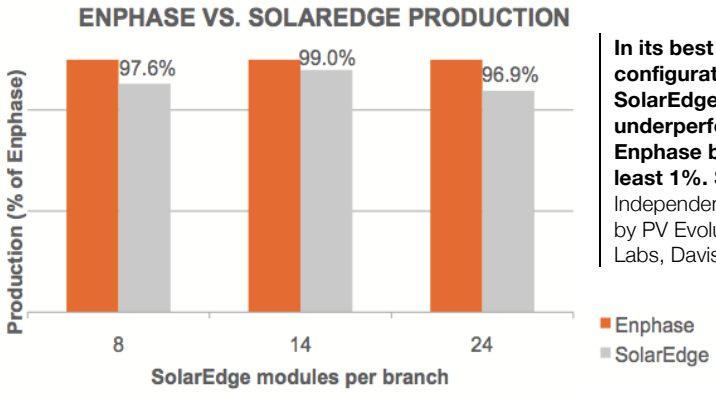
Enphase offers higher production, better economics

SolarEdge's Power or DC Optimizer replicates some of the module-level tracking that microinverters provide, but without offering all the benefits of a microinverter system. And because SolarEdge systems don't produce any power until the string inverter has enough voltage to operate – 375V or more – the company's claim that their optimizers "turn on" at 5V and produce energy earlier in the day is almost never true.

The Enphase System **saves money in design, installation, and operation**, and produces more energy, more reliably.



In its best configuration, SolarEdge still underperformed Enphase by at least 1%. Source: Independent study by PV Evolution Labs, Davis, CA

Proven higher productivity

Tests by PV Evolution Labs, an independent testing facility, show that Enphase Systems consistently produces 1.1% more energy than a SolarEdge system with the optimal number of DC optimizers per string. And while SolarEdge claims it has higher productivity in shade, it will not release the underlying study.

The graph above shows the performance gap grows to 2.4% when there are only 8 modules/string and 3.1% when there are 24.

Demonstrated flexibility

The Enphase System can be scaled from as few as one module to multi-megawatt commercial systems that use thousands of microinverters.

The SolarEdge system works best with 12-16 modules in a string, and the system cannot be reliably run with fewer than 8 modules, making it an inappropriate technology for small residential installations.

Engineered to a higher standard

Enphase invests in upfront engineering and testing, resulting in a more durable product.

	SOLAREDGE SYSTEMS		THE ENPHASE SYSTEM
×	The enclosure protection standards of both SolarEdge's optimizer and its NEMA 3R inverter need to be taken into account. The system is only as durable as its weakest link.	✓	**Designed to the robust NEMA 6 enclosure protection standard, Enphase is more weatherproof and has undergone extended water immersion testing.**
×	Newer products seem attractive, until you have installed a product that requires updates in the field. Ask SolarEdge how they deal with product revision changes.	✓	**Enphase has shipped more than five million units, and with more than a million unit hours of testing prior to release, Enphase's fourth generation of products are proven before they reach the market.**
×	Multiply the average efficiency of the optimizer and the string inverter to understand true total conversion losses.	✓	**Industry-leading CEC efficiency of 96.5%.**

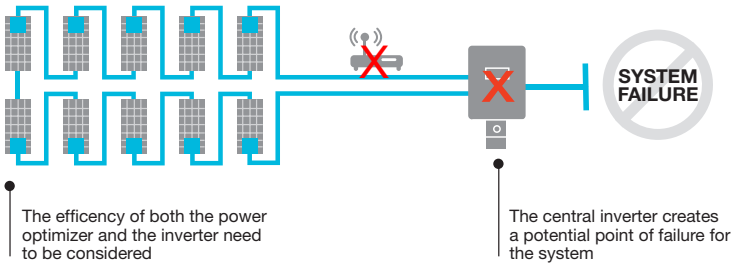
To learn more about the Enphase Microinverter System, visit **enphase.com**

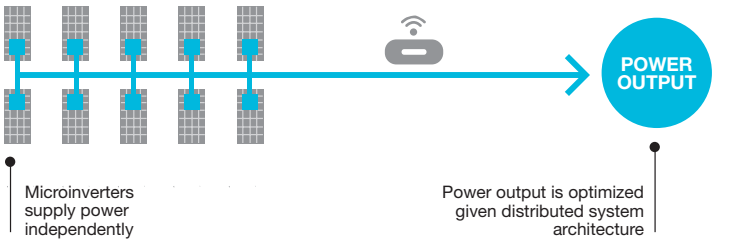
enphase® ENERGY

Enphase provides ongoing advantages

One of the chief advantages of the Enphase System is that there is **no single point of failure**, compared to SolarEdge where the whole system will fail if the inverter goes down. Similarly, a failure in communications means a potential second point of total system failure.

Enphase has **higher uptime and lower Operations and Maintenance (O&M) costs**, because losses from a single microinverter failure are minimal and don't require an unscheduled truck roll.





Lower labor costs

Analysis shows that SolarEdge requires 19.6% more labor to design and install due to the additional complexity of installing both a distributed component along with a standard high voltage DC string inverter. Enphase's single-stage, all-AC system eliminates the need for complex string calculations and field rework if the design is not buildable due to roof obstruction, and it does not require crews qualified to work with high-voltage DC.

The installation of Enphase's fourth-generation M215 and M250 are even simpler still, with integrated ground eliminating the need for a copper wire or WEEB Grounding Electrode Conductor (GEC).

Ongoing O&M savings

An Enphase System costs less to operate and maintain over the system's lifetime because all maintenance can be done on a scheduled basis, avoiding expensive and disruptive emergency truck rolls. Additionally, with Enphase's single-stage architecture, there are fewer components to maintain and no single point of failure to disrupt energy generation. A failure of either the inverter or the communication equipment in a SolarEdge DC Optimizer system dramatically cuts production, requiring an emergency crew to be sent to repair the system.

Resources

PVEL study with 12 modules/string: http://enphase.com/global/files/PVEL-labs-SE-side-by-side-study.pdf

PVEL study with varying number of modules/string: http://enphase.com/global/files/PVEL_Study-on-EE-vs-SolarEdge.pdf

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