



100 kW FEL BAA #08-013

BROAD AGENCY ANNOUNCEMENT (BAA)

INTRODUCTION:

This publication constitutes a Broad Agency Announcement (BAA) as contemplated in Federal Acquisition Regulation (FAR) 6.102(d)(2). A formal Request for Proposals (RFP), solicitation, and/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 select for award all, some or none of the proposals in response to 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
One Liberty Center
875 North Randolph Street
Arlington, VA 22203-1995**

2. Research Opportunity Title

100-kW class FEL Experimental Device

3. Program Name

Innovative Navy Prototype (INP) Roadmap for Scaleable FEL Weapon Capability

4. Research Opportunity Number - BAA# 08-013

5. Response Date

White Papers: 6 JUN 2008

Full Proposals: 8 AUG 2008

6. Research Opportunity Description

THIS IS A BROAD AGENCY ANNOUNCEMENT ONLY with an initial request for White Papers. The Office of Naval Research (ONR) is interested in receiving proposals from all responsible sources from academia and industry capable of providing to the Navy the design, development, fabrication, integration and test of a 100-kW class Free Electron Laser (FEL) device which can be used to demonstrate scaleability of the necessary FEL physics and engineering for an eventual MW class Free Electron Laser (FEL) device. Offerors must be capable of providing full system design, fabrication and integration of the complete 100-kW class FEL prototype device. Proposal submissions from large business firms, nonprofits or educational institutions should include as a part of the proposal a series of subcontracts to small businesses. The BAA solicitation from industry will enable the Navy to begin the development of a long-term plan for a ship-based FEL weapon system. There shall be no basis for claims against the Government as a result of any information submitted in response to this BAA. THIS IS NOT A REQUEST FOR PROPOSALS (RFP). The Government will not pay for any information submitted by respondents to this BAA.

ONR is interested in receiving proposals for the transition from a demonstrated (nominal) 10 kW FEL capability, currently at hand, to a 1.6 micron near infrared (NIR) weapon class FEL via a 100-kW class Innovative Navy Prototype (INP) phase. This 100 kW FEL is intended to provide the physics and engineering information needed to support a MW class FEL device development. That MW class FEL could be an element of a full fledged weapon system test bed, in a separate and subsequent contract action, that would include a beam director, beam control and fire control elements for eventual introduction into the Fleet. The transition plan should be outlined in a white paper and, if the proposer is invited by the government to submit a full proposal, shall thereafter be described fully in that full proposal when submitted under this BAA.

A FEL generates a coherent optical beam from a highly energetic electron beam. This concept and its feasibility have been firmly established over the past several decades, owing to substantial investments by Defense Advanced Research Projects Agency (DARPA), Office of the Secretary of Defense (OSD), Strategic Defense Initiative Organization (SDIO), ONR, the state of Virginia, and worldwide academia. Basic FEL research activities within the United States have been accomplished chiefly by the National laboratories and universities funded by the Department of Defense and Department of Energy. In fact, over a hundred FELs have been built to-date worldwide, albeit none near MW class average power levels. The Thomas Jefferson National Accelerator Facility (TJNAF) located in Newport News, VA has held the record for the highest average power FEL, about 14 kW at 1.6 micrometers wavelength, since the winter of 2006.

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 Point of Contact: Quentin Saulter
Point of Contact Name: Quentin Saulter
Point of Contact Occupation Title: Program Manager for Directed Energy
Division Title: Aerospace Sciences and Directed Energy Research Division
Division Code: Code 351
Address:
Office of Naval Research
875 N. Randolph St., Suite 1132
OLC 1132
Arlington, VA 22203
Telephone Number: (703) 696-0330
Facsimile Number: (703) 696-4274
Email Address: Quentin.Saulter@navy.mil
Administrative POC: Donna Smith
Telephone Number: 703-696-0255
Email Address: donna.smith2@navy.mil

Questions of a business nature shall be submitted to:

Name: Casey W. Ross
Point of Contact Occupation Title: Contract Specialist
Address:
Office of Naval Research
875 N. Randolph St.
OLC 1167D
Arlington, VA 22203
Division Code: 0253
Telephone Number: 703-696-7826
Email Address: casey.w.ross@navy.mil

8. Instrument Types(s) -

Awards resulting from this solicitation will be in the form of ID/IQ contracts.

9. Other Information -

The Navy Corporate Board has approved the development of a 100-kW class FEL under an ONR INP program. Funding has been programmed and budgeted in FY09 to support the first phase of the BAA process. The Navy has requested an independent review of FEL maturity and

