

**Broad Agency Announcement (BAA) N00014-16-S-BA09
Amendment 0001**

The purpose of this amendment is to answer the questions received in response to BAA N00014-16-BA09, entitled, "Automated Offboard Refueling and Data Transfer for Unmanned Surface Vehicles."

Q#1: In regards to the referenced requirements, can the position information transition to the Unmanned Surface Vehicles (USV) be part of the Data Transmission System (DTS) or is it required to be an additional transmitter on the fuel source platform (FSP) to handle when the DTS is not included?

A#1: The mode of transmission of the FSP's position to the USV should be determined by the Offeror based on the requirements provided in the BAA. The data transmission system must be modular (removable) and the position information must be able to be transmitted at all times.

Q#2: During the referenced sequence, is control of the USV in the scope of the "automation" requirement on this project, or is the automation requirement solely applied to the Offboard Refueling and Data Transfer System (ORADTS)? What kind of control will the USV be under (i.e., remote USV operator's control, remote USV operator supervision, remote ORADTS operator supervision) and what is the Offeror's responsibility in regard to the USV?

A#2: The Offeror is responsible for the final 50 meters of the USV's approach to the FSP and connection of the USV to the FSP. The Offeror will need to determine the best way to control the USV during this final 50 meters.

Q#3: If remotely operated by a human, can Interface Control Documents (ICDs) associated with the sensors to be used by the operator be provided? If automated sequence, will STANAG 4586 be used and are there existing 'launch & recovery' sequences that can be leveraged?

A#3: The Government will provide necessary ICDs to the Offeror once a contract is awarded.

Q#4: When the USV arrives 50 meters away from the FSP, is it expected to arrive from a random direction, or will the FSP be allowed to transmit information to the USV?

A#4: It is permissible for the FSP to transmit information to the USV. Once the USV arrives within 50 meters of the FSP, the 30/45 minute clock starts ticking.

Q#5: Is it to be assumed that the FSP must handle "traffic control" duties (eg, controlling all of the USV's simultaneously)? Will each of the USV's have any inherent anti-collision sensors and software?

A#5: The ORADTS system must handle "traffic control" between the USVs.

Q#6: If a non-propelled platform is selected but a surrogate is used for prototype demonstration and testing, does set and drift need to be addressed and incorporated on the “surrogate FSP” for this program’s execution? What are the minimum requirements for the surrogate FSP in terms of similarity to the actual proposed FSP? It is assumed that the sea-keeping performance and fuel/data transfer performance are the same as the proposed FSP. Are there other abilities it needs?

A#6: The Offeror should make clear in their proposal what the differences are between the FSP platform they use and the actual FSP platform.

Q#7: Does the surrogate FSP need to be handed over to the Navy permanently at the end of the project?

A#7: No.

Q#8: Where is the Test Range?

A#8: Identification of specific test range is to be determined.

Q#9: Must the contractor-provided USV in Phase II be permanently delivered to the Navy at the conclusion of the project?

A#9: No.

Q#10: Is the intended autonomous operational endurance requirement for the final version of the ORADTS, the same as for the test version (with surrogate FSP)?

A#10: No, they are different. The one month duration of testing is for the test version of ORADTS that will be developed under this BAA. The time duration for the final operational version has not been determined yet.

Q#11: In regard to the Data Transmission System (DTS), what early stage design assumptions should be made in regard to IA/AT in regard to RF transmissions by the DTS (e.g., to / from USV, and to / from Host ship)? Speed of transmission can be impacted based on the future level of encryption directed; therefore, future IA/AT implementation can impact expected performance.

A#11: This is something that the Offeror will need to determine as part of the system design, using guidance from the Government that will be provided once the contract is awarded.

Q#12: In reference to the phrase, “make fuel and data connections”, is it anticipated that the DTS will have a physical connection, vice a wireless connection to the USV?

A#12: The Offeror should specify what type of connection, physical versus wireless, in their proposal, or at least what options are being considered and why.

Q#13: Is it acceptable to have data transfer begin as soon as USV is within range (provided that all security and anti-tampering measures are in-place)?

A#13: Yes.

Q#14: Does the demonstration ORADTS need to include IA/AT features, or can they just be described in detail in the report?

