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(Home)
Headline choices:

1. **Changing the Face of Solar Energy**
2. **The New Face of Solar Energy**
3. **The Smarter, Safer Solar Alternative**
4. **The Smarter, Safer PV Alternative**
5. **The Smart New Solar Alternative**
6. **The Future of Solar**
7. **Smart, Safe PV Microinverter Technology**

Enphase Energy is a leading-edge solar energy technology company. We developed the *Enphase Microinverter System*, the first and only commercially available microinverter for Photovoltaic (PV) systems.

Microinverter technology enhances the efficiency of solar PV systems dramatically, achieving 5-25 percent greater energy harvest compared to conventional string inverter systems. It also allows for greater installation flexibility, with much more rooftop orientation options than conventional systems.

Advanced technology
The Enphase Microinverter System integrates state-of-the-art technology, advanced communications capabilities, and web-based monitoring and analytics, to define a completely new class of advanced solar energy solutions.

Our microinverter consists of three components:

- A separate microinverter for each individual solar module, converting the module's DC power output to grid-compliant AC
- A communications gateway to collect and transmit performance data from each module to a customer-accessible website
- A dedicated website, where residential and business customers can monitor and manage their solar power systems 24 hours a day

Changing the face of solar
Explore our website to find out how Enphase is changing the face of solar energy. Contact us for more information about how to get the most from your commercial or residential solar installation. We look forward to hearing from you.

(Products)

1. Overview

Productive
PV module productivity depends on several factors, including air temperature, sunlight obstructions (shade, clouds, dust), and total solar panel surface area.

With conventional solar energy systems, all panels are wired to a single inverter. If one solar module performs inefficiently, the entire system performs inefficiently. Enphase microinverter technology solves this problem by allowing individual PV modules to operate independently, with each panel wired to its own dedicated inverter.

One of the key factors in determining the efficiency of a solar energy system is the inverter's "conversion efficiency." Using microinverters instead of a conventional string inverter contributes to energy harvest increases of 5-25 percent.

Maximum power
Enphase Microinverter-equipped solar energy systems generate the maximum power possible under any given conditions. In low-light conditions, the microinverter stores energy from the solar panels until there is enough to release a burst of current, contributing an additional ½ to 1 percent of power output over the life of the system.

Enphase has compared microinverter-equipped solar energy systems with those using conventional inverters under a variety of conditions. Read more ...

Mean Time Between Failure (MTBF)
300+ years
As measured by Relex, an independent reliability engineering firm, using the Telcordia SR-332 Issue 2 standards. This standard assumes a ground mount uncontrolled environmental profile, 6.9 hours of full power operation at 30 deg. C ambient, and a standard diurnal variation. It leverages component FIT rates based on an existing knowledge base of deployed telecommunications equipment.

In addition, the Enphase Microinverter is rated to a NEMA6 rating:

Inverter Type	*Rating*	*UL Test*

Conventional inverters	*NEMA3R*	*Water sprayed on enclosure may enter enclosure but must not come into contact with live electrical components.*
	NEMA 4	*Water sprayed on enclosure may not enter enclosure.*
Enphase Microinverter	*NEMA6*	*Inverter must be submerged in a meter of water and operate for 24 hours, No water may enter enclosure.*

This NEMA6 rating ensures that no contaminants can get into the enclosure to cause failure.

Reliable

Enphase Microinverters are designed and tested to exceed the reliability standards of telecommunications systems—the highest commercial electronics reliability standards in the world—over a 30-year operating life.

Enphase-equipped systems have no single point of failure. Compared with a conventional solar installation, where a central inverter failure shuts down the entire system, a single microinverter failure can only affect the output of a single solar panel. The impact on total system power output is negligible, and the failed microinverter can be replaced during a regularly scheduled maintenance visit instead of requiring emergency repair. Moreover, replacing an Enphase microinverter is very simple, requiring no specialized personnel, equipment, or tools.

Continuous monitoring

The microinverter monitors PV module performance continuously. The calculated availability of a solar energy system using an Enphase Microinverter is greater than 99.8 percent, using a Mean Time Between Failure (MTBF) of 300+ years. This reliability is especially critical for large commercial installations. Read more ...

System Availability
99.8 percent
The system availability of a solar system using an Enphase Microinverter was determined by Relex to be greater than 99.8 percent. Using the computed MTBF of 300+ years, a reliability block diagram was developed for systems ranging from residential 4kW to a 250kW commercial system. The reliability block diagram model included all elements of the system such as wiring, junction boxes and AC disconnects etc. The analysis used a Monte Carlo computational algorithm to show that the system failure is very controlled, allowing for the 99.8 percent system uptime.

Smart
Enphase Microinverters install quickly and easily, with no central string inverter to design or install. Microinverters connect to AC branch circuits, eliminating the need for string design.

Unlike conventional inverter-based systems, the panels in microinverter-based systems do not need to be installed in the same plane. They can also be placed in areas that will be shaded at some time during the day or year—increasing the maximum number of panels that can be placed on a given rooftop. String inverter systems are much more restrictive. If every panel doesn't get the same sunlight exposure, the entire system's performance is compromised.

Reduced installation cost
Microinverter systems have much lower physical plant costs. With no large central inverter, there's no need for concrete pads, huts, or chain link fences. Microinverters also generate none of the heat and noise produced by central inverters, providing both commercial and residential customers a clean, quiet, aesthetically pleasing installation.

24/7 monitoring
The Enphase system provides 24/7 monitoring and management for each module. The Enphase Envoy (EMU) communications gateway collects performance information for each solar module in the system and transmits the data to the Enlighten™ website, where users can view and manage their systems' performance. The system also integrates with other smart energy technology.

Safe
The DC circuits in conventional solar energy systems can generate dangerous electrical arcs, which can start fires and pose significant risks to firefighters. Enphase Microinverters eliminate the danger of DC arcing. They export low-voltage AC power and can be connected in parallel, eliminating the need for DC components such as combiner boxes, disconnects, and DC conduit.