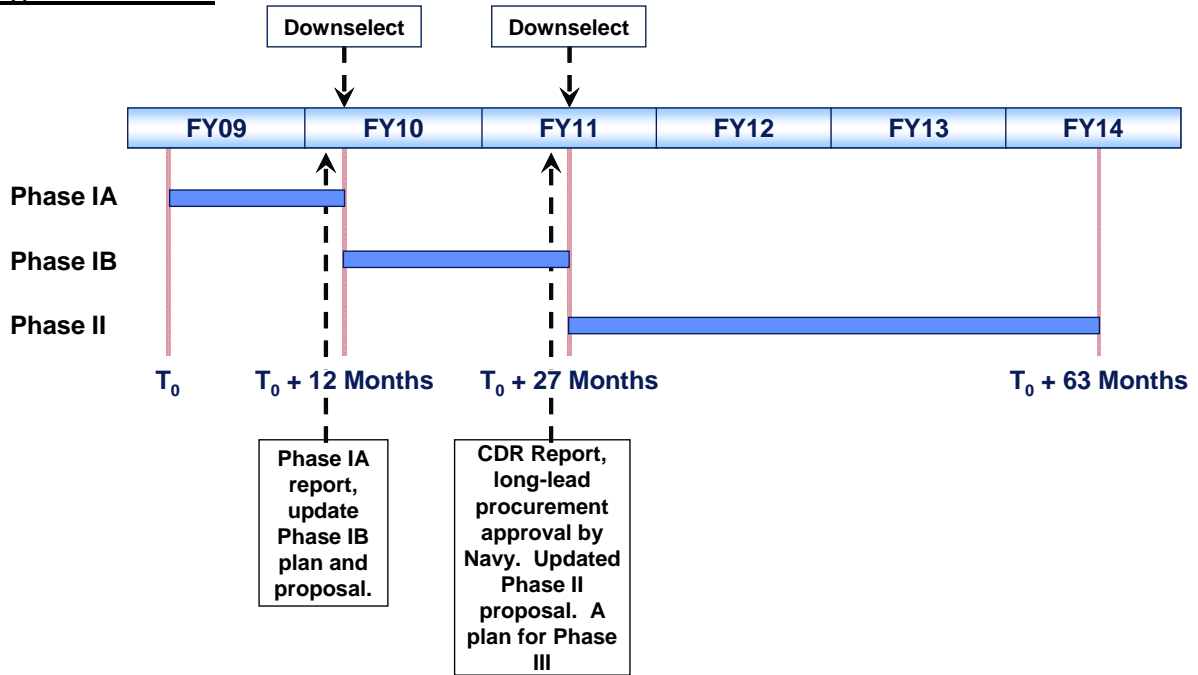
scaleability by the National Academy of Sciences. This study is expected to be completed by the end of FY08 and its results may affect the timing and technical content of the INP approach.

The Navy intends to build a 100-kW class FEL under ONR INP funding. It is important to understand that the 100 kW average power output at 1.6 micron cited in this BAA is a threshold number, and any proposed design should be capable of reaching that level reliably and repeatedly. The primary purpose of the 100 kW FEL is not to maximize power above 100 kW but to provide the knowledge that allows scaling with confidence to the MW level in a follow-on device. Nevertheless, there may be technology paths that can be suggested in the BAA response which could lead to power levels greater than 100 kW at modestly increased expense and acceptable risk. Should an offeror hold such convictions the Navy requires full technical justification for any greater power levels proposed. Additionally the FEL should be configurable to operate as either an oscillator or an amplifier. Further details will be disclosed in both unclassified and classified presentations during the Industry Day Bidder's Conference.

The offeror should demonstrate understanding of the FEL's development evolution and current state of the art by clearly identifying those technical and management approaches that hold promise for high average power scale-up and those that have been shown to have major limitations. An important goal of the 100 kW INP device is to demonstrate scaleability of the 100 kW FEL toward the MW average power level, thus each technical proposal should make clear how the proposer's team plans to operate the device and confirm scientifically its scaleability features. Average power is determined by FEL operation over several seconds with reliable repeatability. The 100 kW FEL should be designed with sufficient diagnostics (instrumentation) that allow continued use to determine its applicability to the building of a MW class system (a separate and subsequent contractual action). Investment opportunities for components such as cryo-plant, RF power, safety/control systems, diagnostics, or an energy recovery loop which could be reused in the MW FEL are of potential interest if the initial cost difference is both modest and justifiable. Device run time and recycle time will need to be resolved in terms of fabrication costs and implications for operation and research. The approach should maintain the flexibility to investigate the scaling and limitations of concepts, anchor performance codes and investigate engineering issues that could affect eventual systemization. Navy seeks such recommendations from this BAA in the full proposals accompanied by corresponding justification in these areas.

Make or buy decisions in this INP program are subject to Navy approval. The Navy expects to complete the Phase I and II work with ownership of the entire set of equipment that permits the 100 kW FEL device to continue operating in satisfaction of the program's cited objectives.

Program Schedule



Phase IA - Preliminary Design Review (PDR) – (see Task 1, Section II Award Information)

Phase IA is a twelve month period that comprises the preliminary design effort resulting in a Phase IA PDR report and an updated Phase IB (see below) technical proposal and a proposed cost, within the program budget, to support a Navy decision to award the follow-on task.

Phase IB - Critical Design Review (CDR) – (see Task 2, Section II Award Information)

Phase IB is a twelve to fifteen month period that includes a CDR report, the Navy-authorized ordering of selected long-lead procurement items, and an updated Phase II proposal (see below) and a proposed cost, within the program budget, to support a Navy decision to award the follow on task to proceed into Phase II; the Phase IA PDR report will include a Phase IB plan with long lead procurement items identified, budgeted for and scheduled; full itemization of all necessary components, a program management rationale, and associated schedule for subcontractor-vendor participation, cost projections for the long lead items necessary to be ordered in Phase IB for proceeding on schedule during Phase II and a suitable business plan reflecting the bidder's understanding of what both PDR and CDR are to accomplish in order to enter Phase II. These deliverables collectively will be used as part of the evaluation in the downselect process for awarding the task for IB. They should be assembled into a report/proposal for Phase IB, (which will occur after a down select from those competitors under contract during Phase IA). The nominal, overall two year period for both Phase IA (PDR) and Phase IB (CDR) is to culminate in a conceptual design of a 100 kW FEL system showing traceability to a MW-Class weapon system test bed. The complete Phase I effort will also sketch out both a "top level" beam control

approach and a “notional” ship system integration approach using only a very small percentage of the available funds . The full proposal, in response to this BAA, should discuss the contractor’s “best” approach to achieving these objectives in substantially greater detail than the white paper.

