

Inside Sasol's plans to become a worldwide green hydrogen leader

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ArcelorMittal South Africa's Saldanha steelworks are ideally suited for green steel production.
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- **A string of proposed projects is set to put Sasol at the forefront of green hydrogen development in South Africa.**
- **The latest is a partnership with ArcelorMittal SA to develop green steel production and to use carbon capture for fuel and chemicals production.**
- **Sasol expects that there will be no shortage of funding for projects to move past the feasibility study stage.**
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Sasol is rapidly growing its footprint of green hydrogen development projects as it works to establish itself as a leader in an industry that is expected to provide a fifth of the world's energy needs by 2050.

The latest in a string of green hydrogen projects announced by the synthetic fuels and chemicals group is a partnership with [ArcelorMittal South Africa](#) (AMSA) to develop green steel production in Saldanha, while in the Vaal, the two are looking to develop carbon capture technology in order to produce sustainable fuels and chemicals.

At an investor event last year, Sasol announced its green hydrogen ambitions as part of its decarbonisation agenda – a plan that will see the group use gas as a flexible feedstock until approximately 2030, after which it will move to decarbonise its operations at scale through green hydrogen (once the price drops to below \$2 per kg, down from \$5 currently).

Sasol has identified several green hydrogen production hubs as part of that ambition – Saldanha being the latest.

"We are, of course, the biggest chemicals and energy producer in the country; we've got the best technologies and capabilities, it will make sense for us to lead," Priscillah Mabelane, executive vice president of Sasol's Energy Business, told News24 in an interview.

The partnership with AMSA serves a dual purpose, as it will allow the group to decarbonise its assets while also seeking opportunities to produce green hydrogen at scale.

"This study in Saldanha will enable us to have a good understanding of the potential for us to produce green hydrogen [there]; part of that will be to stimulate the local market in revitalising the ArcelorMittal plant. But secondly, for the export of green ammonia," she said.

The Saldanha project would complement another green hydrogen project study in the Northern Cape's Boegoebaai, where Sasol is taking the lead.

AMSA's Aldrich Louis said Saldanha is an ideal hub as it is coastal, providing access to a deep-water port to facilitate exports as well as the large quantities of water that green hydrogen production requires. Further, AMSA's shuttered

Saldanha works lends itself to the production of green products, because there is already an existing Midrex plant as well as electric arc furnace technology – which are cleaner steelmaking solutions.

"So that really de-risks the project, the fact that the infrastructure is already there, and it's well suited to producing green product," Louis said.

At the same time, the partnership with AMSA will also allow Sasol to capture some 1.5 million tonnes per year of "unavoidable" CO₂ from the steelmaker's Vanderbijlpark operations in Gauteng and transport it to Sasol's facilities about 20km away, where it will be used to produce chemicals and sustainable fuels, while decarbonising its operations.

For comparison, the steelworks produce nearly 5 million tonnes of CO₂ per annum, AMSA's Louis said.

"The EU has issued regulations where, up to 2035, they will be allowing a carbon capture, especially unavoidable CO₂, to be used in the production of low-carbon solutions," Mabelane said.

While carbon capture, utilisation and storage have been widely dismissed by detractors as being commercially unviable, Mabelane said the technology has been tested in different markets, and has already been proven in several projects.

In fact, at Secunda, Sasol is already capturing carbon with a partner as part of a project to develop sustainable aviation fuels.

"The technology we will be looking at already exists ... we [want] to leverage [it] to maximise the potential of our Fischer-Tropsch technology," Mabelane said, noting that the technology requires a carbon source that can take the form of coal, gas, captured carbon and possibly even biomass in the future.

Louis said while there is some nascence to certain parts of this endeavour, "we believe that within the ArcelorMittal Group, as well as within Sasol, there exists the know-how to make this and, if necessary, we will bring on board certain OEMs and technology experts to assist us".

Abdul Davids, head of research at Camissa Asset Management, said because the two companies are embarking on feasibility studies as opposed to definite projects at this stage, there are no details around potential capital spending or future revenue streams, making an assessment of economic viability and significance difficult.

"There is a great deal of noise around green energy and hydrogen, and it makes for good marketing, but we are yet to see detailed financials to properly assess the economic viability of these projects," he said.

Similarly, the studies on carbon capture in Europe indicate that it would be expensive to develop and maintain and would require government funding and incentives, Davids said, noting it was unlikely that Sasol or AMSA shareholders would be happy to fund these projects on their own.

As the work progresses, Mabelane said Sasol would thoroughly assess the economics and make the most optimal decision going forward.

Louis said the intention is to largely fund the pre-feasibility costs from internal resources, but certain government funding institutions will be brought into the fold when moving on to feasibility studies.

"Should we reach a financial investment decision, we'll have partners in terms of investments," said Mabelane. "We've seen a huge appetite for global and local players who are willing to fund and invest in this type of project as the world decarbonises."