

# **Broad Agency Announcement 11-002**

## **Renewable Sustainable Expeditionary Power**

### **INTRODUCTION:**

This publication constitutes a Broad Agency Announcement (BAA) as contemplated in Federal Acquisition Regulation (FAR) 6.102(d)(2) and 35.016. A formal Request for Proposals (RFP), other solicitation, or additional information regarding this announcement will not be issued.

The Office of Naval Research (ONR) will not issue paper copies of this announcement. The ONR reserves the right to fund all, some or none of the proposals received under this BAA. ONR provides no funding for direct reimbursement of proposal development costs. Technical and cost proposals (or any other material) submitted in response to this BAA will not be returned. It is the policy of ONR to treat all proposals as sensitive competitive information and to disclose their contents only for the purposes of evaluation.

### **GENERAL INFORMATION:**

#### **1. Agency Name –**

Office of Naval Research  
875 N. Randolph Street  
Arlington, VA 22203-1995

#### **2. Research Opportunity Title - Renewable Sustainable Expeditionary Power**

#### **3. Program Name - Future Naval Capability (FNC) Enabling Capability (EC)**

#### **4. Research Opportunity Number – BAA 11-002**

#### **5. Response Date -**

White Papers: 1/28/2011 (4:00 PM Eastern Standard Time)

Full Proposals: 4/1/2011 (4:00 PM Eastern Standard Time)

#### **6. Research Opportunity Description -**

The Office of Naval Research (ONR) is interested in receiving proposals describing the science & technology development necessary to enable future expeditionary deployment of renewable-based 3 kW power systems. Conceptual development and advanced technology demonstration are of interest to transition technology from TRL 3 to TRL 6. This Renewable Sustainable Expeditionary

Power (RSEP) technology will be key to meeting future US Marine Corps Forward-Deployed Enhanced Company Operations needs and future USMC and DoD platform power needs well into the future.

It is envisioned that RSEP concepts will employ sustainable energy strategies, energy storage, and liquid fuels, in a hybrid concept, to generate power for expeditionary operations. Fuel-to-electric energy conversion will accept both military logistics fuels and biofuel blends. Utilization of renewable and sustainable energy for power generation in expeditionary settings is expected to reduce fuel usage by more than 40% over existing, comparable size DoD power systems.

Proposed technology developments should enable operational improvements in the following areas at a minimum:

- Fuel consumption
- Noise levels
- Cost of ownership
- Maintainability
- Deployability

ONR seeks white papers and full proposals for the Science and Technology (S&T) necessary to develop a core technology or suite of complementary technologies aimed at achieving or exceeding the power generation objectives herein. Proposals shall describe an overall concept and provide a detailed approach for S&T development and demonstration of core technologies, not an approach on how to arrive at a recommended technology solution. In addition to the S&T effort, offerors shall also consider affordability of the future system that will ultimately be transitioned to the Marine Corps and procured. Any proposal that does not provide a specific technology concept, as well as discussion of system acquisition cost/affordability, will not be considered.

## **6.1 Background:**

Current military operations suffer from already high and ever increasing battle-space fuel demands. As an example, generators have been found to be the largest single fuel consumers on the battlefield during wartime (reference 1 [see Sec. 6.4 below for the cited references]). These demands degrade capability, increase force balance problems, expose support operations to greater risk, and increase support costs. More efficient platforms can enhance range, persistence, and endurance. Fuel efficiency can benefit the military not only by the direct savings in fuel costs, but also by increasing combat effectiveness through the redirection of resources currently utilized for resupply.

USMC Forward Deployed Enhanced Company Operations typically deploy with 3-kW generators mounted on Light Tactical Trailers (LTT) (reference 2). Previous efforts to integrate commercial-off-the-shelf components to reduce forward deployed fuel consumption have involved, to various degrees, the use of fuel-burning generator sets, electrochemical storage, planar photovoltaic panels, and power generation from wind. The results have shown potential for fuel savings, but the deployability, cost, size/weight, and detectability of such approaches demonstrate a strong need for S&T to achieve practical solutions for the Marine Corps.

Effective use of renewable resources for expeditionary power generation is key to battlefield fuel

reduction and force protection. High conversion efficiency concepts and devices are now showing promise for stationary, grid-tied applications. Our challenge is in developing and leveraging the best technologies for expeditionary, non grid-tied operations. Recently, power generation systems using Concentrated Solar Thermal (CST) energy have demonstrated conversion efficiency levels over 30% under optimal conditions (reference 3), and multi-junction Concentrated Solar Photovoltaics (CSP) have demonstrated conversion efficiencies over 40% (reference 4). Any technology development herein must be robust -- the ability to withstand military transport and the military environment is critical. Other renewable energy technology developments that show similar high efficiency potential will be considered.

For purposes of this announcement, renewable energy is considered to be energy obtained from natural resources such as sunlight, wind, rain, tides, waves, plant matter, and geothermal heat, which are naturally replenished. Sustainable energy is the provision of energy such that it meets the needs of the present, without compromising the ability of future generations to meet their needs. Sustainable energy sources are most often regarded as including all renewable sources and technologies that improve upon existing fuel efficiencies.

## **6.2 Program Plan:**

The RSEP FNC EC is a 5-yr (FY12-16) S&T effort intended to culminate in the transition of a technology demonstrator to the Program Manager - Expeditionary Power Systems (PM-EPS). Accordingly, this BAA is issued to implement the contractual structure necessary to develop and demonstrate the technology to the level of TRL 6 within a 5-yr effort.

The primary objective of this BAA is determining the optimal, affordable solution for achieving dramatic reductions in expeditionary fuel usage.

The two planned phases covered by this BAA and the objectives for each are described below.

