

South Africa

National Electrification Rate [1]

- National: 84%
 - Urban: 93%
 - Rural: 67%
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Population

- Total: 57.4 million [2]
- Urban ratio: 66.4% [2]

Population growth

- Medium population growth: 1% [2]
 - High population growth: 1.3% [2]
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Average household size, urban: 2.3 people [3]

Average household size, rural: 2.7 people [3]

Average electricity consumption per

- Household: 1990 kWh/year
- Capita: 796 kWh/year (Tier 3) [1], [4]

Low demand target: U3-R1

High demand target: U4-R3

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: 0.036 \$/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: ~7146 MW/year

Grid connection limit: ~2.5% population/year

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¹ For additional information refer to GEP data & cost assumptions guide.