

**STRATEGIC & SPECTRUM MISSIONS ADVANCED RESILIENT TRUSTED SYSTEMS
(S²MARTS)
REQUEST FOR SOLUTIONS (RFS)**

in support of the
**Replacement Engineering & Prototyping of Shipboard A/C Components
PROTOTYPE PROJECT**

Project No. 20-04b

All prospective respondents must be members of the NSTXL consortium.

- 1. Project Title:** Replacement Engineering & Prototyping of Shipboard A/C Components
- 2. Prototype Project Sponsor/Requiring Activity:** Naval Surface Warfare Center Philadelphia Division (NSWCPD), Code 326, ADAPT.VE Lab
- 3. Contracting Activity:** NSWC Crane Division, Code 0221
- 4. Project Background & Current Capability:**

The Naval Surface Warfare Center Philadelphia Division (NSWCPD) Code 326's ADAPT.VE lab provides unique capabilities for advanced materials, tools, engineering techniques, experimentation and R&D capabilities to address varying obsolescence issues. In support of their mission, the ADAPT.VE Lab is seeking prototyping support to address Obsolescence, Data Management and Re-Engineering issues. In order to achieve the Navy's planned 355 ship fleet, obsolescence management is of ever-increasing importance. The ADAPT.VE lab has been tasked to support NSWCPD's role as the In Service Engineering Agent (ISEA) for Hull, Mechanical & Electrical (HM&E) systems by conducting re-engineering and Technical Data Package (TDP) development to address obsolescence and other readiness issues with parts, sub-systems and systems for which no direct replacement or upgrade exists. Addressing the obsolescence issue in a timely manner is required to maintain fleet readiness and support ongoing deployments to achieve national strategic policy objectives.

Specifically, this project will seek solutions for obsolete Air Conditioner Relief Valves for the Navy's fleet. The current processes used to address parts obsolescence do not adequately address the issues caused by increased reliance on Commercial Off the Shelf (COTS) components and a longer ship life cycle means that the ships are outlasting the various parts. Currently available COTS Air Conditioner System Relief Valves solutions did not meet functional requirements or have failed in shipboard environments.

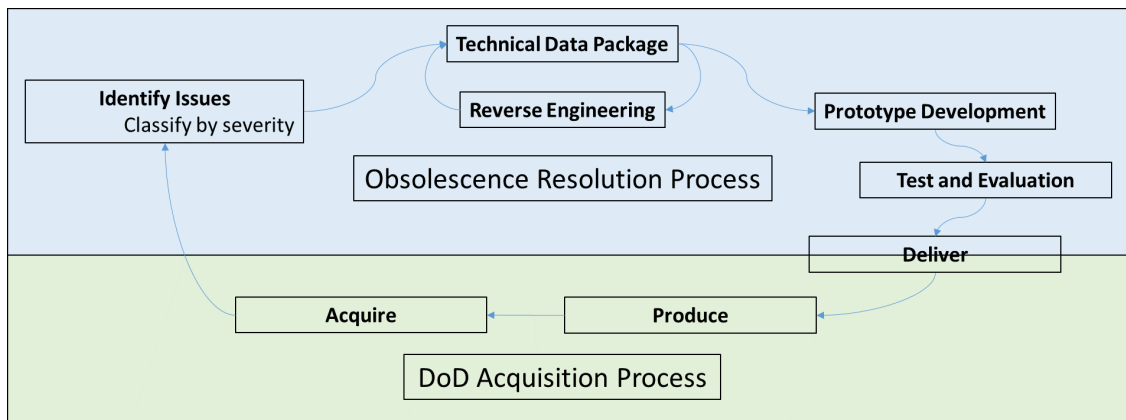
NSWCPD seeks to engineer the Air Conditioner System Relief Valves and use performance requirements to design, demonstrate and test new concepts that can withstand the harsh operational environment, consisting of years at sea and very little down time. Unlike in industry, vibrations exist shipboard that do not occur on factories, which results in failures of COTS equipment not designed to withstand these shipboard vibrations.

