

# USMC Expeditionary Power & Energy Symposium

Explore challenges and opportunities to lighten the Marine Corps' power and energy demands today and in the future.

**LIGHTENING THE LOAD: REDUCING THE FOOTPRINT IN THE EXPEDITIONARY ENVIRONMENT**



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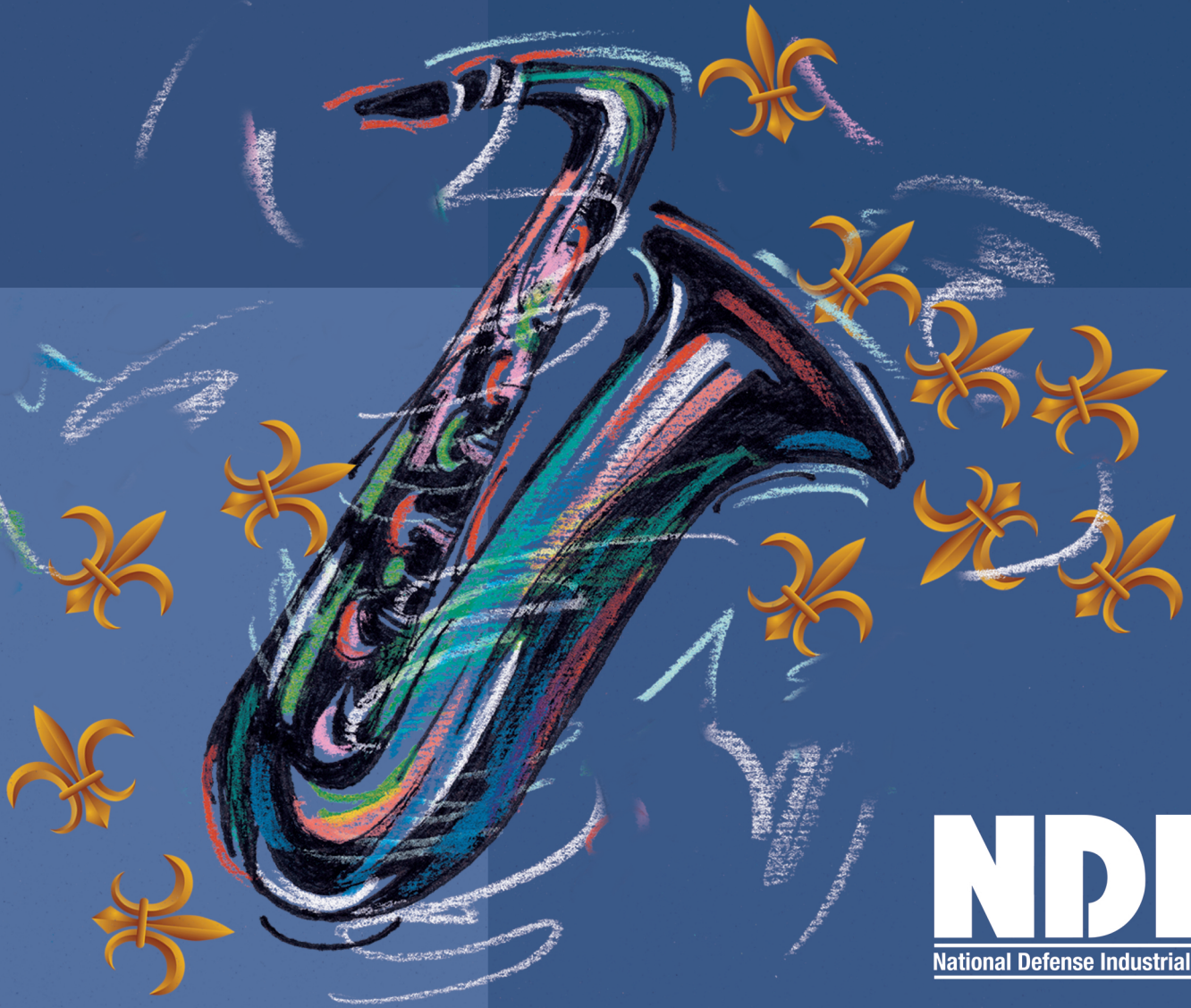
JANUARY 25-27, 2010

