



SUSTAINSOLAR



FLEXIBLE TURN-KEY **SOLAR SYSTEMS**
FOR **REMOTE LOCATIONS**

www.sustainsolar.co.za

ABOUT SUSTAIN SOLAR



African emerging economies are facing major challenges in reaching the UN Sustainable Development Goals, amongst which Goal 7 “Affordable and Clean Energy” is of very high importance. On the African continent, over 700 million people live without access to reliable and safe electricity. Sustainable Power Generation (Pty) Ltd. was founded in 2016 with the goal to respond to this need with high quality, decentralised and modular sustainable energy solutions using clean gaseous fuels and solar PV technology.

Made of world-class components, our solutions are designed and manufactured in Cape Town, South Africa, a leading logistics hub with major shipping lines connecting us to the world and excellent

road network into the Sub-Saharan region. Acknowledging the different contexts in which our customers operate, we formed two separate divisions: SustainPower our gas-to-power division and SustainSolar, our solar PV solutions division, each focusing on their respective technology and relevant market expertise to provide the best service to our decentralised energy clients across the continent.

Our product range consists of containerised solutions using solar power with or without battery storage. We also incorporate other technologies including water pumps, water treatment and refrigeration, thus offering multipurpose off-grid solutions for permanent rural electrification or temporary and mobile installations.

WHAT IS SUSTAIN SOLAR?

SustainSolar provides **containerised, high-quality, durable solutions** for sustainable power generation. Designed and manufactured in Africa, with **world-class components**, for the remote, **demanding locations** of our clients.



RAPID
DEPLOYMENT



MODULAR
& EXPANDABLE



CLEAN
POWER OPTION



REMOTE
MONITORING



TURNKEY
SOLUTION

OUR TEAM

We are a team of Pan African and international experts striving to make a difference in the way developing economies generate power with the urge to fulfil our responsibility to people and the planet.



TOBIAS
HOBACH
MANAGING
DIRECTOR



MAXIME
DELAFOY
BUSINESS
DEVELOPMENT



DORSHEL
NZE NZAME
SALES AND
MARKETING



JOHN
FADIRAN
SENIOR PROJECT
ENGINEER



KARLA
LOURENS
JUNIOR
ENGINEER

SUSTAIN SOLAR APPLICATIONS



MINI-GRID

Ideal for rural electrification carried out by communities, governments, utilities, NGOs, and mini-grid developers. Rapid installation, shorter project time lines, lower implementation risk. Turn-key solution, streamlined installation.



HYBRID FUEL SAVER

Suitable for isolated mining and industrial operations, as well as telecom infrastructure. Save costs on fuel. Decrease risk of diesel theft. Reduce environmental impact. Modular, flexible solution, with rapid deployment.



OFF-GRID

A solution for lodges, farms, and remote locations with no or limited access to grid power. Clean, independent, silent. High quality, durable system, quick to install, easy to relocate.



MOBILE RAPID DEPLOYMENT

Designed for temporary and mobile use in emergency response, defense, humanitarian, and other non-permanent applications. Highly mobile, easy to set up and break down, robust and reliable.

SUSTAIN SOLAR PRODUCTS

Our containerised, modular, pre-installed solar systems equipped with top-quality solar PV modules and electronics including lithium-ion batteries come in three standardised yet adjustable product configurations from small to large to suit your turn-key clean energy needs. Our production system and assembly facility are geared to handle once-off projects and large scale roll-outs of mini-grids alike. Choose your product below or contact us for a custom-built solution.



SUSTAIN FLEX™

A modular and mobile solar generator including the innovative retractable accordion-style EXOrac engineered by Swiss PWRstation, an industrial-class racking system that offers ultra-rapid activation - within minutes. Extremely flexible and scalable, from 5 kWp to megawatt size, the SUSTAIN FLEX™ is suitable to a wide range of applications.



