Saldanha Bay identified as a potential hydrogen fuel export hub as global demand rises

At last month's Energy Transition webinar, hosted by the Saldanha Bay Innovation Campus (SB-IC), keynote speaker Thomas Roos said the Saldanha Bay region had excellent solar and wind resources that had the potential for large renewable energy electricity at competitive costs.

Saldanha Bay Industrial Development Zone. Source: SBIDZ

Roos, a senior research engineer at the Council for Scientific and Industrial Research (CSIR), is one of the authors of the *Powerfuels and Green Hydrogen* report.

“Electricity is a contested space in South Africa,” he said. “This potential far exceeds local demand, and export potential is limited: neighbouring countries’ economies are small, and there is no high-voltage, direct current (HVDC) transmission lines to European markets. But if we could export renewable electricity as molecules rather than electrons, this would overcome that challenge [for the large European and other markets].

To produce hydrogen fuel – molecular fuel – requires water and a substantial amount of electricity. The solution, said Roos, is to use that renewable energy source to produce energy in a molecular form – hydrogen – which can then be exported.

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He described how the war in Ukraine had accelerated the transition in Europe toward renewable energy. According to REPowerEU, the EU will increase its demand for larger volumes of renewable hydrogen imports. For example, Germany will require 2.7 million to 3.0 million tonnes of hydrogen fuel per year by 2030. Japan is looking at 5 million to 10 million tonnes by 2050.

Webinar panellist Marlett Balmer, employed by GIZ in the South African green hydrogen programme focusing on research, innovation, capacity building, and green hydrogen sector development, said this was an excellent opportunity for South Africa.

She pointed out that the country has an enormous advantage because of the wealth of experience in organisations like Sasol and through the development of the Renewable Energy Independent Power Producer Programme (REIPPP), which firmly focuses on how to structure community benefits. She added that what was required now was providing the training for the skills needed to follow through on the energy transition and for investors to come to the party.

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Katrina Abhold, project lead: global opportunities at the Global Maritime Forum (GMF), echoed this sentiment. She said the GMF had looked at the opportunities to produce scalable hydrogen fuels and that Saldanha Bay was an ideal location. “It has the space, is on a major shipping route, and has access to strong renewable energy sources [solar and wind],” she said.

She noted that to service the maritime sector, 80% of the infrastructure spend would need to be on the landside of the port. These included desalination plants, production and storage facilities, and retrofitting the existing plant to deal with the transition. Abhold was also optimistic about the potential community-level benefits of developing a green hydrogen economy.

George van Rensburg, managing director of Keren Energy, said the company’s hydrogen project in Vredendal was proof that this was a viable option for the region.

The next Energy Transition webinar will take place on 7 June under the theme 'Hydrogen-based steel production'.