



# Energy and Covid-19

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## Sustainable finance: An essential tool to enable access to affordable and clean energy in Namibia

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Sustainable Development Goal (SDG) 7 targets to ensure access to affordable and clean energy to all beings by 2030. Namibia is characterized by low energy access levels with rural electrification at 25% (SE4ALL, 2016). Renewable energy in the form of hydropower, solar, wind and biomass are sources of clean energy in Namibia, but coal and oil still provide a large portion of the country's energy. Incremental policies and financial resources are still required to support growth in investments for on-grid, mini grid, and off-grid energy complemented by energy efficiency projects to address energy challenges. Options including microcredit, project finance and Public Private Partnerships (PPP) can be considered to achieve community electrification and energy efficiencies depending on the scale of the project. Community electrification improves access to energy.

### Introduction

Sustainable Development Goal (SDG) 7 targets to ensure access to affordable and clean energy to all beings by 2030. According to (Steenkamp, 2016), the electrification rate worldwide has increased to 82% and the number of people without access to electricity has dropped to 840 million from 1.6 billion in 2016. Most of those without access are in the Sub Saharan Africa region. Namibia is characterized by low energy access levels with rural electrification at 25% (SE4ALL, 2016). Renewable energy in the form of hydropower, solar, wind and biomass are sources of clean energy in Namibia, but coal and oil still provide a large portion the country's energy. Energy is essential for industrial and domestic use. The industry requires energy for running operations efficiently while households require it mostly for cooking, heating, lighting and charging home appliances.

### Historical Challenges with Namibia's Energy Sector

The energy sector in Namibia is managed by the Ministry of Mines and Energy. Namibia has an energy deficit and it imports approximately 60% of electricity amounting to 600MW from South Africa, Zimbabwe and the Southern Africa Power Pool (SAPP). This exposes the country to shocks that might be prevalent from the source countries. According to the report from (University of Cape Town, 2011), Namibia's main source of power are from fossil fuels and the largest power plants are as per the table below.

### Local energy sources in Namibia

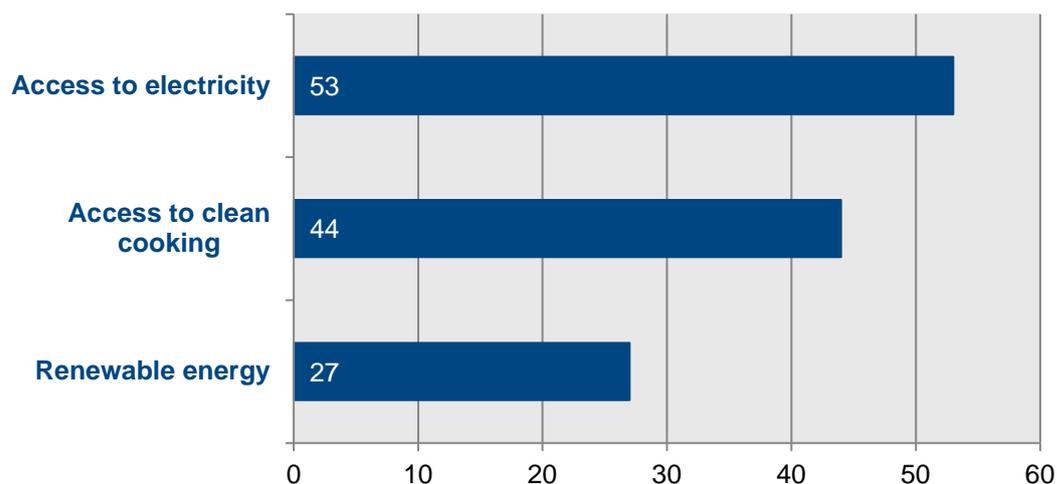
Source	Output
Ruacana Hydropower Station	332 MW
Van Eck Coal Power Station	108 MW
Paratus Diesel Power Station	24 MW
Anixas Power Station	22.5 MW
Total	486.5 MW

Adapted from: Kapika and Eberhard (2013) [https://www.gsb.uct.ac.za/files/Power-sector\\_reform\\_and\\_regulation\\_in\\_Africa-Entire\\_eBook.pdf](https://www.gsb.uct.ac.za/files/Power-sector_reform_and_regulation_in_Africa-Entire_eBook.pdf) (Access on 07.01.2021)

At USD 13 cents per kWh the electricity tariffs tend to be high as compared to its neighbouring countries (University of Cape Town, 2011). The private sector involvement in this industry has been limited until recently.

