
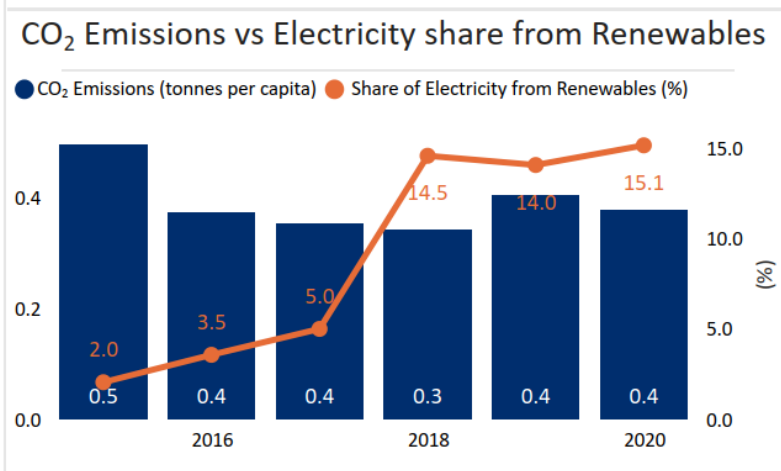
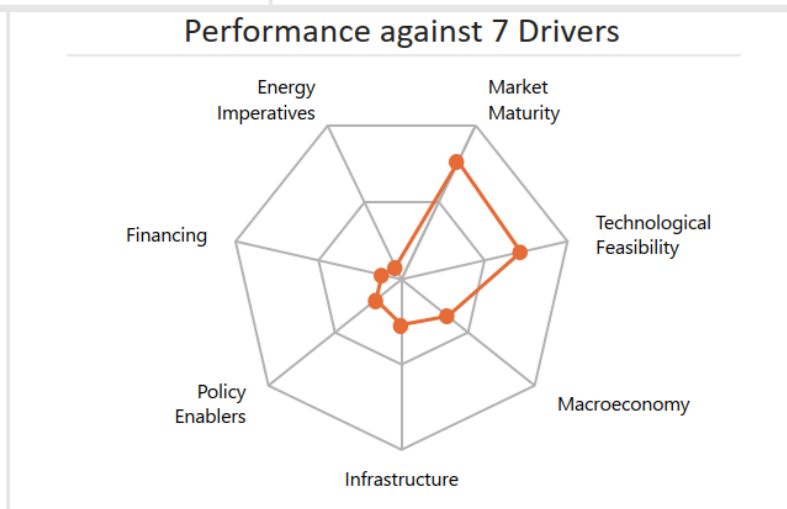
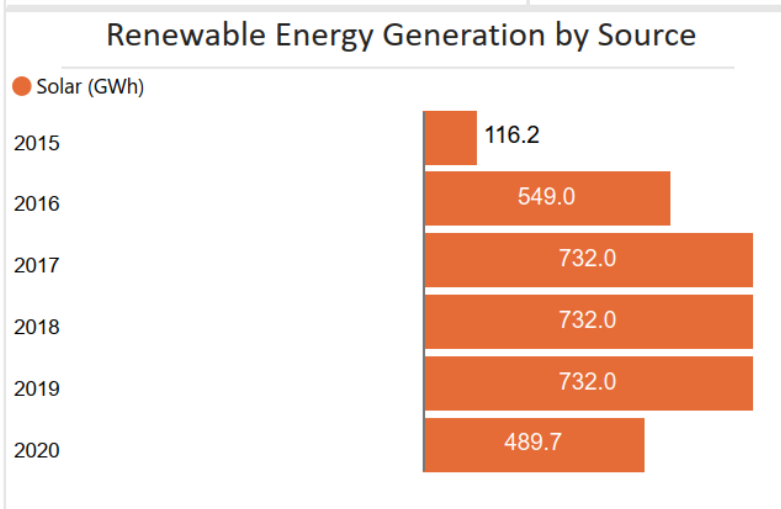
 <h2 style="text-align: center;">Yemen</h2>		<h3 style="text-align: center;">Ease of doing Solar classification</h3>  <h2 style="text-align: center;">Progressive</h2>
Asia & Pacific		
<h4>Electricity Consumption in kWh/capita (2020)</h4> <h1 style="text-align: center;">109.0</h1>	<h4>Average PVout in kWh/kWp (2020)</h4> <h1 style="text-align: center;">4.4</h1>	<h4>Cumulative Solar Capacity in MW (2021)</h4> <h1 style="text-align: center;">252.8</h1>
<h4>Getting Electricity Score (2020)</h4> <h1 style="text-align: center;">0</h1>	<h4>NDC Target by 2030 in % (base year 2014)</h4> <h1 style="text-align: center;">14.0</h1>	<h4>Human Development Index (2021)</h4> <h1 style="text-align: center;">0.5</h1>



