

Amendment 0005
Solicitation Number ONRBAA 12-019
“Research and Development/Technology Maturation of Solid State High Power Laser Weapon
Systems, Subsystems, and/or Components for Surface Navy, USN”
Date 06 September 2012

The purpose of Amendment 0005 is to respond to questions submitted after the BAA was posted from 08/14/2012 through 08/30/2012.

1. Industry Questions and Answers are provided as follows:

Q46) Do you expect the initial Phase III proposal submitted on 10/16/12, to be a Rough Order of Magnitude (ROM) proposal? If so, do you want one high-level number or ROM cost numbers for each of the 3 WBS Levels? If this is not a ROM, can you expand on what you mean by a Level of Effort (LOE) proposal?

A46) No, full system proposals for the Phase III effort to be submitted on 16OCT2012 in proposals should not be a “rough order of magnitude (ROM)” of costs or efforts. Phase III costing is expected to be provided as best the vendor can develop given the information provided. A “Level of Effort” proposal should encompass all expected labor categories as well as show a functional decomposition through a work break down structure (WBS) of Level 3. “Level of Effort” recognizes that after interactions by the contractor with the government in Phase I, it is expected in the process of discovery and insertion of innovation and collaborating with the government; some efforts may require engineering change proposals (ECPs) in order to meet performance requirements and maintain functionality and therefore would affect the cost proposed for Phase III. As stated in the BAA, before the end of Phase I, a revised proposal for Phase III shall be expected, with WBS raised to level 4, and shall be provided with corresponding cost tracking, and shall include projected cost to build, manufacture and test the prototype.

Q47) What do you mean by "cost tracking"?

A47) “Cost tracking” is used in multiple connotations throughout the BAA; however on Page 13, in Section 6.1.2 in the second paragraph, it means that “cost tracking” shall be shown in proposals so that design related tasks can be correlated to the amount of manpower used (e.g. number of hours, or full time equivalents required to design the components in the beam director subsystem). These manpower-hour-cost figures are used by the government in order to evaluate realism of cost (See also evaluation criteria in Section V) for the prototype and the cost to develop hardware and better estimate real prototype costs, and thereby better estimate future manufacturing costs to better address affordability factors for both the prototype weapon system as well as manufacturing processes in a future, notional (BA.4) acquisition program of record.

Q48) Page 6: What, specifically, is meant by "multiple lasers ... is seen as having "best value" to show progressively increasing lethality?" Does "multiple lasers" mean many of the same type of laser used at the same time or different lasers used at different times?

A48) This question relates to page 6, second paragraph, forth sentence. The use in this sentence does in fact mean the use of multiple lasers in the form of line replaceable units (LRUs) in order to incrementally increase power. However, the lasers may be of identical, similar or differing qualities based on vendor design options chosen. The government shall see intrinsic value in identical units that lead to a higher power level, but could also accept that some LRUs may be unique from other similar laser LRUs if the technical descripton explains their advantages.

Q49) Page 7: The schedules as depicted in Figure 1 on page 7, Table A on page 31, and as stated in the first full paragraph of page 41 do not appear to be consistent. Please clarify what the desired schedule should be.

A49) The Table on Page 31 is the desired schedule, and should be used in the development of any proposal and shall be used in the determination of contract awards or deliveries. The Table on Page 31 and the discussion on page 41 are consistent. Figure 1 on Page 7 is properly annotated as a “Notional Schedule” and was provided to aid in understanding the multiple phases of multiple efforts, based on the best predictions of contracting actions available at the time of the BAA release. Therefore Figure 1 on Page 7 should be used as a guide, but shall not be required to be strictly adhered to.

Q50) Page 25 (Section 6.3.5): What, specifically, is meant by 'strategy' to test at 100 kw?

A50) In the case of full proposals for a prototype laser weapon system the strategy is the description of program planning and the methods by which subsystems, such as the beam director subsystem, shall be mated and tested with a 100kW laser source with the identification of any assets and costs that are required to validate claims used in proposed testing. See also Answer 51 for additional clarification on power levels, testing and strategy.

