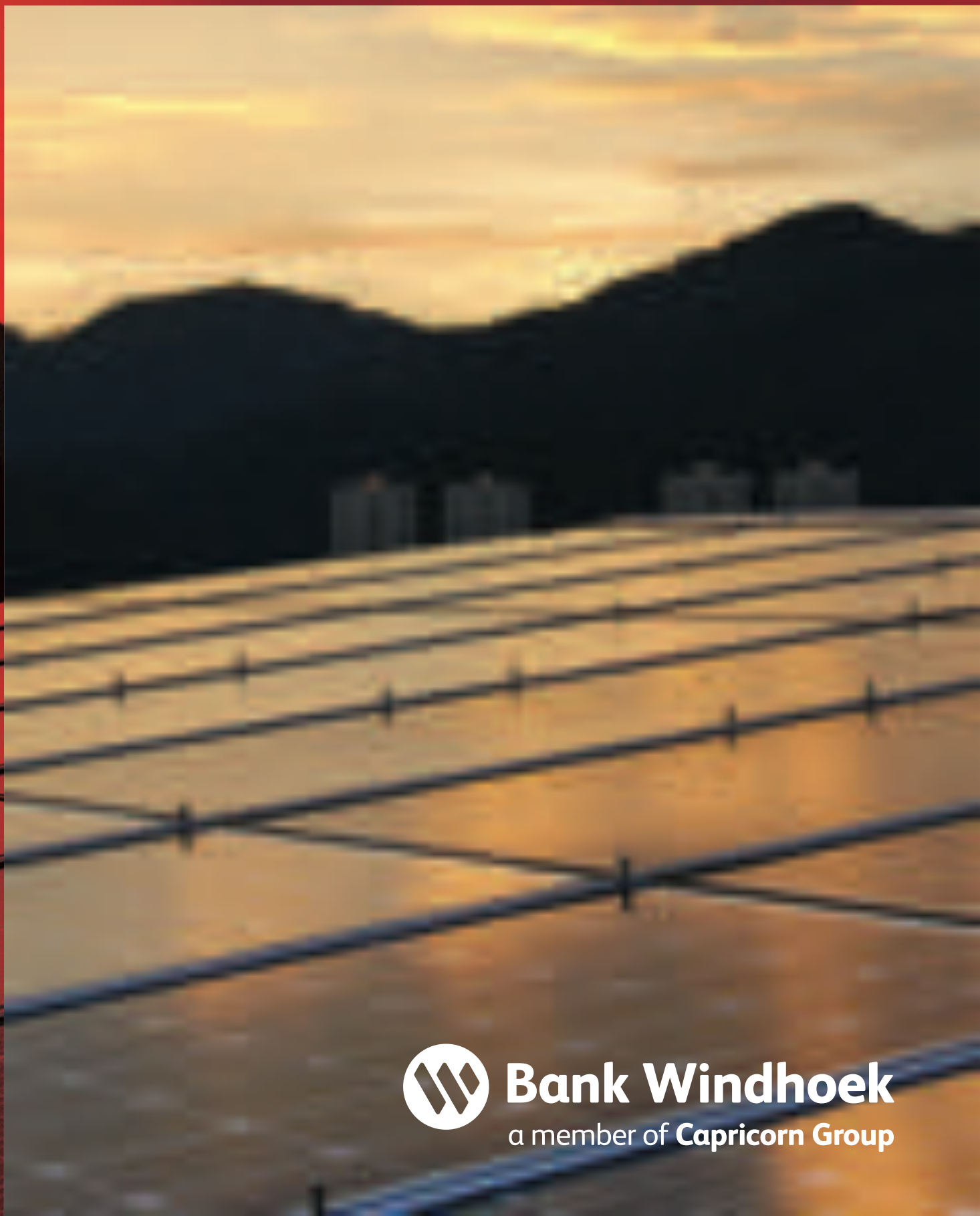
Green Bond

Impact Report 2020



Bank Windhoek

a member of Capricorn Group

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ABBREVIATIONS

24/7 – Twenty-four hours and seven days a week

AFD - Agence Françoise de Development

BW – Bank Windhoek Limited

CAFI - Climate Assessment for Financial Institutions

GB – Green Bond

GHG - Green House Gas

GHI - Global Horizontal Irradiance

ICMA - International Capital Markets Association

IFC - The International Finance Corporation

kW – kilowatts

Kw/p - kilowatt 'peak'

kWh – kilowatt-hours

NAD – Namibian Dollar

PEP - Photovoltaic Electricity Potential

PV - Photovoltaic

RE – Renewable Energy

RED - Regional Electricity Distributors

REFIT - Renewable Energy Feed-in Tariff Programme

SAPP - Southern African Power Pool

SUNREF - Sustainable User of Natural Resources and Energy Finance

tCO2 e/yr.- tonnes of carbon dioxide equivalent per year

VSD - Variable Speed Drive

W – Watt

INTRODUCTION

As we start 2020 there is a strong wave of optimism around renewable energy, which will hopefully also be the start of strong momentum within the borders of Namibia. We feel that sustainable investments by businesses in renewable energy as well as water solutions are likely to grow at a rapid pace in the next 12 months and beyond. The severe drought experienced across the country, increasing energy costs and our reliance on Eskom for electricity imports have put sustainability and investment in energy production at the top of many business and household agendas. Namibia's hot dry climate and abundant sunlight resource of more than 300 days and up to 2,200 kilowatt-hours (kWh) per square metre annually are recorded in the country, serves as evidence that Namibia is an ideal spot to harness the energy of the sun.

