Daily Energy Generation Report

Weather Conditions

Date: 2019-11-27

Sunlight Hours: 21

Average Temperature: 23.85°C

Average Wind Speed: 5.27 m/s

Most Frequent Wind Direction: 0°

Total Rainfall: 30239.25 mm

Air Quality Data:

Average PM1: 2.31 µg/m³

Average PM2.5: 0.08 µg/m³

Average PM4: 0.00 µg/m³

Average PM10: 0.00 µg/m³

Average Particulate Concentration: 0.45 particle/m³

Energy Generation Data

Total Energy Generated AC: 21.60 kWh

Total Energy Generated DC: 22.02 kWh

Conversion Efficiency Rate: 98.10%

Peak hour: 23:00: 0.00 kWh

Hourly Energy Generation:

['00:00: 0.00 kWh', '04:00: 0.00 kWh', '05:00: 0.44 kWh', '06:00: 1.31 kWh', '07:00: 3.07 kWh', '08:00: 3.64 kWh', '09:00: 3.29 kWh', '10:00: 2.61 kWh', '11:00: 2.63 kWh', '12:00: 1.10 kWh', '13:00: 1.20 kWh', '14:00: 1.05 kWh', '15:00: 0.75 kWh', '16:00: 0.39 kWh', '17:00: 0.12 kWh', '18:00: 0.00 kWh', '19:00: 0.00 kWh', '20:00: 0.00 kWh', '21:00: 0.00 kWh', '22:00: 0.00 kWh', '23:00: 0.00 kWh']:

Environmental Impact

Environmental Impact:The system generated 49.44 kWh of energy, which resulted in a significant reduction in CO_2 emissions compared to using fossil fuels. Additionally, the high conversion efficiency rate of 98.58% further minimizes environmental impact.

CO2 Savings: 16.37 kg

Alerts and Notifications

Performance Alerts: No information

Weather Warnings: No information

Summary and Recommendations

Summary: On February 14, 2020, the energy generation system produced 49.44 kWh of AC energy and 50.15 kWh of DC energy, with a conversion efficiency of 98.58%. The system experienced peak generation at 12:00, reaching 7.02 kWh. The day was characterized by abundant sunlight (24 hours) and favorable weather conditions, with an average temperature of 27.23°C and moderate wind speeds. Air quality was excellent, with low levels of particulate matter.

