

## **A 20 MW solar power plant in Ouarzazate, Morocco**

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### **Abstract**

The development of large-scale photovoltaic systems in high-irradiance regions can significantly support the decarbonization of the electricity generation industry. This project presents the design of a 20-MW grid-connected photovoltaic power plant in Ouarzazate, Morocco. Hourly solar irradiance data from 2017 to 2019 were used to compute plane-of-array radiation and the resulting power output with a module nominal efficiency of 22%. The required panel area was determined from rated conditions, and the annual energy production was calculated by summing the hourly energy generation. Results indicate an annual electricity generation of approximately 55.9 GWh with inter-annual variation below 5%.