ONR BAA Announcement # 08-017

BROAD AGENCY ANNOUNCEMENT (BAA)

Development of Marine Composite Propeller Technology

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 N. Randolph Street Suite 1425
Arlington, VA 22203-1995

2. Research Opportunity Title

Development of Marine Composite Propeller Technology

3. Program Name

ONR Advanced Material Propeller Program

4. Research Opportunity Number

ONR BAA 08-017

5. Response Date

Full proposals are due by no later than 2:00 pm (Eastern Daylight Time) on 09 JUL 2008

6. Research Opportunity Description

6.1 Background

Most commercial and naval vessels employ metallic propellers. The most popular materials are a nickel-aluminum-bronze (NAB) alloy and stainless steel. In the small-boat industry, composite propellers are becoming increasingly popular over metallic propellers due to their light weight, relatively low cost, and maintenance advantages. Composite propellers for large vessels require significant developmental efforts in many areas, particularly in the manufacturing area. Although composite materials are used heavily in the aerospace and the wind turbine industries, the development in the marine industry has been slow primarily due to technical difficulties associated with the in-water operating environment and smaller market size.

The Office of Naval Research (ONR) is initiating the development of marine composite propeller technology for applications to large ships and submerged vehicles. The objective of the program is to develop and demonstrate composite marine propeller technology that can achieve benefits such as reduced weight, reduced life-cycle cost and reduced maintenance needs, as well as some perceived benefits for naval applications. Under this BAA, ONR is soliciting proposals for the development of composite marine propeller technology in a building-block approach, starting from small-scale and progressively increasing size to large- and full-scale prototypes.

Traditional propellers are rigid. Though the rigid propellers may deflect under load, the pitch of the propeller does not change when the blade is loaded. One advantage of composite materials is the ability to tailor the structure for improved performance. A composite propeller with blades structurally tailored in such a way that the blade tip is passively deformed through bend/twist coupling in response to the onset flow is expected to provide improved efficiency and other performance. This kind of propeller is called a pitch-adapting propeller.

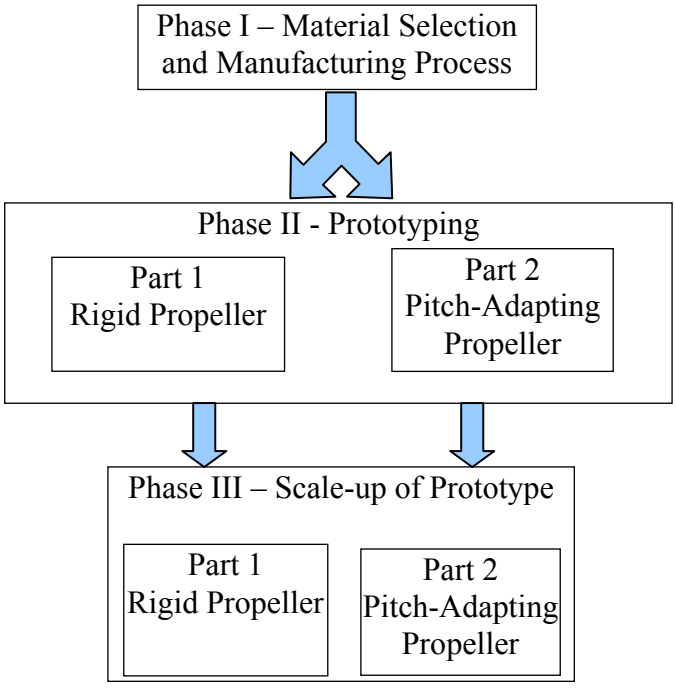
6.2 Program Plan

The objective of this program is to develop, demonstrate and transition composite propeller technology for applications to naval ships and submerged vehicles. Two types of composite propellers will be developed under this program: rigid and pitch-adapting.

The program will consist of three phases. The first phase will have up to three vendors. The purpose of the first phase is to evaluate the vendor's structural design and manufacturing capabilities. The second phase will have up to two vendors and use a building block approach to develop the structural design and manufacturing capabilities for the unique geometries involved in propeller manufacture. The third phase will have up to two vendors and focus on structural design and manufacture of propellers at large scale.

