Republic of Namibia

Namibia.

Green Hydrogen and Derivatives Strategy

GH2 NAMIBIA

HARAMBEE PROSPERITY PLAN II
2021 – 2025

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Glossary.

CBNRM	Community-Based Natural Resource Management Program
CO2	Carbon dioxide
CUI	Common-use infrastructure
DAC	Direct Air Capture
DFA	Development finance assessment
ESG	Environmental, social and governance
Gt	Gigatons
HBI	Hot Briquetted Iron
IAO	Implementation Authority Office
LCOA	Levelized cost of ammonia
LCOE	Levelized Cost of Electricity
LCOH	Levelized Cost of Hydrogen
MoU	Memorandum of understanding
Mton	Million tons
Mtpa	Million tons per annum
MW	Megawatt
NGHRI	National Green Hydrogen Research Institute
RES	Renewable energy sources
SAPP	South African Power Pool – The cooperation of the national electricity companies in Southern Africa who have created a common grid and electricity market
SASSCAL	Southern African Science Service Centre for Climate Change and Adaptive Land Management
WACC	Weighted average cost of capital

Namibia.

One of Africa's best-kept secrets

Namibia is a vast, sparsely populated and culturally diverse country that attracts visitors with its stunning geography and cultural richness. It has been politically stable since its independence in 1990 and is considered one of the most free and democratic countries in Africa. Sound economic management has reduced poverty and made Namibia an upper-middle income country.

Namibia ranks among the top countries in Africa for ease of doing business with high levels of contract security and investor protection. Its relatively deep capital markets and pension fund savings make Namibian companies attractive to local co-investors. The country's stability and democratic government are important considerations for nations looking for trusted partners with similar values to provide a diversified clean energy supply.

Foreword

The genesis of Namibia's ambition to become an industrialised nation, hails from Vision 2030, a policy paper we crafted under the tutelage of our Founding President, Dr Sam Nuyoma. The gauntlet laid down to the Cabinet of 1998 by Dr. Nujoma could be summed in this one statement which he used to describe the main purpose of the document:

"A vision that will guide us to make deliberate efforts to improve the quality of life of our people to the level of their counterparts in the developed world by the year 2030".

The pathway has since then been broken up into 5 yearly National Development Plans, which are designed to gauge progress towards the aspirations of the Vision.

During my tenure as Head of State, I sought to accelerate the achievement of the objectives of the National Development Plans and infuse an intervention with the necessary agility to effectively respond to independent intervening variables. There- in lay the foundation of the Harambee Prosperity Plans.

The 2nd Harambee Prosperity Plan's economic advancement pillar has three main objectives, including the development of complementary engines of growth. The green hydrogen strategy forms a part of this objective. It is further important to note that one of the key success drivers identified in the 2nd Harambee Prosperity Plan is collaboration between the public and private sectors, and the pursuit of economic diplomacy as a means to foster impactful partnerships both locally and internationally.

In executing the goals of HPPII and in pursuit of the aspirations encapsulated in Vision 2030, Namibia has embarked on a journey that promises to be transformative for the country and the SADC region.

Additionally, building a thriving hydrogen industry in Namibia has the potential to make a major contribution to solving the global climate crisis while also building broad-based prosperity for our citizens.

Scientists from the international panel on climate change, the international energy association and the international renewable energy association have produced a plethora of research that contains the same conclusion – there is an urgent need to accelerate our efforts to decarbonise our energy systems.

Namibia plans to respond accordingly! We therefore invite like-minded partners, public and private, to join us as we embark on an exciting and transformative journey to re-shape the global energy and industrial landscapes into a more sustainable home for all mankind.

The time to act is now!

Dr. Hage G. Geingob
PRESIDENT OF THE REPUBLIC OF NAMIBIA

Executive Summary

Green hydrogen plays a crucial role in the global decarbonization effort because of its versatility and unique ability to connect power, gas, chemicals and fuel markets, especially in hard-to-abate sectors. Under a net-zero by 2050 scenario, global demand for hydrogen and its derivatives is expected to soar from an estimated 140 mtpa of hydrogen equivalent in 2030 to 660 mtpa in 2050.

With its world-class renewable energy sources, Namibia is poised to help fill the anticipated global hydrogen demand-supply gap and lower the cost of the net-zero transition. Many countries

will not be able to meet their demand fully or cost-effectively through domestic production; instead, they will rely on energy partnerships with countries that have more abundant renewable resources to close supply gaps and lower costs. Its natural endowments put Namibia in the perfect position to contribute to the global transition to net-zero and meet its socio-economic goals in the form of broadly shared prosperity for its people.

Namibia will be able to produce hydrogen and its derivatives at highly competitive costs. It aims to export hydrogen products – ammonia, methanol, synthetic kerosene and hot- briquetted iron – which have relatively lower shipping costs. Namibia is well placed to serve markets in Europe, China, Japan and South Korea and other parts of the world.

Namibia aspires to create an at-scale green fuels industry with a production target of 10- 12 Mtpa hydrogen equivalent by 2050. To this end, it will develop three hydrogen valleys; in the southern region of Kharas, the central region including Walvis Bay port and the capital Windhoek, and the northern region of Kunene. Namibia also aspires to establish an integrated, thriving green ecosystem across Southern Africa by creating synergies in shared infrastructure, manufacturing collaboration and power exports, e.g., with South Africa, Botswana, Zambia and Angola.

Hydrogen could accelerate Namibia's socio-economic development. By 2030, the hydrogen industry could contribute up to US$6 billion to GDP, 30% more than 2030 GDP estimates

with no hydrogen industry development. This would boost labour demand by generating up to 80,000 additional jobs by 2030, and up to 600,000 by 2040. Local content manufacturing, e.g., in renewable energy components and sustainable biomass harvesting, will further enhance economic development. The Government will use the additional income to advance its socio-economic goals.

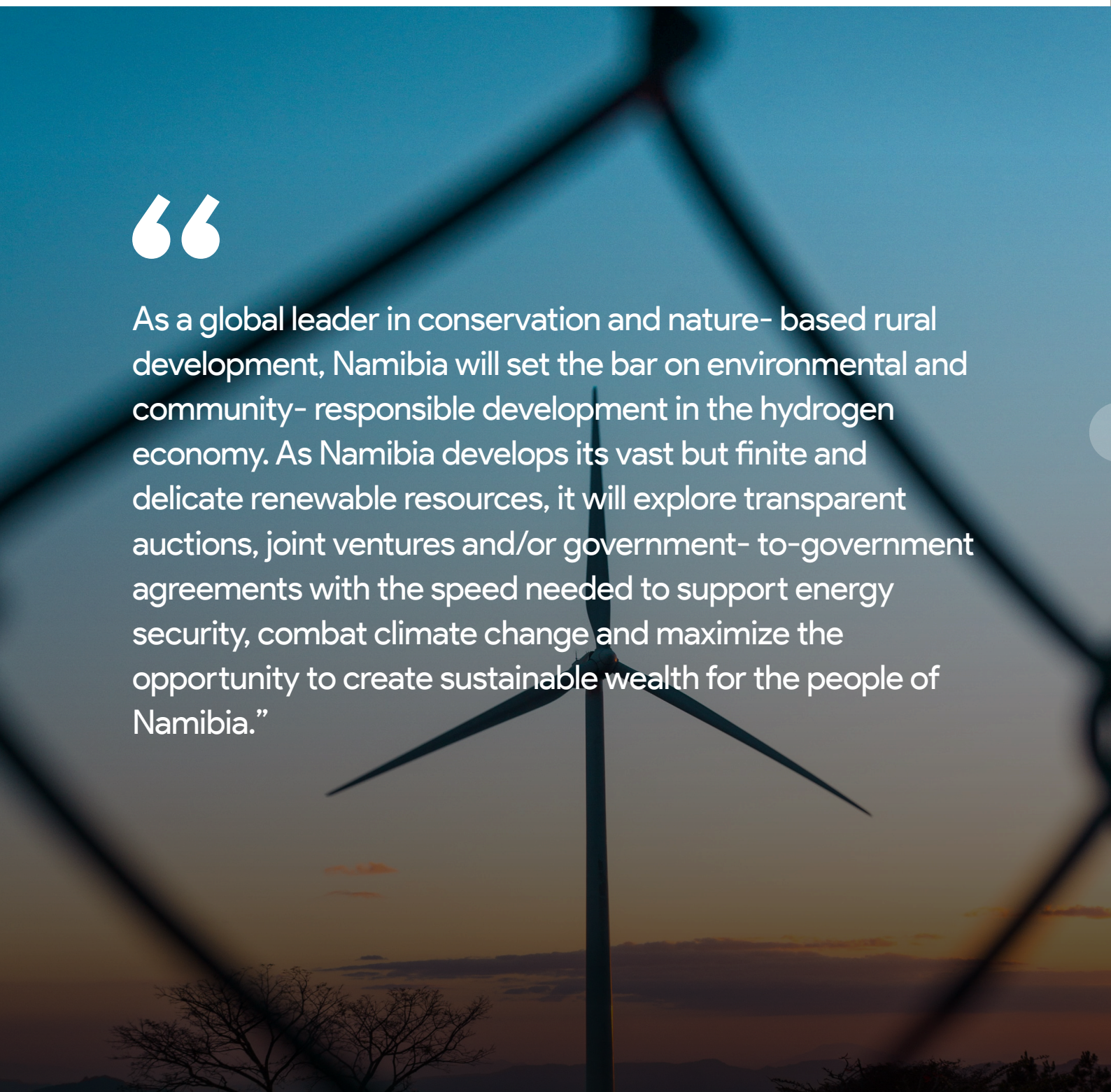
Namibia is setting the course to realize this vision and momentum is already building. A comprehensive skill development strategy based on domestic talent sourcing and attractive immigration policies will ensure sufficient labour supply. A fit-for-purpose regulatory and institutional framework will create the

right enabling environment. A modern support ecosystem, including the Implementation Authority Office and a dedicated concierge service, will create a transparent, streamlined and user-friendly process for all stakeholders in prospective hydrogen projects.

A shared infrastructure backbone established as part of the country's first large- scale green hydrogen project (Hyphen Hydrogen Energy) will enable integration of several hydrogen clusters and lower costs. Recognizing that the cost of capital is a key determinant of hydrogen and derivatives production costs, Namibia is setting up a facility to mobilize concessionary climate finance to de-risk

investments and lower the cost of capital for hydrogen projects.

Through strategic economic diplomacy, Namibia plans to forge relationships with international partners dedicated to building its hydrogen economy. It has already signed memoranda of understanding (MoUs) with Germany, Belgium, the Netherlands and Japanese companies and another is in the pipeline with the European Union.



“As a global leader in conservation and nature- based rural development, Namibia will set the bar on environmental and community- responsible development in the hydrogen economy. As Namibia develops its vast but finite and delicate renewable resources, it will explore transparent auctions, joint ventures and/or government- to-government agreements with the speed needed to support energy security, combat climate change and maximize the opportunity to create sustainable wealth for the people of Namibia.”

1.

Why Hydrogen?

Green hydrogen plays a crucial role in the global decarbonization effort

Green hydrogen plays a crucial role in the global decarbonization effort

The world is on a collision course with a climate crisis. Yet the global economy still relies heavily on fossil fuels – the main source of anthropogenic greenhouse gas emissions. These fuels are convenient because they provide high-energy density and can be transported easily over long distances.

To achieve net-zero emissions by 2050 and stabilize the climate, countries are seeking cleaner alternatives. Electricity produced from renewable energy sources – such as wind, solar and hydropower – will be critical in the bid to replace fossil fuels. However, some end-uses require an energy vector with characteristics that electrons cannot deliver.

