



Guinea

Africa

Ease of doing Solar classification



Progressive

Electricity Consumption in kWh/capita (2020)

243.7

Average PVout in kWh/kWp/day (2020)

4.4

Cumulative Solar Capacity in MW (2021)

13.4

Getting Electricity Score (2020)

55.3

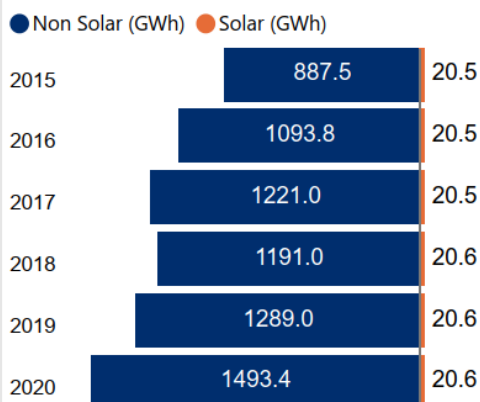
NDC Target by 2030 in ktCO₂/year (base year 2020)

2000.0

Human Development Index (2021)

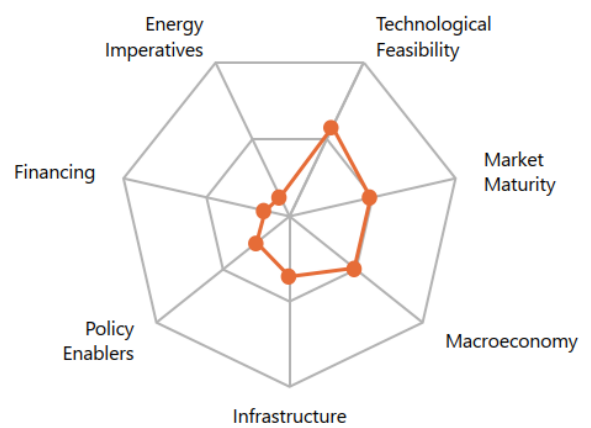
0.5

Renewable Energy Generation by Source

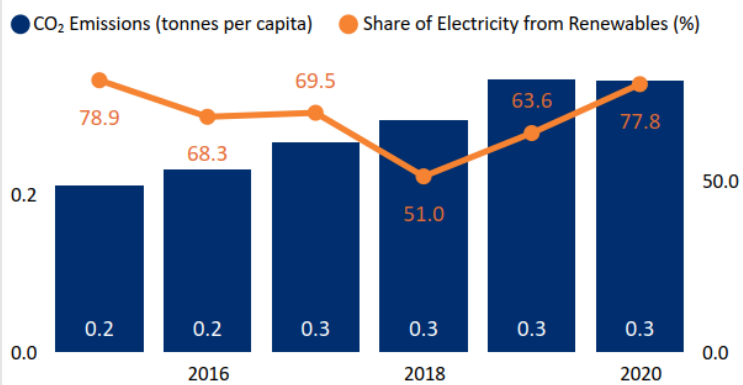


Non Solar RE includes Wind and Hydro;

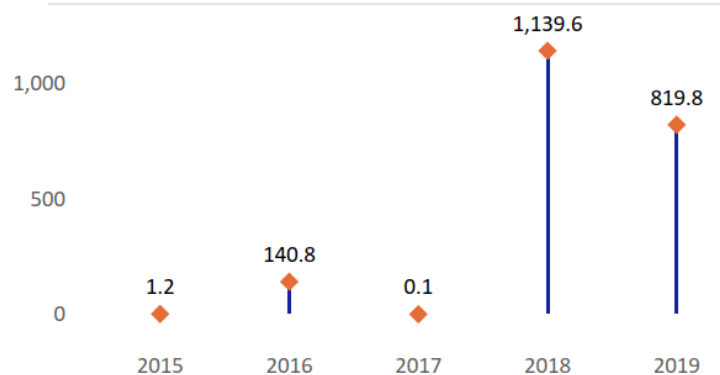
Performance against 7 Drivers



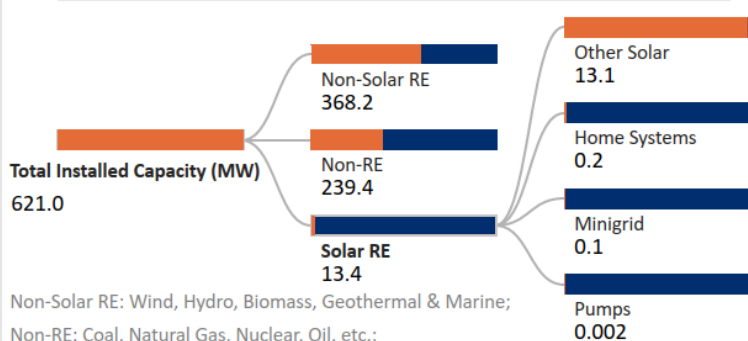
CO₂ Emissions vs Electricity share from Renewables



