



BROAD AGENCY ANNOUNCEMENT (BAA)

Joint Counter Radio Controlled Improvised Explosive Device Electronic Warfare (JCREW) 3.3 Technologies

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.

I. GENERAL INFORMATION:

1. Agency Name - Office of Naval Research

2. Research Opportunity Title - Joint Counter Radio Controlled Improvised Explosive Device Electronic Warfare (JCREW) 3.3 Technologies

3. Program Name - Joint Counter Radio Controlled Improvised Explosive Device Electronic Warfare (JCREW) 3.3 Science and Technology (S&T)

4. Research Opportunity Number - 11-017

5. Response Date –

White Papers: 5/16/2011

6. Research Opportunity Description –

In coordination with the Joint Counter Radio Controlled Improvised Explosive Device Electronic Warfare (JCREW) Science and Technology (S&T) Board and the JCREW 3.3 Program Office, the Office of Naval Research (ONR) is soliciting applied research proposals to develop and demonstrate technologies to improve virtually all aspects of performance related to next generation JCREW equipment. Full proposals that address hardware, software, technique, or technology developments are sought in the areas identified below.

A. Antennas

New antennas are desired for both mounted and dismounted applications which offer multi-function capability to perform both communications and Counter-Radio Controlled Improvised Explosive Device (C-RCIED) operations and exhibit low profile or low observable characteristics while providing wide-bandwidth frequency coverage with high power output in support of C-RCIED operations. Solutions which maximize bandwidth coverage between mid-Low Frequency (LF) and mid-Extremely High Frequency (EHF), effectively reducing the number of antennas required to cover the mid-LF to mid-EHF frequency range, while decreasing the magnitude of transmitted energy reflected back into the receiver are desired. Additionally, future JCREW antennas will require high efficiencies, high linearity and be capable of supporting high input power on the order of 100's of Watts for mounted and 10's of Watts for dismounted applications. The potential application may require the antenna support techniques for direction finding and geo-location of RF emission sources. Adaptive, dynamic control of antenna parameters including gain pattern, directivity and polarization is also desired. The operational environment will require that antennas be both lightweight and rugged. Techniques for increasing isolation at the antenna between co-located transmit and receive apertures to support simultaneous transmit and receive (STAR) are also desired. Offerors must also quantifiably describe how their approach compares to the current state of the art.

B. Receivers/Transmitters

This area includes the development of receiver and transmitter subcomponents, as well as components which support scalable system design, including switches, filters, multi-plexers, etc. that would be integral with developed hardware. All receiver and transmitter solutions will require digitally controllable parameters, functions and output levels to facilitate integration into closed loop C-RCIED systems.

1. Receivers

JCREW systems require rapid threat detection and response over an extremely wide Radio Frequency (RF) bandwidth. New RF receiver and transmitter technologies are desired which will maximize broadband RF coverage at frequencies between the mid-LF to mid-EHF frequency ranges while maintaining wide instantaneous bandwidth with high dynamic range at 10's of kHz resolutions. Hardware will require reduced size, weight, and power requirements with increased

response time over current systems. Low insertion loss, low noise and high linearity will be necessary for all RF hardware. Specifically, receivers which maximize instantaneous bandwidth (> 1 GHz), dynamic range (> 80 dB), and demonstrate adaptable resolution bandwidth (10kHz-100kHz) are desired. Compressive receivers capable of very wide bandwidth detections are also of interest. Offerors must quantifiably describe how their approach compares to the current state of the art. (See Section H. entitled Simultaneous Transmit and Receive for additional information.)

2. Transmitters

Transmitters and transmitter components are desired which are capable of supporting >100MHz/channel instantaneous bandwidth, efficiencies > 40%, high linearity, simultaneous transmission of multiple signal and frequencies, 100's of Watts of output for mounted and fixed applications and < 10's of Watts for dismounted applications. Amplifier blanking of < 10 microseconds (us) will be required with prime power draw and power output in < 10 us in order to increase efficiency and reduce Electro-Magnetic Interference (EMI). While blanked, transmitter emissions should be >120 dB below peak output. Easily reconfigurable hardware with special consideration for software defined architectures is desired. Offerors must also quantifiably describe how their approach compares to the current state of the art. (See Section H entitled Simultaneous Transmit and Receive for additional information.)

