

Sezibwa Solar + Battery Operating Plan

8 × 600 W panels (4.8 kWp), one string on inverter PV1 · prepared 26 Oct 2026

≈19.5 kWh solar per average day (15–18 in rainy weeks)	≈28 kWh site load per day (19–25 Oct, measured)	≈9.6 kWh midday surplus to store in the battery	≈65% of the load from solar + battery on a good day
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A day at Sezibwa: solar vs load

0 kW1 kW2 kW3 kW4 kW00:0003:0006:0009:0012:0015:0018:0021:0024:00night grid charge
(today)evening peak (battery covers)solar surplus ≈ 9 kWh → batteryexpected solar, avg day
(≈19.5 kWh)site load, 19–25 Oct average (≈28 kWh)

Time of day	Load	Share	Who supplies it (plan)
Night 00–07	5.8 kWh	21%	Grid (cheap night rate)
Day 07–18	10.6 kWh	38%	Solar directly; surplus charges the battery
Evening 18–24	11.8 kWh	42%	Battery (solar-charged), then grid

The plan

- Prove the output.** Remote PV1 read 27 Oct 09:30 EAT, then midday checks: expect ~300–360 V and 2–4 kW in sun.
- Make room for the sun (key decision).** Today the grid charges the battery 00:00–06:00, so it's near full at sunrise and midday surplus is wasted (no export). Stop or cap the night charge (~50%) so solar fills the battery for free.
- Keep the evening discharge.** The solar-charged battery covers the 18:00–24:00 peak, the dearest hours.
- Keep a backup floor.** Hold 15% (higher in the rainy season) so outages stay covered.
- Make solar visible.** OpenEMS reads PV as production (logger #95), then add solar to the daily brief.
- Later:** cloudy-day logic and OpenEMS solar-aware charging controllers.

“ **Still open on site:** earthing (no earth point yet) for the surge protector and panel rails. **Watch:** trees beside the array can shade the string; one shaded panel limits all eight.

“ **Decision with Aaron:** where to set the 00:00–06:00 grid charge once PV is proven: stop it, or cap it at ~50% for cloudy days.

Commissioning log (26 Oct 2026)

- 8 × 600 Wp in one row on two continuous rail lines (vent removed, end clamps used at one joint for the missing inter-clamp pair).
- 6 mm² PV cable (25 m –, 15 m +); cable sizing checked: 0.4% drop.
- FMPV32 4-pole DC isolator wired per the manual's 4B layout (cables on top 1/3/5/7, links 2–4 and 6–8, go by stamped numbers); 1000 V DC SPD across +/–.
- Open-circuit string 379 V at 16:45 EAT; inverter PV1 read 151.8 V / 0 A at 18:39 EAT (sunset). PV1 registers 0x0107 V×0.1, 0x0108 A×0.1, 0x0109 W.
- Open: earthing (no earth point on site), full-output check 27 Oct, tree shading at one end of the array.

Revision #1

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