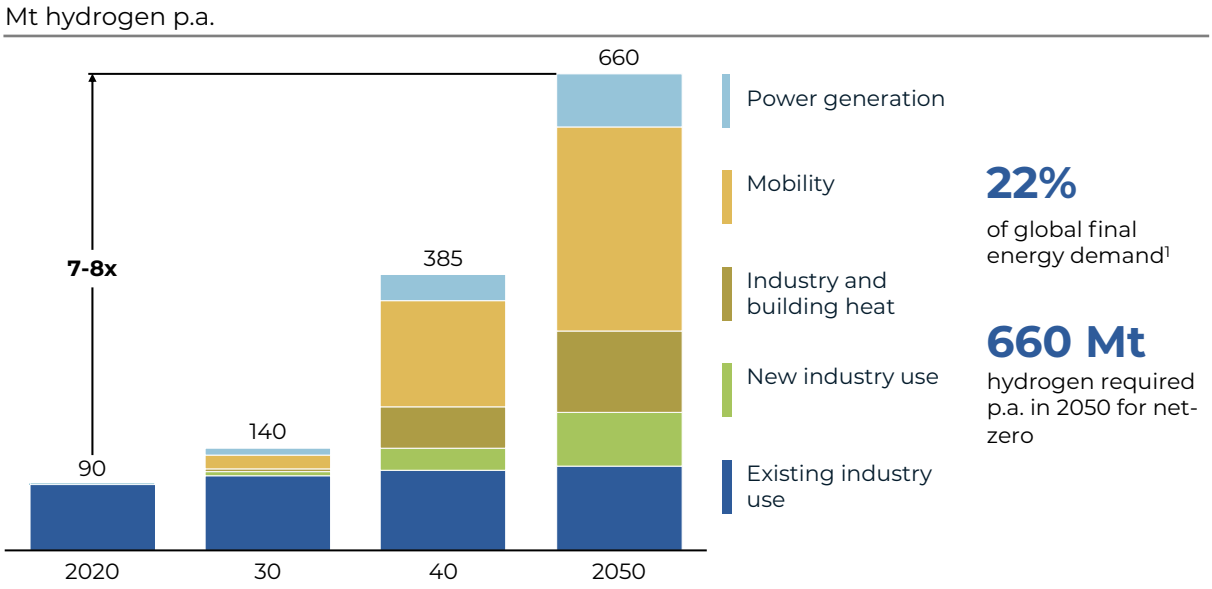
This is where zero- and low- carbon hydrogen come to the fore. Green hydrogen is versatile and can play several roles in a decarbonized energy system. It has the unique ability to connect electrical power, gas, chemical and fuel markets. It can create resilience within energy systems, e.g., by balancing peaks and lows in demand, storing power when excess low-cost energy is available and releasing it when needed.

Importantly, hydrogen could reshape and decarbonize hard-to-abate sectors (i.e., sectors that are not suitable for direct electrification), such as industrial processes (e.g., steel production, refineries), chemical products (e.g., fertilizer), and transport (e.g., aviation, maritime transport). By 2050, low carbon and green hydrogen could avert the cumulative emission of 80 gigatons (Gt) of CO22.

Under a net-zero by 2050 scenario, global demand for hydrogen and its derivatives is expected to rocket from an estimated 140 Mtpa of hydrogen equivalent in 2030 to 660 Mtpa in 2050 (Exhibit 1) – or 22% of global final energy demand3. Of this, demand for hydrogen as feedstock for ammonia, methanol and industrial applications is expected to account for about 105 Mt of clean hydrogen in 2050.

Demand for hydrogen for the production of ammonia, methanol and synthetic kerosene as clean fuels is expected to account for 110 Mt of hydrogen demand.

1. Produced from renewable energy sources or natural gas and supported by carbon capture and storage
2. Hydrogen Council and McKinsey & Company, Hydrogen for Net Zero, November, 2021, https://hydrogencouncil.com/wp-content/uploads/2021/11/Hydrogen-for-Net-Zero.pdf
3. Assumes 340 EJ final energy demand in 2050 (IEA Net Zero by 2050), considering hydrogen demand excluding power sector
4. Hydrogen Council and McKinsey & Company, Hydrogen for Net Zero, November, 2021, https://hydrogencouncil.com/wp-content/uploads/2021/11/Hydrogen-for-Net-Zero.pdf



1. IEA net-zero scenario with 340 EJ final energy demand in 2050. HHV assumed. Excluding power.

Source: Hydrogen Council and McKinsey & Company, *Hydrogen for Net Zero*, November, 2021, https://hydrogencouncil.com/wp-content/uploads/2021/11/Hydrogen-for-Net-Zero.pdf

Exhibit 1: Hydrogen end-use demand by segment in a net zero scenario

Hydrogen is already used as a feedstock in industrial applications such as ammonia and syngas for methanol production. New use cases for hydrogen in its pure form include ground transport (hydrogen-powered vehicles such as heavy-duty trucks or rail), power generation, and industrial heat. In its derivative form, hydrogen-based fuel, e.g., green ammonia and synthetic methanol, is used as marine fuel and e-kerosene is used in the aviation industry.

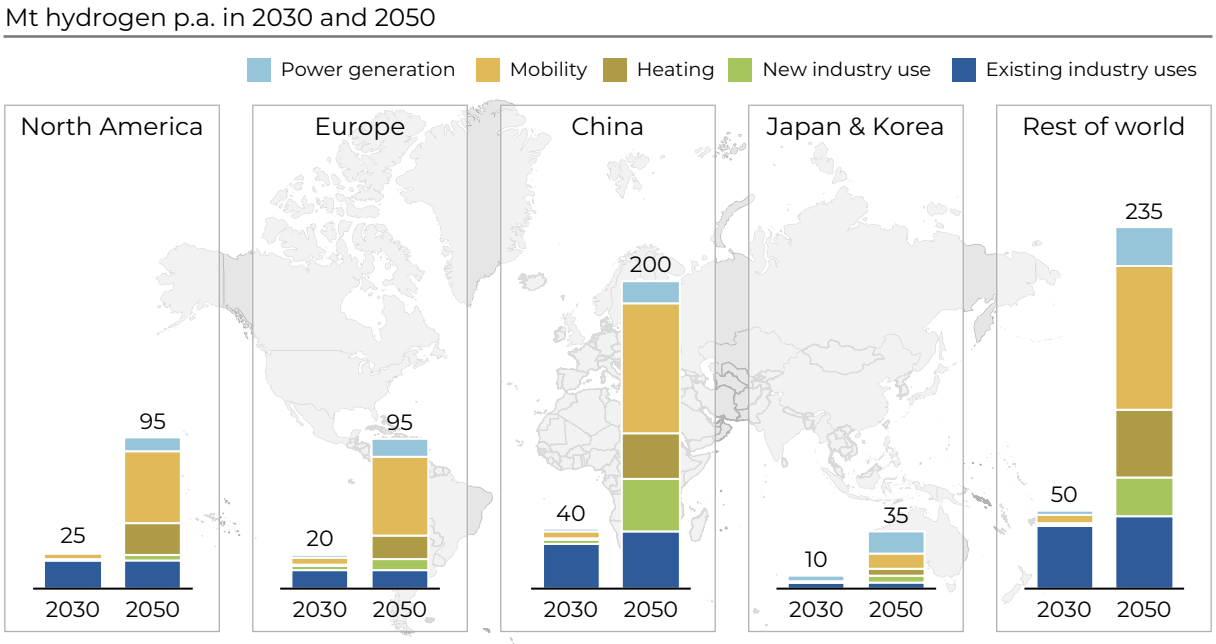
The general reduction processes of oxide ores also offer great potential. At present, fossil-fuel-based hydrogen ('grey' from natural gas or 'black' or 'brown' from coal) fulfils most of the demand for hydrogen. By 2050, the grey production infrastructure is expected to be decommissioned or converted and complemented with new low-carbon and renewable capacity. In the medium term, low-carbon (blue) hydrogen produced from natural gas and supported by carbon capture and storage will likely be a cost-competitive option, assuming gas prices return to more balanced levels. Green hydrogen generated from renewable energy will become more and more cost- competitive as electrolyzer and renewable costs decrease. From 2040, green hydrogen is expected to dominate the global supply, rising from about 20% of the total hydrogen mix in 2030 to about 70% by 2050

5. Hydrogen Council and McKinsey & Company, Hydrogen for Net Zero, November 2021, https://hydrogencouncil.com/wp-content/uploads/2021/11/Hydrogen-for-Net-Zero.pdf

Many global demand hubs will rely on imports from abroad

Under a net-zero by 2050 scenario, Europe, Japan and South Korea followed by China and North America will likely drive 70% of the demand for green hydrogen by 2030

(Exhibit 2).



Source: Hydrogen Council and McKinsey & Company, *Hydrogen for Net Zero*, November 2021, https://hydrogencouncil.com/wp-content/uploads/2021/11/Hydrogen-for-Net-Zero.pdf

Exhibit 2: Global hydrogen equivalent end-use demand by region in a net zero scenario

Many countries, particularly in Europe, will not be able to meet their demand fully and/ or cost-effectively through domestic production. To secure sufficient supply at low cost they will have to form energy partnerships with countries that have abundant renewable energy resources, e.g., the European Commission's REPowerEU programme sets an import target of 10 Mt of green hydrogen by 2030. Germany is the largest market in Europe with about 15 Mt of expected import demand in 2050. The Japanese market is expected to ramp up by importing hydrogen for power generation and transport and will build its domestic production over the long term. Even countries with strong ambitions to boost their domestic production, such as China and India, may need to rely on imports (Exhibit 3).

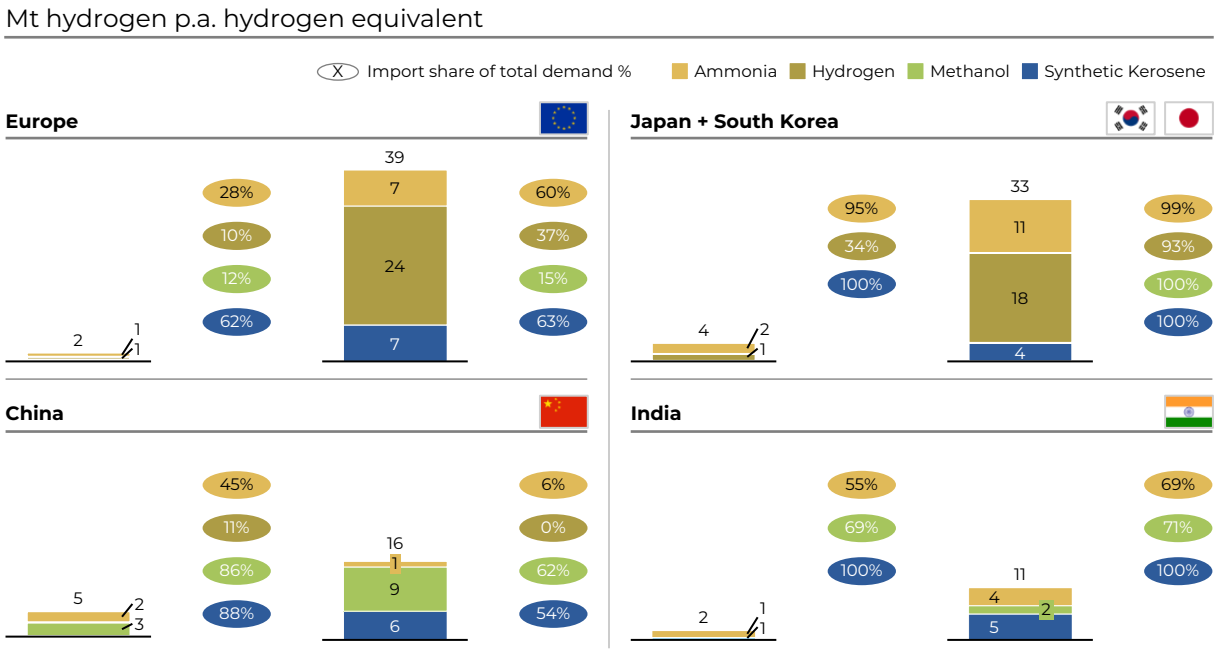


Exhibit 3: Hydrogen and derivative imports in 2030 and 2050

This opens up the possibility of new trade relationships. Some nations with high expected demand are already building international partnerships with countries where hydrogen costs are competitive, the political climate is stable, and the rule of law is adhered to. The European Hydrogen Strategy has identified the African Union as partner for research and innovation, technological development, transport infrastructure and regulatory policy.