[WWW.NDIA.ORG/MEETINGS/0820](http://WWW.NDIA.ORG/MEETINGS/0820)

EVENT #0820



# WELCOME U.S. MARINE CORPS EXPEDITIONARY POWER & ENERGY SYMPOSIUM



**NDIA**  
National Defense Industrial Association

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## MONDAY, JANUARY 25, 2010

- 8:00 am - 3:00 pm** Exhibitor Move-in
- 8:00 am - 6:00 pm** Registration Open - Grand Ballroom Foyer - 3rd Floor
- 5:00 pm - 6:00 pm** **RECEPTION IN EXHIBIT HALL - 2ND FLOOR**

## TUESDAY, JANUARY 26, 2010

- 7:00 am - 6:00 pm** Registration Open
- 7:00 am - 8:00 am** Continental Breakfast in Exhibit Hall
- 8:00 am** National Anthem - US Marine Forces Reserve Brass Quintet
- 8:05 am - 8:15 am** **WELCOME REMARKS**  
▶ MG Barry Bates, USA (Ret), *Vice President, Operations, NDIA*
- 8:15 am - 8:45 am** **KEYNOTE ADDRESS**  
▶ Gen James Conway, USMC, *Commandant, U.S. Marine Corps*
- 8:45 am - 9:15 am** Morning Break in Exhibit Hall
- 9:15 am - 10:00 am** **DISTINGUISHED SPEAKER**  
▶ Ms. Olga M. Dominguez, *Assistant Administrator, Office of Infrastructure, NASA Headquarters*
- 10:00 am - 10:30 am** **OPERATION ENDURING FREEDOM - ENERGY AUDIT & GAP ASSESSMENT**  
▶ Col TC Moore, USMC, *CMC Operational Liaison, DARPA*

### **10:30 am - 12:00 pm** **SESSION 1: MAN-PORTABLE**

*This panel will begin by discussing briefly the environment at the tactical edge and the standard-issued equipment used by the Marines with emphasis on sustainability (energy, environment, quality of life) limitations in this current set of equipments that must be carried in the field as well as shelter systems and supporting equipment (kitchen/shower-shave/heating & cooling). The majority of the session will be devoted to identifying emerging technologies to provide ways to lighten the carry load and ways to improve to shelter systems and support equipment used at the tactical edge.*

**Moderator:** Ambassador Lincoln Bloomfield

#### **Panelists:**

- ▶ Col Albert Zaccor, USA (Ret), *CEO, Solar Stik*
- ▶ Dr. Steven Richards, P.E., *US Army Center for Health Promotion and Preventive Medicine (USACHPPM)*
- ▶ Maj Richard Cushing, USMC, *Battalion Logistics Officer, 2nd Battalion, 4th Marines*
- ▶ Mr. Scott Lichte, *Technical Products Manager, Enersys*
- ▶ Mr. Brian Keller, *Senior Advisor, Command Strategies, LLC*
- ▶ Dr. Jon Fox-Rubin, *President & CEO, Fiberforge*

### **12:20 pm - 1:30 pm** **LUNCHEON WITH DISTINGUISHED SPEAKER - CARONDELET BALLROOM**

- ▶ VADM Gordon Holder, USN (Ret), *Vice President, Booz Allen Hamilton*

### **1:30 pm - 3:00 pm** **SESSION 2: BEHAVIOR AND ENERGY USE: LOW COST HIGH IMPACT STRATEGIES FOR THE USMC**

*How can industry and academia help the US Marine Corps change its energy footprint through behavior? Not unlike other large organizations, the US Marine Corps can deliver low cost, high impact improvements in energy use through behavior-based strategies. Leading experts from academia and industry on this panel will discuss what the Marines must learn about the relationship between behavior and energy use, and why. It will explore what has worked for other organizations and what industry can do to help.*

