



247SOLAR

GOODBYE GENSETS

A Clean Alternative to Diesel for Off-Grid Mines

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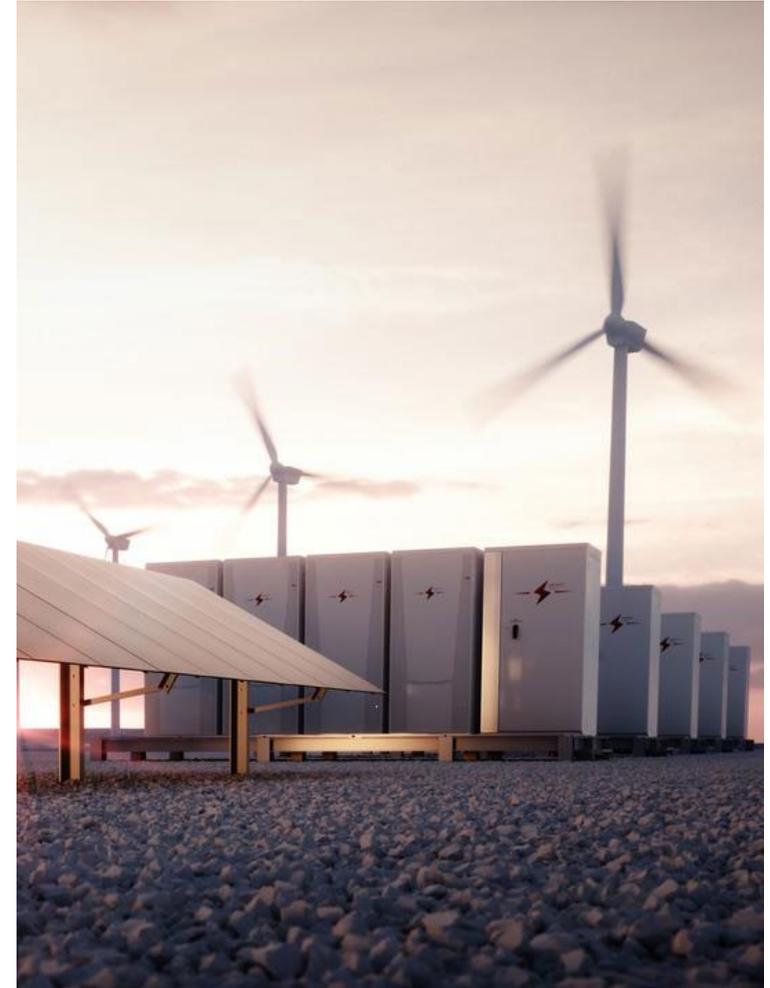
BEFORE NOW

Renewable solutions were incomplete

- Intermittent PV and wind
- Expensive, short-duration batteries

Even mines with clean power technologies must maintain redundant gensets for reliable 24/7 operation