Recommendations: The system's high conversion efficiency and overall performance are commendable. However, analyzing the hourly generation data reveals a significant drop in output after the peak hour at 12:00. Investigating potential causes for this drop and implementing measures to maintain consistent generation throughout the day could further optimize system efficiency.
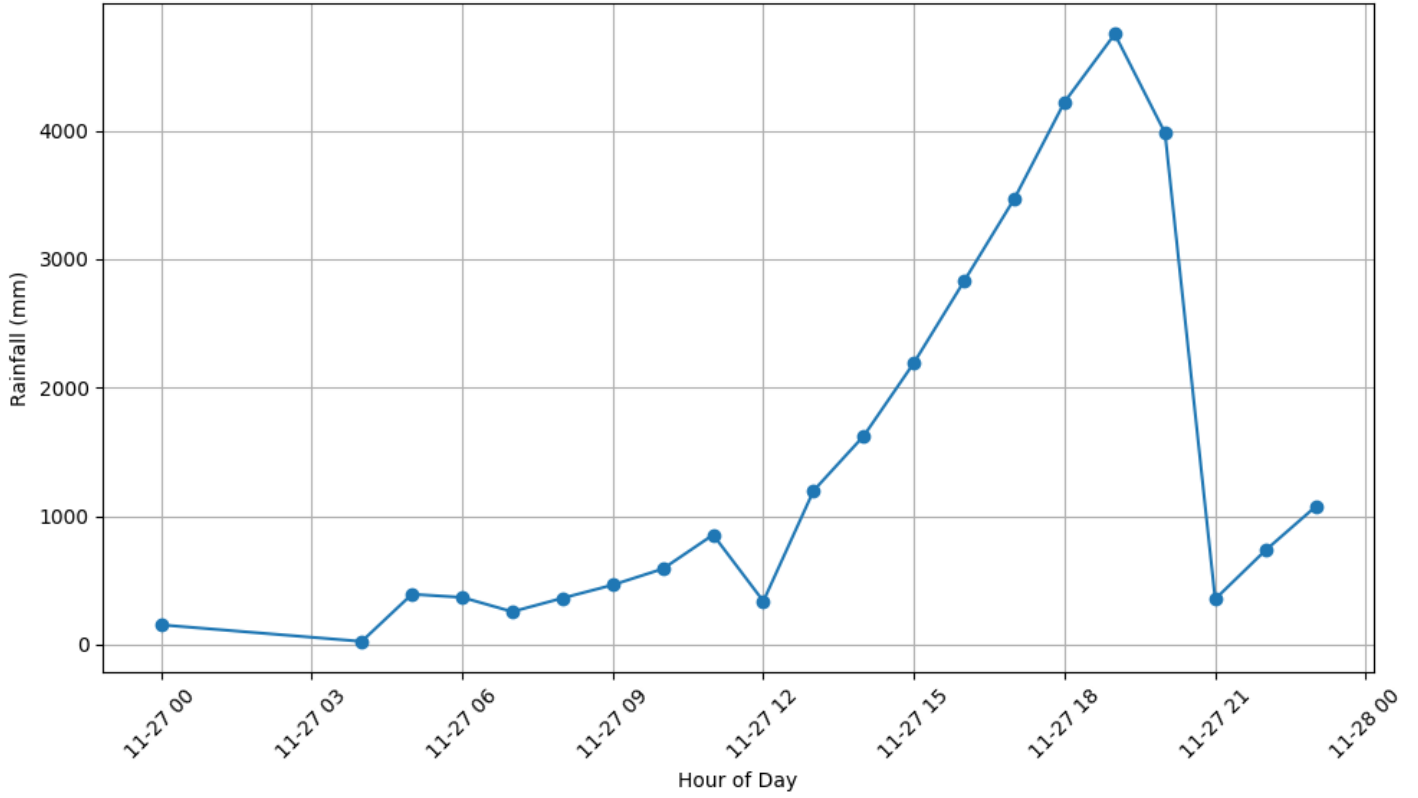
Hourly Energy Generation (kWh)

