Solar Yield Energy Audit Report

Location (lat,lon): 19.076, 72.8777

System size: 3.0 kW

Year / Data used: 2019 / Synthetic (for this report)

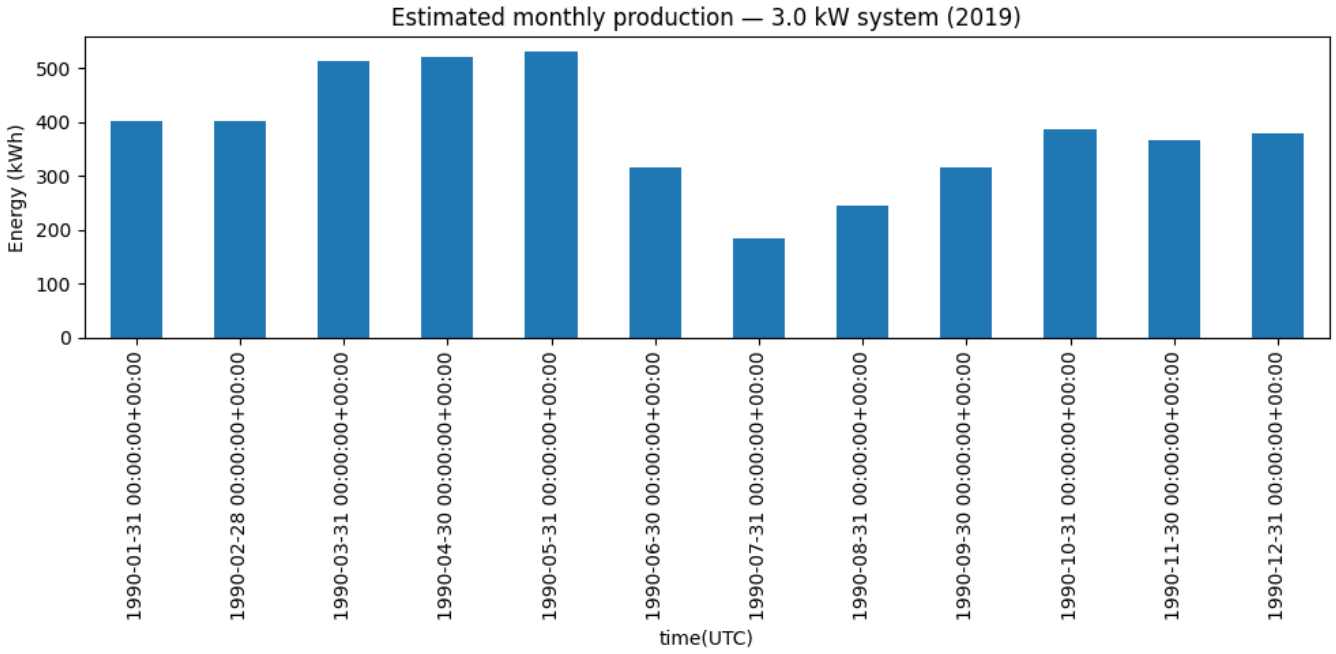
Annual production: 4,559 kWh

Capacity factor: 17.35%

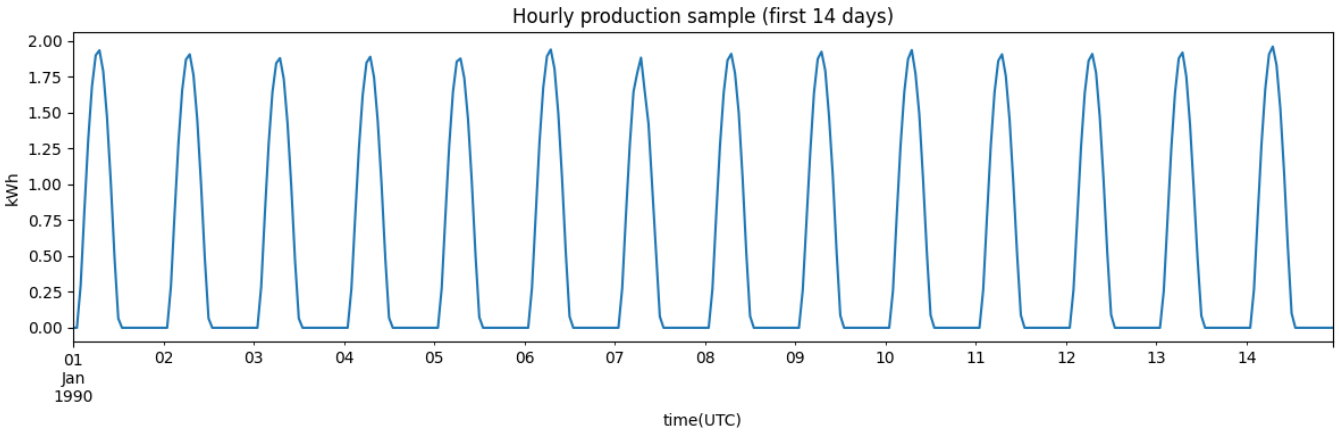
Estimated yearly savings: 36,475 (tariff used: 8.0/kWh)

