



# Ethiopia

Africa

Ease of doing Solar classification



**Progressive**

Electricity Consumption in kWh/capita (2020)

**123.1**

Average PVout in kWh/kWp/day (2020)

**4.7**

Cumulative Solar Capacity in MW (2021)

**21.2**

Getting Electricity Score (2020)

**60.1**

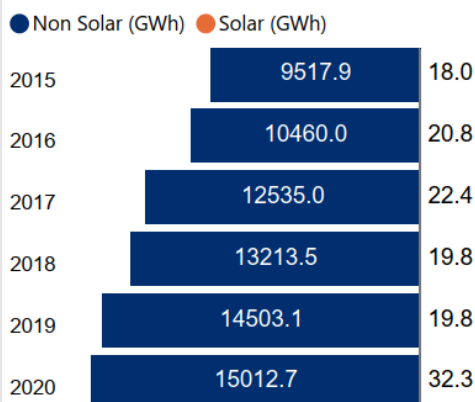
NDC Target by 2030 in % (base year 2010)

**68.8**

Human Development Index (2021)

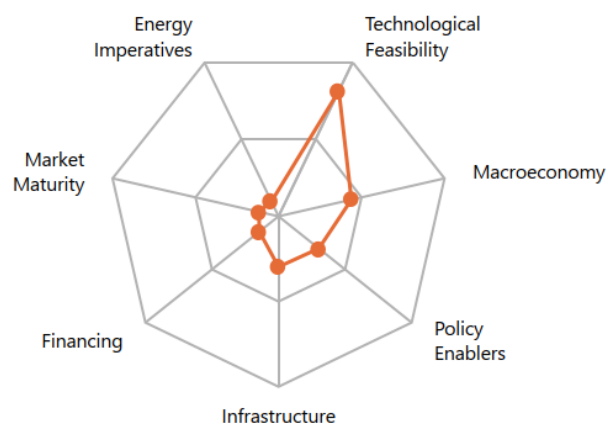
**0.5**

## Renewable Energy Generation by Source

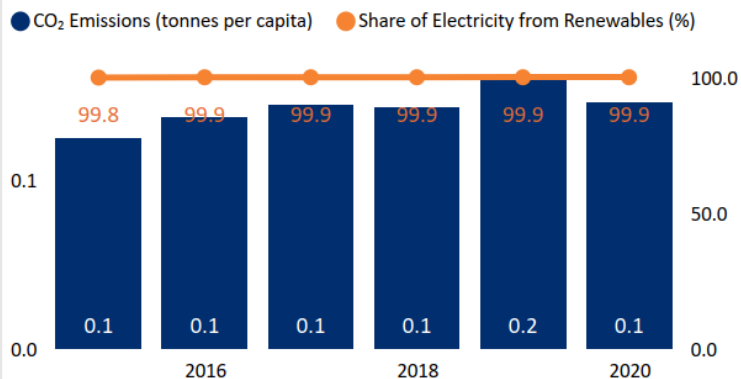


Non Solar RE includes Wind and Hydro;