Hourly Temperature (°C)
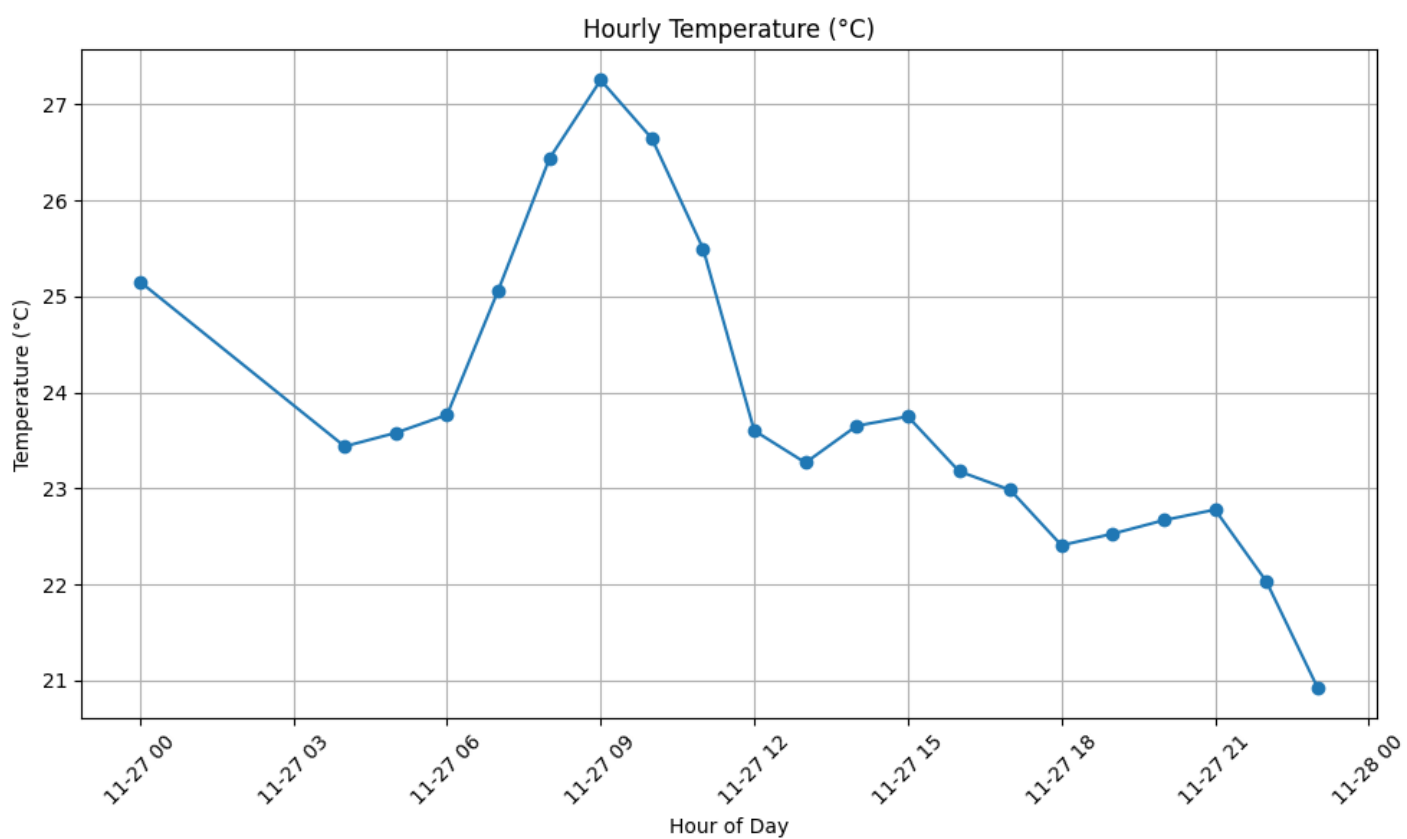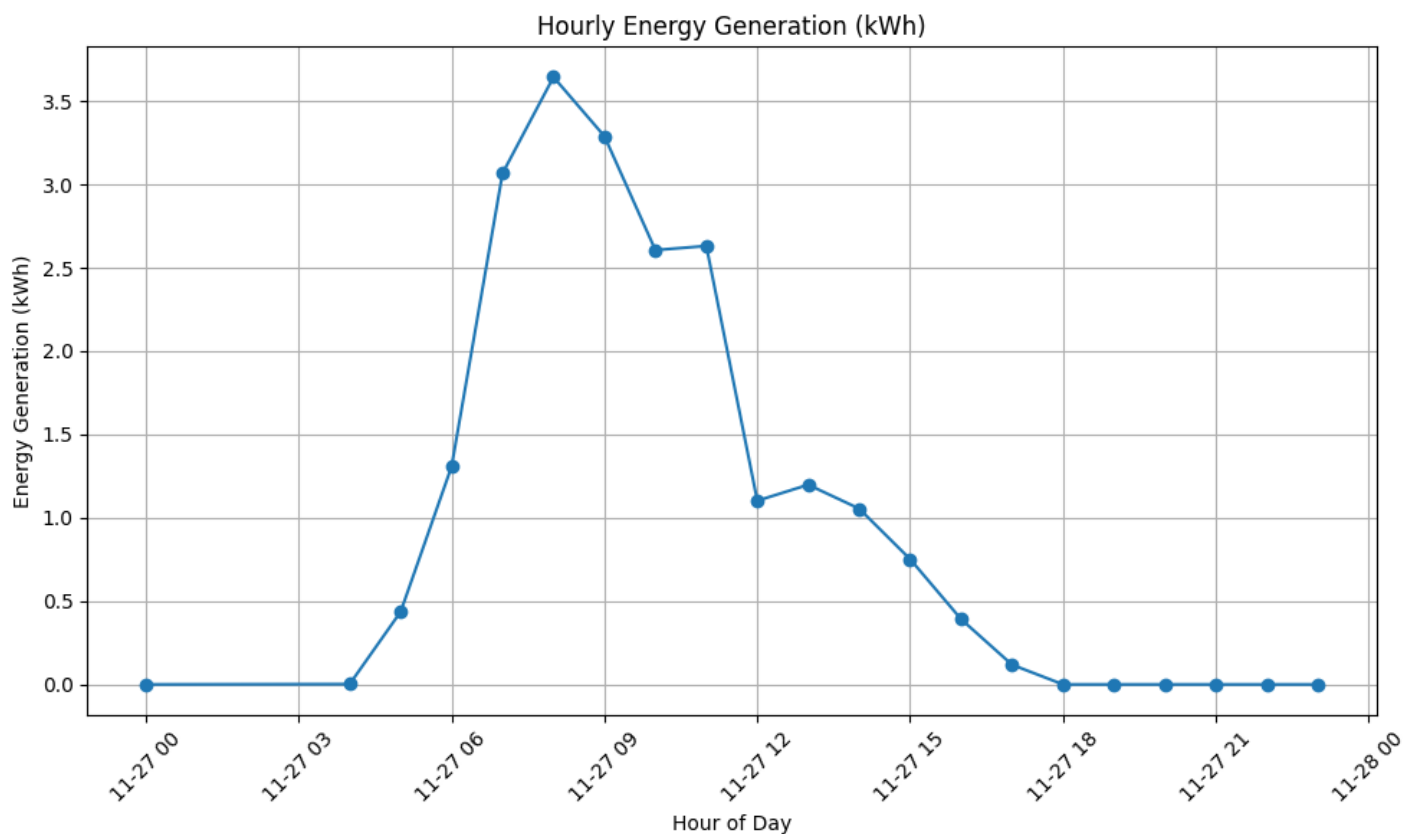
