Etango

Namibia's Leading Renewable Energy & Green Hydrogen Magazine

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HYDROGEN SUMMIT EDITION

CO-CREATING AFRICA'S GREEN INDUSTRIAL TRANSFORMATION

NAMIBIA CHARTS COURSE FOR A GREENER MARITIME FUTURE

HYPHEN IN DEAL WITH CHINA'S CNCEC FOR 3GW GREEN AMMONIA PLANT

HELD UNDER THE PATRONAGE OF THE GOVERNMENT OF NAMIBIA

Global African Hydrogen Summit
#GAH2S

9 – 11 September 2025
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Endorsed By: Ministry of Industries, Mines & Energy
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Ambition In Action: Fuelling Africa's Green Industrial Revolution

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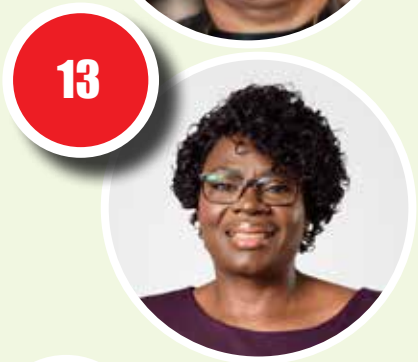

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WIND POWER: Construction is progressing well on the Diaz Wind Farm near Lüderitz, in southern Namibia. With 11 turbines and a total installed capacity of 44 MW, it will be InnoVent's largest wind project in the country. With Green Hydrogen projects lined up for the southern coast of the country, Namibia expects more wind energy plants to be set up around Lüderitz. **Photo: InnoVent**

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Energy Without Borders: Co-Creating Africa's Green Industrial Transformation

GAH2S Unites African and International Leaders to Accelerate Decarbonisation of Hard-To-Abate Industries

In a bold step towards reshaping the future of African industry, international technology transfer is emerging as a crucial catalyst in the decarbonisation of hard-to-abate sectors and the acceleration of sustainable, green industrialisation across the continent.

By harnessing Africa's remarkable abundance of renewable energy resources—including solar, wind, hydro and geothermal—the collaborative efforts between African and global innovators are laying the groundwork for a new era of climate-smart growth.

Africa stands uniquely positioned, endowed with some of the world's most significant untapped renewable energy potential. The continent's vast solar irradiation, robust wind corridors, powerful river systems, geothermal hotspots, and burgeoning hydrogen innovation hubs offer a unique opportunity to leapfrog traditional, carbon-intensive models of development. International technology transfer not only brings advanced know-how and proven solutions, but also fosters capacity building, local innovation, and the scaling of clean energy infrastructure.

Under a new initiative billed as the largest of its kind, seven countries, including Namibia, Egypt and South Africa, will be able to access finance from a coalition of development banks and funds to deal specifically with greenhouse gas emissions from heavy industry. The US$12.5 billion (about N$225 billion) Climate Investment Fund (CIF) will lead the programme by offering concessional loans of up to

Gaudentia Kröhne, Deputy Minister of Industries, Mines and Energy

> *Namibia is not just aiming to export green hydrogen but to create value-added products such as green ammonia and green iron that support decarbonisation worldwide, while building new clean industrial clusters domestically,"* *-Deputy Minister Kröhne*

US$250 million each to the countries with the aim of drawing additional funds from multilateral development banks, the private sector and other investors.

Tariye Gbadegesin, Chief Executive Officer of the CIF, one of the world's largest dedicated climate investment funds, said decarbonising economies was crucial to *"securing long-term prosperity and the jobs of tomorrow. The global race to decarbonise industry has begun, and emerging markets are out front".*

In an interview conducted ahead of the second edition of the Global African Hydrogen Summit, Gaudentia Kröhne, Deputy Minister of Industries, Mines and Energy of Namibia, outlined the country's strategy to become Africa's green hydrogen leader through world-class resources and strategic positioning.

"Namibia is not just aiming to export green hydrogen but to create value-added products such as green ammonia and green iron that support decarbonisation worldwide, while building new clean industrial clusters domestically," Deputy Minister Kröhne stated.

Through strategic partnerships, African industries in sectors such as cement, steel, chemicals, and transport—traditionally among the most challenging to decarbonise—are now implementing breakthrough technologies. These include green hydrogen-fuelled processes, electrified production systems powered by renewables, and innovative methods for energy storage and management. Such collaboration ensures that Africa's industrialisation can be both inclusive and sustainable, generating green jobs and positioning the region as a leader in the global green economy.

Countries such as China and Japan are sharing advances in solar photovoltaic manufacturing, hydrogen storage, and fuel cell development, while European partners are providing expertise in wind farm operation, grid integration, and policy frameworks for emerging green markets.

Dr Ziyuan Wang, Vice Chairman of the China Hydrogen Development and Innovation Alliance for Urban Gas (CHAG), highlights that: *"Africa's rich mineral reserves provide a solid foundation for an energy revolution. This enables the localisation and self-sufficiency of the hydrogen industrial chain."*

This co-creation extends beyond hardware, encompassing best practices in workforce upskilling, regulatory harmonisation, and the development of robust trade corridors. Such efforts ensure that green molecules and electrons

Tariye Gbadegesin, Chief Executive Officer of the CIF

produced in Africa can be efficiently traded and exported, supplying global markets and offsetting emissions in regions where decarbonisation is more challenging or costly.

Dr Markus Thill, President Region Africa, Bosch Group, sees hydrogen as indispensable for a climate-neutral future.

"Bosch is deeply committed to making hydrogen a cornerstone of the climate-neutral world. Through strategic investments in hydrogen fuel cells, engines, infrastructure, and electrolyser technologies, the company is setting a bold course toward sustainability and industrial innovation. Hydrogen offers a pathway not only to cleaner mobility but also to a broad-based industrial transformation," says Dr Thill.

The momentum for co-creation between African stakeholders and international partners is rapidly growing. It is a testament to the power of shared expertise and vision in building resilient economies, safeguarding the environment, and empowering communities. This partnership is not just a pathway to decarbonisation—it is a blueprint for Africa's green industrial revolution.

DECARBONISING INDUSTRY: *From left; Jacob Thoppil (CIF, External Relations and Partnerships Lead), Dolf Gielen (World Bank, Senior Energy Economist), Nadia Taobane (World Bank, Senior Energy Economist), James Mnyupe (NGH2P - Head of Programme), Tariye Gbadegesin (CIF CEO), Emmanuel Kouadio (CIF, Lead Climate Resilience Programs), Siddharth Dasgupta (CIF, Senior Industry Specialist) and Gadi Taj Ndahumba (ALSF, Chief Legal Counsel) pictured during World Bank Spring meetings.*

N$4.5 Billion at Namibia's Disposal for Industrial Decarbonisation

… As Clean Energy Deployment Takes Centre Stage

Namibia has been invited to participate in the multilateral Climate Investment Fund's (CIF) ground-breaking US$1 billion Industry Decarbonisation Investment program, the first global concessional finance initiative dedicated to reducing industrial greenhouse gas (GHG) emissions in developing countries.

Namibia was chosen from 26 global applicants and has now been invited to craft an investment plan that outlines how it plans to mobilise up to US$250 million (about N$4.5 billion) of concessional capital to pioneer industry decarbonisation within its borders and beyond.

Through the deployment of concessional funding, the program is designed to support the private sector in developing clean technology supply chains, catalyse investment in low to net-zero carbon business models, and drive the regional transition of high-emitting industries toward zero-carbon practices. The CIF notes that in the process, the program aims to position recipient countries for long-term economic competitiveness and will enable them to take advantage of the global market for green industrial goods projected to reach US$2 trillion by 2030.

Finance Minister Ericah Shafudah said the government was committed to mobilising fit for purpose capital as espoused in its Development Finance Report which recognised the utility of blended financing as a key instrument to engender socio-economic emancipation.

"We are excited to work closely with our private sector and our development partners to build future proof industrial clusters that can deliver the sustainable growth, employment opportunities, and economic diversification we seek," she said.

James Mnyupe, Head of the Namibia Green Hydrogen Programme (NGHP) said the country's application and subsequent selection to develop an investment plan, marks a critical milestone in Namibia's industrial

transformation journey.

"The CIF Industry Decarbonisation program will enable us to demonstrate how concessional finance can de-risk pioneering investments in green industries while ensuring the region's transition is just, inclusive, and aligned with its developmental priorities. We are proud to have worked closely with our government and Ninety One to have crafted what has been recognised as a pioneering vision for our country and indeed Southern Africa.

"We look forward to co-developing an investment plan aligned with our forthcoming Sixth National Development Plan (NDP6). Green industrialisation will be a key driver of inclusive economic growth, job creation, and progressive climate action for Namibia," said Mnyupe.

Namibia's successful application ranked third globally and is expected to catalyse significant co-financing from multilateral development banks and private sector partners and aligns with the country's national objective to attract foreign direct investment.

With support from the CIF, Namibia intends to:

- **Catalyse green industrialisation** by developing critical minerals, green hydrogen, and renewable energy value chains;
- **Transform its electricity sector** by enhancing energy independence and security through clean energy deployment;
- Support decarbonisation of regional power pools, **encouraging integration and cleaner energy exchanges across Southern Africa**;
- Promote inclusive development through the creation of green jobs, local and regional value addition and broader **access to energy and**;
- Undertake institutional strengthening through capacity building to support a just and equitable transition, grounded in gender inclusive strategies.

By strategically deploying CIF funding, Namibia will showcase how smaller nations can lead the energy transition through innovation and regional cooperation.

CIF Chief Executive Officer Tariye Gbadegesin said the global race to decarbonise industry has begun, and emerging markets are out in the front.

"Decarbonising Industry is about more than emissions - it's about securing long-term prosperity and the jobs of tomorrow. And it's about producing the low-carbon industrial inputs that are urgently needed to expand renewable energy capacity and power the global economy," she said.

Anthony Nyong, Director for Climate Change and Green Growth at the African Development Bank (AfDB) noted that industrial decarbonisation is not only essential for reducing emissions, but it also presents a transformative opportunity for inclusive and sustainable growth across Africa.

"As one of the fastest-growing regions after Southeast Asia, with a relatively clean baseline, Africa is uniquely positioned to leapfrog towards a zero-emission, climate-resilient future. Investing in Africa's decarbonisation sector offers high-impact, efficient, and inclusive outcomes. AfDB is proud to partner with CIF on this pioneering initiative, which will support countries in charting low-carbon industrial pathways, creating green jobs, and enhancing global competitiveness in climate-smart industries," he said.

Nazmeera Moola, Chief Sustainability Officer at Ninety One, said: "Namibia's selection for the CIF program shows just how big the opportunity is for emerging markets to lead in the move towards cleaner, more sustainable industries. What matters now is turning that opportunity into real, lasting impact."

Eino Emvula, Managing Director of Ninety One Africa (excluding South Africa), remarked that with the CIF's support, Namibia has a real opportunity to grow its economy in a cleaner, more sustainable way, enhance its energy independence and serve as a model for other emerging markets.

"At Ninety One, we've seen first-hand how well-deployed capital can transform economies and uplift communities. By building sustainable industries from the ground up, Namibia can set a compelling example for other emerging markets striving to reach net zero in a way that works for their people and their future," said Emvula.

Practice Manager, Energy Sector Management Assistance Program (ESMAP) at the World Bank, Chandrasekar Govindarajalu, said he looks forward to supporting the countries that have been selected to develop an investment plan for the CIF Industry Decarbonisation investment program.

