

Draft NRA NNM12ZPS001N - SLS ABEDRR Questions and Answers

Note: Some questions have been edited for clarity. Additionally, not all questions have been addressed at this time.

Question 1: Are the notional target risk mitigation areas representative of NASA's initial cut at risk reduction demonstration tasks?

Answer 1: The notional target areas were developed by MSFC based on collective experiences and studies. The notional target areas were developed and included in the Draft NRA to prompt or stimulate ideas for consideration by the Offeror and was not intended to be the definitive list (or prioritization) of candidate areas. Therefore, the list is no longer needed and the Final NRA will not contain the notional target areas.

Question 2: Reference Notional Target Area "Large Booster Component Development / Fabrication." Can NASA clarify what components it is interested in? The structural components would appear to be low risk, so does this focus on the MPS and systems level integration?

Answer 2: The Offeror is to propose engineering demonstrations and/or risk reductions (EDRRs) associated with their Advance Booster concept that provide value to NASA based on the stated evaluation criteria.

The Final NRA will not contain the notional target areas. See question/answer 1.

Question 3: Reference Notional Target Area "Modular / Common Booster Component Development / Fabrication." Can NASA clarify what it is interested in? Is this within the booster itself (i.e. common LO₂ and RP-1 wall and domes) or between multiple users?

Answer 3: The Offeror is to propose engineering demonstrations and/or risk reductions (EDRRs) associated with their Advance Booster concept that provide value to NASA based on the stated evaluation criteria.

The Final NRA will not contain the notional target areas. See question/answer 1.

Question 4: ORSC engine technology is specifically requested and no mention is made of GG. Is it a reasonable assumption that NASA has performed that trade and concluded that the next generation RP-1 engine must be ORSC based?

Answer 4: No, it is not a reasonable assumption. All engine cycles are open for consideration.

The Offeror is to propose engineering demonstrations and/or risk reductions (EDRRs) associated with their Advance Booster concept that provide value to NASA based on the stated evaluation criteria.

The Final NRA will not contain the notional target areas. See question/answer 1.

Question 5: Reference Notional Target Area "Structural Testing of Low Mass to Strength Ratio Material" and "Advanced Material Selection and Test." Can NASA clarify as to what it is interested in. Previous studies have explored Al-Li alloys and composites and composites for primary and secondary components. We are not aware of any recent materials advancement or is this focused towards the engines? It is also interesting that the performance gains from using these materials in the booster only

offer 1/3 of what similar changes to the Core would provide and the Core domes have been identified as AI 2219 and not AI 2195.

Answer 5: The listing for Structural Testing of Low Mass to Strength Ratio Material is focused on large scale solid rocket motor composite cases. The listing for Advanced Material Selection and Test is a generic category to consider materials for use in any component.

The Offeror is to propose engineering demonstrations and/or risk reductions (EDRRs) associated with their Advance Booster concept that provide value to NASA based on the stated evaluation criteria.

The Final NRA will not contain the notional target areas. See question/answer 1.

Question 6: Is the increased interest in reusability indicated in the Draft NRA driven by technical or cost considerations?

Answer 6: Neither. It was simply added as a notional target area. The Final NRA will not contain the notional target areas. See question/answer 1.

Question 7: Reference Notional Target Area “Potential Recovery and Reuse of Salt Water Recovered Engines and/or Booster Systems.” How important is reusability to NASA? Is reusability the real driver or is salt water refurbishment the driver?

Answer 7: Reusability is a potential method to achieve affordability. In this specific notional target area, saltwater recovery is an approach to reusability.

The Final NRA will not contain the notional target areas. See question/answer 1.

Question 8: Reference Notional Target Area “Refined Petroleum (RP) Combustion Performance and Stability Advancement.” For liquid engine risk reduction, what hardware demonstration activities does NASA really want? Full-up engine, power pack, pumps only, chamber only, etc.

Answer 8: The Offeror is to propose engineering demonstrations and/or risk reductions (EDRRs) associated with their Advance Booster concept that provide value to NASA based on the stated evaluation criteria.

See Draft NRA paragraph 5.1.3.1, paragraph 3 for a discussion on EDRR attributes.

The Final NRA will not contain the notional target areas. See question/answer 1.

Question 9: Can NASA provide the MSFC organizational structure for this effort and provide a list of the key points of contact between now and Final NRA release, acknowledging that you have not selected a COTR?

Answer 9: The management of resulting contracts from this NRA will not be finalized prior to Final NRA release.

Question 10: What are NASA’s thoughts regarding the use of a foreign engine and its initial use on the program as supplied by a foreign entity while the domestic source program is executed in a way that best fits NASA’s budget profiles.

