

# Go Solar, Without Getting Scammed.

Choose your installer well, understand the equipment, and know what your budget can actually power at home.

**PREPARED BY**

SmartSana Energies

**FOR**

Cameroon, all budgets

**READING TIME**

About 12 minutes

## WHO THIS GUIDE IS FOR

You're tired of SOCADEL (formerly ENEO) load shedding. You want to switch to solar. But you're worried about spending between 385,000 and 5,000,000 FCFA on a system that breaks down, or whose installer disappears. This guide helps you ask the right questions, understand the equipment, and choose the right system size.

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### Before You Start

Two questions to ask yourself before any contact.

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### Choose & Compare

6 questions to ask and how to read a quote.

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### Understand the Equipment

Inverters, batteries, panels.

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### Right-Size Your System

A/C, region, off-grid, three-phase.

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### Choose Your Kit

What your budget can power, with our full range.

## BEFORE YOU EVEN CONTACT AN INSTALLER

# Two questions to ask yourself first

Two minutes of thinking here will save you hours with installers, and prevent you from paying for a system that doesn't match what you actually wanted.

## 1 · Why do you want solar?

Three possible reasons, and each one leads to a different kind of system. Know what you're after before requesting a quote.



### Full Independence

*"I want to disconnect from SOCADEL"*

- System sized to cover everything: day, night, several consecutive rainy days.
- More panels, oversized batteries, redundancy on the inverter.
- You never pay SOCADEL again.
- The most expensive option to purchase.



### Reduce the Bill

*"I want to pay less each month"*

- Solar covers you during the day, SOCADEL takes over at night.
- Hybrid system connected to the grid (not fully off-line).
- Your SOCADEL bill drops by 40 to 70%.
- Payback in 2 to 3 years.



### Zero Downtime

*"Regardless of SOCADEL, no outages"*

- Multi-source system: solar, batteries, SOCADEL, sometimes a generator too.
- You keep SOCADEL on top of solar.
- Your SOCADEL bill stays the same, plus the cost of solar on top.
- The most reliable, but the most expensive overall.

## 2 · What kind of installation can you do?

Two possible physical setups depending on your housing. It's not your budget that decides here, it's your access to the roof.



### Complete Solar Kit (with panels)

*"I have access to my roof"*

- You own the property, or you rent and have the landlord's written consent.
- Accessible roof: concrete slab, solid metal sheeting, or sun-facing terrace.
- Building rules don't prohibit panels.
- You benefit from both a lower SOCADEL bill and backup during outages.



### Anti-Outage Kit (without panels)

*"I don't have roof access"*

- You live in a flat on an upper floor, with no terrace or shared roof access.
- You rent and the landlord refuses the installation.
- You keep power during SOCADEL outages.
- Your SOCADEL bill doesn't go down (batteries recharge from the grid).

## BEFORE YOU SIGN ANYTHING

# 6 questions to ask any installer

Ask the same six questions to every installer. The answers tell you more than any brochure. Any installer who dodges, becomes defensive, or replies "just trust me" — leave straightaway.

### 01 How do you prepare your quote?

A proper quote is prepared from your list of appliances and your SOCADEL (ex-ENEO) bill. If the installer gives you a price without asking anything, they are only guessing.

### 02 Which brand and model exactly will you install?

'Chinese batteries' is not a brand. You need the manufacturer name of the panel, the inverter (e.g. Voltronic, Deye, Victron), and the battery, written on the quote.

### 03 Can I visit two of your installations still running after a year?

A new installation always looks nice. What matters is what is still running after 12 months. Ask for two customer contacts to call.

### 04 Do you warranty your work, in addition to the manufacturer warranty?

The manufacturer warranty covers hardware failure. The labour warranty covers bad connections and poor installation. You need both, written on paper.

### 05 Who comes to repair if the inverter fails in six months?

Get it in writing: how long to come, who pays for travel, and whether spare parts are available locally in Cameroon or you will have to wait three months.

### 06 Do you have an office where I can visit, and a registered business?

A team with a real address, a taxpayer number, and official invoices is much harder to disappear on you than a plain WhatsApp number.

## THE QUOTE, LINE BY LINE

# Comparing quotes honestly

A single lump-sum quote tells you nothing. A real quote itemizes each component, so you can compare like for like.

### Panels

Brand, wattage per panel (e.g. 450 W), how many panels total.

### Inverter

Brand and rating (e.g. 4 kVA). Hybrid or battery-only.

### Batteries

Type (lithium, gel, or tubular), capacity in kWh, brand, warranty.

### Roof mounting

Rails and brackets suited to your roof (sheet metal, slab, concrete), with waterproofing.

### Wiring & protection

Breakers, fuses, surge protection, grounding, cable sizes.