Accelerating Namibia's Energy Transition: The EU-GET.transform Country Window Namibia

With bountiful renewable energy resources, Namibia has an unrivalled opportunity to not only meet its domestic energy goals but to equally unlock energy trade within the Southern African Power Pool (SAPP) region. It is Namibia's declared vision "to become a regional leader in the development and deployment of Renewable Energy" and to reach the national energy goals of reduced dependency on energy imports from 70% to 30% by 2028 and universal access to energy by 2040.

Working in close partnership with the Ministry of Industries, Mines and Energy the Electricity Control Board and NamPower, the EU-GET.transform Country Window Namibia helps advance toward these goals through dedicated technical and regulatory support. Coordinated by the European Union Delegation to Namibia and co-funded by the European Union, Germany, Norway, the Netherlands, Sweden and Austria, the Window taps into global best practices to deliver upstream reforms that enable greater private sector participation. First outputs include the SAPP and MSB Market Access Guide that paved the way for more IPPs in the domestic and regional market, and Transmission Connection Guidelines which ease the connection of new generation capacity to the national grid. In leveraging alignment with the EU's Global Gateway initiative, the Window will also support the development of domestic green power generation infrastructure, investment opportunities, and help to expand electricity networks to enable power delivery to rural areas, load centers and cross-border trading. Combining world class expertise with capacity building and technical assistance, the Window is a vital lever for Namibia's renewable energy ambitions.

Stakeholder Validation of the Transmission Network Connection Guidelines in March, 2024 © GET.transform

GET.transform is co-funded by

Namibia Advances Green Industrialisation with Mineral Beneficiation Agreement

The Namibia Green Hydrogen Programme (NGH2P), Broadmind Mining - a subsidiary of Broadmind Mining Holdings -, and HyIron Green Technologies have signed a landmark Memorandum of Understanding (MoU) to collaborate on establishing a sustainable, low-carbon green industrial value chain in Namibia.

This agreement marks a significant milestone in advancing Namibia's mineral beneficiation capabilities and positioning the country as a green industrial hub in Africa.

This strategic cooperation focuses on leveraging Broadmind's critical mineral assets, particularly rare-earth elements and iron ore, and HyIron's proprietary green direct reduced iron (DRI) process, powered by renewable hydrogen. Together, the parties will explore the feasibility of integrated mining, beneficiation, and green steel production, which is a core component of Namibia's green hydrogen-driven industrialisation agenda.

FIRST OF ITS KIND: *The HyIron Oshivela plant was officially inaugurated by President Netumbo Nandi-Ndaitwah in April this year. The plant produces Direct Reduced Iron (DRI), and is the first of its kind in Africa to operate using Green Hydrogen, thus positioning Namibia at the forefront of a global push to decarbonise industrial production.*

Unlocking Value Through Cooperation

Under the MoU, Broadmind will facilitate advanced exploration and pilot beneficiation trials to support feedstock development for HyIron's green iron plant. In turn, HyIron will test the compatibility of Broadmind's ore in its DRI process and provide technical parameters for future scale-up. The collaboration will enable skills transfer, support local supply chains, and drive employment creation in mining, metallurgy, and hydrogen-based processing.

NGH2P will provide strategic in-country support, including stakeholder coordination, permitting guidance, infrastructure planning, and most critically, mobilisation of catalytic funding to de-risk this pioneering initiative. This includes support in accessing concessional and blended finance instruments to enable rapid project implementation.

This partnership is one of the flagship collaborations expected to form part of the Sectoral Investment Plan being compiled by NGH2P under the Climate Investment Funds (CIF) Industry Decarbonisation Programme, which Namibia was selected to join in June 2025.

Namibia aims to unlock up to US$250 million (about N$4.5 billion) in concessional climate finance through CIF to catalyse green industrialisation across critical minerals, green hydrogen, and renewable energy value chains.

James Mnyupe, Head of the Namibia Green Hydrogen Programme, said the Broadmind-HyIron-NGH2P partnership demonstrates how multi-sector cooperation can support this vision, creating local green jobs, boosting economic diversification, and enabling the production of future-proof materials for the global clean energy transition.

Sidney Martin, Executive Chairman of Broadmind Mining, said: "The agreement between Broadmind, HyIron, and NGH2P is a clear demonstration of how Namibia's mineral wealth can be transformed into long-term industrial value through strategic collaboration and technology".

Johannes Michels, Chief Executive Officer of HyIron Green Technologies said the collaboration allows the exploration of sourcing high-potential iron ore domestically and processing it using the already established green hydrogen-powered technology.

"By working with Namibian players on the ground, we are not only reducing emissions, we are helping to build the skills, supply chains, and infrastructure that a sustainable future demands," he said.

Enabling ASII's Objectives

The MoU also contributes directly to the strategic goals of the African Sustainable Industrialisation Institute (ASII), a continental centre of excellence to be headquartered in Namibia, aimed at enabling African governments and companies to exploit green industrial opportunities. The NGH2P continues to welcome strategic partnerships that promote sustainable industrial development, local value addition, and inclusive economic transformation in line with Vision 2030 and the Sixth National Development planning.

HUGE TASK: *The Taskforce spearheading the development of Namibia's National Action Plan for Maritime Decarbonisation (NAP), which was inaugurated on 14 August 2025.*

Namibia Charts Course for a Greener Maritime Future

Recognizing the global paradigm shift towards sustainable shipping and the evolving regulatory landscape mandated by the IMO (International Maritime Organization) and the Paris Agreement, Namibia aims to capitalise on locally adapted early adoption for economic gain.

Given the significant contribution of maritime transport to Namibia's economy, aligning with green practices presents substantial opportunities for growth, innovation, and differentiation from regional maritime competitors vying for the same vessel traffic and cargo volumes. Consequently, in a major step toward a sustainable maritime industry, Namibia is developing a National Action Plan for Maritime Decarbonisation (NAP).

The development of the NAP is being spearheaded by a dedicated task force, with the Namibian Ministry of Works and Transport as chair and the Namibian Port Authority (Namport) as the deputy chair. The task team consist of members from a wide range of partners, including the Namibian Green Hydrogen Programme, Ministry of Industries, Mines and Energy, National Planning Commission, Ministry of Justice and Labour, Ministry of Defence and Veterans Affairs (the navy), Ministry of Environment, Forestry & Tourism, Ministry of Agriculture, Fisheries, Water and Land Reform, Namibia Petroleum Corporation (NAMCOR), Environmental Investment Fund (EIF) and the National Commission on Research Science and Technology (NCRST).

The strategic framework of the NAP will guide the country's efforts to reduce greenhouse gas (GHG) emissions from its shipping sector, aligning with the ambitious goals set by the International Maritime Organization (IMO) to achieve net-zero emissions by or around 2050.

Namibia's maritime sector, centered on the key ports of Walvis Bay and Lüderitz, is a cornerstone of its economy. These ports handle over 7 million metric tons of cargo annually and are vital for regional trade in Southern Africa. The new NAP is designed to future-proof this critical industry by identifying concrete measures, regulatory pathways, and investment opportunities to promote low- and zero-emission technologies.

A Strategic Framework for Sustainable Growth

The NAP, supported by the Namibian-German Green Hydrogen Partnership, will serve as a roadmap for the country's transition to green shipping. Its core objectives include:

- **Promoting Green Technology:** Identifying and fostering investment in technologies that can reduce emissions, from energy efficiency measures to the adoption of alternative fuels like green hydrogen, green ammonia and green methanol.
- **Capacity Building:** Enhancing institutional capabilities and ensuring all stakeholders, from government ministries to private companies, are equipped to implement the plan.
- **Stakeholder Participation:** Creating a collaborative environment where key players can contribute to the plan's development and implementation.
- **Monitoring and Reporting:** Establishing clear mechanisms to track progress and ensure accountability in meeting decarbonisation targets.

Green Corridors and Economic Opportunity

The new plan is expected to pave the way for strategic green shipping corridors, creating new opportunities for trade and technology partnerships. Namibia's abundant renewable energy resources make it an ideal location for producing green hydrogen and its derivatives, which are essential for decarbonising hard-to-abate sectors such as shipping.

The plan will empower existing industry leaders and project developers, including:

- **Hyphen Hydrogen Energy:** A green hydrogen and

ammonia project aimed at large-scale production for export, positioning Namibia as a global leader in the green energy transition.

- **HyIron:** A pioneering project for green direct reduced iron ore, which uses green hydrogen to produce iron with zero emissions.
- **Cleanergy Solutions Namibia:** The company is developing green hydrogen and ammonia bunkering facilities, including a pilot site at Walvis Bay and a large-scale project at Arandis, to provide clean fuels for the maritime sector.
- **Mediterranean Shipping Company (MSC):** The shipping giant is a key partner in developing container vessel operations that align with sustainable practices.

For international partners, particularly from Germany, the NAP presents a significant opportunity. By developing a low-emission maritime sector, Namibia helps to de-risk future green hydrogen import corridors. German companies can gain early entry into this market by providing technology and logistics expertise, helping to build a resilient and sustainable supply chain that meets EU climate regulations and ESG benchmarks.

SUSTAINABLE MARITIME INDUSTRY: *Given the significant contribution of maritime transport to Namibia's economy, aligning with green practices presents substantial opportunities for growth, innovation, and differentiation from regional maritime competitors vying for the same vessel traffic and cargo volumes.*

Hyphen Hydrogen in Deal With China's CNCEC For Construction of 3GW Green Ammonia Plant

Hyphen Hydrogen Energy has awarded China National Chemical Engineering Corporation (CNCEC), and its subsidiary China National Chemical Engineering & Construction Corporation Seven (CC7), a contract for the front-end engineering design (FEED) and engineering, procurement and construction (EPC) for the ammonia chemical production component of its green hydrogen project in Namibia.

The contract with CNCEC further derisks the project, thereby adding value to Namibia and all project stakeholders. The CNCEC contract represents one of several FEED and EPC contracts to be concluded for the various infrastructure components of the Hyphen project. The commencement of any EPC components of the project remain subject to a successful final investment decision after the completion of the FEED.

The signing of the agreement was witnessed by China Chemical Chairman Mo Dingge and Hyphen Chief Executive Officer Marco Raffinetti.

The US$10 billion (N$180 billion) Hyphen project will use 3GW of renewable energy to produce 2.4 million tonnes of green ammonia annually.

CNCEC was appointed following a competitive international procurement process that prioritised both technical capability and alignment with Hyphen's sustainability and local content objectives. The project remains in its development phase, with Hyphen progressing through detailed planning, permitting, and stakeholder engagement.

This milestone underscores Hyphen's commitment to mobilising global resources and expertise to deliver this transformative energy project in a globally competitive market.

SEALED: *The contract was signed by Long Haiyang, Chairman of CC7, and Giuseppe Surace, COO of Hyphen Hydrogen Energy. The ceremony was attended top-level leadership from both companies, including Mo Dingge, Chairman of CNCEC, and Marco Raffinetti, CEO of Hyphen.*

CNCEC has a proven track record in executing complex, large-scale chemical and ammonia projects globally working alongside local execution partners and international technology providers, ensuring seamless integration of international technology, local content, and job creation.

Giuseppe Surace, Chief Operating Officer at Hyphen, said: "This agreement marks a pivotal step in realising our vision to put Namibia on the map as a global leader in green hydrogen. CNCEC's exceptional design and execution capabilities and proven track record of working with international technology providers and local contractors will enable Hyphen to optimise available international technologies and meet our local content and job creation targets."

Long Haiyang, Chairman of CC7 said: "Together with Hyphen Hydrogen, the two sides will deepen cooperation, give full play to their respective advantages, and promote the smooth implementation of the benchmark renewable energy project."

Once completed, the ammonia production facility is expected to contribute more than 80% to Namibia's GDP. It is projected to create around 15,000 jobs during construction and 3,000 permanent roles once operational.

