



Inside the African Hydrogen Partnership (AHP)

By [Joanna Sampson](#) on Aug 24, 2020 | [Translate](#)

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Establishing hydrogen economies and organisations in Africa will provide tremendous social, economic and environmental benefits, all at the same time.

This is the message from the African Hydrogen Partnership (AHP), a multi-stakeholder association that in 2019 unveiled an ambitious vision 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.

AHP connects industry, financial institutions, governmental organisations (such as government ministries, universities and state research centres) and large end-consumers who need to decarbonise and/or are interested in using hydrogen technology. AHP is the so-called 'market maker' for hydrogen and related technologies, bringing together demand and supply. Think of the shipping industry moving towards carbon neutral fuels which need to become available in the large African ports. The same applies to hydrogen-powered drones or vehicles; the fuel must become available and, at the same time, sufficient initial demand will justify a cost-effective hydrogen supply.

As AHP is in touch with a large variety of stakeholders, dots can be easily be connected to create hydrogen demand and supply value chains. Financing is a crucial part of creating these value chains. By local production and consumption of hydrogen in Africa, the continent would be able to drastically reduce the import of fossil-based fuels and chemicals. This would reduce dependency on foreign currency and help improve trade balances. AHP proposes that the savings from this, and from reducing pollution, as well as socio-economic benefits, could be used to fund new economically and commercially viable hydrogen programmes.

Next to those savings, new financial instruments such as a Green African Hydrogen Bond could be established to provide efficient access to capital markets and to raise funding for green hydrogen projects.

Several regions in the world are keen to import clean energy; examples being Europe, Japan, South Korea and Singapore. In these countries, lack of abundant and low-cost clean energy sources such as wind or solar, as well as lack of space, result in a present and future reliance on imported energies. Many developments and pilot projects have been initiated in the past year that indicate it is

possible to set-up import-export value chains of hydrogen, either in the form of liquid hydrogen, ammonia, methanol or liquid organic hydrogen carriers; or even compressed hydrogen in pipelines. Every carrier has its specific advantages relevant to the various end-user applications, and all will be needed to meet the Paris agreement.

Recently the AHP contributed to Hydrogen Europe's 2x40GW initiative, where the natural gas pipelines connecting North Africa with Europe, could be used for transporting green hydrogen from Africa to Europe.

“The best regions in Africa for exporting hydrogen based on very good and potentially low cost solar and wind resources are North, East and South-Western Africa”

Africa has abundant solar, wind, geothermal and hydropower resources, and also large areas of land that are not suitable for agriculture. The continent is consequently ideally equipped and positioned to export clean energy in the form of hydrogen and its carrier technologies. The export of hydrogen would provide a third option to fund green hydrogen programmes.

North Africa, South Africa and Namibia and also the Horn of Africa all are blessed with strong solar and wind resources. Central Africa still has a lot of untapped hydropower resources, while East Africa has geothermal resources.

The abundance doesn't stop at the renewable energy sources or non-agricultural land space. Africa has a wealth of the mineral resources required for clean energy technologies. Africa's population is expected to more than double this century and it is the home of several of the world's fastest growing economies. The infrastructure, industrial, energy, transport and consumer goods sectors are all expanding and have the chance to move straight to clean technologies and so 'leapfrogging' fossil based energy. Africa is only responsible for 3% of the world's annual CO₂ emissions, but already faces the impacts of climate change.

With Africa's young and dynamic population, keen on developing the continent and creating value, Africa's has all the assets to create a thriving hydrogen value creation chain. Through exporting green hydrogen and hydrogen-based products, Africa can help the world to meet the Paris Agreement.

The first hydrogen economies could begin with the construction of large-scale green hydrogen production facilities such as ports, metropolitan areas, and hubs along important trans-African highways. Hydrogen stations would provide fuel for long haul heavy goods vehicles, (HGVs), buses and trains, all powered by hydrogen fuel cells. These trans-African hydrogen routes would connect major mining centres that use heavy-duty hydrogen vehicles, such as forklifts, tugs and bulldozers. The overland routes would also connect harbours, trade centres and metropolitan areas while near-shore islands will be connected by hydrogen-powered ferries.

The same hydrogen production would also provide green hydrogen for industrial processes, and green chemicals and fuels for shipping and aviation; such as ammonia (fertiliser), green methanol (polymers), steel manufacturing (reducing agents), glass production (protective gas) and electronics (protective & carrier gas), making the African continent not only a commodity exporter, but enabling it to export higher value-added products.

Over the past years several large hydrogen-based application programmes have been successfully completed in the world and major projects have been implemented or initiated in Africa. Think of converting mining dumper trucks into hydrogen fuel cell powered vehicles. Consider the use of fuel cells to replace diesel generators at telecom base stations, where solar and batteries alone cannot always guarantee the high availability standards that are required. The African Drone Forum showcased hydrogen drones having higher autonomies than their battery powered counterparts. They could be used to inspect large solar farms, power lines and mines but also to deliver medication and other supplies to remote areas. Note that this is already happening without any specific policies, support or other incentives. AHP and stakeholders see the large opportunities and the added value of a joint collaboration to accelerate the adoption of clean hydrogen technologies in Africa and beyond. AHP will promote, support and accelerate the deployment of green hydrogen and fuel cell technologies as well as to improve access to (clean) energy and mobility in Africa and contribute to the creation of an international hydrogen markets and value chains.

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Recent achievements

Over the past 18 months, AHP has been engaging with industry and financial organisations, African and non-African government bodies, and also potential end users of hydrogen in all its possible applications. Overall, the reaction to the AHP has been positive, encouraging and supportive.

In the last few months, following the current launches of hydrogen strategies, AHP has received additional interest from, among others, The European Commission, Germany and the Netherlands; all with special emphasis on importing hydrogen from Africa. The Covid-19 pandemic caused some delay, and consequently the formal incorporation was moved to the third quarter of this year. But this didn't prevent the scheduled first two-day international meeting in February this year which was held at the United Nations Conference Centre in Addis Ababa. This proved to be a great success and attracted industry, financial organisations and government representatives from African and non-African countries.

AHP has visited Tanzania, Nigeria, China, Europe and had literally hundreds of conference calls to create as much awareness as possible about the potential for hydrogen to turn the economic, environmental and social challenges in Africa into great opportunities. Furthermore, cooperating with and within the AHP can create a win-win situation for building up hydrogen economies in Africa and in other regions simultaneously, via international hydrogen trade.

Since then, the focus has been on the preparation of incorporating the AHP and transforming it from an unincorporated initiative into a formally registered legal entity in Africa. AHP is currently working closely with corporate legal advisors on the final formalities required for submitting the registration.

The focus for AHP is now on finalising the incorporation of the association with a group of founding members and attracting more members. AHP is open to all organisations that are active in, or have an interest in Africa; or are active in the field of hydrogen, clean hydrogen derived chemicals, their applications and end use. This will include consultancy firms; companies specialising in renewable energy; universities and other associations.