Capricorn Group's aim is to become the Green Financier of choice for sustainable projects in the countries we operate in. Bank Windhoek, as the only locally owned commercial bank in Namibia, we share the responsibility to protect Namibia for future generations by actively contributing to and facilitating the transition to a low-carbon and climate resilient economy.

Bank Windhoek was an implementing partner of Sustainable User of Natural Resources and Energy Finance (SUNREF) programme by Agence Françoise de Development's (AFD). The funding from SUNREF aims to finance renewable energy projects within Namibia. The initiative was an expansive journey for the bank's staff and clients involved in related renewable energy projects and this experience encouraged Bank Windhoek to continue to expand its green lending activities.

For this purpose, Bank Windhoek aimed to obtain additional sources of funding for its green lending activities by raising funds in the debt market through a local Green Bond issuance, of which the proceeds will be used solely to finance eligible green projects and assets throughout Namibia.

Green bonds generally are fixed income instruments where the proceeds are exclusively applied to finance or re-finance, in part or full, new and /or existing eligible Green Projects and which are aligned with the four core components of the International Capital Market Association's (ICMA) Green Bond Principles (GBP). In its simplest form, the bank raises a fixed amount of capital, repaying the capital (principal), and accrued interest (coupon) over a set period of time. It is a win-win situation for both the bond issuer (the Bank) and the investor, as they can contribute towards sustainable future on one hand and showcase themselves as a responsible organisation/institution/individual on the other hand. Furthermore, by issuing a Green Bond, the bank and Capricorn Group committed to being a sustainable and responsible organisation. Sustainable finance, therefore, will be embedded in the bank's future growth strategy. Bank Windhoek is committed to ensuring that clients have sufficient access to funding that supports Namibia in its transition to an environmentally sustainable and low-carbon economy.

The Bank Windhoek Green Bond Framework clearly illustrates how the bank proposes to raise additional funding through the Green Bond issuance and to use the proceeds for green projects in accordance with the green eligibility criteria set out in the Framework. To ensure the credibility of the Bank Windhoek Green Bond Programme, the Framework is based on the International Capital Market Association's (ICMA) Green Bond Principles (GBP) and the Definitions and Metrics for Climate Related Activities of the International Finance Cooperation (IFC). Bank Windhoek also aligns its business practices and sustainability performance to the relevant Sustainable Development Goals[1] (SDGs). Our Green Bond Project Portfolio aligns with Sustainable Development Goals below.

Figure 1: United Nations - Sustainable Development Goals (SDGs)

This Green Bond Impact Report summarises Bank Windhoeks' Green Bond Framework and provides an overview of the allocation of the bond's proceeds, and highlights the anticipated impacts of the projects allocated to this Green Bond portfolio.

[1] For more information about the 17 Sustainable Development Goals, please follow the link: https://sustainabledevelopment.un.org/?menu=1300

Third Party Assurance[2]

Bank Windhoek engaged with KPMG (South Africa) to provide independent third-party assurance that selected information in this report has been prepared in line with the Green Bond Framework, and that the Bank Windhoek Green Bond adheres to the voluntary International Capital Markets Association (ICMA) Green Bond Principles.

Namibia's Electricity mix

According to the Ministry of Mines and Energy (MME) the maximum electricity demand for Namibia during 2019, was about 650 megawatt hour (MWh) per day. Furthermore, the electricity demand is expected to increase on average with 5 percent per annum. At the time of reporting, country has an installed capacity of 619 MW, with 347 MW provided by the Ruacana hydro power plant through a large storage dam which is about 80 km south of Nova Lisboa in the Kunene River. The ageing Van Eck coal-fired power station, has the installed capacity of 120 MW, which at the moment only supplies a net output of 60 MW. In addition to the current electricity mix, Nampower constructed the Anixas, with the output capacity of 22.5 MW and Paratus (24 MW) emergency Heavy Fuel Oil (HFO) diesel power stations in the coastal town of Walvis Bay.

Currently, Namibia is self-sufficient for about 39 percent of its electricity demand and import up to 61 percent of its power supply from beyond the Namibian borders. At the time of reporting, 70 MW of Renewable Energy for the national power grid was generated from 5MW photovoltaic (PV) as part of the Namibia Renewable Energy Feed-in Tariff (REFIT) Programme.

In total, 19 independent power producers have signed power purchasing agreements with NamPower in order to supply a total of 175.5 MW from renewable energy sources by the end of 2020. In addition, according to the National Renewable Energy Policy, Namibia should aim to become energy secure and aim to become a net-exporter by 2030 by leveraging renewable resources, which translates into a commitment that at least 70 % or more electricity installed capacity in Namibia, should be from renewable sources by 2030. The successful implementation of a strategy requires collective effort and support from all strategic partners and stakeholders. As a step to attract more independent Power Producers (IPPs), the government recently introduced a significant change in how electricity generated by the private power producers, is sold. The Modified Single Buyer Model (MSB) and the IPP policy are envisioned to increase domestic supply and curtail imports. The MSB market model will allow eligible IPPs to generate and sell electricity directly to customers such as regional electricity distributors (REDs), large industrial and mining companies, municipalities and local authorities.

