A Solar Trailer Built to Stand Up to the Wind

When SoCalGas needed reliable off-grid power for telemetry monitoring at gas-storage sites in a small valley above Granada Hills, mobility was essential. The power system needed to move between locations, operate without utility service, and withstand the high winds common to the area.

Customer	**SoCalGas**
Site	**Gas-storage sites in a small valley above Granada Hills**
Application	**Off-grid telemetry monitoring**
System	**123-SG-4D41 — two-axle mobile solar generator, ten panels, 4.6 kW of solar**
Configuration	**Solar-only, with an auxiliary generator input**
Built for	**High wind — rod bracing from every panel corner to the lower frame**
Delivered	**2025**

The project began with a choice between our SG-7 and SG-4 mobile solar generators. Battery capacity was the key consideration: a 19 kWh or 30 kWh lithium iron phosphate system. That decision ultimately belongs to the customer because it depends on the overnight load, required reserve capacity, and desired operating margin.

SoCalGas selected the SG-4, part number **123-SG-4D41**: a two-axle mobile solar generator equipped with ten panels and 4.6 kW of solar capacity. The system was intentionally oversized for the expected telemetry load. The customer preferred excess capacity over the risk of being underpowered at a remote site.

They also chose a solar-only configuration so routine operation would not require diesel fuel. Although no generator was installed, we incorporated an auxiliary generator input so a genset can be connected if a future project demands it.

Engineering for a High-Wind Application

After reviewing the initial design, the end user requested additional structural support. They wanted bracing from every panel corner down to the trailer's lowest frame point, along with a wind-rated installation.

It was a reasonable requirement. A raised solar array can behave like a sail, especially at exposed gas-storage sites where wind moves through the surrounding terrain.

We worked with the customer to make the high-wind provisions part of the trailer's fundamental structure—not an accessory added after fabrication. The final design included:

- Powder-coated steel structural bracing
- Rod bracing from each panel corner to the lower frame
- Tie-down bolts positioned at a 26-inch angle
- D-rings mounted less than two feet above ground level
- An internal automatic fire-suppression system
- Remote cellular monitoring for system visibility and oversight

Delivery of the Finished System

The completed SG-4 was ready for its scheduled November delivery. Severe weather delayed transportation by a couple of weeks, but waiting for safe conditions was the right decision.

The finished **123-SG-4D41** gave SoCalGas a mobile, solar-only power platform designed for dependable off-grid telemetry monitoring across multiple gas-storage sites. It combined generous energy capacity, high-wind structural reinforcement, automatic fire protection, remote monitoring, and the flexibility to accept generator backup if operating needs change.

This project demonstrates what specialized mobile solar should be: not a standard trailer forced into an unusual application, but a system engineered around the site, the load, and the customer's real-world operating conditions.

123-SG-4D41

Solar Generator

123esolar.com/123-SG-4D41

10 kW of silent solar power: ten panels over a 21.2 kWh lithium bank, no engine.



The enclosure up close beneath the folded array: the inverter and the 21.2 kWh bank ride inside.

OVERVIEW

123-SG-4D41 is a 10 kW solar generator with no engine: ten 460 W panels, a 21.2 kWh lithium iron phosphate bank in four arrays, and an inverter rated 10 kW continuous, all on a two-axle trailer. It is built for sites where noise, exhaust and fuel deliveries are not welcome, and for loads that work by day and ease off at night.

The inverter sets the 10 kW continuous rating and delivers 120/240 V or 120/208 V at 50/60 Hz, with a 5 ms transfer and 97.6% conversion efficiency. It surges to 24 kW for 10 seconds, enough to start compressors and pumps. The bank is programmed to deliver up to 9.62 kW, so at sustained full output it is the battery, not the inverter, that sets the pace.

The 4.6 kW array harvests 19.8 kWh on an average day, and below 0.82 kW the sun carries the load indefinitely. Above that the bank does the work: 10.6 kWh usable at the standard 50% setting, which carries 6.21 hours at 1.67 kW or 3.1 hours at 3.33 kW with no sun at all, and 14.84 kWh if it is programmed to the 30% option.

The inverter takes the array directly, so there is no separate charge controller to fit or to fail. That makes the 123-SG-4D41 a fit for camera, lighting and communications masts, and for site offices that run hard by day and idle by night, moved and set up with one tow.

Every 123eSolar system is SMART enabled: cloud IoT monitoring and control from your phone or desktop, so the site is watched and managed without a trip to it.