Only a third of Namibians have access to electricity with the population in the rural areas being the most affected. Table 2 below illustrates the current access to electricity statistics for Namibia.

### Energy statistics in Namibia



Source: ESMAP (2019) <https://trackingsdg7.esmap.org/data/files/download-documents/2019-Tracking%20SDG7-Full%20Report.pdf> (Access on 30.12.2020)

One of the biggest challenges is the lack of clarity in the business and financing models to upgrade the energy infrastructure. The cost of the devices required are prohibitive to individuals at the bottom of the pyramid and small businesses. Sustainable finance is defined by Swiss Sustainable Finance as any form of financial services integrating environmental, social and gov-

ernance (ESG) criteria in investment decisions for the benefit of both clients and society. Multi-lateral and financial institutions can influence the promotion of renewable energy through provision of sustainable finance. For example, they can provide support by:

1. Increased financing of energy efficiency initiatives
  2. Increased financing of renewable energy projects for businesses and households
- These solutions are beneficial to the society and corporations in Namibia.

## What options does Namibia have?

While Namibia has introduced policies and legislation to enable affordable and clean energy (e.g. the Namibia Energy Regulatory Framework, a Renewable Energy Policy and an Energy Efficiency Act) the country is still importing a significant component of its energy requirements. Incremental policies and financial resources are still required to support growth in investments for on-grid, mini grid, and off-grid energy complemented by energy efficiency projects to address energy challenges. Options including microcredit, project finance and Public Private Partnerships (PPP) can be considered to achieve community electrification and energy efficiencies depending on the scale of the project. Community electrification improves access to energy.

### On-grid investments

This business model for on-grid power projects is multifaceted and typically dependent on the power purchase agreement (PPA) with a credible off-taker. The Feed-in-Tarif model guarantees the investor payment of the generated power. In recent times, energy auctions are increasingly becoming popular and have become competitive due to cheaper technologies and increased technical exposure and know how. For a bankable PPA, lenders are interested in price benchmarks (cost per kWh), creditworthiness of the utility company (NamPower), recourse for non-payment, Namibia's energy plan and a stable regulatory and business environment. Namibia's five-year renewable energy plan for the period between 2019 and 2023 has put it on the right path to enable more on-grid power projects. On-grid investments are most critical for the large projects in excess of 10MW. The development of more on grid renewable energy requires EPC contracts on project development in this area. There is a favourable business climate in Namibia and investors can take advantage of the present conditions. PPPs and project finance are some of the popular methods used to finance large on-grid projects due to the size of investment required. This climate enhances chances of success on financing renewable energy infrastructure with project finance (Steffen, Group, & Zurich, 2018). Further, Namibia has recently developed a Modified Single Buyer framework which allows electricity consumers and independent power producers (IPPs) to transact directly. This is attractive to potential financiers as they can enter into off-take agreements with private consumers with minimal bureaucracy.

### Off-grid investments

This model includes installation of various technologies such as solar appliances like water pumps, lighting and solar geysers. Banks and micro credit companies in Namibia can leverage from their presence in the remote areas to finance off the grid electricity. This business model has low risk to the financiers and requires little capital. The greater population of Namibian citizens stay in the rural areas with little to no access to electricity. Micro credit and corporate credit are key interventions in having electricity products in rural areas. Microcredit is financing obtained from microlending institutions with minimal vetting requirements while corporate credit is obtainable from commercial banks from development finance institutions. Pay-as-you-go solar financing model widely known as PAYG is popular in Kenya and East Africa. The model enables installation of modest solar systems by low income earners on credit. It is supported

by an enabling policy framework which encourage the private sector to offer such products. Risk is low if the credit history of the beneficiaries is available.

### Mini-grid investments

There is potential for greenfield projects by using renewable energy for mini-grids. This business model involves the sale of electricity and related services directly to niche markets. For this to be effective there is need for a vibrant regulatory environment and incentives for renewable energy and mini-grids. Mini grids are a scalable option to complement on-grid and home solar power solutions. It's often a cheaper option compared to extending on grid power to remote areas. Mini grids powered by renewable energy systems can significantly reduce carbon emissions and are usually environmentally friendly. Moreover, they pave the way for future expansion of on grid investments as they build a customer base which can pay for on grid power in the future. Future on grid investors can model the financial sustainability and profitability from the consumption patterns under the mini-grid system. In 2006, half a million people were added to the mini grid system in Peru with the assistance of ESMAP. ESMAP also has similar experience in West Africa. Namibia could partner with institutions like ESMAP and leverage from their experience to develop their own approach.