[2] The Bank Windhoek Limited assurance report issued by the external auditor can be accessed in Appendix A.

An Introduction to Solar Photovoltaic (PV) systems

The formal definition of photovoltaic (PV), is derived from the ancient Greek word phôs, meaning light, and the word volt, an electrical term named after the Italian physicist Alessandro Volta. In laymen's terms, the process of converting light (photons) to electricity (voltage) is called the solar photovoltaic effect. According to Solargain, 2019, the 'photovoltaic effect' refers to the ability to create an electrical current using solar rays which was initially discovered in 1839 by Alexandre Becquerel. Since then, the technology has developed substantially, with modules becoming more and more efficient and cost-effective.

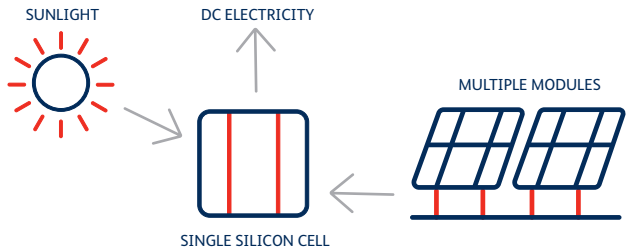


Figure 2: Energy conversion process

Fundamentally, PV modules (commonly referred to as "panels") enable the Photovoltaic solar cells to convert solar radiation (sunlight) with the use of an inverter into a useable form of electricity. According to Solargain (2020), the most common PV technologies use thin layers of semi-conducting material, which is normally enclosed between a sheet of glass which when exposed to sunlight, the electrons absorb the photons, causing the electrons to become highly energised. The energising causes a movement or flow of electrons that generates a current known as a direct current (DC). The DC electricity generated by this aforementioned process is therefore not compatible with the appliances found in homes or offices. Therefore, in order to convert the DC electricity to alternating current (AC) for use in your home and office appliances, special equipment called an inverter, will enable the conversion process. This process is clearly depicted in the figure. Interestingly,by maximising exposure sunlight the PV modules are exposed to, the more current it can generate which in turn will increase the amount of electricity it generates. Therefore, the optimum placement and mounting of PV modules are thus an important aspect of any PV system design.

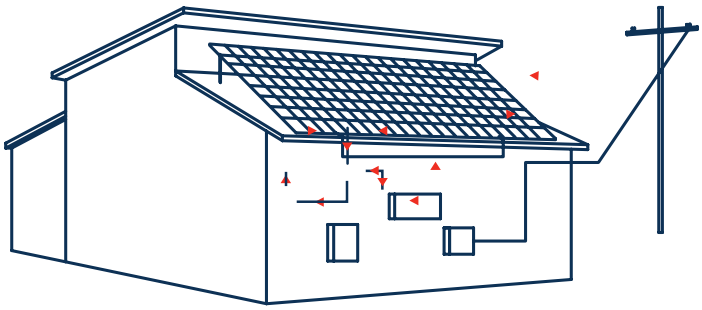


Figure 3: Grid-Tied Connection

Normally, ground-mounted commercial Solar PV installations will install a tracking system, which are used to maximise the exposure to sunlight by following the movement of the sun, however, these intelligent tracking systems are an expensive capital expenditure and will require more maintenance. The most common type of mounting is a roof-mounted

PV system, which involves securing the modules on the roof of a building at a fixed angle using a rust resilient material like an aluminium frame. The most suitable placement is north-facing if you are in the southern hemisphere like Namibia, located away from possible shading obstacles.
As mentioned, PV systems use solar radiation, or more specifically, it is the radiation component referred to as the Global Horizontal Irradiance (GHI) or Photovoltaic Electricity Potential (PEP) to generate electricity.

It is evident that Namibia has an abundance of solar resources – even the more cloudy regions in the Northern parts are more suitable for PV than the best regions in some of the leading countries that use PV installations at the moment, such as Germany and Japan.

Figure 4: Photovoltaic Power Potential for Namibia, 2020

There are different kinds of PV technologies, such as mono (single) crystalline, poly (multi) crystalline and thin film technologies. Each operate in the same way, but contain different additives or are manufactured using different manufacturing techniques. This results in different properties for different technologies, such as temperature sensitivity, conversion efficiency and cost.