Q51) Are successful proposers expected to provide a 25 or 30 kW high energy laser under this contract or will the government provide one as GFE?

A51) The proposers are expected to provide ANY high energy lasers in a laser subsystem proposed, UNLESS it is explicitly identified in their proposal as GFE/GFP.

Q52) Regarding Page 13, Section 6.1.2, and specifically the sentence “Proposals should have an objective capture table at the beginning that maps BAA requirements to response sections, page and paragraph.” Are these requirements in the main body of BAA 12-019 and/or in "Top level Weapon System Mission Description/Requirements"? And if they are in the main body of the BAA, how are they to be identified; i.e. which of the following words are associated with requirements: shall, will, should, may, desired, required, is expected to, encouraged, strongly desired, need to be, can be, goal and threshold objective?

A52) The use of an objective capture table that maps requirements as referenced on Page 13, Section 6.1.2 should be applied to **BOTH** the Top level Weapon System Mission Description/Requirements and the BAA. It is important to note that the objective capture table shall not be counted against the allowable pages in the technical proposal maximum page count.

The vendor is encouraged to engage in as many of the goals or thresholds provided from either classified or unclassified sections in order to substantiate claims being made in their narrative proposals, including any sections using words that are associated with requirements: shall, will, should, may, desired, required, is expected to, encouraged, strongly desired, need to be, can be, goal and threshold objective. The government encourages vendors in their proposals to provide clear well thought out technical discussions, and identify how trade-off studies between various programmatic and performance measures for full system prototypes (and subsystems) shall be performed, reported and how they could then be seen as useful in the development of future planning for an acquisition programs of record.

Q53) Section 6.1.2 (page 13) says “Phase I and II shall be shown down to a WBS sublevel detail of 4. And the option Phase III manufacture, assembly and testing phase shall be shown down to a WBS sublevel detail of 3 with commensurate detail shown in costs. Therefore proposals are required to capture Phase II accurately, and Phase III Level of Effort (LOE).” Please explain what is meant by Phase III Level of Effort.

A53) Please review the answer (A46) to question 46, and the answer (A54) to question 54. Any full system proposal shall provide a Phase III WBS with sublevel detail of 3 with commensurate detail shown in cost figures provided. It is recognized that cost figures provided in proposals may have not been fully integrated with or informed by the government’s activities. It therefore is judged by the government as not only unlikely for the proposers to anticipate emergent requirements caused by the design path offered, but very difficult to estimate costs at the beginning of a unique weapon prototyping process. Therefore, the government will examine the cost realism in Phase II design efforts in significantly more detail as they are design based activities with expected outcomes (CoDR, PDR, CDR), and examine Phase III cost realism in the build and testing of a “first article” laser weapon prototype against activities and processes expected (e.g. land & at sea testing and government safety reviews) which shall be required because of the strategy or methods proposed to meet requirements.

Q54) Section 6.1.2 (page 13) says that “Before the end of Phase I, a revised proposal for Phase III shall be expected, with WBS raised to level 4, ...”. However Table A on page 31 says that the Delivery of Phase III Proposal Update is NTE 3 months after Phase II award and page 34 lists updates to the Estimated Prototype Cost under both the CoDR and PDR packages. Please clarify when the update or updates are required.