3. Isolation Techniques

Receivers will be required to reliably operate in the presence of out of band, co-site, and high power transmitters. Achieving the isolation necessary (> 100dB) for simultaneous transmit and receive will require layered isolation techniques (material, active cancellation, polarization, etc.). Techniques for maximizing isolation either using a single isolation approach or through the layering of multiple approaches are desired. Techniques which maximize the achievable isolation of a particular approach and could potentially be combined with other isolation techniques to maximize overall system isolation are also of interest. Offerors must also quantifiably describe how their approach compares to the current state of the art. (See Section H entitled Simultaneous Transmit and Receive for additional information.)

C. Modulators and Techniques

JCREW systems require the ability to generate multiple simultaneous and coherent jamming waveforms with low noise in response to detected RF emissions. These jamming responses will require high speed activation at up to GHz bandwidths and digitally controllable parameters and waveform selection to facilitate integration into closed loop architectures.

1. Signal Generators

Waveform generators will require the ability to switch between waveforms at nsec speeds to support on-demand signal delivery to transmitters. Direct Digital Synthesizers (DDS), Arbitrary Waveform Generators (AWG), and Digital Radio Frequency Memory (DRFM) technologies or some hybrid of these technologies is of particular interest. Multi-function approaches which support the generation of both Electronic Warfare (EW) waveforms and communication

waveforms from a common waveform generator are of particular interest. Offerors must also quantifiably describe how their approach compares to the current state of the art.

2. Intelligent Network Jamming

As networked threat devices become more sophisticated, so will the JCREW systems need for sophisticated networking jamming techniques. Techniques for jamming individual RF devices participating in a network are desired. Such jamming techniques should not disable the RF network itself and should only affect selected devices participating on the network which are supporting IED operations. Offeror should address anticipated network responses to jamming techniques and robustness of jamming to network self-healing techniques

D. Comprehensive Spectral Awareness

1. Extremely Wideband Spectral Mapping

JCREW systems require the ability to rapidly map the RF environment in order to provide real-time RF situational awareness to signal processing and assessment tools. JCREW application will require extremely wide bandwidth with consideration for solutions between mid-LF and mid-EHF. Offerors must also quantifiably describe how their approach compares to the current state of the art.

2. Signal Assessment System (SAS)

JCREW systems will require the ability to rapidly discriminate hostile RF trigger signals from the background RF emissions, or to legitimize users of the RF spectrum based on assessment of the RF environment and activities. Signal assessment will be required in real-time, and while the JCREW system is on-mission the signal assessment must provide for rapid response to developing threats. This capability seeks to maximize countermeasure effectiveness, as well as to reduce power usage, blue force RF fratricide, and false alarms.

3. Direction Finding and Geo-Location

Successful direction finding (DF) or geolocation of threat devices will allow JCREW systems to more effectively focus jamming energy, thereby increasing protection range. Demonstration of capabilities to determine the direction and/or location of received threat emissions is desired with response times on the order of ms, angular accuracy $< 35^\circ$ for Direction Finding (DF) and $< 100\text{m}$ accuracy for geolocation. Interoperability between DF/geolocation components and other JCREW components (e.g., Signal Assessment System) is desired. Offerors must also quantifiably describe how their approach compares to the current state of the art.

4. Situational Awareness Data Fusion

Sensor systems, including Electro-Optic (EO)/Infrared (IR) and Intelligence, Surveillance, and Reconnaissance (ISR), operating in a common battlespace with JCREW systems either onboard a common platform or offboard and available via a network can provide valuable situational

awareness enhancements to RF spectrum data collected by JCREW alone. Capabilities and techniques are desired for fusing situational awareness data from onboard and offboard sensors with collected RF sensor data.

E. Electromagnetic Compatibility

1. Blue Force Comms/Data/Video Interoperability

The ability of the warfighter to perform his functions safely and efficiently require simultaneous operation of JCREW systems, Blue Force communications, and SIGINT activities. Improved JCREW hardware and software are required, which provide interoperability techniques to support the simultaneous and successful operation of these various systems. As a result, the development of methods and/or techniques to mitigate or eliminate interference and/or coordinate operations between functions is desired. Multi-function techniques, subsystems and component technologies which support both communication and EW functionality are of particular interest.