Answer 10: The Offeror should reference Section 3.0 of the Draft NRA. For purposes of this NRA, participation by non-U.S. organizations and Foreign Governments is limited to the direct purchase of supplies and/or services, which do not constitute research except as allowed by NASA FAR Supplement 1852.235-72. Thus, foreign engines may be proposed.

Question 11: Inter-agency collaboration “chatter” is once again at an all time high (e.g. National Institute of Rocket Propulsion Systems, Next Generation Engine, etc) for the obvious, but potential, affordability benefits it brings. To what extent does NASA believe this is something they would support and even champion, given the right overall booster offering (i.e. explore their willingness to do more than simply receive the benefits)?

Answer 11: Proposals will be evaluated in accordance with evaluation criteria contained in the NRA.

Question 12: The Draft NRA states in the technical approach section that for each risk reduction and/or demonstration proposed, a separate Statement of Work (SOW), Work Breakdown Structure (WBS), and Data Procurement Document (DPD) is required in addition to the Type 2 Test Plan Data Requirements Document (DRD). Would NASA entertain alternative approaches with less oversight, while maintaining a high level of insight, if it means best value to the Government?

Answer 12: Separate DPDs are not required for each engineering demonstration and/or risk reduction (EDRR), only SOWs and WBSs. The Offeror is encouraged to propose alternative approaches with regard to the DPD, especially if value to the Government can be demonstrated. The Test/Demonstration Plan DRD, DE-001, was intended to be applicable to the larger more significant tests that may be included within an EDRR, not necessarily all tests that might be included.

Question 13: Minimum funding level indicated in the Draft NRA was \$25M. The Draft NRA also indicated that NASA can select any standalone ABEDRR task or combination of tasks. Does that mean the Offeror needs to define individual demonstration tasks that are \$25M each to allow selection of one or more demonstrations?

Answer 13: No. The minimum funding levels and funding range will be removed for the Final NRA. The Agency continues to anticipate a total funding availability of \$200,000,000 to be split among awards as a result of this NRA.

Question 14: How many contracts does NASA intend to award? The synopsis for the Draft NRA states “2 or more,” but does NASA intend this to be for different risk reduction projects?

Answer 14: As stated in the Draft NRA, multiple awards are anticipated considering the merits of the submitted proposals in relationship to the evaluation criteria; however, NASA reserves the right to make no award or only one award. The Agency continues to anticipate a total funding availability of \$200,000,000 to be split among awards as a result of this NRA.

Question 15: Is the goal of this NRA to reach an acceptable level of risk or fully mitigate risk prior to the design, development, test, and evaluation (DDT&E) phase?

Answer 15: A fully mitigated risk would obviously be desirable, but NASA understands that a fully mitigated risk in all areas is not likely prior to DDT&E for the Advanced Booster. The goal would be maximum mitigation considering funding and schedule constraints.

Question 16: How much does NASA value affordability when traded against schedule and performance

of the resulting booster?

Answer 16: Affordability is most important. Advanced Booster concepts that require modification of SLS Program requirements will be considered if significant affordability gains can be shown.

Question 17: Reference Attachment J-3, Page 1, Para 3. Can commercial documents that substantially satisfy the key aspects of these Government reference documents be substituted and utilized in lieu of the listed documents?

Answer 17: Yes.

Question 18: Reference Attachment J-3, Page 1, Para 3. Given NASA wants to approve any commercial substitution, what is the process for obtaining approval for such a substitution?

Answer 18: Approval is not required for substitution of a reference document.

Question 19: Reference Attachment J-3, Page 1, Para 3. Given NASA wants an estimate of our design, demonstration, test, and evaluation (DDT&E) and operations costs in this proposal, what applicable documents and standards and Data Requirements Documents (DRDs) does NASA intend to impose in the follow on phases? This is important because this can significantly affect Contractor cost.

Answer 19: NASA certainly understands that applicable documents and DRDs can significantly impact the cost of DDT&E; therefore, the Offeror should document their assumptions with regard to the cost Rough Order of Magnitudes (ROMs) for the Advanced Booster DDT&E.

Question 20: In the Industry Day briefing charts there is language referring to a design reference RP/O2 CBC with a new hydrocarbon engine. Is this intended to preclude a H2/O2 design with potential cross feed with the SLS core from being submitted? I worry that this might dampen a truly open competition and lead to a reopening of the ULA antitrust case.

Answer 20: Any Advanced Booster concept that meets the stated requirements is acceptable.

Question 21: Does this NRA require booster design activity in addition to demonstration activity? Or merely that the proposed engineering demonstrations reduce risk for the concept proposed?

