

TRADE

Building a bridge between Asia and Africa **P16**

BUSINESS

Behind Africa's biggest tech hub **P18**

CONSTRUCTION

Mini excavators making a major impact **P42**

MINING

Mounting interest for electric vehicles **P46**

African Review

JUNE 2022

of BUSINESS and TECHNOLOGY

P25

AFRICA ENERGY FORUM

Preparing for a just transition

P20

DATA CENTRES

Investment to match booming digital demand

P30



"We expect off-grid or captive energy projects to increasingly support Africa's industries and businesses' needs."

Fabrice Mpollo, investment manager at Norfund.

50
YEARS
SERVING BUSINESS IN
AFRICA SINCE 1964





Cover picture: The Jeffreys Bay Wind Farm in South Africa
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 Cover Inset: Fabrice Mpollo, investment manager
 at Norfund
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Editor's Note

Welcome to the June issue of African Review magazine, your trusted source of news and information on all things Africa for almost 60 years.

This month, we've got insights and analyses on all of the region's key industries, including the all-important energy sector. This is an area in flux as the energy transition intensifies the spotlight on renewables and other cleaner alternatives away from traditional thermal-based power. Inside this issue, you can find exclusive interviews with experts as they prepare to attend key industry events such as the Africa Energy Forum, and a bespoke report about how this shift is influencing energy dynamics across southern Africa (page 26).

Again, with the return of in-person events, we look ahead to another highly-anticipated industry get together, Hillhead 2022 (page 40). It will be the first time in four years the UK-based quarrying, construction and recycling event has taken place.

Technology is impacting all of these different business niches, a theme you'll see throughout this issue, even traditional areas such as logistics (page 23). In fact, we're showcasing some of the most exciting entrepreneurs and firms that have made Lagos one of the world's most dynamic tech hotspots (page 18).

Despite so much change in recent years, from disruptive technology through to pandemics, African Review remains the trusted source of business information and news as it has always been since it was founded in 1964.

Martin Clark, Acting Editor

Contents



P18

16 Trade
 Moin Siddiqi reports on the rapidly growing ties between Africa and Asia which are focused on strategic cooperation around trade, investment, education, and technology transfer.



P28

20 Data Centres
 Damilola Agbaje, investment director for AIIM, explores why an increasing amount of investment into the continent is being dedicated to developing the digital landscape.



P38

23 Logistics
 Africa's logistics sector bounces back as new technology reshapes how goods are moved, stored and tracked.



P48

26 Southern Africa Energy Review
 The first feature in our power section highlights how the southern Africa region is navigating the challenges of the energy transition.

30 Off-Grid Power
 Fabrice Mpollo, investment manager at Norfund, discusses the prospects of off-grid and renewable energy projects on the continent.

33 Green Hydrogen
 Sigi Hügemann, initiator and secretary general of the AHP, explains why green hydrogen is an unavoidable part of Africa's future.

42 Mini Excavators
 The small but mighty equipment providing the backbone for complex projects around the continent.

49 Mine Management
 With modern technology offering tangible benefits to mine operators such as greater visibility and enhanced decision making, the importance of good connectivity is greater than ever.

The key to green hydrogen

Green hydrogen is an unavoidable requirement for decarbonisation and Africa is the gatekeeper says Sigi Huegemann, initiator and secretary general of the African Hydrogen Partnership (AHP).

“Green hydrogen is an absolutely must-have requirement when it comes to decarbonising the globe,” comments Huegemann in an exclusive interview with *African Review*. “Our current primary energy consumption is still based on fossil fuels and if we want to completely move away from this we need to come up with something that can realistically replace them.”

Meeting electricity demand without fossil fuels, Huegemann provides as an example, is very difficult due to the intermittent character of renewable energy. For this, there are only two alternatives; battery storage and hydrogen; and the latter has significant advantages through attributes such as its capacity to scale.

“Despite all the negativity around hydrogen over the last few decades the question is, is there anything else that can match its potential? The answer is no and so we always return to it.”

While this potential of green hydrogen is now well understood, Huegemann continues, one of the biggest issues is its cost, as it remains an expensive fuel to produce.

“In simple terms, eventually we need to be able to price fossil fuels out of the market which will be very difficult due to the size of the hydrocarbon industry compared to the underdeveloped hydrogen market. Subsiding green hydrogen is an unhealthy business and will not work in the long term.”

However, fossil fuels are a limited resource and will eventually get more expensive in the long-term. In addition, technological advances continue to drive down the cost of renewables and, ultimately, green hydrogen and this shows no sign of stopping.

Africa in the driving seat

With renewable energy fundamental to the production of green hydrogen, Africa’s staggering potential in this department means it could be the key to unlocking cost-effective hydrogen and ultimately drive this market forward.

Huegemann notes, “What one needs in order to produce a green hydrogen is wind, solar, coastlines with open (arid) spaces and water – ideally, all of that combined. Everyone knows Africa has lots of those windy, sunny coastline regions in addition to geological features such as



A team working on electrolyzers.

Image Credit: RFS African Engineering

deserts. They have that in the northwestern part of Africa, they have that in Namibia, South Africa, the Horn of Africa, Egypt and all of these have the potential to produce low-cost, price competitive green hydrogen. Another alternative is natural hydrogen, from the ground, which countries like Mali are blessed with as well.”

The domestic bedrock

While technology around green hydrogen is continually being developed, to take the step and implement a project in Africa would require a lot of capital which presents a big risk, especially with the lack of infrastructure and market demand.

“Currently there are no futures and forwards markets for green hydrogen, green ammonia etc. So it requires somebody to take the risk and hope the market will have developed in five years time or so. This is a lot of risk to take on as the market is just at the beginning.

