REQUEST FOR INFORMATION (RFI)
Experimental Forward Operating Base (ExFOB Phase 4)

INTRODUCTION:

This announcement constitutes an RFI notice for planning purposes. This is NOT a Request for Proposals. NO SOLICITATION DOCUMENTS EXIST AT THIS TIME. This RFI does not constitute a commitment, implied or otherwise, that the Office of Naval Research (ONR) will take procurement action in this matter. Neither ONR nor the Government will be responsible for any cost incurred in furnishing this information.

The Office of Naval Research in support of USMC technology requirements is interested in understanding the currently available technologies that could enhance the logistics sustainability of remote Forward Operating Bases (FOBs) engaged in combat operations. Specific areas of interest for this RFI include: 1) Energy efficient heating and cooling systems, 2) Solutions for enhancing the energy efficiency of fielded electric power generators, and 3) Energy efficient water cooling. Technologies of interest are those that would most rapidly and effectively enhance the self sufficiency of a Forward Operating Base roughly the size of a Marine Corps Company (approximately 200 Marines). Information is requested in the form of brief technology descriptions.

GENERAL BACKGROUND:

The remote locations of United States Marine Corps (USMC) Forward Operating Bases (FOBs) create significant challenges for the logistics support of combat operations. These FOBs are currently heavily dependent on long-distance deliveries of significant quantities of bulk fuel and water. Convoy routes through unsecured areas are frequently hazardous and transport is always expensive. The delivered cost of fuel and water can easily total ten to a hundred times its original purchase price.

The Marine Corps is in the process of initiating dramatic steps toward rapidly improving the energy efficiency of Forward Operating Bases. In March of 2010, the USMC established a temporary ExFOB at the Marine Corps Base Quantico to provide industry with the opportunity to demonstrate the capabilities of existing products to enhance energy efficiency. This initial product demonstration venue, called ExFOB Phase 2, addressed selected technologies including small unit water purification, shelter insulation, photovoltaic energy harvesting, and energy efficient lighting. Plans are underway for establishing a second venue, this time at the Marine Corps Base 29 Palms, in the California desert. This second demonstration is referred to as ExFOB Phase 4 and will extend from 6 to 14 August 2010. ExFOB Phase 4 will focus on three categories of interest: 1) Energy efficient heating and cooling, 2) Energy efficient utilization of currently fielded electric power generators, and 3) Energy efficient approaches for cooling bulk water purified on site prior to human consumption. Phase 4 will also differ from the previous Phase 2 in that the range of technical maturity for potential solutions is expanded to also address items that may require some additional technology development prior to any subsequent operational experimentation.

Information received in response to this RFI is intended to serve two purposes. 1) Technology descriptions will help formulate the Science and Technology planning necessary to mature technologies toward fieldable solutions, and 2) Technology descriptions may result in invitations for equipment manufacturers to demonstrate their technologies at the ExFOB Phase 4 at no cost or risk to the Government, from 6 through 14 August 2010 if the manufacturer indicates that a product or prototype would be sufficiently developed for a conceptual demonstration by this date.

SPECIFIC INFORMATION OF INTEREST:

Energy Efficient Heating and Cooling: The need to rapidly establish Forward Operating Bases for combat operations has resulted in temporary structures that are necessarily less than optimal from an energy perspective. This places a considerable burden on fielded Environmental Control Units (ECUs) as they struggle to cool or heat interior spaces. As a consequence, efficiency improvements for heating and cooling could conceivably produce significant fuel savings. Alternative approaches for enhancing the energy efficiency of heating and cooling systems are sought. Possibilities might include, but are not limited to, the following:

1. Improvements to the energy efficiency of fielded Environmental Control Units (ECUs)
2. Alternatives to fielded ECUs.
3 Synchronization of power used for heating and cooling with periods of excess electric power generation capacity at the FOB.
4. Small scale ground heat pumps capable of cooling or heating a general purpose medium size tent.
5. Evaporative cooling.

Efficient Utilization of Fielded Generators: Interim solutions are sought for enhancing the efficient utilization of fielded electric power generators at Forward Operating Bases. Electric power at Forward Operating Bases is presently provided by motor-generator sets of various sizes ranging from 2kW to 100kW. These generators are fueled with JP-8, a common military logistics fuel. The JP-8 is delivered via tanker truck over long distances. Generators are frequently operated at suboptimal capacity, resulting in wasted fuel consumption. Current planning factors assume that each Company size FOB will require 1000 kilowatt-hrs of electric energy per day.

Technologies that have the potential for improving the energy efficient utilization of USMC field generators are sought. Possibilities might include, but are not limited to, the following:

1. Autonomic starting, stopping, phase matching, load sharing and/or load shifting between coupled generators connected in a power distribution grid so as to optimally match a distributed FOB generation capability with distributed changing loads throughout the FOB.
2. Energy storage buffers that permit individual generators to be periodically turned off when operated at less than optimal capacity, or which permit smaller generators to service larger short term peak loads.
3. Hybrid systems that incorporate elements of both 1 and 2 above.