**USMC Scene Setter:** Mr. Drexel Kleber, *Director of Strategic Operations, Power Surety Task Force, OSD*

**Moderator:** Dr. Richard Andres, *Energy & Environmental Security Chair, National Defense University, INSS*

**Panelists:**

- ▶ Dr. Howard A. Fishbein, MPH, *Senior Epidemiologist and Health Research Leader, Battelle Memorial Institute*
- ▶ Mr. Bill Browning, *Partner, Terrapin Bright Green, LLC*
- ▶ Dr. Linda Schuck, *Senior Advisor, UC-California Institute for Energy & Environment*
- ▶ Ms. Sharyn Barata, *Principal Energy Consultant, Itron - Consulting and Analysis*
- ▶ Mr. Randy Monohan, *Station Energy Manager, Marine Corps Air Station Miramar*
- ▶ SgtMaj Carl R. Green, *USMC, II Marine Expeditionary Force*

**3:00 pm - 3:30 pm** Afternoon Break in Exhibit Hall

**3:30 pm - 5:00 pm** **SESSION 3: MOBILITY**

*This panel will begin with a presentation by Amory Lovins about the findings and recommendations from the DSB on the subject of energy considerations in weapons systems. His presentation will couple his work while on the DSB along with his work at RMI to drive energy efficiency in vehicles. The panel will include discussion and experts with backgrounds in the DOD acquisition process and how energy will be considered in future acquisition of systems. In addition to looking forward in detailed planning, the panel will also devote discussion to identify emerging technologies to provide near term improvements to weapon systems energy efficiency.*

**Scene Setter:** Mr. Amory Lovins, *Chairman & Chief Scientist, Rocky Mountain Institute*

**Moderator:** Dr. Richard Carlin, *Head, Sea Warfare & Weapons Department, Office of Naval Research*

**Panelists:**

- ▶ Mr. Jim Parker, *Associate Director, TARDEC, National Automotive Center*
- ▶ Mr. Max Dorflinger, *Director, Program Delivery, NextEnergy*
- ▶ Mr. Christopher DiPetto, *Acting Director, Developmental Test and Evaluation, OUSD(AT&L)*
- ▶ Mr. Shawn Walsh, *Director, Army Energy Policy, OASA(I&E), ODASA(Energy and Partnerships)*
- ▶ Mr. Richard Goffi, *Principal, Booz Allen Hamilton*

**5:00 pm - 6:00 pm** **RECEPTION IN EXHIBIT HALL**

## WEDNESDAY, JANUARY 27, 2010

**7:00 am - 5:00 pm** Registration Open - Grand Ballroom Foyer - 3rd Floor

**7:00 am - 8:00 am** Continental Breakfast in Exhibit Hall

**8:00 am - 8:10 am** **ADMINISTRATIVE REMARKS**

- ▶ MG Barry Bates, USA (Ret), *Vice President, Operations, NDIA*

**8:10 am - 9:00 am** **QUANTICO EXPERIMENTAL FORWARD OPERATING BASE**

- ▶ BrigGen Robert F. Hedlund, USMC, *Commanding General, Marine Corps Warfighting Laboratory*

**9:00 am - 9:40 am** **DISTINGUISHED SPEAKER**

- ▶ Mr. Roger Natsuhara, *Acting Assistant Secretary of the Navy (I&E)*

**9:40 am - 10:30 am** Morning Break in Exhibit Hall

**10:30 am - 12:00 pm** **SESSION 4: EXPEDITIONARY BASING - BASING SYSTEMS**

*This panel will begin by discussing briefly the base support planning process, and standard-issued equipment used to build out expeditionary Main Operating Bases (MOBs), Forward Operating Bases (FOBs) Combat Outposts (COPs) and Patrol Bases (PB), with emphasis on sustainability (energy, environment, quality of life) limitations in this current set of shelter systems and supporting equipment (kitchen/shower-shave/heating & cooling). The majority of the session will be devoted to identifying emerging technologies to provide improvements to these shelter systems and support equipment.*

