup>494</sup> WCM/JT/1 and WCM/JT/2 <sup>495</sup> WCM/MAK/2 <a href="https://www.gov.uk/planning-inspectorate">https://www.gov.uk/planning-inspectorate</a> Page 238					
YEAR	Mt of coal produced used in UK	Mt coal exported	checksum	No. of UK BFs using WCM coal	% used in UK	% exported	Mt of coal produced used in UK	Mt coal exported	checksum	No. of UK BFs using WCM coal	% used in UK	% for export
2023	Construction & site remediation to start according to plan - but delayed!						Construction & site remediation to start according to plan - but delayed!					
2024	Construction after site remediation (was predicted to take 2 years)						Construction after site remediation (was predicted to take 2 years)					
2025	0.18	0.3	0.48	2	37.5%	62.5%	0.36	0.12	0.48	4	75.0%	25%
2026	0.18	0.72	0.9	2	20.0%	80.0%	0.36	0.54	0.9	4	40.0%	60%
2027	0.18	1.42	1.6	2	11.3%	88.8%	0.36	1.24	1.6	4	22.5%	78%
2028	0.09	2.27	2.36	1	3.8%	96.2%	0.36	2	2.36	4	15.3%	85%
2029	0.09	2.69	2.78	1	3.2%	96.8%	0.36	2.42	2.78	4	12.9%	87%
2030	0.09	2.69	2.78	1	3.2%	96.8%	0.36	2.42	2.78	4	12.9%	87%
2031	0.09	2.69	2.78	1	3.2%	96.8%	0.36	2.42	2.78	4	12.9%	87%
2032	0.09	2.69	2.78	1	3.2%	96.8%	0.36	2.42	2.78	4	12.9%	87%
2033	0.09	2.69	2.78	1	3.2%	96.8%	0.36	2.42	2.78	4	12.9%	87%
2034	0.09	2.69	2.78	1	3.2%	96.8%	0.36	2.42	2.78	4	12.9%	87%
2035	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%
2036	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%
2037	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%
2038	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%
2039	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%
2040	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%
2041	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%
2042	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%
2043	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%
2044	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%
2045	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%
2046	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%
2047	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%
2048	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%
2049	0	2.78	2.78	0	0.0%	100.0%	0.36	2.42	2.78	4	12.9%	87%
2050	1.17	62.55	63.72		4%	96%	9	54.72	63.72		17%	83%
	1.84%	98.16%	100.00%	<<< for over 25 years overall >>>			14.12%	85.88%	100.00%			
												Nearer 86% than 85%

Excel file: WCM coking coal production of UK consumption by BF at TATA PT & BS.xlsx