## Why solar energy is a low hanging fruit to building renewable energy infrastructure

Investments in solar energy are the quickest way to achieve clean energy access for all in Namibia due to the following reasons;

- › Namibia has exceptional solar resource availability during the year,
- › Solar gives more control to consumers as they produce their own energy and reduces dependence on utility power that can be less reliable,
- › Solar energy is now competitive in many instances as compared to grid power,
- › Technology on solar products is evolving and this can further result in energy savings for customers.

### Link with other SDGs

Solar energy has the potential to improve the status of other SDGs too. For instance, mini-grids and off grid power in remote areas can enable improved quality of education (SDG 4), as students are able study at night as well as use their electronic devices for learning. Taking energy to remote areas also reduces inequalities (SDG 10) amongst citizens. Solar energy improves the sustainability and resilience of cities and communities (SDG 11). According to (Schwerho & Sy, 2017), renewable energy's contribution is so broad that it affects all SDGs.

## Financing solar energy projects in Namibia

### Development Finance Investors

The Global Environment Facility (GEF) has been Namibia's largest partner in climate financing. Namibia needs to do more and engage more Development Finance Institution (DFI) investors like IFCs and World Bank who stand ready to finance renewable energy projects. The World

Bank has increased its financing for energy access, and is the leading DFI in this area. These investments are climate friendly and stimulate economic activity, reduce unemployment, limit pollution as well as greenhouse gas emissions.

### Local banks

This is a traditional source of funds for renewable energy projects worldwide. Extensive financial modelling is however critical as banks' motive is on the bankability of the project rather than just the return on investment. Banks can also work as a financial tool as their assessment of the project and testing of the forecasts and returns help to ensure that financial due diligence is carried out on the projects. Moreover, financial covenants provide restrictions to ensure that the purpose of the projects are realised. The Development Bank of Namibia and lenders like Kongalend require more capacitation to issue complex renewable energy finance products. The bond market is not yet as popular in Namibia but the successful issuing of the green bond which was a first such in Southern Africa by Bank Windoek is encouraging. The government can do more by minimising bureaucracies and creating an enabling environment which allows for funds to be raised from the market through green bonds. A viable green bond market in Namibia could also encourage investment in renewable energy products.

### Equity investors

NamPower can also consider being an equity funder with private renewable energy companies. This ensures that its objectives are met as it is also party in the decision making of the projects where it is a shareholder. According to (Donastorg, Renukappa, & Suresh, 2017), equity funding is the most popular option in developing countries with annual growth of between 5-12%. The main reason is that most of the projects are new and innovative so there is high perceived risk that is considered by providers of alternative funds. However, there is also possibility of conflict of interest as NamPower owns other generation assets currently.

### Government subsidies and guarantees

Off grid investments are usually sub economic because the population living in the rural areas does not have capacity to pay for electricity. Subsidies may be required to make renewable energy available for some rural areas and customers. Renewable energy is considered a fairly new technology in Namibia and other regional countries so there is still high perceived risk. The government could support investors by providing guarantees to mitigate perceived risk.

## Barriers to renewable energy finance in Namibia

While the opportunities for renewable energy are massive, there are some drawbacks which need to be addressed if infrastructure projects are to be successful. Some of the problems are listed below;

- > Most of these projects are small in size and may not be attractive to some potential investors
- > There is high perceived and real risk
- > Lack of incentives from the government and its agencies
- > High transaction costs on initial investments
- > Limited reliable technical information and operational data
- > Lack of skills to evaluate and negotiate projects

- › Many renewable energy companies are small and do not have track records
- › Local banks lack the technical and financial capacity on renewable energy projects

### Effects of the COVID-19 pandemic on renewable energy

The COVID-19 pandemic has had significant humanitarian, social, governance and economic effects worldwide. In Namibia, UNDP budgeted for USD5.98 million for capacitation of communities and for the socio economic impact and recovery from the COVID-19 crisis (UNDP, 2020) while the EU issued a grant worth N172million. The government itself released a stimulus package worth N\$8.1billion to support households and business enterprises (Ministry of Finance, 2020). However, the renewable energy sector was not mentioned amongst the hardest hit sectors like tourism, aviation, construction and tourism. The sector only benefited indirectly through consumption by enterprises and households.

