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BHP: Time to get real about steel technology change and met coal

New CEO is an opportunity for a more realistic, transparent course correction

- *BHP is prioritising steel technology developments that suit its metallurgical (met) coal and blast furnace-grade iron ore production, but which look unlikely to contribute meaningfully to steel decarbonisation.*
- *Carbon capture, utilisation and storage (CCUS) is making negligible progress in blast furnace-based steelmaking, will not secure the outlook for BHP's met coal, and fails to address coal mine methane emissions.*
- *BHP's key met coal importer India is continuing to reduce reliance on Australian coal, and growing energy security concerns provide incentives for it to rely more on its domestic coal as well as steel technologies that don't use coal at all.*
- *Direct reduced iron (DRI)-based steelmaking is making far more progress than CCUS and is the leading route for steelmaking emissions reductions. BHP should make DRI-based technology its development priority, as well as being more transparent about the future of its met coal business.*

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Introduction

When Brandon Craig takes over as BHP's new CEO on 1 July, it will be a key opportunity to reset the company's strategic approach, adopting more realistic pathways for steel technology change and metallurgical (met) coal. Compared with its iron ore mining peers, [BHP remains a laggard](#) when it comes to decarbonising steelmaking – the key challenge governing the trajectory of its huge, and rising, Scope 3 emissions, which [reached](#) 378 million tonnes (Mt) in FY2025.

BHP has acknowledged the significance of its role in the steel technology transition towards cleaner manufacturing processes, [stating](#): “Nine out of the world's ten top steel producers have public net-zero goals or targets (or ambitions)”; and “As one of the world's leading iron ore and



steelmaking coal producers, there is a role for BHP in supporting steelmakers in the transition.” It also stated the following:

“ Our strategy is about enabling our customers to decarbonise by supporting development of new technologies and pathways that are compatible with the iron ore and higher-quality steelmaking coals expected to be needed for decades to come.”

This makes clear that BHP prioritises steel technology developments that allow continued use of the met coal and blast furnace-grade iron ore that it produces. As such it is no surprise that BHP is far more supportive of carbon capture, utilisation and storage (CCUS) technology for blast furnace-based steelmaking than its peers. For BHP, CCUS provides cover to continue business-as-usual despite the clear lack of progress the technology is making.

Rio Tinto, Vale and Fortescue do not mine met coal and are more focused on [technology developments](#) that will allow the use of blast furnace-grade ore in direct reduced iron (DRI)-based steelmaking, as well as producing higher grades of iron ore potentially suitable for current, mature DRI technology. BHP is sticking with lower, blast-furnace grade ore.

CCUS looks [highly unlikely](#) to provide met coal a positive outlook for “decades to come”, and clearly can’t do anything to address the methane emissions that result from coal mining.

BHP continuing to back failing CCUS technology

There are still [no commercial-scale CCUS plants](#) for met coal-based steelmaking anywhere in the world. The distinct lack of progress the technology has made in the sector makes it increasingly likely that CCUS will not play a major role in decarbonising steel production. This [holds true in India](#) – identified by BHP as a key source of demand for its met coal – where doubts over the availability of carbon storage sites and the costs of carbon transportation are particularly acute.

This lack of progress mirrors the status of CCUS across other sectors. Faced with multiple issues including disappointing capture rates, high transportation cost, doubts over storage site availability and security, as well as the overall cost, the International Energy Agency (IEA) continues to [downgrade the role CCUS will play](#) in emissions reduction. In its most recent World Energy Outlook report, the IEA projects CCUS will contribute less than 5% to emissions offsetting by 2050.

Despite this, BHP has been [advocating for CCUS technology](#) as a solution [for years](#). It continues to work on CCUS technology with steelmakers including [JSW Steel](#), and with [ArcelorMittal](#) at its steel plant in Gent, Belgium.