2. JCREW Network Centric Operations

The ability for JCREW systems to communicate with one another, as well as to both communicate with other platforms and systems in performance of the JCREW mission and transfer pertinent information, would provide a networked approach that maximizes protection capabilities and resources. Networked operations could be used to geolocate all systems or to easily change JCREW system operating parameters. Networked operations could be used to develop a self-forming network topology or network-based jamming algorithms. Analysis of the topology could be used to recommend placements of JCREW hardware over a wide area for optimized operations. Access to event logs, fault logs, and other diagnostics will allow remote users to determine system readiness and possibly to perform limited repair procedures on failed units. This would also significantly reduce support costs and manpower requirements. Development of a secure, wireless link and associated network is needed to demonstrate this capability. Techniques for cross platform allocation and coordination of JCREW resources to maximize effectiveness and efficiency are desired. Additionally, techniques for cross-platform synchronization which do not rely on GPS are desired. Techniques which improve the protection of JCREW systems and mitigate the effects of network attack on JCREW devices are also of interest.

F. Packaging and Cooling

A primary consideration affecting JCREW system design is the cooling necessary for the power amplifier and maintaining internal system temperatures within the operational specifications of the electronic components. Advanced packaging and cooling techniques and materials may yield reductions in size and weight, and increases in efficiencies. These methods and techniques should be investigated. Promising techniques should be modeled and demonstrated through prototype fabrication where appropriate. Focus should be towards maintaining internal system temperatures within electronic component specifications under ambient temperatures of 150 degrees F. Conduction cooling techniques for mounted and dismounted systems are preferred. Offerors must also quantifiably describe how their approach compares to the current state of the art.

G. Scalable Open Architectures

Future JCREW systems will require efficient performance in both single platform and multi-platform operations. As a result, these JCREW systems will require C-RCIED EW architectures which can be networked via Blue Force Communication Links (BFC) links to allow for the distribution of functionality and which are scalable with the number of available platforms, assets and resources. In addition, integration of subsystem components from a wide variety of vendors will require that this scalable architecture be open. The open, scalable architecture will be required to support 1.) coordination of EW functionality over available BFC networks; 2.) closed loop and adaptive parameter control utilizing digital data exchange between subsystems and components (e.g., adaptive instantaneously receive and transmit bandwidth coverage, transmit power, and sector coverage); and 3.) resource control with integrated, government provided, resource allocation management (RAM) tools. Architecture concepts should include techniques and approaches for the real-time distribution of maximum operating spectrum between mid-LF and mid-EHF across available networked JCREW systems and the sub-system distribution of maximum operating spectrum within a single JCREW system. Architectures which facilitate interoperability between communication and CREW functions are of particular interest.

H. Simultaneous Transmit and Receive

ONR is also seeking disruptive electronics and photonics component technology proposals that will eliminate the necessity of blanking the receiver while transmitting when transmitting and receive from a single aperture. Efforts in this category should focus on either controlling transmitter unintended emissions (see B.2), dramatically increased receiver dynamic range (see B.1.), analog subsections which are capable of achieving $>>40$ dB of isolation of Tx and Rx over 2 octaves of frequency and with small insertion loss and low ripple (see B.3), and digitally driven interference cancellation techniques (see B.3).

Such proposals shall clearly identify how the proposed component technology fits (interfaces) within an overall RF system and impacts interoperability and "cosite interference mitigation" in both the near term as well as longer term. Offerors must also quantifiably describe how their approach compares to the current state of the art.

I. Other JCREW Technologies

Offeror(s) possessing any additional technology, information, or recommendations that would improve existing JCREW systems are encouraged to submit proposal(s) in response to this BAA.

Work funded under a BAA may include basic research, applied research and some advanced technology development (ATD). 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 Activity

1 (Basic Research), whether performed by universities or industry or (b) funded by Budget Activity 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. ATD is normally awarded under contracts and may require restrictions during the conduct of the research and DoD pre-publication review of research results due to subject matter sensitivity. As regards to the present BAA, the Research and Development efforts to be funded will consist of applied research. The funds available to support awards are Budget Activity 2.“

7. Point(s) of Contact –

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

Primary Point of Contact:

Mr. David Tremper
ONR Code 312 - Electronic Warfare Program Officer
Electronics, Sensors, and Network Research Division
875 North Randolph Street, Suite 1125
Arlington, VA 22203-1995
Email: david.tremper@navy.mil

Secondary Point of Contact:

Dr. Peter Craig
ONR Code 312 - Electronic Warfare Program Manager
Electronics, Sensors, and Network Research Division
875 North Randolph Street, Suite 1125
Arlington, VA 22203-1995

Email: peter.craig@navy.mil

Questions of a business nature should be directed to the cognizant Contracts Point of Contact, as specified below:

Primary Point of Contact:

Rebecca Foster
Contract Specialist
Office of Naval Research
Code BD 0251
875 North Randolph Street, Suite W1272D
Arlington, VA 22203-1995
Email: rebecca.d.foster@navy.mil

