



NREL + WYLE

Under a research agreement with Wyle Labs, NREL is working with the U.S. Army to complete development and testing of the Consolidated Utility Base Energy (CUBE) System—a power distribution device that delivers power from solar, battery, and diesel generators to loads on forward operating bases. The CUBE was originally developed for the Army's Expeditionary Energy and Sustainment Systems, formerly known as Mobile Electric Power. The Army's Rapid Equipping Force is funding NREL to complete the prototype CUBE system and validate its performance, reliability, and projected fuel savings through fully integrated testing at the ESIF.

R&D STRATEGY

In the ESIF's Power Systems Integration Laboratory (PSIL), NREL and Wyle are testing the CUBE to demonstrate fuel savings as well as power quality relative to a baseline diesel-generator-only system.

IMPACT

Through this work at the ESIF, Wyle aims to create a reliable stand-alone hybrid power system designed to reduce diesel fuel use at forward operating bases and therefore reduce the costs and risks associated with fuel transport in theater. In addition, Wyle and NREL hope to incorporate grid-connection capability to allow the CUBE to function as a resilient and reliable microgrid capable of leveraging available grid power while still ensuring safe and reliable and high-quality power delivery to the connected loads.



Prototype CUBE system at the ESIF PSIL. *Photo by Dennis Schroeder, NREL 28834*

Partner with 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

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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/esif.

National Renewable Energy Laboratory

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