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How will SA's proposed R319bn green hydrogen plans be funded?

news24 Lameez Omarjee

Africa-US summit: South Africa pushes ahead with Green Hydrogen

Developing South Africa's green hydrogen industry requires R319 billion over the next five years.

South Africa is facing stiff competition from Morocco and Ukraine to export green hydrogen to the EU.

A panel suggests several policy adjustments to make sure South Africa is a competitive green hydrogen exporter.

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It will cost South Africa close to R320 billion over the next five years to get green hydrogen projects off the ground, and a government-appointed panel has recommended "bold" policy that enables private sector investment in the emerging industry.

Earlier in December, the Department of Trade, Industry and Competition released the Green Hydrogen Commercialisation Strategy for South Africa for public comment. In June 2021, Trade,

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Industry and Competition Minister Ebrahim Patel appointed a green hydrogen panel to put together the report. It builds on research by the Department of Science and Innovation since 2007 on establishing the green hydrogen industry.

The commercialisation strategy comes hot off the heels of the inaugural Green Hydrogen Summit, which showcased South Africa as a large-scale, low-cost green hydrogen production hub to potential investors and businesses.

Germany **pledged a €23 million (R420 million) grant at the summit** to act as equity to support upcoming green hydrogen projects. The funding is part of Germany's contribution to the Just Energy Transition Partnership (JETP) with South Africa and other international partners – UK, France and Germany. The JETP investment plan lists green hydrogen as one of the three priority areas – the other two being electricity and electric vehicles – where solutions will be targeted to reduce greenhouse gas emissions, thereby ensuring that South Africa meets its climate commitments.

According to the JETP investment plan, the green hydrogen industry will require R319 billion between 2023 and 2027. The funding is needed for the relevant infrastructure and production capacity.

Hydrogen can be produced through a process of electrolysis – when an electric current is passed through water to split it into hydrogen and oxygen. When the electricity source is renewable energy – solar PV and wind – this means that no carbon emissions are released, so the product is dubbed "green" hydrogen. But when a fossil fuel like coal or gas is used as the electricity source, then emissions are released, which is why the product is known as "grey" or regular hydrogen. Hydrogen production through fossil fuels, coupled with technologies that can capture carbon emissions, is referred to as "blue" hydrogen.

The graph compares carbon emissions released through different hydrogen production methods. The use of renewable energy releases no carbon emissions, a 2020 paper from Trade and Industrial Policy Strategies shows.

Green hydrogen is important to use as an alternative fuel or energy source for industries like steelmaking or the production of fertilisers and ammonia, which are carbon-intensive or release carbon emissions.

The panel report highlights that green hydrogen is becoming an increasingly competitive space – and countries with "favourable" renewable energy sources and locations are likely to become net exporters of green hydrogen or ammonia (which is easier and safer to transport).

"The race for first-mover advantage is thus well under way, and South Africa is lagging other competing countries, which are Morocco, Ukraine, Saudi Arabia, Chile and Australia, to name a few," the report read. So far, 30 national strategies for hydrogen have been published, including by countries which will be net importers. South Africa published its strategy – **the Hydrogen Society Roadmap** – earlier this year.

The European Union (EU) and Japan have been flagged as major importers of green hydrogen. Without interventions from government and the private sector, South Africa is not well placed to compete with the Middle East and Australia for green hydrogen markets in Japan and South

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Rand - Dollar	17.01	-1.3%
Rand - Pound	20.75	-0.8%
Rand - Euro	18.41	-0.8%
Rand - Aus dollar	11.84	-0.6%
Rand - Yen	0.13	-0.4%

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Korea, the report noted.

South Africa's primary markets for green hydrogen could likely be the EU and the UK. These markets have already invested in South Africa through the JETP. In June 2021, Germany, through its development bank KfW, launched a €200 million (R3.4 billion) concessional financing initiative to help develop South Africa's green hydrogen industry, the report noted.

To increase its market share from 7%, South Africa will have to improve its competitiveness against other exporting countries by relying on interventions from government, public sector institutions and the private sector, the report indicates.

South Africa will, however, face significant competition from Morocco and Ukraine for the EU market. These countries have already announced initiatives for green hydrogen with the EU, the report indicated. Namibia, through its ties with Germany, will collaborate with South Africa as a green hydrogen exporter, the report read.

Supportive policies

Supportive policies need to be in place to improve the cost-competitiveness of green hydrogen production and exports from South Africa. The panel also sees long-term supply agreements between importing countries and an exporting country like South Africa being useful to secure market share.

The panel proposes that government put in place incentives – such as subsidies, taxes and levies – to drive cost reductions for hydrogen production and exports. For example, carbon taxes could be used to subsidise green hydrogen projects.

State-owned development finance institutions (like the Development Bank of Southern Africa) could potentially provide low-cost funding that would eventually crowd in private sector investments in green hydrogen projects too.

The report lists various funding mechanisms. This includes direct public funding, such as allocations from budgets or even government borrowing, and the use of green bonds and private finance such as loans from commercial banks or equity investments.

Public-private partnerships will also be useful.

The recommendations in the report speak to government developing better relationships with wealthy nations that have set aside funding particularly for green transitions – as is the case with the JETP.

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Other policy adjustments – across energy, environment, and health and safety – have been flagged by the panel. As it is, the existing regulatory framework does not support the development of a green hydrogen industry, according to the report.

The policy adjustments are important because they will "foster investor confidence and financing" and reduce the burden on the government to provide financial support to develop the industry, according to the report.

For example, the Integrated Resources Plan should be adjusted to allow for the allocation of renewable energy, specifically for the development of green hydrogen.

From a health and safety perspective, technical safety standards need to be developed for the hydrogen industry, particularly when it comes to requirements for storage, handling and transport.

The public have until 3 February 2023 to submit comments and queries.

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