



NREL + GOOGLE

Google and the IEEE Power Electronics Society are working with NREL at the ESIF on the Little Box Challenge, an open competition challenging engineers to build smaller power inverters for use in photovoltaic (PV) power systems.

R&D STRATEGY

Up to 18 finalists in the Challenge will be invited to bring their inverter to the ESIF in 2015 for testing and evaluation against the contest parameters. NREL's world-class researchers will use the state-of-the-art capabilities of the ESIF to evaluate each inverter's efficiency and performance during tests spanning 100 hours under the same set of typical operating conditions. The test results will help Google and IEEE decide the winner of the \$1 million prize, which in 2016 will go to the team that designs and builds a kilowatt-scale inverter with the highest power density and that meets the contest's other specifications.

IMPACT

The goal of the Little Box Challenge is to create a smaller, more efficient power inverter. Currently, inverters are about the size of a picnic cooler, and Google would like to see the technology shrink to the size of a small laptop computer or smaller. Shrinking the current inverter by 10 times or more and making it cheaper to produce and install would enable more PV-powered homes and more efficient distribution grids, and help bring electricity to remote areas.

Partner with NREL at the ESIF

User facility access to the ESIF is awarded through the review and approval of user proposals, depending on the scientific merit, suitability of the user facilities, and the appropriateness of the work to DOE objectives, and includes a signed user agreement for the facility.

For more information, please visit:
www.nrel.gov/esi/working_with.html

or contact:
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IF ANY OF THESE:



CAN RUN ON SOMETHING THIS SIZE:



(like a cooler)

THEN WHY NOT SOMETHING THIS SIZE:



(like a tablet)

The one-of-a-kind testing capabilities of the ESIF make it the perfect place for industry to test disruptive technology—like the innovative inverters being developed under the Little Box Challenge. *Image from Google*

The Energy Systems Integration Facility (ESIF) at the National Renewable Energy Laboratory (NREL) provides the R&D capabilities needed for private industry, academia, government, and public entities to collaborate on utility-scale solutions for integrating renewable energy and other efficiency technologies into our energy systems.

To learn more about the ESIF, visit: www.nrel.gov/esi.

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NREL/FS-5C00-63437 • February 2015
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