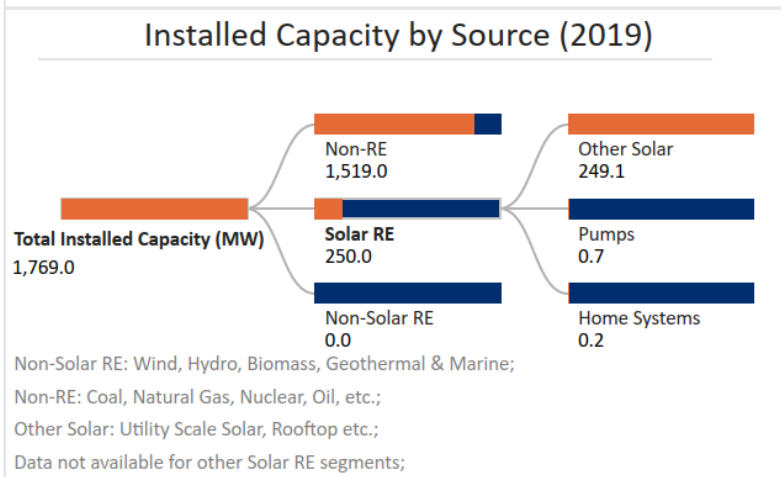
Fiscal Incentives & Public Financing for Renewables (2020)

Investment or production tax credits?

No

Public investment, loans, grants, capital subsidies or rebates?

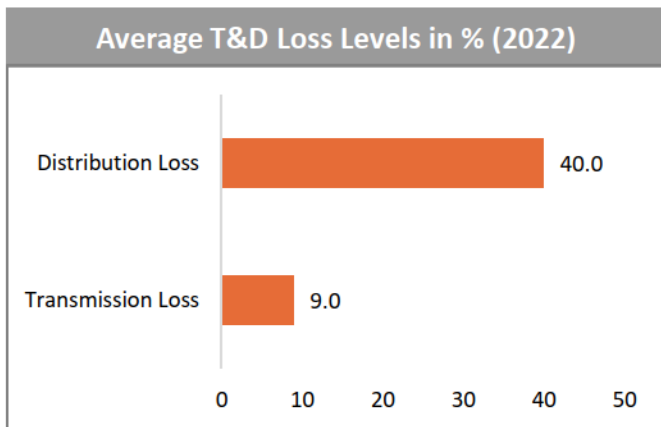
No



Support for Renewables (2020)

<p>Feed-in-Tariffs for renewable energy supply to the grid?</p> <h1 style="font-size: 2em;">Yes</h1>	<p>Net metering/Gross metering policies and regulations?</p> <h1 style="font-size: 2em;">Yes</h1>
<p>Renewable Energy Certificates?</p> <h1 style="font-size: 2em;">No</h1>	<p>Renewable Purchase Obligation?</p> <h1 style="font-size: 2em;">No</h1>

Peak Demand/Load in GW (2022)	Cheapest Source of Power (2022)	Generation Cost for Solar Power in USD/kWh (2022)
1.5	Solar	0.09



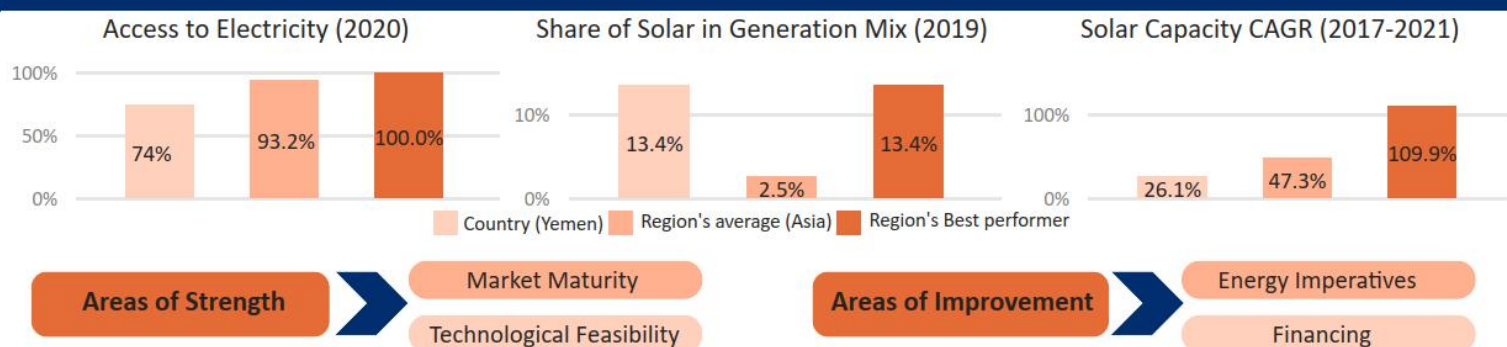
Support for Renewables (2022)	
Renewable Generation Obligations (RGO)	No
Franchising for solar business	No
Manufacturing facility for solar equipment (inverters and balance of systems)	No
Research & development facilities for solar systems	Yes