The economics of hydrogen transport have important implications for how and from where hydrogen will be sourced. Transport of pure hydrogen via pipelines will be the most practical and cost-effective method in areas where routes are relatively short and existing infrastructure can be repurposed, e.g., for exports from North Africa to Europe.

Where pipelines are not available, it will be more cost-competitive to convert hydrogen into derivative products like ammonia or methanol that are efficient energy carriers and can be used directly as end products.

2.

Namibia's potential in the global hydrogen market.

Namibia's world-class renewable energy sources enables it to produce hydrogen at a low cost

The supply gap presents a huge opportunity for countries – like Namibia – that have abundant and attractive renewable energy sources that can be used to produce green hydrogen and its derivatives and supply industrial centres.

Namibia is pursuing more resilient green growth. Although it ranks only 141 as a contributor to global emissions (2020)6, it has set a goal to reduce its greenhouse gas emissions by 91% by 2030. It also aspires to use its own natural resources to support the global transition to net-zero and deliver socio- economic benefits to its people in the form of broadly shared prosperity.

Namibia is set to emerge as a major global hydrogen producer and an early entrant in the hydrogen export market. It has world-class wind energy potential along its southern and northern coasts with wind capacity factors of about 56-58%, much higher than other potential exporters like Australia and South Africa that average less than 40% (Exhibit 4).

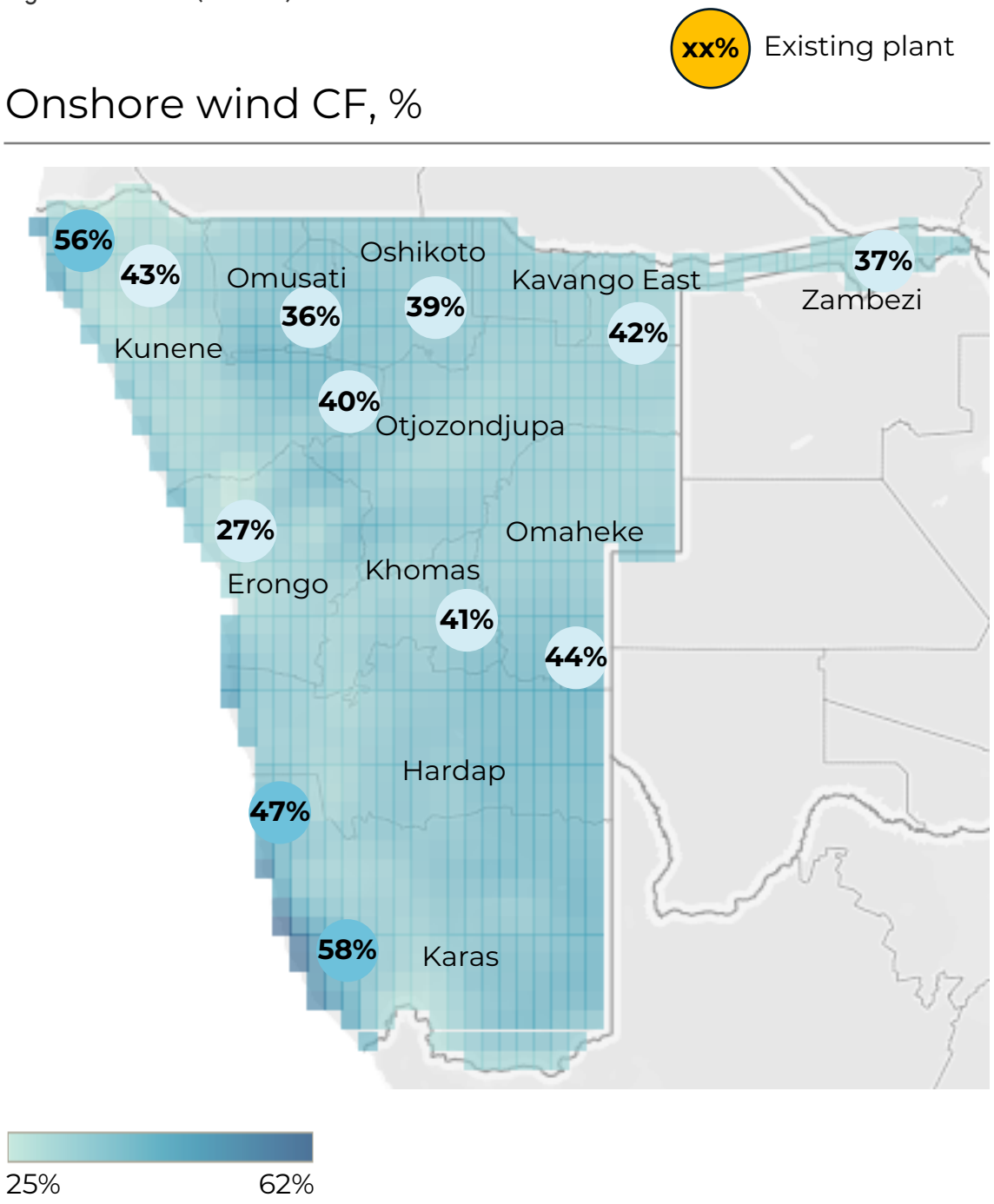


Exhibit 4: Onshore wind CF, 2020

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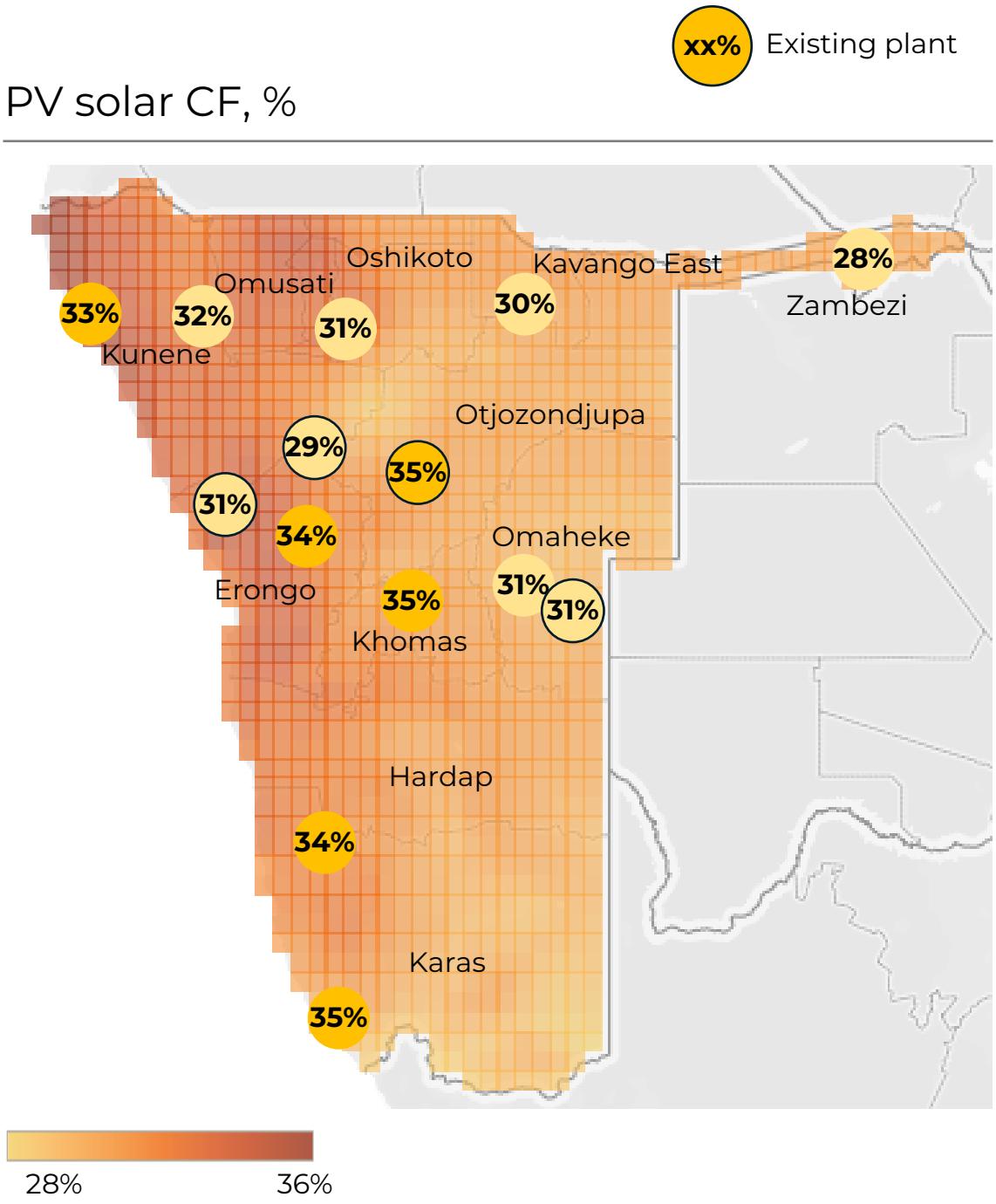


Exhibit 5: PV solar and onshore wind CF, 2020

Namibia's unique mix of wind and solar resources could provide a stable supply of very low-cost, clean power for hydrogen production. Combined, these resources could enable Namibia to achieve a levelized cost of hydrogen (LCOH) of just US$1.2-1.3/kg for production by 2030 (Exhibit 6) if no specific firmness level is required7. Derivative production (e.g., ammonia or methanol) can require higher levels of firmness (e.g., 95% in these cases), resulting in a 25% increase of LCOH to about US$1.5-1.6 / kg hydrogen in 20308. This still outperforms expected green hydrogen production costs in Morocco and Saudi Arabia, each with an estimated LCOH of US$1.7/kg by 2030 at this level of firmness.

Other factors make Namibia favourable to the evelopment of an at-scale hydrogen hub. Most of its renewable resources are coastal, ensuring a sustainable and low-cost water supply through desalination for electrolysis. They are close to ports, in particular in the Kharas and Erongo regions. And the Government owns and can lease large amounts of land that is readily available thanks to the low population density (three people per km2).