A54) In order to award Phase III, it is required for the government to obtain accurate an technical and cost proposal at least four months in advance of the award in order to provide contracting officers sufficient time to conduct their required cost analysis. The government program officer similarly desires minimal time to elapse from the PDR and Phase III to begin, but must establish if the vendors work breakdown structure and technical approach require adjustments or redirection based on government requirement updates or vendor progress made to date. Page 13 of the BAA attempts to provide that insight. Similarly, the government program officers are expected to reduce exposure to cost increases and shall be tracking cost estimates in every phase of the contract (Phase I-IV), as well as tracking estimated vs. actual costs for manufacture of the

laser weapon prototypes, at multiple times throughout the period of performance. In page 34, the reference is specifically meant to establish a regular review of Estimated Prototype Cost (or unit cost in very low rate manufacture) and Projected Total Ownership Costs, with total ownership costing outlines as referenced in Section 3.1.5 of the Defense Acquisition Guidebook, available through the Defense Acquisition University. In conducting these cost reviews at CoDR, PDR, and in other management or technical reviews - trade analyses can be offered that permit lowered program or contracting costs while achieving weapon specification threshold or objective requirements verification and validation. Similarly, should significant costs be shown as necessary to meet test objectives or requirements far in excess of those proposed in the weapon specification, the government may reconsider the methods or level of verification and validation, when so offered.

Q55) Section 6.3 (page 20) refers to a “Detailed Design Package” at the end of Phase I, rather than a Conceptual Design package, which is referred to in the rest of the document. We assume that the requirement is for a Conceptual Design package. Is this correct?

A55) The “Concept Design Package” is a “Detailed Design Package” which will undergo review at the Concept Design Review (CoDR). The delivery of a design package at CoDR which does not provide sufficient design detail and engineering rigor is highly discouraged. However, unlike PDR and CDR, not all design drawings required for manufacture may be available or even possible due to other ongoing efforts. In particular, detailed design aspects of how the prototype will interface with specific subsystems on a surface combatant may still be underway. However, the details regarding other subsystems (for example the beam director), should be highly detailed and ready for review by the government at CoDR. The level of detail reviewed and progress shall be repeatedly examined throughout the program as shown in the evaluation criteria in Section V.1 of the BAA and the document “General Guidance for Technical Reviews including Concept Design Reviews (CoDR), Preliminary Design Reviews (PDR), and Critical Design Reviews (CDR) for first article Naval S&T Prototypes, dated 08JUN2012.”

Q56) Section 6.3 (page 20) says that “Phase II of this BAA is for the development, integration, tests and at-sea demonstration of a complete laser weapon system,” while the rest of the document says that Phase II is for the completion of design. We assume that Phase II is for the completion of design and Phase III is for fabrication, integration and testing. Is this correct?

A56) That is correct. A modification will be issued to correct the two typographical errors made in that sentence. The correct wording should be “Phase III of this BAA is for the manufacture, integration, tests and at-sea demonstration of a complete laser weapon system.”

Q 57) Proposal delivery-related questions:

- a. How many hard copies and CDs of the proposal are required for submission?
- b. Is there a way to submit the proposal electronically? If so, how?
- c. Can the proposal be hand carried to ONR to the address listed on page 43?
- d. The BAA mentions fully classified and fully unclassified submittals. Is it acceptable to have a classified addendum (submitted via classified channels) to an unclassified proposal?

A57) Response:

- a) Two Hardcopies, three CDs are the minimum.
- b) No. Electronic submissions of proposals shall not be accepted.
- c) Yes, a receptionist will be made available in the lobby only on the last due date permitted for the proposals, up until the time established by the solicitation.
- d) Yes, a separate classified addendum is a preferred method of submission is subject to the same delivery deadline stipulated in the solicitation, and shall only need to provide one classified hardcopy and two classified electronic (CD or DVD) copies.

Q58) Please provide the military specification or other definition of “Level 3 Design Package of Concept Level Prototype” referred to on page 33. Level 3 usually refers to a production-ready design package per DOD-D-1000. Or, will this definition be contained in the previously requested document ‘General Guidance for Technical Reviews including Concept Design Reviews (CoDR), Preliminary Design Reviews (PDR), and Critical Design Reviews (CDR) for first article Naval S&T Prototypes’?