“However, there is already a cash market available which relates to the agricultural sector. If we can sell ammonia as green fertilisers, we can combine it with the production of green fuel. In the Horn of Africa, for example, there is strong solar radiation and strong winds. There are harbours, coastlines and everything needed to produce green hydrogen

and eventually distribute. In Ethiopia, which has a population of around 110 million people, the base of the hydrogen economy could be built on selling green fertilisers to the farms in the region. There are already activities going on in Kenya with the development of green fertiliser factories using geothermal energy in association with solar and others and now there is a lot of attention around the export side of this as well.”

“We see great opportunities for developing the domestic demand in African economies that can bring in foreign direct investment for this economy. Outside of agriculture, you can also look at the mining industry – which is desperately trying to decarbonise – as production sites can be built next to mines and provide low-cost green hydrogen for them.”

It is these foundations, Huegemann believes, which make Africa an attractive business case, which have the potential to prop up Africa’s hydrogen economy, ready to supply green hydrogen to the international market.

The AHP secretary general also highlights what an unprecedented opportunity this is for the continent by drawing a parallel with the Middle East. “When we think about Saudi Arabia and the Middle East, the exploration of fossil fuels has

brought tremendous wealth. Green fuels could have a similar very positive impact for African nations,” Huegemann remarks.

The AHP commitment

The AHP is dedicated to green and natural hydrogen as well as achieving the targets of the Paris Agreement and UN Sustainable Development Goals. Huegemann believes that Africa is critical in this.

“In Germany, for example, to meet energy demands via renewables you would have to plaster half of the country with PV cells and turbines and this cannot happen as you need to protect the forests, the meadows, etc. This is where Africa comes in as you can minimise the impact on the bio-habitat by building in more barren areas such as deserts, plus the intensity of solar for example is much greater,” Huegemann explains.

“We need to decarbonise the planet and we need to do that in a sustainable way. That automatically points us to Africa. It has 1.2 billion people and growing, it has significant renewable resources but it does not have a lot of



Image Credit: AHP

Sigi Huegemann is the initiator and secretary general of the AHP.

capital available. Europe or the USA cannot decarbonise the globe on their own, so, in order to achieve our green ambitions, we have to form the strongest possible alliances and bring Africa to the attention of companies and associations looking into green hydrogen.

“We opened up the African Hydrogen Partnership for new members in February last year, with the aim to attract the first 10 to 15 organisations and we achieved that quickly. Now we work very closely with leading hydrogen and related associations worldwide such as Hydrogen Europe, the MENA Hydrogen Alliance, the Commonwealth Enterprise and Investment Council, and more.

“We aim to drive economically and commercially feasible activities but it is important that we talk to the governments and bring them and businesses together. That is what we are working with already in various regions of Africa.”

Huegemann concludes, “There is no way around green hydrogen and Africa is absolutely essential here. If we want to decarbonise the planet, we need to work with Africa. It is that simple.” ■

ROLLS-ROYCE MTU GENSETS APPROVED FOR SUSTAINABLE HVO FUEL

Following successful trials on the test bench and in the field, Rolls-Royce business unit Power Systems has approved its Series 1600 and Series 4000 generator sets for use with EN15940 synthetic diesel fuels.

In addition to Gas to Liquid (GtL) and Coal to Liquid (CtL), these fuels include also the sustainable fuels Biomass to Liquid (BtL), Hydrotreated Vegetable Oil (HVO) and Power to Liquid (PtL) such as e-diesel.

Tobias Ostermaier, president stationary power solutions at Rolls-Royce Power Systems, commented, “There is already a lot of interest in HVO in particular from many customers in the energy industry and data centre business who want to improve their carbon footprint. The results from pilot customers show a significant reduction in greenhouse gases, nitrogen oxide and particulate emissions by using HVO instead of fossil diesel in their gensets.”

Waste vegetable and animal fats and used cooking oils can be used as base materials for HVO, which are converted into hydrocarbons by means of a catalytic reaction with the addition of hydrogen. Through this process, the fats and vegetable oils can supplement diesel fuel as an admixture or replace it completely. HVO

mtu Series 1600

mtu Series 4000

Approved for Series 1600 GxO, GxL

Approved for Series 4000 GxL, GxH

Series 1600 and Series 4000 are released for the EN15940 fuels GtL, CtL, BtL, HVO, PtL

- ✓ up to 90% CO₂ reduction (well-to-wheel; depending on the manufacturing process and feedstock)
- ✓ up to 80% less particulate emissions
- ✓ average of 8% NO_x reduction

Image Credit: Rolls-Royce

Mtu engines perform equally excellent when using HVO.

achieve clean combustion with a reduction in particulate emissions of up to 80%, nitrogen oxide emissions by an average of 8% and (depending on the manufacturing process and feedstock) CO₂ emissions by up to 90% compared to fossil diesel.

Mtu engines perform equally excellent when using HVO in terms of maximum power, load acceptance and fuel consumption and there are no adaptations needed to the diesel plant infrastructure, hardware or software for its use. In addition, the storage stability of this synthetic fuel is significantly better than that of

biodiesel, making it even more attractive to emergency power system operators.

Last year, as part of its sustainability programme, Rolls-Royce announced that it would realign its product portfolio so that by 2030, new fuels and mtu technologies can save 35% greenhouse gas emissions compared to 2019 levels. The company is now already successfully operating an mtu fuel cell system, has established a clear roadmap for the introduction of hydrogen engines, and is now progressively releasing further engines in more applications to run on sustainable fuels.