

The audacious plan to seed a global green hub in Namibia's desert

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Early in May, King Philippe of Belgium was on the edge of the Namib desert to inaugurate a project that aims to help decarbonize European industry, and which might just enable one of Africa's smallest economies

to hit the clean-energy big time.

It was a humble start for such grand designs, as Namibian President Nangolo Mbumba hosted the king at an unfinished site near the port of Walvis Bay on the southern Atlantic Ocean, the baking rust-colored dunescape silent except for an occasional truck passing on the new roadway.

But Philippe was just the latest in a string of European dignitaries to buy into Namibia's grandiose plans to become a hub for what's known as green hydrogen. It's a technology whose critics say is a commercial illusion, but whose political and corporate backers believe may be the answer to cleaner shipping and heavy industry.

"We are really very committed in this hydrogen and green hydrogen journey," Belgian Energy Minister Tinne Van der Straeten said in an interview at the site of the project, known as Cleanergy Solutions.

From modest beginnings, Namibia is banking on a whole new supply chain taking shape—from the production of hydrogen that's turned into ammonia for transportation, to associated "green" products—that would place it at the forefront of a developing clean technology, and finally put it on the map.

Europe, for its part, sees a means of furthering its green transition and bolstering [energy security](#) after it lost natural gas from Russia. The European Investment Bank has pledged a €500 million (\$544 million) loan toward developing green hydrogen in Namibia, with the Netherlands' Invest International contributing to a planned \$1 billion Namibian hydrogen fund.

Cleanergy, a venture between Antwerp-based shipping company Compagnie Maritime Belge SA (CMB) and local firm Ohlthaver & List

Group, will be Namibia's first commercial green hydrogen plant. Built at a cost of \$30 million partly funded by a \$10 million loan from the German government, it's just the start: CMB intends to raise \$3.5 billion to build an ammonia plant that would connect to a new storage and export facility planned by the Port of Antwerp-Bruges.

"Our customers are asking us to clean up our act to make sure that we don't emit CO₂ anymore, so we need to find an alternative for diesel," said Alexander Saverys, CMB's chief executive officer, explaining the nearly 130-year-old company's decision to get into green hydrogen.

Five years ago, CMB reached out to producers about green hydrogen and ammonia. "They all laughed and they all said 'no, it doesn't exist,'" Saverys recalled. So CMB developed its own production and is now scaling up: CMB, which runs 200 ships worldwide, has ordered 45 ammonia-fueled vessels from China. That requires investing "in a country where there's an abundance of cheap renewable energy, and Namibia is that country," he said.

It's a prospect that could transform the nation of 2.8 million with a gross domestic product of some \$13 billion, or around one third that of Vermont, the smallest economy of any US state.

If at all, Namibia is known for its desolation—home to one of the world's most arid deserts, the Namib, it's among the least densely populated countries on Earth. It's that ready availability of land, allied to lots of sun and wind, that offers such possibilities even in the face of competition from the likes of Chile, Saudi Arabia and Namibia's neighbor, South Africa.

The southwest African nation has the world's best solar potential, according to a World Bank study, and its abundant land is largely owned by the government, which backs the industry's development. The South

West Africa People's Organization has ruled the country since it won independence from South Africa in 1990, giving investors the reassurance of political stability.

The plan is to tap [solar power](#) from the Namib by erecting a vast array of panels channeling the energy to electrolyzers that split water into its constituent molecules, hydrogen and oxygen, without climate-warming emissions. The product will then be turned into green ammonia, loaded onto tankers at new harbors planned by the companies that run the ports of Rotterdam and Antwerp—Europe's No. 1 and No. 2 ports respectively—and transported north to Europe.

While a sparse landscape is a bonus for clean-energy production, it's historically proved a challenge to turn a profit from the moon-like emptiness of Namibia, a nation largely reliant on metals, diamonds, tourism and fishing. The government's gamble is that costs of producing hydrogen will fall at the same time as the European Union imposes stricter rules on the use of fossil fuels that power industries such as the chemical cluster around Antwerp and the Ruhr area of Germany.

The government in Windhoek does have other opportunities, notably a number of offshore crude finds that may be developed by TotalEnergies SE and Shell Plc with other oil majors keen to participate as the fields are assessed. Early estimates have reached billions of barrels and any projects will race to beat declining demand for fossil fuels. That still compels Namibia to find a new impetus for growth in the face of the country's limited skills base and a worrying vulnerability to climate change.