Namibia Leads Africa in Attracting Greenfield Foreign Direct Investment

Namibia has once again punched above her weight and emerged as first in Africa and second overall in the 2025 ranking of the Greenfield FDI Performance Index.

The Greenfield FDI Performance Index measures how effectively a country attracts greenfield Foreign Direct Investment (FDI) projects based on its economic size. This year, Namibia moved up 10 places from the previous year to claim the number one position on the continent.

Recent offshore oil discoveries have dramatically changed the country's economic trajectory. Fields in Namibia's offshore Orange Basin (where Total and Shell drilled multiple exploratory wells) hold 11 billion barrels of light oil and 2.2 trillion cubic feet of natural gas reserves, according to the US International Trade Administration. That would put Namibia's reserves on par with those of frontier oil sensation Guyana.

"If proven commercially viable, the finds could unlock an unprecedented revenue windfall for the Namibian government, more than doubling the country's GDP by 2040," the International Trade Administration (ITA) report reads.

Beyond the extraction of natural resources in mining and oil and gas, the country has been able to diversify foreign investment inflows into sustainable energy, as well as manufacturing — notably Coca-Cola Beverages Africa's $50 million commitment to install a new bottling line and develop a water treatment plant.

This is a significant achievement for Namibia, which highlights that the country's collaborative efforts to improve the ease of doing business and create a conducive environment for investment is bearing fruit.

NIPDB CEO Nangula Uaandja

GREENFIELD FDI PERFORMANCE INDEX – AFRICA

RANK	COUNTRY	GFDI PI SCORE	SCORE CHANGE 2023/24
2	Namibia	7.9	3.4
11	Rwanda	4.7	-0.4
22	Morocco	3.6	-0.34
25	Kenya	3.2	-1.21
32	Zambia	2.5	-1.13
35	Senegal	2.4	-0.2
38	Tunisia	2.2	0.7
41	South Africa	2.2	-0.04
44	Egypt	2.1	0.11
46	Zimbabwe	2.1	0.14

Source: FT Locations based on **fDi** Markets and IMF data

Namibia has been able to diversify foreign investment inflows into sustainable energy, as well as manufacturing.

"Stability, rule of law, including an independent judiciary, and openness to investment have all been conducive to attract foreign investment to the country," says Nangula Uaandja, the Chief Executive Officer of the Namibian Investment Promotion and Development Board (NIPDB), the national investment promotion agency that the government created in 2021.

An annual survey by the Canada-based Fraser Institute ranked Namibia fourth in Africa for its investment attractiveness to mining companies behind Morocco, Botswana and Zambia in 2023.

With FDI on the rise, the country's authorities have to put inbound investment to work for the wider economy and population. Despite abundant natural resources and only about three million people, the country regularly features among the world's most unequal countries. With one in three in the labour force unemployed (44.1 per cent among the youth), the NIPDB has put efforts towards addressing labour force imbalances since its inception. Headline net FDI is expected to stay over US$2 billion per year until 2030

"When we were created in 2021, we set off to leverage investment promotion and small businesses to fast-track employment. We have two main roles," says Uaandja.

"First, we have to make sure the labour force meets the needs of the economy, which also means making sure those needs are known and communicated to the universities. Secondly, we have to bring small businesses into the value chain. As regards to this latter issue, we have already created a data base of Namibian small and medium-sized enterprises so that every investor that comes in can connect with local supplies."

While Namibia's economy continues to expand, mainly thanks to foreign investment in its mineral wealth, job-rich private sector-led growth has remained elusive, the IMF latest Article IV report published in June states.

The Wind Rises in Lüderitz

Construction is progressing well on the Diaz Wind Farm near Lüderitz, in southern Namibia.

With 11 turbines and a total installed capacity of 44 MW, it will be InnoVent's largest wind project in the country. When operational, it is expected to produce around 230 GWh of electricity per year, equivalent to about 6% of Namibia's current electricity consumption.

Innovative Turbines Taking Shape

Four XEMC wind turbines have already been installed on innovative tripod towers designed by the Spanish company Nabrawind. They were fully assembled in early July and now dominate the desert skyline outside Lüderitz.

The components for the remaining seven turbines, this time supplied by Goldwind, have arrived on site. Their assembly will begin as soon as the complete lifting system is delivered at the end of August.

Building the Future, Bolt by Bolt

Beyond the turbines themselves, the project has reshaped the landscape: access roads carved into the sand, heavy-duty platforms built to hoist the nacelles, and foundations drilled directly into the bedrock. Of the 11 foundations required for these machines, nine have already been completed.

Underground cables are being laid to connect the turbines, while the electrical control center is ready to inject their power into the national grid.

The two transformers required to connect the wind farm to NamPower's 132 kV grid have also been installed on site.

RESHAPING THE DESERT SKYLINE: *Four XEMC wind turbines have already been installed on innovative tripod towers designed by the Spanish company Nabrawind.* ***Photos: InnoVent***

Hydrogen Alignment with National Energy Policies and Goals Key for ECB

The Electricity Control Board of Namibia (ECB) is ready to engage with stakeholders to facilitate investment and innovation in the Green Hydrogen sector, ensuring alignment with national energy policies and goals.

Chief Executive Officer Robert Kahimise says that as the electricity sector regulator, the ECB will perform its role with regard to the licensing of generating plants for green hydrogen production.

"Once transformed into the Namibia Energy Regulatory Authority (NERA), and if the green hydrogen mandate is allocated to NERA by the government, NERA will ensure that a regulatory framework is developed that supports the development and integration of the Green Hydrogen sector. This includes establishing guidelines and standards that ensure safety, efficiency, and sustainability in hydrogen production and usage," says Kahimise.

The Namibian regulator says it sees green hydrogen as a key component in the country's transition to a sustainable energy future. It offers potential for electricity generation, energy storage, decarbonisation of various industries, export opportunities, and for Namibia to reduce its dependence on electricity imports.

"The ECB views green hydrogen as a complementary energy source that can enhance energy security, diversify the energy mix, and contribute to reducing carbon emissions, in addition to its contribution to green industrialisation, economic growth and employment," says the ECB CEO.

A diverse energy mix, including renewable energy, green hydrogen, and potentially nuclear power, can coexist and contribute to a reliable and sustainable energy supply in Namibia, the ECB believes. Such developments, however, must take cognisance of the national demand, the affordability of the new generation sources, the evacuation capacity of the transmission grid, and export opportunities.

"Each energy source has its own advantages and can be leveraged to meet different energy needs, ensuring energy security and supporting economic growth," says the ECB CEO.

The emerging Green Hydrogen sector is expected to play a key role in achieving energy independence by supplying excess electricity to the national grid. In line with NDP6 targets, Namibia aims to produce 143 GWh of green baseload electricity by 2030, up from zero in 2024.

Additionally, the sector is projected to create 30,000 jobs, supporting both economic growth and the energy transition. This positions green hydrogen not just as an export commodity but as a strategic enabler of Namibia's energy independence and economic diversification.

While the ECB has not set a definitive timeline for Namibia's complete independence from electricity imports, national planning documents such as NDP6 indicate clear ambitions toward energy self-sufficiency by 2030. A key target is to increase the national electrification rate from 59.3% in 2024 to 70% by 2030, prioritising expanded access to electricity for both households and industry.

ECB CEO Robert Kahimise

A central focus during this period, the ECB says, is the development of dispatchable, utility-scale generation infrastructure, aimed at delivering reliable, affordable, and clean energy. These investments are critical for reducing electricity costs, strengthening national energy security, and supporting future industrialisation and economic expansion.

The ECB acknowledges that Namibia's grid stability is a critical challenge in integrating renewable energy sources and that to address this, it is ensuring that transmission planning is taking place to enable grid infrastructure upgrades and expansions to accommodate increased renewable energy generation and transmission.

"There are ongoing efforts to enhance grid resilience and capacity, which include investments in transmission technologies and interconnections with neighbouring countries to support the integration of variable renewable energy sources," says Kahimise.

GH2 AMBASSADORS: *Green Hydrogen Youth Ambassadors pictured with officials from GIZ Energy Partnership, Namibia Green Hydrogen Programme and Hyphen during the official opening of the 5-day training programme in Windhoek from 1 - 5 September 2025.*

Green Hydrogen Youth Ambassadors Programme

Positioning Multipliers of Change in Namibia's Energy Transition

Why Youth Matter

At 44%, Namibia's youth unemployment rate ranks among the highest in Africa, underscoring the urgent need for opportunities that can unlock the potential of the country's young generation.

At the same time, the country is positioning itself at the forefront of the global energy transition through its Green Hydrogen Strategy. For this transition to be just and inclusive, young people must not only be beneficiaries but also active participants and multipliers of change.

The Green Hydrogen Youth Ambassadors Programme (GH2 YAP) was conceptualised by Hyphen Hydrogen Energy as a flagship youth mobilisation initiative to ensure that young Namibians are actively included in shaping the country's green hydrogen future. Hyphen approached Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and the Namibia Green Hydrogen Programme (NGHP) to partner in delivering the initiative under the Energy Partnership financed by the German Federal Ministry for Economic Affairs and Energy (BMWE), which now serves as its implementation vehicle.

A needs analysis by GIZ Namibia, through the energy portfolio, led to the identification and delivery of green hydrogen masterclasses. The one-day theoretical modular course was offered to various stakeholder groups in 2024, generating strong demand for more targeted and empowering training formats.

Launched in July 2025, the GH2 YAP aims to train Namibian youth across all 14 regions to serve as informed advocates for the sector. Once trained, ambassadors return to their communities equipped to raise awareness, support mobilisation, and foster inclusive participation in the green hydrogen transition.

The initiative aims to attract two ambassadors per region drawn from each of the 14 regions of Namibia, with preference given to young people between 18 –

Frieda Stephanus from Vaalgras in //Kharas Region

I am an electrical engineering student and I see this as an opportunity to add value to my community in the green energy sector. I am excited to be in this space and as a woman this is going to encourage other young women to take up roles in Namibia's green hydrogen sector.

35 years in STEM fields such as engineering, natural sciences, and environmental science. The goal? To empower a network of young change agents who can raise awareness, foster dialogue, and help their peers and communities understand the opportunities and challenges of the green hydrogen sector in Namibia.

Training the Ambassadors

Over five intensive days, the curriculum will cover foundational training on hydrogen and climate change, alongside deeper modules on Namibia's Green Hydrogen Strategy, the National Industrialisation Roadmap, and the Hyphen Hydrogen Energy project, including its socio-economic development framework.

The Hyphen project, the country's first GH2 public-private-partnership (PPP), is designed to serve as a catalyst for unlocking the immense potential of Namibia's first green hydrogen valley, namely, the Southern Corridor Development Initiative (SCDI). The curriculum blends expert lectures with hands-on group work, debates, and presentations, ensuring participants don't just learn, but actively engage and learn from each other.

One of the YAP participants, Frieda Stephanus from Vaalgras in //Kharas Region, said she was excited to having been selected as one of the green hydrogen youth ambassadors.

"I am an electrical engineering student and I see this as an opportunity to add value to my community in the green energy sector. I am excited to be in this space and as a woman this is going to encourage other young women to take up roles in Namibia's green hydrogen sector," she said.

Another aspiring youth green hydrogen ambassador, Benediktus Twewaadha from Epembe in Ohangwena Region, said it has always been his passion to work with communities on raising awareness about the green hydrogen initiative and to help people understand what green hydrogen is.