SUSTAIN COMPACT™

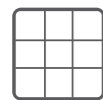
All equipment ships in one or more 20 or 40 ft shipping containers. Ideal for larger mini-grids or hybrid systems. PV size can vary between 30kWp and 80kWp. Up to 200kWh battery storage can be included. All solar modules, structures, batteries, and electronics are pre-installed and packed inside a standard ISO 20 ft shipping container for safe and easy transport. Equipped with up to 34 kWp and 100 kWh of storage, the SUSTAIN COMPACT™ includes all equipment, tools, ladder, and installation manual for turnkey installation.



SUSTAIN EXTENDED™

Servicing larger power requirements, packaged in one or more 40 ft shipping containers, the SUSTAIN EXTENDED™ offers bespoke and modular configurations. Housing electronics for up to hundreds of kilowatts and battery storage in the megawatt hour range, it is ideal for larger mini-grids and commercial hybrid systems.

TECHNICAL SPECIFICATIONS



Leading high performance solar modules using latest PERC cell technology, offering 10-year product and 20-year performance warranties.



Light-weight, quick and easy mounting structure with optimised ground ballasting and mounting points on top of the container provide shade and space efficiency.



A carefully selected range of battery brands and technologies are available to provide solutions to various budget and application requirements.



Exceptional engineering and manufacturing capabilities transform ISO containers into sophisticated, tough and insulated turn-key equipment packages.



Improved intelligence for the management of multiple sites, optimising the performance of each individual site based on historical load and forecasted weather information.



Live informatics on system health and performance with daily reporting and early warning notifications. Remote monitoring of all equipment and local weather information.



Power electronics, such as PV and battery inverters, hybrid and mini-grid controllers from leading manufacturers with excellent service and support.

TECHNOLOGY PARTNERS



www.solarworld.co.za



www.pwrstation.com



www.sma.de



www.tesvolt.com



www.solarmd.co.za

OUR PROJECTS



BUSINESS CASE 1: SustainSolar Delivers Mini-Grid to Remote School in Malawi

Malawi, like many parts of sub-Saharan Africa, is exposed to very limited supply chains, making infrastructure development a slow growth area. This often leads to projects running late and over budget or utilising components that are simply at hand rather than what is specifically required in the project design. Poor roads and infrastructure in these remote locations compound the supply chain issues. In addition, the USAID has acknowledged that with a high population density, Malawi has one of the lowest per capita GDPs in the world.

The country has the capacity to generate 439 megawatts (MW) through Malawi's heavy reliance on large hydro; however, this is often constrained by drought and low water levels. The low electrification rate creates a challenging environment for communities to grow and develop due to often unsanitary conditions, crime, poor healthcare facilities and education.

A Community Trust run by the Peachtree Church Atlanta in Georgia, USA, saw a need to support a larger school expansion project. Due to the remoteness of the region and the school, some children were walking many miles every day to attend school, which, on top of being dangerous was also a contributor to inconsistent attendance.

The SUSTAIN COMPACT™ took four weeks to reach Sokola, transported by truck from Cape Town across Zimbabwe and Mozambique to Northern Malawi. Within three days of the team's arrival it was producing electricity, thanks to its pre-configuration and turn-key design. The rapid-deployment mounting structure, which is adjustable for uneven ground levels and requires no foundation, yet is built to withstand the wind pattern of the region, took only a day to assemble without the use special or motorised tools.

The containerised solar system has an initial PV capacity of 6 kWp and 10 kWh of lithium-ion battery storage, with future expansion capability built into the system design allowing the power supply to grow with demand. The AC electricity is distributed across the entire campus consisting of classrooms, teachers' houses, admin building and the newly built dorm, forming the first mini-grid in Malawi using market leading technology from Tesvolt batteries and SMA inverters, both German manufacturers.

This top-quality equipment, built into the rugged and secure SUSTAIN COMPACT™ turn-key container, comes with an extended lifetime, and guarantees safe and reliable electricity for decades to come.



TESTIMONIAL

SustainSolar was instrumental to the success of Peachtree Church's project, which was to provide power to a secondary school campus in Sokola, Malawi.

They were professional, knowledgeable and timely in carrying out their role, which was to help determine specifications for the required components and then to assemble, pre-wire and pre-test the solar system prior to its being transported to Sokola from Cape Town, SA. Ames Martin and John Fadrian represented Sustain during the system's installation and commissioning in Sokola.