Phase II – Prototype - Fabricate, Integrate, Acceptance Test –(see Task 3 Section II Award Information)

Phase II is a three year period covering the fabrication, integration and acceptance testing of a 100 kW FEL prototype device using the illustrative guidelines presented in Appendix A. Appendix A does not necessarily provide the specific design desired since the Navy is interested in each bidding team’s technology and engineering perspectives, but, it is included to provide insight into a generic configuration the Navy has assembled “in-house” for illustrative purposes in support of this 100 kW FEL BAA. Quarterly Progress Reviews (QPRs) shall also be scheduled for both Navy review purposes through out the contractual period and for confirmation of on-going management control, design control and sign-off by the principal parties on each side of all significant interfaces. The primary purpose of the 100 kW FEL is not to maximize power, but to provide the physics and engineering knowledge that allows scaling with confidence to the MW level in a follow-on FEL device in a separate and subsequent contractual action. In support of that knowledge base, the Navy desires that the FEL built under this BAA be configurable to operate as an oscillator, amplifier or hybrid combination architecture and shall be an energy recovery linac (ERL). The amplifier vs. oscillator trade-off will involve both analysis and experimentation to properly deal with the many aspects of argument regarding the more preferable design. Diagnostics appropriate to the objectives should be included in the design of the 100kW FEL system to allow assessment and evaluation of scaling to the MW level.

Phase II will not include work beyond factory acceptance testing of the 100 kW device to establish its successful completion. A plan for Phase III should be delivered with the Phase II final report.

Phase III - Maritime demo, test, evaluation (to be awarded under separate contract)

In Phase III the Navy expects the 100-kW class experimental device to be designed for portability and eventual installation on a barge or equivalent platform for further testing as well as for the collection of maritime atmospheric propagation and lethality data in ocean arena environments.

Systems Engineering

A contractor-defined (modified) system’s engineering approach, appropriate for an S&T program, should be utilized to support sufficiently the scope of the proposed phases of development and design. Considerable corporate care will be required here to avoid using scarce S&T funds for non-essential “systems engineering” efforts.

Program Approach

ONR has decided that long term benefits to the Navy can accrue from engaging industry in a lead position for FEL development from the outset. Yet, it is known that considerable FEL expertise is resident in multiple U.S. national laboratories and universities. Should such expertise be seen by a BAA offeror as significant, or essential, to the success of the developmental program, the offeror should explain in detail the management approach planned to include that talent and those skills in the proposed program. All national laboratories, and the company Advanced Energy Systems (AES), have agreed to be in a non-exclusive contract relationship with respect to involvement in this effort. Only US companies are solicited to bid for this BAA. No foreign teaming shall be allowed under this BAA due to ITAR restrictions.

The desired outcomes of this BAA are: to gain insight into industry's ideas; to assess potential industrial roles in supporting the procurement program for the FEL device itself; and to build a 100 kW FEL device which will allow the Navy to proceed with the long term development of a MW-class FEL device. The Navy also wishes to gain insight into industry's longer term interest in participating in the follow-on integration, at a government test facility, or elsewhere, of the FEL device into a complete naval weapon system test bed to validate the concept for shipboard use.

This 100-kW class FEL must be based upon technology and engineering foundations which, at some future time, could allow scaling to weapon level performance in the MW domain. [Separately, the Navy desires, over the longer term, to bring Industry into a lead acquisition role for that next phase of FEL development as a logical step on the path toward a ship-borne FEL weapon system. The Navy also desires to bring Industry, as a prime contractor, into the principal role for the integration of an ultimate FEL MW subsystem which can help lead the way into a complete weapon system test bed (after adequate empirical justification is established through this BAA's 100 kW class FEL thrust). That ultimate FEL test bed would eventually include a beam control system, command and control, diagnostics and instrumentation.] However, at the current time, the Navy envisions this BAA's 100-kW class system test bed being checked out and tested in a yet-to-be-determined government or industry facility. The venue for the checkout and test activity is a point that should be addressed in the response to this BAA. But, the Navy expects the 100-kW class experimental device to be designed for portability and eventual installation on a barge, or equivalent arrangement, for further testing as well as for the collection of maritime atmospheric propagation and lethality data in ocean arena environments (during a subsequent Phase III to be separately defined and bid at an appropriate time). The 100 kW FEL itself should have suitable diagnostics for assessing the demonstrated technology for the MW class FEL system.

While compactness and efficiency are obvious requirements for a shipboard weapon system, there is a conflicting need in the 100 kW FEL device for sufficient integrated diagnostics to assure its successful commissioning and to support the characterization needed to prepare for the MW FEL. The BAA response, in both the White Paper and the Full Proposal, should address this issue. However, it is important for the 100 kW FEL system to demonstrate some of the technologies that will be necessary for a compact MW level weapon system operating on an electric drive ship. In order to be scaleable, it is expected that the 100 kW FEL would use a

superconducting accelerator with energy recirculation and be smaller than the existing 14 kW FEL at Jefferson Laboratory, Newport News, VA. Further details of this system will be provided during the Industry Day sessions.