All phases will have Classified and Unclassified structural design components. The manufacturing process in the first phase will be Unclassified. The manufacturing process in the subsequent phases will be Classified.

The following is a block diagram illustrating the different phases:



Phase I – Phase I is designed to evaluate the vendor's material selection and rationale, and manufacturing and structural design capabilities.

Vendors shall be required to manufacture material coupons and a ~30"-span* rigid propeller blade with complex curvatures based on the geometries, load profiles and other criteria such as maximum stress and deflection provided by the Government.

Each vendor will develop plans to address the following issues:

- Scaling of the propeller structural design to a 14'-diameter and a 24'-diameter,
- Manufacturing/laying-up of a propeller geometry including both rigid and pitch-adapting capabilities,
- Manufacturing of leading and trailing edge geometries,
- Design of a robust blade-to-hub connection for replaceable blades for the loads provided by the Government that has the capability of replacing blades, and
- Cost estimates for subsequent phase as well as for full-scale (24'-diameter) propeller manufacture.

The structural design capabilities as well as the manufacturing quality are considered integral to the success of the program. The vendors should consider, but not limit themselves to, the following critical performance in their design plans: fatigue life, cavitation erosion, shock response, extreme reverse conditions (crashback), fouling, impact resistance, corrosion, and blade replacement.

Phase II – The tentative plan for Phase II is to develop structural design and prototype multiple composite propellers culminating in large-scale manufacture of prototype propellers. There are potentially two different parts in Phase II: the structural design and manufacture of *rigid* and *pitch-adapting* propellers.

Part 1 of Phase II will involve the structural design and manufacture of a ~3'-diameter rigid propeller based on the geometries and load profiles provided by the Government. Additionally, a ~6'-span rigid blade will be manufactured as a demonstration of large-scale manufacturing capabilities. The Government will perform structural evaluation on the ~6'-span rigid blade. Additional prototypes of complex geometries, such as the blade-to-hub connection and the leading and trailing edges, will be manufactured for risk mitigation purposes.

Part 2 of Phase II will involve the structural design and manufacture of up to two ~3'-diameter pitch-adapting propellers based on the geometries, load profiles, and deflection criteria provided by the Government. Additional prototypes of complex geometries, such as the blade-to-hub connection and the leading and trailing edges, will be manufactured for risk mitigation purposes.

All the ~3'-diameter propellers (rigid and pitch-adapting) will be tested by the Government in the Large Cavitation Channel (LCC) in Memphis, Tennessee for

* The products of this program include both single blades and full propellers with hubs. As a measure of the size, the term "span" is used for a single blade, and "diameter" for a full propeller with hub.

hydrodynamic performance. The ~3'-diameter propellers and other hardware will also be tested both non-destructively and destructively for manufacturing quality.

Phase III – The tentative plan for Phase III is as follows. Phase III will also potentially have two parts. In Part 1, a 14'-diameter rigid propeller will be structurally designed and manufactured for at-sea trials.

In Part 2, a ~6'-diameter pitch-adapting propeller will be structurally designed and manufactured for in-water testing on a large-scale demonstration platform. Additionally, a ~10'-span pitch-adapting blade will be structurally designed and manufactured for structural performance evaluation.

The geometries, load profiles, and deflection criteria for the blade and propellers will be provided by the Government.

