

## SOLAR BUYING GUIDE

How to choose the right solar, inverter & battery system — without paying for equipment you don't need.

### THE 30-SECOND RULE

**A good solar proposal should answer five questions before you sign anything: How much energy do I use? What must stay on? How much solar can my roof take? How much battery do I actually need? and What will the system cost me over its useful life?**

## 1. Understand what you are buying

A solar system is not one product. It is an energy system made up of several components that have different jobs:

| COMPONENT                      | WHAT IT DOES                                                  | WHAT TO CHECK                                                                                              |
|--------------------------------|---------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| Solar PV panels                | Convert sunlight into DC electricity.                         | Power rating, efficiency, warranty, degradation, certifications and physical dimensions.                   |
| Inverter                       | Converts DC power to usable AC power and manages the system.  | Continuous output, surge capability, MPPTs, battery compatibility, protection and local grid requirements. |
| Battery                        | Stores energy for later use and backup.                       | Usable kWh, continuous kW, chemistry, warranty, cycle/throughput terms and safety features.                |
| Protection & balance of system | Protects people and equipment and connects everything safely. | Correct AC/DC protection, isolators, earthing, surge protection, cabling and labelling.                    |
| Monitoring                     | Shows production, consumption, battery state and faults.      | Remote access, historical data, alerts and installer support.                                              |

## 2. Start with your electricity data — not a sales package

- Collect 12 months of electricity bills if possible. Look at kWh, tariff structure and seasonal changes.
- Identify your peak loads: geysers, pumps, ovens, air-conditioning, pool equipment, heaters, machinery and EV charging can dominate demand.
- Separate energy from power: kWh tells you how much energy you use; kW/kVA tells you how much power you need at a moment in time.
- Decide what you actually want: bill reduction, backup during outages, protection for critical equipment, or a combination

**Do not size a battery from your monthly bill alone. A proper design should consider the load profile and which circuits you want backed up.**

# SIZE THE SYSTEM BEFORE YOU SHOP FOR BRANDS

The right system is the smallest system that reliably achieves your objective at an acceptable lifetime cost. Bigger is not automatically better.

## 3. Choosing the solar panel size

- Panel kWp: the total DC nameplate capacity of the PV array. Example: 18 × 550 W panels = 9.90 kWp.
- Roof area: panel dimensions, roof orientation, shading and access can limit the practical array size.
- Shading: trees, chimneys, parapets and nearby buildings can materially reduce production. Ask for a shading assessment where relevant.
- Orientation and tilt: South African sites can produce excellent solar energy, but the actual roof geometry matters more than a generic “perfect” angle.
- String design: panels must be electrically matched to the inverter's MPPT voltage/current windows. Do not accept a panel count without a string calculation.

## 4. Choosing the inverter

| CHECK                    | WHY IT MATTERS                                                                                                                                        |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Inverter output (kW/kVA) | Determines how much AC load can be supplied at once. A 10 kW inverter cannot continuously supply a 15 kW load simply because the panels are larger.   |
| MPPT count               | Multiple roof orientations or strings may benefit from separate MPPT tracking. More MPPTs are not automatically better; the layout must justify them. |
| Battery compatibility    | Confirm the exact battery models and voltage range supported by the inverter.                                                                         |
| Backup architecture      | Ask whether the system backs up selected circuits or the whole installation, and what happens during overloads.                                       |
| Grid compliance          | Grid-connected equipment must meet the requirements of the relevant supply authority and applicable South African standards/connection rules.         |

## 5. Choosing the battery

- Usable capacity (kWh) is more useful than just the advertised battery size. Ask what energy is actually available to you.
- Power rating (kW) matters just as much. A large kWh battery with a low kW output may not run several heavy loads together.
- Critical-load calculation: list the equipment you want during an outage and its running/surge demand.
- Depth of discharge and warranty: compare the manufacturer's usable-energy and throughput/cycle warranty terms rather than comparing only the headline kWh.
- Battery chemistry and safety: lithium iron phosphate (LFP) is common in modern stationary storage; still check the specific product's certifications, thermal management and installation requirements.

## A simple example

If your essential backup load averages 2.5 kW for 4 hours, the energy requirement is approximately 10 kWh before allowing for conversion losses, reserve capacity and battery operating limits. If you also need to start a pump or compressor, the required inverter power may be much higher than 2.5 kW.

## 6. Solar-only, hybrid or full backup?

- Solar + grid: prioritises daytime solar and reduces grid consumption; little or no backup depending on the inverter setup.
- Hybrid solar + battery: adds energy shifting and backup capability and can reduce reliance on the grid after sunset.
- High-backup system: designed around critical loads, larger storage and stronger inverter capacity; usually higher CAPEX but more resilience.

# QUALITY, SAFETY & THE INSTALLER MATTER

A premium panel cannot compensate for poor electrical design. Your installer, protection equipment, documentation and commissioning are part of the system.

## 7. What a professional quote should contain

- A clear system diagram or single-line diagram.
- Exact panel make/model, wattage and quantity.
- Exact inverter make/model and rated output.
- Exact battery make/model, usable capacity and power rating.
- Mounting system details appropriate to the roof structure.
- AC and DC cable sizes and protection philosophy.
- Surge protection, isolators, earthing and labelling.
- Estimated annual PV production and the assumptions behind it.
- Expected grid-energy reduction — with assumptions, not promises.
- Installation, commissioning, testing and Certificate of Compliance arrangements.
- Warranty terms for equipment AND workmanship.
- Monitoring platform and who responds to faults.

