



Eritrea

Africa

Ease of doing Solar classification



Progressive

Electricity Consumption in kWh/capita (2020)

124.1

Average PVout in kWh/kWp/day (2020)

4.9

Cumulative Solar Capacity in MW (2021)

24.5

Getting Electricity Score (2020)

0

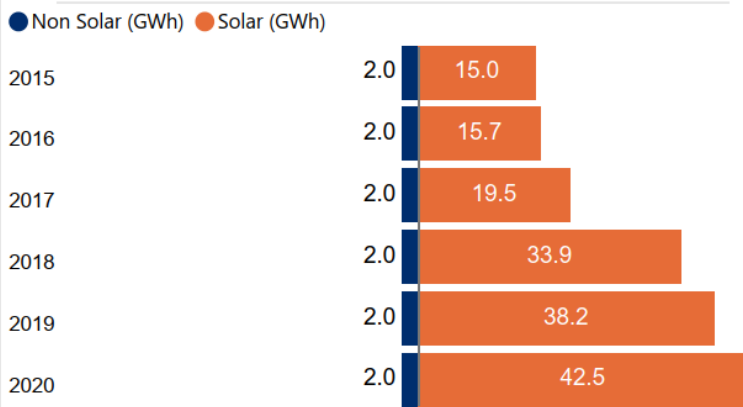
NDC Target by 2030 in % (base year 2010)

12.0

Human Development Index (2021)

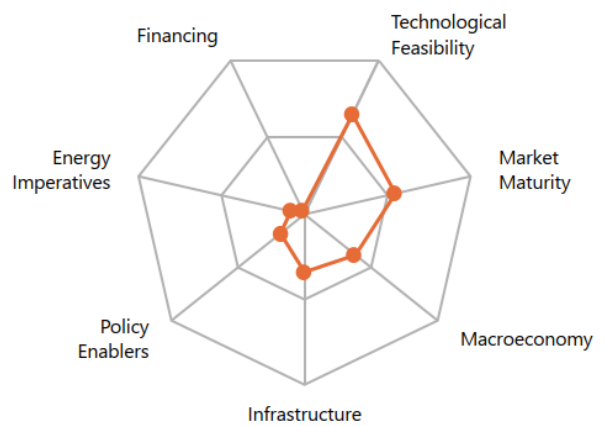
0.5

Renewable Energy Generation by Source

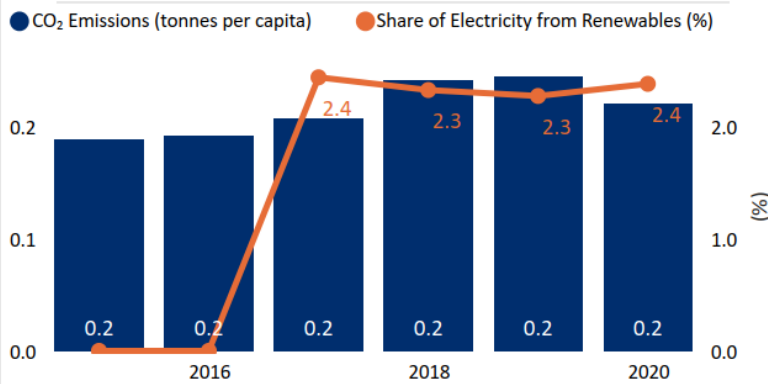


Non Solar RE includes Wind and Hydro;

Performance against 7 Drivers



CO₂ Emissions vs Electricity share from Renewables

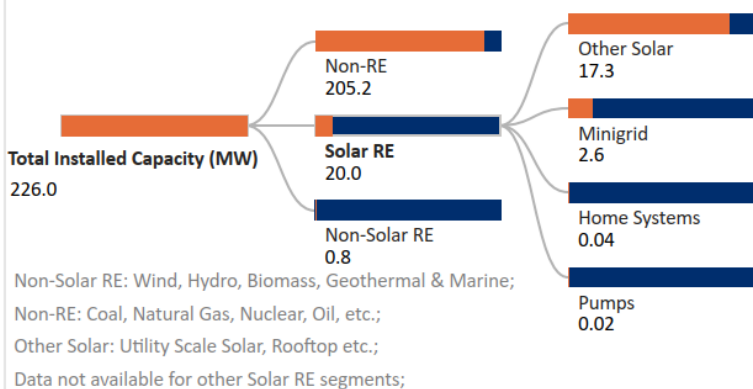


Fiscal Incentives & Public Financing for Renewables (2020)

Investment or production tax credits?
No

Public investment, loans, grants, capital subsidies or rebates?
No

Installed Capacity by Source (2019)



Support for Renewables (2020)