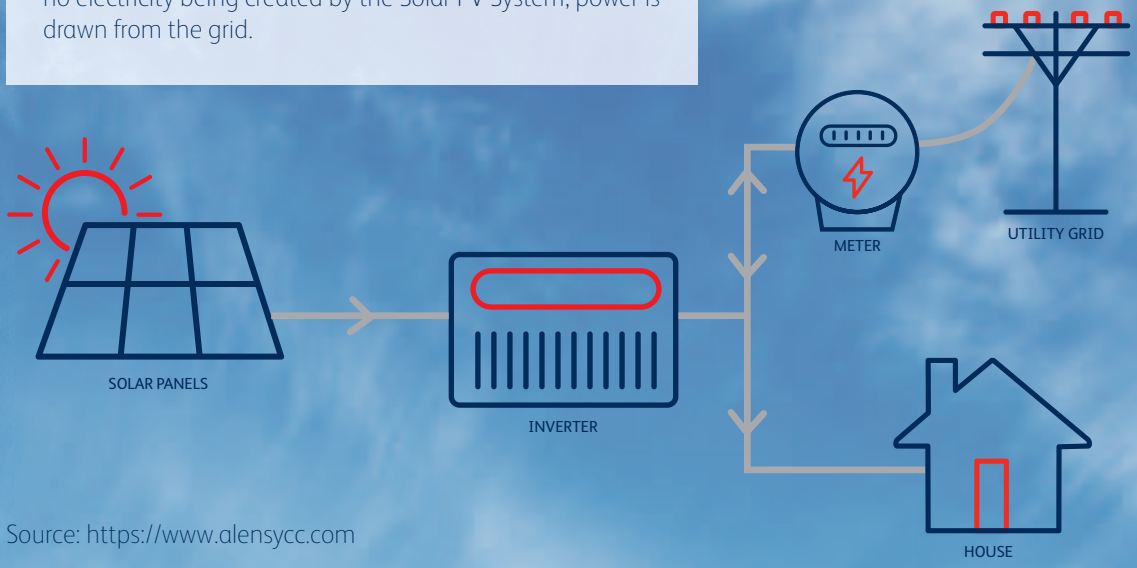
Electricity is distributed through networks to users in the form of AC. The DC electricity generated by a PV cell is therefore not compatible with the electricity found in homes or offices. Inverters that work in conjunction with the standard grid connection are referred to as grid-tied inverters. Almost all commercial rooftop PV installations are of this type.

It is important to note that most solar PV modules available on the market today includes a warranty of 25 years and a power output guarantee of at least 80 % of the rated power output until 25 years of service. However, other components, such as the inverters and batteries, must be replaced after every 10 years of service – an important cost factor to consider with this long-term investment. Moreover, rooftop and fixed ground-mounted PV systems require minimal maintenance and associated costs, other than occasional cleaning.

Different types of Solar PV systems

GRID TIED SOLAR PV SYSTEM

These systems are connected to the utility (Nampower) grid, enabling the consumer to use power from the PV system as much as possible during daytime and in the event of no electricity being created by the Solar PV System, power is drawn from the grid.



Source: https://www.alensycc.com

OFF-GRID SOLAR PV SYSTEM

Solar off-grid systems are systems that provide electricity on a 24/7 basis without a connection to the utility grid. A solar off-grid system provides users the opportunity to produce and store electricity, where no connection to the utility grid is available or undesirable.