A58) We concur that a level 3 drawing package is one that refers to a “manufacturing ready” technical design package. Please refer and review section 6.3 on Page 20 of the solicitation. ANSI/ASME Y14.100 standards or their predecessors, such as the cancelled MIL-STD-100G, MIL-DTL-31000C or DoD-D-1000 instructions. In the scope of this solicitation, a level 3 drawing is one that shall permit “a (any) competent vendor to manufacture the product (part, assembly, tool, etc), meet physical and performance characteristics and enable inspection and quality control of the product – without additional data or recourse to the originating design authority.” The difference resulting from CoDR to PDR and CDR shall be the aggregation of additional information and knowledge of other ship systems, interfaces and methods of operation. To provide some contrast and an illustrative example, at the CoDR, information regarding ship integration of the prototype and interface control documents may still be in early development, and only able to be documented at level two or even only level one, but components related to the beam director subsystem and any related ICD should be much better understood and enable documentation through level 3 drawings.

Q59) Schedule related questions:

- a. Section II 1.2 (page 41) says that Phase II will have a period of performance of eighteen months (consistent with Figure 1). However, Table A (page 31) seems to indicate that Phase II ends at CDR which is 12 months after the start of Phase II. Which is correct? Also the text on page 41 (as well as Table A) says PDR is about 6 months after the start of Phase II, but Figure 1 (page 7) seems to indicate longer until PDR. Which is correct?
- b. Section II 1.2 (page 41) says that Phase III will have a period of performance of 18 months. However Table A (page 31) as well as Figure 1 (page 7) indicate a longer Phase III, starting around PDR, with a length of Phase III around 24 months or so. Which is correct?
- c. Table A (page 31) says that a “Delivery of Phase IV updated Cost Schedule based on successful Phase III completion based on a period of performance of one year.” When is the first

Phase IV proposal required (that this is an update to)? Also this Phase IV cost schedule is not listed in the Contract Data Requirements and Deliverables.

A59) For a & b: Please refer to the answer (A49) to Question 49. For c: A request by the government for a proposal of Phase IV is not anticipated to be requested by the government until after a program of record (Budget Activity 4, BA.4) in the Navy is established and funded to conduct studies like those in defense acquisition engineering and manufacturing development (EMD) phases.

Q60) Subsystem Proposal questions:

a. Can one submit a single combined subsystem proposal for two closely interrelated subsystems such as one proposal for a combined Laser Subsystem and Power and Cooling Auxiliary Subsystem or one proposal for a combined Beam Director Subsystem and Targeting & Tracking Subsystem since they can't be used without each other?

b. On page 17, the BAA requests a LOE component for Subsystem or Component Proposals to support two separate industry teams and one government team. Will the Subsystem or Component be integrated into one System or will it be integrated into one System and then un-installed and integrated into the other System?

A60) a. Yes, however this is not seen as a requirement. However, the government disagrees with the proposition made that separately developed Beam Director and Targeting & Tracking subsystems "can't be used without each other." The government sees no reason that a Beam Director subsystem and Targeting & Tracking subsystem cannot be combined through a Modular Open System Approach (MOSA) and Interface Control Document (ICD).

b. Determination of integration and testing paths for subsystems shall be made by the government based on the proposals once they are received and reviewed, and can only plan after efforts in Phase I, II and III are well underway. However, the intent was for a component or subsystem, based on a modular approach with an ICD, to be installed on one system (possibly a government test bed), tested, and then un-installed and integrated into the other laser weapon prototype for additional testing or data collection. In the case of a component or subsystem being tested on a contractor provided laser weapon prototype, careful review of the proposed testing as well as potential costs to be incurred by the contractor have to first be considered, and may or may not require modification to the contract to permit such testing. In some cases, a "directed partnership" could result, wherein a component or subsystem vendor provides unique capabilities which the government finds both technically and programmatically superior to other offered approaches.

Q61) Cost-related questions:

a. The BAA does not mention a requirement for submission of certified cost or pricing data. We assume that you anticipate adequate competition and will require only other than cost or pricing data; is this correct?

b. On page 44, it says that "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." The \$150,000 value seems low, particularly for Phases II and III.

