



EVENT REPORT

INSTITUTE FOR NATIONAL STRATEGIC STUDIES

<http://www.ndu.edu/inss>

Expeditionary Energy Roundtable with USMC Commandant General Conway

The Marines are focused on energy not because they want to, but because they have to.

USMC Commandant General James Conway

December 9, 2009

By Richard B. Andres
and Gayle Von Eckartsberg

On December 9, 2009, National Defense University's Institute for National Strategic Studies hosted a workshop on Marine Corps expeditionary energy on behalf of Commandant of the Marine Corps General James Conway. The purpose of the event was to lay out the Commandant's strategic vision for Marine Corps expeditionary energy and to begin to connect the Corps with leading energy experts in academe and industry.

General Conway opened the meeting by stating his intent for the Marine Corps to become the nation's leader in expeditionary energy. He emphasized that the Marine Corps must "create an organic capability that allows you to go anywhere, do what you have to do in ungoverned spaces" and do so "without the expectation of a one-to-one Marine-to-contractor support structure...without supply lines vulnerable to disruption." The goal is an expeditionary energy paradigm that is "lighter, more efficient, less costly, better for the environment, and can also save lives."

The NDU workshop was the third event in a rapid-fire series of Marine Corps activities designed to jumpstart a conversation with industry and to connect the newly formed Marine Corps Energy

Office with key energy thinkers. Throughout the half-day session, the Commandant and his energy leaders urged the experts to think through the Marine Corps' challenge. To set the stage, Colonel T.C. Moore briefed the key findings of the Afghanistan assessment team which looked at the expeditionary needs of forward operating bases and main operating bases in August 2009. The team found that electricity generation at the main operating bases is inefficient, lacking incentives to reduce demand and the infrastructure to optimize performance of generator systems. Forward bases have a different challenge: demand for water is approximately seven times greater than for fuel. Bottled water is carried forward by Marine truck convoys, putting 200 vehicles and crews at risk of IED attack each month. Seventy percent of the Corps' logistics burden is fuel and water. This energy tail is a major vulnerability and a constraint on expeditionary missions.

The Commandant made clear that transforming Marine Corps energy capability is both a mandate from Secretary of the Navy Raymond Mabus and a strategic imperative if the Corps is to remain mobile and expeditionary in the face of rapidly increasing energy and water requirements. Speaking about the

role of energy on the battlefield, the Commandant stressed that the goal is to make the Marine Corps better at accomplishing its core mission by reducing its logistics tail. The Corps is improving expeditionary energy use to become leaner. An innovation that helps with energy but that degrades mission effectiveness or denies troops what they need to fight will not be acceptable. He also emphasized the need for speed: the energy tail in Afghanistan is costing lives. The energy team must move quickly to push new technology and behavioral innovations into the field.

The ensuing discussion focused on how to build a Marine strategy for transforming its energy footprint and centered on five broad themes.

- I. Technology is available today, but it is not focused on the Marine expeditionary problem. The Marine strategy must foster a pipeline of commercial solutions.
- II. Apply technology intelligently; take a systems approach.
- III. New behavior is key; technology alone won't solve the problem.
- IV. Top level leadership and integration into Marine Corps strategy is essential.
- V. Leverage capabilities, solutions and lessons learned from across the Marine Corps, Navy, and the other Services, as well as the Department of Energy (DOE), CIA and the rest of the Federal government.

I. Technology Sourcing. The immediate challenge is to identify and apply smart solutions to Marine needs today. To keep the Marines at the leading edge of expeditionary capabilities, they must pursue a commercialization strategy that focuses industry on the challenge and creates a pipeline of solutions—transitioning technology from R&D into commercial capabilities the Marine Corps can buy. The Office of Naval Research

(ONR) and Marine organizations have a number of efforts in place that can address this need.

