

SUSTAINABLE POWER SOLUTIONS

UNLOCK THE POWER

OF THE AFRICAN SUN

THE ROLE OF BATTERY ENERGY STORAGE SYSTEMS (BESS) IN PROVIDING ENERGY SAVINGS

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WHO WE ARE

SPS is a finance and engineering services company, which specializes in the turn-key provision of medium to large scale ground and roof-mounted solar photovoltaic (PV) and battery storage plants for commercial and industrial clients throughout Sub-Saharan Africa.

Established in 2008, SPS offers the complete range of advisory, engineering, procurement, project, financing, and construction management, monitoring and maintenance services.





WHAT WE DO

FUNDING

- Zero capital outlay
- PPA / Equipment lease
- Developer JVs
- Developer Partnerships



FULL SERVICE EPC

- Engineering
- Procurement
- Construction



O&M / ASSET MANAGEMENT

- Performance guarantees
- Monitoring
- Maintenance







The **UK Government's development finance institution,** British International Investment, is our largest shareholder and funder through their wholly owned subsidiary, Gridworks.





Macro Trends (1)

Trend 1: Increased demand for energy

- Electric vehicles
- Data centers and Al
- Automation

Trend 2: Cost of energy increasing

- Overall cost of energy increasing
- Utilities switching from kWh-based charge to capacity (kVA) charge
- Daytime energy pricing likely to eventually come down
- Peak charges and fixed portion of costs / services will continue to increase

Trend 3: Availability of Energy and Connection points

- Both on generation and consumption side
- Property developers / industries unable to obtain new grid capacity
- Generators struggle to connect large scale renewable projects to the grid

Trend 4: Cost of renewables reducing

- Solar panels have decreased by over 80% over last 10 years
- Battery prices have similarly come down by close to 90% over last 10 years
- With heavy investment into this space, this trend is expected to continue



Macro Trends (2)

Trend 5: Regulatory and tariff uncertainty

- Liberalizing of energy markets
- Unbundling of Eskom
- Balancing
- Curtailment

RESULT: Consumers will increasingly look for renewables energy solutions

- No carbon-saving incentives or subsidies needed.
- Solar PV in terms of pure economics and speed of deployment the clear winner

Battery Energy Storage Systems (BESS) was the missing piece of the puzzle



EXAMPLES OF DIFFERENT USES OF BATTERY SYSTEMS



OFF-GRID

DESROCHES ISLAND, SEYCHELLES

August 2021
Seychelles
3.2 MWp
6.3 MWh (1.5 MVA)
Tourism
Off-grid
PPA + EPC + O&M





Desroches Island consumes almost 5 GWh of energy annually, (which is 13.6 MWh per day on average, subject to seasonality). The main power consumers on the island are climate control, cool rooms, desalination plants, pool pumps, hotel services, restaurant activities, offices and hospitality functions. Now, with the commissioning of the solar PV farm, Desroches will have access to alternative "green" energy and the island will almost completely be powered by the Solar PV Farm.



OFF-GRID SOLUTIONS

Remote off-grid systems

- Only other choice is typically diesel gensets

• Daytime firming

- Require a mostly daytime load profile

- Relatively small battery meant to stabilise PV during daylight hours (ie cloud movement)

- Already very competitive compared to grid

• Off-grid from the start

- New developments that cannot get any / sufficient grid connection
- Expensive connection costs (transformer / MV works / power lines)
- Grid defection?
 - The likely outcome if total grid energy prices keep increasing and cost of batteries keep reducing
 - Material impact on budget of utilities / municipalities

Characteristics:

- Understanding load profile critical
- Typically oversize PV production
- Aim is to ensure that the battery system is fully charged when the sun goes down



AQUNION ROMANSBAAI

COMMISSIONED:	2024
LOCATION:	Hermanus, South
SIZE (SOLAR PV):	2.4 MWp
SIZE (BATTERY):	8.2 MWh
SECTOR:	Agricultural
PRODUCT:	Off-Grid
SERVICE:	EPC



The setup includes a battery-based energy storage system designed to deliver up to four hours of backup power and a solar array capable of supplying about 22% of Aqunion's required annual energy. This solution not only helps Aqunion during peak operational times but significantly reduces their reliance on diesel generators, reducing the associated emissions.

Please see link to press release: <u>https://sps.africa/aqunion-sps-collaboration-solar-powered-abalone-farming/</u>





MALUTI CRESCENT

COMMISSIONED:	2024
LOCATION:	Phuthaditjhaba, South Africa
SIZE (SOLAR PV):	2.1 MWp
SIZE (BATTERY):	2.3 MWh
SECTOR:	Commercial
PRODUCT:	Grid-tied
SERVICE:	EPC

Located in an area prone to frequent power outages, the backup power from this renewable energy solution ensures that the mall and small businesses continue to operate, even during grid interruptions. Since 2020, SPS has been on a remarkable journey with Maluti Crescent to implement innovative power solutions, successfully completing the first 2 phases of solar PV plant which totaled 2.1MWp. Currently, we are constructing Phase 3 which expands the facility with a further: 2.2 MWh of Battery Energy Storage, 750 kWp of Solar PV and Three 625 kVA Generators.







ON-GRID SOLUTIONS

- Back-up power
 - Ranges from UPS to loadshedding solutions
 - Decision on how many hours to target

• Power quality

- Battery systems can counter voltage dips, surges and 'brown outs'

Tariff Arbitrage

- Charge battery with low cost solar / off-peak grid energy
- Dispatch into expensive peak tariff periods
- Peak Shaving
 - Aim to decrease maximum demand and save on capacity (kVA) charges
- Increasing overall renewable energy %
 - Allows businesses to utilize renewable energy into the evening

Characteristics:

- Maintain grid connection
- Defining the goal of system and load characteristics is critical
- Requirements to connect BESS to grid is often unclear





THANK YOU

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