Hourly Wind Speed (ms)
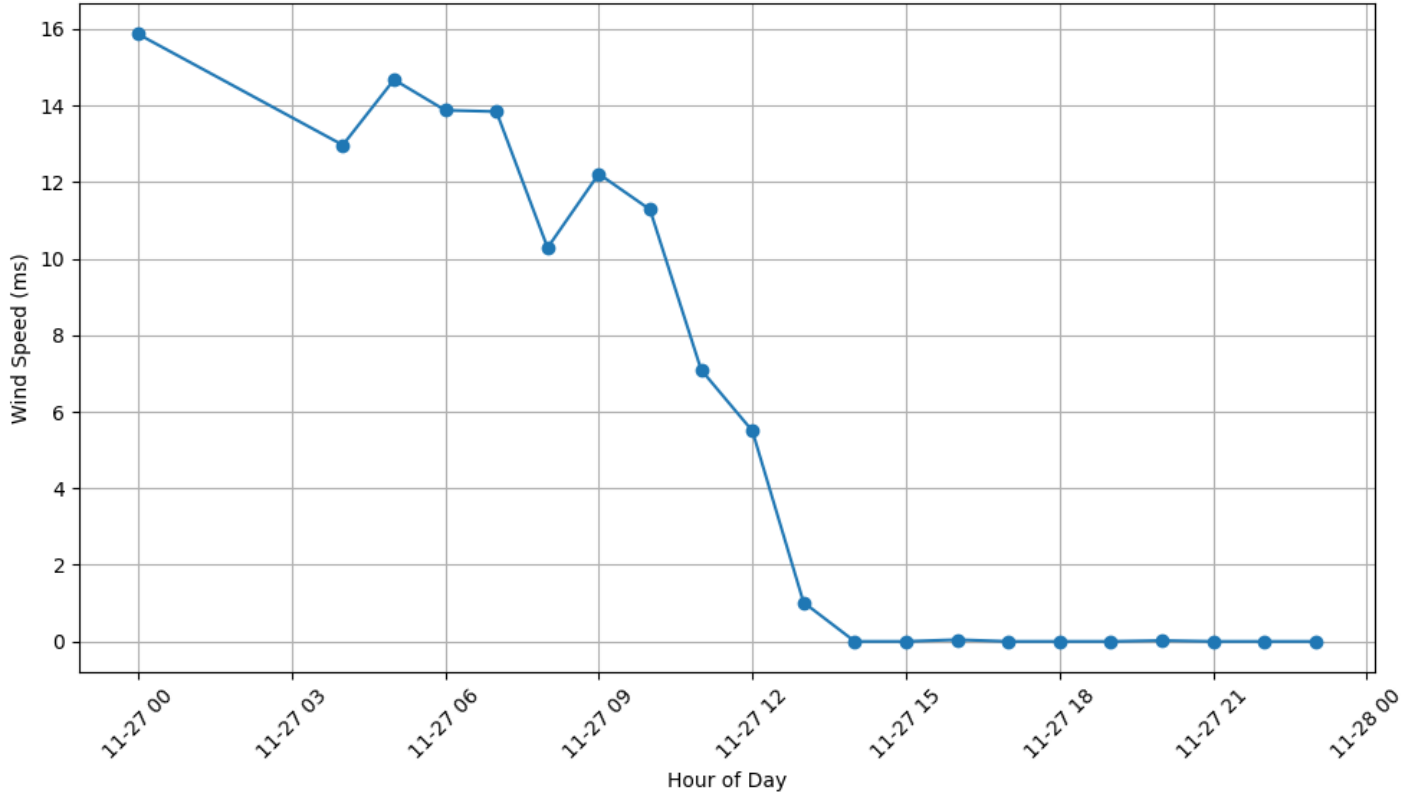
Hourly Wind Direction (°)