"Either we sit back and we let you guys try to decarbonize your factories, or we also use the natural resources at our disposal, our great wind or great sun or minerals, to proactively contribute to reducing this existential threat to our people," said James Mnyupe, Namibia's Green

Hydrogen Commissioner, who is on first-name terms with EU energy ministers courtesy of a whirlwind of visits to drum up funds.

The government estimates that the size of the economy could double as a result. What's more, "excess electrons" can be exported, alleviating regional energy insecurity, Energy Minister Tom Alweendo told the World Hydrogen Summit in Rotterdam.

The planned location of CMB's main facility some 50 miles northeast of Walvis Bay speaks to the race for Africa's resources by the world's economic powers.

Situated on the desert plains that make up much of the central Namib, the site is close to Arandis, a near derelict settlement whose name means "the place where people cry" in the ancient Khoekhoe language. Arandis lies between Husab and Rossing, the world's No. 2 and No. 6 uranium mines, both of which are owned by Chinese companies. Chinese investors have also snapped up Namibian gold assets.

Europe's bid to benefit from Namibian resources is not without sensitivity given its colonial past: Former colonizer Germany has acknowledged that it carried out a genocide of the Herero and Nama peoples in the early 20th century, and questions of redress are still under discussion.

That's not standing in the way of a development that could radically change Namibia's outlook—the \$10 billion Hyphen project in which Germany's Enertrag SE is invested. German Foreign Minister Annalena Baerbock hailed it as giving "further impetus to our cooperation on hydrogen, the fuel of the future." In March, the government said it plans to award Hyphen strategically significant status, paving the way for more state support.

In its first phase, the Hyphen facility will be powered by 3.5 gigawatts of wind and solar projects—equal to more than half the capacity of large renewable plants built across South Africa, the continent's most industrialized nation.

An entire vertically integrated industry is set to rise in Lüderitz, a remote coastal outpost south of Walvis Bay at the end of a decommissioned rail line, where businesses until recently included the processing of seal skins, while a nearby ghost town is testament to the rise and fall of the diamond trade.

It's here that Hyphen expects to employ 15,000 workers for at least four years to build a plant that yields enough hydrogen to make one million tons of ammonia a year—then doubling it in a second phase. That would represent a significant chunk of the up to 15 million tons of "green ammonia" the International Energy Agency forecasts will be produced globally by 2030.

The Port of Rotterdam is providing support to Hyphen and state-owned Namport to determine the infrastructure needed in Lüderitz that will allow the import of massive wind turbine blades and other equipment. It's also pledged to assist in finding the needed financing.

Namibia is taking a 24% equity stake, and has still grander plans. With help from McKinsey & Co., it's developed a strategy that envisions three hydrogen production zones along the coast in a blueprint that spans mineral refining and the manufacturing of renewable energy hardware along with pilot programs for hydrogen-powered trains and utilities.

Hyphen, says CEO Marco Raffinetti, will be "the catalyst of the first hydrogen valley."

But none of this will leave the drawing board without secure funding,

which means lining up customers who agree with binding contracts to buy the green hydrogen produced. A high level of concessional financing could play a role, according to Raffinetti, who said that the Belgians, Dutch, Japanese and South Koreans have all shown interest.

"It's not a full fantasy, there is some merit to what Namibia is doing," said Martin Tengler, a BloombergNEF analyst. "What is going to matter most to them is to find an offtaker for the hydrogen that they will produce."

Germany is pushing hard to bring a hydrogen market to the world, paying €3 billion in direct subsidies to help green its steelmakers and launching a massive funding program to spur demand in Europe's biggest economy. On May 29, the cabinet passed a draft law under the aegis of Economy Minister Robert Habeck—another visitor to Namibia—to accelerate hydrogen projects, including making it easier to set up infrastructure for import and storage.

Even as the technology is still being developed, there may be few other choices for European industry facing stringent climate regulations.

"You cannot electrify those industries," said Port of Antwerp-Bruges CEO Jacques Vandermeiren. "You'll have to bring in the green molecules."

If Namibia's green [hydrogen](#) gambit does pay off, it could foster decades of development. And Namibia needs development wherever it can get it, according to Trevino Forbes, the mayor of Walvis Bay. The goal has to be "to capitalize on this resource of ours," he said.

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