Energy Efficient Water Cooling: Potable water is currently delivered to FOBs in plastic bottles that can be cooled in existing refrigeration units prior to consumption. The Marine Corps is currently working toward minimizing the requirement to deliver bottled water wherever possible due to the expense and hazards associated with long distance trucking. At many locations, local purification of water is feasible; however the product is not stored in containers that can be cooled in existing refrigeration units. Consequently, the USMC seeks water chilling solutions that can be incorporated with currently fielded (program of record) bulk water storage equipment. Possibilities might include, but are not limited to the following:

1. Water chilling equipment that can be incorporated with the fielded (program of record) Waterbull water storage container.
2. Water chilling equipment that can be incorporated with the fielded (program of record) Sixcon water storage container.
3. Alternatives for cooling only consumable amounts of water immediately prior to consumption.

CONTENT AND FORMAT OF TECHNOLOGY DESCRIPTIONS:

The electronic copy of responses is to be in Adobe Acrobat 9, Microsoft Word 2003, or Microsoft Word 2007 compatible format using a size 12 font with one inch margins. Adobe PDF format is preferred. Following a review of the responses received, ONR may elect to request additional information, or schedule one-on-one meetings with some respondents to gain additional information about their proposed solution(s). A submission should include:

1. A cover letter (optional)
2. A cover page labeled with the heading "Experimental FOB Technology Description", including the product name, the manufacturer, manufacturer's address, technical point of contact, telephone number and e-mail address, and at least one photograph of the item.
3. No more than three pages of technical data including:
    a) Product (or targeted product) technical description
    b) Narrative describing how the item could enhance the energy efficiency of a Company-sized Forward Operating Base
    b) Specifications with particular emphasis on quantitative metrics of energy consumption or savings over alternative solutions. Other specifications would include parameters such as dimensions, weight, capacities, input requirements, salient output capabilities, or other quantitative characteristics as appropriate.
    d) Relevant history of product (or similar product) development and/or utilization
    e) Catalog price or rough estimate of unit cost
    f) An indication as to whether the technology is sufficiently mature to demonstrate a representative model or prototype system at the Marine Corps Base 29 Palms from 6 to 14 August 2010 at no cost or risk to the Government, or whether additional development would be more appropriate prior to a subsequent demonstration.

NOTE: Please submit all pages as a single (.doc or .pdf) file. Name files in accordance with the following convention: "Company Name, Product Name, Category"

Examples:
ABC123 Engineering, Snow Blocks, Energy Efficient Heating and Cooling.doc
Flippy Power Inc, Magic Power Box, Efficient Utilization of Fielded Generators.pdf

QUESTIONS AND POINTS OF CONTACT:
Questions regarding this announcement shall be submitted in writing by e-mail to the following personnel:
Clifford W. Anderson,
Office of Naval Research
Code: ONR 30
875 North Randolph Street
Arlington, VA 22203-1995
Tel: 703-696-4485
E-mail: cliff.anderson@navy.mil

SUBMISSION DATE AND ADDRESS:

Electronic responses to this notice are requested to be emailed to one of the following appropriate e-mail addresses no later than Friday, June 25, 2010. The subject line of the e-mail should follow the form "ExFOB: Company Name, Product Name, Category". For example: "ExFOB: ABC123 Engineering, Snow Blocks, Energy Efficient Heating and Cooling".

Energy Efficient Heating and Cooling	EFOBefficiency@navy.mil
Efficient Utilization of Fielded Generators	EFOBpower@navy.mil
Energy Efficient Water Cooling	EFOBwater@navy.mil

Files too large for email can be sent via CD, by the same date to:

Commanding Officer
NAVFAC ESC
Attn: Code EX30 Technical Direction Agent
1100 23rd Ave
Port Hueneme, CA 93043

NOTE: An ExFOB POC will acknowledge receipt of all received submittals within one week of receipt. This will include the name of the submittal and the category in which it was received. If you do not receive an acknowledgement, then your submittal was not received.

NOTE: Submit separate emails for each category for which you would like a technology considered. Do not submit to a single category and request consideration for other categories as well.

NOTE: This RFI is issued for the purpose of determining market capability of sources and does not constitute an Invitation for Bid (IFB), a Request for Proposal (RFP), a Request for Quote (RFQ) or an indication that the Government will contract for any of the items and/or services

contained in this notice. All information received in response to this notice that is marked Proprietary will be handled accordingly. Responses may not include Classified material. Responses to this notice will not be returned. Availability of any formal solicitation will be announced under a separate Federal Business Opportunities (FedBizOpps) announcement.