Another carbon capture project at ArcelorMittal’s Gent plant illustrates the lack of progress. The Steelanol carbon capture and usage (CCU) project is ArcelorMittal’s “[flagship](#)” carbon capture project, which turns carbon-rich blast furnace gases into ethanol. At a cost of €215 million, the project has received funds from the EU, the Flemish and Belgian governments, and the European Investment Bank. However, the 125,000 tonnes per annum that the project captures amounts to less than 2% of the steel plant’s emissions of [9 million tonnes per annum](#) (MTPA).

ArcelorMittal is now considering shutting the Steelanol facility, with ArcelorMittal Belgium CEO Frederik Van De Velde [stating](#) in June 2025 that “Even if we solve the technical issues and reach the planned output of 60,000 tonnes of ethanol per year, the economics will remain challenging without changes to the regulatory framework.” In November 2025, [Van De Velde confirmed](#) that the project lacks economic viability.



BHP's focus on CCUS can also do nothing to address the growing issue of met coal mine methane, which [adds significantly](#) to global steelmaking emissions and is increasingly a risk and a concern for [major investors](#).

Pressure to address the methane problem is only going to increase. The IEA's latest [Global Methane Tracker report](#), published in May 2026, highlighted that Australian coal mines emitted 1.7Mt of methane in 2025 – [far higher](#) than the official figure calculated by the Australian government.

Despite the technology's unimpressive track record and inability to address the growing coal mine methane issue, BHP continues to back CCUS. In April 2026, BHP [released an update](#) on the CCUS Hub Study, in which it is participating along with a number of other companies. One of these is Chevron, which operates the largest CCS project in the world at its Gorgon facility in Western Australia. The Gorgon CCS project [continues to demonstrate the failings](#) that the technology faces globally. The project captures only a fraction of the emissions from the neighbouring LNG plant and its performance continues to drop. The cost per tonne of captured carbon dioxide at Gorgon is still rising.

BHP's continued backing of CCUS makes clear that the company is focused primarily on promoting steel decarbonisation technologies that suit its portfolio and enable continued use of its blast furnace-grade iron ore and met coal. This is despite the company having some involvement in steel technology development projects that look more likely to successfully decarbonise steelmaking and ought to have higher priority within BHP.

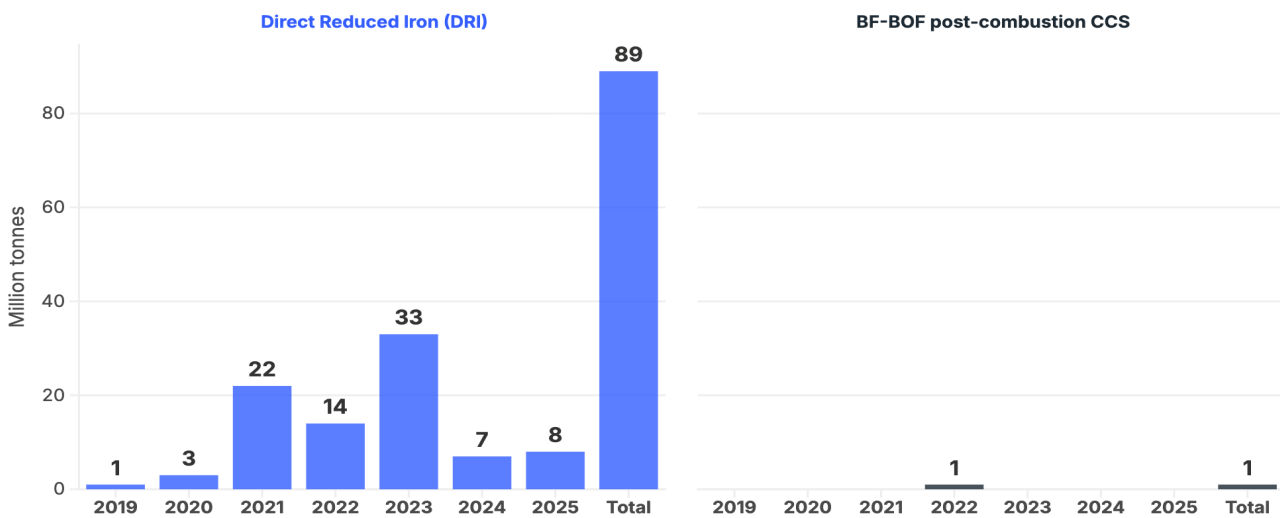
Direct reduced iron is making more progress and should have higher priority