SustainSolar was a valued and instrumental partner with Peachtree in making our project a complete success. We have also been pleased with their availability to discuss matters on how to get the most out of the system in the future.

Rick Armstrong,
Global Missions Team,
PeachTree, Malawi

PRODUCT APPLICATIONS

MINI-GRID

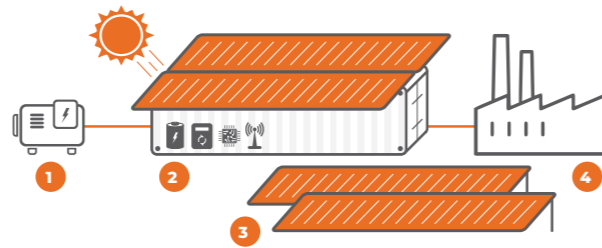


SustainSolar partners with mini-grid developers to efficiently roll-out high quality, containerised, modular, pre-installed solar systems equipped with world class solar PV modules and electronics, including lithium-ion batteries - ensuring they meet their project specifications, on time, and within budget. With Execution Excellence and Logistics Optimization we take care of our clients' challenges in implementing remote power generation units. Getting our equipment safely transported and quickly installed on site is our specialty despite challenging terrain and logistical hurdles. Our systems come standard with remote monitoring capabilities which allow for instant and constant access to the 'brain' of the generation unit ensuring control and visibility of the system at all times. This means, switching the system off or on is as easy as touching a button on your phone.

MINI-GRID CONFIGURATION

- 1. SOLAR MOUNTING STRUCTURE**
Light-weight, quick and easy mounting structure with integrated mounting points on top of the container, and optimized ground ballasting in combination with larger open ground mounted solar arrays are available.
- 2. SUSTAINSOLAR CONTAINER**
Rugged and insulated shipping containers safely package the power electronics, batteries and solar equipment for maximized mobility, protection and durability of the turnkey solar generator.
- 3. POWER DISTRIBUTION**
Grid quality alternating current carried in distribution networks through wires on poles is delivered into houses and businesses ensuring national grid codes and safety regulations.
- 4. SMART METERING**
Individual electricity consumption is measured and controlled by smart prepaid meters which offer the mini-grid owner reliable revenue generation and users full transparency of their energy usage.

HYBRID FUEL SAVER



Remote and off-grid locations in need of sustainable and reliable electricity do well to introduce a hybrid fuel saver system to compliment their existing diesel gensets if they find the following:

- 1) The cost of diesel is greater than one US dollar per litre.
- 2) The genset offers a communication interfaces to connect with the hybrid controller.
- 3) The location has sufficient solar irradiation to match the run pattern of the generator.

HYBRID FUEL SAVER CONFIGURATION

- 1. GENERATOR**
Existing or planned continuous or prime power diesel generator application for commercial or industrial use can be tied into our SustainSolar solution offering fuel savings.
- 2. SUSTAINSOLAR CONTAINER**
Rugged and insulated shipping containers allow for safe packaging of batteries, solar equipment and the power electronics, for maximized mobility, protection and durability of the turnkey solar generator.
- 3. SOLAR MOUNTING STRUCTURE**
Galvanized steel and aluminum mounting structures on the roof of the container are complemented by ground mounted solar arrays using conventional concrete foundations, piling, ground screws or flexible ballasting depending on ground conditions and project specifications.
- 4. INDUSTRIAL & COMMERCIAL USER**
Remote construction sites, remote mines, off-grid industrial plants, and onshore oil and gas fields are some of the applications for our hybrid fuel saver solution.

OFF-GRID



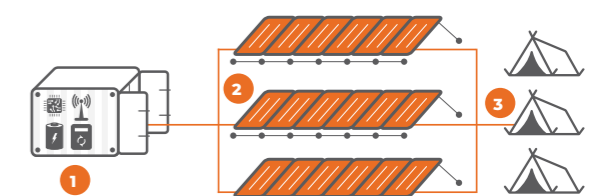
SustainSolar has two main approaches to rural electrification: mini-grids and stand-alone systems. Both types of systems operate independently of the national electricity grid and are thus known as 'off-grid systems'.