Initially, the 100-kW class experimental system is to include a rudimentary beam director capability for simple beam steering, but, that could be improved substantially at a later date depending on actual power levels achieved when the 100-kW class device is successfully completed. This more modest approach to beam director acquisition is to keep costs down during the procurement interval for the 100-kW class device covered by this document. The initial conceptual response will be scoped and characterized in the White Paper phase to be followed in greater detail within the subsequent full proposal. This BAA response should also propose a transfer and alignment interface for the 100 kW 1.6 micron beam which allows the integration with optical beam diagnostics. In order to assure later utility of the FEL device in an integrated weapon system test bed, beam control and ship integration issues must be considered at a conceptual level. The primary goal of the FEL INP is to develop and demonstrate a 100 kW FEL scaleable to MW level power, so, the beam control conceptual design along with an initial ship integration conceptual design must use only a very small percentage of the available funds. The BAA offerors should propose their best judgment for what that level of effort should be. A beam control conceptual design should be planned in a two-step approach during the total Phase I (PDR and CDR) period, but, is not planned for procurement in this BAA effort. Also to be proposed is a viable approach to managing the long lead items' procurement given the Navy's desire to maintain a competition during Phase I.

II. AWARD INFORMATION

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

The following contains sufficient and relevant information to aid potential offerors to decide whether or not to submit a proposal inclusive of:

Task 1 - Phase IA Preliminary Design Review (PDR): \$ 14M Total (up to three contracts)

This task is defined as the execution of the work and its associated cost proposed for Phase IA , the Phase IA PDR Report, an updated Phase IB Technical Proposal and Cost proposal (that is compatible with the program's budget) and the identification of the long lead procurement items.

Task 2- Phase IB Critical Design Review (CDR): \$ 34M Total (up to two contracts) [the decision to exercise the Phase IB task shall be limited to up to two Phase IA offerors, including authority at a time during Phase IB (with Navy approval), for long lead procurements]

This task is defined as the execution of the work and its associated cost proposed for Phase IB, the Phase IB CDR Report, an updated Phase II technical proposal and cost (that is compatible

with the program's budget) and the request for Navy approval of the long lead procurement items.

Task 3 -Phase II : Prototype Fabrication, Acceptance Test and Delivery - \$115M Total (the decision to exercise the Phase II task shall be limited to a Phase IB offeror and will likely only be one).

This task is defined as the work and its associated cost proposed for Phase II and a Phase II report. A plan for Phase III should be delivered with the Phase II final report.

The number of projects awarded in any phase shall be at the discretion of the government.

III. ELIGIBILITY INFORMATION

All responsible sources from academia and industry may submit proposals under this BAA. Proposal submissions from large business firms, nonprofits or educational institutions should include as a part of the proposal a series of subcontracts to small businesses. 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.

Teams are encouraged to 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 Regulations (ITAR) - 22 CFR § 1201.1 et seq.

IV. APPLICATION AND SUBMISSION INFORMATION

1. Application and Submission Process

A detailed list of important dates is provided later in Section IV (Application and Submission Information) paragraph 3 (Significant Dates and Times).

A pre-proposal conference (Industry Day) will be comprised of an open unclassified session and a closed classified session. Attendance at the unclassified session is not restricted, however, attendance at the classified session shall be limited to those companies that are approved government contractors with valid security clearances. The unclassified session will be conducted on 2 April 2008 and the classified session will be conducted on 3 April 2008). The number of contractor personnel, in any given company, allowed to attend the classified session may be limited based upon the number of attendance requests.

The purpose of the Industry Day will be to provide an opportunity for government and industry to confer on the development, procurement, integration and test of a 100-kW class FEL based upon technology which could be scaled to MW level. The Navy intends to describe its INP program expectations, schedule, events, etc. The Navy is interested in how both Navy and industry management could maintain “design and fiscal control” of the effort. Discussion of the relationships among the prime, its subcontractors, specialized consultants and any government or university laboratory staffs deemed necessary should be included in the BAA response. The teaming relationships, subcontracting control mechanisms, functional organizational arrangements and management techniques to be used for maintaining technical and budgetary control should be spelled out clearly.

The format of Industry Day will include presentations and the opportunity for questions. Attendance at Industry Day requires a letter of application indicating the sessions to be attended and must also justify a valid interest and capability for performing the BAA demands (either as a prime or a subcontractor to a prime offeror) along with subsequent Navy approval to be present.

White Papers are required prior to submitting a Full Proposal. Initial Navy evaluations of the White Papers will be issued via E-mail notification. Detailed technical and cost proposals will be subsequently encouraged from those Offerors whose proposed technologies have been identified through the above referenced E-mail as being of “particular value” to the Navy. However, any such encouragement does not assure a subsequent award. Any offeror may choose to submit a full proposal even if its white paper was not identified as being of “particular value to the Navy,” but the initial review should give offerors some sense of whether a full proposal would likely be funded. Full Proposals will not be considered under this BAA unless a white paper was received before the white paper due date specified later in this BAA.

Full Proposals – It is anticipated that final selections will be made in November 2008. As soon as the final proposal evaluation process is completed, the Offeror will be notified via email of its selection or non-selections for an award.

2. Content and Format of White Papers/Full Proposals

All proposal documentation (White Paper and Full Proposal) should address the following program phases:

INP Program Structure:

Phase I (Task 1 and 2): FY '09 through FY '10
PDR (12 months), Phase IA and CDR (15 months), Phase IB.

Phase II (Task 3): FY '11 through FY '13 (fabricate, integrate/commission, factory acceptance test and present a plan for Phase III)

Phase III FY' 14 and beyond (transport, setup for testing at maritime range, or equivalent)

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. The proposal shall include a severable, self-standing Statement of Work, which contains only unclassified information and does not include any proprietary restrictions.

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."