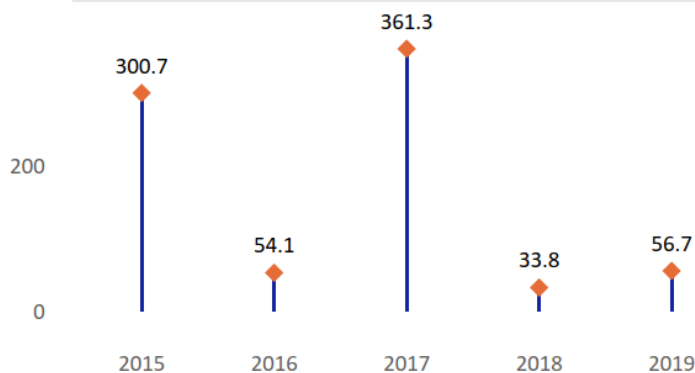
## Performance against 7 Drivers



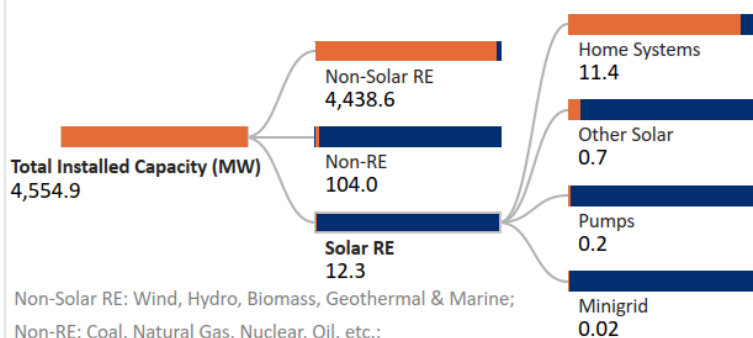
## CO<sub>2</sub> Emissions vs Electricity share from Renewables



## International Finance received for Clean Energy (Million US Dollars)

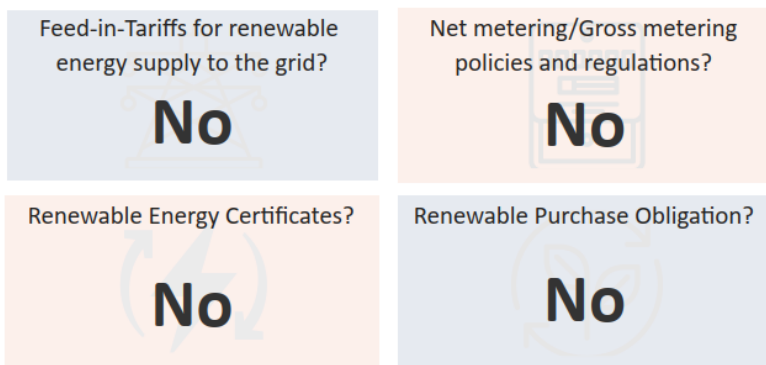


## Installed Capacity by Source (2019)

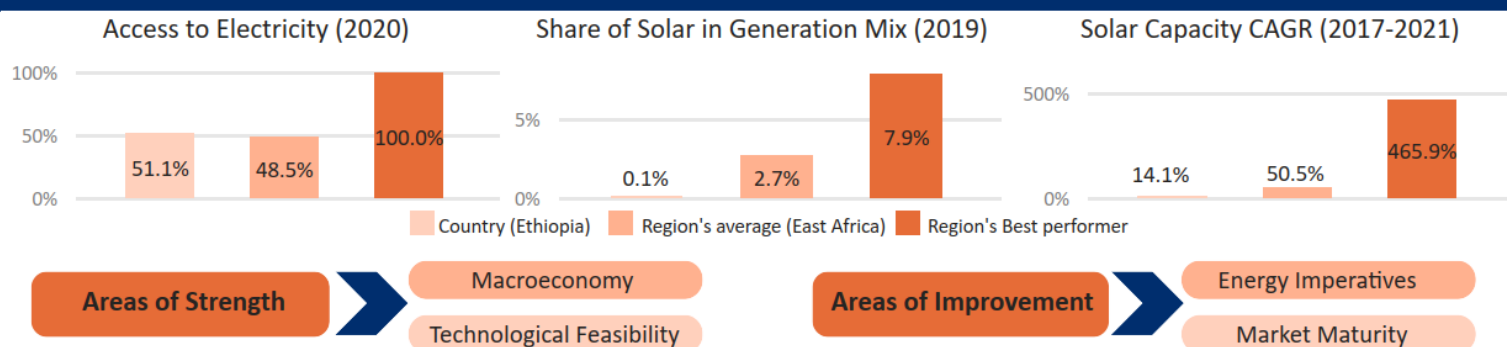


Non-Solar RE: Wind, Hydro, Biomass, Geothermal & Marine;  
 Non-RE: Coal, Natural Gas, Nuclear, Oil, etc.;  
 Other Solar: Utility Scale Solar, Rooftop etc.;  
 Data not available for other Solar RE segments;