International Finance received for Clean Energy (Million US Dollars)

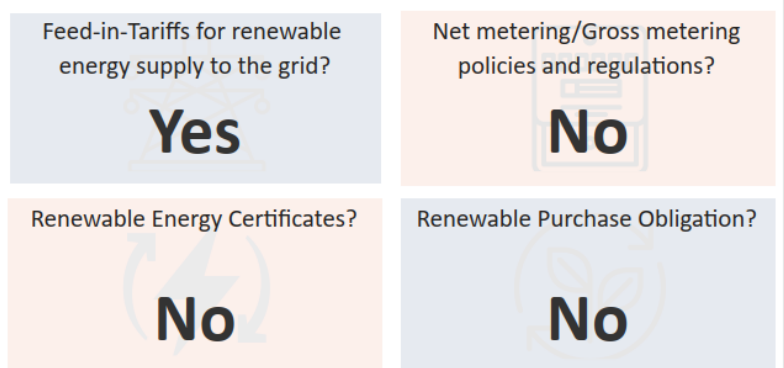


Installed Capacity by Source (2019)



Non-Solar RE: Wind, Hydro, Biomass, Geothermal & Marine;
 Non-RE: Coal, Natural Gas, Nuclear, Oil, etc.;
 Other Solar: Utility Scale Solar, Rooftop etc.;

Support for Renewables (2020)



Peak Demand in MW (2017)	Electricity Consumption CAGR in % (2022 - 2026)	Solar PV Capital Cost in USD/MW (2022)
50.0 to 200.0	30.0 to 50.0	50.0

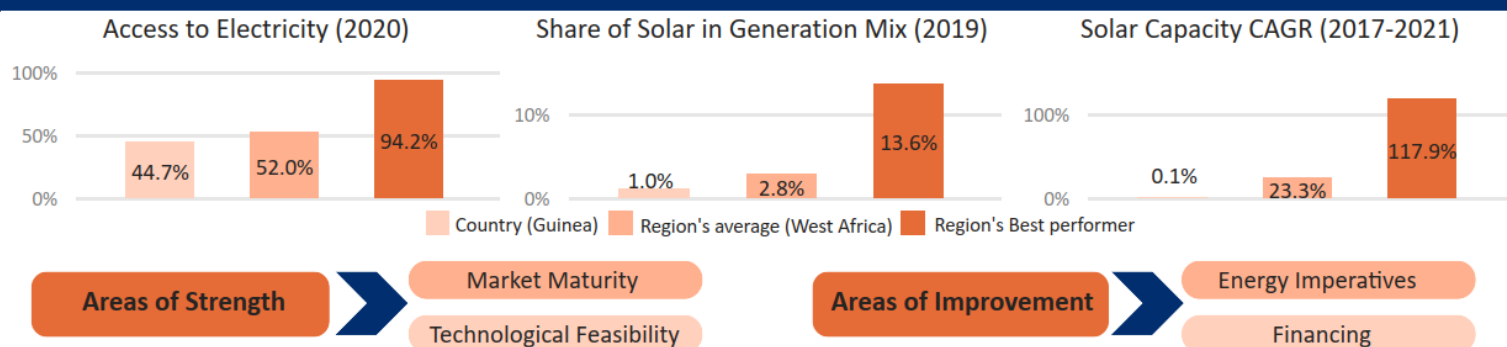
Support for Renewables (2021)	
Feed-in-Tariffs for Renewable Energy Supply to the Grid	Yes
Renewable-cum-storage based tenders	Yes
Carbon Taxation	No
Manufacturing facility for solar equipment (inverters and balance of systems)	No

Financial Support Mechanisms (2021)	
Duty waivers to solar developers for importing/procuring material from foreign land	Yes
Tax waivers for manufacturers of raw materials (modules, off grid appliances, etc.)	Yes
Credit facilitation for solar energy from financial institutions (FIs)	Yes
Viability Gap Funding (VGF) i.e. Grant to support RE projects that are economically justified but fall short of financial viability	Yes
Accelerated Depreciation benefit for Industrial/commercial users of Solar Power	No