Alternatives to the format and content identified below may be appropriate depending on the scope and nature of the proposed effort. Coordinate any alternative proposal formats and contents relating to white papers and technical proposals (Volume 1 of the full proposal) with the cognizant ONR Program Officer. Alternative formats and content may be directed by the ONR Program Officer or may result from Offerors' suggestions approved by the ONR Program Officer.

WHITE PAPERS

White Paper Format

- Paper Size – 8.5 x 11 inch paper
 - Margins – 1" inch
 - Spacing – single or double-spaced
 - Font – Times New Roman, 12 point
- Copies – one (1) original, (1) copy, and one electronic copy on a CD-ROM (in Microsoft® Word or Excel 97 compatible or .PDF format).

White Paper Content

- **Cover Page:** The Cover Page shall be labeled “PROPOSAL 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 filling no more than twenty (20) single-sided pages (excluding cover page and resumes) arranged as follows:

Cover Page
Table of Contents
Projects Schedules and Milestones
Deliverables
Management
Technical Approach
Past Performance
Cost Estimate

NOTE: WHITE PAPERS EXCEEDING THE PAGE LIMIT MAY NOT BE EVALUATED.

FULL PROPOSALS

Full Proposal Format Volume 1 – Technical and Volume 2 – Cost Proposal

- Paper Size – 8.5 x 11 inch paper
- Margins – 1” inch
- Spacing – single or double-spaced
- Font – Times New Roman, 12 point
- Number of Pages – Volume 1 is limited to no more than Management (25 pages), Design Issues (55 pages); Total 80 pages. The offeror shall identify what sections/pages in the proposal refer to the specific evaluation groups established in Section V Paragraph 1 (Evaluation Criteria). Volume 2 is not page limited. Limitations within sections of the proposal are indicated in the individual descriptions shown below. The cover page, table of contents, photographs/drawings/graphs and resumes are excluded from the page limitations. Full Technical Proposal pages beyond the page limit shall not be evaluated.
- Copies – one (1) original, (1) copy, and one electronic copy on a CD-ROM.

Full Proposal Content

Volume 1: Technical Proposal

- **Cover Page:** This should include the words “Technical Proposal” and the following:

- 1) BAA number;
- 2) Title of Proposal;
- 3) Identity of Prime offeror and complete list of subcontractors, if applicable;
- 4) Technical contact (name, address, phone/fax, electronic mail address)
- 5) Administrative/business contact (name, address, phone/fax, electronic mail address) and;
- 6) Duration of effort (differentiate basic effort and any proposed options)

- **Table of Contents:** An alphabetical/numerical listing of the sections within the proposal, including corresponding page numbers.
- **Executive Summary:** A nominal two page description in narrative form describing the proposed effort.
- **Statement of Work:** A Statement of Work (SOW) clearly detailing the scope, objectives and program task areas of the effort and the technical approach. It is anticipated that the proposed SOW will be incorporated as an attachment to the resultant award instrument. To this end, the proposals must include a severable self-standing SOW without any proprietary restrictions, which can be included as an attachment to any resultant contract. Include a detailed listing of the technical tasks/subtasks organized by year.
- **Project Schedule and Milestones:** A summary of the schedule of events and milestones.
- **Assertion of Data Rights and/or Rights in Computer Software:** For a contract award an offeror may provide with its proposal assertions to restrict use, release or disclosure of data and/or computer software that will be provided in the course of contract performance. The rules governing these assertions are prescribed in Defense Acquisition Regulation Supplement (DFARS) clauses 252.227-7013, -7014 and -7017. These clauses may be accessed at the following web address:

<http://farsite.hill.af.mil/VFDFARA.HTM>

The Government may challenge assertions that are provided in improper format or that do not properly acknowledge earlier federal funding of related research by the Offeror.

- **Deliverables:** A detailed description of the offeror's results to be delivered, inclusive of the timeframe in which they will be delivered. The deliverables should include a final technical report. Interim reports and briefings will be required on a monthly, quarterly and annual basis.
- **Management Approach:** A discussion of the overall approach to the management of this effort, including brief discussions of the total organization; use of personnel; project/function/subcontractor relationships; government research interfaces; and planning, scheduling and control practice. Identify which personnel and subcontractors (if any) will be involved. Cite Key Personnel and professionals out of any government laboratories (see VII paragraph 1). Designate one individual as the Primary Investigator (PI) for the award to serve as the primary point-of-contact. Include a description of the facilities that are required for the

proposed effort with a description of any Government Furnished Equipment/Hardware/Software/Information required, by version and/or configuration.

- **Technical Approach:** The offeror shall provide a detailed plan that coherently describes the technical approach proposed for contract performance and which demonstrates a technical understanding of the proposed Statement of Work (SOW). The technical approach should address each of the numbered task areas delineated in the SOW describing specific or unique techniques to be employed and anything else the offeror considers relevant in performing the SOW. The technical approach should indicate how the work will be performed, including the capabilities and resources, which will be applied, what problem areas exist, the proposed solutions and a full explanation of the proposed disciplines, procedures and techniques to be followed. Emphasis should be placed upon the extent that the offeror's technical approach ensures timely delivery, and successful completion of the tasks outlined by the SOW submission.
- **Personnel:** The offeror shall demonstrate the ability to adhere to the Program Security Classification Guidelines (to be provided prior to contract award). The offeror shall provide resumes of proposed key personnel to be utilized by the contractor/ subcontractor in the performance of this contract. The percentage of time devoted to the effort by key personnel should be cited clearly. Upon review of the resumes, if the Government questions the qualifications or competence of any person performing under this contract, the burden of proof to sustain that person's qualifications shall be upon the offeror.
- **Past Performance:** Past performance will consist of a description of the offeror's Government contracts (both prime and major subcontracts (those involving 25% or more of the effort)) received during the past three (3) years), which are similar in complexity and maturity to the effort being proposed. The offeror may describe any quality awards or certificates that indicate the offeror possesses a high quality process for providing desired research and development outcomes.
- **Other Agencies:** Include the name(s) of any other agencies to which the proposal has been submitted.