Estimated CO2 avoided: 3.60 tonnes (using 0.79 kgCO2/kWh)

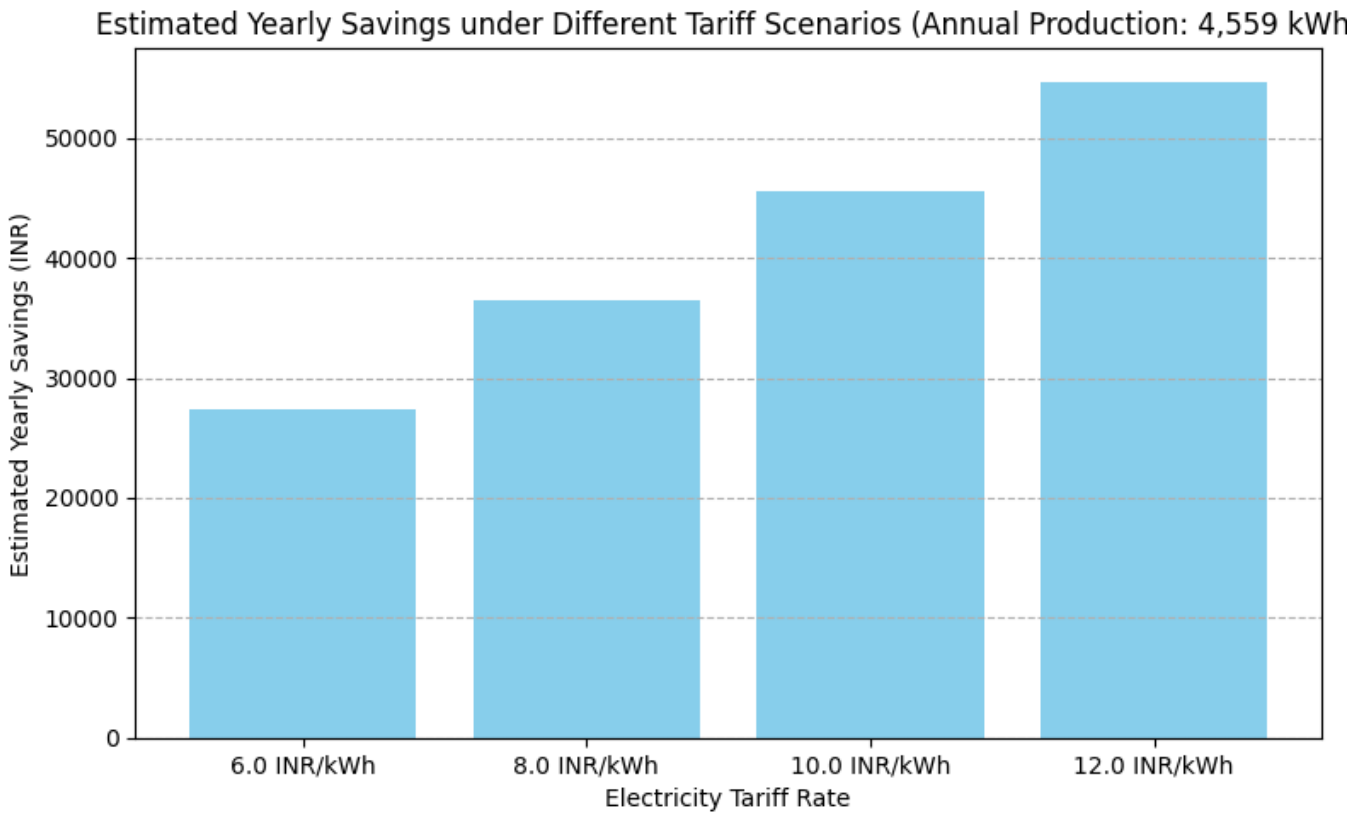
Monthly Production



Hourly Production Sample



Estimated Yearly Savings Scenarios



Methods and Limitations

Methods:

- Data source: synthetic (for this report)
- Simulation tools: Python (Pandas, Matplotlib)
- Assumptions: panel eff 0.18, inverter eff 0.96, system losses 0.14

Limitations:

- This is a simplified model—real-world factors (temperature, shading, soiling variability) can change results.
- The irradiance data is synthetic; using real weather data from sources like PVGIS or NASA POWER would improve accuracy.

Next Steps

- Compare with PVGIS/NASA actual irradiance for the site
- Run sensitivity on tilt/azimuth & system losses
- Add a simple economic analysis (payback period)