



Military industry combined with energy storage

Does the DoD need a microgrid energy storage system?

Jack Ryan, Program Manager for DIU. At present, the DoD is heavily dependent on mobile generators in a microgrid configuration for its tactical power systems, but has been lacking a systems-integrated energy storage solution that can enhance grid resilience, fuel efficiency, and optimize tactical generator performance.

Are military-grade generators effective?

Despite these improvements, military-grade generators cannot fully capture the energy produced nor can they efficiently regulate output to reduce imbalances between energy demand and energy production.

How much electricity does a military installation use?

Typical mid-size to large active military installations' peak electric loads range from 10 to 90 MW, and their critical electric loads range from approximately 15% to 35% of the total electric load. Figure 6 illustrates conditions seen on seven different mid-size to large military installations. Figure 6.

Is diesel a good investment for military installations?

This may be a valuable opportunity in the future, and the costs and benefits should be considered as the markets mature. Dependence on large quantities of diesel fuel represents an important vulnerability for military installations. Many installations do not have the volume of diesel stored on base to meet a 14-day outage.

How much energy does the DOD use?

Energy is essential for DoD's installations, and DoD is dependent on electricity and natural gas to power their installations. In fiscal year 2022 (20), DoD's installations consumed more than 200,000 million Btu (MMBtu) and spent \$3.96 billion to power, heat, and cool buildings.

Can long-duration energy storage (LDEs) meet the DoD's 14-day requirement?

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.S. Department of Defense's (DoD's) 14-day requirement to sustain critical electric loads during a power outage and significantly reduce an installation's carbon footprint.

Electrical energy is a basic necessity for most activities in the daily life, especially for military operations. This dependency on energy is part of a national security context, especially for a ...

Our analysis provides strong support for the future value of Antora Energy's BESS for military installations and moving forward with near-term field demonstration(s) on military installations.



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The military microgrid market size crossed USD 2 billion in 2024 and is estimated to grow at a CAGR of 19.1% from 2025 to 2034, driven by the need for reliable power in military operations.

The challenge with a renewable energy source plus energy storage system is that the energy storage system needs to be sized for the longest expected outage duration at the worst time of ...

These include plans for renewable energy power purchase agreements, but also on-site resiliency projects such as microgrids, combined heat and power, rooftop solar, energy storage, ...



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