With CCUS for steel making little or no progress, other technologies that can produce lower-carbon iron and steel need to be prioritised. Direct electrification technologies, such as molten oxide electrolysis (MOE), are under development but in earlier stages of technology readiness. Via its BHP Ventures arm, BHP is [an investor](#) in Boston Metal, which has been developing MOE technology. The technology can also be used to produce critical metals and this [has become the focus](#) of the company recently. However, a [critical equipment failure](#) at its Brazilian plant in January 2026 raises doubts about the technology's progress and further clouds the outlook on when or even if it can make an impact on steelmaking.

Given the delayed outlook for direct electrification, DRI-based technology that reduces iron ore using gas or green hydrogen has emerged as the most promising technology to begin the decarbonisation of primary steelmaking in the immediate future. It is clearly leaving CCUS technology behind (Figure 1).



Figure 1: 2030 pipeline of DRI and blast furnace CCS announcements



Source: [Agora Industry](#). Note: BF-BOF = blast furnace-basic oxygen furnace.

DRI using high-grade (DR-grade) iron ore is a mature technology used at commercial scale globally. A planned expansion of DRI capacity around the world has led iron ore miners such as Rio Tinto and Fortescue to target production of higher grades that could meet growing demand for ore suitable for DRI. BHP is an exception to this and is sticking with lower-quality blast furnace-grade ores.

However the scale of iron ore exports out of the Pilbara region in Western Australia is so great that solutions need to be developed that allow the use of BHP's lower-grade supply in DRI-based steelmaking. BHP is already involved in a number of projects looking into technology that can use its blast furnace-grade Pilbara iron ore with DRI technology.

The highest profile of these projects is [NeoSmelt](#), which will combine DRI with electric smelting furnace (ESF) technology to address the use of lower-quality/higher-gangue Pilbara ores. BHP is working on a pilot project with participants including Rio Tinto and BlueScope Steel, with a final invested decision (FID) expected H2 2026 and operations from 2029.

BHP has also been testing its iron ore in DRI-based process in China with steelmaking giants [HBIS](#) and China Baowu. BHP has already [successfully tested](#) its ores in DRI at commercial scale at China Baowu's Zhanjiang plant using 70% hydrogen in the reducing gas. Some of the resultant DRI was also tested with an ESF. China Baowu has now [commenced development](#) of its own green hydrogen plant intended to supply the Zhanjiang DRI plant. Accelerated by the Iran crisis, China is now increasing its focus on green hydrogen as an [energy security measure](#) for industries including steelmaking.

BHP is also [to trial](#) its Pilbara ores with POSCO's HyREX fluidised bed-based DRI technology. HyREX uses hydrogen, not gas, for reduction, and an ESF will also be used to melt the reduced iron. Fluidised bed technology allows the use of iron ore fines, avoiding the need for pelletisation.

With BHP already achieving results on the ground with its DRI projects, and FID expected for NeoSmelt this year, it's clear that the company is making significantly more progress with this technology than CCUS. Given the latter's history this is not a surprise.

The recent [addition](#) of former BlueScope Steel CEO Mark Vassella to BHP's board should, along with the company's own CEO handover, be an opportunity to prioritise development



of DRI-based technology solutions over CCUS. Under Vassella’s tenure, BlueScope was investigating DRI-ESF technology along with Rio Tinto [well before](#) BHP belatedly joined what became the NeoSmelt project. BlueScope’s [decarbonisation strategy](#) is focused on efficiency, use of renewable energy, increased scrap steel use and DRI. CCUS for coal-based steelmaking in blast furnaces is not a focus of this strategy.