### Phase 1 (FY12-13) - Conceptual Development

Phase 1 - Year 1 (base):

1. Identify technology development(s) necessary for dramatic fuel savings.
2. Develop overall concept(s) for renewable-based expeditionary power.
3. Demonstrate functional and dynamic feasibility and practicality of the concept(s) through analysis, modeling and simulation.
4. Identify operational (tactical) impacts and risks associated with the proposed concept and a risk mitigation strategy.
5. Study affordability of the concept(s) vs. existing, traditional power generation approaches.

Phase 1 - Year 2 (option):

1. Develop and de-risk enabling technologies through lab-based technology experimentation, to demonstrate performance and mature conceptual designs to TRL 5.
2. Based on results, update analyses conducted during Year 1 objectives 1-5.
3. Document results and develop a proposal for Phase 2.

## Phase 2 (FY14-16) - System Integration and Full-scale Demonstration

### Phase 2 - Year 1 (base):

1. Preliminary design of RSEP demonstrator.
2. Detailed design of RSEP demonstrator.
3. Conduct critical review of demonstrator design and cover topics, including (at a minimum): detailed description of demonstrator design (hardware, firmware, and software); design for compliance with Section 6.3 requirements, risk areas, long-lead items, cost of individual vendor items, and overall affordability projections.

### Phase 2 - Year 2 (option):

1. Fabricate and assemble RSEP demonstrator and integrate with Light Tactical Trailer.
2. Prepare detailed test plan for demonstrating compliance with TRL 6. Specific test methods shall be proposed, test procedures shall be addressed in detail, facilities shall be identified, and a schedule shall be provided. Tests shall be identified with the intent of demonstrating compliance with Section 6.3 requirements. Advance agreements with all outside test facilities (government, private, university, etc.) shall be discussed.

### Phase 2 - Year 3 (option):

1. Conduct testing necessary to demonstrate compliance with Section 6.3 requirements and achievement of TRL 6.
2. Prepare a TRL 6 Demonstration report.
3. Prepare a detailed, non-proprietary RSEP Performance Specification suitable for use by PM-Expeditionary Power Systems to competitively solicit for future low rate initial production tactical RSEP units.
4. Develop a Technology Transition Plan. A detailed cost estimate for initial production of RSEP systems shall be developed. A detailed life-cycle cost estimate shall be provided. A return on investment analysis shall be a part of the TTP. Remaining technical risks and a mitigation plan shall be provided.

See Sec. II of this BAA for additional detailed award information.

## **6.3 - Key Performance Requirements**

Performance specifications and requirements for the future TRL 6 RSEP system are as follows:

General - All components required to support deployment and to sustain operation, including all fuel, shall be deployable and transportable on all variants of the Light Tactical Trailer (LTT). The arrangement of the components in a stowed state shall facilitate ease of transportation with low risk of damage during normal transportation scenarios. Components may be removed from the trailer for deployment if necessary. Once deployed, the start (power on) and stop (power off) processes shall be initiated with a single command. Once started, the unit shall operate in an automated manner that provides for efficient, reliable equipment operation for varying loads from no load to rated load. The unit shall incorporate self-protection systems and be designed for maximum personnel safety. The control system shall include monitoring to collect data on key system performance parameters during operation.

Power Output - 3 kW nominal net electrical power, with output capacity for short-term surges up to 5 kW

Liquid Fuels - DL-1, DL-2, JP-5, JP-8, Biofuel blends

Onboard Fuel - The LTT-transportable RSEP unit shall support a 15-day mission, during which a combination of renewable energy, stored energy, and fuel may be utilized to provide a continuous output of 3 kW without fuel re-supply.

System Size (stowed) - Meet USMC and US Army Light Tactical Trailer size, stability, and mounting requirements for transport. All equipment shall be stowed inside the trailer perimeter for transport. The RSEP unit may exceed trailer perimeter dimensions during operation, and may be deployed off the trailer if necessary.

Deployment and stowage - Deployment and stowage shall take under 60 minutes for two Marines, after the trailer has been unhitched and stabilized. Maximum two-person lift capability is 88 lbs.

Weight - Total RSEP system weight and weight distribution (wet or dry) shall not exceed the rated capacities of the USMC LTT-MCC (Light Tactical Trailer - Marine Corps Chassis)

Configuration and Mobility - Trailer-mounted RSEP system shall be consistent with the mobility and stability of its towing vehicle. The unit shall not impose any additional restrictions on the vehicle.

Electrical Output - Rating shall be 3kW at unity power factor. Connections provided shall include: 120 VAC, single-phase, two-wire, 60 Hz; 120/240 VAC, single-phase, three-wire, 60 Hz; and 24 VDC.

Electrical Output Turndown - Unit shall be able to support any load continuously up to full rated power (3 kW, unity power factor). Understanding part-load efficiency is important and should be included in modeling / analysis conducted in Phases I and II.

Electrical Characteristics - Compliance with MIL-STD-1332B Table III for DC output and Table II (Class 2C) AC output required.

EMI - Grounding and shielding shall be incorporated to minimize the radiated and conductive EMI emissions and susceptibility. MIL-STD-461E shall be used as guidance for design of the system.

Noise - 60 dBA at 7 meters (objective), 70 dBA at 7 meters (threshold)

Energy for Starting - The unit shall contain a rechargeable battery or other energy storage sufficient to perform a minimum of three starts

Lubricants and Coolants - Use of DoD-approved lubricants and coolants is required.

Operational Temperatures - 0C threshold (-32C objective) to 55C operating range required.

Derating due to elevation - Produce rated power up to an elevation of 4000 ft. Derating allowed above 4000 ft.