Please consider raising the threshold; we suggest using a variation on the criteria from FAR 15.404-3(c)(1)(ii) and require submittal of subcontractor Cost Proposal Spreadsheets where the subcontractor or interorganizational cost exceeds \$700,000 or 10% of the prime contractor's proposed price.

A61) Response:

- a. In accordance with FAR 15.403-4 Requiring certified cost or pricing data, all offerors awarded contracts valued at \$700,000 and higher will be required to submit certified cost or pricing data.
- b. As stated in the BAA, the Office of Naval Research requires that 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. The Cost Proposal Spreadsheet is available at the ONR website: <http://www.onr.navy.mil/Contracts-Grants/submit-proposal/contracts-proposal/cost-proposal.aspx>

Q62) Can you please provide an estimate of when the requested additional documentation will be sent out?

A62) The government understands the desire for updates, and in many cases the documentation was prepared in advance, but still requires processing in order to ship it to the requested location. Tracking information on shipments was requested for each request made, and should be available to the person identified as the receiver (typically the Facility Security Officer or FSO). Estimates of delivery however have been variable due to some issues encountered with vendors provided receiving destinations which were not street addresses, as stipulated on page 38. In some cases, unclassified documents requested were still mailed and delivered by overnight post, but a classified document could not be so quickly released. If after three working days have passed from your last inquiry or update from any one of the individuals listed on page 35 and 36, and you still do not have an update on the status of the requested document, please send one email to all three of the individuals listed requesting a further update. As of 25AUG2012, in the case of requests for the classified "Top level Weapon System Mission Descriptions/Requirements," the processing time from receipt of request to release of the document to the expedited shipper (FedEx) was four working days.

Q63) For both Phase I CoDR and Phase II PDR, the BAA requests (page 34) "Projected Total Ownership Costs". What is this the ownership cost for – the prototype?

A63) This Total Ownership Cost is for the prototype. Total Ownership Cost (TOC) for the prototype may be initially estimated using Life Cycle Cost (LCC) as discussed in DoD 5000.4M, which includes all direct and linked indirect costs from R&D through demilitarization including disposal. However, it is recognized that this starting point is insufficient for many acquisition processes under increasing budgetary constraints. For the Navy, Total Ownership Costs currently consist of the sum of all financial resources necessary to organize, equip, train, sustain, and operate military forces sufficient to meet national goals in compliance with all laws, policies applicable to DoD, all standards in effect for readiness, safety and quality of life and all other official measures of performance for DoD and its components. There are very few TOC models

currently in use and fewer yet for S&T programs based on “game changing” technology. Regardless, the development of a laser weapon in the future shall surely require specialized readiness preparation, training, handling, safety and maintenance equipment. As the design and development of a prototype begins to end, processes such as CIAV (Cost As Independent Variable) provide insight in early R&D efforts prior to procurement or operational costs being incurred, but may overlook issues related to platform affordability, lifecycle & sustainment costs, and crew manning and operational capabilities. As recently identified to the ONR program officer by Naval operational staff members, if the systems install requires a on-board, on-call doctoral level laser physicist in order for the laser weapon prototype to operate correctly after being installed on a Navy combatant, then the issues related to TOC have not been properly considered in the development of that prototype and will likely not be considered suitable for transition into an acquisition program.

Q64). Page 37 contains Instructions for UNCLASSIFIED Requests – should this be for CLASSIFIED requests?

A64) No, on Page 37, the request and resulting DD254 are unclassified documents, therefore it is correct as currently worded.

Q65). Page 41 states that Phase II awards will be made at the end of Phase I and will have an 18 month period of performance, but the tables on page 31/32 seem to indicate a 12 month POP; is the POP for Phase II expected to extend beyond CDR?

