



## Africa Energy Futures: Namibia

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### Over the last 5 years, how has the energy mix changed, and what have been the key drivers?

Namibia's main energy sources are petroleum, hydropower, imported electricity and imported coal. Currently, less than 50% of the population has access to power. The country's traditional generation capacity consists of a mix of hydropower, coal, diesel and thermal. The four state-owned power stations currently supplying electricity to the domestic market are: Anixas (diesel, 22 MW), Paratus (diesel, 16 MW), Van Eck (coal, 120 MW) and Ruacana (hydro, 330 MW). All four plants are owned and operated by the national power utility, NamPower, which also owns and operates the national transmission system. These domestic electricity generation plants, however, supply less than one-third of power consumption. As a result, Namibia imports most of its electricity primarily through bilateral contracts with South Africa's national power utility (Eskom) and to a lesser extent, the Southern Africa Power Pool.

Local installed capacity in 2020 was at 624 MW. According to the National Integrated Resource Plan (NIRP), peak demand is currently at 673 MW and is projected to rise to 931 MW in 2025 and 1,348 MW in 2030. But rising domestic consumption, dependency on electricity imports, peak power challenges, transmission congestion on the import corridor, the decline of surplus generation capacity in the Southern Africa Development Community, as well as securing power supply and projected electricity demand, have led to the need for additional funding through independent power producers (IPPs) and public-private partnerships (PPPs). This gap is further exacerbated by Namibia's unsustainable dependency on fossil fuels and hydropower. Petroleum and coal are not produced locally. Furthermore, the severe drought that Namibia faced between October 2018 and May 2019 – the worst in 90 years – has debilitated the supply from the Ruacana Hydro Power Station, Namibia's biggest local energy source.

Namibia does, however, have high potential for solar, wind and biomass generation. Invader bush is abundant in the country's north. This allows for a large-scale bioenergy-based production capacity. The country is also one of the ten largest uranium resource holders in the world and provides 8.2% of global production. Namibia has stated its interest in introducing nuclear power into its domestic mix.

The desire (and need) to move away from the traditional energy mix, coupled with Namibia's potential for renewable energy generation, resulted in several reforms over the last few years aimed at attracting IPPs. These reforms include the horizontal consolidation of more than 70 electricity distributors into five regional electricity distribution companies (REDs), the establishment of transparent tariff setting procedures (overseen by the Electricity Control Board, or ECB) and the abandoning of the single buyer model (currently, NamPower or one of the REDs under NamPower's control). Various policies have also been adopted to facilitate the pursuit of renewable energy exploitation.

The NIRP, which broadened the energy mix, was finalized in 2016, and there has been a subsequent increase in small IPP project investments. The Renewable Energy Feed-in Tariff (REFIT) program, initiated by the Ministry of Mines and Energy, the ECB and NamPower in 2015, is intended to reduce Namibia's electricity imports and attract private

investment in the development of renewable energy. Under this program, 14 generation licenses (each with an installed capacity of 5 MW) were issued to IPPs. Most REFIT projects have been completed and are in operation. One project is wind-based, while the rest are all solar projects. The desired zero load-shedding outcome has been achieved, while installed electricity generation capacity was increased from 400 MW in 2016 to over 624 MW by 2020.

## What is the outlook for the energy and natural resources sector in the next 5 years? In particular:

### Key policy decisions

Over the last few years, the National Energy Policy of 2017, the Renewable Energy Policy and the Independent Power Producers' Policy have been adopted. They amplify and supplement the new Namibia Harambee Prosperity Plan II 2021 – 2025 (HPPII) and Namibia's Fifth National Development Plan 2017/18 – 2021/22 (NDP5). Key policy decisions over the next few years will be influenced by these existing policy documents.

During the HPPII period (2021 – 2025), further efforts will be made to align the National Energy Policy of 2017, the Renewable Energy Policy and the Independent Power Producer's Policy to the NIRP to create greater certainty for investors and infrastructure developers. One of the goals of the HPPII is to increase local electricity generation capacity from 624 MW (2020) to 879 MW by 2025. With its abundant, world-class renewable energy resources and increasing demand for green hydrogen worldwide, the HPPII recognizes that Namibia could be an early entrant in this new market. Key policy considerations to drive larger private investments into the energy sector include the approved 2019 electricity supply industry restructuring from a Single Buyer to a Modified Single Buyer (MSB) structure, the full implementation of net metering and equitable connection of embedded capacity at mines and REDs. The MSB model has been effective since September 1, 2019.