### Installation & handover

Labour, transport, testing, and training on how to use the system.

### Warranty terms

Manufacturer warranty on each part, plus a labour warranty from the installer, all written on paper.

### When it's much cheaper, that's when you should look closely.

All the equipment used in Cameroon goes through the same customs. Unless the installer smuggles material in through Nigeria, prices will always float within the same range for the same quality and capacity. A quote 30 to 40% cheaper than the others is not a good deal, it's a sign that they cut a corner somewhere.

## WHAT YOU NEED TO KNOW ABOUT EACH PART

# Understand the equipment before you buy

An installer can sell you anything if you don't understand the difference. Here are the three parts that make up 90% of the price, explained simply.

## Choosing your inverter

### ✗ AVOID

#### Modified Sine Wave (MSW)

*Modified Sine Wave*

- Poor quality electricity, stair-stepped instead of smooth.
- Makes motors buzz and overheat (fridge, fan, pump).
- Damages sensitive appliances over time.

**Verdict:** cheap, but you lose on appliances. Avoid for a serious solar system.

### ✓ STANDARD

#### Pure Sine Wave (PSW)

*Pure Sine Wave*

- Same quality of current as SOCADEL, clean and smooth.
- Compatible with all appliances: fridge, TV, computer, A/C.
- The minimum acceptable for a serious solar installation.

**Verdict:** the default choice for most anti-outage kits.

### ✓ BEST CHOICE

#### Hybrid (with direct injection)

*Hybrid solar inverter*

- Pure sine wave, plus smart solar management.
- Uses sunlight directly during the day, which saves the battery.
- Switches automatically between solar, battery, and SOCADEL.

**Verdict:** mandatory as soon as you add panels to your system.

## Choosing your batteries

### OLDEST TECH

#### Gel or lead-acid

*Lead-acid / Gel*

- Lowest purchase price, but only 2 to 4 year lifespan.
- You can only discharge 50% of the capacity without damaging them.
- Heavy, sensitive to heat, need frequent replacement.

**Verdict:** in the long run, more expensive than lithium.

### MID-TIER

#### Tubular

*Industrial lead battery*

- Better than classic gel batteries, 3 to 6 years.
- Deeper discharge (60 to 70%), more rugged.
- Still heavy, needs a ventilated room.

**Verdict:** a compromise, but outclassed by modern lithium.

### ✓ BEST CHOICE

#### Lithium (LiFePO4)

*Lithium iron phosphate*

- 10 to 15 year lifespan, discharge up to 90% without damage.
- No maintenance, no ventilation, half the weight.
- More expensive up front, but cheaper over 10 years.

**Verdict:** the standard today. If your budget allows, do not settle for anything else.

## Choosing your panels

### OLDEST TECH

#### Polycrystalline (Poly)

*Blue panel*

- Efficiency 15 to 17%, larger panels for the same power.
- Less performant when it's very hot (Northern Cameroon).
- Lowest price, but you need more roof surface.

**Verdict:** acceptable if the roof is very large, otherwise prefer mono.

### ✓ STANDARD

#### Monocrystalline (Mono)

*Solid black panel*

- Efficiency 18 to 22%, best power-to-size ratio.
- Works better in low light (morning, cloudy weather).
- Slightly higher price, but longer lifespan.

**Verdict:** the default choice for most Cameroonian roofs.

### PREMIUM

#### Bifacial

*Captures light from both sides*

- Also captures reflected light (bright roof, floor beneath).
- Produces 5 to 15% more than monocrystalline.
- Higher price, best for ground-mounted or bright metal roofs.

**Verdict:** interesting for large projects or bright-metal roofs.

## THE DETAILS THAT MAKE THE DIFFERENCE

# What a good installer will ask you

Solar is not just "connecting some panels." Here are the four points where many installations fail, because they were rushed at the sizing stage.



### Air conditioners on solar

The air conditioner is the household's biggest power consumer. Running a 1.5 HP A/C for 8 hours overnight can on its own drain a 10 kWh battery bank.

- If you have not yet bought your A/C, get an **inverter split A/C**. It uses 30 to 50% less than a standard A/C.
- Match the power to the room: 1 HP for 12 m², 1.5 HP for 18-20 m², 2 HP for 24-28 m². An oversized A/C wastes electricity.
- Set to 24-26 °C, not 18 °C. Every degree lower means about 10% more consumption.
- A/C runs best on solar during the **daytime** (the sun powers it directly). At night, it drains batteries quickly.



### Where you live matters

An identical house in Buea and in Yaoundé won't need the same number of panels. The rainy season and effective sunlight hours change everything.

#### Yaoundé 5 to 7 h/day

Average sunlight, distinct dry season.