A#14: Page 7 of the BAA: Information Assurance/Anti-Tamper (IA/AT) shall be considered in the system design; however, the Government may elect to delay the implementation of IA/AT aspects until after this contract is completed.

Q#15: Is the 2 TB (Tera-bytes) of data already compressed or can we assume some data compression prior to transmittal?

A#15: Assume the data is uncompressed.

Q#16: Is there an ICD associated with the USV's data storage system which describes the type and format of the data being transferred and stored? We need to understand the limitations of the USV's data storage system connectivity and throughput.

A#16: The Government will provide necessary ICDs to the Offeror once a contract is awarded.

Q#17: Do all external communications require Type I encryption for refueling and data transfer?

A#17: The Government will provide necessary information regarding encryption requirements for ORADTS' external communications once a contract is awarded.

Q#18: What is the current Exterior Communications capability of the USV?

A#18: The Government will provide necessary information regarding the USV once a contract is awarded.

Q#19: Will communication between the FSV supervisor and USV operator need to be accounted for in the integrated system?

A#19: The Offeror should state in its proposal what communications will be required to support the ORADTS system.

Q#20: What is the relationship between the FY17 FNC (PB17 Submission) "Autonomous USV for MIW" and BAA N00014-16-S-BA09? Are they distinct, or is the BAA the procurement for the FNC Underway Refueling task?

A#20: The BAA supports the FNC Offboard Refueling product.

Q#21: Under the FNC, will there be separate and distinct procurements for the three focus areas; 1) Autonomous Situational Awareness and Hazard Avoidance System for USVs, 2) High Temperature Superconducting (HTS) Magnetic Influence Sweep Payload for USVs and 3) Underway Refueling and Data Transfer for USVs?

A#21: For the FNC program, the only solicitation anticipated is for the Offboard Refueling product.

Q#22: Is it allowable to use a large unmanned surface vehicle as the FSP surrogate under BAA N00014-16-S-BA09?

A#22: Yes, if it meets the requirements stated in the BAA for the FSP.

Q#23: Does the statement below mean per sortie or multiple USV simultaneously?

The FSP should be capable of refueling and data transfer for 1 USV (threshold) and 8 USVs (objective). The Offeror shall consider the benefits and drawbacks of an ORADTS that can refuel multiple USVs simultaneously, to maximize the time the USVs spend performing the mission and minimize the time spent refueling.

A#23: The statement “The FSP should be capable of refueling and data transfer for 1 USV (threshold) and 8 USVs (objective)” does not specify whether the multiple USVs should be refueled simultaneously. The next sentence addresses simultaneity: “The Offeror shall consider the benefits and drawbacks of an ORADTS that can refuel multiple USVs simultaneously”.

Q#24: Does the system need to be Littoral Combat Ship (LCS) compliant?

A#24: Please clarify the question.

Q#25: How does the 1500 NM transit range mean in terms of C4I USV control? See statement below: The FSP will have to transit or be transported distances of up to 1500 nm.

A#25: The 1500 nm transit range is for the FSP, not the USV. The USV is not controlled from the FSP with the possible exception of during the actual refueling/data transfer event when the USV is very close to the FSP.

Q#26: Additionally, is there any opportunity to meet with you or someone on your team to further discuss this BAA?

A#26: We cannot have discussions with prospective Offerors regarding their technology or their approach under this BAA.

Q#27: What are the desired autonomy characteristics for the FSP? Ideally, would the FSP be fully autonomous, including transit to the operating area and repositioning?

A#27: The autonomy characteristics of the FSP are within the Offeror's purview to specify. Since "Ideally, the FSP will be based on an inexpensive, readily available maritime vessel or platform that already exists in the Navy inventory or commercially", this includes manned (not autonomous) vessels. An autonomous FSP is also within scope.

Q#28: Is the requirement for transferring 2 TB of data considered a conservative estimate in terms of the amount of data? Or, is the data size expected to increase beyond 2 TB in the future due to the deployment of new or additional sensing capabilities?

A#28: 2 TB is a somewhat conservative estimate.

Q#29: Is a nonproprietary Statement of Work (SOW) required for the whitepaper submission or just for the full proposal?

A#29: The nonproprietary SOW is required for the full proposal submission. The BAA provides instruction for the whitepaper submission.