Answer 21: The NRA requires the proposal to include the Offeror's concept for an Advanced Booster that meets the stated requirements. The engineering demonstration and/or risk reduction efforts must be related to that concept.

Question 22: How flexible is the contract mechanism? Will a Space Act Agreement (SAA) approach and reduced cost reporting be acceptable?

Answer 22: Funded SAAs will not be utilized for this activity. NASA expects the contractual vehicle to be a firm-fixed-price contract per FAR guidelines with minimal cost and schedule reporting requirements.

Question 23: Is NASA looking for ways to engage entrepreneurial companies?

Answer 23: NASA is seeking best value for this solicitation; therefore, NASA encourages all companies to participate in this full and open competition.

Question 24: The Industry Day briefing charts seem to differ somewhat from the NSPIRES document (I could be wrong). It seems to have a design reference that calls for new hydrocarbon engines and like the NSPIRES documents discusses hydrocarbon fuels. Both documents discuss this in Appendix A. Why not add cross feeding between the core and a CBC to the Appendix A to insure a robust and honest competition? RP1 VS LH.

Answer 24: NASA did not intend to provide all potential options. Any Advanced Booster concept that meets the stated requirements may be proposed.

Question 25: Has NASA conducted any trade studies to determine the need for a Thrust Vector Control (TVC) system on the booster?

Answer 25: Yes. A preliminary study indicates a need for Thrust Vector Control (TVC) on the Advanced Booster.

Question 26: Is it a correct interpretation of the Draft NRA solicitation that NASA is looking for the booster that meets the 130mT payload with the best affordability?

Answer 26: The design payload goal that NASA has identified is 130mT. However, NASA would also be interested in concepts that approach the 130mT target but offer significant affordability improvements. NASA would also be interested in greater than 130mT capability that also improves affordability.

Question 27: What is the process to secure a copy of SPS-PLN-0023 (Draft), which is a recommended reference for the Affordability Plan?

Answer 27: NASA intends to post the SLS Affordability Plan (Baseline) to the SLS ABEDRR Technical Library as a reference document when available.

Question 28: In the model contract, DRD MA-004 (Affordability Plan), the SLS Affordability Plan, SPS-PLN-0023 (Draft) is recommended as a reference. Could you provide this in the SLS ABEDRR Technical Library?

Answer 28: NASA intends to post the SLS Affordability Plan (Baseline) to the SLS ABEDRR Technical Library as a reference document when available.

Question 29: Affordability is the key metric in a sustainable program. What is the relative importance of non-recurring cost, recurring cost, and schedule in assessing affordability?

Answer 29: This NRA is looking for the Offeror's strategy and plan for affordability including the relative importance of non-recurring cost, recurring cost, and schedule in assessing affordability.

Question 30: How will "price confidence" be used in the Government's evaluation and selection process?

Answer 30: A level of confidence (High, Medium, Low) in the Offeror's ability to successfully perform the contract at the proposed price will be assigned as part of the Price factor.

This information will be provided to the Selection Official for consideration in the selection decision.

See Section 5 of the Draft NRA.

Question 31: We will clearly meet or exceed the Small Business (SB) allocation of 10.5% on labor products. We are concerned about the subcontract commitments. If we procure an engine at an expected large value, it will be difficult to hit that target on a single source product. Typically, subcontract allocations are spread among many suppliers, some of whom will be SB, but that is not the case here.

Answer 31: The small business subcontracting goals will be evaluated against the total proposed value.

Question 32: When will the Offeror be notified and given the opportunity to address any adverse past performance information identified in the mentioned Past Performance Information Retrieval System (PPIRS) database?

Answer 32: The exact date of notification is not known. The Offeror will be provided with a reasonable amount of time to respond to any adverse past performance after identification. The Offeror is directed to 5.1.3.2, Management Approach, paragraph d., page 21 of the Draft NRA.

Question 33: Reference Draft NRA, Section 4.2.6.2.2.2, Page 12, Paragraph 3. It is understood that past performance of major subcontractors will be assessed in the Past Performance Information Retrieval System (PPIRS). Will the relationship to previous or ongoing work also apply to major subcontractors?

Answer 33: Yes. This will be clarified in the Final NRA release.

Question 34: Reference NRA Guidebook, Page F-1, Question F.1. What is the role of the “Program Officer” in the planned evaluation process?

Answer 34: The “Program Officer” is not a term or role used in the planned evaluation process in this NRA. For the evaluation and selection process, see Draft NRA Section 5.

Question 35: Does NASA have a preferred risk management approach? 5x5, Probability Risk Assessment?

Answer 35: No. For the purposes of this NRA, the Offeror can use any risk management approach, as long as it is clear and utilized consistent with the Offeror’s proposal.