FEATURES AND BENEFITS

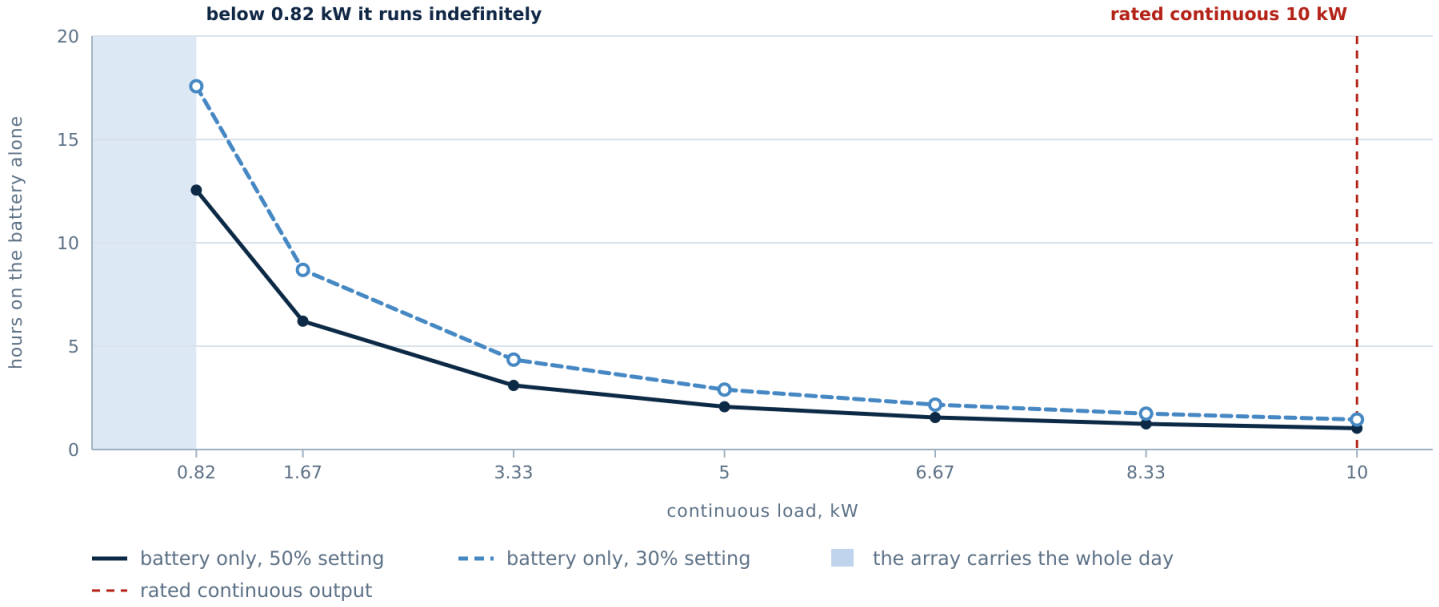
- **Inverter rated 10 kW continuous, 120/240 V or 120/208 V** — Site equipment plugs in as it would on the grid, and electronics ride through a change of source.
- **24 kW surge for 10 seconds** — Motor loads start without tripping the supply or oversizing the machine.
- **21.2 kWh lithium iron phosphate bank in four 5.3 kWh arrays** — Nights and overcast days pass silently, with no fuel, no exhaust and no engine service.
- **Ten 460 W panels, 4.6 kW nameplate** — Cameras, lighting and radios keep running without a fuel run or a site visit.
- **Array wired straight into the inverter, 97.6% conversion efficiency** — Fewer parts to fail at a remote site, and less to service.
- **SMART cloud IoT monitoring and control** — The site is watched and managed without a trip to it.

KEY SPECIFICATIONS

POWER	
Rated continuous output	**10 kW**
Peak output	**10 kW**
Surge	**24 kW**
Output voltage and phase	**120/240 V or 120/208 V**
Output frequency	**50 / 60 Hz**
Transfer time	**5 ms**
ENERGY STORAGE	
Battery technology	**Lithium iron phosphate (LFP)**
Arrays installed	**4**
Total stored energy	**21.2 kWh**
Usable stored energy at 50%	**10.6 kWh**
Silent runtime at 5 kW	**2.1 hours**
SOLAR	
Array rated power	**4.6 kW**
Solar panels	**10 x 460 W**
Daily solar production	**19.8 kWh/day**
Load covered by solar alone	**0.82 kW**
MECHANICAL AND SITE	
Trailer	**2-axle, towable**
Ambient operating range	**+14 to +131 °F (-10 to +55 °C)**

PERFORMANCE ACROSS THE LOAD RANGE

How long the battery carries the load on its own. Below 0.82 kW the array carries the whole day and the machine runs indefinitely. Above it, these are the hours the bank lasts with no sun and nothing charging, at the standard 50% setting and at the 30% setting.



LOAD, CONTINUOUS	BATTERY ONLY	DAILY DRAW	AFTER SOLAR	DAYS OF AUTONOMY
0.82 kW · solar break-even	**12.55 h**	**19.8 kWh**	**covered**	**indefinite**
1.67 kW	6.21 h	40 kWh	20.2 kWh	0.51 days
3.33 kW	3.1 h	80 kWh	60.2 kWh	0.17 days
5 kW	2.07 h	120 kWh	100.2 kWh	0.1 days
6.67 kW	1.55 h	160 kWh	140.2 kWh	0.07 days
8.33 kW	1.24 h	200 kWh	180.2 kWh	0.06 days
10 kW	1.03 h	240 kWh	220.2 kWh	0.05 days

Every load runs continuously and the day is 24 hours: daily draw is the load × 24 h. Solar is a daily energy offset, not an instantaneous power match.