#### Douala 4 to 6 h/day

Humid, morning haze, variable sun hours.

#### Buea, Limbe 4 to 5 h/day

Prolonged rains, grey skies, more panels + batteries.

#### Bafoussam, Bamenda 5 to 6 h/day

Elevation, cool mornings, good yield.

#### Garoua, Maroua 7 to 8 h/day

Lots of sun, but heat cuts efficiency.

#### Bertoua, Ebolowa 4 to 6 h/day

Forest, humidity, frequent rains.

## Can I be fully independent from SOCADEL with solar?

**Yes, but it is sized differently.** An anti-outage or hybrid system cannot cost the same as a fully off-grid system. To be truly independent, you need:

- More panels (often double), to recharge batteries quickly on sunny days.
- A hybrid inverter with direct injection: it uses solar directly during the day to power your appliances, which preserves the battery.
- An oversized battery bank, to hold up for 2 to 3 days of extended rain without sun.
- Redundancy on critical parts (inverter), so that no single failure brings the whole system down.



### When do you need three-phase?

Most Cameroonian homes are single-phase, and a single-phase solar system is more than enough. Switch to three-phase if:

- Your SOCADEL meter is already three-phase (check the bill or the meter label).
- You have a motor larger than 3 HP: large water pump, workshop compressor, industrial equipment.
- You run several air conditioners at the same time (more than 4 HP combined).
- You are a business, workshop, restaurant with a cold room, or a clinic.

Three-phase costs more, but it balances the load and prevents the whole system from tripping on a heavy start-up.

## SOLAR, SIMPLIFIED

# What can your budget power?

First split your appliances into **essentials** (to run on solar) and **non-essentials** (leave on SOCADEL, unless you accept oversizing your system).

| APPLIANCE                       | POWER          | APPLIANCE                   | POWER         |
|---------------------------------|----------------|-----------------------------|---------------|
| ✓ LED bulb                      | 5 to 15 W      | ✓ Fan (ceiling or standing) | 60 to 80 W    |
| ✓ WiFi box / Starlink           | 10 to 75 W     | ✓ Phone, laptop charger     | 10 to 90 W    |
| ✓ LED TV (32 to 55")            | 50 to 150 W    | ✓ Class A+ refrigerator     | 100 to 150 W  |
| ✓ Freezer                       | 150 to 250 W   | ✓ Security lights, cameras  | 20 to 50 W    |
| ⚠ Clothes iron                  | 1000 to 1500 W | ⚠ Microwave, kettle         | 800 to 2000 W |
| ⚠ Air conditioner (1 to 1.5 HP) | 750 to 1200 W  | ⚠ Washing machine           | 500 to 600 W  |
| ⚠ Water heater, electric stove  | 1500 to 3000 W |                             |               |

✓ Essential, plan on solar      ⚠ Non-essential, heavy consumer

## OUR RANGE, FROM STUDIO TO LARGE HOME

### Four tiers to help you position yourself

| KIT                  | BATTERY | FOR                  | WHAT IT POWERS                                                     | ANTI-OUTAGE | SOLAR KIT        |
|----------------------|---------|----------------------|--------------------------------------------------------------------|-------------|------------------|
| T1<br><b>Muna</b>    | 2.4 kWh | Studio, small apt.   | Lights, TV, fan, WiFi, mini-fridge. The essentials during outages. | 385 000     | <b>497 000</b>   |
| T3<br><b>Comfort</b> | 5 kWh   | 3 to 4 room house    | Fridge + freezer + TV 55" + Starlink + laptop, with 24h autonomy.  | 943 000     | <b>1 311 900</b> |
| T5<br><b>Duplex</b>  | 10 kWh  | Premium residence    | Everything above + 1 A/C (1.25 HP) all evening + washing machine.  | 1 426 000   | <b>2 137 500</b> |
| T6<br><b>Patron</b>  | 15 kWh  | Business, large home | Everything above + 1 A/C (1.5 HP) all night + water heater.        | 1 550 000   | <b>2 805 000</b> |

Prices in FCFA, starting from, installation included. Anti-Outage: batteries + inverter, no panels (ideal if no roof access). Solar Kit: adds panels, reduces SOCADEL bill. Warranties: batteries 3 to 5 years, panels 5 years, inverter 2 years, installation 1 year.

#### SEE THE FULL RANGE

The 7 kits, from studio to industrial, with detailed specs

[kits.smartsana.com](https://kits.smartsana.com) →

#### IF YOU'D LIKE A SECOND OPINION

**Free site visit and system sizing, even if you don't buy from us.**

Bring us a competitor's quote. We will go through it with you, line by line, using the checklist in this guide.

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