## 8. Red flags when comparing solar quotes

| RED FLAG                                | WHY IT MATTERS                                                                                                               |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| "This system will eliminate your bill." | Bills depend on tariff structure, consumption, export rules and actual system performance.                                   |
| No load analysis.                       | Sizing from a single bill is not enough for a serious design.                                                                |
| No exact model numbers.                 | You cannot compare warranties, performance or compatibility without them.                                                    |
| Huge battery with a small inverter.     | Energy capacity and power capability are different things.                                                                   |
| No electrical protection detail.        | Protection and safe isolation are fundamental, not optional extras.                                                          |
| No paperwork or compliance plan.        | Grid-connected systems may require supply-authority processes and proper electrical certification.                           |
| Unusually cheap quote.                  | Check what has been excluded: cabling, scaffolding, protection, approvals, monitoring, commissioning or after-sales service. |

## 9. South African compliance: what to ask

For grid-connected solar, ask the installer which requirements apply to your site and supply authority. NRS 097-2-1 is used for the utility interface of small-scale embedded generation, and the Embedded Generation Resource Portal currently provides 2024 technical material and connection resources. The relevant wiring and installation requirements also matter. Do not assume that an inverter being sold in South Africa automatically means the entire installation is compliant. [\[cite\turn1search0\turn1search31\]](#)

Important 2026 clarification: older material online may refer to SANS 10142-1-2 as though it is currently a standalone standard. ECASA reported in January 2026 that this document was withdrawn and that its requirements are being integrated into SANS 10142-1 revisions. Your installer should therefore work from the current applicable requirements rather than relying on an old draft or withdrawn document. [\[cite\turn1search2\]](#)

## 10. Certificate of Compliance (CoC)

- Ask who will issue the electrical Certificate of Compliance and under which regulations.
- Keep the certificate, invoices, equipment serial numbers, manuals and commissioning records.
- If your property is subject to municipal/SSEG registration, ask the installer to explain the process and what evidence you will receive.
- Do not treat "the electrician will sort it out later" as an acceptable commissioning plan.

For example, SARS has specifically required an Electrical Certificate of Compliance and supporting invoices for claims under the former residential solar tax credit. That incentive applied only to the 2024 year of assessment; do not assume a current installation qualifies for that old rebate. [\[cite\turn0search0\turn0search45\]](#)

# THE CALLSAVE BUYING CHECKLIST

Use this page when comparing quotes. If a supplier cannot answer these questions clearly, stop and ask for clarification before paying a deposit.

- ☐ I have reviewed at least several months of electricity bills.
- ☐ My installer has considered my actual load profile and peak loads.
- ☐ I know which circuits must operate during an outage.
- ☐ The quote states the exact panel model and total kWp.
- ☐ The quote states the exact inverter model and continuous output.
- ☐ The number of MPPTs and string arrangement make sense for my roof.
- ☐ The battery quote states usable kWh and continuous kW.
- ☐ Battery warranty terms include usable capacity/throughput conditions.
- ☐ The quote includes appropriate AC/DC protection and surge protection.
- ☐ The roof mounting solution is suitable for my roof and weather conditions.
- ☐ The system includes monitoring and I know who receives fault alerts.
- ☐ The installer has explained grid/municipal/SSEG requirements for my site.
- ☐ I know who will issue the electrical CoC.
- ☐ I have written equipment and workmanship warranties.
- ☐ I know what is excluded from the quoted price.
- ☐ I have seen the estimated annual energy yield and the assumptions behind it.
- ☐ The proposal explains what happens when the grid is down.
- ☐ The installer has explained maintenance and after-sales support.
- ☐ I have compared total system value — not just the lowest price.

## HOW CALLSAVE SHOULD APPROACH YOUR SOLAR PROJECT

| STEP | CALLSAVE APPROACH | WHAT HAPPENS                                                                                          |
|------|-------------------|-------------------------------------------------------------------------------------------------------|
| 01   | DISCOVER          | Review bills, goals, critical loads and future needs such as EV charging.                             |
| 02   | ASSESS            | Inspect the electrical installation, roof, shading, available space and supply constraints.           |
| 03   | DESIGN            | Build the PV, inverter, battery and backup architecture around your actual requirements.              |
| 04   | PROPOSE           | Show equipment, assumptions, expected production, costs, warranties and exclusions clearly.           |
| 05   | INSTALL           | Use qualified electrical personnel, correct protection, neat cable management and safe mounting.      |
| 06   | COMMISSION        | Test, configure monitoring, complete documentation and provide the required electrical certification. |
| 07   | SUPPORT           | Monitor performance, respond to faults and maintain the system so it keeps delivering value.          |

## A FINAL WORD ON ROI

The cheapest solar system is rarely the best investment. Compare cost per usable kWh, expected annual generation, battery capability, warranties, compliance, maintenance, financing cost and expected electricity savings. A good ROI model should also test conservative, expected and high-use scenarios — especially if your system includes a battery or EV charger.

## CALLSAVE SOLAR & EV CHARGING SOLUTIONS

## **Solar designed around the way you actually use energy — with a focus on safety, performance, transparency and long-term value.**

### Sources & further reading

- South African Embedded Generation Resource Portal — technical resources and NRS 097 material. [\[cite\turn1search0\turn1search31\]](#)
- SARS — solar tax credit guidance and current tax information. [\[cite\turn0search0\turn0search45\]](#)
- Eskom — 2026/27 SSEG standard fees and connection information. [\[cite\turn0search46\]](#)

This guide is educational and is not a substitute for an electrical engineer, qualified electrician, tax adviser or the requirements of your local electricity distributor. System sizing, approvals, tariffs, incentives and connection requirements must be confirmed for the specific property and current rules.