Secondary Point of Contact:

Vera M. Carroll
Acquisition Branch Head
Office of Naval Research
Code BD 0251
875 North Randolph Street – Suite 1279
Arlington, VA 22203-1995
E-mail: vera.carroll@navy.mil

Questions of a security nature should be submitted to:

Diana Pacheco
Information Security Specialist
Office of Naval Research
Security Department, Code 43
One Liberty Center
875 North Randolph St.
Arlington, VA 22203-1995
Email Address: diana.pacheco@navy.mil

Note: All UNCLASSIFIED communications shall be submitted via e-mail. All questions of an UNCLASSIFIED nature to the Technical Point of Contract (POC) shall be sent via e-mail with a copy to the designated Business POC.

CLASSIFIED questions shall be handled through the ONR Security POC. Specifically, any entity wanting to ask a CLASSIFIED question shall send an email to the ONR Security POC with a copy to both the Technical POC and the Business POC stating that the entity would like to ask a CLASSIFIED question. DO NOT EMAIL ANY CLASSIFIED QUESTIONS. The Security POC will contact the entity and arrange for the CLASSIFIED question to be asked through a secure method of communication.

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.

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) –

Awards will be issued as Contracts.

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 –

FAR Part 35 restricts the use of the 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.

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

II. AWARD INFORMATION

The amount and period of performance of each selected proposal may vary depending on the research area and the technical approach to be pursued by the selected offeror.

Anticipated Number of Awards: ONR plans to issue multiple awards that represent the best value to the Government.

Anticipated Range of Individual Award Amounts: ONR plans to fund individual awards from \$300,000.00 to \$750,000.00 per year, per contract. However, lower and higher cost efforts will be

considered. ONR anticipates a budget of up to \$14.0M for the total award period, subject to budget availability. The amount and period of performance of the award(s) may vary depending on the research area and the technical approach to be pursued by the offeror(s).

Anticipated Period of Performance: The period of performance of the awards will range from twelve (12) to thirty-six (36) months. It is the offeror's responsibility to determine the performance period for their proposed research effort.

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. However, no portion of this BAA 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 an appropriate ONR POC to discuss its area of interest. The various scientific divisions of ONR are identified at <http://www.onr.navy.mil/>. 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.

University Affiliated Research Centers are eligible to submit proposals under this BAA unless precluded from doing so by their Department of Defense UARC contracts.

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.

Some topics cover export controlled technologies. Research in these areas is limited to "U.S. persons" as defined in the International Traffic in Arms Regulation (ITAR) – 22 CFR § 1201.1 et seq. (See Section VII, Other Information)

IV. APPLICATION AND SUBMISSION INFORMATION

1. Application and Submission Process - White Paper, Oral Presentation, and Full Proposals

White Papers: The due date for white papers is no later than 3:00 PM (EDT) on Monday, 16 May 2011. If an offeror does not submit a white paper before the due date and time, it is not eligible to

participate in the remaining Full Proposal submission process and is not eligible for Fiscal Year (FY) 2012 funding. Each white paper should state that it is submitted in response to this BAA and cite the particular subsection of the Research Opportunity Description that the white paper is primarily addressing. The only acceptable method for submission of white papers is via e-mail. White papers must be e-mailed/submitted to 312_EC@onr.navy.mil by the date and time indicated above. **NOTE: White Papers sent by fax will not be considered.** Navy evaluations of the white papers will be issued via e-mail notification on or about Friday, 27 May 2011. Any Offeror whose white paper technology was not identified as being of "particular value" to the Navy is ineligible to make an oral presentation or submit a full proposal under this BAA.

Oral Presentation: ONR may request that the Principal Investigators (PIs) identified on proposals determined to be of "particular value" to the Navy provide expanded oral presentations of their white papers. The purpose of the oral presentation is to provide additional information and address how the proposed technology will affect JCREW applications. The requested oral presentations will be scheduled on or about Friday, 10 June 2011. The time, location, and briefing format of the oral presentations, if requested, will be provided at a later date via e-mail notification. Navy evaluations of the oral presentations will be issued via e-mail notification on or about Tuesday, 14 June 2011. A full proposal will be subsequently encouraged from those Offerors whose proposed technologies have been reconfirmed through the aforementioned e-mail as being of "particular value" to the Navy. Any Offeror whose proposal following the oral presentation is not identified as being of "particular value" to the JCREW Program is ineligible to submit a full proposal under this BAA.