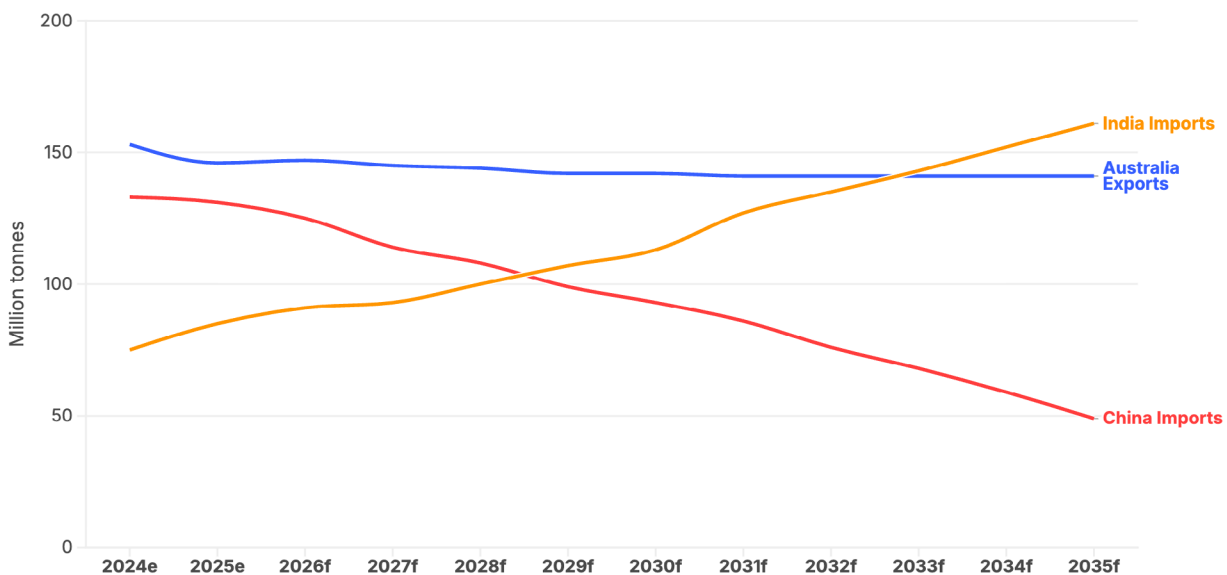
BHP [maintains](#) that momentum towards DRI has slowed and that steelmakers are more focused on decarbonising blast furnaces with technology like CCUS. This is despite it looking increasingly likely that CCUS will never be able to significantly reduce blast furnace emissions at a reasonable cost. This looks like an attempt to lower expectations on the timing of the global shift away from met coal. However, aside from CCUS’s inability to prop up its long-term future, there are other reasons to believe the outlook for Australian met coal is not as positive as BHP suggests.

India will not save Australian coking coal

Along with other Australian met coal miners, BHP likes to point to India as the key source of future demand for coking coal. While there is no doubt that India’s steel demand is set to continue growing strongly, it is less clear that Australian coal miners will benefit from this in the short-to-medium term. In the longer term, India is highly incentivised to address its [growing steel sector energy security risk](#) resulting from dependence on coking coal imports by prioritising use of domestic coal and steelmaking technologies that don’t use coal at all.

S&P Global forecasts that Australia’s met coal exports will continue a slow decline out to 2035, leaving it unable to meet growing demand in India (Figure 2). All other major exporters are forecast to see shipments drop over that period. With overall traded met coal volumes in decline, India’s opportunity to raise imports comes from the forecast drop in China’s demand.

Figure 2: S&P Global met coal import and export forecasts, May 2026 (Mt)



Source: S&P Global.

China’s biggest met coal import source is Mongolia, whose exports are landlocked and unlikely to be exported to India. India’s JSW Steel has considered imports from Mongolia but found the concept to be [too difficult logistically](#). China’s next two biggest import sources are Russia and Canada. With relatively little Australian met coal exported to China, India’s opportunity to pick up available supply as China’s demand falls largely comes from Russian and Canadian coal.



The availability of more Russian and [Canadian](#) coal as China’s imports drop will allow India to continue to diversify away from Australian met coal. This is a process that has now been [underway for several years](#) (Figure 3), driven by strategic concerns about being over-reliant on just one source. India’s concerns are compounded by the fact that Australian met coal export volumes have been in decline since 2019, with S&P Global forecasting further declines out to 2035.