7. Point(s) of Contact

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

Science and Technology Point of Contact:

Dr. Ki-Han Kim
Office of Naval Research
Code 331, Room 266
875 N. Randolph Street Suite 1425
Arlington, VA 22203-1995
Telephone Number: (703) 696 - 4305
Email Address: kihan.kim@navy.mil

Questions of a business nature shall be directed to the cognizant Contract Specialist, as specified below:

Business Point of Contact:

Susan Parrott
Contract Specialist
BD254, Room 1261B
875 N. Randolph Street, Suite 1425
Arlington, VA 22203-1995
Telephone Number: (703) 696-1356
Email Address: Susan.Parrott@navy.mil

Questions related to security issues shall be directed to:

Security Point of Contact:

Derrick Shack
Information Security Specialist
Code 43, Room 624D
875 N. Randolph Street, Suite 1425
Arlington, VA 22203-1995
Telephone Number: (703) 696-1499
Email Address: derrick.shack@navy.mil

Note: All UNCLASSIFIED communications shall be submitted via e-mail. All questions of an UNCLASSIFIED nature to the Technical POC or Security POC shall be sent via e-mail with a copy to the designated Business POC. Questions submitted within 2 weeks prior to a deadline may or may not receive a response. If one of the POCs is not available, then any questions must be forwarded to any backup provided in any "out of office" reply.

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

8. Instrument Type(s)

Awards shall take the form of contracts, specifically, cost-type Indefinite Delivery, Indefinite Quality (IDIQ) contracts with cost-type Delivery Orders made off of those IDIQs.

9. Catalog of Federal Domestic Assistance (CFDA) Numbers

N/A

10. Catalog of Federal Domestic Assistance (CFDA) Titles

N/A

11. Other Information

This announcement is restricted to basic research, applied research and that portion of advanced technology development not related to the development of a specific system or hardware procurement. Contracts made under this BAA are for scientific study and

experimentation directed towards advancing the state of the art and increasing knowledge or understanding.

II. AWARD INFORMATION

Anticipated award information is as follows:

Total amount of funding: Up to $9.5M over 4 - 5 years with up to 3 IDIQ contracts.

Total amount of funding available for each Delivery Order:

- Phase I: Up to $500K per Delivery Order.
- Phase II: Up to $2.0M per Delivery Order.
- Phase III: Up to $2.0M per Option. It is currently anticipated that Phase III will be included as an Option in the second Delivery Order.

Anticipated number of awards:

- Phase I: Up to 3 IDIQ Contracts, each with one associated Delivery Order (0001).
- Phase II: Up to 2 Delivery Orders (0002).
- Phase III: Up to 2 Options exercised on the Phase II Delivery Order(s).

Anticipated period of performance*:

- Phase I: 12 months
- Phase II: 14 months (Part 1); 23 months (Part 2)
- Phase III: 23 months (Phase II, Part 1 Anticipated Option); 20 months (Phase II, Part 2 Anticipation Option)

*The months displayed above are the anticipated periods for the performance for each phase that include the Government testing and evaluation periods. It is expected that the performance periods for Part 1 and Part 2 will run concurrently (in both Phase II and III). The vendors shall be available to the Government for consultation during the test and evaluation period. Detailed delivery dates are specified in Section VI. 2. Depending upon the perceived Navy needs, the periods of performance for Phase II and III may change.

The first Delivery Order will be the IDIQ minimum quantity with a period of performance shown above. Subsequent Delivery Orders will follow the criteria established in FAR 16.505 for multiple-award IDIQ Delivery Orders. Each successive Delivery Order will be competed among all of the Contractors awarded IDIQ contracts under this solicitation. Only contractors under contract will be included in future Delivery Order competition.

Although ONR expects the above described phasing plan to be executed, ONR reserves the right to make changes or take into consideration an entity's interest in rigid versus pitch-adapting propeller when making its award(s). ONR also reserves the right to split or not split Phase II awards between Part 1 (rigid propellers) and Part 2 (pitch-adapting

propellers) based on the competencies shown in Phase I and make awards as it deems necessary for the overall success of the program.

III. ELIGIBILITY INFORMATION

Only U.S.-owned firms with Defense Security Services (DSS) "Secret" level facility and personnel clearance in the U.S. will be considered for prime contracts under this solicitation. For Phases II and III, the manufacturing facility must have at least a DSS "Secret" level clearance.

If proposing the use of any subcontractors, such as an entity that has access to major manufacturing facilities, the prime contractor must clearly delineate if the subcontractor will be working with classified or unclassified information, whether or not the entity is U.S.-owned, if the firm has a DSS "Secret" level facility clearance in the U.S. and if the firm has a DSS "Secret" personnel clearances in the U.S.