Inclined Operation - Operate on uneven terrain up to a 15 degree slope in any direction

Terrain Operation - All terrain types from sandy to uneven rocky surfaces

Environmental Conditions - Meet Mil-Std-810 requirements

Shock and Vibration (during transport) - The RSEP system shall withstand shock and vibration from traveling on roads, highways, and dirt roads without sustaining structural or functional damage. MIL-STD 810F, Annex C, Method 514.5 provides vibration exposures.

#### **6.4 References**

1. Report of the Defense Science Board Task Force on DoD Energy Strategy "More Fight - Less Fuel", February 2008, Office of the Under Secretary of Defense For Acquisition, Technology, and Logistics, Washington, D.C. 20301-3140.
2. Light Tactical Trailer, Marine Corp Systems Command, PM Motor Transport site, <http://www.marcorsyscom.usmc.mil/sites/GTES/PM%20MT/TrailerLightTacticalMC.asp>
3. News Release, Sandia National Laboratories, February 12, 2008, "Sandia, Stirling Energy Systems set new world record for solar-to-grid conversion efficiency."
4. 'Highest Efficiency Multi-Junction Solar Cell for Terrestrial and Space Applications', Andreas W. Bett, et.al., Fraunhofer ISE, Freiburg Germany, Presented at the 24th European Photovoltaic Solar Energy Conference and Exhibition, 21-25 September 2009, Hamburg Germany.

#### **7. Point(s) of Contact –**

Questions of a technical nature shall be directed to the cognizant Technical Point of Contact, as specified below:

Science and Technology Primary Point of Contact:

H. Scott Coombe  
ONR Code 331  
Office of Naval Research  
875 N. Randolph Street  
Arlington, VA 22203-1995  
Email: [harold.coombe@navy.mil](mailto:harold.coombe@navy.mil)

Questions of business nature shall be directed to the cognizant Contracts Specialist as specified below:

Questions of a business nature should be submitted to:

Joseph F. Pletscher  
ONR Code 253  
Office of Naval Research  
875 N. Randolph Street  
Arlington, VA 22203-1995  
Email: [joseph.pletscher@navy.mil](mailto:joseph.pletscher@navy.mil)

Any questions regarding this solicitation must be provided to the Technical Point of Contact and Business Point of Contact listed in this solicitation. All questions shall be submitted in writing by electronic mail.

Questions submitted within 2 weeks prior to a deadline may not be answered, and the due date for submission of the white paper and/or full proposal will not be extended. All communication shall be submitted via email. All questions to the Technical Point of Contact (POC) shall be sent via email with a copy to the designated business (POC).

Amendments will be posted to one or more of the following web pages:

- Federal Business Opportunities (FEDBIZOPPS) Webpage - <https://www.fbo.gov/>
- ONR Broad Agency Announcement (BAA) Webpage - <http://www.onr.navy.mil/en/Contracts-Grants/Funding-Opportunities/Broad-Agency-Announcements.aspx>

#### **8. Instrument Type(s) -**

It is anticipated that awards will be in the form of Indefinite Delivery Indefinite Quantity (IDIQ) contracts with cost type Task Orders executed under the IDIQs. ONR reserves the right to award a different instrument type if deemed to be in the best interest of the Government.

#### **9. Catalog of Federal Domestic Assistance (CFDA) Numbers – N/A**

#### **10. Catalog of Federal Domestic Assistance (CFDA) Titles – N/A**

#### **11. Other Information –**

Work funded under a BAA may include basic research, applied research and some advanced research. With regard to any restrictions on the conduct or outcome of work funded under this BAA, ONR will follow the guidance on and definition of “contracted fundamental research” as provided in the Under Secretary of Defense (Acquisition, Technology and Logistics) Memorandum of 24 May 2010.

As defined therein the definition of “contracted fundamental research,” in a DoD contractual context, includes [research performed under] grants and contracts that are (a) funded by Research, Development, Test and Evaluation Budget Category 1 (Basic Research), whether performed by universities or industry or (b) funded by Budget Category 2 (Applied Research) and performed on campus at a university. The research shall not be considered fundamental in those rare and exceptional circumstances where the applied research effort presents a high likelihood of disclosing performance characteristics of military systems or manufacturing technologies that are unique and critical to defense, and where agreement on restrictions have been recorded in the contract or grant.

Pursuant to DoD policy, research performed under grants and contracts that are a) funded by Budget Category 6.2 (Applied Research) and NOT performed on-campus at a university or b) funded by Budget Category 6.3 (Advanced Research) does not meet the definition of “contracted fundamental research.” In conformance with the USD(AT&L) guidance and National Security Decision Direction 189, ONR will place no restriction on the conduct or reporting of unclassified “contracted fundamental research,” except as otherwise required by statute, regulation or Executive Order. For certain research projects, it may be possible that although the research being performed by the prime contractor is restricted research, a subcontractor may be conducting “contracted fundamental research.” In those cases, it is the *prime contractor’s responsibility* in the proposal to identify and describe the subcontracted unclassified research and include a statement confirming that the work has been scoped, negotiated, and determined to be fundamental research according to the prime contractor and research performer.

Normally, fundamental research is awarded under grants with universities and under contracts with industry. Non-fundamental research is normally awarded under contracts and may require restrictions during the conduct of the research and DoD pre-publication review of such research results due to subject matter sensitivity. Potential Offerors should consult with the appropriate ONR POCs to determine whether the proposed effort would constitute basic research, applied research or advanced research. FAR Part 35 restricts the use of Broad Agency Announcements (BAAs), such as this, to the acquisition of basic and applied research and that portion of advanced technology development not related to the development of a specific system or hardware procurement. Contracts and grants and other assistance agreements made under BAAs are for scientific study and experimentation directed towards advancing the state of the art and increasing knowledge or understanding. The funds available to support awards under this BAA include Budget Activity 2 (Applied Research) and Budget Activity 3 (Advanced Technology Development).

