

Green hydrogen – potential new export for South Africa

South Africa is well-placed to build a new and sustainable export commodity in the form of green hydrogen so as to become a key supplier into the small but rapidly-growing international hydrogen market.

This emerged as a key finding from a study conducted by the Trade and Industrial Policy Strategies (TIPS) which focused on exploring the emerging export opportunities in the development of green hydrogen. The study entitled “Green Hydrogen: A potential export commodity in a new global marketplace”, was undertaken against the backdrop of a rising global focus on climate change and how economies can begin to move to low carbon options. In the case of South Africa, the country is facing growing pressure to transition away from coal as an energy source for power generation and energy intensive industries.

Muhammed Patel, TIPS researcher and author of the study explains that South Africa has the necessarily resources and potential to develop green hydrogen and “green hydrogen offers a complementary pathway to decarbonisation with applications across a number of sectors.” He pointed out that for some sectors, such as aviation and shipping, green hydrogen was the only feasible decarbonisation option. Green hydrogen is more than a possible new potential export, and Patel points out that as a just transition is central to the country’s move towards a green economy - the hydrogen economy has a role to play in providing economic and employment opportunities for displaced workers, communities and small businesses.

In terms of global demand for green hydrogen, Patel states that “many countries and regions have sent signals to the international market indicating their intent to develop hydrogen value chains and engage in the international hydrogen market.” Patel’s research finds that South Africa has key resources to leverage, which can place it as a competitive supplier of green hydrogen. These include SA’s “rich endowment of ideal weather conditions for solar and wind power generation, technological capabilities around the Fischer-Tropsch (FT) process, and access to platinum resources”, and this combination places the country at an advantage for developing the hydrogen value chain, and being a key supplier into the global hydrogen market. Already, potential export markets exist including Japan, South Korea and the EU with “demand for hydrogen from other countries anticipated to rise significantly as more and more formulate their policies around hydrogen.”

Patel explains that whilst the potential exists for South Africa to develop green hydrogen as a key export, developing the green hydrogen value chain “will not be easy and will require co-ordination between the most important stakeholders from government departments, industry, labour unions and civil society.” He pointed out that a policy roadmap outlining the development of the value chain is underway and this is vital to provide certainty to investors, as is fast-tracking the necessary regulatory framework.

In elaborating on what is required from a policy perspective, Patel stated that “the right mix of incentives and penalties is required to generate a hydrogen market. Resources and incentives on the supply side can assist in the formulation of pilot projects that feed into existing processes and set up independent production which can be scaled as commercial viability is proven. The existing strengths and progress developed through initiatives by





the Department of Science and Innovation and Hydrogen SA, for example, can be driven further through such policy support. In particular, pilot projects in key carbon-intensive production processes by Sasol and PetroSA are also vital to decarbonise existing process and leverage existing assets; and will pave the way for greater investments into green hydrogen.”

Patel concludes that given South Africa’s high dependency on coal, and the combustion of coal being associated with high CO₂ emissions, the country will have to transform key value chains towards more sustainable production. This transformation, he stressed, will not only protect the country’s resources from future climate events but also secures South Africa’s future in the global hydrogen marketplace. Ultimately, all countries will have to respond to the imperatives of climate change and this will impact on “the nature of trade, production and investment” - a failure to follow this path will result in those countries who do not transform to be “isolated internationally through punitive measures such as trade barriers and reduced foreign investment, thus incurring severe costs on growth and development.”

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