If a proposed subcontractor working with classified information does not have a DSS "Secret" level facility, the subcontractor must be U.S.-owned as well as have at least DSS "Secret" level personnel clearance in the U.S. in addition to a formal arrangement with the prime contractor for all work to be completed and stored in the prime contractor's DSS "Secret" level facility. Any situation described above must be solidified in a written agreement and that agreement should be available for Government review.

It is the prime contractor's responsibility to ensure proper protection and disbursement of classified information.

Only U.S. persons are permitted to work on this effort due to export control restrictions. The term "U.S. persons" is defined in the International Traffic in Arms Regulations (ITAR) - 22 CFR § 1201.1 et seq.

Teaming is encouraged; however, offerors must be willing to cooperate and exchange software, data and other information in an integrated program with all team members as well as with the Government.

Teaming with academia is permitted. Historically Black Colleges and Universities (HBCUs) and Minority Institutions (MIs) may join others; 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 as a prime contractor or subcontractor.

Navy laboratories and warfare centers as well as other Department of Defense and civilian agency laboratories are eligible to receive sub-awards by teaming with other

responsible sources that submit prime contractor proposals under this BAA. See section IV for how to propose the costs associated with this type of subcontractor.

Teaming with the Naval Surface Warfare Center, Carderock Division (NSWCCD) is prohibited because NSWCCD will be the lead Navy laboratory who will evaluate the products of this program.

IV. APPLICATION AND SUBMISSION INFORMATION

1. Application and Submission Process

Obtain TWO CLASSIFIED DOCUMENTS: Offerors should obtain two Classified documents through the ONR Security POC listed in Section I, 7: (1) "Classification Guidelines (U)" and (2) "Performance Specifications (U)". The request for the Classified documents should be submitted via e-mail to the ONR Security POC with copy to the ONR Business POC as well as to the ONR Technical POC listed in the same Section. The email shall include the following information:

1. Requesting entity name.
2. Requesting entity address.
3. Requesting entity CAGE code.
4. Name and phone number of the requesting entity's security POC.
5. Name of requested document(s).

Document (1) is "OPNAVINST S5513.5B Enclosure 56.3 Dated 27 August 2007 (Confidential)." Offerors must carefully review the document (1) in preparation for the technical proposal. **Special care is required when preparing an Unclassified technical proposal in order to avoid any potential security violation. It is the offeror's responsibility to follow the classification guidelines.**

Document (2) describes the Phase I Classified Performance Requirements that should be reviewed by offerors in preparation for technical proposals. Since responses will be sent via registered mail, please allow a 7 to 10 day turnaround.

A. Full Proposal: This BAA constitutes all the information to be provided regarding this solicitation. The due date for receipt of full proposals can be found in Section I, 5. As soon as the final proposal evaluation process is completed, the successful offeror(s) will be notified via email or letter of its selection for award. The anticipated notification date is July 2008. It is anticipated the IDIQ contract and Delivery Order 0001 will be issued around November 2008.

Full proposals submitted under the BAA shall consist of three volumes:

Volume 1: Classified Technical Proposal.
Volume 2: Unclassified Technical Proposal.
Volume 3: Unclassified Cost Proposal.

Volumes 1 and 2 shall be exactly the same with the exception of the Classified information, which shall only be included in Volume 1.

Any contract resulting from this BAA shall be unclassified.

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 additional days before the deadline established in the solicitation so that it will not be received late and thus be ineligible for award consideration.

A.1. Submission of Volume 1: Classified Technical Proposal

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

OUTSIDE EVELOPE (no classification marking):
"Office of Naval Research
Attn: Document Control Unit
ONR Code 43
875 North Randolph Street
Arlington, VA 22203-1995"

INNER ENVELOPE (stamped with the overall classification of the material)
"Program: ONR Advanced Material Propeller Program
Office of Naval Research
Attn: Dr. Ki-Han Kim
ONR Code 331
875 North Randolph Street
Arlington, VA 22203-1995"

A.2. Submission of Volume 2: Unclassified Technical Proposal and Volume 3: Unclassified Cost Proposal

Volumes 2 and 3 shall be submitted directly to the Technical POC listed in Section I, 7 via mail. No emailed or faxed proposal will be accepted.

