



## military new energy storage investment

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 will energy storage impact resiliency? In addition, the large energy storage expected to be required to meet DoD resiliency goals will result in a BESS that has no need to use most of its SOC while grid tied to yield economic value. A higher minimum SOC will lead to a higher survival probability at 14 days, and a lower SOC minimum will lead to 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. Should military installations use Antora energy's LDEs battery? It yields an NPV that is more than \$20 million higher than the electric-energy-only case. This allows the optimized system to use a larger solar PV and does not compromise the electric energy resiliency. This study assessed the potential value for military installations of a future commercial version of Antora Energy's LDES battery. Is Antora energy's battery energy storage system ready for deployment? The LDES modeled is Antora Energy's battery energy storage system (BESS). It is currently at a technology readiness level (TRL) of 7 and not ready for full-scale deployment. To support decisions on the value of near-term demonstrations, this analysis looked at the potential value of Antora Energy's BESS if deployed in the future. Are battery investments aimed at meeting the Department's largest battery demand needs? "These investments are targeted at meeting the Department's largest battery demand needs," says Eric Shields, Senior Battery Advisor for Industrial Base Policy, Office of the Under Secretary of Defense for Acquisition & Sustainment. The US Navy & Department of Defense recently announced storage investments totalling \$100m as utilities begin relying on the military to bail them out in times of crisis The US military could become one of the main drivers of innovation in the energy storage industry in the coming years. The US Navy & Department of Defense recently announced storage investments totalling \$100m as utilities begin relying on the military to bail them out in times of crisis The US military could become one of the main drivers of innovation in the energy storage industry in the coming years. The U.S. Department of Defense (DOD) entered into a \$2.83 million contract with Redflow Limited, Pacifica, Calif., a global leader in clean energy storage, to provide a prototype microgrid, using a 1.2-1.4 MWh Redflow long-duration energy storage (LDES) system. The energy storage systems campus will leverage and stimulate over \$200 million in private capital, to accomplish three complementary objectives: optimizing current lithium ion-based battery performance, accelerating development and production of next generation batteries, and ensuring the availability of raw materials needed for these batteries. The new EW has been incorporated into a tactical microgrid at CBITEC and will demonstrate the key role that long-duration energy storage, specifically iron flow battery technology, can play to reduce fuel consumption at



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Contingency Bases (CB) such as Forward Operating Bases or other temporary use locations providing humanitarian assistance or disaster relief. US plans next-gen modular energy storage for The Navy and Marine Corps are actively pursuing enhancements in energy storage and micro-grid technologies to ensure continuous military operations, even when regional power grids fail. DoD Launches Energy Storage Systems Campus to Build The Department of Defense's Office of the Assistant Secretary of Defense for Industrial Base Policy, through its Manufacturing Capability Expansion and Investment Prioritization (MCEIP) Long-Duration Energy Storage: Resiliency for Military 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. Department of Defense To Prototype Commercial Teledyne Technologies will prototype Common Affordable and Safe Energy Storage (CASES) batteries using their novel cell cooling technology engineered for the highest safety and cycle life. 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 Energy Storage for the Military Argonne, and ACCESS specifically, can develop next-generation energy storage technologies by bringing together world-renowned scientific talent and capabilities. Why the US military is driving storage innovation In recent weeks, there were two announcements that have highlighted the US military's increasing focus on harnessing the power of energy storage to reduce energy costs Energy Storage in DoD: Powering the Future of Military Operations This isn't sci-fi - it's the U.S. Department of Defense's (DoD) energy storage revolution in action. As of , DoD's energy storage investments have grown 400% since ESS Technology to Demonstrate Value of Long Our technology uses earth-abundant iron, salt and water to deliver environmentally safe solutions capable of providing up to 12 hours of flexible energy capacity for commercial and utility-scale energy storage CEC Awards \$42 Million Grant for Long-Duration Energy Storage The project is the largest grant awarded under the Long-Duration Energy Storage Program, funded by Governor Gavin Newsom's historic multi-billion-dollar commitment DoD Launches Energy Storage Systems Campus to Build The energy storage systems campus is part of DoD's Scaling Capacity and Accelerating Local Enterprises (SCALE) initiative which stimulates commercial investment and builds robust, Testing Long-Duration Energy Storage in While the U.S. Department of Energy and California Energy Commission are testing long-duration energy storage technologies, battery providers are working to lower the levelized Energy Department Awards \$19 Million for Long WASHINGTON D.C.--The U.S. Department of Energy's (DOE's) Office of Electricity (OE) has selected two companies to receive \$19 million in awards to demonstrate long-duration energy storage (LDES) New Energy Tech Addresses Several Old Investments in microgrids include the Energy Resilience and Conservation Investment Program, a subsection of the Defense-Wide Military Construction Program intended to fund projects that save energy The U.S. Military's Key Role in Advancing Clean DoD's investment in energy RDT& E also reflects the military's characteristic pursuit of advanced