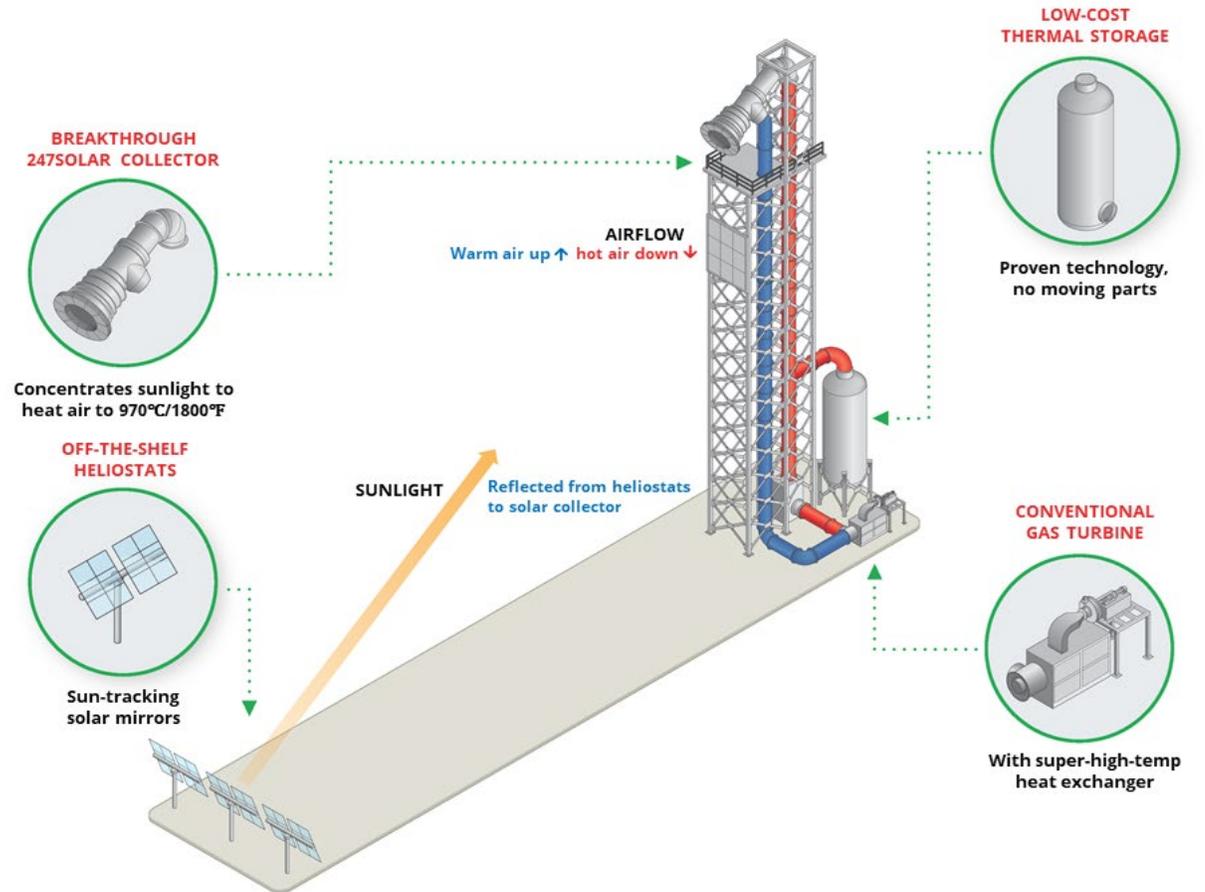
- High fuel costs
- Carbon emissions
- Constant maintenance



TODAY

247Solar technology presents a powerful business case for eliminating gensets

- A path to zero emissions and 100% renewables
- 80-90% savings in fuel costs
- Greatly reduced operating costs
- High ROI



247SOLAR SOLUTIONS FOR MINES

The path to a profitable 100% zero carbon future, without gensets

1. Heat2Power™ Turbine

Convert waste heat from ore processing to electricity

2. HeatStorE™ Long-Duration Thermal Battery

Harness and time-shift curtailed power from PV or wind

3. 247Solar Microgrids

100% emissions-free electricity, 24/7/365; optional process heat

- **247Solar Plants™** with long-duration storage, plus PV and/or wind
- **HeatStorE™** long-duration storage plus PV and/or wind