**THIS ANNOUNCEMENT IS NOT FOR THE ACQUISITION OF TECHNICAL, ENGINEERING AND OTHER TYPES OF SUPPORT SERVICES.**

## **II. AWARD INFORMATION**

ONR anticipates that up to 4 IDIQ awards will result from this BAA. The amount of funds and period of performance for each proposal may vary depending on the technical approach to be pursued by the offeror, it is expected each proposal will be structured similarly to the program structure below.

Total amount of funding available for each Task Order:

- Phase 1, year 1 (base): Up to \$0.5M per award
- Phase 1, year 2 (option): Up to \$1M per award
- Phase 2, year 1 (base): Up to \$1M per award
- Phase 2, year 2 (option): Up to \$1.5M per award
- Phase 2, year 3 (option): Up to \$1.5M per award

Anticipated number of Task Orders:

- Phase 1, year 1 (base): Up to 4 Task Orders
- Phase 1, year 2 (option): Up to 3 Task Orders
- Phase 2, year 1 (base): Up to 3 Task Orders
- Phase 2, year 2 (option): Up to 2 Task Orders
- Phase 2, year 3 (option): Up to 2 Task Orders

Anticipated period of performance for each Task Order:

- Phase 1: Base year + 1 option year
- Phase 2: Base year + 2 option years

The IDIQ minimum quantity will be \$25,000. Subsequent Task Orders will be issued based on the success of the prior phase and will follow the criteria established in FAR 16.505. The IDIQ maximum quantity will be based on the total program estimate, which is approximately \$13.0 M.

Since this is a multiple award solicitation, up to four task order awards are anticipated to be issued for Conceptual Design, Modeling, & Simulation and three for System Integration & Full-Scale Demonstration. For Phase I, each Offeror selected for a basic award will receive a Task Order 0001 contract including a Base and Option period. A down selection for the Preliminary Design and Lab Based Design Validation option will be based on the contractor's performance during the Phase I Base and evaluation of its Phase I Base products in relation to the evaluation criteria above. Awardees of the Phase I Option will be given a fair opportunity, as prescribed in FAR 16.505(b), to submit a proposal for Phase II Task Order 0002. Although the Government may issue Task Order 0002 to all awardees of the Phase I option, the Government reserves its right to provide a further downselect at the beginning of Phase II based on the following: availability of funds, contractor's performance during Phase I, and evaluation of its Phase II proposal. The Task Order 0002 contracts will consist of a Base and two Options. A down selection for the full-scale prototype system fabrication and demonstration (Option 1 and Option 2) will be based on an assessment of the contractor's performance during the preceding periods of performance and their deliverables, in relation to the evaluation criteria above.

This competitive process will be simplified in order to facilitate the order process and prevent undue administrative burden upon the Contractor and the Government. This paragraph includes the procedures that will be used in issuing orders and the procedures and selection criteria that will be used to provide all awardees a fair opportunity to be considered for each order.

According to FAR 16.505, the Contracting Officer shall ensure that individual orders clearly describe all services to be performed or supplies to be delivered. The Contracting Officer shall ensure that orders are within the scope, period, and maximum value of the contract as stated in the Contract.

Although ONR expects a program phasing plan similar to the above to be executed, ONR reserves the right to make changes.

In the case of funded proposals for the production and testing of prototypes, ONR may during the contract period add a contract line item or contract option for the provision of advanced component development or for the delivery of additional prototype units.

However, such a contract addition shall be subject to the limitations contained in Section 819 of the National Defense Authorization Act for Fiscal Year 2010.

### **III. ELIGIBILITY INFORMATION**

All responsible sources from academia and industry may submit proposals under this BAA. Historically Black Colleges and Universities (HBCUs) and Minority Institutions (MIs) are encouraged to submit proposals and join others in submitting proposals. No portion of this BAA, however, will be set aside for HBCU and MI participation.

Federally Funded Research & Development Centers (FFRDCs), including Department of Energy National Laboratories, are not eligible to receive awards under this BAA. However, teaming arrangements between FFRDCs and eligible principal bidders are allowed so long as they are permitted under the sponsoring agreement between the Government and the specific FFRDC.

Navy laboratories and warfare centers as well as other Department of Defense and civilian agency laboratories are also not eligible to receive awards under this BAA and should not directly submit either white papers or full proposals in response to this BAA. If any such organization is interested in one or more of the programs described herein, the organization should contact the ONR Technical POC identified in this BAA to discuss its area of interest. As with FFRDCs, these types of federal organizations may team with other responsible sources from academia and industry that are submitting proposals under this BAA.

Teams are also encouraged and may submit proposals in any and all areas. However, Offerors must be willing to cooperate and exchange software, data and other information in an integrated program with other contractors, as well as with system integrators, selected by ONR.

Research in areas that involve export controlled technologies is limited to "U.S. persons" as defined in the International Traffic in Arms Regulation (ITAR) - 22 CFR § 1201.1 et seq.

### **IV. APPLICATION AND SUBMISSION INFORMATION**

#### **1. Application and Submission Process - Industry Day, White Paper, Full Proposals**

In lieu of an Industry Day, ONR will host a Webinar prior to the White Paper due date to provide an overview of the FNC EC objectives, the IDIQ structure, and answer any questions from potential offerors, subcontractors, consultants, vendors, etc. Interested parties are asked to send an email with the subject "Webinar" to RSEP@onr.navy.mil to obtain the schedule and more information on how to participate in the RSEP Webinar. This email shall be submitted within 2 weeks of the BAA being posted. The information exchanged in the Webinar will be archived and made available to potential proposers unable to participate in the event. Send an email to the technology POC for this BAA if you need access to this archived material.