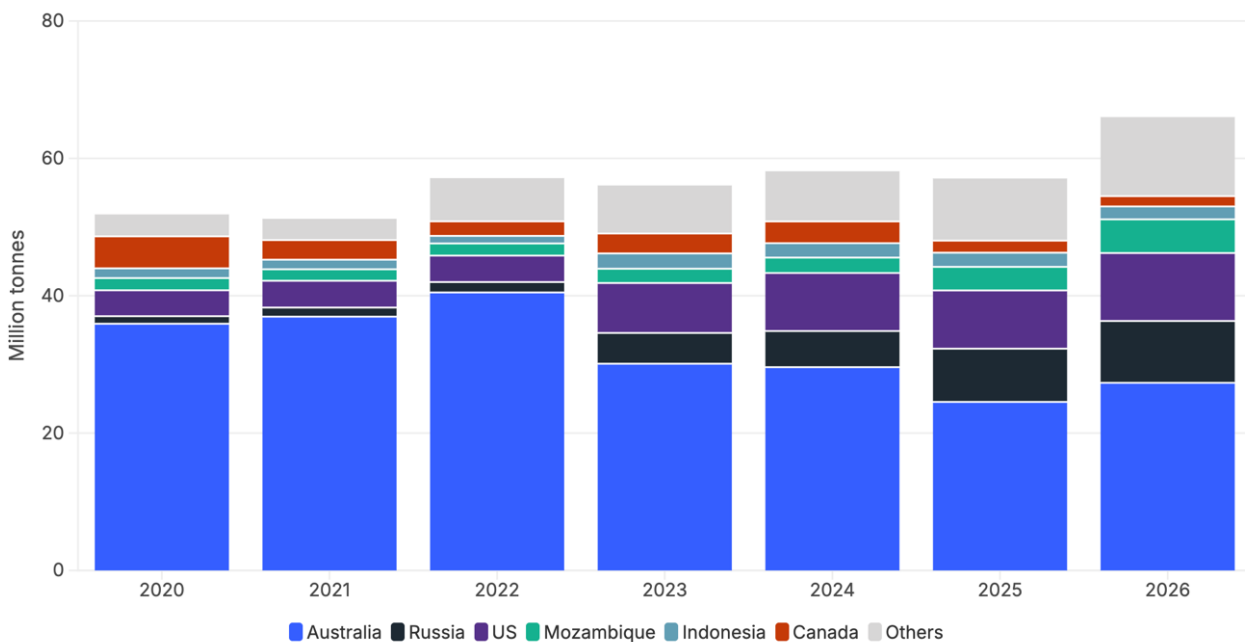
Jindal Steel [announced](#) in 2024 that, at the behest of the Indian government, it had more than halved its consumption of Australian coking coal, noting: “This achievement is perhaps the first of its kind in the Indian steel industry.” It added: “Given global uncertainties and supply chain disruptions, diversifying our coking coal sources was imperative. The Steel Ministry’s directive was timely and essential. By reducing reliance on Australian coking coal imports and increasing intake from other regions, we’ve strengthened our supply chain and improved cost efficiency.”

India has been aided in its shift away from Australian coal by its [increasing use](#) of stamp-charging technology, which allow the use of lower-quality coking coals in steelmaking without a significant impact on coke quality. Without this technology, Indian steelmakers were dependent on higher-quality coking coals of the sort supplied by Australia. Stamp-charging allows the use of higher-ash/lower-fluidity coking coals of the type produced domestically and in Russia.

BHP has made much of its strategic focus on high-quality hard coking coal following its divestment of lower-quality met coal assets via the sale of its stake in BHP-Mitsui Coal (BMC) and the offloading of its Daunia and Blackwater mines to Whitehaven Coal. In its 2025 Annual Report, [BHP stated](#): “Over the longer term, we expect that higher quality steelmaking coals, such as those produced by our BMA assets, will be valued for their role in reducing the greenhouse gas emission intensity of blast furnaces. In addition, robust hard coking coal imports from developing countries such as India, will lead to growing and resilient demand for decades to come.” [More than 90%](#) of BHP’s coking coal production consists of premium hard coking coal (PHCC).