VOLUME 2: Cost Proposal

The Cost Proposal shall consist of a cover page and two parts, Part 1 will provide a detailed cost breakdown of all costs by cost category by calendar or Government fiscal year and Part 2 will provide a cost breakdown by task/sub-task corresponding to the task numbers in the Statement of Work. A cost proposal is only to be submitted for Task 1. If the offeror receives a request from the Navy toward the end of the Task1 effort, for the work associated with Task 2, then a subsequent formal cost proposal shall be submitted in the same format requested herein.

Although not required and provided here for informational purposes only, detailed instructions, entitled "Instructions for Preparing Cost Proposals for Contracts and Agreements", including a sample template for preparing costs proposals for contracts may be found at ONR's website listed under the 'Acquisition Department – Contracts & Grants Submitting a Proposal' link at:

http://www.onr.navy.mil/02/how_to.asp

Cover Page: The use of the SF 1411 is optional. The words “Cost Proposal” shall appear on the cover page in addition to the following information:

- BAA number;
- Title of Proposal;
- Identity of prime Offeror and complete list of subcontractors, if applicable;
- Technical contact (name, address, phone/fax, electronic mail address);
- Administrative/business contact (name, address, phone/fax, electronic mail address) and;
- Duration of effort (separately identify basic effort and any proposed options)

Part 1: Detailed breakdown of all costs by cost category by calendar and Government’s fiscal year:

- Direct Labor - Individual labor category or person, with associated labor hours and unburdened direct labor rates;
- Indirect Costs - Fringe Benefits, Overhead, G&A, COM, etc. (Must show base amount and rate.);
- Travel - Number of trips, destination, duration, etc.;
- Subcontract - A cost proposal as detailed as the Offeror’s cost proposal will be required to be submitted by the subcontractor. The subcontractor’s cost proposal can be provided in a sealed envelope with the Offeror’s cost proposal or will be obtained from the subcontractor prior to contract award;*
- Consultant - Provide consultant agreement or other document which verifies the proposed loaded daily/hourly rate;
- Materials should be specifically itemized with costs or estimated costs. An explanation of any estimating factors, including their derivation and application, shall be provided. Include a brief description of the Offeror's procurement method to be used (Competition, engineering estimate, market survey, etc.);
- Other Direct Costs, particularly any proposed items of equipment or facilities. Equipment and facilities generally must be furnished by the contractor/recipient. (Justification must be provided when Government funding for such items is sought.) Include a brief description of the Offeror's procurement method to be used (Competition, engineering estimate, market survey, etc.);
- Proposed Fee/Profit

* Note: DoD Federal Acquisition Regulation provision 252.215-7003 (48 CFR § 252.215-7003) is incorporated into this solicitation by reference. The offeror is to exclude excessive pass-through charges from subcontractors. The offeror must identify in its proposal the percentage of effort it intends to perform and the percentage to be performed by each of its proposed subcontractors. If more than 70 percent of the total effort will be performed through subcontracts, the offeror must include the additional information required by the above-cited clause.

Part 2: Cost breakdown by task/sub-task corresponding to the same task numbers in the Statement of Work.

Significant Dates and Times

Anticipated Schedule of Events

<u>EVENT</u>	<u>DATE</u> (MM/DD/YEAR)	<u>TIME (EASTERN</u> <u>TIME)</u>
BAA out of ONR and published	03/14/2008	
Letters of application due	04/04/2008	
ONR response to those contractors accepted for Industry Day attendance	04/18/2008	
Industry Day	05/06-07/2008	
White Paper's due at ONR	06/06/2008	2:00pm
Oral Presentations of White Papers *	06/17-18/2008	
Full proposal notifications out of ONR *	07/03/2008	
Q&A process stops	07/25/2008	2:00pm
Full Proposals due at ONR	08/08/2008	2:00pm
Contract Awards *	11/2008	
Kickoff Meeting	TBD	

***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. Thus it is recommended that any hard-copy proposal be mailed several days 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:

1. 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
2. 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
3. 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 proposal 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 proposal 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 White Papers and Full Proposals -

Office of Naval Research
One Liberty Center
875 North Randolph Street
Attn: Quentin Saulter ONR Code 351
Arlington, VA 22203-1995
Telephone Number: 703-696-0330

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

V. EVALUATION INFORMATION

1. Evaluation Criteria -

General:

The white papers will be evaluated by a “threshold” set of ten questions that establish whether a contractor team is fully qualified to perform the challenging work effort comprising the design, build and factory acceptance test of a 100 kW FEL that shall be an energy recovery linac (ERL). Passing through this screening test and receiving a Navy approval letter in response to their white paper will permit industry to submit a full proposal. The evaluation technique for both the white paper and the full proposal follows a “modified” CONTEST* procedure used previously within ONR for separate, competitive contracting efforts. The body of questions for evaluating the full proposals, formulated in advance of opening the competitive bids, will be based on breaking down the 100 kW FEL device design, build and test work effort into three key evaluation factors of Technical, which is more important than, Program Management including past performance, which is more important than Cost. Each of these three evaluation factors has been subdivided into a set of specific criteria and subcriteria. The broad scope of program considerations covered by these criteria will be assessed by the Technical Evaluation Team (TET) based on questions composed in advance by that Team. The TET is composed of technically qualified professionals, unaffiliated with any of the contractor teams submitting proposals.

