

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
(NASA Marshall Space Flight Center)**

Human Exploration and Operations (HEO) Directorate
Space Launch System Program
Advanced Development Office
Marshall Space Flight Center, AL 35812

Space Launch System (SLS) Advanced Development

NASA RESEARCH ANNOUNCEMENT (NRA)
SOLICITING APPLIED RESEARCH PROPOSALS

NNM12ZPS002N

NRA Issued: March 20, 2012

Proposals Due: May 15, 2012

EXECUTIVE SUMMARY

Space Launch System – A New National Capability

The U. S. Space Launch System (SLS) will provide an entirely new capability for human exploration beyond Earth orbit. Designed to be flexible for crew or cargo missions, the SLS will be an affordable, safe, and sustainable avenue to continue America’s journey of discovery from the unique vantage point of space.

America’s new Space Launch System will be the most powerful rocket in U. S. history, evolving from an initial capacity of 70 metric tons up to 130 metric tons using an evolutionary development strategy of block upgrades. The initial 70 metric ton design is heavily leveraging heritage hardware and expertise from the Space Transportation System (STS) and ARES Programs to achieve the majority of the initial system functions and capacities. The SLS Advanced Development Office (ADO) is developing, in parallel, vehicle enhancements to evolve the SLS elements and configurations to support the planned 130 metric ton launch vehicle.

This NASA Research Announcement (NRA) entitled “Space Launch System (SLS) Advanced Development” solicits proposals from both industry and academic institutions for innovative development concepts in key topic areas. These concepts should improve SLS affordability, reliability, or performance within a constrained fiscal schedule. In addition to soliciting innovative proposals from industry, this NRA is also seeking focused proposals from academic institutions. Including academia provides an added benefit of improving science, technology, engineering, and mathematics (STEM) education.

Although there are other paths for science and basic technology developments, this NRA seeks to facilitate the incorporation of mature technical solutions. With this solicitation, NASA is seeking innovative proposals in both broad and focused areas of interest. The broad topic area includes, but is not limited to, the following subjects:

- Advanced Development for Concept Development, Trades, and Analyses
- Advanced Development in Propulsion
- Advanced Development in Manufacturing, Structures, and Materials
- Advanced Development in Avionics and Software

More information on the areas of interest along with a list of more focused topics is in Appendix A, Section 5.0.

Potential Offerors may propose innovative concepts in other areas beyond those referenced above that provide significant affordability, reliability, or performance enhancements to SLS and are within the technical scope of this NRA.

NASA anticipates awarding multiple contracts or grants for innovative development concepts that meet the objectives of this NRA. The factors for selecting these innovative development concepts (described in detail within this NRA) are the Relevance to NASA's Objectives, the Intrinsic Merit of the proposed effort to the Government, and the Price. The overall number of awards will be dependent upon the quality of the proposed effort, funding availability, and evaluation results. Each Offeror is encouraged to submit only one proposal, which shall describe only one standalone work effort. A "standalone work effort" describes an effort that includes a cohesive set of technical objectives, which as a whole, works toward a common concept or upgrade.

Funds are not currently available for awards under this NRA. The Government's ability to make award(s) is contingent on the availability of appropriated funds from which payment can be made and on the receipt of proposals that NASA determines are acceptable for award under this NRA.

The total funding anticipated being available and split among industry awards and academic awards made against this NRA is \$48,000,000 broken out as approximately \$22,000,000 for the base year and \$14,500,000 and \$11,500,000 for each of the two additional 1-year options, respectively. Of this total yearly amount, the total funding anticipated being available and split among academic awards made against this NRA is approximately \$2,000,000 for the first year and \$1,500,000 for each of the two subsequent years. Individual academic awards are anticipated to be up to \$250,000 per year. The amount allocated for award is dependent upon the individual Offeror's proposed work effort. NASA anticipates multiple awards to both industry and academia; however, NASA reserves the right to make no award. The base period of performance for contracts or grants awarded as a result of this solicitation is 12 months with the potential for two 1-year options.