White Papers are required prior to submitting a Full Proposal. White Papers shall be submitted to RSEP@onr.navy.mil by the date and time indicated in this BAA. The White Paper shall be transmitted via email in a single Adobe PDF file. White papers shall meet the content and format requirements specified in Section IV.2. Each White Paper will be evaluated by the government to determine whether the research proposed appears to be of "particular value" to the Department of the Navy. Results of white paper evaluation will be issued via email notification on or about the date stated in this solicitation.

Those offerors whose technology is considered as having "particular value" will be encouraged to submit detailed technical and cost proposals. Such encouragement after review of a white paper does not assure a subsequent award, however. If the offeror receives notification that its technology is not considered at this point as having "particular value" to the Navy, the offeror should not submit a full proposal. Full proposals will not be considered under this BAA unless a white paper was received by the due date and time specified in Section IV.3.

Full proposals shall be submitted to the Technical Point of Contact (TPOC) identified in Paragraph 7 above (see Section I, GENERAL INFORMATION) by the date and time indicated in this BAA. Full proposals shall meet the content and format requirements specified in Section IV.2.

The only acceptable methods for submission of full proposals are 1) by mailing to the technical point of contact by the United States Postal Service (USPS) with delivery confirmation, 2) via a commercial carrier (FedEx, DHL, and UPS), or 3) by hand delivery. NOTE: Full proposals sent by email, fax, or other means not in accordance with the requirements herein will not be considered. Delivery of materials by USPS, even when sent as Express Mail, may take a week or more due to current security procedures in place to ensure the safety of U.S. mail to DoD activities.

It is anticipated that final selections will be made on or about the date specified in IV.3. Each offeror will be notified via email of its project's selection or non-selection for funding.

## **2. Content and Format of White Papers/Full Proposals -**

White Papers and Full Proposals submitted under the BAA are expected to be unclassified.

White Papers and Full Proposals shall be submitted in accordance with Section IV. Application

and Submission Information.

Proposal submissions will be protected from unauthorized disclosure in accordance with FAR Subpart 15.207, applicable law, and DoD/DoN regulations. Offerors are expected to appropriately mark each page of their submission that contains proprietary information.

**IMPORTANT NOTE:** Titles given to the White Papers/Full Proposals should be descriptive of the work they cover and not be merely a copy of the title of this solicitation.

## **WHITE PAPERS**

### **White Paper Format**

- Paper Size - 8.5 x 11 inch paper
- Margins - 1 inch
- Spacing - single spaced
- Font - Times New Roman, 12 point
- Max. Number of Pages permitted: 10 pages (excluding cover page, resumes, bibliographies, and table of contents)
- Format - One (1) electronic copy in Adobe PDF delivered via email.

### **White Paper Content**

- **Cover Page:** The Cover Page shall be labeled "WHITE PAPER" and shall include the BAA number, proposed title, technical points of contact, telephone number, facsimile number, and email address.
- **Technical Concept:** A description of the technology innovation and technical risk areas.

The technical section must address the following:

1. Status Quo - describe the "State-of-Practice", "State-of-the-Art", and applicable literature relative to small tactical and commercial renewable-based mobile power generation technology.
2. New Insights - identify and describe the specific proposed technology development(s). Identify the findings or thought processes that led to the formulation of the proposed S&T approach for meeting or exceeding the key performance requirements herein.
3. Concept - describe how the proposed S&T contributes toward an overall RSEP system concept.
4. Projected achievements - assuming the S&T is successful, describe the intended outcome (improved warfighting capability, fuel usage savings, etc.)
5. Assumptions & Limitations - identify performance baseline assumed for research effort. Identify renewable energy levels assumed.
6. Quantitative impact - discuss important metrics of interest as appropriate and describe how the S&T will improve upon the current state-of-the-art in tactical and commercial mobile power generation.

7. End of phase goals -- describe the approach for achieving TRL 6 at the end of phase 2 and the likely long-term impact of the S&T. Also, specify the planned output/deliverables from the phase 1 and 2 efforts (analytical, computational, modeling results, experimental results, sub-scale lab demonstrations, full-scale demonstrations, etc.)
8. Confidentiality -- identify proprietary aspects of the S&T and any assertions of data rights applicable to the results of this effort.
9. Describe proposed team members and their ability to carry out the S&T (phase 1) and Systems Integration (phase 2) work required.
10. Proposed phase 1 and phase 2 structure and estimated cost per phase and year.

## **FULL PROPOSALS**

### **INSTRUCTIONS FOR CONTRACT, COOPERATIVE AGREEMENTS AND OTHER TRANSACTION AGREEMENTS** (Does not include Grants)

***NOTE:** Submission instructions for BAAs issued after FY2010 have changed significantly from previous requirements. Potential Offerors are advised to carefully read and follow the instructions below. The new format and requirements have been developed to streamline and ease both the submission and review of proposals. Both the Template and the Spreadsheet have instructions imbedded into them that will assist in completing the documents. Also, both the Template and the Spreadsheet require completion of cost-related information – both documents must be fully completed to constitute a valid proposal.*

***All proposals must use ONR's Technical and Cost Proposal Template and Cost Proposal Spreadsheet. The Template can be found by following this link:***  
<http://www.onr.navy.mil/Contract-Grants/submit-proposal/contracts-proposal/cost-proposal.aspx>. *Please note that all the attachments listed in Section III.8 of the Template can be incorporated into the Template file for submission.*

In addition to completing the ONR Technical and Cost Proposal Template for the IDIQ contract, the offeror must also submit a Task Order 0001 proposal that will address Program Phase 1 only. The following sections in Section III, Technical Content, of the ONR Technical and Cost Proposal Template shall be addressed: Phase 1 Statement of Work, Phase 1 Technical Approach and Justification, Phase 1 Schedule and Milestones, and Phase 1 Deliverables/Reports. The proposal is limited to 25 pages with no more than 15 page for the Technical Approach.