Goodbye Gensets

247Solar Heat2Power™ Turbine – The Clean Alternative to Gensets

Heat2Power™ turbines are superior to gensets

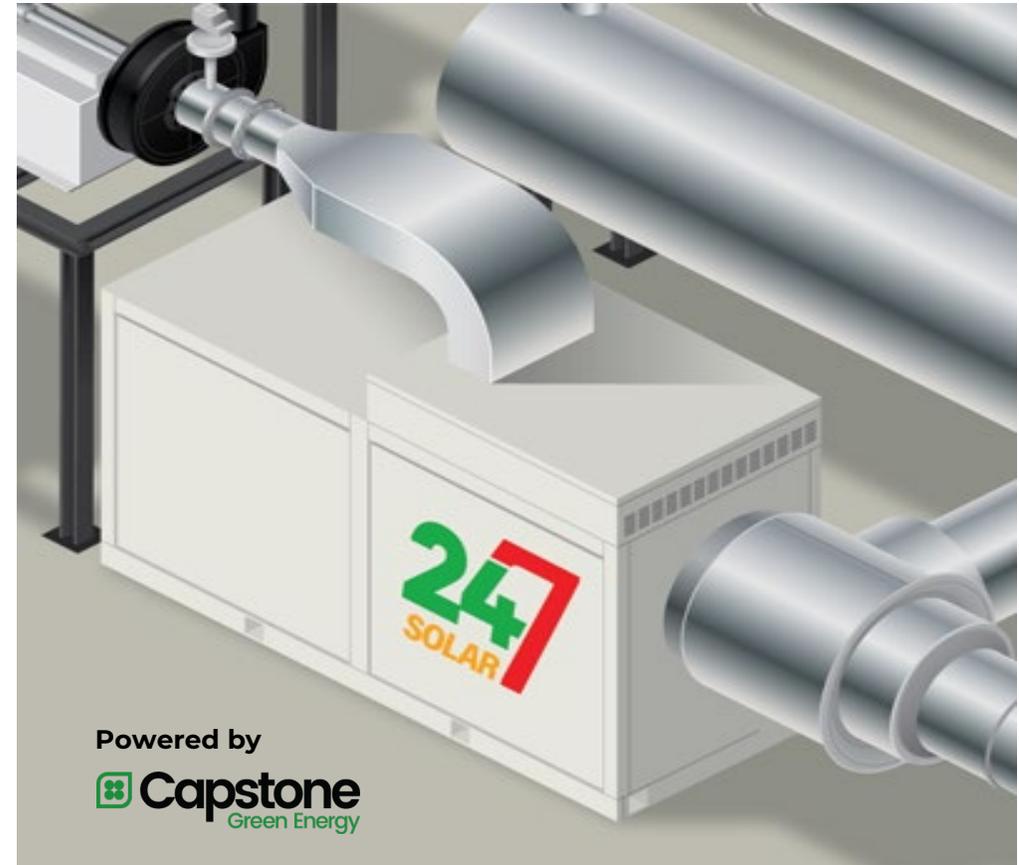
- Lower maintenance
- Longer life
- Higher reliability
- Readily integrate with other power equipment

In normal operation, Heat2Power turbines

- Produce electricity without burning fuel
- Zero emissions
- Fuel savings up to 90%+

They can also generate power with fuel for super-reliable 24/7 continuous operation