"As a graduate of integrated environmental sciences and a forestry technician, I have a passion to participate in climate change mitigation and afforestation campaigns. Green hydrogen is a game changer for our country, especially for the youth because it does not only enable a shift to cleaner energy, but also helps with skills development and innovation. It will also help with job creation and encourage entrepreneurship," said Benediktus. After the course, ambassadors return home to lead outreach activities such as participating in peer learning sessions and community events, raising awareness about energy transition opportunities and bringing local concerns and opportunities into national dialogue. While initially mobilised to support Hyphen's community engagement work, there is growing potential for other project developers across the country, as well as the NGH2P, to engage these trained ambassadors in their own stakeholder processes - unlocking a shared national resource that strengthens inclusive participation and supports alignment across Namibia's broader green hydrogen ecosystem. Through initiatives such as the YAP, youth become the bridge between project development and everyday community realities.

As Namibia advances with projects like Hyphen in the SCDI, civil society and youth engagement will remain critical. The Youth Ambassadors Programme is designed not only to empower individuals but to build a network of change agents who will drive Namibia's green industrialisation in a way that is just, inclusive, and sustainable.

Benediktus Twewaadha from Epembe in Ohangwena Region.

As a graduate of integrated environmental sciences and a forestry technician, I have a passion to participate in climate change mitigation and afforestation campaigns. Green hydrogen is a game changer for our country, especially for the youth because it does not only enable a shift to cleaner energy, but also helps with skills development and innovation. It will also help with job creation and encourage entrepreneurship.

NamPower Ready to Assume Enabling Role in Green Hydrogen Development

Namibia's power generation, transmission and energy trading corporation, NamPower, aims to play an enabling role in the development of the green hydrogen sector in Namibia by remaining a supplier of last resort to these new industries and also offtake some excess electricity from the renewable projects that are associated with the green hydrogen project.

However, the utility says it is not expected that the offtake of excess electricity will significantly improve the business case or economics of the green hydrogen projects as the quantities will depend on the supply profiles of each development.

NamPower itself is investing in its own renewable energy plants, such as the 100MW Sores |Gaib Solar PV Project near Rosh Pinah, in the south of the country, which forms an important part of Namibia's generation strategy. Currently, a significant portion of Namibia's demand is met through imports, particularly from South Africa, Zambia and Zimbabwe. This exposes the country to external market dynamics, including price fluctuations and supply constraints, due to climate change. Regional utilities collaborate through network connectivity, because the wires remain intact, to supply each other in order to meet countries' demand.

"By increasing domestic generation capacity from renewable sources, Namibia improves its energy security and reduces supply risks. Projects like Sores |Gaib provide clean, affordable, and locally produced electricity, which will directly offset imports during daytime. In addition, such projects diversify the generation mix and contribute towards Namibia's commitment to a sustainable energy transition.

"Over the medium to long term, continued rollout of renewable energy projects, complemented by Battery Energy Storage Systems (BESS), will enable Namibia not only to meet a larger share of its own demand but also to participate more competitively in the SAPP market. This transition is key to reducing import dependence while ensuring affordability and reliability of supply for Namibian consumers, meeting domestic demand," says NamPower Managing Director Kahenge Haulofu.

The Omburu BESS Project (with 51 MW/51 MWh capacity) is currently under construction, and it is expected to be completed in first quarter of 2026. Building on this experience, NamPower is also developing the Lithops BESS Project with a size of 45 MW/90 MWh, which will be financed by the World Bank. This project is envisaged to provide similar services on a larger scale and is part of NamPower's broader strategy to integrate utility-scale storage into the national grid.

NamPower Managing Director Kahenge Haulofu

The project is currently in the procurement phase, with the prequalification of EPC Contractors expected to be launched in the fourth quarter of 2025.

Additionally, the 40MW Otjikoto Biomass Project (OBPS), outside

Tsumeb in northern Namibia, is seen as complementary to NamPower's cleaner energy transition.

"Importantly, the project has both macro and micro-economic benefits. On a national scale, it reduces dependence on electricity imports, strengthens energy security, and stimulates investment into the local energy sector. From a climate perspective, the plant is a low-carbon source of electricity that meaningfully contributes to Namibia's decarbonisation pathway. We therefore see the Otjikoto Biomass Project as a critical enabler of Namibia's energy transition," says the NamPower MD.

TRANSMISSION MASTER PLAN

NamPower's current Transmission Master Plan, covering the period from 2021 to 2025, outlines comprehensive expansion plans for the transmission network grid. The utility will soon provide an updated transmission master plan after the new Integrated Strategic Business Plan 2026-2030.

Haulofu says the Master Plan identifies development requirements for the next year, with annual updates to ensure alignment with the country's evolving electricity needs.

"The plan involves the construction of new transmission lines and substations, and the upgrading of existing transmission infrastructure. These developments are essential to addressing internal supply limitations, accommodating future load growth, integrating new generation plants, and facilitating potential power transmission across the SAPP region," the NamPower MD says.

400kV AUAS-KOKERBOOM TRANSMISSION LINE

The Auas-Kokerboom project aims to enhance system reliability, improve network stability and redundancy, and increase electricity transfer capacity between the northern and southern regions.

Substation work at Auas, which overlaps with the Auas-Gerus project (the 400kV Auas-Gerus Transmission Line was inaugurated in April 2024) has been completed to minimise costs associated with outages during commissioning. The Environmental Clearance Certificate for the line construction has been issued, and the line is currently under design by NamPower's internal design team, pending final resolution of routes and wayleaves in several positions. The bid for the construction of the N$2 billion project is expected to be advertised in the last quarter of 2025.

400kV OBIB-ORANJEMUND TRANSMISSION LINE

The Obib-Oranjemund line, NamPower's second interconnector to Eskom, is important for enhancing supply of security and grid stability. NamPower is responsible for designing and constructing the line from Rosh Pinah to the Orange River, while Eskom will be responsible for terminating the line at Oranjemund (on the South African side), completing their section and connecting it to NamPower's portion of the interconnector as part of their scope.

NamPower's design team has completed the design for the 92-kilometre line, and construction commenced in November 2024. Line construction was completed in May 2025. Work has commenced on the extension of the substation with completion expected in 2026. The project's total cost will be about N$1.2 billion, with commissioning earmarked for May 2026.

220kV OTJIKOTO-MASIVI TRANSMISSION LINE

This N$150 million project has been deferred as part of financial prioritisation. The Environmental Impact Assessment process has been completed, and an Environmental Clearance Certificate issued. NamPower is currently busy with line design.

Other transmission projects include the 132/66kV Sekelduin Substation Development on the outskirts of Swakopmund and the 220/66kV Khomas Substation Development in Otjomuise, Windhoek.

"While NamPower aims to achieve 80% self-sufficiency by 2030, as outlined in the National Integrated Resource Plan (NIRP), electricity imports are expected to continue—both to optimise the cost of energy mix and due to Namibia's integration with the Eskom system. When projects like Kudu Gas, Baynes Hydro, and renewable export IPPs are operational, Namibia is expected to support the region and the Southern African Power Pool as a net exporter of electricity and will ensure security of electricity supplies from local sources," says Haulofu.

Namport

Positioning Namibia as a **Strategic Hub** for **Green Hydrogen** & **Ammonia Transportation**

Port of Walvis Bay

Head Office: Namport, Nr 17, Rikumbi Kandanga Rd

P O Box 361, Walvis Bay, Namibia | **Tel:** (+264 64) 208 2111

Port Of Lüderitz

Hafen Street

P O Box 836, Lüderitz, Namibia | **Tel:** (+264 63) 200 2017

NAMPORT

Strategic Positioning

The Namibian Ports Authority (Namport) is strategically located to support the growth of Namibia's green hydrogen economy. As the nation's principal gateway for imports and exports, Namport plays a vital role in enabling the seamless movement of green hydrogen and its derivatives including green ammonia across regional and global markets, via the ports of Walvis Bay & Lüderitz.

Strategic Partnerships

Namport has forged key partnerships with local and international leaders in green hydrogen technologies and logistics. These collaborations ensure alignment with global standards, adoption of best practices, and advancement of green port initiatives. In addition:

Efforts are underway to retrofit port equipment for the use of green hydrogen as a fuel source, reinforcing Namport's commitment to sustainability and carbon emission reduction.

Infrastructure and Investments

Namport is advancing its role as a premier logistics hub through major infrastructure upgrades tailored to the needs of the green hydrogen sector. These include:

- Specialised cargo terminals for hydrogen and ammonia
- Upgraded cargo handling facilities for dry and liquid bulk
- Smart port technologies to improve operational efficiency

Both the Port of Walvis Bay and the Port of Lüderitz are undergoing transformative developments to accommodate projected increases in cargo volumes, with long-term investments expected to reach hundreds of millions of Namibian dollars.

Future Developments

To accommodate anticipated growth from green hydrogen exports, Namport's long-term infrastructure plans include:

- New multi-purpose terminals
- Land reclamation for dry bulk facilities, coal terminals, and ship repair zones
- Integration of renewable energy infrastructure, including wind and solar farms

These enhancements are outlined in a 50-year phased master plan, **positioning Namport's North Port as a pivotal logistics node in the global green energy value chain**

Namport – Navigating for Tomorrow.

Designed by: Namport Marketing & Stakeholder Engagemnt Division

The Path Towards Ensuring Security of Electricity Supply

NAMPOWER GENERATION & TRANSMISSION PROJECTS

NamPower is developing several projects as part of its Integrated Strategic Business Plan (ISBP), which are aligned with the objectives outlined in the Renewable Energy Policy to source at least 70% of energy from renewable energy sources by 2030, and the National Integrated Resource Plan (NIRP) for the electricity sector which aims to achieve 80% self-sufficiency, in terms of energy, by 2028. Outlined below are the projects which are at various stages of development.

GENERATION PROJECTS

51MW / 51MWh OMBURU BESS PROJECT

LOCATION OF PROJECT: OMBURU SUBSTATION, 12 KM SOUTH-EAST OF OMARURU

The project entails a standalone grid-connected 51MW / 51MWh Battery Energy Storage System (BESS) which is currently being implemented at the Omburu Substation. The project will enable NamPower to cost-effectively manage the energy demand and supply by performing energy arbitrage and displacing expensive emergency energy, typically sourced from the SAPP market. It will also provide various grid stability services, enabling the grid to integrate additional intermittent renewable energy generation capacities, whilst ensuring security of supply. The Bid for the construction of the BESS Project was awarded to Shandong Electrical Engineering & Equipment Group Co., Ltd and Zhejiang Narada Power Source Co., Ltd Joint Venture (SDEE & NARADA JV), and the Engineering, Procurement and Construction contract agreement was signed on 13 December 2023. The project is currently in the design and construction phase, with the Commercial Operation Date planned for Q4 2025.

TOTAL PROJECT ESTIMATE: ±N$ 500 million (€/N$ = 20)

100MW SORES |GAIB PV PROJECT

LOCATION OF PROJECT: 33 KM NORTH-WEST OF THE MINING TOWN OF ROSH PINAH

The groundbreaking ceremony for the project took place on 19 June 2025 and construction has commenced. The bid for the construction of the 100MW Sores |Gaib PV Power Station was awarded to the joint venture comprising of China Jiangxi International Economic and Technical Cooperation Co., Ltd and China New Energy Development (Zhejiang) Co., Ltd on 4 July 2024. NamPower increased the size of the project from 70MW to 100MW as per approval from the line ministry. Project completion for the power plant is planned for Q2 2026.

The 100MW Sores |Gaib PV Project will reduce the overall NamPower tariff to the end-customer by introducing an affordable "new-build" renewable energy generating plant to the Namibian grid; address and support the renewable energy commitments prescribed in the Renewable Energy Policy and National Energy Policy; and will be implemented to be battery energy storage ready to include the possibility for the future addition of a Battery Energy Storage System (BESS), once the market prices for BESS have reduced to an acceptable entry point.

