

247Solar Plants™

Round-the clock, dispatchable, emissions-free electricity

A STUBBORN PROBLEM

Before now, electricity from clean power was unpredictable. Electricity was available only when the sun was shining or the wind was blowing. **Storage was expensive.** Storing energy for later use required costly batteries that were only useful for short durations. **Backup generators were still needed.** Off-grid PV and wind installations required diesel generators to provide power around the clock under all weather conditions.

A SURPRISING SOLUTION

Today, with 247Solar Plants™, continuous 24/7 clean electricity is a reality - day and night in any weather. **The sun's energy can be stored as heat instead of electricity**, at much less than the cost of batteries. **No generators are required.** 247Solar's turbines can burn a variety of fuels, including hydrogen, to ensure 24/7/365 dispatchability.

247SOLAR PLANTS™

With technology originated at MIT, 247Solar Plants™ represent the first distinctively new approach to solar power in many years. Their modular design brings all the advantages of mass production to applications requiring as little as 400kW capacity 24/7, while occupying as little as 4 acres of land. Yet, 247Solar technology is scalable to meet any demand.



ON-GRID OR OFF-GRID

On grid, 247Solar Plants allow instant disconnection without power interruption when the main grid goes down, and instant re-connection without interruption when the main grid comes back up. Grid-connected 247Solar Plants have the ability to store and time-shift excess grid power through electric resistance heating, and they are also able to deliver excess power back to the grid on demand.

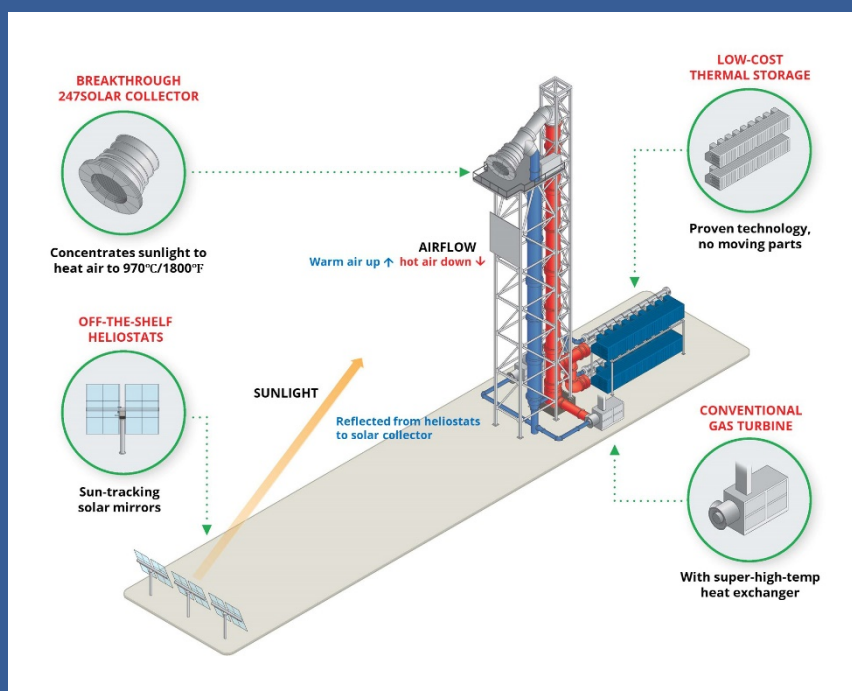
Off-grid, or where the grid is unreliable, they are a dependable turnkey solution for continuous 24/7 clean electricity without diesel gensets, suited to a wide variety of applications.

- For **communities and islands**, they can combine with PV and batteries to provide 24/7 baseload power for small grids.
- For **mines**, 247Solar Plants can reduce fuel costs 90+% and eliminate the need for diesel gensets
- For **industry**, each 247Solar Plant can provide up to 1,500,000 Btu/hr. of industrial-grade heat, at temperatures up to 1000°C/1800°F where both heat and power are required.

BREAKTHROUGH TECHNOLOGY:

247Solar Plants combine three proprietary core technologies from 247Solar's *Ultra-High Temperature Technology Platform*:

1. An innovative **Solar Collector** that uses sunlight to heat ambient-pressure air to 970°C (1800°F).
2. A simple, inexpensive, **Thermal Energy Storage** system that stores energy as heat instead of electricity
3. A revolutionary **Heat2Power™ turbine** that converts ultra-hot, ambient-pressure air to electricity without combustion or emissions.



HOW IT WORKS

During the day, a field of heliostats (solar mirrors) tracks the sun and focuses ~1500 suns of energy onto the **Solar Collector**, where air is heated at atmospheric pressure to >1800°F (970°C). The collector is mounted on a common truss tower, ~125 feet (35m) tall, which holds the ducting that carries the air to and from the collector. Toward the bottom of the tower, some of the hot air goes to the **247Solar Heat2Power Turbine**. There, it passes through a proprietary ultra-high temperature heat exchanger, which transfers the heat to compressed air from the turbine. Uniquely, the turbine uses this super-heated compressed air, rather than steam, to spin a generator that produces electricity.

The rest of the hot air from the **Solar Collector** passes through the **Thermal Storage** system, where the heat is stored—in inexpensive sand for later use. To guarantee 24/7 dispatchability, the Plant's turbine can also burn a variety of fuels, including hydrogen when the storage system is depleted.

ONE PLANT OR MANY

247Solar Plants are standardized, identical 400kW modules that can be combined to achieve any required capacity. Multiple modules ensure continuous delivery when one or more are offline, providing added flexibility, reliability, and resilience to any power project.

UNMATCHED BENEFITS

247Solar Plants offer outstanding grid reliability and resilience with no requirement for emergency backup. They provide battery-like response to voltage and demand fluctuations, mitigating intermittency from other renewables. Short project cycles, lower O&M and competitive margins mean attractive returns for owners.