Participation in this program is open to all categories of United States (US) organizations, including educational institutions, industry, and nonprofit/not-for-profit institutions (see 1.4 of *the NASA Guidebook for Proposers Responding to a NASA Research Announcement* for Organization Type description of institutions). US Government academic institutions which offer scientific, technological, engineering, and mathematics degrees are eligible to propose. However, all other Federal Government agencies, Federally Funded Research and Development Centers (FFRDCs), and NASA Centers [including the Jet Propulsion Laboratory (JPL)] or their employees may not propose to this NRA unless functioning as permissible as a supplier, consultant, or subcontractor through separate contract vehicles or agreements. NASA

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Amendment No. 2 dated April 25, 2012

employees, as well as JPL employees, are not permitted to be key personnel on these proposals. For purposes of this NRA, funded participation by non-US 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 Federal Acquisition Regulation (FAR) Supplement 1852.235-72.

Technical details of the solicited effort are provided in the Appendices of this NRA. The due date for proposal submission is May 15, 2012. Interested Offerors should monitor the Government Point of Entry [Federal Business Opportunities (FBO)], NASA Acquisition Internet Service (NAIS), and NASA Solicitation and Proposal Integrated Review and Evaluation System (NSPIRES) for any amendments issued against this solicitation.

Offerors are hereby informed that technical investigations in the fields covered by this NRA may require access to technical data, the export of which is controlled under the Export Control Act, Title 50, United States Code App. 2401-20, the Arms Export Control Act, Title 22, United States Code 2751 – 2794 or both. No award will be made to any Offeror unless the NASA Contracting Officer is satisfied that performance of the awarded effort will not involve an illegal export of technical data under either statute. All presentations, charts, publications, journals, etc. which may fall under the export control act or limited exclusive rights of data, must be submitted to the MSFC Intellectual Property Officer or Contracting Officer Representative (COR).

Offerors are hereby informed that any proposals selected for award/negotiation of a contract exceeding \$650,000 in total will be required to submit a small business subcontracting plan prior to award, in accordance with FAR 19.704, Subcontracting Plan Requirements.

All questions shall be submitted in writing to the point of contact shown below by 1:00 p.m. Central Standard Time on April 10, 2012. Questions received after the specified date may not be addressed. Questions regarding this NRA will be addressed within the issuance of an amendment to this NRA. Inquiries by telephone or in person will not be accepted.

Point of Contact:

NASA Marshall Space Flight Center
Attn: Monica Heidelberg, PS42
Marshall Space Flight Center, AL 35812
monica.d.heidelberg@nasa.gov

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SUMMARY OF SOLICITATION

1.0 FUNDING OPPORTUNITY DESCRIPTION

1.1 NASA Safety Policy. Safety is the freedom from those conditions that can cause death, injury, loss of a mission, occupational illness, damage to or loss of equipment or property, or damage to the environment. NASA's safety priority is to protect the following: (1) public, (2) astronauts and pilots, (3) the NASA workforce (including employees working under NASA award instruments), and (4) high-value equipment and property.

1.2 Proposal Funding Restrictions

1.2.1 Funds are not currently available for award(s) under this NASA Research Announcement (NRA). The Government's ability to make award(s) is contingent on the availability of appropriated funds from which payment can be made and on the receipt of proposals that NASA determines are acceptable for award under this NRA.

1.2.2 The construction of facilities is not an allowed activity under this NRA unless specifically stated.

1.2.3 Travel, including foreign travel, is allowed as may be necessary for the meaningful completion of the proposed research, as well as for publicizing its results at appropriate professional meetings.