2. Content and Format of Full Proposals

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

A. Full Proposal Format – VOLUMES 1 & 2 - Technical and VOLUME 3 – Cost Proposal

- Paper Size – 8.5 x 11 inch paper, also will allow up to 11X17 inch paper for schedule and/or design concept foldouts
- Margins – 1 inch
- Spacing – single or double-spaced
- Font – Times New Roman, 12 point
- Number of Pages – Volumes 1 and 2 are limited to no more than 70 pages each. Volume 3 does not have a page limitation. Double sided printing is encouraged. Full proposals exceeding the page limit may not be evaluated.
- Copies – one (1) printed original, two (2) hard copies, and seven (7) copies on CD-ROMs (in .PDF and .DOC (Word) format). In CD-ROMs, each Volume, including Appendices (if any), should be contained in a single file, NOT in segmented files.
- Appropriate classification markings for Volume 1 (Classified Technical Proposal) in accordance with NISPOM.

B. Full Proposal Content

B.1. VOLUME 1 (Classified) and VOLUME 2 (Unclassified): Technical Proposal

Full Technical Proposals shall consist of two volumes, each with two sub-volumes:

Volume 1: Classified Technical Proposal.
Sub-Volume 1: IDIQ proposal (All Phases)
Sub-Volume 2: Delivery Order 0001 proposal (Phase I)

Volume 2: Unclassified Technical Proposal.
Sub-Volume 1: IDIQ proposal (All Phases)
Sub-Volume 2: Delivery Order 0001 proposal (Phase I)

Volumes 1 and 2 shall be exactly the same with the exception of the Classified information, which shall only be included in Volume 1.

See Section II, entitled “Award Information”, for details on anticipated period of performance and funding level for the IDIQ contract and Delivery Order 0001.

Cover Page: (not included in page limitation; include in both sub-volumes)

The cover page should include the following:
1) Entitled "Technical Proposal"
2) Specify Volume 1 or Volume 2
3) BAA number
4) Title of Proposal
5) Identity of Prime Offeror and complete list of subcontractors, if applicable
6) Technical contact (name, address, phone/fax, electronic mail address)
7) Administrative/business contact (name, address, phone/fax, electronic mail address)
8) Duration (period of performance) of effort for each Phase.

Table of Contents: (not included in page limitation; include in both sub-volumes) An alphabetical/numerical listing of the Sections and Sub-Sections within the proposal, including corresponding page numbers.

Executive Summary (include in both sub-volumes)

Technical Approaches: (include in both sub-volumes) Clearly describe the scope and objectives of all three phases of the program and detailed technical approaches to be taken to meet the performance requirements. In the IDIQ sub-volume, the technical approach should be broken out by Phase. The Phase I technical approach should be more detailed and specific than the Phase II and Phase III technical approaches. However, the Phase II and Phase III technical approaches should not be ignored as they are critical for the Government to assess the offeror's vision and capability for the performance of potential future phases.

Statement of Work: (include only in Delivery Order 0001 sub-volume; Statement of Work for IDIQ will reference this solicitation) A Statement of Work (SOW) specific for Phase I (SOWs for subsequent phases will be finalized after the completion of Phase I). It is anticipated that the proposed SOW will be incorporated as an attachment to the resultant award instrument. **To this end, such proposals must include a severable, self-standing, task-oriented SOW without any proprietary restrictions, which can be attached to the contract.** Include a detailed listing of the technical tasks/subtasks organized by month.

Project Schedule and Milestones: (include in both sub-volumes) The proposal should include a detailed listing of the technical tasks/subtasks in Work Breakdown Structure format broken out by phase and month. The proposal should also include a schedule of events and milestones for the proposed program keyed to the work breakdown structure, month, and

program phases. Planned deliverables and program review dates should be included.