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technology as a force multiplier. As you well know, military requirements have been the driver for countless DoD Announces Two Solar Projects to Supply Five Military DOD announced a partnership with Duke Energy to power five military installations in North and South Carolina with carbon-free electricity. Navy, Marines Want More Energy Storage to SAN DIEGO - The Department of Defense last month issued a small contract for a Navy project to develop and provide a modular energy storage system for its newest vessels including its all Collaboration and Standardization Are Key to As part of that effort, DOD is working to align industry and military battery standards wherever practicable - from tactical vehicles and unmanned systems to military installations - in order to ensure future Modernizing Tactical Military Microgrids to Keep Improved mobile military microgrids give commanders flexibility to integrate diverse energy sources and storage, providing the energy flexibility needed for modern conflicts with near-peer adversaries. ESS Technology to Demonstrate Value of Long Project with U.S. Army Corps of Engineers Engineer Research and Development Center highlights opportunity for LDES to reduce diesel consumption and improve energy resilience in remote applications Energy Storage Grand Challenge Energy Storage Market Foreword As part of the U.S. Department of Energy's (DOE's) Energy Storage Grand Challenge (ESGC), DOE intends to synthesize and disseminate best-available energy storage data, State boosts critical battery storage project at Camp Pendleton SACRAMENTO - California is boosting battery storage projects across the state - an important part of the state's transition to 100% clean electricity. California today Energy-Storage.News Subscribe to Newsletter Energy-Storage.news meets the Long Duration Energy Storage Council Editor Andy Colthorpe speaks with Long Duration Energy Storage Council director of markets ESS Technology to Demonstrate Value of Long Project with U.S. Army Corps of Engineers Engineer Research and Development Center highlights opportunity for LDES to reduce diesel consumption and improve energy resilience in remote applications Energy-Storage.News Subscribe to Newsletter Energy-Storage.news meets the Long Duration Energy Storage Council Editor Andy Colthorpe speaks with Long Duration Energy Storage Council director of markets and technology Gabriel Energy Resilience and Conservation Investment Program Energy Resilience and Conservation Investment Program (ERCIP) FY Military Construction, Defense-Wide Project List by State/Country (\$ in Thousands) Energy Military energy storage investment 18 billionBy Daniel Morris, Clean Energy Lead, Climate Investment Funds (CIF), and Francisco Boshell, Head of Innovation and End-Use Applications, International Renewable Energy Agency A clean energy agenda for the US Department of The US military must invest in a large-scale program to deploy clean energy and energy storage systems to protect critical defense missions and installations. This program could build from the recently New Energy Storage Technologies Empower Energy KPMG China and the Electric Transportation & Energy Storage Association of the China Electricity Council ('CEC') released the New Energy Storage Technologies Empower Energy SECTION 2: EMERGING TECHNOLOGIES AND MILITARY Key Findings China's government has implemented a whole-of-society strat-egy to attain leadership in artificial



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intelligence (AI), new and advanced materials, and new energy Economic Benefits of Energy Storage | Energy Storage CoalitionPomega Energy Storage Technologies (Kontrolmatik Technologies) Pomega Energy Storage Technologies broke ground on its Colleton County, SC facility in February. The facility will Resourcing Installations Energy Resilience SolutionsThe Army is reforming energy practices to attract private sector capabilities and capital to strengthen the regional power grids that support Army installations, and equip Army energy systems with The expansion of renewable generation spurs investment, Without significant investment in long-duration energy storage, much of the renewable energy generated--especially from solar and wind--will continue to be wasted due Energy Storage Strategy and Roadmap | Department of EnergyThe underlying motivation for DOE's strategic investment in energy storage is to ensure that the American people will have access to energy storage innovations that enable resilient, flexible, Energy Storage Reports and Data Energy Storage Reports and Data The following resources provide information on a broad range of storage technologies. General U.S. Department of Energy's Energy Storage Valuation: A CEC Awards \$42 Million Grant for Long-Duration Energy Storage The project is the largest grant awarded under the Long-Duration Energy Storage Program, funded by Governor Gavin Newsom's historic multi-billion-dollar commitment

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