1.2.4 For purposes of this NRA, funded participation by non US organizations and Foreign Governments is limited to the direct purchase of supplies and/or services, which do not constitute research as allowed by NASA Federal Acquisition Regulations (FAR) 1852.235.72. However, subject to export control restrictions, a foreign national may receive payment through a NASA award for the conduct of research while employed either full or part time by a US organization (see 1.6 of *the NASA Guidebook for Proposers Responding to a NASA Research Announcement* (hereafter referred to as *the NASA Guidebook for Proposers*, <http://www.hq.nasa.gov/office/procurement/nraguidebook/proposer2011.pdf>).

1.3 Proposal Preparation. All information needed to respond to this solicitation is contained in this NRA and *the NASA Guidebook for Proposers*. By reference, the January 2011 edition of *the NASA Guidebook for Proposers* is incorporated into this NRA, and Offerors are responsible for understanding and complying with its procedures for the successful, timely preparation, and submission of their proposal. Offerors are advised that for any discrepancies or inconsistencies noted between this NRA and *the NASA Guidebook for Proposers*, this NRA takes precedence. Proposals that do not conform to this NRA's standards may be declared

noncompliant and rejected without review. The evaluation of a proposal may not be completed by the evaluation board if it is determined that the proposal is unacceptable in accordance with NFS 1815.305-70, entitled *Identification of Unacceptable Proposals*.

This NRA is subject to the restrictions imposed by Export Administration Regulations (EAR) and International Traffic in Arms Regulations (ITAR). It is incumbent upon the Offeror to assure the protection and nondisclosure of relevant intellectual property, including requirements of the EAR and ITAR. US Offerors should be aware that hardware, software, or related materials and services, including technical data, may be subject to US export control laws, including the US Export Administration Act, the Arms Export Control Act, and their associated regulations. It is incumbent upon the US Offeror to strictly comply with all US export control laws, and when applicable, assume the responsibility for obtaining export licenses, or other export authority, as may be required. Under US law and regulations, spacecraft and their specifically designed, modified, or configured systems, components, and parts are generally considered “Defense Articles” on the US Munitions List and are, therefore, subject to the provisions of ITAR, 22 CFR Parts 120-130. It is the Offeror’s responsibility to determine whether any proposal information is subject to the provisions of ITAR, and to comply with the provisions of ITAR. Information about US export regulations is available at <http://www.pmddtc.state.gov/> and <http://www.bis.doc.gov/>.

The SLS Advanced Development acquisition is not subject to the prohibitions set forth in the Iran, North Korea, and Syria Nonproliferation Act (INKSNA) (Public Law [P.L.] 106-178, as amended by P.L. 107-228, P/L/ 109-112, P.L. 109-353, and P.L. 110 329), given that the research purposes and objective of this acquisition are not directly related to human space flight.

2.0 AWARD INFORMATION

2.1 Funding and Award Policies

NASA intends the effective date of any selected and successfully negotiated NASA Research Announcement (NRA) award as a result of this solicitation is October 1, 2012 and will be based on the workload experienced by NASA, the availability of appropriated funds, and any necessary post-selection negotiations with the proposing organization(s) needed for the award in question. NASA reserves the right to cancel selection of an award to an apparent successful Offeror should the resultant negotiations prove to be unproductive in reaching an agreement that is in the best interest of NASA, a reduction in program funding occurs, or other matters (e.g., data rights) inherently incompatible with the desired results of this Space Launch System (SLS) Advanced Development NRA. Additionally, NASA reserves the right to subsequently negotiate and make award to Offeror(s) not initially selected. Proposals shall be valid for 12 months to allow for a

later award should the opportunity become available, unless withdrawn by the Offeror prior to award.

It is anticipated that awards made through this NRA will be in the form of a firm fixed priced contract for industry and a grant for academia. Offerors are hereby informed that any proposals selected for award/negotiation exceeding \$650,000 in total will be required to submit a small business subcontracting plan prior to award, in accordance with Federal Acquisition Regulation (FAR) 19.704, Subcontracting Plan Requirements. It is anticipated that the base period of performance for contracts or grants awarded as a result of this solicitation is 12 months with the potential for two 1-year options and will have an effective date TBD with Final NRA release. Each Offeror shall determine the appropriate allocation of funds based on their work effort.