Assertion of Data Rights and/or Rights in Computer Software: (not included in page limitation; include as appropriate in either sub-volume) 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 as well as the required assertion format are prescribed in Defense Federal 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: (include only in Delivery Order 0001 sub-volume) A detailed description of the results and products to be delivered for Phase I of the program. See Section VI, 2.

Management Approach: (include only in IDIQ sub-volume) 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 in each program phase. 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.

Experience: (include only in IDIQ sub-volume) A description of the experience and qualifications of the offeror, subcontractors, and key personnel relevant to the proposed efforts. The following list should be included at a minimum:

- **Past Experience**
  - List experience in design/fabrication/testing/analysis of thick composite 3-dimensional shapes. Describe fabrication process(es) used, together with the weight, volume, and size of each application as well as a brief description of the component.
  - List any experience in materials development with good cavitation erosion characteristics.
  - List any experience with geometries that are designed to deform under load.

- **Personnel, Manning, and Subcontractors**
  - List the number of employees at the proposed design and manufacture site(s) with expertise in structural design, fabrication, and inspection. Provide abbreviated resumes of several key personnel from the prime and subcontractors envisioned to be involved in the program. Discuss manning requirements and ability to properly staff the program. Describe the role of prime and subcontractors in each phase of the program.

- **Facilities**
  - Enumerate the facilities proposed for the work including location, size and capability. For example, material handling/storage, post-cure ovens, whether the facilities meet OSHA, state, environmental regulations, whether Maximum Achievable Control Technology (MACT) been implemented.

- **Machining Capacity**
  - Discuss previous experience in machining component parts (cutting, drilling, finish trim) and whether in-house resources were used or subcontractors were employed.

- **Tooling Fabrication**
  - Discuss plans to fabricate tooling, stiffener formers, and supporting fixtures for the lay-up and infusion. Indicate areas where subcontractors will be required.

- **Risk Mitigation**
  - Select at least five critical areas of the propeller fabrication and discuss your approach to minimize risk in delivering a quality, acceptable part.

- **Quality Assurance**
  - Discuss quality control verification methods to satisfy surface tolerances, fiber volume fraction and void fraction. Discuss in-house procedures to maintain quality throughout the manufacturing processes. Discuss non-destructive methods to be used (for example photo-grammetry or other 3-D measurement methods) to ensure an acceptable part.

- **Structural Design/Analysis Capabilities**
  - Discuss any structural design and analysis capabilities. Discuss experience and familiarity with finite-element code(s), CAE

(computer-aided engineering), CAM (computer-aided manufacturing).

B.2. VOLUME 3 (Unclassified): 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 and Part 2 will provide a cost breakdown by task/sub-task corresponding to the task numbers in the proposed Statement of Work.

Only submit a cost proposal for Delivery Order 0001; minimum IDIQ amounts will equal the cost of the first Delivery Order, and maximum amounts will be based on a rough order of magnitude estimate for the maximum potential cost of all 3 phases.

Although not required and provided for informational purposes only, detailed instructions, entitled "Instructions for Preparing Cost Proposals for Contracts and Agreements", including a sample template for preparing cost proposals for contracts and agreements, 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 cover page should include the following:

1) Cost Proposal
2) Specify Volume 3
3) BAA number
4) Title of Proposal
5) Identity of Prime Offeror and complete list of subcontractors, if applicable
6) Technical contact (name, address, phone/fax, electronic mail address)
7) Administrative/business contact (name, address, phone/fax, electronic mail address)
8) Duration of effort (period of performance)

Part 1: Detailed breakdown of all costs by cost category and month:

- Direct Labor – Specify 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, number of travelers, destination, duration, individual travel elements (such as airfare, per diem, etc.), etc.