Similarly, the objectives of NDP5 include reaching a sustainable mix of locally generated power capacity of 755 MW. Under the NDP5, the entrance of IPPs should be promoted to meet the growing demand for energy. Mining, water pumping, the construction sector and urban growth are expected to be major drivers of energy demand.

The promotion of IPPs in the electricity supply industry is required to meet the increased demand. NDP5 also envisages the transformation of the current power structure by introducing competition in the energy sector, thus discouraging monopolies and driving down costs.

The government resolves to direct the development of the country's generation and transmission sectors through the NIRP, which optimizes costs for long-term sustainable security of supply, and also regularly updated to reflect changing circumstances and technological developments. It seeks to ensure the implementation of the NIRP by facilitating the procurement of generation capacity through transparent, investor-friendly and timely procurement notices.

### Main policy challenges

While significant progress was achieved in several desired outcomes under the first Harambee Property Plan, some were not achieved due to a combination of factors, including inadequate public sector capacity, funding and insufficiently progressed policy frameworks to facilitate private investment and PPPs. These factors will remain key challenges under the HPPII. The slow pace at which regulatory frameworks (especially in respect of energy, foreign investment and the environment) are developed and adopted will pose additional challenges.

### The anticipated role that renewables and/or new technologies will play

Namibia has great potential for renewable energy, especially solar and wind. Under the National Energy Policy of 2017, the government resolves to guide integrated resource planning by prioritizing generation projects from renewable, non-polluting, indigenous, diverse, and decentralized resources, in a way that optimizes the long-term cost of electricity supply. The Renewable Energy Policy was adopted to guide and facilitate access to modern, clean, environmentally sustainable and affordable energy services.

Renewables and new technologies will play an important role in achieving government policy objectives as described above. Increased reliance on renewables will decrease the demand burden on NamPower and the need to import electricity. The use of new technologies will also ensure efficiency and reliability, less emissions and less noise.

Renewables and new technologies will also attract and secure infrastructure and foreign direct investment, which in turn could lead to job creation.

## What are the key investment opportunities in the energy and natural resources sectors over the next 5 to 10 years?

The historical focus of the ECB on the electricity sector, which only constitutes 20% of the energy spectrum in Namibia, will be broadened through the enactment of an Energy Regulator Act, to the full scope of energy activities and resources. As a critical enabler of growth, energy policies and strategies need to assume a firmly integrated position across all pillars of HPPII. Increasing local electricity generation capacity from 624 MW in 2020 to 879 MW by 2025 will be achieved through various actions, including the commissioning of 50 MW of IPP projects under the MSB programme during HPPII and commissioning an additional 220 MW generation capacity by NamPower by 2025.

The planned projects under the HPPII include a 40 MW biomass bush to electricity project at Tsumeb and a 50 MW Anixas heavy furnace fuel peaking plant expansion at Walvis Bay. Bids for the latter were closed on September 3, 2021. The projects also include a 40 MW wind generation project at Lüderitz, the 20 MW Omburu Solar PV plant at Omaruru, the 20 MW Khan solar PV plant at Usakos and a 50 MW wind IPP project at Lüderitz. Moreover, additional generation capacity will be investigated through PPPs and other frameworks during the HPPII period and beyond. Potential projects for private funding would be a feasibility study on a 100-150 MW concentrated solar power plant, a feasibility study for a 300 MW solar park as Phase 1 of a larger regional solar park project of up to 5 GW, 10-40 MW biomass generation projects, and 20-50 MW solar PV and wind projects. Other key investment opportunities may include investments in battery and storage technologies and investments in natural gas.

## With particular focus on sustainability, and on reducing carbon emissions, how will the energy and natural resources landscape change over the next 5 to 10 years?

With the increased resort to renewable energy, it is expected that the reliance on fossil fuels will decrease over the next five to ten years. In 2015, the cabinet adopted the Nationally Determined Contribution to guide Namibia's implementation of the Paris Agreement on Climate Change, containing important renewable energy share targets and greenhouse gas emission reduction targets, which were used to stimulate investment into renewable energy infrastructure. Various other policies (and, to a limited extent, legislative measures) have been introduced aimed at sustainable development and the pursuit of UN sustainable development goals (SDGs).

Unfortunately, the development of an effective and enforceable environmental regulatory framework incorporating sustainable development and the SDGs has been slow. It is anticipated that government's policy framework on energy will, over the next few years, be aligned with its environmental and sustainable development policy framework to ensure an effective, enforceable energy framework incorporating sustainability and reduction of carbon emissions.

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