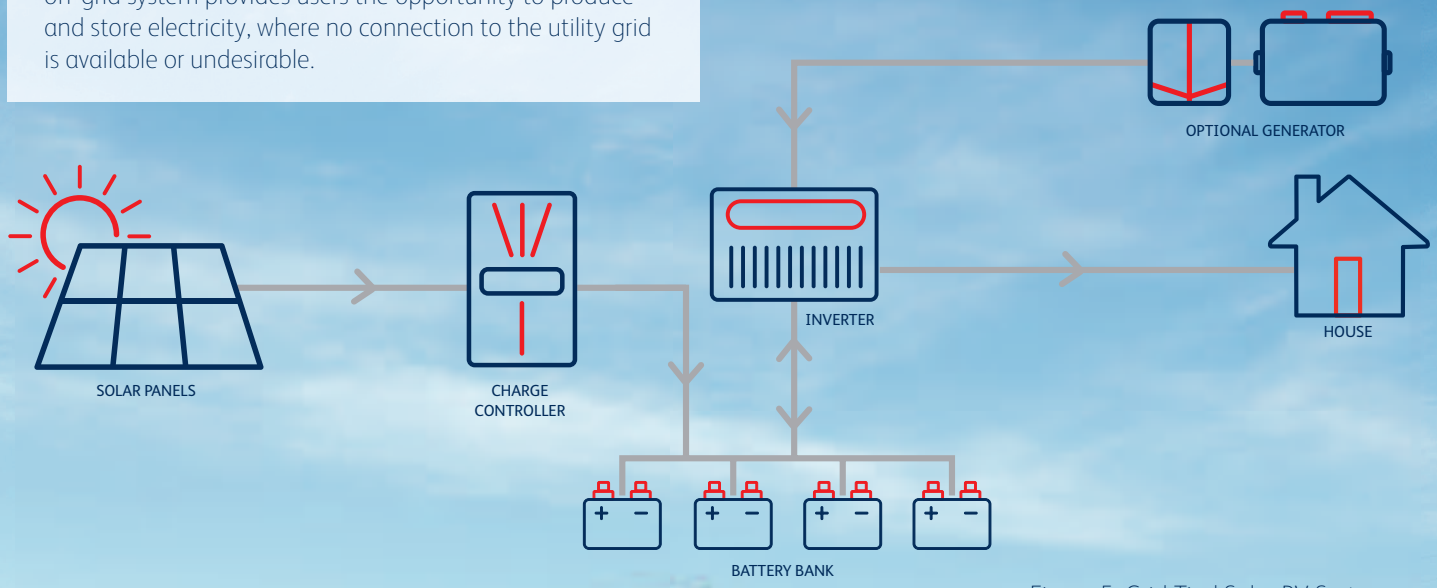


Figure 5: Grid Tied Solar PV System
Source: https://www.alensycc.com

REPORTING

Bank Windhoek, through its Green Bond framework, is committed to publishing the Bank Windhoek Green Bond Impact Report, which provides detailed descriptions of each Green project financed under the Green Bond Portfolio, including the project location and its core climate impact indicators. These indicators will include details such as annual Green House Gas (GHG) emissions reductions, annual energy saved, and renewable energy generated per year. These impact indicators were generated by the online platform known as the Climate Assessment for Financial Institutions, or "CAFI" tool and are accessible to staff and external clients. It enables the bank to check whether a project is climate-friendly and eligible to be financed and then to quantify the development impact of the project.

THIRD PARTY ASSURANCE OF BANK WINDHOEK GREEN BOND

Bank Windhoek engaged KPMG (South Africa) to:

- provide independent third party assurance that information in this report has is prepared in line with Bank Windhoek's Green Bond Framework, and
- ensure that the Bank Windhoek Green Bond process and procedures adheres to the Green Bond Framework and the International Capital Markets Association (ICMA) Green Bond Principles.

SECTOR SPECIFIC GUIDANCE AND REPORTING METRICS (CORE INDICATORS)

1. Annual Green House Gas (GHG) emissions reduced /avoided in tonnes of carbon dioxide equivalent *[tCO_2e]* per annum
2. Annual renewable energy generation capacity in kilowatt per hour (kWh)
3. Installed capacity of renewable energy plant(s) constructed or rehabilitated in Kilowatts (kW)
4. The capacity of renewable energy plant(s) to be served by transmission systems Kilowatts (kW)
5. Annual Absolute (gross) GHG emissions from the project in tonnes of carbon dioxide equivalent *[tCO_2e]*

THE OVERALL ENVIROMENTAL IMPACT FROM BANK WINDHOEK GREEN BOND PROJECTS

Table 1 below depicts the overall expected electricity generated and the Annual Green House Gas emissions from the project in tones Carbon Dioxide Equivalent *[tCO_2e]*, the solar pv projects financed by the Bank Windhoek Green Bond, can generate over various periods.

Table 1: Overall Environmental Impact

Project Name	Project cost	Project cost as % of total (NAD)	Installed capacity [PV Power [kW]	Expected Annual Generation [kWh) in 1 Year[3]	Expected Annual Generation [kWh) in 5 Years[4]	Expected Annual Generation [kWh) in 25 Years[5]	Total Expected GHG reduction *[$tCOe_2$]* , in 25 years	Annual Green House Gas emissions impact (%)
S-PV 1	1,159,060	1.8 %	44.9	84,150	420,750	1,683,000	1,650	0.5 %
S-PV 2	259,125	0.4 %	17.0	26,806	134,028	536,112	527	0.2 %
S-PV 3	148,350	0.2 %	14.2	22,391	111,953	447,811	439	0.2 %
S-PV 4	2,206,024	3.3 %	225.7	355,884	1,779,419	7,117,675	6,980	2.3 %
S-PV 5	4,417,234	6.7 %	300.0	452,345	2,261,725	9,046,900	8,867	2.8 %
S-PV 6	57,250,206	86.7 %	5,741.0	14,641,000	73,205,000	292,820,000	287,000	93.9 %
S-PV 7	560,000	0.8 %	8.0	12,614	63,072	252,288	248	0.1 %
Total	**66,000,000**	**100 %**	**6,350.8**	**15,595,189.32**	**77,975,946.60**	**311,903,786.40**	**305,710**	**100.0 %**

Interestingly, the expected annual electricity generated in kWh by the seven solar PV projects financed under the green bond funding facility translates to the following greenhouse gas equivalencies, or in other words, the amount of carbon dioxide (CO2) emissions reduced in one year is equivalent to:

Figure 4: Greenhouse Gas Equivalencies for the overall impact of the solar PV projects financed[6]

[3]The 12-month or one-year period is usually used as the reference to indicate the expected annual electricity generated given the location and type of system installed

[4] The 60 month or five-year period is seen as the normal loan period for residential or commercial rooftop installations.

[5] A solar panel typically has two warranties: a performance and workmanship warranty. A solar panel's performance warranty will usually guarantee 90 % production at ten years and 80 % at twenty-five years. The industry standard for Tier 1 manufacturers of solar panels is 300 month or twenty-five-year period performance warranty. Therefore, we will include the expected environmental benefit of these projects over the period as mentioned earlier, as well. Also, workmanship warranties cover a shorter timeframe; most installers offer 10-year workmanship warranties, but that number varies by manufacturer.

[6] Statistics generated by the online Greenhouse Gas Equivalencies Calculator freely available on the United States Environmental Protection Agency (EPA) website. Please visit the website at https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator.