The evaluation factors with their criteria and subcriteria are provided below:

Technical

1. Functions - Architecture (Oscillator/Amplifier/other), Design, Development, Fabrication, System Engineering, T&E, Thermal Management, Data Management, Verification and Validation, Manpower Demands and Contractor/other facilities (location and infrastructure).
2. Developmental Mission – Scaleability for the 100 kW device, Key Technical Issues, Performance Data, Damage/Vulnerability/Lethality and Conceptual Beam Control (Design/Ship Integration).
3. Modeling & Simulation – Existing/Projected Models, Technical Risk I.D. /Mitigation Verification and Validation and Full System Modeling.
4. Software – Diagnostic, Control Processes and Configuration Management
5. Electron Related Hardware- Photocathode/gun/injector, Wiggler, Cryo Module, Beam Optics, Diagnostics/Instrumentation/Data Collection, RF power, Beam Dump, Energy Recovery Approach and Resonator/Amplifier.
6. Photon Related Hardware – Optics (magnetic, electron/photo), Exit Window, Beam Quality, Resonator/Amplifier and Diagnostics/Instrumentation/Data Collection.

Program Management

1. Management Organization- Staffing, Teaming and Program Integration
2. Program Control – Scheduling, Security/Information Control, POA&M, Configuration Management, Facility Requirements

* “A Structure and Scoring Method for Judging Alternatives” IEEE Transactions on Engineering Management Vol. EM-16, Number 2, May 1969, pp. 72-83.

Past Performance – Experience in work efforts at similar levels of complexity, demonstrated prior performance in sub-contractor management, demonstrated prior methods for cost management/control and pertinent quality awards/certificates.

Cost

1. Cost Control – Control Technique/Risk and Programming and budgeting.
2. Cost Value – Realism (Technical Feasibility)

Socio-Economic Merits

For proposed awards made as contracts over \$550,000 to large businesses, the socio-economic merits of each proposal will be evaluated based on the extent of the offeror's commitment in providing meaningful subcontracting opportunities (to the maximum extent practicable) for small businesses, HUBZone small businesses, small disadvantaged businesses, woman-owned small businesses, veteran-owned small businesses, service disabled veteran small businesses, historically black colleges and universities, and minority institutions.

All of the proposals will be evaluated by assigned evaluators (on a non-disclosure agreement basis). Each evaluator will develop an “average” or norm response for every question assigned and a zero will be given to those offerings falling into that category. Offerings that are clearly superior to the norm will be given a “plus”, and those clearly inferior to the norm will be given a “minus.” Rankings will be determined by the number of pluses and minuses along with accompanying narrative remarks from each evaluator and across the table discussions among the evaluator teams during the closed-door deliberation procedures. These discussions will then lead to summary listings of individual contractor strengths and weaknesses across the specific number of groups characterizing the evaluation. These strengths and weaknesses will be useful during any final negotiations for improving the ultimate (negotiated) contractual instrument, as well as to rank order the submittals and produce a recommended selection result with which ONR can proceed.

Details:

The White Paper (WP) and the Full Proposal (FP) evaluation spectrum will cover essentially similar scope, but, the WP evaluation will not pose detailed exploration of the proposed effort and will be used only to assure that a prospective bidder's list is composed of fully qualified companies, or corporate teams, that are capable of designing, fabricating and performing factory acceptance test of a complete 100-kW class FEL device, as well as planning recommended follow-on testing to assure total compatibility with a maritime environment. That White Paper scope will include a technical design factor, a management factor and a cost factor. The socio-economic merit of the proposal will also be considered. A source selection evaluation board (Technical Evaluation Team, TET) will be formed of Navy, DOE and DOD personnel and advisors.

The Full Proposal evaluation will bring to bear the same collection of expertise and will cover in substantially greater detail the technical, program management and cost issues pertinent to the development of a 100-kW class FEL device. The review will be based in large measure upon an expanded list of questions relating to the criteria and subcriteria identified above.

The TET will carefully review all of the proposals independently and for each question that was formulated in advance of opening the offerings will judge which proposal has the greatest central tendency in relative ranking among the group. A zero will be assigned to that proposal for that question by each member. Thus, this central set is never empty. Then, for all remaining proposals and the specific question under consideration, the TET member will decide the remaining proposals that lie inside the central set, are clearly superior to the central set (assigned a plus) and clearly inferior to the central set (assigned a minus). The size of the central set may include all the contractors or only one and is determined by the subjective opinion of each evaluator. After rankings of each member are melded by the TET Chairperson via discussion and collective decision, a single set of individual pluses, zeros and minuses is produced out of the several TET members' rankings. This single set will then represent the consensus of the entire TET's ranking across the collection of contractors for a particular question. Arithmetical and/or statistical machinery is at hand, as required, that supports the processing of these rankings for the various question sets in each criterion so a simple plus, minus or zero is assigned to each contractor for each subcriterion.

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. Cost proposals will be evaluated by Government business professionals. 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 North American Industry Classification System (NAICS) code for this announcement is 541712 with a small business size standard of 500 employees.
- Central Contractor Registry (CCR) - Successful offerors not already registered in the CCR will be required to register in CCR prior to award of any grant, contract, cooperative agreement, or other transaction agreement. Information on CCR registration is available at <http://www.onr.navy.mil/02/ccr.htm>.