- **Technology is available today, but expeditionary applications are few:** There is technology available with potential applicability to the challenge of the Marine Corps expeditionary mission. Yet, actual expeditionary applications of these technologies are few. For example, the market does not yet offer “plug and play” microelectric grids or “self developing” microgrids that could address Marine needs.
- **Foster Solutions via Test Beds, Rapid Prototyping and Industry Collaboration:** Participants hailed the Experimental Forward Operating Base (XFOB) as an ‘outstanding strategy’ for moving capabilities quickly into the field and production. For companies, it offers not only a test and evaluation location, but the opportunity to better understand the needs of expeditionary warfighters. The Marines should also consider partnering with a third party group to enable low cost low risk test and evaluation of new technologies, and applications to expeditionary problem sets, and create a means to commercialize new capabilities.
- **Recognize that the supply of ready technical solutions is small, but USMC investments can help stimulate the market:** The economic trends of the commercial market are toward large projects, not mobile, micro applications. The Marine Corps, as an early adopter of and investor in small, distributed solutions, can help drive their development, leading to commercial products in the future.
- **Open the door to small commercial technology providers:** Small entrepreneurial businesses are a valuable source of affordable and innovative capabilities, but the Marine Corps and federal acquisition process is difficult to penetrate and navigate. The Corps must make use of and improve ONR and I&L outreach programs, and include a clear system by which small companies can engage.

- **Implement programs to aggressively identify and engage small innovative companies:** The Marines are at risk of missing a small but important slice of affordable technology providers. These companies are privately funded and are focused on the commercial market, not defense needs. Organizations are at work today to attract and focus these companies on government needs—to include the CIA’s In-Q-Tel, Army’s OnPoint, and others. The current economic downturn has created a window of opportunity for the Marines to offer an attractive alternative market for these companies and their investors.

II. Intelligent Application of Technology

- **Take a systems approach—avoid piecemeal, isolated solutions.** Technology and behavioral changes that are implemented as part of a system are far more effective than those enacted in a piecemeal manner.
- **Build a portfolio of solutions, because one size does not fit all:** There will be different technical solutions for different scales of challenges. For example, there is a wide disparity between the water requirement for Kandahar and the requirements for the tactical edge. Tents can be foamed in Kandahar but foaming is not feasible at the tactical edge. Power usage is also different. The Marines need to have the appropriate technology for each application; there is no cookie-cutter or one-off approach when it comes to in-theater power and water solutions. One speaker advised that a portfolio of solutions should be selected based not on which technology has broadest application, but on the principles of modularity, robustness and resilience.
- **Build in the ability to transition capabilities to the local economy:** As the Marines go through the ‘clear – hold - build’ process, think about what components can meet Marine Corps needs, and be transferable to and sustainable by the local population. By linking these choices

to the operational environment, the Marines can improve prospects for sustainable success and reduce the risk of having to return to reengage.

III. Behavior and ‘culture exploitation’

- **Behavior change yields low cost, high impact savings.** The Marines should incorporate behavior analysis and change as part of the overall strategy. By breaking down processes and developing an understanding of what behaviors exist, the Corps can identify high impact areas for change and then incorporate these changes into procedures and training.
- **Value energy.** “We train our military but we don’t train to value energy. Energy is a critical weapon of war that is a key to mobility, and required for nearly everything the Marine Corps does.

IV. Leadership

- **Communicate change.** Green energy and energy conservation are not typical themes for the military and can easily be rejected by an organization that is focused on its combat mission. Leaders must recognize that language is important. It must reflect the core purpose of the initiative and circle back to the ultimate goal of enhancing the mission.

IV. Leverage USG and other solutions

- **Tap the Department of Energy.** DOE has recently established liaisons to Department of Defense (DoD). Communicate to DOE the Marine Corps’ needs and the challenge of addressing tactical energy problems.
- **Gain visibility into National Lab programs** to identify potential applications to military needs.
- **Look to allies and coalition forces** for approaches and technologies that are working today. Australia, France and the UK are good places to start.
- **Mine the Marine Corps Reserves for talent.** Many of the technologies, tactics, techniques and behaviors the Marines want to implement

are already being used by members of the reserve involved in private industry. This talent pool should be used whenever possible.

The Commandant is the highest ranking US military officer to have publically advocated for reprioritizing energy efficiency in defense. For the Marine Corps, transforming its energy footprint is a strategic imperative that will assure a mobile, effective, environmentally sustainable force. In recent years energy and sustainability have become priorities for the DoD. The President, Congress, and Service Secretaries have levied metrics and mandates to drive the department to reduce reliance on fossil fuels and, with the rest of the Federal government, “to lead by example” and help usher America toward a cleaner, more secure energy economy. As one of the participants noted, the Marines and DoD have the opportunity to take a leadership role in changing the American energy paradigm.



###

Dr. Richard B. Andres is a Senior Research Fellow at National Defense University's Institute for National Strategic Studies.

Gayle Von Eckartsberg is a Principal at Gayleforce 5.