TOTAL PROJECT ESTIMATE: N$ 1.6 billion

40MW OTJIKOTO BIOMASS POWER PROJECT

LOCATION OF PROJECT: APPROXIMATELY 15 KM WEST OF TSUMEB

The groundbreaking ceremony for the project took place in mid-November 2024 and construction commenced. NamPower signed the Engineering, Procurement and Construction (EPC) contract with Dongfang Electric International Corporation for the construction of the Biomass Power Station on 24 May 2024. Similarly, NamPower signed a Fuel Supply Agreement with four suppliers for a total of 180 000 tonnes on 24 May 2024.

The project entails the development of a 40MWe Biomass Power Station utilising encroacher bush biomass woodchips as the fuel source. As a project of potential national importance, the power station will not only assist NamPower to strengthen its domestic local generation mix with a fully dispatchable energy source (which could provide baseload energy), but also benefit the greater Namibian economy with significant macro- and microeconomic benefits from the value addition of harvesting encroacher bush as a local fuel source. Project completion date for the power station is planned for 2027.

TOTAL PROJECT ESTIMATE: N$ 2.64 billion

45MW / 90MWh LITHOPS BESS PROJECT

LOCATION OF PROJECT: LITHOPS SUBSTATION, 15 KM FROM ARANDIS VIA HUSAB MINE ACCESS ROAD

The project entails a standalone grid-connected 45MW / 90MWh Battery Energy Storage System (BESS) which is currently being developed at the Lithops Substation in the Erongo Region. Similar to Omburu BESS, this project will enable NamPower to cost-effectively manage the energy demand and supply by performing energy arbitrage and displacing expensive emergency energy, typically sourced from the SAPP market. It will also provide various grid stability services enabling the grid to integrate additional intermittent renewable energy generation capacities, whilst ensuring security of supply.

NamPower is currently preparing bidding documents and will launch the bids for the various procurement activities which will include the Engineering, Procurement and Construction (EPC) contract. The Commercial Operation Date is planned for Q4 2028

TOTAL PROJECT ESTIMATE: ±N$ 665 million

80MW OMBURU SOLAR PV II

LOCATION OF PROJECT: OMBURU SUBSTATION NEAR OMARURU NEXT TO THE EXISTING 20MW OMBURU PV PLANT

The Omburu Solar PV II Project, with a planned installed capacity of 80 MWAC, will harness Namibia's abundant solar resource to generate clean, renewable electricity, thereby reducing reliance on imported power and fossil-fuel-based generation. The development of Omburu Solar PV II aligns with the Government of Namibia's broader energy policy objectives, as articulated in key national frameworks such as the Harambee Prosperity Plan II (Pillar 4: Infrastructure Development, Goal 1: Increased Investment in Energy Infrastructure, Activity 1), the National Integrated Resource Plan (NIRP), and the 6th National Development Plan (NDP6).

By forming part of NamPower's least-cost generation strategy, Omburu Solar PV II will contribute to stabilising and managing the long-term cost of electricity supply to consumers. The project also supports Namibia's commitment to a sustainable and climate-resilient energy future, in line with the global transition towards low-carbon development. The Commercial Operation Date is planned for June 2028.

TOTAL PROJECT ESTIMATE: N$ 1.3 billion

TRANSMISSION PROJECTS

NAMPOWER'S TRANSMISSION MASTER PLAN

NamPower's current Transmission Master Plan, covering the period from 2021 to 2025, outlines comprehensive expansion plans for the transmission network grid. It identifies development requirements for the next year, with annual updates to ensure alignment with the country's evolving electricity needs. The plan involves the construction of new transmission lines and substations, and the upgrading of existing transmission infrastructure. These developments are essential to addressing internal supply limitations, accommodating future load growth, integrating new generation plants, and facilitating potential power transmission across the SAPP region.

400kV AUAS-KOKERBOOM TRANSMISSION LINE PROJECT

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Substation work at Auas, which overlaps with the Auas-Gerus project (the 400kV Auas-Gerus Transmission Line was inaugurated in April 2024) has been completed to minimise costs associated with outages during commissioning. The Environmental Clearance Certificate for the line construction has been issued, and the line is currently under design by NamPower's internal design team, pending final resolution of routes and wayleaves in several positions. The bid for construction is expected to be advertised in the last quarter of 2025.

TOTAL PROJECT ESTIMATE: N$ 2 billion

400kV OBIB-ORANJEMOND TRANSMISSION LINE PROJECT

The Obib-Oranjemond line, NamPower's second interconnector to Eskom, is crucial for enhancing grid stability. NamPower is responsible for designing and constructing the line from Rosh Pinah to the Orange River, while Eskom will be responsible for terminating the line at Oranjemond, completing their section and connecting it to NamPower's portion of the interconnector as part of their scope. NamPower's design team has completed the design for the 92-kilometre line, and construction commenced in November 2024. Line construction was completed in May 2025.

The contract for the extension of the substation was awarded in the third quarter of 2024, and work has commenced, with completion expected in 2026. The project has three portions: the NamPower portions are the extension of the Obib Substation and construction of the 92 km line from Obib Substation to Orange River, while the third portion is the construction by Eskom of the line from Orange River to the Oranjemond Substation in South Africa - however this portion has not yet been completed.

TOTAL PROJECT ESTIMATE: N$ 1.2 billion

EXPECTED COMMISSIONING DATE: MAY 2026

220kV OTJIKOTO-MASIVI TRANSMISSION LINE PROJECT

This project has been deferred as part of financial prioritisation. The Environmental Impact Assessment process has been completed, and an Environmental Clearance Certificate issued. NamPower is currently busy with line design.

TOTAL PROJECT ESTIMATE: N$ 150 million

132/66kV SEKELDUIN SUBSTATION DEVELOPMENT

LOCATION: OUTSKIRTS OF SWAKOPMUND (NEXT TO B2 ROAD)

The civil works contractor completed all required tasks in March 2023. The transformers and switchgear have been delivered to the site, with all transformers assembled, pending the installation and commissioning of the protection system.

TOTAL PROJECT ESTIMATE: N$ 320 million

EXPECTED COMMISSIONING DATE: END OF AUGUST 2025

220/66kV KHOMAS SUBSTATION DEVELOPMENT

LOCATION: OTJOMUISE, WINDHOEK

NamPower has secured land for the Khomas Substation through a resolution with the City of Windhoek, marking a significant milestone. The EPC Contractor was appointed at the end of 2024 and works commenced in January 2025. NamPower has also procured and delivered power transformers to the Brakwater depot, where they will remain until the substation is completed.

TOTAL PROJECT ESTIMATE: N$ 340 million

EXPECTED COMMISSIONING DATE: DECEMBER 2026

James Mnyupe, Namibia Green Hydrogen Commissioner

Namibia Moves to Establish Africa Green Industrialisation Centre

Namibia has unveiled plans to establish a centre to support African governments and companies in identifying and benefiting from green industrialisation opportunities. The centre, to be named the African Sustainable Industrialisation Institute, is expected to be up and running by the end of 2025.

James Mnyupe, the Namibia Green Hydrogen Programme (NGHP) Commissioner made the announcement during the Namibia Parliamentary Green Investment Dialogue held in Walvis Bay from 10 to 13 July.

"This will be a continental centre of excellence, headquartered in Namibia but tasked with helping African governments and companies understand and exploit the opportunities pre-created by green industrialisation," the Commissioner said.

The institute will have two main focal areas – policy development and strategic capital mobilisation.

> ***"This will be a continental centre of excellence, headquartered in Namibia but tasked with helping African governments and companies understand and exploit the opportunities pre-created by green industrialisation."***

The policy development arm will work with governments and parliamentarians to develop policies that make African countries globally competitive.

"We will help with policy development, working closely with governments and parliamentarians to put together strong policies that will make African countries competitive relative to a global basis," said Mnyupe.

The second arm will focus on mobilising strategic capital to implement industrial clusters that can drive economic transformation across the continent.

"If we succeed in helping you establish these policies, we would like to mobilise strategic capital to enable you to deliver industrial clusters that will bring economic emancipation and pride to all of us here on the continent," the Commissioner told the Parliamentarians.

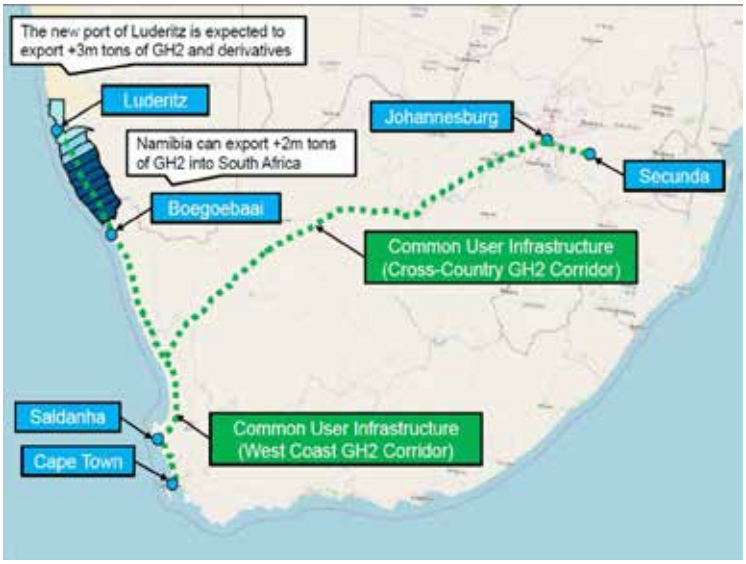
The idea of the Africa Green Industrialisation Centre is still subject for discussion with the Office of the Prime Minister, the Deputy Prime Minister and Minister of Industries, Mines and Energy and the Green Hydrogen Council. Mnyupe appealed for support from Parliament and Cabinet to move the project forward over the next six months.

Namibia-South Africa Hydrogen Pipeline Project Advances With Master Plan

The Namibia-South Africa green hydrogen pipeline project is moving from conceptualization to concrete development, with a significant N$30 million investment earmarked for a conceptual master plan. This funding injection, detailed in the Namibia Green Hydrogen Mid-Year Review 2025, signals a key de-risking step for a project that holds immense potential for regional and global energy markets.

The investment follows the successful completion of a cross-border pre-feasibility study in December 2024, which validated the technical and commercial viability of a pipeline connecting hydrogen production hubs in Lüderitz, Namibia, to Boegoebaai and Saldanha Bay in South Africa. The plan also includes a potential eastern corridor extension to Gauteng, a major industrial center. This infrastructure is not merely a pipeline; it's a strategic asset designed to anchor the region's position in the global hydrogen value chain.

A significant portion of the N$30 million budget will be provided by key strategic partners: Climate Fund Managers and Dutch gas infrastructure giant Gasunie, with additional financial and technical support from the European Union. Their involvement underscores a strong vote of confidence in the project's long-term returns and its alignment with global energy transition goals.



Strategic Framework and Infrastructure Development

The pipeline is a core component of Namibia's ambitious Green Hydrogen Programme, which is systematically building the necessary ecosystem to attract and sustain large-scale investment. A parallel initiative has secured N$3.6 million from Germany's Federal Ministry for Economic Affairs and Climate Action (BMWK) to commission a study on best practices for common-user infrastructure. This study, due to be completed by June 2025, will guide integrated planning for critical assets like desalination plants, ports, and rail networks, ensuring an efficient and cost-effective operational environment for investors.

In a move to secure future export markets, NamPort has executed Memoranda of Understanding with the Port of Rotterdam and the Port of Antwerp-Bruges. These agreements are designed to facilitate the handling and export of green ammonia and other alternative fuels, providing a clear path to market for project developers. The collaboration includes plans for a dedicated terminal at Angra Point in Lüderitz and expansion of the North Port in Walvis Bay.