The Air Conditioner System Relief valves currently in use are no longer supported by the Original Equipment Manufacturer (OEM). Production has halted for these units due to age and complexity to produce, and as a result they are no longer available. COTS Air Conditioner System Relief Valves are not designed to work in a shipboard environment. The persistent vibrations on the shipboard have caused the COTS Air Conditioner System Relief Valves to fail.

NSWCPD requires a new design for the Air Conditioning Relief Valve. A new design cannot be approved for production without prototyping and testing. NSWCPD will also require support in building and testing each prototype to validate function before potential production.

5. Desired End-State Objective(s) & Success Criteria:

The proposed prototype should support & enhance the Obsolescence Resolution Process outline below.



In order to effectively support NSWCPD and Fleet customers, the ADAPT.VE lab is seeking engineer and design of an Air Conditioner System Relief Valve prototype that can meet or exceed the Navy’s strict fleet performance requirements listed below in Table A.

Table A. Air Conditioner System Relief Valve Performance Requirements

<i>Type Ports & Type Seals</i>	Inlet/Outlet – Hard Seat IST
<i>Port</i>	6 SAE IST
<i>Pressure Range</i>	2.8 – 8.6 Bar (40-125 PSI)
<i>Pre-Set Cracking Pressure</i>	6.2 Bar (90 PSI)
<i>Maximum Rated Flow</i>	15.1 LPM (4.0 GPM)

<i>Total Height Available</i>	93 mm
<i>Height from Inlet/Outlet Center</i>	32.5 mm
<i>Width from Inlet/Outlet Center</i>	27.0 mm
<i>Liquid/Vapor Flowing Through System</i>	Refrigerant and Polyester (POE) oil
<i>Shock Testing</i>	MIL – 901 – D
<i>Vibration Testing</i>	MIL – 167 – 1A

A drawing of the obsolete pressure control valve can be found in Attachment A.

The Government anticipates three phases for the ACSRV prototype and reserves the right to continue pursuit of a solution based on the success of the predecessor phase.

Phases will include a Design phase, a Build/Test/Validate phase, and phase focused on finalizing the Technical Data Package.

If all phases are pursued, the length of the total project is not expected to exceed 8 months. The desired phase duration listed below are for planning purposes and will be finalized prior to award based on the solution(s) accepted.

Phase 1: Air Conditioner System Relief Valve Design

Description: The initial project phase is focused on engineering processes to design a new Air Condition System Relief Valve.

Duration: 2 months or less

Technical Objective & Deliverables:

- Complete initial design of the Air Conditioner System Relief Valve to include:
 - Engineer mechanical components and systems
 - Develop and approve 3D CAD Model
 - Wire lists to include wire lengths, wire labels and terminations
 - Include tolerances, welding requirements, finish requirements, and bill of materials (BOM), if applicable. All tolerances and requirements will need to
 - be included in the drawing.

Phase 2: Air Conditioner System Relief Valve Build, Test and Validate

Description: Phase 2 is focused on integrating the approved design, building and demonstrating the prototype by simulating shipboard environments in a lab setting.

Duration: 5 months

Technical Objective & Deliverables

- Build approved prototype design
 - Demonstrate the prototype

- Develop shock and vibration test parameters
- Redesign (as applicable)
- Performance Validation and Shock and Vibration Validation

Phase 3: Air Conditioner System Relief Valve Technical Data Package

Description: Phase 3 is focused on the development and delivery of the final prototype and Technical Data Package.