- Subcontract – A cost proposal as detailed as the Offeror's cost proposal will be required to be submitted by the subcontractor. Detailed subcontract information is required prior to award•.
- Consultant – Provide consultant agreement or other document which verifies the proposed loaded daily/hourly rate, number of hours, and statement of work for consultant.
- 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.). Submit supporting documentation for any item with a unit cost greater than $10,000.
- Other Directs Costs, particularly any proposed items of equipment or facilities. Equipment and facilities generally must be furnished by the contractor/recipient. (Justifications 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.).
- Fee/Profit including fee percentage and base.

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

3. 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, and the contracting officer determines that accepting the late proposal would not unduly delay the acquisition and

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

• 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% of the total effort will be performed through subcontracts, the offeror must include the additional information required by the above-cited clause.

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

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

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

4. Address for the Submission of Full Proposals

The Classified Technical Proposal (Volume 1) shall be submitted in accordance with the addresses listed in Section IV, 1, A, A.1. Volumes 2 and 3 (UNCLASSIFIED) shall be submitted in accordance with the addresses listed in Section IV, 1, A, A.2. All volumes are due by the deadline listed in Section I, 5.

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

V. EVALUATION INFORMATION

1. Evaluation Criteria

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

(1) Overall scientific and technical merits of the proposal;
(2) Potential Naval relevance and contributions of the effort to the agency's specific mission;
(3) The offeror's capabilities, related experience, facilities, techniques or unique combinations of these which are integral factors for achieving the proposal objectives;

(4) The qualifications, capabilities and experience of the proposed Principal Investigator (PI), team leader and key personnel who are critical in achieving the proposal objectives; and
(5) The realism of the proposed costs and availability of funds.

Overall, the technical factors (1 – 4 above) are more important than the cost factor, with the technical factors all being of equal value. The degree of importance of cost will increase with the degree of equality of the proposals in relation to the other factors on which selection is to be based, or when the cost is so significantly high as to diminish the value of the proposal's technical superiority to the Government.

For proposed awards to be made as contracts 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 for small businesses, small disadvantaged businesses, woman-owned small businesses, HUBZone small businesses, veteran-owned small businesses, service disabled veteran-owned small businesses, historically black colleges and universities, and minority institutions.

The Government will only evaluate the cost proposal for Phase I, Delivery Order 0001. After the completion of Phase I, the Government will require a new cost proposal for Phases II and III, and those will be evaluated upon receipt.

2. Evaluation Panel

Technical and cost proposals submitted under this BAA will be protected from unauthorized disclosure in accordance with FAR 3.104-4 and 15.207. The cognizant Program Officer and other Government scientific experts will perform the evaluation of technical proposals. Restrictive notices notwithstanding, one or more support contractors may be utilized in an advisory role 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.

CCR - Successful Offerors not already registered in the Central Contractor Registry (CCR) will be required to register in CCR prior to award of any contract. Information on

CCR registration is available at http://www.onr.navy.mil/02/ccr.htm.

Representatives and Certifications - In accordance with FAR 4.1201, prospective contractors shall complete and submit electronic annual representations and certifications at http://orca.bpn.gov. In addition to completing the Online Representations and Certifications Application (ORCA), proposals must be accompanied with a completed DFARS and contract specific representations and certifications. These "DFARS and Contract Specific Representations and Certifications", i.e., Section K, may be accessed under the Contracts and Grants Section of the ONR Home Page 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 and Deliverables

- Reporting
  - Monthly technical and financial status reports.
  - Quarterly progress review presentation material.
  - A final report documenting the details of the efforts.

- Phase I Deliverables
  - Two carbon fiber and two glass fiber material coupons as requested by the Government, but no larger than 40”x40”x0.4”. Due 8 months after Phase I award.
  - One ~30”-span rigid blade based on Government furnished geometries and load specifications. Due 8 months after Phase I award.
  - Detailed design plans discussing the following. Due 10 months after Phase I award.
    - How to scale the structural design of a propeller to a 14'-diameter and a 24’- diameter.
    - How to manufacture/lay-up a geometry including bend-twist coupling and pitch-adapting capabilities.
    - How to manufacture small-scale and large-scale leading and trailing edge geometries.
    - How to design a robust blade-to-hub connection for replaceable blades for the loads provided by the Government.
    - Cost estimates for subsequent phase as well as for large-scale (~14’-diameter propeller) and full-scale (~24’-diameter propeller) manufacture.