The Cost Proposal Spreadsheet can be found by following this link:  
<http://www.onr.navy.mil/Contracts-Grants/submit-proposal/contracts-proposal/cost-proposal.aspx>. Click on the "proposal spreadsheet" link and save a copy of the spreadsheet. Instructions for completion have been embedded into the spreadsheet. Any proposed options that are identified in the Technical and Cost Proposal Template, but are not fully priced out in the Cost Proposal Spreadsheet will not be included in any resulting contract or other transaction. If proposing options, they **must** be separately priced and separate spreadsheets should be provided for the base period and each option period.

For proposed subcontracts or interorganizational transfers over \$150,000, Offerors must provide a separate fully completed Cost Proposal Spreadsheet in support of the proposed costs. This spreadsheet, along with supporting documentation, must be provided either in a sealed envelope with the prime's proposal or via e-mail directly to both the Program Officer and the Business Point of Contact at the same time the prime proposal is submitted. The e-mail should identify the proposal title, the prime Offeror and that the attached proposal is a subcontract, and should include a description of the effort to be performed by the subcontractor. Offerors should also familiarize themselves with the new subcontract reporting requirements set forth in Federal Acquisition Regulation (FAR) clause 52.204-10, Reporting Executive Compensation and First-Tier Subcontract Awards. From October 1, 2010 through February 28, 2011, any newly awarded subcontract must be reported if the prime contract award amount is \$550,000 or more. Starting March 1, 2011, any newly awarded subcontract must be reported if the prime contract award amount was \$25,000 or more. The pertinent requirements can be found in Section VII, Other Information, of this document.

Offerors should submit (1) original plus six (6) hard copies and one (1) electronic on CD-ROM with the files for the Technical and Cost Proposal Template (separate files for the IDIQ contract and Task Order 0001) submitted in the pdf format, the file for the Cost Proposal Spreadsheet submitted as a Microsoft Excel 2007 compatible format, and any attachments submitted in either in Microsoft Office or pdf compatible format. The electronic submission of this Excel spreadsheet shall be in a "useable condition" to aid the Government with its evaluation. The term "useable condition" indicates that the spreadsheet shall visibly include and separately identify within each appropriate cell, any and all inputs, formulas, calculations, etc. The Offeror shall in no way provide "value only spreadsheets" liken to that of a hard copy.

**Deliverables/Reports:** The following are deliverables that are required under this research effort:

Phase 1, year 1: Interim Progress Review Briefs, Detailed Expenditure Plan and Schedule, Monthly Technical and Financial Progress Statements, and Conceptual Development Report.

Phase 1, year 2: Interim Progress Review Briefs, Detailed Expenditure Plan and Schedule, Monthly Technical and Financial Progress Statements, Phase 2 Proposal, and TRL 5 Demonstration Report. Note that Phase 2 Proposal shall be submitted 8 months after the Phase 1 Option is exercised.

Phase 2, year 1: Interim Progress Review Briefs, Detailed Expenditure Plan and Schedule, Monthly Technical and Financial Progress Statements, Detailed Design Report, and Detail Design Drawings.

Phase 2, year 2: Interim Progress Review Briefs, Detailed Expenditure Plan and Schedule, Monthly Technical and Financial Progress Statements, Detailed Demonstration/Test Plan

Phase 2, year 3: Interim Progress Review Briefs, Detailed Expenditure Plan and Schedule, Monthly Technical and Financial Progress Statements, Full Scale RSEP System Prototype, TRL 6 Demonstration Report, RSEP Performance Specification, and a Technology

Transition Plan.

Additional data deliverables may be proposed and finalized during negotiations. Include a specific description of the deliverables and the timeframe in which they will be delivered.

### 3. Significant Dates and Times -

Event	Date	Time
White Paper Due Date	1/28/2011	4:00 PM Eastern Standard Time
Notification of White Paper Evaluation*	2/28/2011	
Full Proposal Due Date	4/8/2011	4:00 PM Eastern Standard Time
Notification of Selection: Full Proposals*	5/9/2011	
Awards*	11/1/2011	

*\*These dates are estimates as of the date of this announcement.*

**NOTE:** Due to changes in security procedures since September 11, 2001, the time required for hard-copy written materials to be received at the Office of Naval Research has increased. Materials submitted through the U.S. Postal Service, for example, may take seven days or more to be received, even when sent by Express Mail. Thus any hard-copy proposal should be submitted long enough before the deadline established in the solicitation so that it will not be received late and thus be ineligible for award consideration.

### 4. Submission of Late Proposals -

Any proposal, modification, or revision that is received at the designated Government office after the exact time specified for receipt of proposals is "late" and will not be considered unless it is received before award is made, the contracting officer determines that accepting the late proposal would not unduly delay the acquisition and:

- If it was transmitted through an electronic commerce method authorized by the announcement, it was received at the initial point of entry to the Government infrastructure not later than 5:00 P.M. one working day prior to the date specified for receipt of proposals; or
- There is acceptable evidence to establish that it was received at the Government installation designated for receipt of proposals and was under the Government's control prior to the time set for receipt of proposals; or
- It was the only proposal received.

However, a late modification of an otherwise timely and successful proposal that makes its terms more favorable to the Government will be considered at any time it is received and may be accepted.

Acceptable evidence to establish the time or receipt at the Government installation includes the time/date stamp of that installation on the proposal wrapper, other documentary evidence of receipt maintained by the installation, or oral testimony or statements of Government personnel.

If an emergency or unanticipated event interrupts normal Government processes so that proposals cannot be received at the Government office designated for receipt of proposals by the exact time specified in the announcement, and urgent Government requirements preclude amendment of the announcement closing date, the time specified for receipt of proposals will be deemed to be extended to the same time of day specified in the announcement on the first work day on which normal Government processes resume.