**USMC Scene Setter:** CDR Nick Merry, CEC, USN, N8, *1st Naval Construction Division, Naval Amphibious Base Little Creek, VA*



**Moderator:** Col Mike Aimone, USAF (Ret), *Vice President, Strategy Development, Battelle*

**Panelists:**

- ▶ MGySgt Byron M. Bissessar, USMC, *Communications Chief of the Marine Corps*
- ▶ Mr. Frank Kostka, *Director, Shelter Technology, Engineering & Fabrication, U.S. Army Natick Soldier Systems Center, Natick, MA*
- ▶ COL Joe Sartiano, USA (Ret), *Director, Power Surety Task Force, Ft. Belvoir, VA*
- ▶ Mr. John Barnett, *National Renewable Energy Lab, Golden, CO*
- ▶ Col John Coleman, USMC (Ret), *President & CEO, JC3*

**12:00 pm - 1:30 pm LUNCHEON WITH DISTINGUISHED SPEAKER - CARONDELET BALLROOM**

- ▶ Mr. Dean L. Kamen, *inventor of the Segway PT*

**1:30 pm - 3:00 pm SESSION 5: EXPEDITIONARY BASING - POWER & ENERGY SYSTEMS**

*This panel will begin by discussing Power and Energy (Power generation, distribution storage and supply) options to support expeditionary operations at Forward Operating Bases (FOBs) Combat Outposts (COPs) and Patrol Bases (PB) with emphasis on sustainability (renewable sources), efficiency with consideration of reduced fully burdened cost of energy scenarios, portable micro-grid, storage and demand management options. The majority of the session will be devoted to identifying existing and emerging technologies that could be applied to current scenarios anticipated in the coming months in Afghanistan.*

**USMC Scene Setter:** BrigGen Robert Ruark, USMC, *Assistant Deputy Commandant, I&L*

**Moderator:** Mr. George Solhan, *Deputy Chief of Naval Research, Expeditionary Maneuver Warfare & Combating Terrorism Science & Technology, Office of Naval Research*

**Panelists:**

- ▶ Mr. Chris Courtaux, *Director, MOD Advanced Energy Programs, BAE Systems*
- ▶ Mr. Tony Woods, *Sustainable Energy Services, Afghanistan*
- ▶ Mr. Michael Gallagher, *PM Expeditionary Power Systems, Marine Corps Systems Command*
- ▶ Mr. Dan Nolan, *Sabor 6*
- ▶ Mr. Daniel Zimmerle, *Colorado State University*

**3:00 pm - 3:30 pm Afternoon Break in Exhibit Hall**

**3:30 pm - 5:00 pm SESSION 6: EXPEDITIONARY BASING - ENVIRONMENT, WASTE & WATER**

*This panel will discuss the challenges associated with establishing sustainable Forward Operating Bases (FOBs) Combat Outposts (COPs) and Patrol Bases (PB) with a focus on issues of environment, waste and water. Speakers will highlight options for creating sustainable outposts to reduce the risk and demand for energy and other resources and discuss how to manage waste and water to reduce environmental impact and health risks to the Marines, and to the local community. They will look beyond individual technologies and discuss systems approaches, highlighting opportunities to address more than one problem with a set of solutions. Panelists will also address opportunities for solutions that can help the local community after the Marines' leave. The majority of the session will be devoted to identifying existing and emerging technologies that could be applied to current needs in theater, and strategically equipping the Marines for future operations.*

**Moderator:** Ms. Sherri Goodman, *Senior Vice President, General Counsel & Corporate Secretary, CNA*

**Panelists:**

- ▶ Mr. Amol Deshpande, *Kleiner Perkins Caufield & Byers*
- ▶ Mr. John C. McArdle, *Business Development Manager, Water Technologies, Battelle*
- ▶ Dr. Michael J. MacPhee, *Vice President and Water Environment Planning Director Malcolm Pirnie, Inc.*
- ▶ Ms. Pamela Serino, *Director, Quality Tech Support Office, Defense Energy Support Center*
- ▶ Mr. Frank Prautzsch, *Director, Business Development, Renewable Energy, Raytheon Company*

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BAE Systems provides secure, efficient, and cost-effective solutions for energy production, distribution, storage, and management. These include highly reliable power management and control systems for ground vehicles, stationary applications, energy storage integration, hybrid electric drives, vehicle management, and human-machine interface systems.