- Diesel
- Natural gas
- Biofuels
- Hydrogen

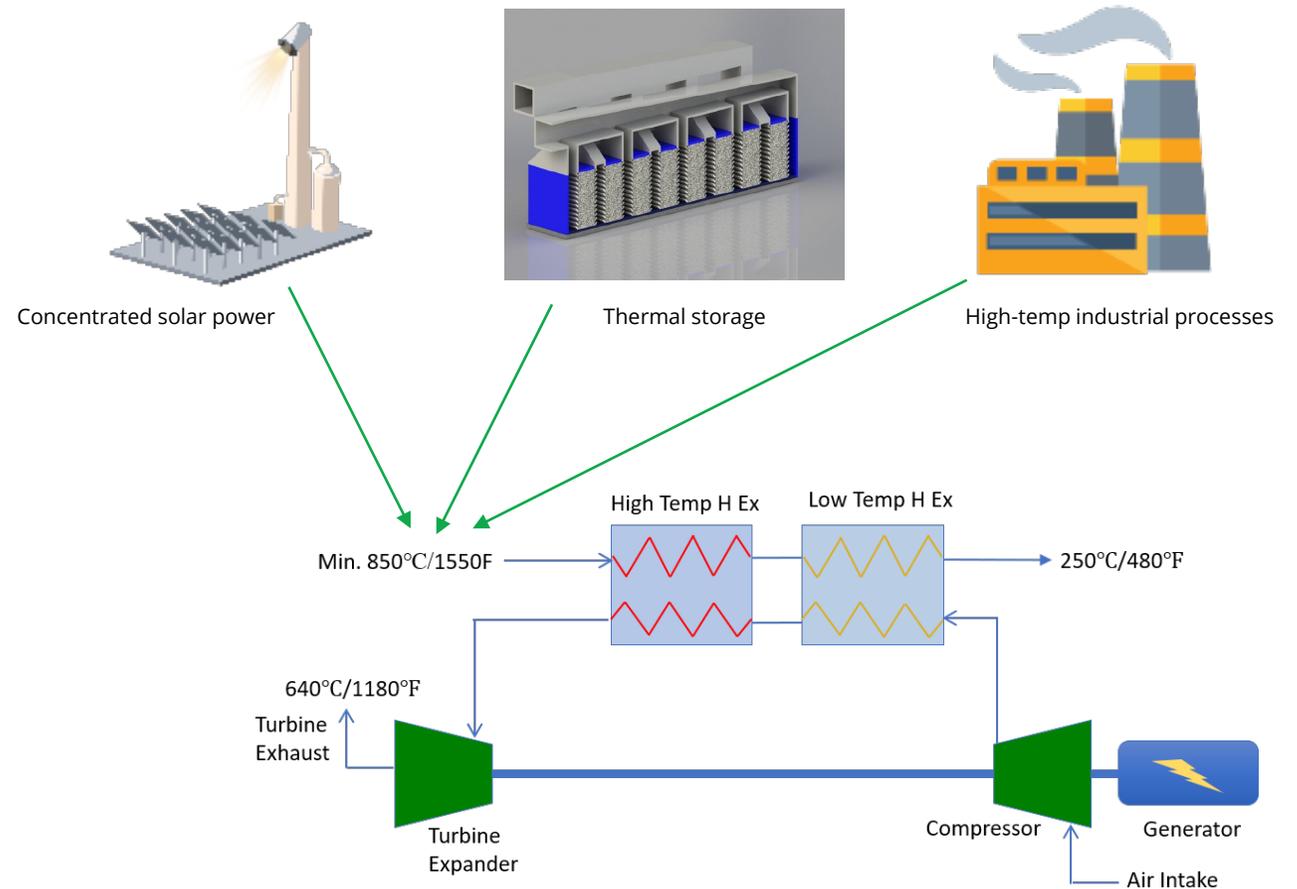


HOW IT WORKS

Runs on super-heated air, not steam

How do Heat2Power™ Turbines generate power without fuel?

- High-temperature air from a variety of sources (min. 850°C) is supplied to the turbine at ambient pressure, where it passes through a proprietary high-temperature heat exchanger.
- This transfers the heat to the turbine's compressed air, which enters the turbine's expander at the required pressure and temperature to drive the turbine without combustion.
- No fuel is required, and no emissions are produced by this process.



SOLUTIONS: Heat2Power™ TURBINE

Convert wasted very hot air to dollars by making electricity

Capture hot air from ore processing or other activities to produce power

- Converts ambient-pressure hot air to electricity
- High reliability with tens of millions of operating hours
- One moving part – minimal maintenance and downtime
- Offers two exhaust streams: 250°C / 480°F and 640°C / 1180°F for other processes
- Remote monitoring and diagnostic capabilities



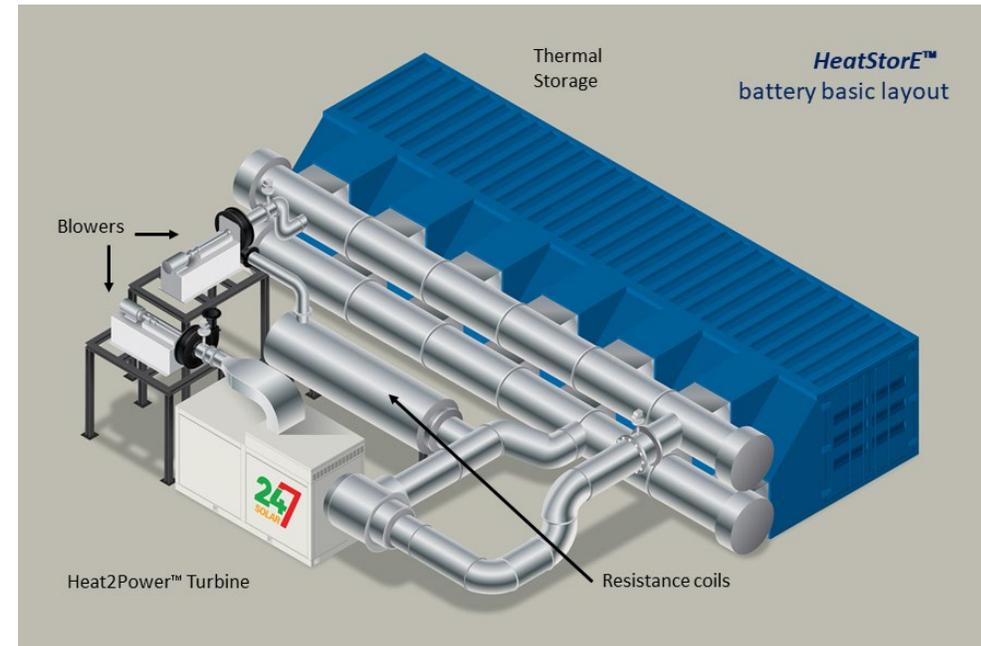
Powered by
 Capstone
Green Energy

SOLUTIONS: HeatStorE™ THERMAL BATTERY

Convert and store excess power from PV or wind

Breakthrough heat battery technology

- Converts electricity to heat (1000°C / 1850°F)
- Operates 4-20+ hours
- Capacity from 200 kWe to 100s MW
- Cost as low as \$50/kWh at long durations
- >20+-year operation with little or no performance degradation
- Can burn hydrogen and other fuels when storage is depleted for 24/7 dispatchability
- Goodbye gensets