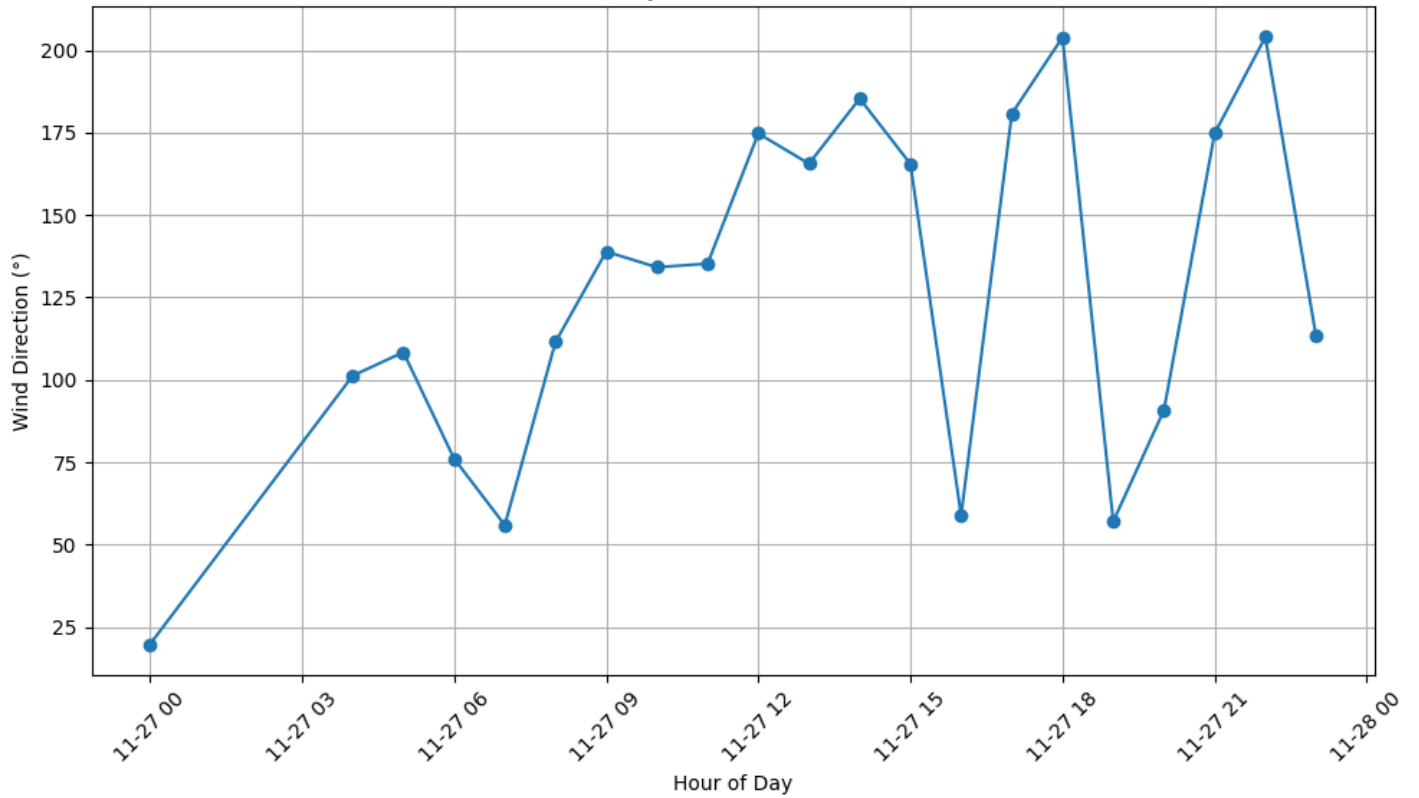
Hourly Rainfall (mm)

Hourly Particulate Size (μm)