Angola

National Electrification Rate [1]

- National: 43%
- Urban: 74%
- Rural: 4%

Population

- Total: 32.9 million [2]
- Urban ratio: 66.8% [2]

Population growth

- Medium population growth: 3.1% [2]

Average household size, urban: 5.6 people [3]

Average household size, rural: 6.7 people [3]

Average electricity consumption per

- Household: 2819 kWh/year
- Capita: 458 kWh/year (Tier 4) [1], [4]

Low demand target[1]: U4-R1

High demand target: U5-R3

Off-grid technology cost [5]–[12]:

- Expected Hydro mini-grid cost: ~3000 $/kWp
- Expected hybrid mini-grid component costs:
  - PV panels: 503 $/kWp
  - Batteries: 139 $/kWh
  - Inverter: 80 $/kWp
  - Charge controller: 142 $/kW
  - Diesel generator: 261 $/kW
  - Wind turbine: 2800 $/kW
- Expected PV stand-alone (or SHS) costs:
  - ~9620 $/kWp if kW < 0.02
  - ~8780 $/kWp if 0.02< kW < 0.05
  - ~6380 $/kWp if 0.05< kW < 0.1
  - ~4470 $/kWp if 0.1< kW < 1
  - ~6950 $/kWp if kW > 1

Grid generating cost [13]–[15]

- Expected on-grid cost (low): 0.068 $/kWh
- Expected on-grid cost (high): 0.093 $/kWh

T&D costs [16], [17] [18], [19] [8], [20]–[25]:

- HV line (69-132 kV): ~53000 $/km
- MV line (11-33 kV): ~7000 $/km
- LV line (0.2 – 0.4 kV): ~4250 $/km
- HV to MV substation (1000 kVA): ~25000 $/unit
- MV to V substation (400 kVA): ~10000 $/unit
- Service transformer (50 kVA): ~4250 $/unit

Grid generation capacity cap per year: ~373 MW/year

Grid connection limit: ~2.5% population/year

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[1] U: Urban households; R: Rural households; 1-5: Electrification Tiers as defined by ESMAP's Multitier framework

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Note! The Medium Voltage (MV) lines is the modelling output of Gridfinder , a modified version of Facebook's open source Pathfinder algorithm. This approach was adopted in the absence of actual, mapped and publicly available data for the country (at the time of publication). The modelled MV lines have been visually inspected and curated using existing HV lines. Modelled MV lines more than 100 km away from existing HV lines have been abstracted and not used in the electrification model. While the 100 km buffer is a well-educated estimate, is yet an assumption. Therefore, we warmly welcome your feedback and we would be glad to update the results with new, better datasets in case those exist.