

# Energy Storage Photovoltaic Military Industry Fund



## Overview

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This report provides a quantitative techno-economic analysis of a long-duration energy storage (LDES) technology, when coupled to on-base solar photovoltaics (PV), to meet the U. Department of Defense's (DoD's) 14-day requirement to sustain critical electric loads. generation system, ground-mounted photovoltaic (PV) solar array, and a Battery Energy Storage System (BESS). The microgrid system will include a master microgrid controller and automatic smart switches controlling the generation resources within the AFRC. Figure 6 illustrates conditions seen on seven different mid-size to large military installations compared to 2022, with cost savings possible by 2040. The Energy Resilience and the Strategic Environmental Research and Development Program (SERDP) and the Environmental Security Technology Certification Program (ESTCP) develop and demonstrate innovative, scalable technologies that enhance military readiness, improve warfighter capabilities, and strengthen defense. This report is available at no cost from the National Renewable Energy Laboratory (NREL) at [www.marqusee.com](http://www.marqusee.com). Marqusee, Jeffrey, Dan Ollis, Xiangkun Li, and Tucker Oddleifson. Golden, CO: National Renewable Energy.

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### [Camp Pendleton bags \\$42 million for zinc-ion battery](#)

A \$42 million battery storage grant is headed to San Diego's Camp Pendleton, one of the country's busiest military installations. When built, the

### **Evelyn Wang: A new energy source at MIT**

As MIT's first vice president for energy and climate, Evelyn Wang is working to broaden MIT's research portfolio, scale up existing innovations, seek new breakthroughs, and channel



### [The essential role of energy storage for critical U.S. military](#)

The durability, domestically abundant materials and proven track record of lead batteries in military applications make this energy storage technology the leading source for submarine power in the

### [CEC Awards \\$42 Million Grant for Long-Duration Energy Storage](#)

"This landmark energy storage project continues a long collaboration between the Energy Commission and the military to bring emerging clean technologies to maturity and help reduce





### [Energy Resilience and Conservation Investment Program](#)

This project includes photovoltaic power generation, a battery energy storage system, natural gas emergency generation, a microgrid control system, and all necessary distribution and switchgear

### [20 MW of Solar and BESS Power Purchase Agreements Secured by](#)

The Company develops solar and Battery Energy Storage System (BESS) projects that sell electricity to utilities, commercial, industrial, municipal and residential off-takers.



### **Using liquid air for grid-scale energy storage**

Liquid air energy storage could be the lowest-cost solution for ensuring a reliable power supply on a future grid dominated by carbon-free yet intermittent energy sources, according to a new

### [New facility to accelerate materials solutions for fusion energy](#)

The new Schmidt Laboratory for Materials in Nuclear Technologies (LMNT) at the MIT Plasma Science and Fusion Center accelerates fusion materials testing using cyclotron proton beam



### [A new approach could fractionate crude oil using much less energy](#)

MIT engineers developed a membrane that filters the components of crude oil by their molecular

size, an advance that could dramatically reduce the amount of energy needed for crude oil

### Long-Duration Energy Storage: Resiliency for Military Installations

NREL selected three installations (Table ES-1) representative of many military installations to assess the costs and benefits of using Antora Energy's BESS coupled to an on-base PV system to provide

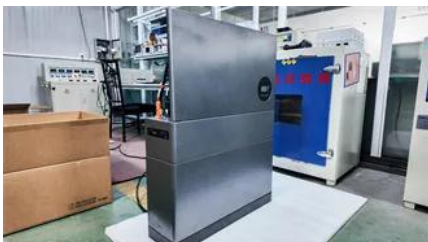
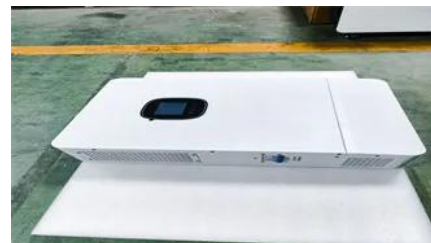


### How artificial intelligence can help achieve a clean energy future

A look at how AI can be used to help support the clean energy transition by helping to manage power grid operations, plan infrastructure investments, guide the development of novel

### **Explained: Generative AI's environmental impact**

MIT News explores the environmental and sustainability implications of generative AI technologies and applications.



### **serdp-estcp.mil**

The programs prioritize common sense, cost-effective solutions that support operational effectiveness and reduce regulatory burdens at military installations.

### **Energy Division**

An Energy Resilience and Conservation

Investment Program solar microgrid project at Fort Hunter Liggett, California, is managed by the



### [MIT Energy Initiative conference spotlights research](#)

At the MIT Energy Initiative's Annual Research Conference, industry leaders agreed collaboration is key to advancing critical technologies amidst a changing energy landscape.

### [New materials could boost the energy efficiency of microelectronics](#)

MIT researchers developed a new fabrication method that could enable them to stack multiple active components, like transistors and memory units, on top of an existing circuit, which



### **OUSW A&S**

In addition to reducing how much energy is required to conduct effective military operations, the Department will consider the adoption of new energy sources

### [Energy , MIT News , Massachusetts Institute of Technology](#)

Massachusetts Clean Energy Center CEO MBA '12 Emily Reichert highlights the state government's unique approach to fostering and keeping clean energy innovation.





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As a part of the Federal Sustainability Plan that directs the Government to achieve net-zero emissions by 2050, the Government is quickly ramping up use of solar energy at military bases, five of which will

### [Concrete "battery" developed at MIT now packs 10 times the power](#)

New concrete and carbon black supercapacitors with optimized electrolytes have 10 times the energy storage of previous designs and can be incorporated into a wide range of architectural



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