PROJECTS FINANCED UNDER BANK WINDHOEK'S FIRST GREEN BOND

1. PROJECT NAME: S-PV 1

1.1 Category: Renewable energy
1.2 Project sector: Agriculture and Forest sector

The S-PV 1 is the first of the eligible projects funded with Bank Windhoek Green Bond financing. The project is located just outside of Windhoek, Namibia's capital. The project uses solar PV technology with an installed capacity of 44.80 kW and an expected annual generation of 84,150 kWh per year. The impact of the project details based on the core indicators for environmental sustainability is depicted in Table 2 below.

Table 2: S-PV 1- core indicators

Core Indicators	One year period[7]	Five years period[8]	25 years period[9]
Annual GHG emissions reduced/avoided in tones of *[$tCOe_2$]* equivalent	82.48	412.4	1,649.60
Annual renewable energy generation in kilowatt (kWh) per year	84,150	42,0750	1,683,000
Installed capacity of renewable energy constructed or rehabilitated in (kW)	44.80	44.80	44.80

As presented in Table 2 above, at the end of the 25-year period, the project is expected to reduce annual greenhouse gas emissions by 1,649.60 metric tons of carbon dioxide equivalent *[$tCOe_2$]*, which would result in a significant positive impact on the environment over the expected lifetime of the installed solar panels according to the standard output guarantee from the suppliers. Figure 5, below depicts the installation of project S-PV 1.

Figure 5: Installation of Project S-PV 1

[7] The 12-month or one-year period is normally used as the reference, to indicate the expected annual electricity generated given the location and type of system installed.
[8] The 60 month or five year period is seen as the normal loan period for residential or commercial rooftop installations
[9] A solar panel normally has two warranties: a performance and workmanship warranties. A solar panel's performance warranty will typically guarantee 90 % production at ten years and 80 % at twenty-five years. The industry standard for Tier 1 manufacturers of solar panels is 300 month or twenty-five year period performance warranty. Therefore, we will include the expected environmental benefit of these projects over the aforementioned period, as well. In addition, workmanship warranties cover a shorter timeframe; most installers offer 10-year workmanship warranties, but that number varies by manufacturer.

2. PROJECT NAME: S-PV 2

2.1 Category: Renewable energy
2.2 Project sector: Agriculture sector

Project S-PV 2 was the second to be financed through the Bank Windhoek Green Bond funding facility. The project entails installing an off-grid solar PV system, which consists of a 22kW Variable Speed Drive (VSD) borehole water pump combined with 17 kW Solar PV panels. The project is in Stampriet in the Hardap Region of Namibia. The expected annual generation capacity is 26,806kWh per year. Details regarding the environmental impact of the project based on the core indicators are presented in Table 3 below:

Table 3: S-PV 2- core indicators

Core Indicators	One year period	Five years period	25 years period
Annual GHG emissions reduced/avoided in tones of $tCOe_2$ equivalent	26.34	131.70	526.80
Annual renewable energy generation in kilowatt (kWh) per year	26,806	134,028	536,112
Installed capacity of renewable energy constructed or rehabilitated in (kW)	17.0	17.0	17.0

As illustrated in Table 3 above, at the end of 25 years, the project is expected to reduce annual greenhouse gas emissions by 526.80 metric tons of carbon dioxide equivalent *[$tCOe_2$]*, which will positively contribute to environmental sustainability in Namibia. With the 17.0kWh generation capacity, the project is also expected to generate 536,112 kWh of renewable energy over the expected lifespan of the installed system. Figures 6.1 and 6.2, below depicts the installation of project S-PV 2.

Figure 6.1: Installation of Project S-PV 2

Figure 6.2: Installation of Project S-PV 2

3. PROJECT NAME: S-PV 3

3.1 Category: Renewable energy
3.2 Project sector: Health sector

The S-PV 3 rooftop solar PV project is a 15 kW Solis grit inverter coupled with 40 (355 watts) Canadian solar PV panels with an added wireless online monitoring system. This installation is in southern industrial area of Windhoek, Namibia. The details of the project benefits based on the core indicators are presented in Table 4 below:

Table 4: S-PV 3 - Core Indicators

Core Indicators	One year period	Five years period	25 years period
Annual GHG emissions reduced/avoided in tones of $tCOe_2$ equivalent	21.95	109.75	439.00
Annual renewable energy generation in kilowatt (kWh) per year	22,391	111,953	447,811.20
Installed capacity of renewable energy constructed or rehabilitated in (kW)	14.20	14.20	14.20

As presented in the table above, at the end of 25 years, the project is expected to reduce annual greenhouse gas emissions by 541.00 metric tons of carbon dioxide $[tCO_2]$ which will positively contribute to environmental sustainability in Namibia. With the capacity of 14.20 kWh, the project is expected to generate annual renewable energy of 447,811.20 kWh. Figure 7, below depict project S-PV 3.