Full Proposals: Full proposals will not be considered under this BAA unless a white paper was received before the white paper due date and time specified above. In addition, if an offeror's white paper and subsequent oral presentation were not both identified as being of "particular value" to the Navy, it is ineligible to submit a full proposal under this BAA. The due date for receipt of Full Proposals is 3:00 PM (EDT) on Friday, 15 July 2011. ONR will select the efforts to be funded for FY12 start-up based upon the quality and completeness of the full proposal and the level of available funding. It is anticipated that final selections will be made within four (4) weeks after full proposal submission. As soon as the final full proposal evaluation process is completed, PIs will be notified via e-mail of their project's selection or non-selection for FY12 funding. Full proposals received after the published due date and time will not be considered for funding in FY12. Full proposals exceeding the page limit may not be evaluated.

The acceptable methods for submission of full proposals for contracts is via the United States Postal Service (USPS) with delivery confirmation, via a commercial carrier (FedEx and UPS or by hand delivery to the attention of Mr. David Tremper or Dr. Peter Craig at the address provided later in this BAA. Offerors intending to hand deliver their proposals must coordinate that delivery in advance with Mr. David Tremper at david.tremper@navy.mil or Dr. Peter Craig at peter.craig@navy.mil to ensure that the proposal is not received late.

NOTE: Full Proposals sent by e-mail or fax 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.

2. Content and Format of White Papers/Full Proposals –

The Proposals submitted under this BAA are expected to be unclassified. However, confidential/classified proposals are permitted. Contracts or other instruments resulting from a classified proposal will be unclassified.

Classified Proposal Instructions:

Classified proposals shall be submitted directly to the attention of ONR's Document Control Unit at the following address and marked in the following manner:

OUTSIDE ENVELOPE (no classification marking):

“Office of Naval Research
Attn: Document Control Unit
ONR Code 43
875 N. Randolph Street
Arlington, VA 22203-1995”

The inner wrapper of the classified White Paper and/or Full Proposal should be addressed to the attention of the TPOC (Mr. David Tremper), ONR Code 312 and marked in the following manner:

Program: Joint Counter Radio Controlled Improvised Explosive Device Electronic Warfare (JCREW) 3.3 Technologies
Office of Naval Research
Attn: Mr. David Tremper
ONR Code: 312
875 North Randolph Street
Arlington, VA 22203-1995

An 'unclassified' Statement of Work (SOW) must accompany any classified proposal.

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.

a. 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
- Maximum Number of Pages permitted: four (4) pages (excluding cover page,

- resumes, bibliographies, and table of contents)
- Format - One (1) electronic copy in Adobe PDF delivered via email.

NOTE: 1) Do not send hardcopies of White Papers (including facsimiles) as only electronic submissions will be accepted and reviewed; 2) Do not send .ZIP files; 3) Do not send password protected files.

White Paper Content

- **Cover Page:** The Cover Page shall be labeled “WHITE PAPER”, and shall include the BAA number, proposed title, Offeror’s administrative and technical points of contact, with telephone numbers, facsimile numbers, and Internet addresses, and shall be signed by an authorized officer.
- **Technical Concept:** A description of the technology innovation and technical risk areas.
 1. Principal Investigator
 2. Counter Radio Controlled IED capability deficiency being satisfied
 3. Technical objective
 4. Technical approach
 5. Deliverables
 6. Recent technical breakthroughs that will reduce risk
 7. Estimated total dollars
 8. Relevant experience of offerer(s)
- **Operational Naval Concept:** A description of the project objectives, the concept of operation for the new capabilities to be delivered, and the expected operational performance improvements.
- **Operational Utility Assessment Plan:** A plan for demonstrating and evaluating the operational effectiveness of the Offeror's proposed products or processes in field experiments and/or tests in a simulated environment.

b. 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.

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 one (1) original plus two (2) hard copies of their Technical and Cost Proposal package, and one (1) electronic copy on CD-ROM. Offerors shall follow the Technical and Cost Proposal Template. The electronic Technical and Cost Proposal should be submitted in a secure, pdf compatible format, save for the electronic file for the Cost Proposal Spreadsheet which should be submitted in a Microsoft Excel 2007 compatible format. All attachments should be submitted in a secure, pdf compatible format.

The secure pdf compatible format is intended to prevent unauthorized editing of the proposal prior to any award. A password should not be required for opening the proposal document, but the Government must have the ability to print and copy text, images, and other content. Offerors may also submit their Technical and Cost Proposal in an electronic file that allows for revision (preferably in Microsoft Word) to facilitate the communication of potential revisions. Should an Offeror amend its Technical and Cost Proposal package, the amended proposal should be submitted following the same hard and electronic copy guidance applicable to the original proposal.

