

# A New Energy Future for Our Country and Our Armed Forces

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One of the central questions yet to be answered in energy technology is how to store energy from alternative sources like solar or wind that don't always produce power when we need it. For the Navy and Marine Corps, this is particularly important, as we move toward our established goal of at least 50% non-fossil fuel use by 2020.

Because just like in the commercial world, the steady march of technology has created a voracious appetite for ever-increasing amounts of energy. A Marine platoon in Vietnam took two or three radios on patrol, now a single squad in Afghanistan takes over ten.

Last week at the [Advanced Research Projects Agency – Energy \(ARPA-E\) Innovation Summit](#), I announced two new joint energy initiatives between DoD and ARPA-E to begin research and development of technology to answer this energy storage question, technology that once developed, will move us a step closer to a new energy future and a new clean energy economy for the United States.

The first initiative is a program to develop and build small, scalable hybrid energy storage modules that will provide long energy endurance and high energy density. The program goal is to extend current power durations and densities by up to 30%, while concurrently providing rapid charge and discharge of large amounts of energy.

The applications of this technology are incredible. Right now much of the power that we generate is wasted; if it isn't used at the moment it is created it just isn't used. But with a hybrid energy storage module, we'll be able to store energy, and do so by building tactical energy networks composed of two, twenty, or even two hundred modules.

- In Afghanistan, where our Marines are beginning to use expeditionary solar power panels to power their patrol bases and electronic equipment, this means increased storage capacity, which ultimately means fewer Marines guarding convoys, and less money and effort spent moving fuel to the battlefield.
- For our ships, the modules will provide efficient and stable power for our weapons systems. So if ships are damaged, the crew has both power and time to keep fighting.

Beginning in FY 2012, DoD and ARPA-E have requested \$25 million each, the approximate price of two H-1 helicopters, to support development of hybrid energy; \$50 million that could multiply the operational impact of those two helicopters by a hundred or a thousand times. That is a smart investment, and it's one worth making.

The second project I announced will fund a Grid Storage Study to evaluate how to improve energy reliability and energy security on more than 500 DoD installations worldwide through large-scale energy storage. This project will leverage the experience of ARPA-E's GRIDS

program, which is funding technology that could potentially balance short-term variability in renewable energy generation.

The Grid Storage Study is an opening step towards answering the technical challenge I described above, creating stable delivery of renewable energy from variable and inconsistent power sources like solar or wind.

Both of these joint projects have promise, both have potential, and both create tremendous opportunities for civilian energy needs. Through ARPA-E's innovation, DoD can and will serve as a transition agent, moving the technology from R&D to practical application.

We have some amount of experience doing just that. We've done it before with technologies like the internet or GPS; innovation is who we are and what we've always done.

The joint initiatives I announced last week will make us better. They will complement the host of initiatives we're undertaking to change the way we use, produce, and acquire energy and will help achieve the President's vision of a new energy future for the United States. The future is getting just a little bit closer.

*Ray Mabus is Secretary of the Navy.*