However, [according to Argus Media](#), the share of PHCC in Indian steelmaking blends dropped from 45% to 35% between 2021 and 2024.

Figure 3: India is diversifying met coal imports away from Australia



Source: Indian Ministry of Commerce and Industry, IEEFA



Beyond 2035, the outlook for Australian met coal looks dimmer

By 2035, China's met coal imports are forecast by S&P Global to have dropped below 50MTPA. There's a [high likelihood](#) that these remaining volumes will be coming from Mongolia as China views Mongolia as its most energy-secure source of coal imports. With Mongolian coal unavailable to India, and all major exporters well into permanent decline, there will then be the key question as to where India gets its met coal from in the late 2030s, if it continues to expand steel capacity via blast furnaces.

There is no guarantee that the high prices generated by a supply squeeze will be sufficient to incentivise new supply from countries like Australia. A growing array of risks could prevent a market reaction to high prices via increased production in Australia. Such risks have until now impacted thermal coal mining more, but they will increasingly apply to met coal as alternative, lower-emissions steelmaking routes that don't use coal become more prevalent. These include legal and regulatory risks; rising met coal mining costs (which [have already had an impact on BHP](#)); the potential for more bank restrictions on met coal finance; and growing concerns about methane emissions. Such concerns will likely drive India even further towards alternatives to Australian coking coal.

India's vulnerable energy security position means it is naturally targeting an increase in domestic coking coal production. Coking coal was [classified](#) as a critical mineral in India in January 2026, a move aimed at making it easier to increase production to reduce reliance on imports, [as it has done with thermal coal](#). The Indian Ministry of Coal's "[Mission Coking Coal](#)" targets a more than doubling of coking coal production to 140MTPA by 2030.

Much of India's existing coking coal production is high-ash and not of a high enough quality for steelmaking. So, along with increasing mined volumes of coking coal, India intends to increase coal washery capacity to reduce ash content and make more of its output suitable for blast furnaces. In March 2026, Coal India [announced](#) it will invest US\$340 million to more than double its coking coal washery capacity by 2030, with 21.5Mt of washery capacity to be added across eight sites. In May 2026, Coal India subsidiary BCCL [commenced operations](#) at a 2MTPA coking coal washery in West Bengal.

As well as increasing domestic coking coal supply, India also [has plans](#) to convert its abundant thermal coal into gas for a range of uses, including DRI, to reduce dependence on imports. In May 2026, India [launched](#) a US\$4 billion scheme to boost coal gasification, which will see the government cover up to 20% of the cost of new plants, with the aim of converting 75Mt of coal into gas annually.

Jindal Steel has been [running a DRI plant on syngas](#) produced via coal gasification in India since 2014. Jindal has also started injecting syngas into blast furnaces to reduce dependence on imported met coal. Several other coal gasification projects for DRI-based steel production [are in the pipeline](#) in India.

Coal India [is planning](#) coal gasification projects to supply syngas to industries including steelmaking. Another state-owned coal miner – NLC India – is [teaming up](#) with giant conglomerate Reliance Industries to assess the feasibility of converting lignite through underground gasification. Meanwhile, the Maharashtra state government has [already approved](#) a US\$7.4 billion coal gasification plant under development by Adani Enterprises in Nagpur, [intended to produce](#) syngas, ammonia and hydrogen.

In the longer term, green hydrogen will likely also play a role in improving India's steel sector energy security by reducing reliance on coking coal imports. Bloomberg New Energy Finance



(BNEF) forecasts that India will be one of the most promising locations to produce cost-competitive green hydrogen in the future. Although [BNEF expects](#) the levelised cost of green hydrogen will remain higher for longer in most markets globally, China and India are emerging as exceptions. BNEF foresees the cost of green hydrogen in India and China becoming competitive with grey hydrogen in the 2030s, making India [one of the most attractive](#) global markets for green hydrogen development.