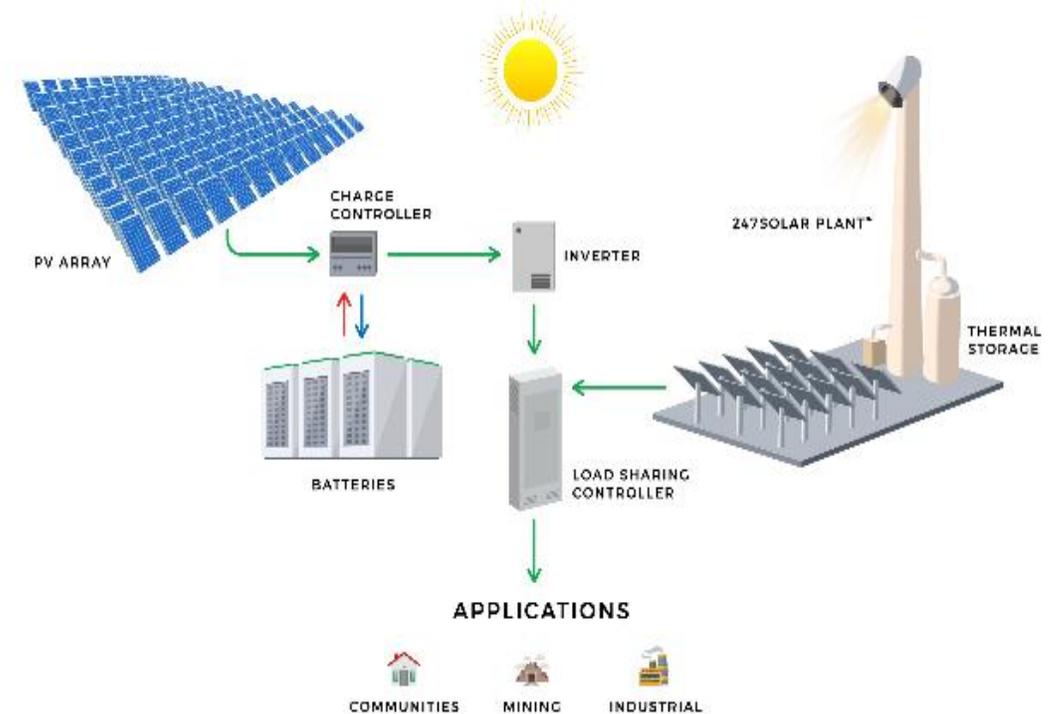
Standard HeatStorE™ configuration

SOLUTIONS: 247Solar MICROGRIDS

24/7/365 operation, up to 90% fuel cost savings

- PV, batteries, wind, etc., provide variable power
- Add 247Solar Plants™
 - Readily integrate with other power generation and management technologies
 - Highly responsive, reliable *baseload* 24/7 power
 - Can also supply industrial-grade heat
- 100% renewable energy when using biofuels or hydrogen
 - Goodbye gensets

