

REQUEST FOR INFORMATION (11-RFI-0003)
Directed Energy to Disable Small Vessels

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

Background:

The Office of Naval Research (ONR) has established a Directed Energy Science and Technology (S&T) program with the long-term objective of enhancing the operational effectiveness of directed energy systems by the Navy and Marine Corps. ONR Code 35 is soliciting information to identify capabilities of research and commercial activities with the ability to rapidly mature advanced technology in a wide variety of scientific disciplines involving lasers and radio frequency devices, such as high power microwaves (HPM) into initial fleet use.

This is NOT a solicitation for specific research proposals. It is an effort to informally identify commercial capabilities, government activities and potential educational institutions that could rapidly develop operational uses of directed energy systems by the Navy and Marine Corps. ONR will not be responsible for any costs incurred in furnishing this information. We are requesting submission of existing capability statements only. Specific research proposals submitted under this RFI will not be responded to.

The information obtained in response to this RFI will be of use to the Government in shaping potential future Directed Energy R&D solicitations. The Office of Naval Research is conducting a study to investigate the viability of directed energy systems suitable for shipboard installation and capable of disabling a small vessel. The study will support a larger technical assessment for U.S. Government stakeholders of the maturity and viability of directed energy systems. The study may also make recommendations regarding the most viable technology solutions supportable in the commercial and/or educational sectors. The ONR study will focus on laser and radio-frequency or high powered microwave directed energy systems. Kinetic energy (guns, projectiles, missiles), biological, chemical, physical barrier/encumbrance systems are outside the scope of this study.

ONR seeks information regarding ship-based directed energy systems capable of disabling a small vessel. The intent is to find previously unknown technologies which could be rapidly installed on a US Navy ship within 18-24 months. Both innovative system design and mature subsystem technologies are needed.

The ONR study will primarily focus on non-lethal systems. These systems should be capable of disabling small surface vessels via counter-material effects vice counter

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personnel effects. Defeat mechanisms could include the loss of seaworthiness and/or propulsion disablement. Alternatives to non-lethal systems may be pursued if they support a non-lethal means of disruption, disabling, or deterrence. The minimum effect is to stop the approach of an unidentified/or hostile boat to a naval combatant. Any risks to humans should be clearly articulated and identified.

The projected operating environment is littoral waters. Ship disable capability through use of ship-based directed energy systems should be effective against a range of vessels from small planing hull boats (Fast Attack Inshore Craft) to Inter-coastal (cargo and fishing) vessels common in littoral waters. Any directed energy systems selected under a later solicitation might be installed on the full range of naval vessels (USN combatants and USNS Auxiliaries). Directed energy defensive systems currently deployed on aircraft subsurface, or land-based vehicles to fulfill the operational role are of interest only insofar as they can be intelligently adaptable to littoral vessels.

Requirements:

This notice constitutes a Request for Information (RFI) to government, academic and industry stakeholders, science & technology organizations and research activities. Universities, Government Laboratories and Federally Funded Research and Development Centers, with knowledge of relevant or alternative technologies, are encouraged to provide input.

A suggested submission organization:

- Cover Sheet – RFI number and name, address, company, technical point of contact, with printed name, title, email address and date.
- Table of Contents with page numbers
- Discussion of Concept of Operational Employment
- Directed energy system description, including any available photographs, technical system information and notional projected path to ship installation and initial operational fielding
- Summary of current Technical Readiness Levels (TRL)

No cost or pricing information should be provided.

To provide some guidance, the following information is offered:

A) Concept of Operational Employment

The responder's concept of employment and assessment of weapon effects should be described in a general fashion. This operational information is designed to provide context and an operational framework for the technical and performance information that follows. Examples of operational information included might include:

- System's and weapon's effects and expected damage mechanisms
- Type of disruption and disable results

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- Possible engagement scenarios
 - Timelines
 - Acquisition and targeting ranges
 - Integration with external systems, sensors and weapons

B) System Description

Provide a concise, accurate technical description of systems and subsystems. Sufficient detail should be provided to support an initial technical maturity assessment through the use of technical readiness levels (TRLs). Where possible, system - ship interface and integration information should be included. Examples of information to include:

- System and subsystem descriptions including:
 - Approach for integration with ship systems (e.g. fire control, targeting techniques, target designation and handoff, software interface)
 - Targeting accuracy and precision with moving vessels
 - Development, demonstration and testing of systems or related technologies and concepts, including readiness level assessments of applicable TRL, Human Effects Readiness Level (HRL), and Manufacturing Readiness Level (MRL).
 - Potential risks to humans.
 - Applicable system measures of effectiveness (MoE), operational performance or Operational Availability (Ao)
- History of past directed energy work and testing, including timeframe, resources and organizations
- Safety measures and standards applicable to shipboard integration of non-lethal directed energy systems.

Security

RFI Responses should be UNCLASSIFIED. If desired, a classified supplement may be submitted separately. Please contact the Technical Point of Contact for directions on submission of any sensitive or classified material.

Submissions

Information responses should not exceed 25 single side pages, 12-point standard font, single spaced, with 1-inch margins. Times Roman is preferred.

Responses sent in PDF format should be e-mailed to Mr. Peter A. Morrison at peter.a.morrison@navy.mil

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Other media (paper, CD-ROM, etc.) may be mailed to the Mr. Morrison address provided below.

Responses are requested by 02-MAR-2010. Any response after this date will also be considered, but may not be included in initial reporting or assessments.

Questions/Technical Point of Contact:

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