Market Positioning and Investment Outlook

The project is built on a foundation of political support, with the partnership first proposed by South African President Cyril Ramaphosa in 2020. The current momentum, reinforced by Namibian Government, positions this venture as a potential flagship for the African Continental Free Trade Area (AfCFTA) agreement.

While the full development of the 2,500km pipeline is projected to require an estimated **N$352.6 billion (€20 billion)**, the phased approach and early-stage investments are crucial for mitigating risk and attracting private capital. Namibia's strategic location, world-class renewable energy resources, and strong governmental backing create a compelling investment proposition. By providing critical infrastructure and a clear regulatory framework, the Namibia Green Hydrogen Programme (NGH2P) is actively reducing the barrier to entry for international investors, paving the way for a new, transformative industry in Southern Africa.

LAUNCHED: *The Official Launch of the Advanced Solar PV Training Suite.*

NEI Lights the Way to a Sustainable Energy Era for Namibia

As Namibia continues to position itself as a formidable frontrunner in the green energy transition, the Namibia Energy Institute (NEI) at the Namibia University of Science and Technology (NUST) is spearheading initiatives that are shaping the country's energy future. Through building local expertise, fostering innovation, and strengthening community participation, NEI is equipping Namibia—across academia and industry—for a just and inclusive energy transition.

Established through a Cabinet directive by the Ministry of Industries, Mines and Energy (MIME) and hosted at NUST, NEI operates through four specialised centres with a focus on key energy pillars: Renewable Energy and Energy Efficiency, Electricity Supply, Oil and Gas, and Nuclear Energy. Its mission is clear: to empower Namibia, particularly its youth, with the technical expertise and advanced research skills required to thrive in a rapidly evolving energy industry and to secure a sustainable, competitive energy sector.

Building Capacity for the Green Energy Workforce

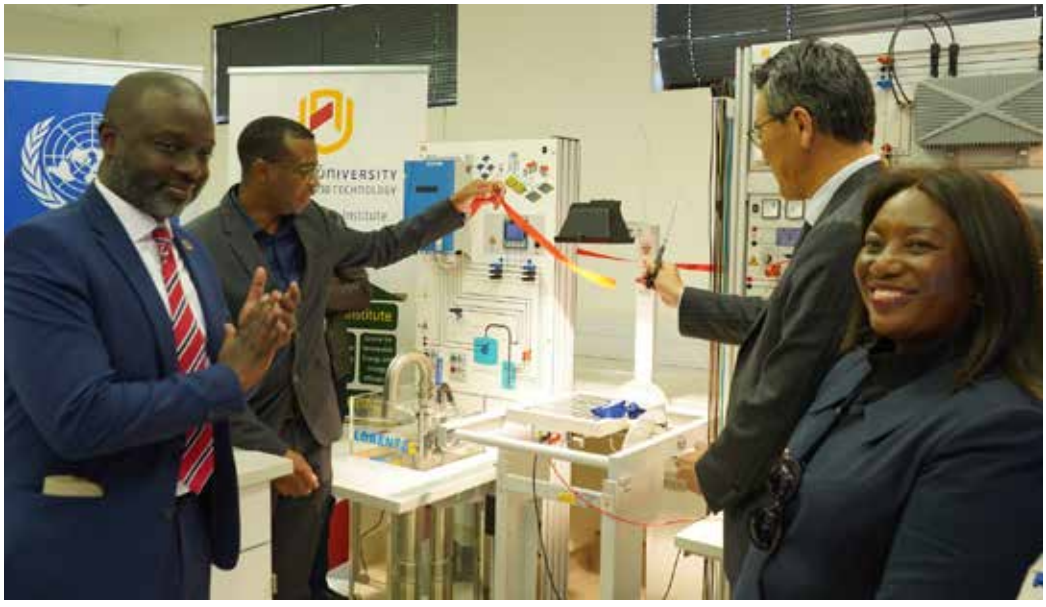
At the heart of NEI's work is training and capacity development — ensuring that Namibia has the workforce needed to deliver on its energy ambitions.

A landmark milestone has been the development of the Bachelor of Technical and Vocational Education and Training (TVET) in Solar Energy Technologies, a four-year programme that blends technical expertise in solar energy technologies with pedagogical training. This ensures that Namibia not only trains technicians but also equips trainers who can scale skills development nationwide. The NEI has been a key partner with Department of TVET at NUST in developing this programme, which is at an advanced stage toward achieving accreditation.

Beyond academia, NEI invests in hands-on training facilities:

- The Advanced Solar PV Training Suite, inaugurated in June 2025 with support from UNDP and Japan, provides students with cutting-edge practical skills in solar technologies.

- The Solar PV-Powered Living Lab at Mix Settlement, established under the Erasmus+ SmartVille project, brings renewable electricity and entrepreneurship training to disadvantaged communities on the outskirt of Windhoek, demonstrating how the energy transition can uplift livelihoods.



CUTTING EDGE: *The Unveiling of the Advanced Solar PV Training Suite.*

Green Hydrogen as a Strategic Catalyst for Green Industrialisation

While the energy transition predominantly leverages solar and wind energy resources, and efficiency measures, Green Hydrogen has emerged as a cornerstone of Namibia's future energy economy. NEI and NUST are ensuring that capacity in this sector keeps pace with opportunity.

- In May 2025, NEI joined the National Task Force on Green Hydrogen for a study tour to the Netherlands, resulting in a comprehensive education and training strategy to prepare Namibia's workforce for this new sector.
- In July 2025, NEI hosted the Korea Institute of Energy Research (KIER), paving the way for a Memorandum of Understanding to advance research collaboration and train-the-trainer initiatives in Green Hydrogen technologies.
- With UNDP, NEI is tasked with leading the establishment of the Namibia Centre of Excellence for Green Energy Innovation (N-CoEGEI) at NUST, designed to incubate skills and start-ups across renewable energy and green hydrogen value chains.

Through these efforts, Green Hydrogen is firmly embedded within the broader green energy transition — not as a standalone initiative, but as a driver of innovation, industrialisation, and job creation.

Training Communities and Industry

A just transition means ensuring that technical experts and communities benefit together. NEI has expanded its training reach to industry practitioners and rural communities alike:

- The Southern African Solar Thermal Training and Demonstration Initiative (SOLTRAIN+) Program—a flagship program at the NEI—has provided training on solar thermal systems to a total of 309 beneficiaries, comprising developers, engineers, technician, artisans, and students, thereby strengthening Namibia's renewable heating sector. In addition to training, the SOLTRAIN+ program has enabled the subsidised installation of thermosyphon systems, with a total collector area of 230 m^2 to date.
- In Puros, NEI trained over 10 NORED staff on minigrid operations and about 40 community members on productive electricity use, laying the foundation for shared ownership of Namibia's off-grid future.

TARGETTED TRAINING: *Participants of the Technical Training on Solar PV-Powered Minigrid Operation at the NORED Headquarters, Ondangwa*

- With partners such as the Technische Hochschule Ulm (THU)—a Germany-based university, NEI is developing a targeted training programme for certified solar PV installers to ensure adherence to technical standards across the industry.

Research, Partnerships, and Global Engagement

NEI's contribution goes beyond training: it is generating new knowledge and shaping international partnerships.

- Collaborative research on energy data analytics—a critical element in creating smart grids—has been established with the University of Strathclyde (UK) and Erongo RED (a regional electricity distributor for Erongo Region). Initial findings have already been published and presented at the International Conference on Emerging Trends in Networks and Computer Communications (ETNCC) 2025.
- NEI staff and NUST students actively participate in global energy-focused forums, such as the SADC Sustainable Energy Week and the International Solar Technologies & Hybrid Minigrids Conference.
- Partnerships with international industry leaders, including Yinson Production (focused on carbon capture research) and NamPower (advancing AI and grid innovation), further position NEI at the intersection of research, technology, and applied training.

Upcoming Events

From 23–26 September 2025, NEI will host the SOLTRAIN+ & IEA SHC Task 69 Joint Meeting to take place at NUST, Windhoek. The gathering will bring together international experts to discuss solar heating technologies, standards, certification, and gender mainstreaming in the solar industry. The programme will also feature technical tours and hands-on workshops, further positioning Namibia as a regional hub for solar innovation and knowledge exchange.

Powering Namibia's Green Energy Transition

NEI and NUST's efforts illustrate that Namibia's green energy transition is not just about technologies — it is about people, skills, and inclusive growth. By embedding Green Hydrogen within the wider framework of renewable energy innovation, NEI ensures that Namibia develops a resilient, skilled, and future-ready workforce.

As the world gathers for the Global African Green Hydrogen Summit, Namibia is already proving that investment in knowledge and capacity is the most powerful fuel for a sustainable future.

STAY CONNECTED:

- **Website:** https://nei.nust.na/home
- **Email:** nei@nust.na

PIONEERING: *The Cleanergy Solutions Namibia pilot facility at Walvis Bay, referred to as Hydrogen Dune, is Namibia's first complete hydrogen production and refuelling facility.*

Cleanergy Eyes Gigantic Industrial Green Ammonia Site at Arandis

Cleanergy Solutions Namibia has taken the lead in developing green hydrogen and green ammonia facilities in the Erongo region.

Leveraging its strategic partnership - the expertise in renewable energy of Ohlthaver & List and the extensive knowledge in hydrogen and ammonia of CMB.TECH, Cleanergy is dedicated to pioneering sustainable solutions that will generate significant, measurable value for Namibia and its people.

Cleanergy Solutions Namibia announced its plans to construct a N$50 billion large-scale green hydrogen and ammonia production facility at Arandis. The facility, to be developed on 2 400 hectares of land, will host a 900 megawatts solar power and 500 megawatts of electrolyser capacity, producing an estimated 200 000 tonnes of ammonia annually.

Arandis Town Council CEO Stanley Norris said that council has approved the land and strategic framework for the hydrogen plant and anticipates significant economic and industrial transformation.

> *This means a shift from light to heavy industry for Arandis, powered primarily by solar energy. We are finalising contracts in phased developments and have already received N$20 million to service one of our residential extensions to support incoming workers and businesses." -Stanley Norris*

"This means a shift from light to heavy industry for Arandis, powered primarily by solar energy. We are finalising contracts in phased developments and have already received N$20 million to service one of our residential extensions to support incoming workers and businesses," Norris said.

"There will be up-scaling from industry to heavy industry. The primary commodity that will be used to upscale is sunlight because Arandis has solar radiation most of the year and for a hybrid application - that is solar and other energy - Arandis is conducive as it can produce about 92% energy production," said Norris.

Common user infrastructure will include pipelines and storage tanks for water, hydrogen, ammonia and other deviates. This covers port, railway, road and power infrastructure and may include handling and storage facilities.

The Arandis Town Council approved the project in 2024. The construction phase of the project is expected to commence in the fourth quarter of 2026, while operations will begin in 2030.

Addressing a high-level stakeholder's conference at Walvis Bay, Deputy Minister of Urban and Rural Development, Evelyn Nawases-Taeyele, praised Namibia's progress towards establishing itself as a hydrogen pioneer through O&L's partnership with Belgian firm CMB.TECH.

The collaboration has already seen the launch of the Cleanergy Solutions' pilot hydrogen project outside Walvis Bay focusing on hydrogen production for maritime transport applications. The pilot site, referred to as Hydrogen Dune, is Namibia's first complete hydrogen production and refuelling facility, valued at approximately N$600 million, with partial funding from the German Ministry for Education and Research.