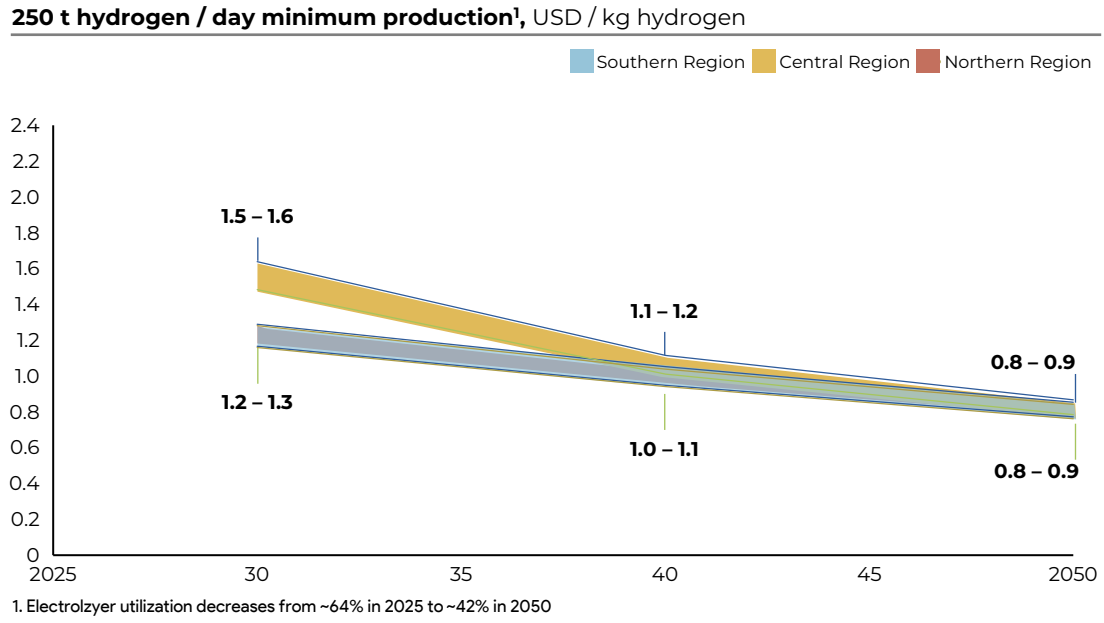


Exhibit 6: Hydrogen production costs by region

Swing factors on hydrogen production LCOH

LCOH estimates are sensitive to a number of input assumptions. The most critical are renewable energy and electrolysis capex and opex and the cost of capital (driven by a project's perceived risk). For example, reducing renewable capex and opex by about 10% would lower the expected LCOH in Namibia's southern region by about 5%. Reducing the weighted average cost of capital (WACC) by 1%p. could reduce LCOH by about 17% so improving WACC can significantly improve project feasibility.

In an increasingly competitive hydrogen production market where margins are decreasing, low WACC

is critical to Namibia's nascent hydrogen industry. Namibia is therefore working with project developers to address operational and technology risks and facilitate off-take agreements to lower market risk, and will deploy a blended financing solution by establishing an infrastructure fund, SDG Namibia One. This fund aims to attract catalytic climate financing for the three main phases of project delivery: development, construction and operation (see section 5.6).

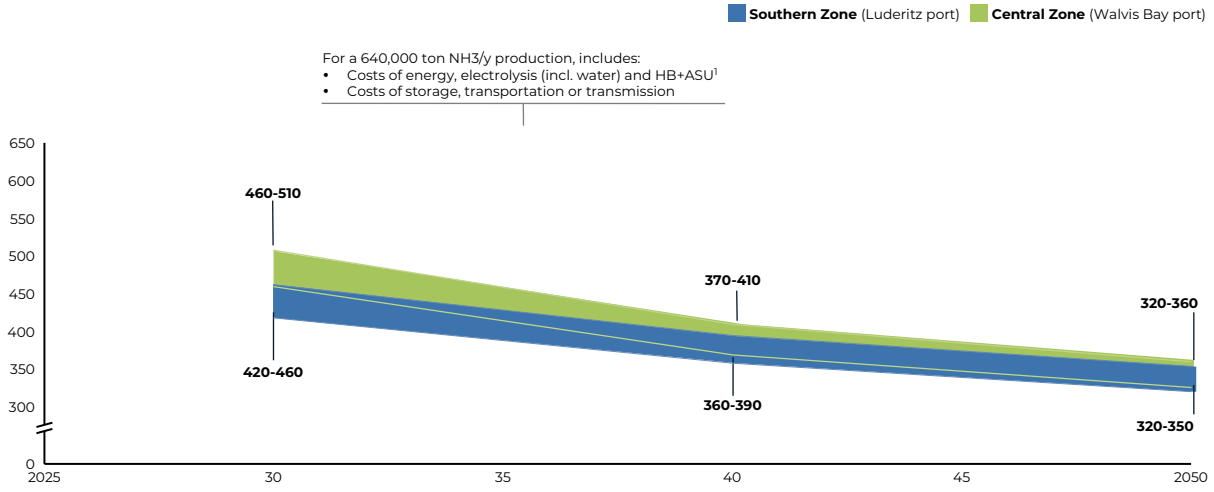
Namibia will focus on the export of hydrogen derivatives including ammonia, methanol, synthetic kerosene and hot- briquetted iron

Namibia is expected to have some of the lowest hydrogen production costs in the world. However, transporting hydrogen over long distances and the losses incurred through the compression and/ or liquefaction process make exporting pure hydrogen uncompetitive for most of Namibia's potential key markets. However, more energy-dense derivatives of hydrogen can be exported at lower transport cost through a partially already existing infrastructure. Namibia is therefore looking to develop four hydrogen-derivative products for export: ammonia, methanol, e-kerosene, and green hydrogen-based hot briquetted iron (HBI)9.

A market for grey ammonia already exists, mainly in the fertilizer sector (80-90% of demand). Replacing grey ammonia is likely the largest near-term core market for green ammonia producers. New end-use applications for ammonia such as shipping fuel and power generation are expected to increase demand. Blending mandates are under discussion and green ammonia will eventually replace grey ammonia. At just under current carbon prices or more balanced gas prices, the price for grey ammonia could exceed US$500/t10. As industry and supply chains scale up, green ammonia costs are expected soon to fall below US$500/t. By 2030, Namibia's ammonia production costs could fall to US$420-460/ton and to US$320-360/ton by 2050 as technology improves, volumes increase and standardization drives learning rates and lowers equipment costs (Exhibit 7).

Green ammonia production cost in the Southern Zone (Luderitz port), USD / t NH_3

Green ammonia production cost in the Central Zone (Walvis Bay port), USD / t NH_3



Considers a 85% average HB system utilization

Utilization of plant capacity after maintenance/down time is taken into account, implies yearly production of ~640 ktonNH3 for 750 ktonNH3 nameplate capacity plant

1. Haber Bosch and Air Separation Unit |

Exhibit 7: Green ammonia production costs by region

Converting hydrogen into e-fuels such as synthetic methanol or kerosene requires CO2 as a feedstock. For the resulting fuel to be climate-neutral, the CO2 needs to come from climate-neutral sources, that is, where its 'production' has led to a net removal of CO2 from the atmosphere – either through sustainably harvested plants (biogenic CO2) or through technical filters (DAC).

Namibia can use domestic and international CO2 sources to produce synthetic fuel. Rich sources of sustainable biomass in the central and northern regions (generated by regular cutting back of the encroaching bush) could generate up to 10 Mtpa of CO2. DAC could produce the rest when costs fall. In the medium to long term, CO2 is expected to become a globally traded commodity and Namibia could potentially also import biogenic CO2, e.g., from Brazil, the US or South Africa.

Synthetic methanol is an important feedstock for the chemical industry, although most future (green) applications are expected to be fuel-related. In Namibia, methanol production costs are expected to be US$530-610/ton in 2030 based on the use of local CO2 sources and should fall to US$440-560/ton by 2050 as DAC technology emerges (Exhibit 8).

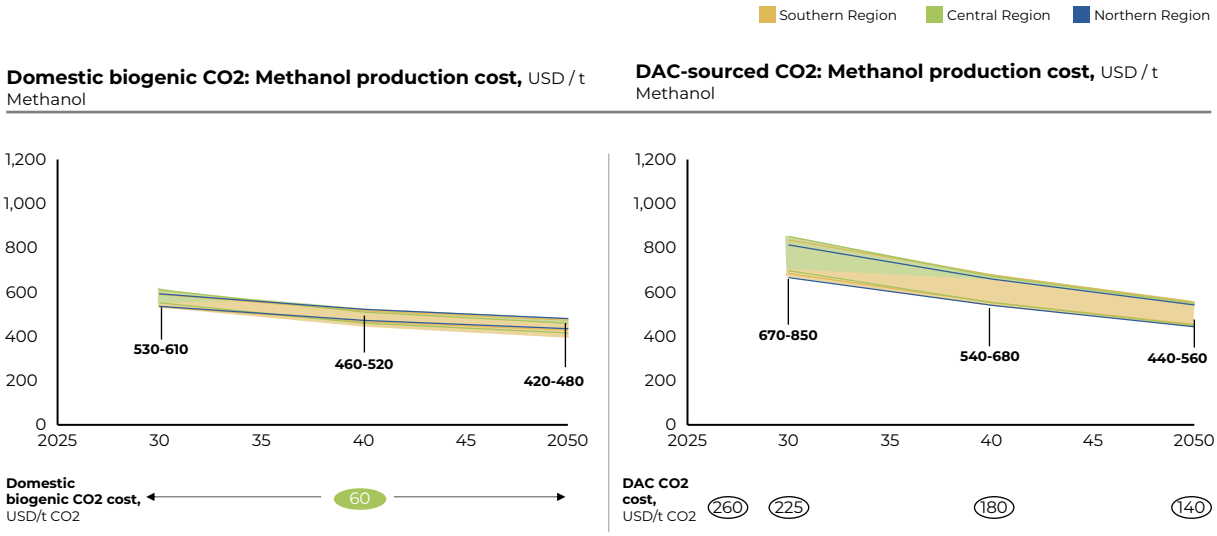


Exhibit 8: Synthetic methanol production costs by region and CO2 origin

Demand for e-kerosene is driven by the strong regulatory – and voluntary – push to decarbonize the aviation industry. E-kerosene is expected to see the highest growth rate among all derivatives once demand takes off (about 20% p.a. 2030-50 in a net-zero 2050 scenario).

E-kerosene production costs in Namibia are forecast to be US$790-910/ton in 2030 based on the use of local CO2 sources, falling to US$630-780/ ton by 2050 as DAC technology takes over (Exhibit 9).