Duration: 1 month

Technical Objective & Deliverables:

- Develop 2D Manufacture Drawings (TDP)
- Delivery of final prototype and TDP

6. Project Deliverables:

#	Deliverable(s)	Description	Frequency	Delivery Method
1	Monthly Status Report	Provide summary of events/actions completed during the previous month	1/Month	Electronic submission
2	Phase 1B: ACSR Design	Develop Design Documents and deliver 3D CAD design	2 month after award	Electronic submission
3	Phase 1B: ACSR Design Review and Update	Peer Review Design with NSWCPD. Update Design per Peer Review	3 months after award/ Update as required	Electronic submission
4	Phase 2B: Build ACSR Prototype	Build prototype for verification and validation	5 months after award	Electronic submission
5	Phase 2B: Develop and Review Test Procedures for the ACSR	Develop test procedures based on Table B performance requirements. Peer review test procedures with NSWCPD	5 months after award	Electronic submission
6	Phase 2B: Performance Test ACSR and Redesign	Perform test procedure and update design until validation	5 months after award	Electronic submission
7	Phase 2B: Develop and Review Shock and Vibe Test Procedure for ACSR	Develop test procedures based on requirements. Peer Review Test Procedures with NSWCPD	5 months after award	Electronic submission
8	Phase 2B: ACSR Shock and Vibe Test and Validate	Perform test procedures and update design until validation	6 months after award/update as required	Electronic submission
9	Phase 3B: Delivery of ACRV TDP and Final Prototype	Deliver ACRV TDP to NSWCPD. TDP will include mechanical design. TDP will be reviewed by NSWCPD and updated as required.	8 months after award	Electronic submission

7. Current Project Budget: \$75,000

This value represents what is currently available for the subject project at the time of the RFS release. This value is subject to change but is being provided for planning purposes.

Respondents are encouraged to clearly explain how much of their solution can be developed for the advertised amount. Capabilities or project phases that will require additional funding beyond the project budget must be identified as such.

8. Security Classification, Respondent Restrictions, and other required compliances:

This RFS has been released as Distribution Statement A: Approved for public release.

This project encompasses the following restrictions:

- a. Security Classification: Unclassified
- b. Is ITAR Compliance is not required
- c. Respondent Restrictions: None
- e. Any additional restrictions applicable to this project: Respondents shall complete Section 889(a)(1)(B) Prohibition on Contracting with Entities Using Certain Telecommunications and Video Surveillance Services or Equipment representation attached to this RFS (Attachment B) and return the signed representation with the submitted proposal.

Level of Data Rights Requested by the Government:

Government Purpose Rights: The right to use, modify, reproduce, release, perform, display, or disclose technical data within the Government without restriction. This also includes the rights to release or disclose technical data outside the Government and authorize persons to whom release, or disclosure has been made to use, modify, reproduce, release, perform, display, or disclose technical data for United States government purposes. This level of restriction is set at five-years but may be negotiated & tailored to a specific project. The five-year period, or such other period that may be negotiated, would commence upon execution of the agreement that required development of the items, components, or processes or creation of the data. The performer will have the exclusive right, including the right to license others, to use technical data in which the Government has obtained government purpose rights under this agreement for any commercial purpose during the five-year period. Upon expiration of the five-year period (or other negotiated length of time), the Government will receive unlimited rights in the technical data and computer software.

9. RFS and Response Process:

Solution Volumes	Page Limitation
Technical Response	6
Price Response	3

- a. The following is requested from all respondents:

For written submissions, the following formatting guidelines shall be followed by respondents:

- 10-point font (or larger) for all response narratives; smaller type may be used in figures and tables but must be clearly legible.
- Single-spaced, single-sided (8.5 by 11 inches).
- Margins on all sides (top, bottom, left, and right) should be at least 1 inch.
- Page limitations shall not be circumvented by including inserted text boxes/pop-ups or internet links to additional information. Such inclusions are not acceptable and will not be considered as part of the response.
- Files must be submitted in PDF and/or Microsoft Word formats only. Price volumes may be submitted in an editable, unlocked Excel file.

b. Each submittal **must include** (i) a Cover Page, (ii) a Technical Response, and (iii) a Price Response that each align to the instructions below:

i. Cover Page: (Not included within page count) The cover page shall include the company's name, Commercial and Government Entity (CAGE) Code (if available), level of facility clearance (if available), address, primary point of contact, business size, and status of U.S. ownership.