Financial Support Mechanisms (2022)	
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)	No
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 (2022)								
Rooftop Solar	Solar Mini Grids	Standalone solar systems	Utility scale solar	Solar Parks	Floating Solar	Solar heating and cooling system	Battery waste management	Green Hydrogen
No	Yes	No	Yes	Yes	Yes	No	No	No

Emerging Technologies/Innovative Models (2022)	
Hybrid technologies - combination of two or more technologies to achieve efficient systems (Example: wind + solar PV hybrid systems, solar + storage systems)	No
Emerging technologies - the next generation technologies (Example: Artificial Intelligence, Machine learning, Internet of Things, etc.)	Yes
E-mobility/Electric vehicles	No

Country's regional performance and characteristics



Key Insights

Drivers

Insights



Macro-economy

- Yemen is a low-income country with a GDP per capita (PPP) of USD 690.8 in 2021.^{1,2}
- Due to COVID-19 Pandemic, the GDP (Real) has declined by 8.5% in 2020. In 2021, the GDP has contracted by only 2% showing signs of recovery.³
- The inflation rate (CPI) of Yemen has increased to 63.8% in 2021 from 23.1% levels in 2020.⁴
- The general government gross debt to GDP has decreased to 63.1% in 2021 from 84.2% levels in 2020.⁵



Policy enablers

- Yemen targets to increase the share of solar to 0.06% of the energy mix by 2024.²⁶
- In 2009, the Yemen government has announced National Strategy for Renewable Energy and Energy Efficiency to promote RE and energy efficiency in the country.⁶
- The Enhanced Rural Resilience in Yemen (ERRY) which is a UNDP programme, facilitated around 3,200 households with solar energy application in 20 rural communities to improve their energy access.⁷
- United Nations' office in Yemen has installed a solar carport system with 310 kWh Lithium Energy Storage System.²⁵



Technological Feasibility

- Yemen receives very high levels of solar irradiation (GHI) of 6.5 kWh/m²/day and specific yield 4.4 kWh/kWp/day indicating a strong technical feasibility for solar in the country.⁹
- In 2020, 86% of power demand was met through fossil fuels and the balance 14% was met from renewables.¹⁰



Market Maturity

- 74% of the population in Yemen had access to electricity as of 2020.¹¹
- The Ministry of Electricity and Energy (MoEE) has monopoly over generation, transmission, and distribution of electricity.¹²
- Yemen is in the process of preparation of its first Power Purchase Agreement for two 20 MW PV projects.¹²
- The average duration or term of Power Purchase Agreements (PPAs) for Solar PV Projects in Yemen is 25 years.²⁶



Infrastructure

- The capacity of transmission Infrastructure in Yemen is 800 MVA as of 2022.²⁶
- The installed generation capacity of Yemen is 1.5 GW of which oil fueled electricity dominates the share with 95%.¹³
- The Government of Yemen represented by Minister of Electricity and Energy and Ministry of Oil and Minerals have signed an MoU with Siemens Energy to create sustainable development in field of electricity and energy.¹⁴
- The country after its war conflict have limited access to electricity infrastructure and 6 out of 10 cities assessed had no electricity according to Dynamic Damage and need Assessment (DNA).¹⁶
- Saudi Development and Reconstruction Program will develop medium and low-voltage electrical distribution network and solar-powered lighting systems for roads in Aden.¹⁷



Financing

- World Bank has disbursed a USD 150 Mn loan to Yemen through Emergency Electricity Access Project to support off grid Solar and to ensure basic supply of electricity to critical facilities.¹⁸
- Kuwait Fund for Arab Economic Development is financing USD 2.5 Mn into a new UNDP project called Renewable Energy Improve Access to Health Services and Livelihood Opportunities (HEAL).¹⁹
- Yemen's Al Kuraimi Islamic Bank has financed 824 solar projects that include 406 water pumping stations on farms and is now expanding to provide solar and hybrid solar-diesel systems to small businesses.²⁰



Energy Imperatives

- In 2020, the per capita electricity consumption stood at 0.11 MWh, which is considerably lower in comparison to global average of 3.31 MWh.²⁰
- The total installed capacity of Solar PV witnessed a CAGR of 26.1% between 2017-2021 reaching 252.8 MW in 2021 from 100 MW levels in 2017.²²
- The peak demand for electricity in the country has remained same at 3.25 TWh in 2021 and 2020.²³
- Electricity generation in Yemen is dominated by other fossil fuels with a share of 55.38% followed by gas based thermal comprising 29.23% and 15.38% from solar.²⁴