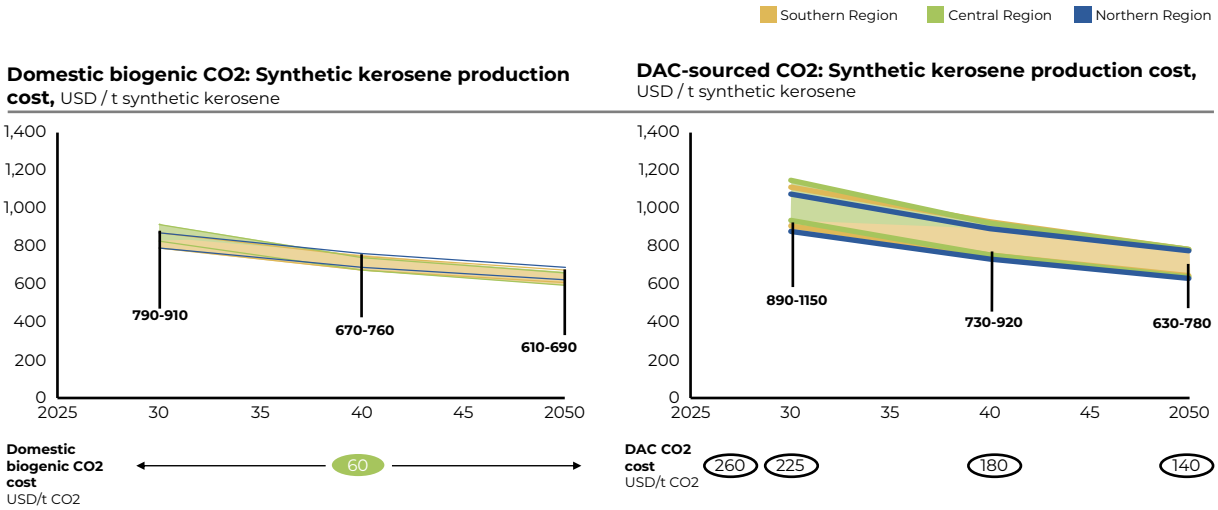
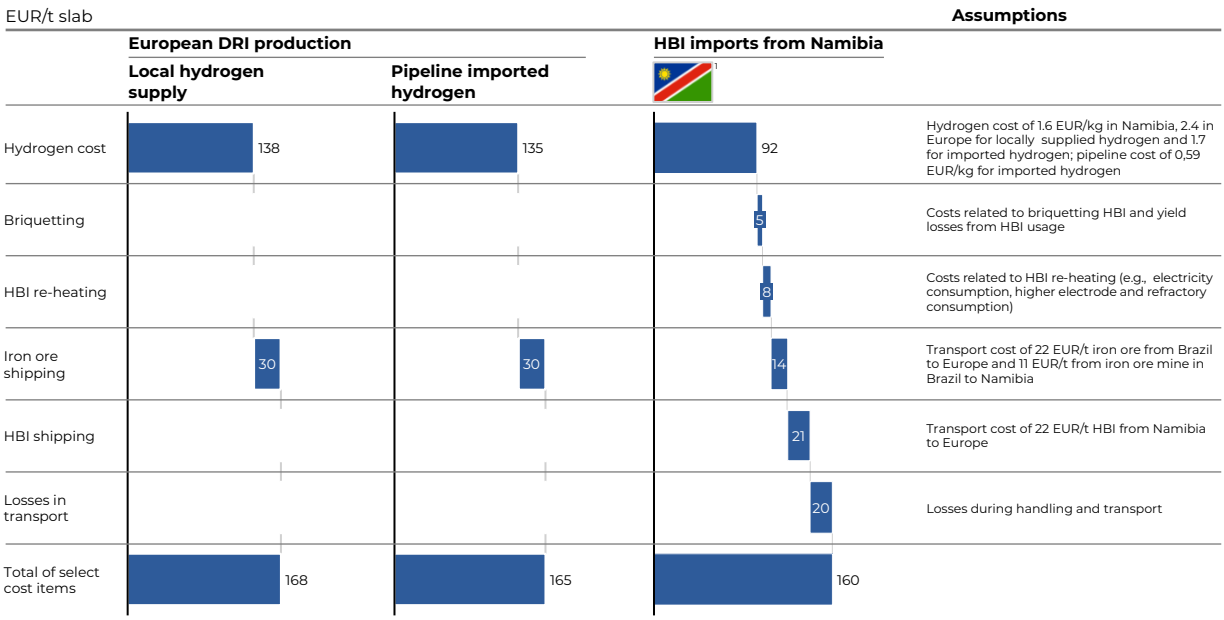


Exhibit 9: Synthetic kerosene production costs by CO2 origin

The steel sector is one of the three biggest carbon dioxide- producing industries and steel plants are key focus points for decarbonization. One competitive route for primary green steel is green hydrogen based DRI/HBI steel industry will require 35 Mt of hydrogen by 205012. Hydrogen-based green steel production can already become competitive in many locations at a carbon price in the range of US$50-100 per ton of CO2, due to the significant emissions of 1.85 tons of CO2 per ton of steel produced from coking coal.

Therefore, this production route is expected to account for 6 million tons of hydrogen demand in 2030 under a net-zero by 2050 pathway. Assuming hydrogen costs of 2.4 EUR/kg in Europe, importing HBI from Namibia could be an attractive option (Exhibit 10).



1. Assuming iron ore transport from Brazil to Namibia, if importing from South Africa the costs might be even lower

Exhibit 10: Cost of HBI/DRI production and usage items, 2030

Namibia's export potential

Namibia could become a global low-cost supplier of choice if it can retain its competitive advantage in LCOH through low shipping costs. Namibia is looking to develop supplier relationships with Europe, Japan, South Korea, and China and is very open to discussing opportunities with other regions.

In Europe, Namibia expects to supply some of the near- term demand for ammonia (especially for fertilizer production) and expand further if ammonia emerges as the preferred alternative fuel for the maritime sector. Namibia can also start to supply the emerging CO2-based synthetic fuels market (e-methanol, e-kerosene) and capture a significant share of the market in the long term.

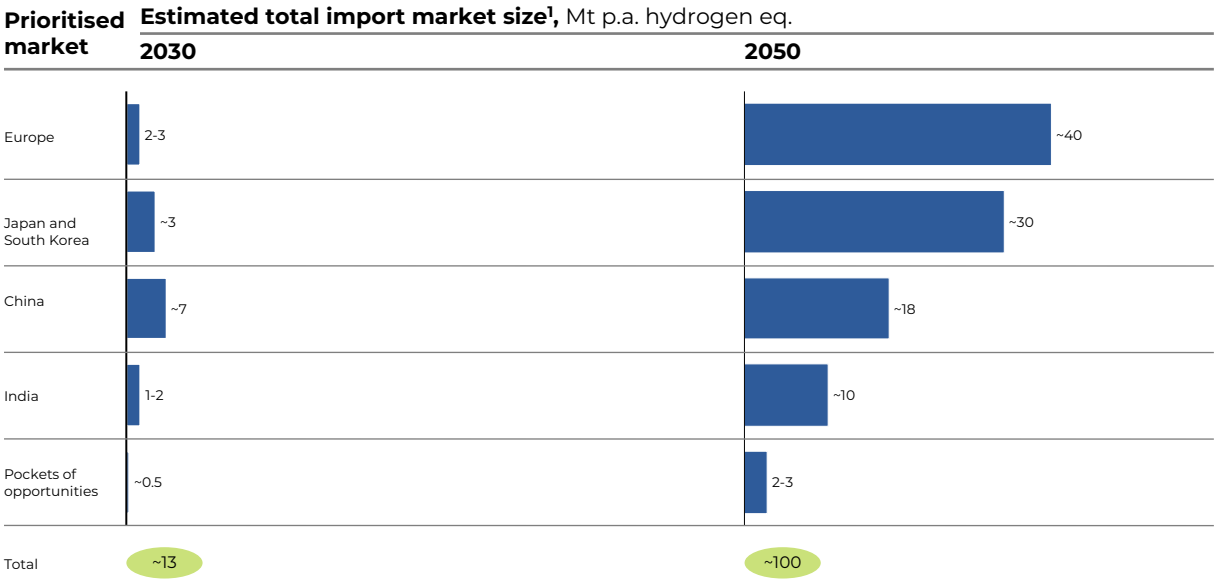
Namibia is not the lowest- cost provider in Asia but it is a leading green producer. It aims to be part of the diversified supplier base needed when security of supply becomes

a concern and countries do not want to rely on a single supplier. Namibia could start delivering ammonia to Japan and South Korea if they scale up their hydrogen economies while domestic production cannot meet demand, and if Japan's regulatory target of decarbonized ammonia for power by 2030 remains in place.

If China's coastal provinces cannot secure sufficient hydrogen derivatives from the western parts of the country, Namibia could compete with Australia and/or become a complementary supplier. Namibia will explore the potential to export ammonia in the short-to-medium term, and CO2 based synthetic fuels (methanol, synthetic kerosene) in the longer term.

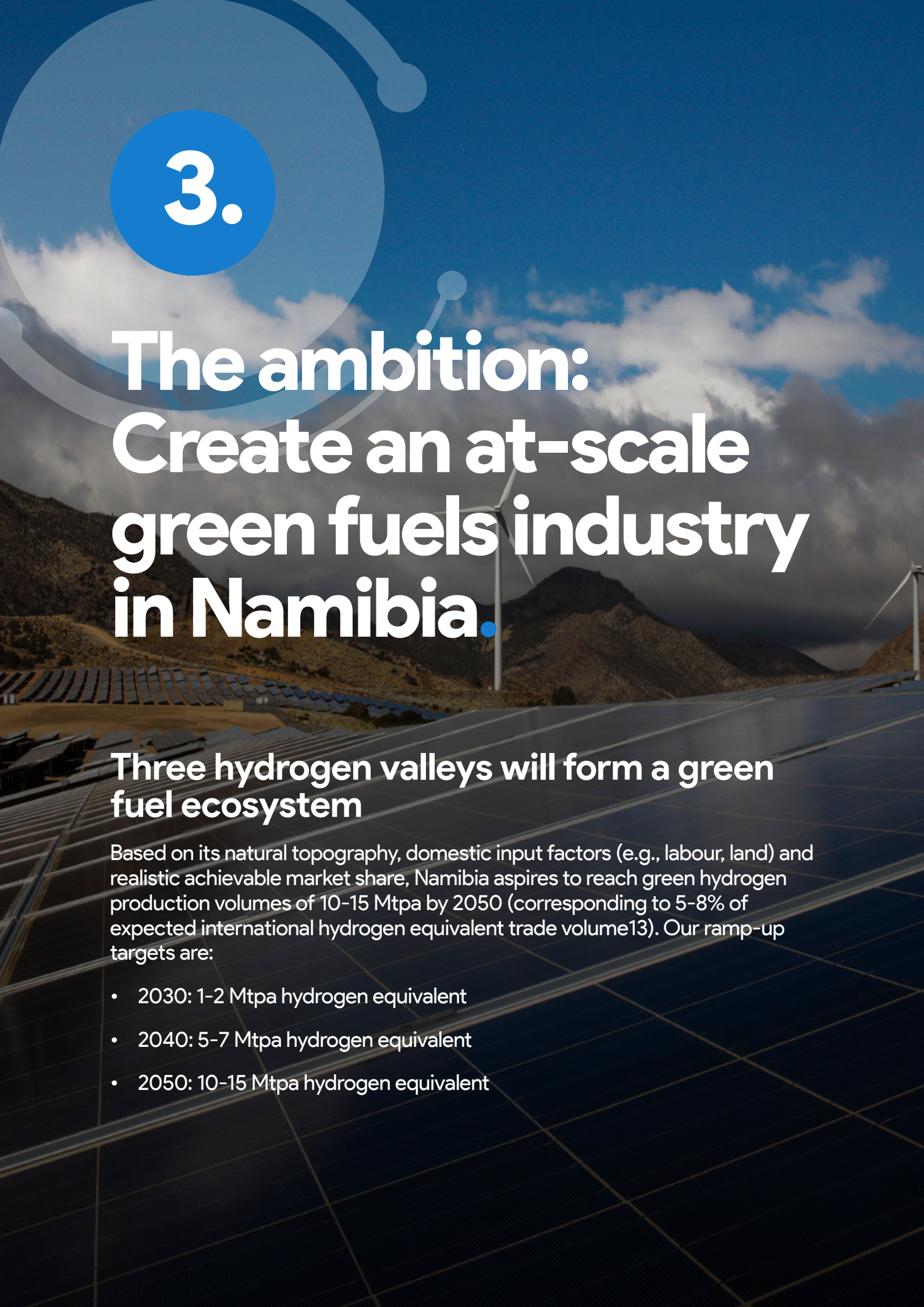
Namibia could deliver ammonia to India in the near term and target the growing synthetic fuels market from 2040 onwards. Our strong cost-competitiveness in ammonia will also open up further opportunities to compete with other low-cost producers.