- Certifications – In accordance with FAR 4.1201, prospective contractors shall complete and submit electronic annual representations and certifications at <http://orca.bpn.gov>. The Online Representations and Certifications Application (ORCA) will be supplemented by DFARS and contract specific representations and certifications. Proposals should be accompanied by a completed certification package which may be accessed on the ONR Home Page at Contracts & Grants entitled, “Representations and Certifications for Contracts” at http://www.onr.navy.mil/02/rep_cert.asp.
- Subcontracting Plans - Successful contract proposals that exceed \$550,000, submitted by all but small business concerns, will be required to submit prior to award a Small Business Subcontracting Plan in accordance with FAR 52.219-9.

2. Reporting -

The following are samples of data deliverables that could be required under a typical research effort.

- Technical and Financial Progress Reports
- Presentation Materials
- Other Documentation or Reports
- Final Report

However, please note that specific data deliverables (that may include software and hardware deliverables) may be proposed by each offeror and finalized during negotiations. Research performed under contracts may also include the delivery of software, prototypes, and other hardware deliverables.

VII. OTHER INFORMATION

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

Each offeror must provide a very specific description of any equipment/hardware that it needs to acquire to perform the work. This description should indicate whether or not each particular piece of equipment/hardware will be included as part of a deliverable item under the resulting award. Also, this description should identify the component, nomenclature, and configuration of the equipment/hardware that it proposes to purchase for this effort. The purchase on a direct reimbursement basis of special test equipment or other equipment that is not included in a deliverable item will be evaluated for allowability on a case-by-case basis. Maximum use of Government integration, test, and experiment facilities is encouraged in each of the Offeror’s proposals.

Government research facilities and operational military units may be available and should be considered. 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 the Innovative Navy Prototype (INP) Roadmap for Scaleable FEL Weapon Capability program. The use of these facilities and resources should be negotiated as the BAA proposals are being composed.

Offerors should explain as part of their proposals which of these facilities they recommend are critical for the project's success.

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 (FOUO) 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 prominently in its proposal.

3. Use of Animals and Human Subjects in Research

If animals are to be utilized in the research effort proposed, the Offeror must complete a DOD Animal Use Protocol with supporting documentation (copies of AALAC accreditation and/or NIH assurance, IACUC approval, research literature database searches, and the two most recent USDA inspection reports) prior to award. For assistance with submission of animal research related documentation, contact the ONR Animal/Human Use Administrator at (703) 696-4046.

Similarly, for any proposal for research involving human subjects the Offeror must submit prior to award: documentation of approval from an Institutional Review Board (IRB); IRB-approved research protocol; IRB-approved informed consent form; proof of completed human research training (e.g., training certificate or institutional verification of training); an application for a DoD Navy Addendum to the Offeror's DHHS-issued Federalwide Assurance (FWA) or the Offeror's DoD Navy Addendum number. In the event that an exemption criterion under 32 CFR.219.101(b) is claimed, provide documentation of the determination by the Institutional Review Board (IRB) Chair, IRB Vice Chair, designated IRB administrator or official of the human research protection program. Information about assurance applications and forms can be obtained by contacting ONR_343_contact@navy.mil. If the research is determined by the IRB to be greater than minimal risk, the Offeror also must provide the name and contact information for the independent medical monitor. [Note: for research involving human subjects that is greater than minimal risk, administrative procedures to protect human subjects from medical expenses (not otherwise provided or reimbursed) that are the direct result of participation in a research project must be addressed. Additional supporting documentation may be requested. For additional information on this topic, email ONR_343_contact@navy.mil.] For assistance with submission of human subject research related documentation, contact the ONR Animal/Human Use Administrator at (703) 696-4046.

4. Department of Defense High Performance Computing Program

The DoD High Performance Computing Program (HPCMP) furnishes the DoD S & T and DT & E communities with use-access to very powerful high performance computing systems. Awardees of ONR contracts, grants, and assistance instruments may be eligible to use HPCMP

assets in support of their funded activities if ONR Program Officer approval is obtained and if security/screening requirements are favorably completed.

Additional information and an application may be found at <http://www.hpcmo.hpc.mil/>.

5. Protection of Proprietary and Sensitive Information

The parties acknowledge that, during performance of the contract agreement resulting from this BAA, the recipient may require access to certain proprietary and confidential information (whether in its original or derived form) submitted to or produced by the Government. Such information includes, but is not limited to, business practices, proposals, designs, mission or operation concepts, sketches, management policies, cost and operating expense, technical data and trade secrets, proposed Navy budgetary information, and acquisition planning or acquisition actions, obtained either directly or indirectly as a result of the effort performed on behalf of ONR. The recipient shall take appropriate steps not only to safeguard such information, but also to prevent disclosure of such information to any party other than the government. The recipient agrees to indoctrinate company personnel who will have access to or custody of the information concerning the nature of the confidential terms under which the government received such information and shall stress that the information shall not be disclosed to any other party or to recipient personnel who do not need to know the contents thereof for the performance of the contract/agreement. Recipient personnel shall also be informed that they shall not engage in any other action, venture, or employment wherein this information will be used for any purpose by any other party.

6. 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.

7. Submission of Questions

Any questions regarding this solicitation must be provided to the Science and Technology Point of Contact and/or Business Point of Contact listed in this solicitation. Questions must be submitted by 2:00 P.M. EDT on 23-JUN-2008. Questions submitted after this date and time may not be answered and the due date for submission of proposal may not be extended.