Respondents shall also identify the applicable 10 U.S.C. § 2371b eligibility criteria related to the response (*please identify only one*):

- There is at least one nontraditional defense contractor (*defined below*) or nonprofit research institution participating to a significant extent in the project; **OR**
- All significant participants in the transaction other than the Federal Government are small businesses (including small businesses participating in a program described under section 9 of the Small Business Act (15 U.S.C. § 638)) or nontraditional defense contractors; **OR**
- At least one third of the total cost of the project is to be provided by sources other than the Federal Government.

Note: A *Nontraditional Defense Contractor* is defined as an entity that is not currently performing and has not performed, for at least the one-year period preceding the solicitation of sources by the Department of Defense (DOD) for the procurement of transaction, any contract or subcontract for the DOD that is subject to full coverage under the cost accounting standards prescribed pursuant to 41 U.S. Code §1502 and the regulations implementing such section.

ii. Technical Response:

Responses should be constructed to align with the order of the instructions below (1 - 8).

1. Solution Narrative: Respondents shall describe the approach used to design/deliver a unique prototype solution for the prototype technology objectives defined in RFS Section 5, Desired End-State Objective(s), to include any attachments. While these focus areas are of significant importance, responses will be considered as a whole. No pricing shall be included in the technical response.

The Solution Narrative must also include a discussion on schedule and the timing of all deliverable(s) to include those outlined within RFS Section 6, Project Deliverables.

2. Explanation Supporting Eligibility for Award of a Prototype OTA:

Respondents shall provide rationale to support the specific condition that permits award of an OTA to the proposed prime contractor/performer. The onus of proof to support *nontraditional participation to a significant extent; small business or nontraditional defense contractor status; or any cost sharing arrangement* lies with the respondent and has a direct correlation to award eligibility.

3. Foreign Owned, Controlled, or Influenced (FOCI) Documentation (if applicable): Documentation may include, but is not limited to: Standard Form 328 (Certificate Pertaining to Foreign Interest); Listing of Key Management Personnel; an Organizational Chart; Security Control Agreements; Special Security Agreements; and Proxy Agreements or Voting Trust Agreements. It is recommended companies who fall within the FOCI category visit <https://www.dss.mil> for additional guidance and instruction.
4. Government Furnished Property or Information: Respondents must clearly identify if its proposed solution depends on Government Furnished Information (GFI) / Government Furnished Property (GFP) or other forms of Government support (i.e. laboratory or facility access), etc.

If so, the response must specify the GFI/GFP required. Respondents must clearly identify if its proposed solution depends on GFI/GFP or other forms of Government support be provided, the impact to the solution if the requested information/property/asset is not available, and will confirm the details with the respondent prior to any proposal revisions or selection, if applicable.

5. Mandatory Compliance with Restrictions: Respondents must address the restrictions identified within RFS Section 8, Security Classification, Respondent Restrictions, and other Required Compliance, and explain how each regulation or standard is currently, or will be met.
6. Task Description Document (Not Included Within Page Count): Respondents must provide a Task Description Document (TDD) outlining the project tasks to be performed along with schedule milestones and delivery dates required for successful completion. It is anticipated that, if selected, the proposed TDD will be

incorporated into the resultant OTA. Respondents are encouraged to be concise but thorough when outlining their work statements. The TDD may be submitted as an appendix or a separate file as part of the proposal.

7. Summary of Subcontractor Participation (if applicable): Respondents must identify all subcontractors involved and their role within the performance of the proposed concept. The information must include the following:

- a. Subcontractor company name, Commercial and Government Entity (CAGE) Code (if available), level of facility clearance (if available), address, primary point of contact, business size, and status of U.S. ownership.
- b. If the subcontracted company's involvement is considered significant, rationale supporting the significance must be present within the narrative. The onus of proof to support participation to a significant extent or any cost sharing arrangement lies with the respondent and has a direct correlation to award eligibility.
- c. If applicable, Foreign Owned, Controlled, or Influenced (FOCI) Mitigation Documentation shall be provided for subcontractors and will not count towards the page count.