The Arandis ammonia bunkering terminal will yield 700 jobs which will include 85 permanent staff.

GREEN ENERGY: The Cleanergy facility uses solar energy and battery storage to produce hydrogen through electrolysis, and includes storage tanks, a mobile refueller, and Namibia's first hydrogen academy.

The Deputy Minister said that the project will also be crucial for developing technical skills necessary for the future industries.

"It is my strong belief that together, we have a great chance to build a legacy that resonates through generations to come," she said.

Cleanergy Solutions Managing Director, Eike Krafft, said the Walvis Bay facility uses solar energy and battery storage to produce hydrogen through electrolysis, and includes storage tanks, a mobile refueller, and Namibia's first hydrogen academy.

"We are already testing a variety of applications, including hydrogen-powered trucks, generators, tractors, and a soon-to-arrive hydrogen locomotive. We are also developing a multi-purpose port utility vessel and a 55 000-tonne ammonia storage terminal at Walvis Bay," Krafft said.

Cleanergy Solutions Namibia envisions a future, within the next decade, where Namibia stands as a global leader in clean energy innovation, with green hydrogen production at its core.

Namibia's clean energy landscape will be characterised by state-of-the-art facilities, widespread carbon emissions reduction and robust economic prosperity, driven by the company's commitment to excellence, innovation, and strategic partnerships. This transformation will not only empower Namibians but also inspire the world to accelerate its transition towards sustainable energy sources.

GREEN SKILLS UPGRADE: *Industry stakeholders who attended the launch of the European Union (EU) supported project by the Namibian Training Authority aimed at enhancing vocational education and training (TVET), to meet the skills demands of Namibia's emerging green economy.*

Namibian Training Authority to Improve TVET Offer Related to Green Transition

The European Union (EU) is supporting the Namibian Training Authority (NTA) and other key stakeholders in implementing a project that will focus on enhancing vocational education and training (TVET), to meet the skills demands of Namibia's emerging green economy.

The intervention will support curriculum updates, capacity-building for trainers, and the establishment of industry partnerships to ensure that training aligns with labor market needs.

NEW COMPETENCY STANDARDS

This project aims to develop at least five new competency standards related to green energy registered under Namibia's National Qualifications Framework (NQF). The goal is to revise TVET curricula to align with the green transition and job market needs and to develop a national policy for micro-credentials to offer flexible, industry-relevant training.

The project further foresees the establishment of a National Power-to-X (PtX) Skills Task Force to oversee skills development in hydrogen and renewable energy sectors. At least four Memoranda of Understanding (MoUs) are to be signed between private sector actors and TVET institutions to facilitate industry-aligned training programmes.

Through the project, employment opportunities in renewable energy, hydrogen and energy efficiency will be identified to develop an industry engagement strategy to foster continuous alignment between training programs and labor market demands. The project will conduct a feasibility study on establishing a specialized TVET hub for green hydrogen and renewable energy training.

Project implementers will design structured apprenticeships and on-the-job training programs, targeting at least 100 apprentices in green economy trades.

The NTA project will recommend a framework for the alignment of existing qualifications with the needs of the emerging labour market (with a particular focus on the green energy value chain).

It will facilitate the development of qualifications; training programmes; teaching and learning materials; and assessment materials.

The training authority will work towards mainstreaming of gender, entrepreneurship, business skills and transferable skills (21st Century Skills) in training programmes.

ESTABLISHMENT OF TRAINING HUBS

Training hubs will be established in the Karas, Hardap, and

PTX SKILLS: *The TVET project further foresees the establishment of a National Power-to-X (PtX) Skills Task Force to oversee skills development in hydrogen and renewable energy sectors.*

Erongo regions, while the scope of the training hub in the north will be expanded in relation to green energy sector.

TVET instructors will be upskilled in modern teaching methods, the use of digital tools, and updated subject matter, while instructors/lecturers on the Renewable Energy and Green Hydrogen sector will also be trained.

The NTA will develop comprehensive teaching materials, including guides, e-learning modules, and case studies, to support instructors, ensuring consistency and impact in training delivery.

Ian Dupont, Chargé d'Affaires of the EU Delegation in Namibia, said Namibia successfully positioned itself as a frontrunner in Green Hydrogen, with several large-scale potential investment projects in the pipeline, representing over €20 billion in projected investment, such as HyIron, Cleanergy, Hyphen, Zhero, HDF, Elof Hanssen, and Daures.

The official said the EU's support to Namibia was comprehensive: from capacity building and financing to infrastructure, CSO engagement, and skills development.

"We are working together in renewable energy, green industrialisation, and even green maritime corridors. At the heart of this transition lies skills development for Namibians. Identifying skills needs across the green industrialisation and enhancing Namibia's TVET system are central pillars of our support," said Dupont.

"We will strengthen the NTA's coordination role in skills development across the green industrialisation. We want to ensure that resources are used effectively, avoid duplication, and align training programmes with the demands of the labour market," he said.

GLOBAL LEADER

Namibia's Green Hydrogen and Derivatives Strategy (2022) provides a clear national vision. It positions Namibia as a global leader, leveraging its renewable energy potential and strategic location to attract investment, create jobs, and boost local manufacturing.

However, this vision depends on a robust vocational training system, led by the NTA under the Ministry of Education.

The PRo-VET project, co-funded by the EU with GIZ, has significantly strengthened the vocational training in Namibia. A flagship achievement was the creation of the Northern Training Hub, comprising the Nakayale, Eenhana, and Valombola Vocational Training Centres. These centres of excellence offer young Namibians access to skills development, especially in sectors like agriculture, construction, and renewable energy. It has boosted employability and supported regional development.

The focus has now shifted to the Southern regions of the country where a new Energy Training Hub is being established.

Dupont said for Namibia to unlock the full economic potential of green industrialisation, a skilled workforce was required.

"This project is part of the EU – Namibia partnership that works: a commitment to help young Namibians seize the opportunities in their country. Let's make it work—together," said Dupont.

Research and Development

Aiding Green Hydrogen Economy in Namibia

By Dr Zivayi Chiguvare

Green hydrogen has been internationally recognised as one fuel that could replace fossil fuels in the long run, because it can do most of what these fuels can.

Hydrogen can burn in oxygen, releasing a lot of heat (3 times more than that released by petrol, by mass), but exhausting only water. Hydrogen is the lightest element, so it has the smallest density, and a small mass will occupy a large volume. To store, or transport hydrogen economically, it must be compressed, or it must be combined with other elements like nitrogen to make ammonia, which is easier to transport as a liquid.

Ammonia, an energy carrier, also has many uses in the chemical industry, potentially providing new opportunities for countries like Namibia, in the production of fertilisers and detergents.

It is important to note that fossil fuels are nothing but hydrogen combined with carbon and a bit of oxygen. Ignition of fossil fuels supplies just sufficient energy to break the chemical bonds between these elements. Supply of oxygen allows the recombination of with hydrogen, and with carbon separately, releasing a lot of energy, but the exhaust includes carbon dioxide (CO2) and water. The CO2 that has been released by such combustion of fossil fuels since the beginning of the industrial revolution has increased to levels that plants and other natural processes are not able to absorb it to maintain equilibrium.

Unfortunately, CO2 remains and continues to increase in the atmosphere, and it absorbs heat from the sun then releases it into the atmosphere. Some of the heat is radiated away from the earth-atmosphere system, but some is retained, thus increasing the temperature – a phenomenon defined as global warming.

GLOBAL WARMING

Global warming threatens planet earth's resilience to maintain the natural cycles as they have occurred over millennia. The carbon cycle, hydrogen cycle, oxygen cycle, and the water cycle are then severely affected, and unusual temperature gradients have been linked to global warming, causing climate change. The livelihood of mankind is affected differently in several regions of the earth, for instance the increased number and severity of wildfires, flooding, severe droughts that disturb the ecosystem have been attributed to extremely high temperatures.

Continuing with life-as-usual scenario is not a viable solution, but because humans are so used to the ease of doing their daily work through mechanisation, most of which uses fossil fuels for security of food availability and thermal comfort, the use of fossil fuels is bound to increase.

Green hydrogen, produced by harnessing solar and/or wind energy through energy conversion technologies like

SUSTAINABLE FARMING: Dr Zivayi Chiguvare inside a greenhouse with tomato plants at the Daures Green Hydrogen Village.

photovoltaic cells and wind turbines, respectively, to produce electricity that is then used to electrolyse water, could contribute towards reduction of fossil fuels use, especially in hard to abate sectors such as mobility. Electricity from renewable energy can be used to break the water molecule, H2O, into two atoms of hydrogen, and one of oxygen.

Since the Hydrogen ions are positively charged, they will be attracted by the negative electrode (cathode), while the negatively charged oxygen ions are attracted by the positive electrode (anode).

In Namibia, a water scarce country, the water will mostly be sourced from the Atlantic Ocean, and it must be desalinated and deionised before it can be used in electrolysis. Fortunately, Namibia has cloudless skies for more than 300 days in a year, with insolation surpassing 5kWh/m2 per day, and has vast tracts of open land that could be used for large photovoltaic fields.

BRINE OPPORTUNITIES

Copious amounts of brine from desalination of sea or ground water could become a huge resource for extraction of minerals, and the large amounts of oxygen from electrolysis, usually released into the atmosphere, can find use in the industry and in the health sector. These sectors can however not take-up all the oxygen, and it is not yet clear how increase of oxygen in the atmosphere due to large scale electrolysis of water worldwide, will affect the earth-atmosphere equilibrium.

The bold political decision by the Namibian Government to develop a Green Hydrogen Economy has generated a lot of interest locally and internationally. Sustainable and local, energy production and supply systems can catalyse the industrialisation of developing nations, such as Namibia.

The Green Hydrogen (GH2) Strategy of Namibia aims to produce 10 to 15 million tons of hydrogen annually by 2050. Such production requires massive infrastructure, financial and human resource capital, as well as favourable legislation that protects investments and secure long term offtake markets for the hydrogen.

The government is not venturing into green hydrogen blindly and the Green Hydrogen Research Institute (NGHRI), hosted at the University of Namibia, has been established to ensure that all steps taken are carefully researched and scientifically advised. Research by the NGHRI spans the whole value chain from renewable energy resource identification and quantification, hydrogen production processes, starting from desalination and deionising the water for electrolysis to storage and distribution of the hydrogen, and local and international usage of the hydrogen and its derivatives.

The NGHRI also researches on materials for electrodes used in electrolysers and fuel cells, as well as materials for distribution pipelines and storage tanks in terms of compatibility with hydrogen moving at high velocities and under pressure.

HYDROGEN USES

Uses of hydrogen include use as a fuel for heating, so homes in cold countries such as those in Europe could be warmed by burning hydrogen. It can be used in hybrid diesel combustion engines, as is already happening for heavy trucks, tractors, and ships.

If passed through a fuel cell, the recombination of hydrogen and oxygen can reproduce electricity, so hydrogen can be an energy storage medium, allowing baseload electricity to be supplied from intermittent generators like photovoltaics. By deliberately oversizing the photovoltaic field, more hydrogen can be produced during the day, and when the sun has set, electricity can be retrieved through fuel cells, allowing a continuous supply. A growing market of electric vehicles to abate the emission of carbon dioxide into the atmosphere, is good motivation for hydrogen use for mobility.

Namibia has taken the right decision at the right moment in development, and it stands to boost its economy through large scale production of green hydrogen – an environmentally friendly fuel.

The government is not venturing into green hydrogen blindly and the Green Hydrogen Research Institute (NGHRI), hosted at the University of Namibia

Dr Zivayi Chiguvare is the Acting Director of the Namibia Green Hydrogen Research Institute at the University of Namibia.