The contracting officer must promptly notify any offeror if its proposal, modifications, or revision was received late and must inform the offeror whether its proposal will be considered.

## **5. Address for the Submission of Full Proposals.**

Full Proposals for Contracts should be sent to the Office of Naval Research at the following address:

Office of Naval Research  
Attn: H. Scott Coombe  
ONR Department Code: 331  
875 North Randolph Street  
Arlington, VA 22203-1995

## **V. EVALUATION INFORMATION**

### **1. Evaluation Criteria -**

Award decisions will be based on a competitive selection of proposals resulting from a scientific and cost review. Evaluations will be conducted using the following evaluation criteria:

1. **Technical Approach and Justification.** This factor is divided into the following sub-factors, each of which has equal weighting.
  - i. **Scientific Merit.** This subfactor assesses the degree of innovation involved and whether the proposed technology presses the state of the art while still having credibility with regard to technical approach.
  - ii. **Performance.** Potential for meeting the Section 6.3 Key Performance Requirements will be assessed. The degree to which the proposal describes a complete overall concept will be assessed. The approach for demonstrating end of phase technology readiness goals will be assessed.
  - iii. **Operational Naval Concept.** Marine Corps relevance, the potential to meet demands of Marine Corps' operational and military transport environments, and the likelihood of future implementation on Marine Corps platforms will be assessed.
  - iv. **Affordability.** The degree to which acquisition and total ownership costs are minimized will be assessed.

2. Offeror's Capabilities and Execution Plan. This factor is divided into the following sub-factors, each of which has equal weighting.
  - i. Management Approach. The overall approach to management for achieving BAA objectives will be assessed.
  - ii. Qualifications. Qualifications, capabilities, experience and past performance of the proposed management team and technical personnel to conduct S&T (analysis, modeling, simulation), systems integration, lab-scale experimentation, fabrication, and testing will be assessed.
  - iii. Execution Plan. The Statement of Work, Project Schedule and Milestones, and Operational Utility Assessment Plan will be assessed.
3. The realism of the proposed costs and availability of funds.

Overall, the Technical Approach and Justification factor one (Technical Approach) is weighted higher than factor two (Offeror's Capabilities and Execution Plan). Technical factors one and two combined are significantly more important than the cost factor. The degree of importance of cost will increase with the degree of equality of the proposals in relation to the other factors on which selection is to be based, or when the cost is so significantly high as to diminish the value of the proposal's technical superiority to the Government.

#### Commitment to Small Business:

The Office of Naval Research is strongly committed to providing meaningful subcontracting opportunities for small businesses, small disadvantaged businesses, woman-owned small businesses, historically underutilized business zone (HUBZone) small businesses, veteran-owned small businesses, service disabled veteran-owned small business, historically black colleges and universities, and minority institutions, and other concerns subject to socioeconomic considerations through its awards.

For proposed awards to be made as contracts that exceed \$700K to other than small businesses, the offeror is required to submit a Small Business Subcontracting Plan in accordance with FAR 52.219-9. As such Subcontracting Plans will be evaluated to ensure that submissions are compliant with FAR Subpart 19.7

For proposed awards made as contracts to small businesses at any value or to other than small businesses that are less than \$650K, the statement of commitment to small businesses will be evaluated to ensure that it supports this policy.

The Government will evaluate options for award purposes by adding the total cost for all options to the total cost for the basic requirement. Evaluation of options will not obligate the Government to exercise the options during the period of performance.

## **2. Evaluation Panel -**

Technical and cost proposals submitted under this BAA will be protected from unauthorized disclosure in accordance with FAR 3.104-4 and 15.207. The cognizant Program Officer and other

Government scientific experts will perform the evaluation of technical proposals. Restrictive notices notwithstanding, one or more support contractors may be utilized as subject-matter-expert technical consultants. Similarly, support contractors may be utilized to evaluate cost proposals. However, proposal selection and award decisions are solely the responsibility of Government personnel. Each support contractor's employee having access to technical and cost proposals submitted in response to this BAA will be required to sign a non-disclosure statement prior to receipt of any proposal submissions.

## **VI. AWARD ADMINISTRATION INFORMATION**

### **1. Administrative Requirements -**

- The North American Industry Classification System (NAICS) code - The NAICS code for this announcement is "541712" with a small business size standard of "500 employees".
- Central Contractor Registration: All Offerors submitting proposals or applications must:
  - (a) be registered in the Central Contractor Registration (CCR) prior to submission;
  - (b) maintain an active CCR registration with current information at all times during which it has an active Federal award or an application under consideration by any agency; and
  - (c) provide its DUNS number in each application or proposal it submits to the agency.
- Subcontracting Plans – All Successful contract proposals, with the exception of Small Business Concerns, that exceed \$650,000 shall be required to submit Subcontracting Plans. Subcontracting Plans will be required prior to award in accordance with FAR 52.219-9.
- Statement of Commitment to Small Business – For proposed awards made as contracts to small businesses at any value or to other than small businesses that are less than \$650K, the offeror shall provide a statement which demonstrates how they intend to provide meaningful small business subcontracting opportunities.

NOTE: Central Contractor Registry (CCR), Subcontracting Plan requirements and Certification requirements are all set forth in the ONR Technical and Cost Proposal Template.