8. Data Rights Assertions and Level of Rights Proposed:

- a. The rights offered should be displayed in a manner that allows for ease of discussion in determining trade-offs and potential options for long-term sustainability of the deliverables of this effort.
- b. If rights are being asserted at a level less than the Government's desired level of allocation (see RFS Section 9, Level of Data Rights Requested by the Government), respondents must provide detail explaining the specific rationale for the assertion. Please also review 9(b)(iii)(3) below for additional requirements related to data rights pricing.
- c. Any items previously developed with federal funding (and used for the proposed solution) should clearly identify all individual components funded by the Government and the recipient of the deliverables.
- d. If commercial software is proposed as part of the prototype solution, all applicable software licenses must be identified and included with the response. Note that any software license term or condition inconsistent with federal law will be negotiated out of the license.

iii. Price Response:

The price response shall be submitted as a separate file from the technical response. No pricing details shall be included in the technical response. This project will employ a Fixed Price with Payable Milestones pricing structure.

1. The overall total price should be divided among severable increments that align to a proposed milestone payment schedule. Milestones are not required to match actual expenditures but should realistically align to the effort expended or products delivered.
2. In order to support the Government's evaluation of fair and reasonable pricing, the respondent shall delineate the key pricing components, and show clear traceability to the phases and/or milestones of the Technical Response. At a minimum, key pricing components include Labor Total(s), Other Direct Costs/Material Total(s), License prices and Subcontractor price(s). Data should be segregated by each key objective, milestone, and/or phase proposed.
3. Include a brief narrative that explains your pricing structure and maps the proposed prices to the solution's technical approach.
4. Including a Basis of Estimate to support your pricing may substantially expedite evaluation of your response.
5. If limited or restricted rights are being asserted within the response, a table that includes prices for both Government Purpose Rights and Unlimited Rights for any limited or restricted item must be included.
6. Any additional features or capabilities that extend beyond the currently requested core technical objectives shall be separately priced for the Government's consideration. Pending funding availability and need, the Government may fund these advanced features at a later date.

10. Evaluation Process and Methodology:

- a. Individual responses will be evaluated with consideration given to:
 - i. Demonstrated expertise and overall technical merit of the response;
 - ii. Feasibility of implementation; and
 - iii. Total project risk as it relates to the technical focus areas, price and schedule
- b. The Government will evaluate the degree to which the proposed solution provides a thorough, flexible, and sound approach in response to the prototype technical objectives as stated in RFS Section 5, Desired End-State Objectives, as well as the ability to fulfill the objectives in this RFS.
- c. The Government will award this project, via S²MARTS (Agreement No. N00164-19-9-0001), to the respondent(s) whose solution is assessed to be the most advantageous to

the Government, when price, schedule, technical risks, the level of data rights, and other factors are considered. The Government reserves the right to award to a respondent that does not meet all the requirements of the RFS.

- d. The proposed project price, schedule, and intellectual property/data rights assertions will be considered as aspects of the entire response when weighing risk and reward. The assessment of risks is subjective and will consider all aspects of the proposed solution. Respondents are responsible for identifying risks within their submissions, as well as providing specific mitigating solutions.
- e. The Government reserves the right to reject a submission and deem it ineligible for consideration if the response is incomplete and/or does not clearly provide the requested information. Debriefings will not be provided.

11. Follow-On Activity:

- a. Upon successful completion of this prototype effort, the Government anticipates that a follow-on production effort may be awarded via either contract or transaction, without the use of competitive procedures if the participants in this transaction successfully complete the prototype project as competitively awarded from this document. The prototype effort will be considered successfully complete upon demonstration of the aforementioned technology objectives.
- b. Successful completion for a specific capability may occur prior to the conclusion of the project to allow the Government to transition that aspect of the prototype project into production while other aspects of the prototype project have yet to be completed.
- c. Requirements of other potential follow-on activities could involve, though not limited to, continued development and baseline management, fielding, sustainment, training, further scaling of the solution, integration of future capabilities, or integration of the solution with other capabilities.