## Support for Renewables (2020)



## Country's regional performance and characteristics



## Key Insights

### Drivers

### Insights



Macroeconomy

- Ethiopia is a low-income country with GDP per capita (PPP) of USD 2,548 in 2021. <sup>1,2</sup>
- GDP (Real) grew at an annual rate of 6.3% in 2021 and it is estimated to grow by 3.8% in 2022. <sup>3</sup>
- Inflation rate in the country increased to 26.7% in 2021 from 20.4% levels in 2020. <sup>4</sup>
- The fiscal deficit in the country declined to 2.6% of GDP in 2021 from 2.8% levels in 2020 due to expenditure reprioritization and growth in tax revenue. <sup>4</sup>



Policy enablers

- Ministry of Water, Irrigation and Electricity (MoWIE) is responsible for energy operations and in framing energy policies in the country. <sup>5</sup>
- SE4ALL National Action Plan includes the focus area for diversification of RE through installation of wind farms and solar systems. <sup>6</sup>
- Ethiopian Rural Energy Development and Promotion Centre (EREDPC) is responsible to carry out rural energy policy formulation and promotion of RE technologies in rural areas. <sup>5</sup>
- Rural Electrification Fund (REF) finances projects related to decentralised electricity generation and decentralised RE sources in the country. <sup>6</sup>



Technological Feasibility

- Ethiopia receives very high levels of solar irradiation of 6.2 kWh/m<sup>2</sup>/day and specific yield of 4.7 kWh/kWp/day indicating a very strong technical feasibility for solar in the country. <sup>7</sup>
- The UN Environment program is currently active and working on the introduction of electric two and three wheelers. <sup>8</sup>
- In 2022, The Ethiopian Ministry of Finance announced the implementation of tax reform intended to encourage investment and the importation of electric vehicles. <sup>9</sup>



Market Maturity

- In 2020, 51.1% population in Ethiopia had access to electricity. <sup>10</sup>
- Ethiopian Energy Authority (EEA) is the energy regulator responsible for regulating the electricity sector and energy efficiency & conservation. <sup>6</sup>
- Ethiopian Electric Power (EEP) is responsible for generation, transmission, and system operation in the country. <sup>6</sup>
- Ethiopian Electric Utility (EEU) is responsible for power distribution in the country. <sup>6</sup>



Infrastructure

- In 2021, the construction of 230 kV double circuit Transmission Line from Semera (Ethiopia) to Nagad (Djibouti) having line length of 292 km (102 km in Ethiopia and 190 km in Djibouti) has been initiated in the country strengthening the regional grid. <sup>11</sup>
- The power system of Ethiopia is interconnected to Sudan and Djibouti with 230 kV lines. <sup>6</sup>
- The transmission network consists of 10,308 kms of 400 kV, 230 kV and 132 kV high voltage lines. <sup>6</sup>
- The distribution network consists of 2,154 km of medium voltage lines at 66 kV and 1,54,687 km of low voltage lines at 400 V. <sup>6</sup>



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 RE in Ethiopia. <sup>12</sup>
- In 2022, the African Development Fund approved USD 5.5 Mn grant to initiate 'Desert to Power initiative' in Ethiopia. <sup>13</sup>
- In 2022, the World Bank approved the 'Djibouti -Power System Interconnection Project' which aims to enhance regional connectivity through improved low-cost and clean electricity transmission between Ethiopia and Djibouti. <sup>14</sup>



Energy Imperatives

- The total installed capacity in the country stood at 4,555.9 MW in 2019. <sup>15</sup>
- 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. <sup>15</sup>