Hybrid microgrid with 247Solar Plant

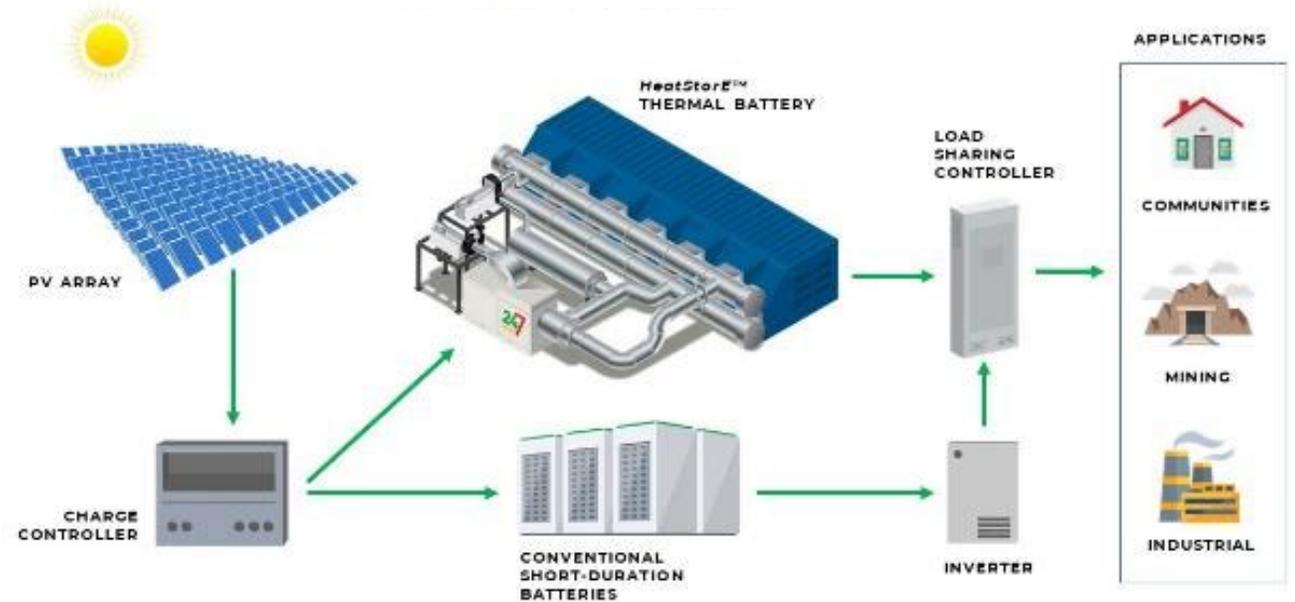


SOLUTIONS: 247Solar MICROGRIDS

24/7/365 operation, up to 90% fuel cost savings

- PV, batteries, wind, etc., provide variable power
- **Add HeatStorE™ thermal battery**
 - Converts electricity from PV or wind to heat using resistance coils
 - Stores heat for up to 20 hours or more
 - Re-converts heat to electricity as needed
 - Can also burn fuel for 24/7/365 operation
- **100% renewable energy when using biofuels or hydrogen**
 - Goodbye gensets

Hybrid microgrid with HeatStorE Thermal Battery



COST COMPARISON vs DIESEL

247Solar Microgrid 1/3 the cost of gensets and PV

| Indicative numbers | 247Solar Plant | Diesel |
|---------------------------|-----------------------|-------------------------|
| CAPEX over 20 years | \$6,000,000 | \$3,300,000 |
| CAPEX/year over 20 years | \$315,000/year | \$165,000/year |
| Annual Fuel Costs | \$380,000/year | \$1,900,000/year |
| Annual Non-fuel O&M | \$130,000/year | \$220,000/year |
| Total Annual Costs | \$825,000/year | \$2,285,000/year |

ASSUMPTIONS

- 1 MW genset OR 1MW 247Solar
Same PV/batteries for both
- 20-year operation
- Constant diesel costs for 20 years:
\$0.80/litre, delivered
- Gensets O&M: 2.5UScents/kWh
247Solar: 1.5UScents/kWh

USE CASE

Goodbye gensets using Heat2Power™ turbines

Your Pathway To Zero Carbon

Work with 247Solar to develop a phased deployment plan for your mine:

- **Phase I** Start with one HeatStorE battery or 247Solar Plant, plus some PV, wind, batteries (which you may already have).
- **Phase II** As gensets reach end-of-life, phase in additional HeatStorE batteries or 247Solar Plants, plus PV, wind & conventional storage.
- **Phase III** Switch to clean fuels to HeatStorE batteries and 247Solar Plants to achieve a full 100% clean power.

THE COMPANY – 247SOLAR, INC.



MIT origins. Owned in part by MIT and the state of Massachusetts.



\$6 million U.S. Department of Energy funding.

Technology development partners



German. World's largest, most experienced centers of excellence for Brayton power towers.



US government's premier materials-testing lab.



Australian. Global utility engineering firm.