A65) No period of performance beyond CDR is expected in Phase II. Timelines shown in the tables on page 31/32 are the correct ones to use in preparing bid packages.

Q66) Are Subsystem proposals also due on October 16th, or given the 2013 start date for full system awards, can they be submitted in Feb 2013?

A66) All proposals are due 10/16/2012 by 2:00PM Eastern Daylight Time.

Q67) In the BAA, on page 42, it indicates that “Those not able to attend this briefing should consult the web page <http://www.onr.navy.mil/02/BAA/> to see briefing slides and answers to questions submitted during the conference.” Would you please point to me the web location of the slides or would you please send them to me?

A67) The Pre-proposal Conference/Industry Day briefing slides and Q&A are now available at the following web link listed under BAA 12-019: <http://www.onr.navy.mil/en/Contracts-Grants/Funding-Opportunities/Broad-Agency-Announcements.aspx>

Q68) In the ONR BAA #12-019, it states on page 42 that the briefing slides and answers to questions from ONR’s Industry Day (May 16, 2012) are on ONR’s website.

A68) The Pre-proposal Conference/Industry Day briefing slides and Q&A are now available at the following web link listed under BAA 12-019: <http://www.onr.navy.mil/en/Contracts-Grants/Funding-Opportunities/Broad-Agency-Announcements.aspx>

Q69) With reference to page 45 of the BAA, please advise how many hard copies of the proposal must be submitted.

A69) A minimum of two (2) hard copies is appropriate.

Q70) Page 42 of the subject BAA has a web page link <http://www.onr.navy.mil/02/BAA/> for the Pre-proposal Conference/Industry Day briefing slides and Q&A that is not working.

A70) The Pre-proposal Conference/Industry Day briefing slides and Q&A are now available at the following web link listed under BAA 12-019: <http://www.onr.navy.mil/en/Contracts-Grants/Funding-Opportunities/Broad-Agency-Announcements.aspx>

Q71) Are the proposal preparation instructions for subsystem proposals the same as for full system proposals?

A71) Yes, except that the proposal title should clearly identify that it is for a subsystem or component.

Q72) The BAA, at page 44, lists font requirement for attachments as 12 point, but the instructions are silent about font requirements in figures and tables. May offerors use a smaller font (say 8 point) within the figures and tables?"

A72) Figure notations, footnotes, and tables in the technical section submission may use a smaller font no smaller than 8 point - provided that clarity of text is easily readable by the unaided eye under normal office lighting conditions. However, any tables using reduced fonts shall be required to use a white background with black text – no shading of table boxes with reduced font sizes shall be seen as acceptable.

Q73) BAA Section IV Application and Submission Information, Subsection 2.a.i Instructions for Contracts, Proposal package "Technical Content" , 6. Pending Proposal Submissions: does this requirement apply to the Tier I Subcontractor(s) to the Prime Contractor? Does this requirement apply to the Tier 2 Subcontractor(s) to the Tier I Subcontractor(s)?

A73) Yes and Yes.

Q74) BAA Section I, Subsection 7 Point(s) of Contact, at bottom of Page 38 contains the following statement: "... Offerors shall provide a table listing each evaluation criterion contained in the "Top level Weapon System Mission Descriptions/Requirements" and the relevant proposal pages that address each."However the US Government has not provided a document titled "Top level Weapon System Mission Descriptions/Requirements". The US Government has provided documents titled "Summary of SSL-TM Weapon Specification" and "Solid State Laser (SSL) Weapon Specification", neither of which contain Evaluation Criteria. Please clarify this requirement.

A74) The Top level Weapon System Mission Descriptions/Requirements is in fact two inter-related documents, the "Summary of SSL-TM Weapon Specification" and "Solid State Laser (SSL) Weapon Specification." The latter was completed by the government after the Industry Day and the draft of the BAA was released. Offerors may simply provide a table listing each evaluation criterion or performance metric (threshold or goal) contained in the "Solid State Laser (SSL) Weapon Specification."

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