

# Nigeria

## National Electrification Rate [1]

- National: 54%
  - Urban: 87%
  - Rural: 23%
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## Population

- Total: 195.9 million [2]
- Urban ratio: 50.3% [2]

## Population growth

- Medium population growth: 2.5% [2]
  - High population growth: 2.7% [2]
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Average household size, urban: 4.0 people [3]

Average household size, rural: 4.6 people [3]

Average electricity consumption per

- Household: 1393 kWh/year
- Capita: 324 kWh/year (Tier 4) [2], [4]

Low demand target: U4-R1<sup>1</sup>

High demand target: U5-R3

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## Off-grid technology cost [5]–[9]:

- Expected PV mini-grid cost: ~2950 \$/kWp
  - Expected Hydro mini-grid cost: ~3000 \$/kWp
  - Expected Wind mini-grid cost: ~3750 \$/kWp
  - Expected PV stand-alone (or SHS) costs:
    - o ~9620 \$/kWp if kW < 0.02
    - o ~8780 \$/kWp if 0.02 < kW < 0.05
    - o ~6380 \$/kWp if 0.05 < kW < 0.1
    - o ~4470 \$/kWp if 0.1 < kW < 1
    - o ~6950 \$/kWp if kW > 1
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## Grid generating cost

- Expected on-grid cost: 0.039 \$/kWh [10], [11]

T&D costs [12], [13] [14], [15] [8], [16]–[21]:

- 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 MV substation (400 kVA): ~10000 \$/unit
- Service transformer (50 kVA): ~4250 \$/unit

Grid generation capacity cap per year: ~1502 MW/year

Grid connection limit: ~2.5% population/year

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<sup>1</sup> U: Urban households; R: Rural households; 1-5: Electrification Tiers as defined by ESMAP's Multitier framework

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<sup>2</sup> For additional information refer to GEP data & cost assumptions guide.