

Electricity: Solar

It is estimated that the solar potential in Nigeria ranges between 4.0 - 6.5kWh/m2/day or an average of 5 peak sun hour per day. The northern parts of Nigeria with latitude 10°N have been identified as having potential for solar CSP power plants. The absence of large bodies of water for cooling and attendant cost could limit the adoption of this technology. 1% of the Nigerian land mass has the potential to generate 500GW of electricity using CSP. In 2015, there was no CSP and Grid Solar PV. There was 0.015GW* stand-alone solar PV installation. This figure is given as an approximate value which accounts for solar panels used by individuals and also government development projects which are basically for solar street lights, solar powered bore-holes and vaccine refrigeration in clinics.

Level 1

CSP capacity rises to 2.3 GW, Grid Solar PV increases to 11.7 GW and Standalone Solar PV rises to 19 GW. These are capable of generating 60.7 TWh per year.

Level 2

CSP capacity reaches 3.2 GW, Grid Solar PV rises to 16 GW with standalone Solar PV increasing to 25.8 GW by 2050. Generation capacity reaches 82.78 TWh per year.

Level 3

CSP capacity rises to 4.1 GW, Grid Solar PV increases to 20.5 GW and Standalone Solar PV rises to 33 GW. These are capable of generating 105.96 TWh per year.

Level 4

CSP capacity rises to 40 GW, Grid Solar PV increases to 110 GW and Standalone Solar PV rises to 60 GW. These are capable of generating 386.32 TWh per year.

Key Interaction

Short term storage will help balance supply and demand, reducing the generation capacity required to meet peaks. As back up capacity is often fuelled by gas this can reduce emissions.

Default Timing Start Year: 2025 End Year: 2050

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Sub-Lever	Units	2015	Level 1	Level 2	Level 3	Level 4
Solar Standalone	GW	0.015	19.0	25.8	33.0	60.0
Grid	GW	0	11.7	16.0	20.5	110.0
CSP	GW	0	2.3	3.2	4.1	40.0