The Indian steel sector is already starting a shift towards green hydrogen. JSW Steel is [piloting](#) green hydrogen in its Vijayanagar DRI plant, where JSW Energy [commissioned](#) a green hydrogen plant in November 2025. JSW Steel is also [expanding DRI capacity](#) at its Salav facility in Maharashtra state, running on methane gas initially but ready to switch to green hydrogen as costs decline. Production at the plant is earmarked for export to the EU, where the Carbon Border Adjustment Mechanism (CBAM) incentivises imports of lower-carbon steel.

Another steelmaking route that will provide energy and materials security benefits to India in the long term is scrap steel recycling. The primary steel boom that occurred in China over the last two decades now puts it [in a position](#) to reduce reliance on iron ore and met coal imports by starting to recycle more of this steel. For India, this opportunity likely reaches its fuller potential in the 2040s, yet efforts to make more steel from recycled scrap have begun already.

In March 2026, Tata Steel [inaugurated](#) its first scrap steel-based electric arc furnace in India. JSW Steel is [planning](#) to set up a scrap steel recycling facility in Chennai. Adoption of scrap steel recycling in India has been limited so far by scrap availability, but India's steel sector energy security position creates [incentives](#) for it to improve recycling infrastructure. Meanwhile rising scrap levels from vehicles, appliances and construction are set to start expanding secondary steelmaking via recycling.

For India, these alternatives to imported met coal are long-term energy security plays. The investment seen in them so far is only the beginning. The Iran war and subsequent fossil fuel crisis will only accelerate moves in India to improve energy security.

India has been identified by BHP and other Australian met coal miners as the key driver of future demand. But given the developments identified above, there is a significant risk that long-term Indian demand for Australian met coal will fall short of expectations.

A more realistic approach to steel technology transition

BHP is currently trying to have it both ways with met coal. On the one hand, it states it will not commit to any further investment or growth in met coal, blaming the Queensland government's coal royalty regime. This is despite the impact of royalties being far from clear-cut. Higher operating and depreciation costs look to be having [a bigger impact than royalties](#) on the returns BHP's met coal division makes.

On the other hand, BHP hasn't given up its various met coal mine extension proposals. There is rising doubt over the long-term outlook for Australian met coal, with key importer India continuing to shift away from Australian coal and likely to prioritise import reduction. Given these doubts, as well as rising mining costs, BHP ought to be clearer about plans for its met coal business.

A sale of BHP's met coal business appears to be [off the table](#), with investors [increasingly dubious](#) about the benefits of such divestments. In IEEFA's view the company should instead make clear it will not be seeking to extend production significantly deeper into this century [and beyond](#), cease the campaign it has been carrying out against Queensland's royalty regime for



years without any result, and commit to responsibly manage current operations towards end of mine life and rehabilitation. BHP had previously [taken this route](#) at its Mt Arthur thermal coal mine in NSW, before partially [backtracking](#) on the plan.

A more informed and clear approach to met coal needs to be extended to CCUS. Carbon capture looks to be in no position to improve the long-term outlook for met coal, and BHP should stop suggesting otherwise.

Instead, IEEFA believes BHP should prioritise and increase efforts to develop DRI technology that is compatible with its blast furnace-grade ore. As has previously been [highlighted](#), a disclosed direct capital allocation towards steel decarbonisation efforts of just US\$75 million over five years to 2029 does not match the scale of BHP's Scope 3 emissions, or the long-term risks faced by its iron ore and met coal businesses from the steel technology transition. Commitment to technology solutions to address these issues needs to be backed up with suitable funding and a focus on pathways that are more likely to produce commercial-scale results.

BHP has [rightly identified](#) the reputational risks that can result from failing to back words with actions on its emissions. Similar risks would arise from any perception by stakeholders that BHP is backing technology that suits its portfolio but looks unable to decarbonise steel in an attempt to prop up the outlook for coal.

The steel technology transition is continuing and is now complemented by increased focus on energy security. The handover to a new CEO is an opportunity for BHP to take a more realistic approach to these trends.



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