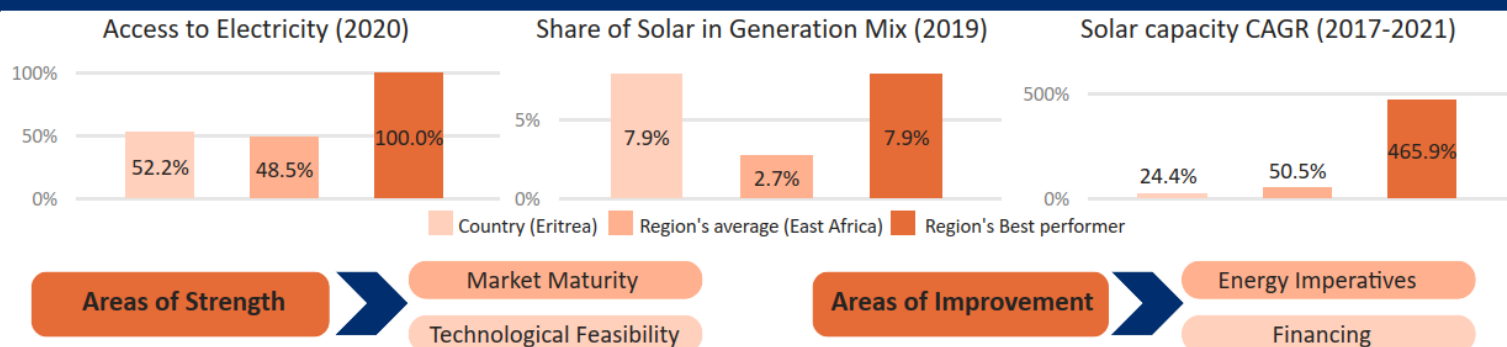
Feed-in-Tariffs for renewable energy supply to the grid?
No

Net metering/Gross metering policies and regulations?
No

Renewable Energy Certificates?
No

Renewable Purchase Obligation?
No

Country's regional performance and characteristics



Key Insights

Drivers

Insights



Macro-economy

- GDP (Real) grew at an annual rate of 2.9% in 2021 and is estimated to grow by 4.7% in 2022. ¹
- The fiscal deficit in the country narrowed down to 4.0% of GDP in 2021 from 4.4% levels in 2020. ²
- Inflation rate in the country declined to 4.5% in 2021 from 4.8% levels in 2020. ²
- The current account surplus widened to 13.5% of GDP in 2021 from 11.4% levels in 2020. ²



Policy enablers

- The Ministry of Energy and Mines is responsible for designing and refining policies, strategies, and regulatory issues in the energy sector. ³
- Eritrea aims to reduce its GHG emissions to 12.6% unconditionally and to 38.5% through international support by 2030. ²
- Renewable Electricity Fund is the national fund for the promotion and support of RE through private and public sector participation. ⁴
- Under the "Renewable Energy Policy and Development Framework 2010", the government has set a target to have 50% share of RE in the generation mix by 2030. ⁴



Technological Feasibility

- Eritrea receives very high levels of solar irradiation of 5.8 kWh/m²/day and specific yield of 4.9 kWh/kWp/day indicating a very strong technical feasibility for solar in the country. ⁵
- In 2021, Eritreans were provided affordable, 24/7 accessible solar powered energy through 2.25 MW capacity solar PV mini grids. ⁶



Market Maturity

- As of 2020, 52.2% population in Eritrea had access to electricity. ⁷
- The Eritrean Electricity Corporation (EEC) is the sole generator, transmitter, and distributor of electricity. ⁸
- Department of Energy (DoE) is the energy regulator responsible for tariff setting, drafting and enforcing laws, regulations, and standards for the energy sector. ⁹
- Eritrea is a member country of the East African Power Pool. ⁸



Infrastructure

- The transmission network consists of HV lines with a length of 71 km operating at 132 kV voltage level. ⁴
- The distribution network consists of MV lines with a length of 320 km operating at 33 kV and 66 kV. LV lines operate at 400 V and have an estimated length of 2,880 km. ⁴
- Eritrea is not interconnected to any of its neighbours. Bilateral discussions are expected to commence with Djibouti, Yemen, and Ethiopia to examine the possibility for interconnections. ⁴



Financing

- In 2022, the African Development Fund approved a USD 5.5 Mn grant to initiate the flagship 'Desert to Power initiative' in Eritrea. ¹⁰
- Eritrea, with a grant support from AfDB, is planning to set up Solar PV Power Project with a capacity of 25 MW at Village-Hadamu, Dekemhare Subzoba, of the Zoba Debub. ¹¹



Energy Imperatives

- The total installed capacity in the country stood at 226 MW in 2019. ¹²
- The total installed capacity of Solar PV witnessed a CAGR of 24.4% between 2017-2021 reaching 24.5 MW in 2021 from 10.2 MW levels in 2017. ¹³
- In 2020, the per capita electricity consumption stood at 0.12 MWh which is significantly lower in comparison to the global average of 3.31 MWh. ¹⁴