Under a net-zero scenario, the total hydrogen demand in the import markets where Namibia is best positioned is forecast to be about 13 Mtpa of hydrogen equivalent in 2030 and about 100 Mtpa in 2050 (Exhibit 11).



1. Under a net zero by 2050 scenario; taking into account clean sources (green and blue) and excluding imports for steel production, given difficulty of anticipating market dynamics

Exhibit 11: Estimated total import market size



3.

The ambition: Create an at-scale green fuels industry in Namibia.

Three hydrogen valleys will form a green fuel ecosystem

Based on its natural topography, domestic input factors (e.g., labour, land) and realistic achievable market share, Namibia aspires to reach green hydrogen production volumes of 10-15 Mtpa by 2050 (corresponding to 5-8% of expected international hydrogen equivalent trade volume13). Our ramp-up targets are:

- 2030: 1-2 Mtpa hydrogen equivalent
- 2040: 5-7 Mtpa hydrogen equivalent
- 2050: 10-15 Mtpa hydrogen equivalent

Three hydrogen valleys will produce ammonia, synthetic fuels and HBI in the southern region (Kharas), the central region (including Walvis Bay port and the capital Windhoek) and the northern region (Kunene)

(Exhibit 12).

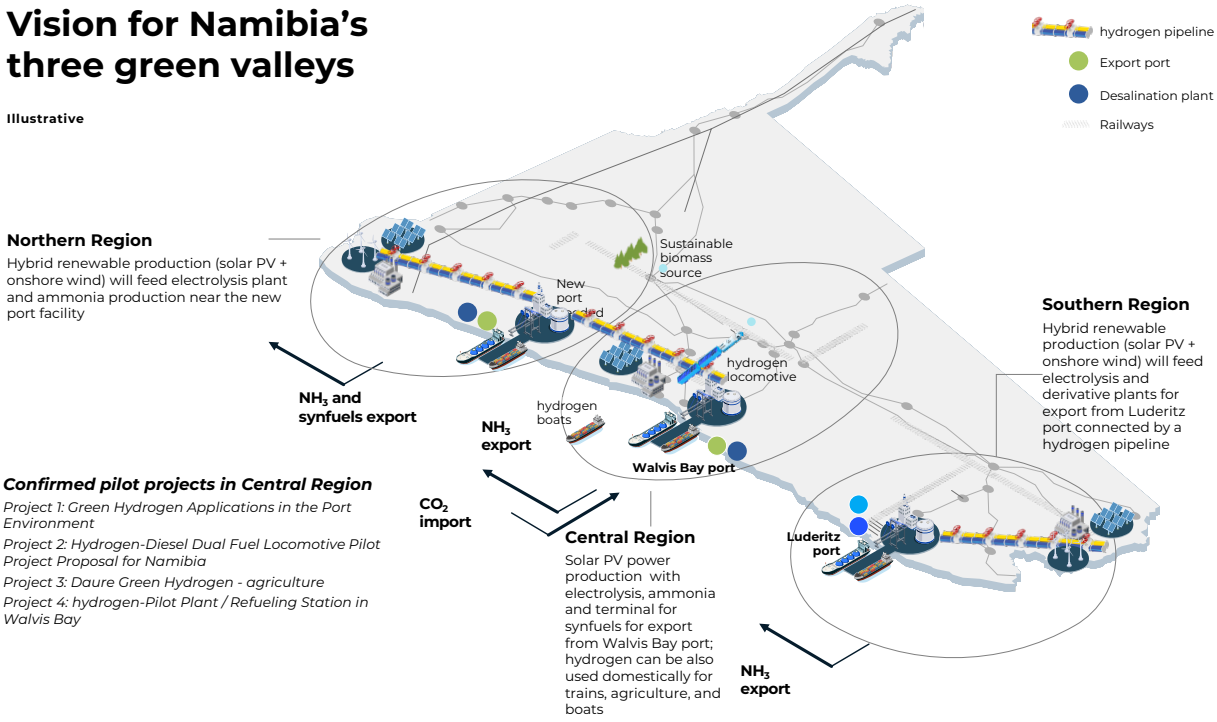


Exhibit 12: Hydrogen end-use demand by region in a net zero scenario

Southern region

The southern region's world-class renewable solar and wind resources and port (Luderitz) make it the perfect location for a large-scale integrated infrastructure project. In 2021, the Government conceived the Tsau/Khaeb National

Park Southern Corridor Development Initiative (SCDI) hydrogen project as part of its national growth and COVID-19 economic recovery plan. The area is one of the top locations in the world for low-cost hydrogen production.

The SCDI plan envisions a portfolio of complementary projects and infrastructure, including a green hydrogen and ammonia plant with wind, solar, electrolysis and desalination assets, an enhanced deep- water port in Luderitz, an integrated green steel plant with an iron ore mine and including renewable power generation capacity (the Hyron Steel Project, the first project of its kind in Africa, privately funded and with all technical work already endorsed by Anglo American).

Development of the first project within the SCDI has already started. Hyphen Hydrogen Energy, the country's first gigawatt-scale green hydrogen project, will catalyse the rapid scale-up of green hydrogen production in the corridor. It will then be expanded to create a thriving cluster of ammonia (and later HBI and/or synfuel) production sites.

The short-term goal is to launch and develop Hyphen Hydrogen Energy and the necessary infrastructure and set the project up for long-term success by securing labour, expanding and transforming Luderitz into a state-of-the-art port, developing the framework for and building common-use infrastructure (CUI) for all future projects. The long-term vision is to grow ammonia production at scale and add other derivative products.

Production volumes will ramp up in stages and could reach 5 Mtpa of hydrogen equivalent production by 2050.

"We aspire to create a green fuels industry with a production target of 10–15 Mtpa hydrogen equivalent by 2050."

Hyphen Hydrogen Energy will blaze the trail for Namibia's hydrogen industry.

At COP26, the Government of Namibia announced Hyphen Hydrogen Energy as the preferred bidder for its first giga-scale green hydrogen project. Hyphen Hydrogen Energy obtained a 40-year concession for more than 4,000 km2 of land to develop a US$9.4-billion green hydrogen project (by comparison, Namibia's GDP in 2021 was US$12.2 billion).

The project will be developed in phases, eventually targeting 300,000 metric tpa of green hydrogen production (equivalent to 1,700,000 tpa of ammonia) from 5-7GW of renewable generation and 3GW of electrolyzer capacity. Once fully ramped up, it will employ an estimated 3,000 people and generate 15,000 construction jobs over four years, over 90% of which are expected to be filled by Namibians.

Hyphen will pioneer Namibia's hydrogen industry. The Government will:

- Facilitate construction of core infrastructure (ports, terminals, pipelines)
- Help to create an ecosystem of local EPC providers, skilled labour and mature supply chains
- Review and enhance policy and contract details, e.g., on import duties, currency, immigration and visa procedures
- Ensure that highest environmental standards are adhered to Monitor the security and safety of hydrogen facilities to ensure standards are met at all times
- Work with regional and local authorities to ensure that the required infrastructure (housing including water and sewage, healthcare, schools) is in place to accommodate the large influx of people, e.g., to Luderitz
- Ensure community engagement and local stakeholder support. The Government recognises that local communities are critical to the project's success and will engage with local and national stakeholders including traditional communities.

Hyphen is expected to overcome or significantly de-risk challenges for future projects and lower operating costs.

Central region

The well-developed central region (including Khomas, Otjozondjupa and Erongo) has a large available labour force, export infrastructure at Walvis Bay Port and access to domestic biogenic CO2 sources. Namibia plans to launch pilots early, invest in infrastructure and build a synthetic fuel hub. As wind potential is limited, production would likely only reach scale after 2035 when the costs of solar and electrolyzer production decrease. By 2050, this valley could achieve production of 3 Mtpa.

Two larger projects are already underway. Cleanergy Namibia is a joint venture between private Namibian group Ohlthaver & List and British CMB.Tech. The country's first green hydrogen and ammonia production plant will be a demonstration hub for hydrogen applications in the Erongo region. A US$18 million pilot due to be operational by 2023 will produce green ammonia for applications such as heavy-duty transport, including trucks, locomotives, mining equipment and ships. The project aims to turn Walvis Bay Port into a green ammonia bunkering hub to refuel ships passing the Cape of Good Hope.

The final investment decision (FID) on a larger EUR 2.5 billion liquid ammonia terminal is scheduled for the end of 2022 and major shipping companies have already expressed interest.

French independent power producer HDF Energy is developing a green hydrogen project in Swakopmund on the coast in the administrative region of Erongo. The US$181.25 million project comprises an 85 MWp solar PV and an electrolysis unit and is expected to be operational by 2024.

Namibia is considering creating a special economic zone (SEZ) and further upgrading Walvis Bay Port. A planned biomass power plant will process bush biomass sustainably harvested in the Otjozondjupa region north of Windhoek to supply biogenic CO2.

In the long term, a "hub and spokes" ecosystem with supporting infrastructure (e.g., pipelines, hydrogen trains) will supply hydrogen and CO2 to the synfuel production hub and manufactured components to the RES/hydrogen facility construction sites. When the cost has decreased sufficiently, DAC facilities will be established to scale climate-neutral CO2 supply.

Northern region

The northern region enjoys world-class renewable resources and has a sizeable local population that could benefit from employment opportunities to construct and operate hydrogen facilities and infrastructure. However, the region does not yet have the facilities to house this workforce and has no export or transportation infrastructure so a new port would have to be built.

Development of the region could begin in the mid- or late-2020s once the right partner(s) is/are identified. The vision is a comprehensive greenfield development with an at-scale green fuels and/or HBI hub, with potential for 5 Mtpa hydrogen equivalent production by 2050 to complement that of the southern region and provide employment opportunities in the north.

Namibia has the potential to produce 10-15 Mtpa of green hydrogen and derivatives by 2050 across all three regions. Projects will be developed in parallel (Exhibit 13) and aligned to manage demand for local labour and construction materials. Individual projects will grow to provide at-scale advantages and be more cost- efficient.

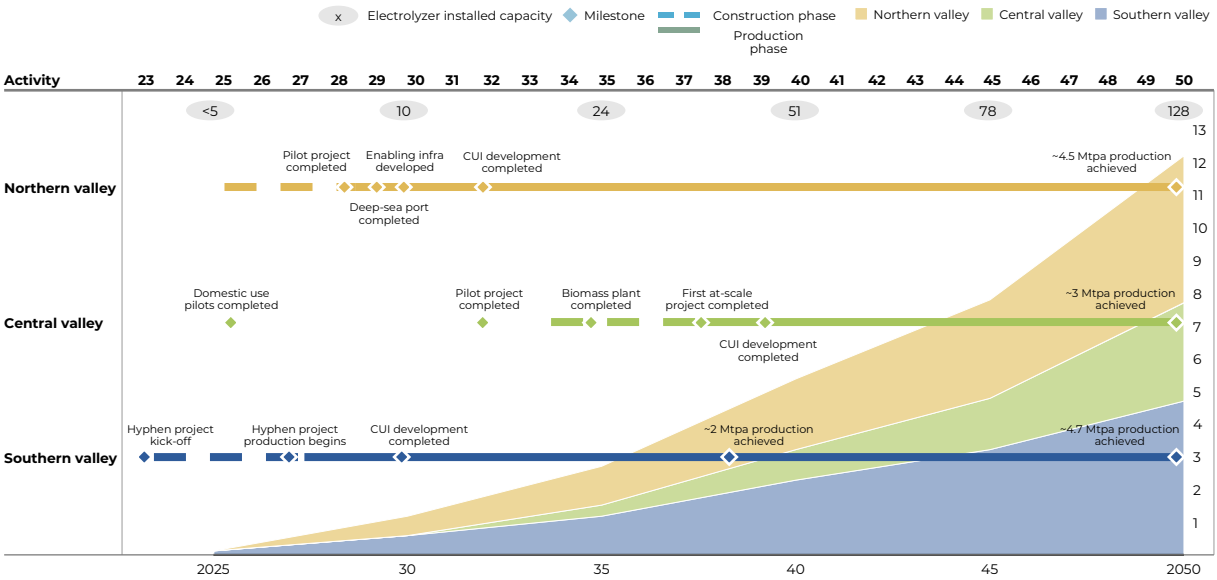


Exhibit 13: Green valley evolution to 2050

Green fuels will catalyse deeper regional value chains and cooperation in a Southern African ecosystem

Namibia aspires to establish an integrated, thriving green ecosystem across Southern Africa by creating synergies in infrastructure (e.g., shared ports, pipelines and transmission networks) green transport corridors and job opportunities across borders – particularly with South Africa, Botswana, Zambia and Angola.