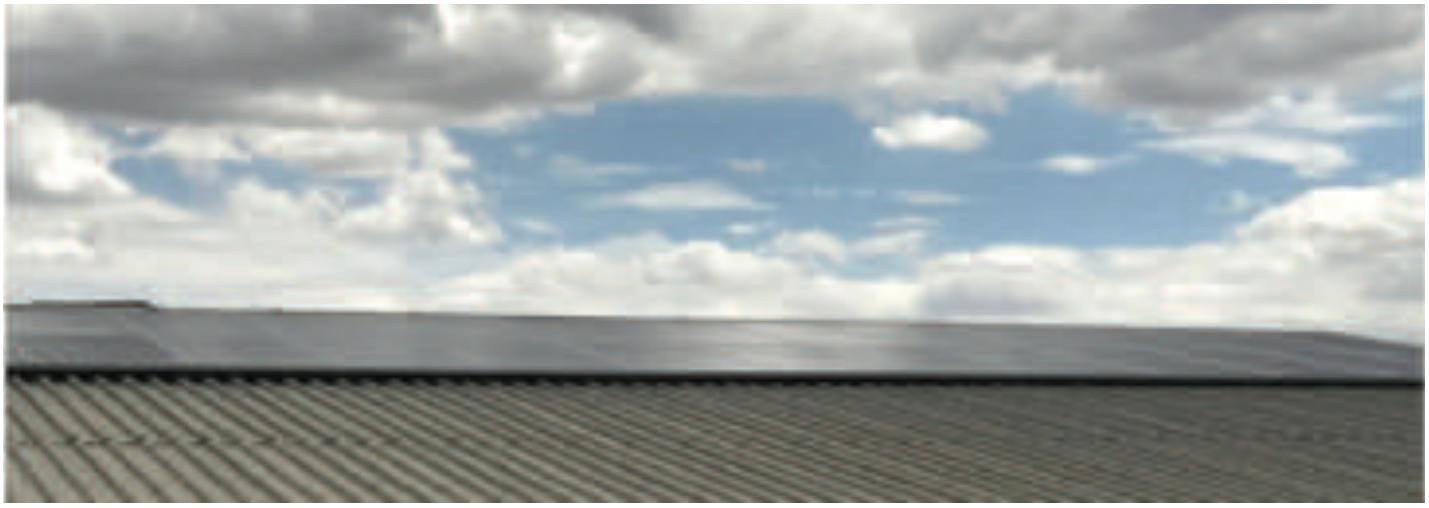


Figure 7: Project S-PV 3

4. PROJECT NAME: S-PV 4

4.1 Category: Renewable energy

4.2 Project sector: Industrial & Consumer Products

This solar PV project is located in Mariental[10] and Keetmanshoop[11] in the Hardap and Karas regions of Namibia. The solar PV systems installed consist of two different grid-tied fixed mounted rooftop systems with a total installed capacity of 225.7 kW. Both of the solar PV systems include smart metres to monitor the system output and various other systems statistics. Table 5 below details the combined core environmental impact indicators of the project:

Table 5: S-PV 4 - Core Indicators

Core Indicators	One year period	Five years period	25 years period
Annual GHG emissions reduced/avoided in tones of $tCOe_2$ equivalent	369.00	1,745.00	6,980.00
Annual renewable energy generation in kilowatt (kWh) per year	355,884	1,779,419	7,117,675.20
Installed capacity of renewable energy constructed or rehabilitated in (kW)	225.70	225.70	225.70

As presented in Table 5 above, at the end of the 25-year period, the project is expected to reduce annual greenhouse gas emissions by 6,980 tons of carbon dioxide ***[tCO_2]*** which will contribute to environmental sustainability in Namibia. With the installed capacity of 225.70 kW, the project is expected to generate renewable energy of 7,117,675 kW/h at the end of the expected life span of the solar panels. Figure 8, below depict the installation of project S-PV 4.

Figure 8: Installation of Project S-PV 4 (Mariental)

[10] Mariental is the administrative capital of the Hardap Region in an area which lies near the Hardap Dam, the largest reservoir in Namibia and 232 kilometres north of Keetmanshoop

[11] Keetmanshoop is a city in the Karas Region in the southern part of Namibia.

5. PROJECT NAME: S-PV 5

5.1 Category: Renewable energy

5.2 Project sector: Sustainable Waste Management

The main goal of this project was to enable the company to operate more efficiently by reducing its electricity cost and enhancing its cash flow generation capacity. The projected annual savings amounts to NAD 788 168 during the first year is expected to increase by 6 % on average per annum. The Commercial Roof Mounted Grid Tied - Solar PV System consists of an installed capacity of 300 kW coupled with a total of 922 Polycrystalline Canadian (325 watts) modules with a projected solar module area of 1 793m2. The configuration is estimated to generate 452 345 kWh during the first year of operation. The modules are based on a fixed roof-mounted structure, in a low dust environment located in Windhoek, Namibia. Also, the automatic system monitoring and performance comparisons are carried out by the Solar-Log, which allows for remote monitoring, diagnosis, data storage, configuration and visualisation from anywhere in the world. Figure 8, below depict the installation of project S-PV 5.

The impact of the project is detailed in the table below in terms of the core indicators:

Table 6: S-PV 5- Core Indicators

Core Indicators	One year period	Five years period	25 years period
Annual GHG emissions reduced/avoided in tones of $tCOe_2$ equivalent	443.35	2,216.75	8,867
Annual renewable energy generation in kilowatt (kWh) per year	452,345	2,261,725	9,046,900
Installed capacity of renewable energy constructed or rehabilitated in (kW)	300	300	300

Figure 9: Installation of Project S-PV 5

6. PROJECT NAME: S-PV 6

6.1 Category: Renewable energy
6.2 Project sector: Mines and Energy sector

This 5,74 MegaWatt (MW) installed capacity Solar PV project, is constructed as a ground-mounted system with integrated axis tracking, located in Okatope in the Ohangwena region, in the Northern part of Namibia. This project has a power purchase agreement (PPA) in place with NamPower[12] to supply renewable energy for 25 years. Figure 10, below depict the installation of project S-PV 6.