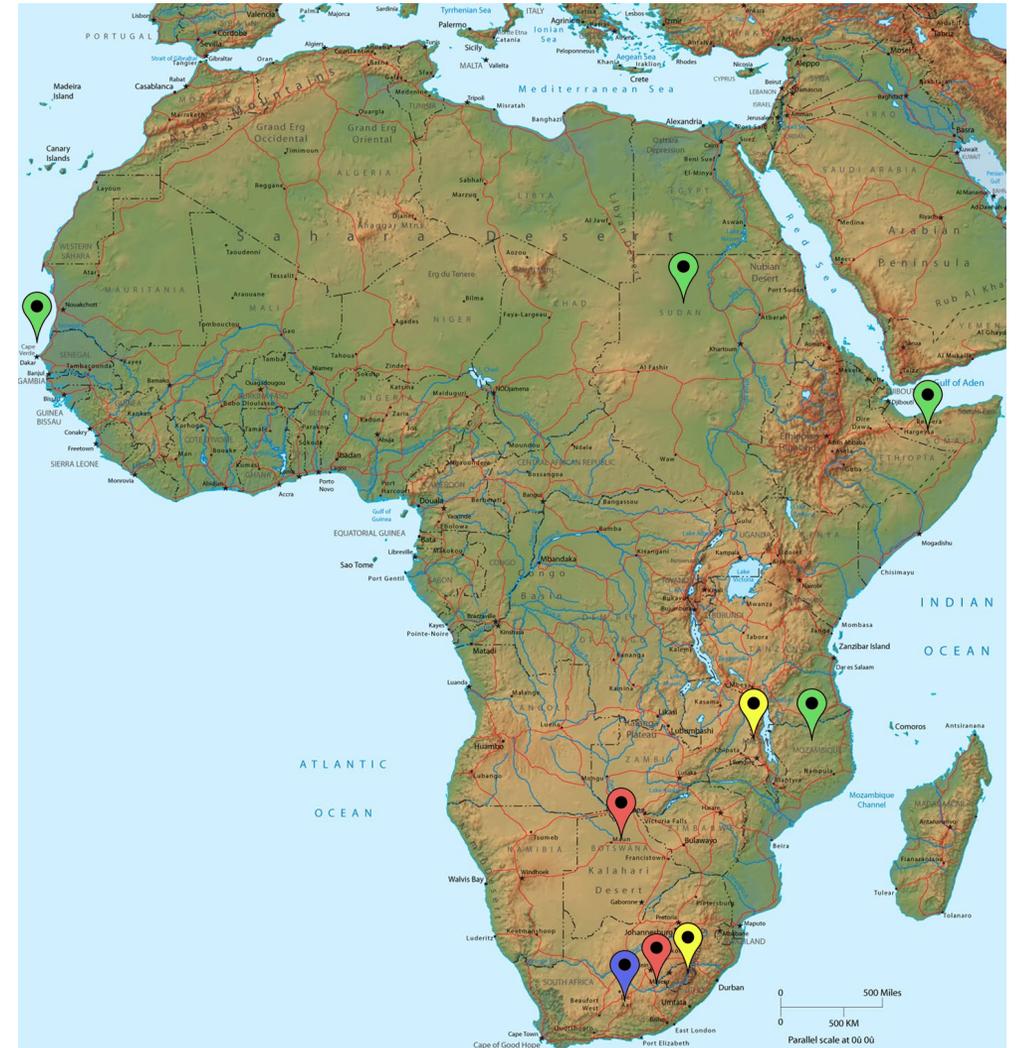
French. Global construction products manufacturer.

247SOLAR IN AFRICA

Engagements in progress

247Solar is actively pursuing projects across the continent

-  Active contract negotiations
South Africa, Botswana
-  Proposed/under discussion
Sudan, Mozambique, Somaliland, Cabo Verde
-  Agents/Sales Channel Partners
South Africa, Malawi
-  Collaboration Partners:



LET'S TALK

Taking orders now for 2022 deployment

Next steps

- Contact Us
- Free pre-feasibility study
- Co-create a phased plan to zero carbon
- Complete turnkey solutions
- 50/50 cost sharing of your 2021 order
 - 247Solar Microgrid
 - HeatStorE™ battery
 - Heat2Power™ turbine

Transaction options

- Own
- Lease
- Buy power/PPA



“The most transformative energy technology I found in searching the solar and broader renewable energy industry, energy, storage, smart grid industries.”

Jeff Wolfe - CEO, HelioFire and PV veteran

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