The electronic submission of the Excel spreadsheet should be in a “useable condition” to aid the Government with its evaluation. The term “useable condition” indicates that the spreadsheet should visibly include and separately identify within each appropriate cell any and all inputs, formulas, calculations, etc. The Offeror should not provide “value only spreadsheets” similar to a hard copy.

3. Significant Dates and Times -

Event	Date	Time
White Paper Due Date	5/16/2011	3:00 PM Eastern Daylight Time
Notification of White Paper Evaluation*	5/27/2011	
Oral Presentations*	6/10/2011	
Notification of Oral Presentation Evaluation*	6/14/2011	
Full Proposal Due Date	7/15/2011	3:00 PM Eastern Daylight Time
Notification of Selection: Full Proposals*	7/20/2011	
Awards*	11/3/2011	

**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

- (a) 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
- (b) 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 the time set for receipt of proposals; or

(c) 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 extend 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 White Papers and Full Proposals.

White Papers should be sent electronically (e-mail) to the attention of the Technical Point of Contact (TPOC) at david.tremper@navy.mil. The subject line of the email shall read "ONR BAA 11-017 White Paper Submission."

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

Office of Naval Research
Attn: Mr. David Tremper
ONR Department Code 312
875 North Randolph Street – Suite 1125
Arlington, VA 22203-1995

Full Proposals may be submitted by U.S. Postal Service, by commercial carrier (e.g., FedEx), or by hand delivery. Offerors intending to hand deliver their proposals must coordinate that delivery in advance with Mr. David Tremper at david.tremper@navy.mil or Dr. Peter Craig at peter.craig@navy.mil to ensure that the proposal is not received late. Full proposals sent by fax or email will not be considered.

NOTE: PROPOSALS SENT BY FAX OR E-MAIL WILL NOT BE CONSIDERED.

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. Criteria 1 through 4 are significantly more important than Criterion 5, and Criteria 1 through 4 are of equal value.

1. Overall scientific and technical merits of the proposal;
2. Naval relevance, transition potential and anticipated contributions of the proposed technology to Counter Radio Controlled IED operations.
3. The offeror's capabilities, related experience, facilities, techniques or unique combinations of these which are integral factors for achieving the proposal objectives;
4. Potential Naval relevance and contributions of the effort to the agency's specific mission and
5. The realism of the proposed costs and availability of funds.

Overall, the technical factors 1 - 4 above are significantly more important than the cost factor, with the technical factors all being of equal value. 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.

The Office of Naval Research is strongly committed to providing meaningful subcontracting opportunities for small businesses, small disadvantaged businesses, woman-owned small businesses, HUBZone small businesses, veteran-owned small business, service disabled veteran-owned small businesses, historically black colleges and universities, and minority institutions through its awards. For proposed awards to be made as contracts (that exceed \$650,000) to other than small businesses, the Offeror is required to submit a Small Business Subcontracting Plan in accordance with FAR 52.219-9. For proposed awards made as contracts to small businesses at any value or to other than Small Businesses that are less than \$650,000, the Offeror shall provide a statement which demonstrates how it intends to provide meaningful subcontracting opportunities to support 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 contract 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. 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

Administrative Requirements –

- 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: shall be submitted by all but small business concerns for proposals that exceed \$650,000 in accordance with FAR Part 19 and clause 52.291-9.

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

Government research facilities and operational military units are available and should be considered as potential government-furnished equipment/facilities. These facilities and resources are of high value and some are in constant demand by multiple programs. It is unlikely that all facilities would be used for any one specific program. The use of these facilities and resources will be negotiated as the program unfolds. Offerors submitting proposals for contracts, cooperative agreements and Other Transaction Agreements should indicate in the Technical and Cost Proposal Template, Section II, Blocks 8 and 9, which of these facilities are critical for the project's success. Offerors submitting proposals for grants should address the need for government-furnished facilities in their technical proposal.

2. Security Classification

In order to facilitate intra-program collaboration and technology transfer, the Government will attempt to enable technology developers to work at the unclassified level to the maximum extent possible. If access to classified material will be required at any point during performance, the Offeror must clearly identify such need by completing Section II, Block 11, DD 254 – Security Classification Specification.

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 Contracting Officer 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

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/execomp.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.fsrc.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.