



Enphase Advances IQ Solid-State Transformer Development for AI Data Centers with Power Modules Now Being Built in Texas

4 kW power modules are now being built in Texas for full-scale IQ SST racks

FREMONT, Calif., Sept. 08, 2026 (GLOBE NEWSWIRE) -- [Enphase Energy, Inc.](#) (NASDAQ: ENPH), a global energy technology company, today announced that power modules for its IQ® Solid-State Transformer (IQ SST) are now being built in the United States to assemble and validate full-scale IQ SST racks.

The IQ SST rack is being developed for AI data centers as the industry moves toward 800 VDC power architectures. It is designed to convert medium-voltage AC directly to 800 VDC with sub-millisecond response to dynamic AI loads, helping reduce the need for local battery energy buffering near AI compute racks.

The power module is the building block of the IQ SST rack. Hundreds of power modules work together in IQ SST racks with capacities up to 5 MW, creating a distributed solid-state transformer for AI data centers. A video of the power modules coming off the Enphase line in Arlington, Texas, is [available here](#).

"A 4 kW power module is small, but put hundreds of them together and you have a multi-megawatt IQ SST rack," said Raghu Belur, co-founder and chief product officer at Enphase Energy. "We don't need to build bigger power-conversion systems. We can scale by repeating the same compact power module, the approach Enphase has used to scale distributed power electronics for decades."

Enphase is now building the power modules needed to assemble full-scale IQ SST racks and validate the architecture at megawatt scale. Validation spans both power-module and system-level performance, including operation at medium-voltage AC levels from 13.8 kV to 34.5 kV, full-rack electrical and thermal performance, power-conversion efficiency, distributed control and redundancy, and partial-discharge characterization to validate insulation performance.

At the center of each power module is a proprietary high-frequency transformer developed by Enphase's in-house magnetics team. The transformer carries power across the isolation boundary between the medium- and low-voltage domains, while a fiber-optic link provides the only other connection across that boundary. Enphase's magnetics team has spent approximately two decades developing high-frequency transformer technology for demanding power-electronics applications.

Each power module also uses [gallium nitride \(GaN\) power-switching technology](#) and Enphase's custom [Kestrel ASIC](#), its fifth-generation control silicon. Kestrel integrates high-speed power control, sensing, communications, protection, and security, while GaN enables the high-frequency power conversion at the core of the IQ SST architecture.

The power modules share form-factor and process commonality with Enphase's latest IQ Microinverters, providing a path to highly automated production as the program advances toward commercialization. Enphase has shipped approximately 89.4 million microinverters and has U.S. manufacturing capacity of approximately 12 million microinverters annually. This proven high-volume manufacturing model is designed to scale IQ SST power module manufacturing capacity to tens of gigawatts annually.

Enphase plans to assemble complete IQ SST racks in Texas, as full-system validation progresses. The IQ SST is being developed around Enphase's U.S. footprint, supporting a domestic, scalable supply chain for AI data center power infrastructure. The supply chain is expected to meet applicable federal requirements, including foreign entity of concern (FEOC) requirements.

Full-system demonstrations of IQ SST racks are expected in November 2026, with customer pilots planned for 2027. To learn more about IQ SST, visit the Enphase [website](#).

About Enphase Energy, Inc.

Enphase Energy, a global energy technology company based in Fremont, CA, is the world's leading supplier of microinverter-based solar and battery systems, EV chargers, home energy management systems, and virtual power plant (VPP) solutions. Enphase products enable people to harness the sun to make, use, save, and sell their own power, all controlled through the Enphase App. The company revolutionized the solar industry with its microinverter-based technology and has shipped approximately 89.4 million microinverters, with approximately 5.3 million Enphase-based systems deployed in over 165 countries. For more information, visit <https://enphase.com/>.

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Forward-Looking Statements

This press release contains forward-looking statements, including statements related to the expected development, validation, product and technology capabilities, performance, response times, architecture, manufacturing processes and scalability, supply chain, regulatory compliance, commercialization, and timing of demonstrations and customer pilots for Enphase Energy's IQ Solid-State Transformer (IQ SST). These forward-looking statements are based on Enphase Energy's current expectations and assumptions and inherently involve significant risks and uncertainties. Actual results and the timing of events could differ materially from those contemplated by these forward-looking statements as a result of such risks and uncertainties. Such risks include, but are not limited to, Enphase Energy's ability to develop, qualify, manufacture, validate, and commercialize the IQ SST and achieve the targeted technical and system-level performance, including conversion of AC to DC, eliminating local batteries, and anticipated response times; the ability to scale U.S. production and achieve targeted output, yield, cost, response times and performance using manufacturing processes and form-factor commonality with Enphase IQ Microinverters; the ability to secure components and cost of supply, including gallium nitride (GaN); the ability of the Kestrel ASIC, GaN-based power conversion, and distributed architecture to perform as intended; the pace and direction of the AI data center industry's move toward 800 VDC and other changes in data center power architectures; customer adoption; ability to satisfy applicable regulatory and policy requirements, including domestic content and foreign entity of concern (FEOC) requirements; and complete timing of full-system demonstrations, customer pilots, and commercialization on the expected timeline; as well as competitive dynamics, execution risks related to entering new markets, and other factors discussed in Enphase Energy's filings with the Securities and Exchange Commission, including those risks described in more detail in Enphase Energy's most recently filed Annual Report on Form 10-K, Quarterly Report on Form 10-Q, and other filings made from time to time with the Securities and Exchange Commission. Enphase Energy undertakes no duty or obligation to update any forward-looking statements contained in this release as a result of new information, future events, or changes in its expectations, except as required by law or otherwise.

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