African Hydrogen Partnership on Africa's hydrogen opportunity

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Scaling up the production and distribution of green hydrogen is widely seen as the biggest driver of cost reduction. But high renewable electricity prices are the single biggest factor in the cost of producing green hydrogen.

A report by Capgemini, Fit for Net-Zero, says the cost of green hydrogen today is around €6/kg, which means it's not yet cost competitive with fossil alternatives. $1.5-2/kg is seen as the optimum price of green hydrogen in the future, but in order to produce low cost, price competitive green hydrogen within the next five to 10 years, regions with strong winds and solar radiation, large mineral resources, water and shorelines towards all continents, space and flexibility are needed. Several large regions in Africa offer this combination, and the African Hydrogen Partnership (AHP) was started in 2019 to lay the foundation for establishing hydrogen economies and societies in the region. After a successful first conference in February 2020, the AHP was incorporated as a non-profit association in November 2020.

The only continent-wide African umbrella association dedicated solely to the development of green hydrogen, green hydrogen-based chemicals, fuel cell technology and related business opportunities in Africa, the AHP wants to transform Africa from a vast continent in need of products, infrastructure, energy and mobility, to a region at the forefront of clean technologies with a thriving hydrogen value chain.

Fit for Net-Zero says the cost of hydrogen could drop to €1.5/kg by 2030 in Southern Europe and North Africa, with a giga-scale approach to hydrogen electrolyser plants, powered by electricity provided by large solar plants, associated with wind, and transported to Northern Europe through shipping and grids.

"Due to Africa's proximity to Europe, African nations can export hydrogen to Europe which allows them to achieve economies of scale for reducing the cost of production significantly," Vincent Oldenbroek, Secretary General of the AHP, told H2 View. "Similar applies to domestic African markets. The imports of costly refined fossil fuels will be replaced with locally produced low-cost green hydrogen." In order to achieve its vision, the AHP is concentrating its work on two major goals: establishing and developing foreign and domestic markets for green hydrogen produced in Africa.

"Many regions in Europe and Asia do not have the green energy potential for decarbonising their economies," Oldenbroek continued.

“They will need to import green, i.e. clean, sustainable and renewable energy from abroad. This is Africa’s great opportunity.”

“African governments could grant concessions for producing and exporting green hydrogen and hydrogen-based chemicals in return for fees. Due to the continuously falling cost of renewable electricity, it’s reasonable to assume that low cost, price competitive green African hydrogen can price refined fossil fuels (diesel and petroleum) out of European and Asian markets in the near future.”

“In parallel to the development of export oriented opportunities, domestic markets in Africa will get developed. Especially in regions with two rainy seasons per year, there is already a huge demand for green energy systems that can provide continuous base load power. For example, the telecommunications sector, hospitals, data centres and cooling houses need to have reliable power supply beyond the 4 to 8-hour storage of batteries. The over and underground mining equipment and vehicles, heavy-load and land transport as well as maritime sectors have already started first projects and the demand for green hydrogen is expected to increase rapidly.”

“In this context, it’s important to mention that the large cost of importing refined fossil fuels is the major economic and commercial driver for developing domestic markets. The export and domestic markets need to develop simultaneously. They cannot be segregated in order to ensure maximising value and a fair socio-economic development.”

Progress

Since H2 View last spoke to the AHP in August 2020, the trade association was formally incorporated in Mauritius in November 2020. The AHP is planning its first Board Meeting for February (2021), after which it will accept new members.

The AHP has entered into the first agreements for supporting projects related to Africa which have been initiated by well-known African, European and global organisations, Oldenbroek highlighted. The AHP has also facilitated conversations with larger African companies that have potential partners from Europe and Africa, with respect to domestic African hydrogen opportunities.

In October 2020, the AHP joined the H2Atlas-Africa project, which is focused on assessing the potential of generating hydrogen in sub-Saharan Africa from the renewable energy resources in the region. The two-year project, launched in June 2020, will focus on detailed technological, environmental and socio-economic feasibility assessment on the green hydrogen generation potentials in 31 African countries, taking local energy demands and socio-political context into consideration. It will also explore the possibility of exporting green hydrogen from this region to Germany.

2021

Amongst other goals, this year the AHP will primarily focus on two major areas: further developing the AHP as an organisation and developing hydrogen technology markets.

“We want to attract new members and develop processes for making the AHP a most effective and efficient organisation. More specifically, we will organise university and association groupings; industry grouping committees and coordination group; financial advisory group; advocacy task force; and related meetings. We will be in direct contact with governments, parastatal organisation and

other related stakeholders of at least six African countries with large green hydrogen potential. We will hold our rst conference, planned for the fourth quarter of 2021," Catherine Scholtz, Treasurer of the AHP, told H2 View.

Working towards the goal of developing hydrogen technology markets, Scholtz said, "We are planning to organise two or three finance workshops in the third quarter of 2021, discussing the aim to export low-cost, price competitive green hydrogen from five to six countries in Africa (and the Middle East) to Europe and Asia, in order to price diesel and petrol out of the European and Asian markets in five to 10 years, while simultaneously developing domestic markets in Africa. Export and domestic development need to be combined, they cannot and should not be segregated."

Subject to the results of its finance workshops, Scholtz said the AHP is also aiming to present its plans to COP26 in November 2021, which is being held in Scotland, UK, as well as provide support for establishing a non-profit organisation in Europe that is dedicated to commercially supporting the goals of the AHP.

Next steps

2020 was an unprecedented year for hydrogen announcements. H2 View asked Siegfried Huegemann, Vice Chairman and co-founder of the AHP, for his thoughts on the most significant developments and what these might mean for Africa.

"The mounting political pressure has resulted in economic incentives as well as regulatory changes especially in Europe and East Asia. Several nations have developed National Hydrogen Strategies which have raised a lot of awareness internationally and strongly support the case of hydrogen in discussions with African decision makers," Huegemann replied.

"ESG (Environmental, Social and Corporate Governance) motivates corporate and investment banks to focus on green hydrogen since it's risk profile is very attractive. Consequently, large green hydrogen programmes should become more easily bankable than other alternatives."

In summing up our conversation, H2 View asked Oldenbroek, Fraser, Scholtz and Huegemann what needs to happen next for the African hydrogen market: "For developing export markets, a mid to long-term strategy for the next ve to 10 years needs to be developed. A close cooperation of the industry, banks, governments and large-scale end consumers is required so that large programmes can be implemented for achieving the commercialisation of the green hydrogen," the team concluded.