Morocco

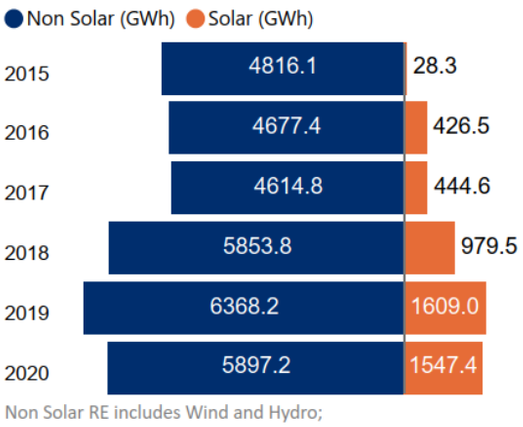
Africa

Ease of doing Solar classification

Achiever

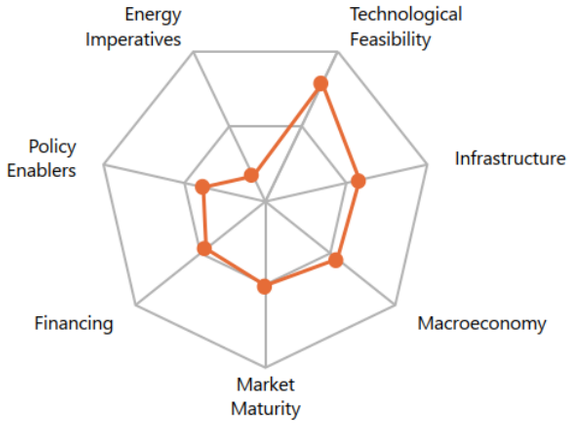
Electricity Consumption in kWh/capita (2020)	Average PVout in kWh/ kWp/day (2020)	Cumulative Solar Capacity in MW (2021)
972.3	**5.0**	**234.3**
Getting Electricity Score (2020)	**NDC Target by 2030 in % (base year 2010)**	**Human Development Index (2021)**
87.3	**45.5**	**0.7**

Renewable Energy Generation by Source

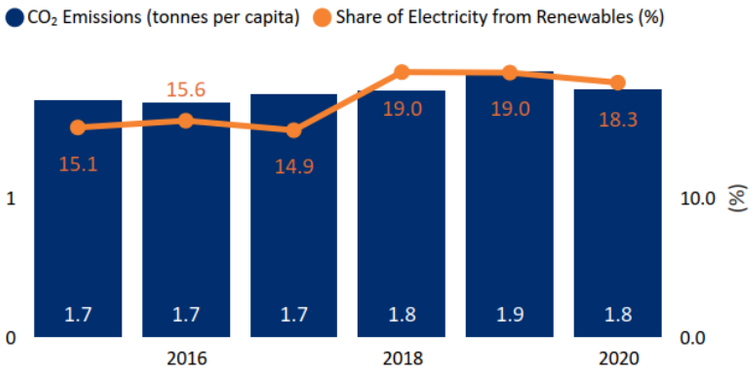


Non Solar RE includes Wind and Hydro;

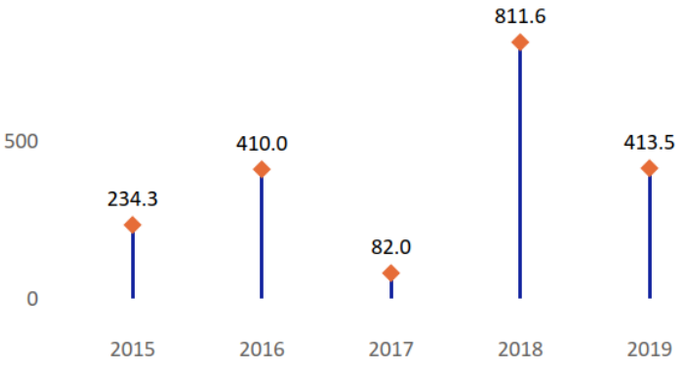
Performance against 7 Drivers



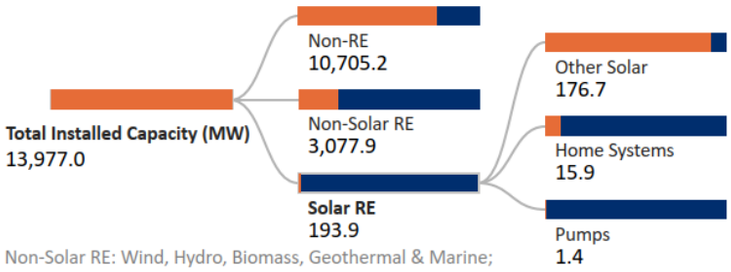
CO_2 Emissions vs Electricity share from Renewables



International Finance received for Clean Energy (Million US Dollars)



Installed Capacity by Source (2019)