The company is the world's leading producer of hybrid propulsion systems for urban transit buses. Its HybriDrive® propulsion system, in service on more than 2,200 buses in North America and the U.K., has logged more than 100 million miles, saved more than 10 million gallons of diesel fuel, and prevented more than 100,000 tons of carbon emissions.

BAE Systems is applying the same expertise to the military's power management needs. Its Common Modular Power System has been demonstrated on many tactical and combat platforms and is now part of the U.S. Army's Paladin upgrade program. The Marine Corps recently awarded the company a contract to integrate an onboard power management system on a HMMWV to produce up to 30 kilowatts of exportable power.

The company operates a battery test center that conducts specialized power and energy research for the U.S. government. And in the U.K., BAE Systems is using its expertise in design, production, and systems integration to help the Ministry of Defence reduce energy use at its facilities, on its platforms, and on the front lines. By providing large-scale energy systems and services such as fully burdened energy-cost modeling and efficiency programs, the company is helping the MoD reach its conservation targets.

BAE Systems is a global defense, security, and aerospace company, delivering a full range of products and services for air, land, and naval forces, and advanced electronics, security, information technology solutions, and customer support services. With approximately 105,000 employees worldwide, the company had 2008 sales that exceeded \$34.4 billion.



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SAIC's national security efforts reach across all branches of the military and support the full spectrum of military operations – from peace keeping and humanitarian missions to major conflicts. SAIC's applications and services include system architecture, system engineering, and horizontal integration of current products and services. These applications and services support breakthrough military and energy technology solutions, world-class systems integration, flexible manufacturing, and superior integrated logistics support throughout the product lifecycle.

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DRS Technologies is a leading supplier of integrated products, services and support to military forces, intelligence agencies and prime contractors worldwide. Focused on defense technology, the Company develops, manufactures and supports a broad range of systems for mission critical and military sustainment requirements. The company is a wholly owned subsidiary of Finmeccanica S.p.A. (FNC.MI) which employs more than 73,000 people worldwide.

DRS designs and produces Hybrid Electric Vehicles and enhanced power management products. Hybrid Electric High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) is a systems approach to integrated energy generation (MG, turbine, or fuel cell), battery management, system controls, motive or traction control, diagnostics, health monitoring, and operator interfaces with mobile vehicle platforms. Enhanced vehicle or platform power generation, dependability and control meets C4I power requirements with lightweight, full MIL-STD inverters for on board vehicle power and export power needs.

The DRS On Board Vehicle Power (OBVP) system is a factory or depot retrofittable kit that features a Transmission-Integral Generator (TIG) with no impact to drive-train length. On-the move power is now available to support enhanced operations in your current and future force vehicles. OBVP may be used to provide expeditionary power for a Tactical Operations Center (TOC), an expeditionary field hospital, or other energy-dense systems. This capability has eliminated the need for traditional towed generators in the expeditionary force.

DRS' HMMWV TIG approach has evolved through a close relationship with AM General and its subsidiaries – General Transmission Products and General Engine Products. AM General, as HMMWV prime contractor, has lent its support and technical expertise for DRS OBVP integration. The prime's participation assures end users the DRS OBVP maintains the HMMWV high standards for performance and reliability.

DRS' OBVP offers commanders operational flexibility, reliability and agility, while reducing maintenance and support costs over other power-upgrade solutions that add belts, pulleys and shafts. OBVP reduces the airlift and logistics footprint – and their related cost – when towed generators are not the best power-needs solution.

It's POWER – where and when you need it.

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delivering results that endure

