

Energy Secretary Moniz Dedicates Clean Energy Research Center, New Supercomputer

U.S. Department Of Energy



DENVER, CO - During a visit to the National Renewable Energy Laboratory (NREL) in Golden, CO, Energy Secretary Ernest Moniz dedicated the nation's first major research facility focused on clean energy grid integration and wide-scale deployment. The new Energy Systems Integration Facility (ESIF) will help manufacturers, utilities and public and private sector researchers overcome the challenges of integrating clean energy and energy efficiency technologies into today's energy infrastructure.

"Strong partnerships between our national laboratories and America's private industry, academia and entrepreneurs will help reduce the effects of climate change, increase the production of clean energy and accelerate the development of new technologies," said Energy Secretary Ernest Moniz. "The Energy Department has been at the forefront of large scale computation and modeling, and new NREL supercomputing capabilities will support the groundbreaking science and innovation we need to address the effects of global climate change and pave the way to a cleaner, more sustainable energy future."

During President Obama's first term, the United States more than doubled generation of electricity from wind, solar and geothermal sources. To ensure America's continued leadership position in clean energy, the President has set a goal to double renewable electricity generation once again by 2020. Seamless and efficient grid integration will help meet this ambitious target and make clean energy technologies even more affordable for American families and businesses. To that end, ESIF will tackle generation, transmission, distribution and end-use challenges to advance renewable energy, electric vehicles, energy storage batteries, microgrids and next generation building technologies.

Research Collaborations with Toyota, U.S. Army

Today, the Energy Department, NREL and Toyota Motor Engineering & Manufacturing, North America announced a collaborative research effort on integrating plug-in electric vehicles into the power grid. Scientists and engineers at ESIF and NREL's Vehicle Testing and Integration Facility will use 20 Prius plug-in hybrid electric vehicles from Toyota to develop and explore ways to prepare grid operators and energy infrastructure that accommodate the growing U.S. electric vehicle fleet.

NREL is also working with the U.S. Army to develop the Consolidated Utility Base Energy (CUBE) System – a solar, battery and generator hybrid power system that provides electricity to forward operating bases. Under a research agreement with Wyle Labs, the Army's Rapid Equipping Force is funding NREL to complete a prototype CUBE system and validate its performance, reliability, and projected fuel savings through a fully integrated test at ESIF.

"The research at ESIF will help refine the pathways for the successful integration of high penetration distributed resources including renewables and energy efficiency across a wide spectrum of technologies," NREL's Director Dan Arvizu said. "We're looking forward to working side-by-side with industry, academia, and other agencies, to have a transformative impact on our energy systems."

New Supercomputer Joins Energy Ranks

Energy Secretary Moniz and NREL Director Arvizu also today unveiled Peregrine – the newest Energy Department supercomputer. NREL collaborated with HP and Intel to develop an innovative warm-water, liquid-cooled supercomputer. Peregrine will reside in the new ESIF data center, designed to be the world's most energy-efficient high performance computing data center. Additionally, Peregrine's petascale computing capability (1.2 quadrillion calculations per second peak performance) represents the world's largest computing capability dedicated solely to renewable energy and energy efficiency research.

The new supercomputer will further strengthen NREL's modeling and simulation capabilities to support fully integrated energy systems research that would otherwise be too expensive or even impossible, to conduct. By pairing this capability with the facility's interactive hardware-in-the-loop system, researchers and manufacturers can test their products at full power and real grid load levels – helping increase reliability and efficiency as well as lower cost clean energy technologies.

Find more information on the [Energy Systems Integration Facility](#) [1] and how utilities, manufacturers, universities and other national labs can utilize ESIF's unique capabilities and resources.

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