In South Africa, Namibia could provide shared infrastructure across the Northern Cape and Kharas regions to decrease costs and create low-carbon transportation corridors, e.g., for zinc ore. A framework could also be established to facilitate excess power exports from Kharas to the Southern Africa Power Pool (SAPP) to alleviate South Africa's power crisis.

In Botswana and Zambia, Namibia could drive economic integration by establishing transport corridors (e.g., for hydrogen trains and trucks), identifying and realizing concrete value chain/ manufacturing collaboration opportunities (e.g., use copper from Zambia to manufacture cables in Namibia and export copper through Walvis Bay Port), and exploring power supply collaboration opportunities, e.g., seamless power exports from Namibia, and/or in-country construction of utility-scale renewables (component supply, EPC know- how).

Namibia could also help Angola valorize its prime solar resources in its southern border region by establishing cross-border transmission lines and/or pipelines to enable exports through the planned Kunene port. This would also enhance the flow of labour and goods with minimal red tape to allow Namibian workers and companies to support construction.

Namibia could play an important regional role in increasing energy security and lowering the cost of energy for the SAPP – thus advancing the decarbonization agenda and the ideals of the African Continental Free Trade Area (AfCFTA).

> “We aspire to establish an integrated, thriving green ecosystem across Southern Africa.”

4.

Namibia's hydrogen opportunity.

A step-change in socio-economic development

An at-scale hydrogen industry will boost GDP and quality employment.

An at-scale hydrogen industry could grow Namibia's economy substantially. By 2030, it could contribute US$4.1 billion (in real 2022 dollars) to GDP, 32% more than 2030 GDP estimates with no hydrogen industry. By 2040, it could generate an additional US$6.1 billion, 32% higher than current GDP estimates.

The hydrogen industry would also grow the domestic labour market by creating an estimated 280,000 jobs by 2030 and 600,000 jobs by 2040. Of these, about 30% would be direct (in the industry), 20% would be indirect (through goods and services), and 50% would be induced by the in- crease in household incomes.

Jobs would be higher-skilled (about 10% of direct jobs, e.g., in engineering or management positions), lower-skilled (about 66% of direct jobs, e.g., in manufacturing or administration) and unskilled (about 25% of direct jobs in basic occupations). Namibian citizens currently do not have the skills to fill all of these jobs so the Government will invest in train- ing and tailored immigration policies (see section 5.1).

Local content manufacturing will boost economic development.

Local content manufacturing – of the components required to produce and transport hydrogen and CO2 – will also boost economic development.

In renewable energy, local manufacturing will require the right incentives and enabling conditions, which Namibia is working to put in place. Local tower and blade manufacturing could generate US$7 billion direct GDP impact in 2035-40 and is forecast to accelerate as green hydrogen production ramps up. These activities are also expected to create an additional 7,000 annual direct jobs. Localizing solar cell and module manufacturing could generate US$4 billion direct GDP impact in 2035-40 and 4,000 direct jobs a year by 2040. Solar localization is expected to increase as the central region develops in the mid- to late 2030s.

Core electrolyser component production is complexand requires intense R&D. Manufacturing will likely remain overseas in the medium term, but BoP/assembly facilities could be localized when domestic demand picks up (beyond the minimum required scale of 3-4 GW

per year). Localizing stack (non-membrane) and BoP manufacturing could generate US$5 billion direct GDP impact in 2035-40 as green hydrogen production scales up and installed electrolyser capacity grows. It could create an additional 5,000 jobs in 2035-40.

The sustainable biomass harvesting and CO2 production infrastructures required to produce methanol and e-kerosene offer a feasible, high-impact opportunity for local content manufacturing. Biomass power plants can be developed and built locally as they are not very complex. Additional benefits include direct job creation and optimal land use through the effective control of bush encroachment.

The Namibia Green Hydrogen Research Institute (NGHRI) will conduct R&D and help localize the value chain. It will function as a distributed Science and Technology Park for university-industry-government consortia to conduct R&D and capacity-building, promote entrepreneurship and incubate innovative projects.

Self- contained mini-campuses in Lüderitz, Windhoek and Walvis Bay will have state- of-the-art infrastructure, fully equipped laboratories, R&D stations, private sector and government representative offices, an entrepreneurship and start-up incubation centre and training facilities. As part of R&D capacity-building, the NGHRI will offer formal degree programmes (Masters, PhDs) and a training centre for short skill/upskill/reskill programmes.

It will receive funding from the Government and external funding from grants, donations and commissioned research.

> “Our hydrogen economy would see our domestic labour market growing by the creation of hundreds of thousands of jobs over the medium and long-term.”

Green hydrogen will accelerate Namibia's Prosperity Plan to deliver broad-based prosperity to its citizens.

An at-scale hydrogen industry will generate income for the Government through corporate, consumer and income tax from economic uplift, and concession fees and levied contributions to the sovereign wealth and regional development funds.

The Government will use this income to advance its socio- economic goals through foundational investments in education (human capital) and infrastructure (physical capital) and targeted investments to develop industry. It will update and develop the Harambee Prosperity Plan II to lay out a clear path for economic development based on priority industry development and projects.

Hydrogen will enable Namibia's green growth goals

The hydrogen industry will help decarbonize Namibia's economy through the direct use of hydrogen in end applications and by electrifying other sectors (e.g., tourism) with the surplus renewable energy generated. Namibia's domestic demand for hydrogen and its derivatives could reach 95kt of hydrogen equivalent by 2040.

Hydrogen offers a cost-effective alternative to applications that currently rely on fossil fuels, e.g., mining trucks. The operating costs of hydrogen-fuelled trucks could break even as early as 2026, followed by fuel-cell long-haul medium- duty trucks then regional and long-haul heavy-duty trucks in 2030-2035. Pilot projects launched in 2021 are exploring the uses of hydrogen in tugboats, regional trains and ammonia for fertilizer. Global industry- wide targets will drive the adoption of hydrogen in maritime transport and aviation. Hydrogen will contribute to Namibia's green growth goals and future-proof new economic sectors. For example, in the mining sector, adoption of green hydrogen (e.g., for mining trucks) will lower the carbon footprint, an important factor in a global market that increasingly prizes carbon content alongside cost. Early projects will enable broader green industrialization, e.g., through green zinc, steel and rail.

Today, Namibia gets about 40% of its power from South Africa's mainly coal-fired power stations. Namibia aspires to meet its own power needs at affordable prices with low emissions and be 80% self-sufficient in primary energy (solar, wind, hydro, gas) for power generation by 2029.

Oversizing renewable power installations for hydrogen production to provide low- cost clean power for domestic use has huge potential. Producing 15 Mt of hydrogen will require 750 TWh/year

of electricity for electrolysis alone (not considering derivatives, DAC or other green hydrogen demands). Thus, with only 10% additional renewables capacity beyond what would be required for electrolysis, about 75 TWh/year of additional electricity would be available, which is more than 20 times the total electricity demand in Namibia today.

The economies of scale of larger plants will lower the cost of greening the domestic grid. And the hydrogen industry will build local capabilities to deliver renewable energy projects efficiently and lower generation costs.

A study is underway to evaluate the integration of Hyphen's facilities into the Namibian grid via new transmission lines. Hyphen is also investigating how to temporarily store excess energy (up to 2-4 TWh/ year) to ease integration into the grid.

Access to a stable, low-cost green power supply will expand affordable electricity access for Namibians, a key development imperative. According to the 2015/16 National Household Income and Expenditure Survey,

the national electrification rate is roughly 45%. This means that more than half of Namibia's population lacks access to electricity and to clean fuel and cooking equipment. Efforts are underway to establish a Rural Electrification Fund to support renewable energy rural electrification initiatives.

We aspire to meet our own power needs at affordable prices and low emissions to fuel our green economy.

Finally, a lower-cost green grid would attract new energy- intensive industries (e.g., aluminium, glass production) and fuel the country's green growth. Namibia's potential to produce products that leverage its comparative advantage in renewable energies will attract FDI into new and nascent sectors.

Namibia's green growth strategy therefore goes beyond green hydrogen. The green hydrogen industry will attract additional green manufacturing activities and help to build a diversified green economy.

> “We are setting the course to realise our vision for a green economy and momentum is already building.”

5.

Building the foundation of Namibia's hydrogen industry.

A skill development strategy will create sufficient talent

The hydrogen industry could create an estimated 85,000 direct jobs by 2030 and 185,000 by 2040 (mostly in construction, business services, transportation and durable manufacturing) and 60,000 indirect jobs from additional spending in the economy by 2030 rising to 130,000 in 2040.

By 2030 – without targeted interventions – Namibia's talent pool could number 35- 40,000: 25-30,000 unskilled workers, 5-10,000 low-skilled workers and 5-10,000 skilled workers, including new STEM graduates. This leaves a talent gap of 55-60,000 workers, a figure that could rise to 120-130,000 by 2040.

To fill this gap, Namibia's skill development and labour supply strategy will map out the resources and skills needed, identify how to close gaps and develop programmes to do so.

Up- and re-skilling the passive labour force through vocational programmes for the unemployed and recent graduates in alignment with the Namibian Training Authority could fill a large share of lower skilled jobs, e.g., technician roles, by 2025. Engaging and training the next generation could increase the number of STEM and non-STEM graduates. For example, the Southern African Science Service Centre for Climate Change and Adaptive Land Management (SASSCAL) has set up a Youth for Green Hydrogen (Y4hydrogen) Scholarship for Namibian students that attracted 1,154 applicants in 2022. Immigration would be an important source of highly skilled labour (when policies are eased) and would transfer skills to the local labour force.

Hydrogen development projects will be carefully sequenced to manage spikes in labour demand and provide continuous employment.

> “We are fast-tracking developing a fit for purpose regulatory and institutional framework.”

A fit-for-purpose regulatory and institutional framework

Namibia will introduce regulations to ensure the right enabling environment, legislation and policies to unlock the country's hydrogen potential.

A national strategic and legislative framework – the Synthetic Fuels Act – will define standards that conform to international guidelines to reduce operational uncertainty for developers and set quality levels to comply with international export market requirements.

TheAct will define clear oversight activities, e.g., transparent access to land and permit processes for renewables and hydrogen that guarantee fair treatment to investors and local populations while protecting the environment and ensuring safety.