#### Finance related issues

The Government committed to guarantee N\$500 million loans at concessional rates to businesses that have constrained cash flows during the COVID-19 crisis. It guarantees the loans through the Development Bank of Namibia. The funds are only available as working capital stimulus without consideration to capital expenditure.

#### Logistics and acquisition related issues

Licensing authorities have not been available due to the movement restrictions in response to the Government's state of emergency resulting in delays in projects and services. Domestic and international travel has also been affected and the mobility of internal and external experts with key knowledge of the sector has been disrupted. The pandemic restricted movement of supplies from China which is a global supplier of power equipment and therefore delayed completion of projects.

#### EPC related issues

The Angola-Namibia cross border Baynes hydroelectric project which was due to commence in June 2020 has been stalled due to movement restrictions of both human capital and equipment.

Botswana and Namibia mega solar project to produce 5000MW is funded by the World Bank, IFC, African Development Bank, Africa Renewable Energy Initiative, New Partnership for Africa's Development, IRENA, and the US Government-led Power Africa initiative. These organisations are focused now on the COVID-19 pandemic and are mostly issuing out funds for social protection and this will inevitably affect progress and timelines of this project. The pandemic has resulted in the government and impact investors focusing on the short-term efforts like averting GDP slow down and a humanitarian crisis. Funds by the government have been used more on rescuing enterprises and social grants. COVID-19 has therefore reduced the momentum on solar energy and sustainable finance for large infrastructure in Namibia in the short term.

### Other interventions required to achieve improved access to energy

## Energy Efficiency

New technologies like geospatial data systems, smart meters, smart storage and smart grids are key enablers to energy efficiency. The World Bank and ESMAP assist developing countries in adapting innovation in technology, finance and policy. Namibia has established the Centre for Renewable Energy and Energy Efficiency (CREEE) which can work with ESMAP in developing further policies that enhance efficiencies. Technology can be used to scale up clean and affordable energy, and it can have a positive impact on other SDGs too. For instance, BNP Paribas collaborated with US Fintech called Mosaic to provide US homeowners financing solutions to help them install solar panels and improve their energy infrastructure. Mosaic has software that gives access to local installers and allows for an online credit application. The company has funded more than \$1bn of solar panels in 37 states in the US. This has improved the ease and affordability of renewable energy.

## Policy

ESMAP provides technical assistance on the development of regulations to manage energy efficiencies. Taking a cue from key lessons ESMAP's previous projects, Namibia needs to strengthen NamPower's capacity to implement energy efficiency initiatives. These include developing standards on energy infrastructure, labelling of appliances and green building. Namibia set up the Namibia Energy Efficiency Programme in Buildings (NEEP) in 2014 with the assistance of the United Nations Development Programme (UNDP) to pacify the rising electricity consumption and possible interruption of electricity supply from South Africa through reduction of greenhouse gas emissions in buildings. The programme went on for three years. Expansion of this programme in terms of training, awareness and enacting regulations that improve monitoring of building standards and labelling of appliances will significantly contribute to energy efficiencies in the country.

## Conclusion

If Namibia is to have realise it's goal of self-sufficiency in energy productions, the government will need to create more avenues for the financing of renewable energy infrastructure, and leverage COVID-19 relief funding where possible. Solar financing is the low hanging fruit which the government should enable for the transformation of renewable energy production and recovery of the local economy. Local and regional Independent Power Producers activities should be incentivized by minimizing barriers to EPC contracts. Establishment of net metering solutions will stimulate private investment in solar energy from private businesses and homeowners. The Modified Single Buyer framework once fully implemented will encourage more sustainable finance and private sector investment in the energy industry, which can serve as an example for other countries in Southern Africa that are also looking to reform their electricity market. Capacity building and investment in technology is also required to enhance energy efficiencies. While SDG 7 is the primary target, Namibia also stands closer to achieving SDG 4, 10 and 11. In order to implement these solutions, it is critical that Namibia mobilizes sustainable finance locally, regionally and internationally as it can be the panacea to the power deficit in the country. Beyond COVID-19 financial markets will be seeking for stability and sustainable finance will therefore be best placed to tackle the energy deficit in Namibia.

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## Imprint

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