NGHRI
Namibia Green Hydrogen Research Institute

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Empowering Namibia's Future Through Innovation-Driven Learning

Advancing Education for Inclusive Green Growth in Namibia

By Irish Goroh

Namibia is at a critical juncture. With a population of 3.02 million, and 71.1% under the age of 35, the country faces a demographic dividend that remains largely untapped.

Youth unemployment stands at 44.4%, and despite a growing number of graduates, industry reports a persistent skills mismatch. Meanwhile, emerging sectors—including energy (oil & gas, renewable energy, biomass), agriculture, and climate-smart resource management—are expanding rapidly, demanding a workforce equipped to innovate and lead. Yet, energy generation continues to fall short of peak demand (>600 MW), constraining industrial growth and sustainability.

A Solution-Oriented Education Ecosystem

The Namibia Centre of Excellence for Energy Innovation, a partnership between the United Nations Development Programme (UNDP) and the Namibia University of Science and Technology (NUST), through the Namibia Energy Institute (NEI), proposes a bold shift: moving beyond traditional, time-bound education models to a responsive, problem-solving ecosystem. This approach focuses on equipping learners with the skills, tools, and networks needed to deliver real-world solutions in high-impact sectors. Aligned with Priority 2 of Namibia's NDP6, the UN Sustainable Development Cooperation Framework (UNSDCF), and NUST's Green Vision 2030, the Centre aims to contribute to:

- **Economic recovery and transformation**: Driving economic recovery and transformation by keeping pace with rapidly evolving energy industry demands, through strengthened skills and workforce competencies that enhance local competitiveness in the sector

- **Decent jobs and sustainable livelihoods**, ensuring students are not only graduates but are empowered through access to infrastructure, technology, and a supportive co-design environment to create employment opportunities for themselves and others.

- **Reduced inequalities for youth and marginalized communities** by delivering inclusive energy solutions that address local challenges and unlock emerging opportunities, ensuring that the Just Energy Transition is shaped by all and benefits all — with equitable participation supported through access to infrastructure, technology, and equipment that enable them to test and scale their ideas within energy value chains.

Proposed Interventions

The Centre of Excellence for Energy Innovation, a national hub for applied research, technical training, and entrepreneurship in green energy, with integration into mining, water, and decarbonisation initiatives, will offer hands-on learning, mentorship, and infrastructure for prototyping and testing—for both students and industry.

Curriculum Innovation: Modular, interdisciplinary programs co-developed with industry to address sector-specific challenges.

Private Sector Engagement: Strong partnerships to create pathways for employment and industry development, ensuring relevance and long-term impact. Endowments and blended financing will support continuity, scale, and sustainability.

The vision is to strengthen connections between academia, industry, the public sector, and communities—transforming Namibia's education system into a dynamic, solution-oriented ecosystem. By attracting investment towards promising local solutions—while rigorously testing and verifying their scalability and impact—this transformation aims to unlock a pipeline of market-ready innovations, expand value chains, and position the country as a regional leader in inclusive green growth and energy innovation.

Irish Goroh currently serves as Portfolio Lead for the Sustainable Inclusive Green Growth portfolio at UNDP Namibia. She oversees a multidisciplinary team delivering transformative projects in food systems, health, climate resilience, and green growth.

Bridging Continents, Building Capacity:

RES4Africa and Southern Africa's Energy

RES4Africa Foundation has established itself as a leading platform for scaling-up sustainable electrification and renewable energy across the continent.

With the support of international utilities, technology providers, financial institutions, and academia, the Foundation acts as a bridge between Africa and Europe, promoting enabling policies, advancing market readiness, and strengthening local skills and institutions. Its approach is rooted in the belief that Africa's energy transition must be led by African actors, equipped with the tools, expertise, and partnerships to build sustainable and inclusive power systems.

Southern Africa is central to this mission. The region accounts for almost a quarter of Africa's GDP while representing only 16% of its population, highlighting its economic significance and its potential to lead the continent's transition. Despite abundant solar, wind, and hydropower resources, the regional energy system remains overly dependent on coal, with grid constraints and supply insecurity holding back both growth and industrialisation. Climate shocks have further exposed these vulnerabilities, affecting millions of lives and livelihoods.

RES4Africa's latest analysis underscores that overcoming these challenges requires decisive reforms, stronger cross-border interconnections, and investments in human capital to ensure that renewable potential is translated into long-term development.

To address these needs, RES4Africa's Southern Africa Regional Programme has made capacity building its cornerstone. In 2025, the Foundation launched the pilot edition of the Southern Africa Executive School, a high-level managerial training aimed at reinforcing leadership and decision-making skills for the energy transition in the SADC countries. Complementing this initiative at vocational level, since 2021the Re-Skilling Lab supports the region's remote and coal-dependent communities' transition to a sustainable economy by enabling vocational education and training institutions (TVET) to provide renewable energy-based technical skills and connect learners with market opportunities.

PANEL DISCUSSION: *Growing Renewable Energy Technologies in Namibia event in Windhoek, November 5th 2024.*

RE-SKILLING: *Nkangala TVET College students successfully complete a six-month internship at Enel Green Power solar plants through the RES4Africa Foundation's Re-skilling Lab initiative, South Africa.*

Alongside these, RES4Africa develops technical studies that equip stakeholders with evidence-based solutions for renewable integration, ensuring that action is guided by robust knowledge. Theseinitiatives target different layers of the energy system, creating a comprehensive ecosystem of learning and problem-solving.

Particularly relevant topics of anaysis, covered by thematic programs, include :

- The topic of integrating large-scale variable renewable energy (VRE) systems into the electricity grid as it is becoming increasingly urgent for more developed Afri-

can countries. The Grids4Africa Program is focused on the development of African electricity networks as an essential factor to achieve universal access to energy, improving the quality of service and increasingly integrating renewable sources into energy systems.

- Green hydrogen, produced through electrolysers powered by renewable sources, can help reduce emissions from industrial sectors that are difficult to electrify (such as transportation and heavy industries). RES4Africa Foundation is committed to support the development of green hydrogen in Africa through a dedicated Working Group comprised of experts from the Foundation's member network, aimed at promoting and deepening knowledge, technological expertise, and training in this field.

This work will converge in Windhoek on 9 September 2025, when RES4Africa hosts a High-Level Masterclass, *Market design and financing tools for a sustainable deployment of Green Hydrogen*, in partnership with the European Investment Bank and in the framework of the Global African Hydrogen Summit, under the patronage of the Government of Namibia.

GREEN HYDROGEN PIONEER

Namibia is positioning itself as a pioneer in green hydrogen, drawing on its exceptional solar and wind resources to build an industry with continental and global reach. The Masterclass will equip policymakers, regulators, and professionals with deeper knowledge on renewable integration and hydrogen development, connecting technical expertise with the broader conversations on investment and policy taking place at the Summit.

For RES4Africa, green hydrogen is an important component of a wider electrification strategy: it depends on securing sufficient renewable generation capacity, requires a clear and competitive business model, and must be embedded in a strong regulatory and industrial framework to deliver real benefits. Approached in this way, hydrogen can complement other clean energy solutions, supporting industrialisation, exports, and resilience in a way that strengthens rather than diverts the region's transition. Namibia's ambition to develop this sector makes it a key testing ground for this integrated approach, where renewables, policy, investment, and capacity building converge.

Through its Southern Africa Regional Programme, RES4Africa is helping to ensure that this vision becomes reality. By reinforcing skills at managerial and technical levels, fostering dialogue between institutions and markets, and embedding green hydrogen within a broader electrification strategy, the Foundation is supporting Namibia and the wider region to turn their natural potential into lasting prosperity.

PRACTICAL WORK: *Re-skilling Lab Pilot Phase 1.*

EXECUTIVES: *Southern Africa Executive School Pilot at Pretoria University, July 2025.*

WINNERS: GREEN's *Alexandra Hattingh, Tsakani Mashila, Amanda Dzivhani and Letlhogonolo "McDonald" Sekoa receive their award from Nicola Cencelli (left), Solar Business Development Lead at Juwi South Africa, the sponsors of the Empowerment Through Skills Development category.*

GREEN Solar Academy Wins

SAPVIA Award for Skills Development

GREEN Solar Academy was recently honoured with the Empowerment Through Skills Development Award at the inaugural 2025 SAPVIA Awards, recognising its sustained and measurable impact in building technical capacity across the solar PV sector.

The SAPVIA Awards celebrate significant contributions of SAPVIA members in solar PV, from project development and quality installation to research, manufacturing, and the promotion of diversity. The awards aim to highlight and inspire excellence, innovation, inclusivity, and sustainable growth within the solar energy landscape.

"Everyone is an industry player and we are all working towards the same goal - the just energy transition - so the fact that SAPVIA recognises that skills development is an essential part of that, feels absolutely amazing!" said Amanda Dzivhani, COO of GREEN Solar Academy.

"We put everything we have into making sure that we provide quality training. That means keeping our training material up to date, working with trainers who are active in the solar field and making sure our content reflects what's really happening on the ground," she said.

A track record backed by evidence

The Empowerment Through Skills Development category specifically acknowledges organisations that have demonstrated exceptional commitment to building workforce capabilities across the solar PV value chain. Judging criteria included the number of trained and certified individuals, the level of inclusivity, and the extent of partnership and collaboration, supported by verifiable documentation.

Since 2013 (initially as maxx-solar academy and since 2019 as GREEN), the academy has trained nearly 10 000 individuals across South Africa, Namibia and neighbouring countries. From SuperSolarSchool bootcamps to youth development projects and advanced compliance courses, GREEN has offered a modular, accredited training model that meets a broad range of learner needs for everyone from unemployed youth to professional engineers.

+27 (0) 10 012 6552 alex@solar-training.org

Putting it into numbers

Below are some achievements that demonstrate how GREEN has translated its mission into action across the solar value chain:

- 1,200+ PV GreenCard-accredited installers delivered
- Academies in five South African cities and centres in Namibia, Botswana, Angola, Zimbabwe, Mozambique, and Ghana
- CPD-accredited training recognised by SAIEE and ECSA
- Dedicated youth programmes in partnership with organisations like KP Cares, YES for Youth, Life Choices, and Great North Business Incubator
- A growing alumni support network through the #GREENetwork.

Recent demographic data further reflects the reach and impact of

GREEN's work:

- 39% of alumni are women
- Nearly 50% are aged 18–35
- Over 65% were unemployed or new to the sector at the time of training. Many are now active in the industry as installers, entrepreneurs, and mentors to others.

GREEN's achievements have been made possible through collaboration, particularly with technology partners who understand that product knowledge and general solar competence go hand in hand.

The ongoing collaboration between private companies, training providers and SAPVIA as industry associations has sparked a mindshift among installers, manufacturers and other industry players, reinforcing that high-quality, compliant solar work begins with informed, well-trained individuals.

Committed to continued impact

"We stay closely connected to the industry. Our technology partners support us with insights and product developments, and as SAPVIA members, we hear about changes in regulations and standards as they happen. And we share that knowledge with our network, so they understand what's expected of them now, not last year," said Dzivhani.

REIAoN
Renewable Energy Industry Association of Namibia
www.reiaon.com.na

Who:
- Installers
- Suppliers
- Consultants
- Contractors
- IPPs
- Financiers
- Trainers
- Students

What:
- Solar PV
- Wind
- Biomass
- Electric Mobility
- Green Hydrogen

Mission: To provide a forum for Namibian businesses in the Renewable Energy and Energy Efficiency sector to set technical and ethical standards and to be a voice of the Renewable Energy private sector at large.

Vision: To assist Namibia in becoming an Energy sufficient hub, with an adequate supply of green energy from trustworthy and reliable organizations.

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