The environmental impact in terms of core indicators are presented in the table below:

Table 1: S-PV 6 - Core Indicators

Core Indicators	One year period	Five years period	25 years period
Annual GHG emissions reduced/avoided in tones of $tCOe_2$ equivalent	14,350.00	71,750.00	287,000.00
Annual renewable energy generation in kilowatt (kWh) per year	14,641,000	73,205,000	292,820,000
Installed capacity of renewable energy constructed or rehabilitated in (kW)	5,741	5,741	5,741

Project Benefits[13] in terms of Emission Reduction:
Emission Reduction

This commercial solar pv project is estimated to provide the following environmental benefits:

- Emission Reductions of 14,350.00 $\boldsymbol{tCO_2e/yr}$ or 287,000 $\boldsymbol{tCO_2e}$ over 25 years of operation
- The total emission reduction will be equivalent to removing 214 Light commercial motor vehicles from the road or a reduction of 25 702 Barrels of crude oil.
- 14,641,000 kWh/year of clean power produced per year (first year figure), that will reduce imports.
- More than 20 jobs created during construction phase and 2 permanent jobs, will be generated

Figure 10: Project S-PV 6 (5MW Solar PV power plant, Karibib, Namibia[14])

[12] NamPower is the national power utility company of Namibia. NamPower's core business is the generation, transmission and energy trading, which takes place within the Southern African Power Pool (SAPP), the largest multilateral energy platform on the African continent. NamPower supplies bulk electricity to Regional Electricity Distributors (REDs), Mines, Farms and Local Authorities (where REDs are not operational) throughout Namibia.
[13] SUNREF Technical Opinion report, 2019.
[14] The picture is for illustration purposes only and is a good indication of a commercial size 5 MW Solar PV power plant in operation in Namibia. The project is under construction at the time of reporting

7. PROJECT NAME: S-PV 7

7.1 Category: Renewable energy
7.2 Project sector: Agriculture sector

This project is based on a Solar PV rooftop installation, and consists of 8kW Off-Grid fixed mounted photovoltaic system coupled with two 310 Ah lithium batteries. The project is on the outskirts of Windhoek, Namibia. The impact of this project in terms of annual expected generation capacity is detailed in the table below:

Core Indicators	1 year period	5 years period	25 years period
Annual GHG emissions reduced/avoided in tones of $tCOe_2$ equivalent	12.0	62.0	248.00
Annual renewable energy generation in kilowatt (kWh) per year	12,614	63,072	252,288
Installed capacity of renewable energy constructed or rehabilitated in (kW)	8.0	8.0	8.0

As presented in the table above, at the end of 25 years, the project will generate an annual energy capacity of 252,288 kWh. The GHG emissions reduction at the end of 25 years is expected to be 248.00 metric tons of carbon dioxide tCO_2e, which will positively contribute to environmental sustainability in Namibia. Figure 11, below depict the installation of project S-PV 7.

Figure 11: Aerial view of project S-PV 7

SUMMARY

Climate change, and lately Covid-19 are exogenous shocks—factors that re-shape a system. Households and small businesses facing financial shocks and economic uncertainty may postpone or abandon their plans to install solar PV on their property. Uncertainty over the timing and impact of potential lockdown measures in Namibia and bordering countries could further delay the completion of many projects in the Southern-African region. The key to survival is figuring out ways to suppress such shocks. Ensuring adequate access to low-cost debt and other favorable financing mechanisms will be key to ensuring that clients can maintain operations now and in the long term.

Bank Windhoek's green bond issuance was one of the bank's responses to addressing the issue of climate change. The green bond was a milestone for Bank Windhoek and Capricorn Group, which unequivocally set the tone both internally and externally of our commitment to sustainable finance and to renewable energy growth within both locally and regionally. Bank Windhoek identified the opportunities a green bond issuance in the local market could create not only as a sustainable investment vehicle for institutional investors but as a favourable financing mechanism for clients.

The Green Bond Impact report provided a list of projects that was successful in receiving funding from the Bank Windhoek Green Bond proceed, raised at the time of issuance and is subject to confidentiality considerations. This report also provides a brief description of each project, the approved loan amount, and the expected environmental impact.

It is noteworthy that at the time of reporting, Bank Windhoek used the estimated annual energy output instead of using actual generation figures which still gives an indication of the magnitude of electricity produced and, as a consequence, CO2 emissions avoided.

Bank Windhoek will continue our focus on implementing sustainability into our core business to further grow our Green Asset Portfolio by establishing market dominance by becoming the financier of choice for green projects and in turn being connectors of positive and sustainable change. We believe that the green bond enabled us to meet our clients' sustainability requirements one-step further by creating a complete value chain from raising green funding to offering favorable green loans with competitive active terms aimed to contribute to a low-carbon and client resilient future.

APPENDIX A
Limited Assurance Report from the Independent Auditor