It will advance development with private and public sector stakeholders, e.g., by modifying transmission and distribution fees for hydrogen producers to reflect ancillary services provided

for the grid or introducing mechanisms to compensate developers for overbuilding renewable energy capacity in a specific area. The Act will also introduce frameworks for pilot projects where regulation is not yet in place.

Namibia has proved that it can implement policies that enable economic and ecological solutions for the global market. For example, the World Future Council, an international policy research organization that provides decision-makers

with effective policy solutions, awarded Namibia the silver medal in the 2012 Future Policy Awards for its Marine Resources Act.

A modern delivery support system will help investors and project developers navigate Namibia's hydrogen landscape

Namibia will set up the structures and processes required to create a transparent, streamlined and user-friendly process for all stakeholders in prospective hydrogen projects.

A cornerstone of this support system will be the new Implementation Authority Office (IAO). The IAO will identify and plan for hydrogen projects to be developed, financed, operated and/or maintained by the private sector on state- owned land, and ensure the economic participation of the Government of Namibia. It will oversee the auction of state-owned land, plan and implement procurement processes for infrastructure development, e.g., conduct legal and regulatory reviews, identify and conduct due diligence on sites, facilitate preparation and submission of all permitting and approval applications and project finance documents, and engage with developers, contractors and/or financiers. The IAO will also build and maintain relationships with the private sector and manage project contracts.

Project developers and investors will be able to rely on an agile system of support to expedite bidding and permit processes, navigate the regulatory landscape and obtain access to relevant data sources (e.g., RES resources, planned common- use infrastructure).

The IAO will build on lessons learned from the Namibia Investment Promotion and Development Board (NIPDB) to provide a one-stop-shop of comprehensive, up-to- date information to help project developers navigate Namibia's hydrogen landscape. Staff will offer in-person and remote consultations and an online navigator will provide access to resources. It will report feedback from project developers and investors to policy makers who will adapt the policy and support landscape.

Namibia is also evaluating whether to set up an SEZ with fit-for-purpose fiscal conditions to provide an enabling environment, accelerate job creation and foster private sector-led development.

The Government will work swiftly and preemptively to remove any obstacles to project development by, e.g., leading conversations with mining licence (ML) and exclusive prospecting licence (EPL) owners to free up land.

The careful sequencing of projects will maximize de- risking and ensure a robust and transparent pipeline of opportunities.

Shared infrastructure will enable integration of hydrogen clusters and lower costs

The Government of Namibia is establishing a common use infrastructure (CUI) for the first large-scale hydrogen projects as part of the Southern Corridor Development Initiative.

The CUI will de-risk projects and accelerate the scale-up of green hydrogen production. It will develop with each additional project and may include:

- **Overland transmission lines** to supply electricity from the SCDI to the port/ processing facilities at Angra and to the Namibian grid (with the option of supplying to the South African grid)
- **Water infrastructure** (desalination units and water pipelines) to source water for electrolysis
- **Hydrogen pipelines** to pump hydrogen produced at any location in the SCDI to the port of Lüderitz for export
- **Ancillary infrastructure** such as roads, fibre cables for internet connection, security services.
- **An industrial port complex** that includes storage and production facilities for hydrogen derivatives, marine export and logistics facilities, and secondary and tertiary services. NamPower and the Port of Rotterdam, in collaboration with Hyphen, have conducted a feasibility study to evaluate the best location and design of the port given expected shipping volumes. The Namibian Ports Authority has signed an MoU with the Port of Rotterdam to establish a trading route for green hydrogen and derivatives to Europe, that could include dry bulk storage for iron ore. Rotterdam seeks to import 20 Mt of hydrogen equivalent by 2050, with exports from Namibia starting in 2026.

Through strategic diplomacy, Namibia forges relationships with international partners dedicated to building the hydrogen economy

Global bi- and multilateral hydrogen diplomacy is helping to secure access to energy.

As economic relationships form and develop, Namibia's strong international alliances will help it achieve its hydrogen ambitions by strengthening its links to export markets and facilitating knowledge transfer.

Germany was the first country to sign a joint communiqué of intent with Namibia to develop the hydrogen market. Through this partnership, they will compare current green hydrogen technologies and research readiness levels along the supply chain and their applicability in Namibia; identify economic, technological, and regulatory requirements for the transport of and trade in green hydrogen and green hydrogen-based energy carriers; and identify economic, technological, and regulatory requirements to transport and trade green hydrogen and green hydrogen- based energy carriers. The German Federal Research Ministry provided EUR 40 million in funding for a three- part programme: EUR 5 million in scholarships, EUR 5 million to develop a national synthetic fuels strategy, and EUR 30 million to identify four catalytic pilot projects to kick start the local hydrogen economy.

Namibia has also signed MoUs with Belgium, the Netherlands (through the Namibian Port – Port of Rotterdam partnership) and several Japanese companies (e.g., Japan Oil, Gas and Metals National Corporation to exchange information on industry development). During COP27, Namibia is set to sign an MoU with the European Union to establish a partnership on sustainable raw material value chains and renewable hydrogen, as part of the EU's Global Gateway initiative whose aim is to create a renewable hydrogen market and promote new channels for investment and trade.

The partnership seeks to integrate value chains, cooperate to leverage environmental, social, and governance (ESG) criteria, mobilize funding, build capacities, and align on regulations (e.g., hydrogen definitions, standards and certifications).

The European Investment Bank is also providing concessionary loans and grants to Namibia, including a EUR 500 million low-cost loan, and a EUR 25 million grant to support HDF's project in Erongo.

These types of partnership and collaboration will significantly de-risk hydrogen projects.

Namibia is also fostering relationships with partners

in Africa. It was a founding member of the Africa Green Hydrogen Alliance launched in May 2021 with South Africa, Egypt, Morocco, Kenya, Mauritania and international development partners. The Alliance seeks to scale up investment, co-develop public policy and an enabling regulatory environment, set financing and certification standards, and set up skill development programmes.

Namibia will continue to explore partnerships and deepen collaboration with its private and public sector partners. We may align with other developing economies aiming to export hydrogen and form strategic partnerships with key importers such as Japan and anchor partners from the private sector to support infrastructure financing and development.

> “Through strategic economic diplomacy we will forge relationships with international partners dedicated to build our hydrogen economy.”

Namibia will develop catalytic financing instruments with domestic and international partners.

Developing Namibia's green hydrogen industry will require an estimated US$190 billion of investment to 2040. This includes US$95 billion for new upstream production and infrastructure (RES, electrolyser, storage and pipeline infrastructure), and about US $30 billion for midstream infrastructure (e.g., derivative plants, ports and trucks) with synergies across projects.

Namibia recognizes the importance of minimizing WACC to reduce hydrogen and derivative production costs. The Development Finance Assessment (DFA) Report commissioned by the National Planning Commission in collaboration with the Ministry of Finance articulates the need to deploy a blended financing approach to raise fit-for-purpose capital to build the nation robustly and sustainably.

To this end, the Government will launch an infrastructure fund – SDG Namibia One – that will initially mobilize US$1 billion in concessionary and commercial capital to develop the SCDI. The fund will link three funds to provide capital for the three different project development phases: development, construction and operations. Each will have a different risk-return profile achieved by 'blending' donor and development finance institution capital to attract commercial investors according to their mandate requirements. US$40 million of catalytic funding has already been secured from the Dutch Government through Invest International to seed the fund. Such an architecture has been deployed successfully in emerging market nations to finance climate infrastructure projects. Namibia expects the fund to help achieve a highly competitive WACC for the hydrogen industry's investment needs and ultimately for globally competitive hydrogen and derivative production costs.

We are a global leader in conservation and nature-based rural development.

Namibia will set the bar on environmental and community-responsible development

Biodiversity is critical to Namibia, where 70% of the population depends on natural resources for their livelihood. Namibia is a global leader in conservation and nature-based rural development. For example, as early as 1990, Namibia introduced the Community- Based Natural Resource Management Programme (CBNRM) to promote sound environmental management and the sustainable use of natural resources in a way that empowers local communities to share the responsibilities and benefits. This programme is globally recognized as a prime example of the conservation and sustainable use of biodiversity.

Namibia will apply CBNRM tools and mechanisms to anticipate and address any biodiversity implications of the planned land developments in advance, by, e.g.:

- Taking a multi-stakeholder approach that involves and coordinates all participants across communities, local organizations (e.g., forest farmer groups), NGOs, project developers and the Government.
- Putting in place policies and enforcing laws to prevent violation of environmental standards.
- Applying conflict management mechanisms to support processes to manage natural resource conflict among stakeholders.
- Monitoring and evaluating all participants to promote learning, trust and accountability
- Enforcing social and gender equality around the access to and control of natural resources

The Hyphen project is a good example of sustainable and responsible land management. With a relatively small footprint of 5% in its current land allocations, it focuses on regions that have the best solar and wind resources and avoids sensitive environmental areas.

> “We are setting the course to realise our vision for a green economy and momentum is already building.”

Action Plan to **March 2025.**

Namibia will set up an effective operational structure...

- Delivery infrastructure. Enhance the Presidential Delivery Unit to help develop the hydrogen industry and commission the Implementation Authority Office to plan, procure and monitor future green hydrogen projects developed on state-owned land.
- National strategic and legislative framework. Enact the Synthetic Fuels Act as a comprehensive regulatory framework to create an enabling environment with legislation for hydrogen projects, and ensure compatibility with international green fuel, certification, health and safety, and environmental standards.
- Investor support office. Establish a single point of contact for investors and developers, to streamline processes and ensure swift and smooth support.
- Local industry ecosystem development. Launch pilots to build knowledge, local EPC companies and capabilities to construct and deliver local component manufacturing.
- Common Use Infrastructure. Plan requirements, develop an ownership and governance model and build a shared ecosystem to lower development costs and risks.
- Robust talent strategy. Put in place training programmes and immigration policies to enable Namibian citizens to participate in the hydrogen economy and supply talent to the industry.

... embedded in a strong network of partners...

- Mobilization of finance. Work with international development partners to make de-risking financial instruments available, including export credit guarantees, first-loss equity, low-cost loans and political risk insurance, building on SDG Namibia One.
- Regional green ecosystems. Engage with regional partners to explore and agree on collaboration opportunities to foster cross-border green ecosystems, e.g., shared use of port infrastructure, pipelines.
- Hydrogen diplomacy. Continue the global outreach campaign to inform potential investors, project developers and international development partners about Namibia's hydrogen opportunity and identify collaboration opportunities with other governments and the private sector.

... to create shared prosperity for Namibians

- Socio-economic development. Update and develop the Harambee Prosperity Plan II to lay out a clear path for economic development (including promoting local manufacturing and identifying adjacent green growth opportunities) and invest Government proceeds from the hydrogen industry in healthcare, education and other social benefit.
- Inclusive citizen engagement. Host roundtables to engage key internal stakeholders (civil society, labour unions, traditional communities) in building Namibia's hydrogen economy and incorporate their feedback in plan development.
- Environmental safeguards. Create a permanent task force to assess and manage the biodiversity concerns in the hydrogen industry under the framework of the Community-Based Natural Resource Management Programme.

6.

An invitation to join us.

We invite like-minded public and private partners to join us as we re-shape the global energy landscape to be sustainable for the future of all mankind.

We are very excited about the journey ahead. Building a thriving hydrogen industry in Namibia could make a real contribution to solving the global climate crisis and to creating broad-based prosperity for our citizens.

We believe that all nations must work together to combat climate change and build global energy security.Namibia is already taking action.

NOTES

NOTES

With the support of:

Republic of Namibia

Harambee Prosperity Plan II
Performance
Delivery
Unit