12. Attachments

- A. Drawing: Obsolete Pressure Control Valve
- B. FY 2019 NDAA Section 889 (a)(1)(B) Section 889 Verification - Representation
- C. FY 2019 NDAA Section 889 (a)(1)(B) Section 889 Clause

13. Important Dates

- a. Questions related to this RFS shall be submitted no later than 12:00PM EDT on Monday, February 22, 2021.

To submit any questions, visit the opportunities page at www.nstxl.org/opportunities, select the “Current” tab, locate the respective project, and select “Submit a Question”.

- b. Proposals submitted in response to this RFS are due no later than 12:00 PM EDT on Monday, March 8, 2021
- c. To submit your proposal, visit the opportunities page at www.nstxl.org/opportunities, select the “Current” tab, locate the respective project, and select the “Submit Proposal” link. You must have an active account and be logged-in to submit your response.
- d. RFS Respondents must be active members of the consortium at the time of proposal submission.

14. Additional Project Information

- a. The Government intends to award one Other Transaction Agreement as a result of this RFS; however, more than one award may be made if determined to be in the Government’s best interest. The Government also reserves the right to not select any of the solutions proposed.
- b. Acceptable responses not selected for the immediate award will be retained by NSTXL & the Government for possible future execution and funding. The non-selected proposals will be considered as viable alternatives for up to 36 months. If a proposal (that was not previously selected) is determined to be a suitable alternative, the company will be contacted to discuss any proposal updates and details of a subsequent project award.

Respondents whose proposals are not selected for the initial award shall not contact the Government or NSTXL to inquire about the status of any ongoing effort as it relates to the likelihood of their company being selected as a future alternative.

- c. The United States Navy, specifically Naval Surface Warfare Center, Crane Division, has release authority on any publications related to this prototype project.
- d. Unsuccessful respondents will be notified, however, debriefings for this project are not required nor planned at this time.
- e. If resource-sharing is proposed in accordance with 10 U.S. Code § 2371b(d)(1)(C), then the non-Federal amounts counted as provided, or to be provided, by parties other than the Federal Government may not include costs that were incurred before the date on which the OT agreement becomes effective. Costs offered as a resource-share that were incurred for a project after the beginning of negotiations, but prior to the date the OT agreement becomes effective, may be counted as non-Federal amounts if and to the extent that the Agreements Officer determines in writing that: (1) the party

other than the Federal Government incurred the costs in anticipation of the OT agreement; and (2) it was appropriate for the entity to incur the costs before the OT agreement became effective in order to ensure the successful implementation of the OT agreement.

- f. Certain types of information submitted to the Department during the RFS and award process of an OT are exempt from disclosure requirements of 5 U.S.C. §552 (the Freedom of Information Act or FOIA) for a period of five years from the date the Department receives the information. It is recommended that respondents mark business plans and technical information that are to be protected for five years from FOIA disclosure with a legend identifying the documents as being submitted on a business confidential basis.
- g. No classified data shall be submitted within the proposal. To the extent that the project involves DoD controlled unclassified information, respondents must comply with DoDI 8582.01 and DoDM 5200.01 Volume 4. Respondents must implement the security requirements in NIST SP 800-171 for safeguarding the unclassified internal information system; and must report any cyber incidents that affect the controlled unclassified information directly to DoD at <https://dibnet.dod.mil>.
- h. Export controls (if applicable): Research findings and technology developments arising from the resulting proposed solution may constitute a significant enhancement to the national defense and to the economic vitality of the United States. As such, in the conduct of all work related to this effort, the selected performer must comply strictly with the International Traffic in Arms Regulation (22 C.F.R. §§ 120-130), the National Industrial Security Program Operating Manual (DoD 5220.22-M) and the Department of Commerce Export Regulation (15 C.F.R. §§ 730-774).