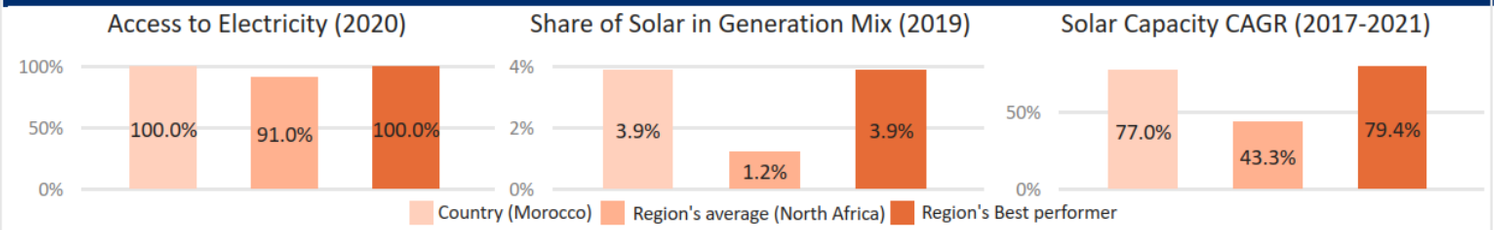


Non-Solar RE: Wind, Hydro, Biomass, Geothermal & Marine;
Non-RE: Coal, Natural Gas, Nuclear, Oil, etc.;
Other Solar: Utility Scale Solar, Rooftop etc.;
Data not available for other Solar RE segments;

Support for Renewables (2020)

Feed-in-Tariffs for renewable energy supply to the grid?	Net metering/Gross metering policies and regulations?
No	**Yes**
Renewable Energy Certificates?	**Renewable Purchase Obligation?**
No	**No**

Country's regional performance and characteristics



Areas of Strength → Infrastructure, Technological Feasibility

Areas of Improvement → Energy Imperatives, Policy Enablers

Key Insights

Drivers	Insights
Macro-economy	•Morocco is a lower middle-income country with a GDP per capita (PPP) of USD 8,853 in 2021. [1, 2] •GDP (Real) grew at an annual rate of 7.2% in 2021 and the growth in 2022 is estimated to remain sluggish at 1.1%. [3] •The budget deficit is estimated at 6.4% of GDP in 2021, whereas the inflation rate in the country is estimated at 1.2% in 2021. [4] •Total public debt in the country marginally increased to 76.9% of GDP in 2021 from 76.4% levels in 2020. [4]
Policy enablers	•The Department of Energy and Mining of the Ministry of Energy, Mining, and Environment is responsible for implementing policies in the areas of energy, mining, and geology. [5] •The government of Morocco aims to achieve a 52% share of RE in the energy mix by 2030. [4] •Morocco does not offer any fiscal incentives like tax or duty benefits (except for tax deductions for solar water heating appliances). [6]
Technological Feasibility	•Morocco receives high levels of solar irradiation of 5.5 kWh/m^2/day and a specific yield of 5.0 kWh/kWp/day indicating strong technical feasibility for solar in the country. [7] •In 2017, Morocco had around 128,000 homes powered by solar home systems taking it to among the top 3 countries in Africa for the adoption of this technology. [6] •Noor Midelt Phase 1 multi-technologies solar project operating with hybrid technology (CSP + PV) with a capacity of 800 MW is the world's first advanced hybridization of CSP and PV technologies. [8]
Market Maturity	•100% population in Morocco is having access to electricity since 2020. [9] •Moroccan Energy Authority (ANRE) is the energy regulator responsible for ensuring proper functioning of the national electricity sector. [10] •The ONEE (Office National de l'Electricité et de l'Eau Potable) is the sole generator, transmitter, and distributor of electricity in the country. [11] •On a regional level, the country is a member of the Maghreb Electricity Committee (COMELEC) Power Pool. [11]
Infrastructure	•The transmission system of Morocco operates at voltage levels ranging from 60 kV to 400 kV AC. The transmission network has grown at a CAGR of 3.2% in the last decade reaching 28,693 ckm in 2020. [12] •Distribution of electricity in the country is managed by National Office for Electricity and Potable Water (ONEE) with presence of a few private distributors. [12] •The National grid of Morocco is interconnected with Spain and Algeria. Morocco was an importer of electricity; the country clocked 3,787.7 GWh of imports against 395.2 GWh exports during 2019. [12]
Financing	•The AfDB approved USD 324 Mn investment to support two RE projects in Morocco and Côte d'Ivoire that are expected to significantly increase power supplies and keep economic growth on track. [13] •The Green Value Chain (GVC), developed by EBRD and designed for SMEs, has offered a credit line of EUR 90 Mn for providing technical support and financing of green technologies in the country. [14] •In 2018, the World Bank sanctioned funding of USD 125 Mn to support Morocco's aim of reducing its dependence on fossil fuels by developing solar energy resources. [15]
Energy Imperatives	•In 2020, the per capita electricity consumption stood at 0.97 MWh, which is significantly lower in comparison to the global average of 3.31 MWh.[18] •The total installed capacity in the country stood at 13,977 MW in 2019. [16] •The total installed capacity of Solar PV witnessed a CAGR of 77.0% between 2017-2021 reaching 234.3 in 2021 from 23.9 MW levels in 2017. [17] •The price of electricity in the country was 12.3 US Cents/kWh as of 2019. [19]