## **VII. OTHER INFORMATION**

### **1. Government Property/Government Furnished Equipment (GFE) and Facilities**

Reserved

### **2. Security Classification**

Reserved

### **3. Use of Animals and Human Subjects in Research**

Reserved

#### **4. Recombinant DNA**

Reserved

#### **5. Department of Defense High Performance Computing Program**

Reserved

#### **6. Organizational Conflicts of Interest**

All Offerors and proposed subcontractors must affirm whether they are providing scientific, engineering, and technical assistance (SETA) or similar support to any ONR technical office(s) through an active contract or subcontract. All affirmations must state which office(s) the offeror supports and identify the prime contract numbers. Affirmations shall be furnished at the time of proposal submission. All facts relevant to the existence or potential existence of organizational conflicts of interest (FAR 9.5) must be disclosed. The disclosure shall include a description of the action the offeror has taken or proposes to take to avoid, neutralize, or mitigate such conflict. In accordance with FAR 9.503 and without prior approval, a contractor cannot simultaneously be a SETA and a research and development performer. Proposals that fail to fully disclose potential conflicts of interests or do not have acceptable plans to mitigate identified conflicts will be rejected without technical evaluation and withdrawn from further consideration for award. If a prospective offeror believes that any conflict of interest exists or may exist (whether organizational or otherwise), the offeror should promptly raise the issue with ONR by sending his/her contact information and a summary of the potential conflict by e-mail to the Business Point of Contact in Section I, item 7 above, before time and effort are expended in preparing a proposal and mitigation plan. If, in the sole opinion of the Government after full consideration of the circumstances, any conflict situation cannot be effectively avoided or mitigated, the proposal may be rejected without technical evaluation and withdrawn from further consideration for award under this BAA.

#### **7. Project Meetings and Reviews**

Individual program reviews between the ONR sponsor and the performer may be held as necessary. Program status reviews may also be held to provide a forum for reviews of the latest results from experiments and any other incremental progress towards the major demonstrations. These meetings will be held at various sites throughout the country. For costing purposes, offerors should assume that 40% of these meetings will be at or near ONR, Arlington VA and 60% at other contractor or government facilities. Interim meetings are likely, but these will be accomplished via video telephone conferences, telephone conferences, or via web-based collaboration tools.

#### **8. Executive Compensation and First-Tier Subcontract Reporting (Applies only to Contracts)**

Section 2(d) of the Federal Funding Accountability and Transparency Act of 2006 (Pub. L. No. 109-282), as amended by section 6202 of the Government Funding Transparency Act of 2008 (Pub. L. 110-252), requires the Contractor to report information on

subcontract awards. The law requires all reported information be made public, therefore, the Contractor is responsible for notifying its subcontractors that the required information will be made public.

Unless otherwise directed by the Contracting Officer, by the end of the month following the month of award of a first-tier subcontract with a value of \$25,000 or more, (and any modifications to these subcontracts that change previously reported data), the Contractor shall report the following information at <http://www.fsr.gov> for each first-tier subcontract:

- (a) Unique identifier (DUNS Number) for the subcontractor receiving the award and for the subcontractor's parent company, if the subcontractor has one.
- (b) Name of the subcontractor.
- (c) Amount of the subcontract award.
- (d) Date of the subcontract award.
- (e) A description of the products or services (including construction) being provided under the subcontract, including the overall purpose and expected outcomes or results of the subcontract.
- (f) Subcontract number (the subcontract number assigned by the Contractor).
- (g) Subcontractor's physical address including street address, city, state, and country. Also include the nine-digit zip code and congressional district.
- (h) Subcontractor's primary performance location including street address, city, state, and country. Also include the nine-digit zip code and congressional district.
- (i) The prime contract number, and order number if applicable.
- (j) Awarding agency name and code.
- (k) Funding agency name and code.
- (l) Government contracting office code.
- (m) Treasury account symbol (TAS) as reported in FPDS.
- (n) The applicable North American Industry Classification System (NAICS) code.

By the end of the month following the month of a contract award, and annually thereafter, the Contractor shall report the names and total compensation of each of the five most highly compensated executives for the Contractor's preceding completed fiscal year at <http://www.ccr.gov>, if –

- (a) In the Contractor's preceding fiscal year, the Contractor received –
  - (i) 80 percent or more of its annual gross revenues from Federal contracts (and subcontracts), loans, grants (and subgrants) and cooperative agreements; and
  - (ii) \$25,000,000 or more in annual gross revenues from Federal contracts (and subcontracts), loans, grants (and subgrants) and cooperative agreements; and
- (b) The public does not have access to information about the compensation of the executives through periodic reports filed under section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a), 78o(d)) or section 6104 of the Internal Revenue Code of 1986. (To determine if the public has access to the compensation information, see the U.S. Security and Exchange Commission total compensation filings at <http://www.sec.gov/answers/excomp.htm>).

Unless otherwise directed by the Contracting Officer, by the end of the month following the month of a first-tier subcontract with a value of \$25,000 or more, and annually

thereafter, the Contractor shall report the names and total compensation of each of the five most highly compensated executives for each first-tier subcontractor for the subcontractor's preceding completed fiscal year at <http://www.fsrs.gov>, if –

(a) In the subcontractor's preceding fiscal year, the subcontractor received –

(i) 80 percent or more of its annual gross revenues from Federal contracts (and subcontracts), loans, grants (and subgrants) and cooperative agreements; and

(ii) \$25,000,000 or more in annual gross revenues from Federal contracts (and subcontracts), loans, grants (and subgrants) and cooperative agreements; and

(b) The public does not have access to information about the compensation of the executives through periodic reports filed under section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a), 78o(d)) or section 6104 of the Internal Revenue Code of 1986. (To determine if the public has access to the compensation information, see the U.S. Security and Exchange Commission total compensation filings at <http://www.sec.gov/answers/execomp.htm>).

If the Contractor in the previous tax year had gross income, from all sources, under \$300,000, the Contractor is exempt from the requirement to report subcontractor awards. Likewise, if a subcontractor in the previous tax year had gross income from all sources under \$300,000, the Contractor does not need to report awards to that subcontractor.

**Other Guidance, Instructions, and Information**

None