Policies/Schemes for Solar Segments (2021)						
Rooftop Solar	Solar Mini Grids	Standalone solar systems	Utility scale solar	Solar Parks	Floating Solar	Battery waste management
No	Yes	No	No	No	No	Yes

Emerging Technologies/Innovative Models (2021)	
Hybrid technologies - combination of two or more technologies to achieve efficient systems (Example: wind + solar PV hybrid systems, solar + storage systems)	Yes
Emerging technologies - the next generation technologies (Example: Artificial Intelligence, Machine learning, Internet of Things, etc.)	No

Country's regional performance and characteristics



Key Insights

Drivers

Insights



Macro-economy

- Guinea is a low-income country with a GDP per capita (PPP) of USD 2,901 in 2021. ^{1, 2}
- GDP (Real) grew at an annual rate of 4.2% in 2021 and it is estimated to increase by 4.8% in 2022. ³
- The budget deficit in the country reduced to 2.3% of GDP in 2021 from 2.9% levels in 2020. ⁴
- Total public debt in the country remained similar at 43.3% of GDP in 2021 in comparison to 43.4% levels in 2020. ⁴



Policy enablers

- The Ministry of Energy and Hydraulics (MEH) is responsible for preparing energy policies and the National Directorate of Energy (DNE) is responsible for facilitating energy access planning. ⁵
- Guinea has set a target to increase the share of solar to 11% - 15% of the energy mix by 2035. ⁶
- Agence d'Electrification Rurale (AGER) is responsible for the development of rural electrification programs including off-grid projects. ⁵



Technological Feasibility

- Guinea receives high levels of solar irradiation of 5.4 kWh/m²/day and a specific yield of 4.4 kWh/kWp/day indicating strong technical feasibility for solar in the country. ⁸
- The country typically receives 8 hours of sunlight per day. ⁶
- The government is planning to develop a mini-grid regulatory framework to improve electrification rates in the country. ⁵



Market Maturity

- 44.7% population in Guinea had access to electricity as of 2020 indicating a strong growth potential for electric power. ⁹
- ARSEE is responsible for regulating the electricity sector including reviewing and setting tariffs for the national utility. ⁵
- Electricity Corporation of Guinea (EDG) is the sole generator, transmitter, and distributor of electricity. ¹⁰
- Guinea is a member of the West African Power Pool (WAPP), which aims to integrate the national power systems into a unified regional electricity market. ¹¹



Infrastructure

- Guinea's transmission infrastructure comprises two separate grid systems- the Grid of Greater Conakry (known as RIC) and the central zone grid (known as the Tinkisso system). ⁵
- Conakry's system connects four main cities in Maritime Guinea and four other cities in Middle Guinea with an infrastructure comprising 116 km of 225 kV lines, 601 km of 110 kV lines, and 82 km of 60 kV lines. ⁵
- Guinea's expected investment in the Transmission & Distribution Infrastructure over the next 5 years (2022-2026) is USD 480 Mn. ⁶
- The country's average Transmission and Distribution loss levels are 46.9% and 34.8% respectively in 2021. ⁶



Financing

- In 2022, the AfDB approved the Leveraging Energy Access Finance Framework (LEAF) under which the bank will commit up to USD 164 Mn to promote decentralized renewable energy in Guinea. ¹²
- In 2019, the World Bank approved USD 50 Mn International Development Association (IDA) financing for the Guinea Electricity Access Scale Up Project to help increase access to electricity in selected areas of the country. ¹³
- The Green Climate Fund approved USD 170.9 Mn in financing for AfDB's Leveraging Energy Access Finance Framework (LEAF) program. Guinea is among the six countries where LEAF aims to unlock commercial and local-currency financing for decentralized renewable energy (DRE) projects. ¹⁴



Energy Imperatives

- The total installed capacity of Rooftop Solar and Solar mini-grids are (45-50) MW and 10 MW respectively as of 2021. ⁶
- The total installed off-grid capacity of Solar PV in the country is between 100 KW to 1 MW as of 2021. ⁶
- The total installed capacity of Solar PV witnessed a flat CAGR of 0.1% between 2017-2021 reaching 13.4 MW in 2021 from 13.3 MW levels in 2017. ¹⁵
- In 2020, the per capita electricity consumption stood at 0.24 MWh which is significantly lower in comparison to the global average of 3.31 MWh in 2020. ¹⁶
- The price of electricity in the country was 19.6 US Cents/kWh as of 2019. ¹⁷