- 1) **Mini-grids** - A mini-grid is an off-grid system with small-scale electricity generation (10 kW to 10MW) that serves a limited number of consumers via a distribution grid.
- 2) **Stand-alone systems** - Stand-alone systems, or our mobile rapid deployment systems, are solar electricity systems that provide power in remote and demanding locations, with batteries for storage and extended energy availability.

OFF GRID CONFIGURATION

- 1. SOLAR MOUNTING STRUCTURE**
Light-weight, quick and easy mounting structure with integrated mounting points on top of the container, and optimized ground ballasting in combination with larger open ground mounted solar arrays are available.
- 2. SUSTAINSOLAR CONTAINER**
Rugged and insulated shipping containers safely package the power electronics, batteries and solar equipment for maximized mobility, protection and durability of the turnkey solar generator.
- 3. GENERATOR**
Diesel genset can be used as back-up or extended power in case of energy demand exceeding installed solar system or battery capacity.
- 4. REMOTE POWER USER**
Remote communities with no grid connection including lodges, farms, rural clinics and governmental infrastructure.

MOBILE RAPID DEPLOYMENT



In the aftermath of natural disasters or during a crisis, the SustainSolar containerised, mobile solar power systems can provide clean energy where it is needed, and redeploy as required.

Our stand-alone off-grid systems are compatible with back-up generators and can be deployed to provide electricity to power refugee camps, shelters, health clinics and other essential emergency services for as long as it is needed.

MOBILE RAPID DEPLOYMENT CONFIGURATION

- 1. SUSTAINSOLAR CONTAINER**
Insulated and rugged shipping containers safely package the power electronics, batteries and solar equipment for maximized mobility, protection and durability of the turnkey solar generator.
- 2. FLEXIBLE EXORACTM MOUNTING STRUCTURE**
Swiss designed, retractable, accordion-style rapid deployment solar module racks. It activates in minutes and can be quickly closed-up when necessary.
- 3. TEMPORARY POWER USER**
Emergency and medical services, moving construction sites, disaster relief, tented safari camps and peace keeping forces are few of many applications for our quick and instant clean power supply solution.

OUR PROJECTS



BUSINESS CASE 2: Local Clean Energy SustainSolar goes to South Sudan

Aptech Africa, solar energy and water solution specialists, recently successfully designed, built and installed the first off-grid solar-battery-hybrid power system in South Sudan. This USAID funded project, developed by AECOM International, incorporated a one-of-a-kind containerised PV storage solution by SustainSolar.

In record time, Aptech Africa planned, installed and commissioned the 79kWp ground mounted solar power system which feeds the 125kWh lithium-ion SustainSolar storage system.

Sustainable Power Generation from Cape Town, South Africa, built and delivered its pre-installed, temperature controlled, rugged SustainSolar 20-foot container, equipped with SMA solar and battery inverters and BYD batteries. This turn-key solution helped to reduce the installation

time on site and ensures a safe and tamper-proof operation of this world-class energy management and storage system.

Thanks to the new solar powered battery system, Eye Radio, a leading radio station in South Sudan's capital Juba, with engineering support from AECOM International Development, is no longer dependent on its old diesel generators as its primary power supply, which are now only being used as backup.

With the significantly reduced running time of the diesel gensets, the fuel savings alone will lead to a speedy payback of the hybrid-storage system. This also serves as proof of concept that solar and battery systems not only offer a sustainable renewable energy solution, but also make financial sense for most diesel powered off-grid operations that are so frequently found across Africa, and elsewhere.

TESTIMONIAL

"Eye Radio is a national independent broadcaster that informs, entertains and educates millions of south Sudanese across the country. We extend our sincere gratitude and appreciation for the wonderful and excellent job SustainSolar did by installing one of the best systems in the country.

We are currently operating 19 hours a day on the PV system, this has improved our operation in the cost of previously running a diesel generator from 24 hours to only 5 hours a day".

Kenyi Emmanuel Dube,
*Electrical Technician for Eye Radio,
South Sudan*



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