

Off-Grid Solar Project Checklist

A practical survey, design, installation, commissioning and handover record for standalone solar and battery systems.

Project identification

Customer / organization _____	Project reference _____
Installation address _____	Survey date _____
Installer / engineer _____	Target commissioning date _____

1. Customer and document inputs

☐	Customer KYC and billing details received.	Notes: _____
☐	Ownership proof or installation NOC received.	Notes: _____
☐	Site photos, access route and available area recorded.	Notes: _____
☐	Latest electricity bill and sanctioned load recorded when a grid supply exists.	Notes: _____
☐	Existing inverter, UPS, generator and earthing details recorded.	Notes: _____
☐	Appliance-by-appliance load schedule and priority list approved.	Notes: _____

2. Site survey

☐	Roof or ground condition, orientation, tilt and usable area measured.	Notes: _____
☐	Shading sources and seasonal shading risk recorded.	Notes: _____
☐	Structure access, wind exposure, drainage and cable routes reviewed.	Notes: _____
☐	Inverter and battery location checked for ventilation, temperature and service access.	Notes: _____
☐	Existing distribution board, neutral and earthing arrangement inspected.	Notes: _____
☐	Fire access, shutdown route and warning-label locations planned.	Notes: _____

Design and Installation Control

Confirm component compatibility and document each protection decision before energizing the system.

3. Engineering and proposal

☐	Daily load energy, peak simultaneous load and motor surge calculated.	Notes: _____
☐	Backup hours, days of autonomy and future-load margin agreed.	Notes: _____
☐	PV array size and expected recharge window documented.	Notes: _____
☐	Battery chemistry, usable capacity, DoD and BMS limits documented.	Notes: _____
☐	Inverter continuous and surge ratings checked against the load profile.	Notes: _____
☐	PV voltage/current limits checked against controller or inverter inputs.	Notes: _____
☐	Cable sizing, voltage drop and conductor temperature assumptions recorded.	Notes: _____
☐	SLD includes isolators, fuses/MCBs, SPDs, earthing and equipment ratings.	Notes: _____
☐	Quotation states inclusions, exclusions, warranties and service responsibilities.	Notes: _____

4. Materials and installation

☐	PV modules, inverter/controller and batteries match approved datasheets.	Notes: _____
☐	Serial numbers and warranty documents recorded before installation.	Notes: _____
☐	Mounting structure, fasteners and module clamps installed to approved layout.	Notes: _____
☐	DC polarity, connector compatibility and cable support checked.	Notes: _____
☐	Battery terminals, torque, protection and clearances checked.	Notes: _____
☐	AC/DC isolators, overcurrent protection and surge protection installed and labelled.	Notes: _____
☐	Equipment and exposed metalwork connected to the planned earthing system.	Notes: _____
☐	Essential-load distribution is separated and clearly labelled.	Notes: _____

Commissioning and Handover

Do not close the project until functional tests, customer orientation and records are complete.

5. Commissioning tests

[]	Visual inspection completed with no damaged cables, loose parts or blocked ventilation.	Notes: _____
[]	PV string polarity and open-circuit voltage checked before connection.	Notes: _____
[]	Battery voltage, polarity, state of charge and BMS status checked.	Notes: _____
[]	Protection devices, shutdown sequence and emergency isolation tested.	Notes: _____
[]	Inverter AC voltage, frequency and waveform settings verified.	Notes: _____
[]	Normal load operation and largest planned surge load tested.	Notes: _____
[]	Low-battery warning, cut-off and recovery behavior checked.	Notes: _____
[]	PV charging, monitoring data and alarms verified.	Notes: _____
[]	Measured results and any deviations recorded in the commissioning report.	Notes: _____

6. Customer handover

[]	Approved SLD, datasheets and system design summary provided.	Notes: _____
[]	Invoice, serial-number register and warranty cards provided.	Notes: _____
[]	Commissioning report and test readings provided.	Notes: _____
[]	Cleaning, ventilation and battery-care schedule explained.	Notes: _____
[]	Normal shutdown, emergency shutdown and restart demonstrated.	Notes: _____
[]	Monitoring app, alarm meanings and service contact explained.	Notes: _____
[]	Expected backup limitations and excluded heavy loads explained.	Notes: _____
[]	Customer acceptance and handover signatures completed.	Notes: _____

Handover Acceptance and Maintenance

Record customer acceptance and agree the first preventive-maintenance review before closing the project.

Preventive maintenance plan		
[]	Module cleaning frequency agreed for the site environment.	Notes: _____
[]	Mounting, cable support and connector inspection interval agreed.	Notes: _____
[]	Battery terminals, ventilation, temperature and BMS review interval agreed.	Notes: _____
[]	Protection-device, earthing and surge-protection inspection interval agreed.	Notes: _____
[]	Monitoring alarms, event history and firmware review responsibility assigned.	Notes: _____
[]	Service contact, response process and warranty claim route explained.	Notes: _____

Handover acceptance

Customer name and signature _____	Installer name and signature _____
Date _____	Next preventive maintenance date _____

Reference basis

This checklist reflects common stand-alone PV balance-of-system, battery safety, design verification and commissioning principles. Project-specific requirements must follow applicable local electrical rules and the latest manufacturer instructions.

US DOE balance-of-system guidance: energy.gov/energysaver/balance-system-equipment-required-renewable-energy-systems

NREL off-grid installation and O&M; guide: docs.nrel.gov/docs/fy24osti/89249.pdf

IEC 62124:2004 stand-alone PV design verification: webstore.iec.ch/en/publication/6483

IEC 63056:2020 lithium battery safety for energy storage: webstore.iec.ch/en/publication/29224