

Regulator says fossil fuel methane can be used to make ‘green’ iron

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Higher-value products, such as iron ore pellets, can be made with gas. Bloomberg

An Australian green iron industry built on clean hydrogen is not yet feasible, according to environment regulators, who have approved a plan to use fossil fuels to make “green” steel materials in Western Australia.

The WA Environment Protection Authority said South Korean company POSCO’s plan to use the potent greenhouse gas methane to make green iron was justified because it would reduce global emissions compared to a scenario where the same iron ore was sent to Asia to be cooked with coking coal in a blast furnace.

The decision to take a “global” view of project emissions was welcomed by decarbonisation advocates.

POSCO announced in 2023 its plans to turn iron ore in WA’s Pilbara region into purer, higher-value products such as iron ore pellets and “hot briquetted iron” (HBI), at a plant on the outskirts of Port Hedland.

The carbon footprint of steelmaking can be reduced dramatically if clean hydrogen replaces coking coal or methane as the “reductant” that strips oxygen out of iron ore in the production of pellets and HBI.

But the South Korean giant said its proposed plant would initially use methane gas because domestic supply of clean hydrogen was unreliable. WA’s EPA has accepted that view.

“International best practice for primary iron production would involve 100 per cent utilisation of renewable hydrogen as the reductant. However, it is acknowledged that this is not currently feasible in Australia as there is not yet a commercially viable and stable supply of hydrogen,” the agency said.

The POSCO project will generate more than 1.1 million tonnes of greenhouse gas a year, placing it among Australia’s top 220 emitters.

Despite the project’s potential to increase domestic emissions and make it harder for Australia to achieve its legal obligation to reduce emissions by 43 per cent by 2030, the EPA said the project should be supported because it would help reduce global emissions.

It also “represents a strategic step towards the decarbonisation of the steel industry,” the EPA said.

The comments came after WA’s Labor government dramatically reduced the EPA’s power to block projects based on their carbon footprint last year, in a bid to ensure state regulations did not contradict the national carbon scheme for big emitters.

Tim Buckley, a director of think tank Climate Energy Finance, said it was encouraging to see the EPA take a global mindset to emissions, particularly given state and federal Labor refused to consider the “Scope 3” emissions of customer nations when assessing big gas export projects such as the North West Shelf extension.

“It is absolutely critical that we see a recognition that there is only one global atmosphere and that we need to work in collaboration with our key trade partners to decarbonise the collective steel supply chain, for example, rather than just worry about our domestic emissions profile,” he said.

Fortescue pledge

“Without this change in the way we are thinking about emissions, the whole idea that Australia will be a green iron superpower is ludicrous. It just can’t work.”

POSCO has pledged to gradually introduce hydrogen to the project; 1 per cent of the reductant stream will be hydrogen by 2031, rising to 90 per cent by 2048.

The EPA’s suggestion that Australia’s hydrogen industry was too immature to support a green iron industry comes despite mining giant Fortescue vowing to start making and selling green iron at its Christmas Creek mine in the Pilbara within the next six months.

Rio Tinto chief technical officer Mark Davies told the Melbourne Mining Club earlier this year that a carbon price would be required to make a green iron industry viable in Australia or China.

“I don’t believe there is an economic incentive for anybody to move to a hydrogen DRI,” he said.

“There is not the incentive for those companies to turn those [Chinese blast furnaces] off and move to an alternative technology that is more costly and is not yet proven.”

The POSCO project will make 2 million tonnes of HBI, and 0.7 million tonnes of iron ore pellets each year.

<https://www.afr.com/companies/mining/regulator-says-fossil-fuel-methane-can-be-used-to-make-green-iron-20250818-p5mnsj>