- Phase II Deliverables (these deliverables are the prospective deliverables at the time of this BAA. The actual deliverables will be dependant upon which path (Part 1 and/or Part 2) the awardees follow. All delivery dates are estimates and are subject to change upon award of Phase II.)

  - Part 1: Rigid blade/propeller:
    - One ~3'-diameter rigid propeller with metallic hub and extra blade. Due 9 months after Phase II award.
    - One ~6'-span rigid blade. Due 11 months after Phase II award.
    - One manufactured blade-to-hub connection for a ~14'-diameter propeller with a partial arc (~¼ of hub) metallic hub and spare blade. Due 11 months after Phase II award.
    - Updated manufacturing plan and cost estimate for a ~24'-diameter rigid propeller. Due 13 months after Phase II award.
  - Part 2: Pitch-adapting blade/propeller
    - Up to two ~3'-diameter pitch-adapting propellers with metallic hub and up to two extra blades. First propeller due 9 months after Phase II award; Second propeller due 18 months after Phase II award.
    - One manufactured blade-to-hub connection for a ~6'-diameter propeller with a partial arc (~¼ of hub) metallic hub and spare blade. Due 12 months after Phase II award.
    - Cross-sectional prototypes of a blade showing the manufacturing process for the leading and trailing edges for a blade with a ~10'-span. Due 12 months after Phase II award.
    - Updated manufacturing plan and cost estimate for ~24'-diameter pitch-adapting propeller. Due 19 months after Phase II award.

- Phase III Deliverables (these deliverables are the prospective deliverables at the time of this BAA. The actual deliverables will be dependant upon which path (Part 1 and/or Part 2) the awardees follow. All delivery dates are estimates and are subject to change upon award of Phase III.)

  - Part 1: Rigid blade/propeller:
    - One ~14'-diameter rigid propeller with metallic hub and an extra blade. Due 14 months after Phase III award.
    - Updated manufacturing plan and cost estimate for a ~24'-diameter rigid propeller. Due 14 months after Phase III award.
  - Part 2: Pitch-adapting blade/propeller:
    - One ~6'-diameter pitch-adapting propeller with metallic hub and an extra blade. Due 12 months after Phase III award.
    - One ~10'-span pitch-adapting blade. Due 14 months after Phase III award.
    - Updated manufacturing plan and cost estimate for a ~24'-diameter pitch-adapting propeller. Due 16 months after Phase III award.

VII. OTHER INFORMATION

1. Government Furnished Information (GFI)

For all phases, the blade geometries and the Classified Performance Requirement shall be provided by the Government. A hub geometry with slide-in hub-to-blade connections shall also be provided by the Government as a reference.

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

Each proposer 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. It is the Government's desire that the contractors purchase the equipment/hardware for deliverable items under their contract. 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.

Government research facilities and operational military units are available and should be considered as potential government furnished equipment/facilities. These facilities and resources are of high value and some are in constant demand by multiple programs. It is unlikely that all facilities would be used for this topic. The use of these facilities and resources will be negotiated as the program unfolds. Offerors should explain which of these facilities they recommend.

3. Project Meetings and Reviews

Quarterly program status reviews between the Government and the performer will be held at vendor's site to review the progress of the contract. Other individual program reviews between the ONR sponsor and the performer may be held as necessary. For costing purposes, offerors should assume that 40% of the other individual program review meetings will be at or near ONR, Arlington VA and 60% at contractor's site. Interim meetings are likely, but these will be accomplished via video telephone conferences, telephone conferences, or via web-based collaboration tools.

4. Protection of Proprietary and Sensitive Information

The parties acknowledge that, during performance of the contract 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.

5. BAA Questions and Answers

All questions are due no later 2:00pm (Eastern Daylight Savings Time) on 10 days prior to the proposal due date listed in Section I, 5.

See Section I, 7 for how to submit both classified and unclassified questions.