The total funding anticipated being available and split among industry awards and academic awards made against this NRA is \$48,000,000 broken out as approximately \$22,000,000 for the base year and \$14,500,000 and \$11,500,000 for each of the two additional 1-year options, respectively. Of this total yearly amount, the total funding anticipated being available and split among academic awards made against this NRA is approximately \$2,000,000 for the first year and \$1,500,000 for each of the two subsequent years. Individual academic awards are anticipated to be up to \$250,000 per year. The amount allocated for award is dependent upon the individual Offeror's proposed work effort. NASA anticipates multiple awards to both industry and academia; however, NASA reserves the right to make no award.

2.2 Successor Proposals and Resubmissions. Generally, holders of previous awards selected through any of the programs offered through earlier NRAs including Non-NASA awards are welcome to submit "successor" proposals that seek to continue a previously funded line of research (see 1.5 of *the NASA Guidebook for Proposers*). However, in order to ensure equitable treatment of all submitted proposals, NASA does not extend any special consideration to such successor proposals in terms of preferential handling, review, or priority for selection. Therefore, all proposals in response to this NRA are considered new regardless of their previous history of NASA funding or Non-NASA funding and will be reviewed on an equal basis with other proposals submitted for this NRA.

2.3 Award Period of Performance. It is anticipated that the period of performance for any award as a result of this NRA will be 12 months with the potential for two 1-year options and will have an effective date TBD with Final NRA release. Any proposed period of performance shall be justified in the proposal. The appropriateness of the proposed period of performance will be evaluated. NASA may select proposals for shorter award duration than proposed.

3.0 ELIGIBILITY INFORMATION

3.1 Eligibility of Applicants. Participation in this program is open to all categories of US organizations, including educational institutions, industry, and nonprofit/not-for-profit institutions (see 1.4 of *the NASA Guidebook for Proposers* for Organization Type description of institutions). US Government academic institutions which offer scientific, technological, engineering, and mathematics degrees are eligible to propose. However, all other Federal Government agencies, Federally Funded Research and Development Centers (FFRDCs), and NASA Centers [including the Jet Propulsion Laboratory (JPL)] or their employees may not propose to this NASA Research Announcement (NRA) unless functioning as permissible as a supplier, consultant, or subcontractor through separate contract vehicles or agreements. NASA employees, as well as JPL employees, are not permitted to be key personnel on these proposals. For purposes of this NRA, funded 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 Federal Acquisition Regulations (FAR) Supplement (NFS) 1852.235-72.

3.2 Teaming Arrangements. There is no restriction on teaming arrangements. Each proposal shall be a separate, stand-alone, complete document for evaluation purposes addressing an individual work effort.

3.3 Corporate Resources. If an Offeror proposes incorporating any corporate resources in their proposal, these resources shall be clearly described in the proposal and listed in Appendix F, Element of Price Detail for Contracts.

4.0 PROPOSAL AND SUBMISSION INFORMATION

4.1 Address to Request Proposal Package. Offerors should monitor Federal Business Opportunities (FBO) (<http://www.fedbizopps.gov>), NASA Acquisition Internet Service (NAIS) (<http://prod.nais.nasa.gov>), and the NASA Solicitation and Proposal Integrated Review and Evaluation System (NSPIRES) (<http://nspires.nasaprs.com>) for any amendments issued against this NASA Research Announcement (NRA).

4.2 Content and Form of the Proposal Submission

4.2.1 General

4.2.1.1 All information needed to respond to this solicitation is contained in this NRA and in the companion document entitled *Guidebook for Proposers Responding to a NASA Research Announcement (NRA)* (January 2011 edition) (hereafter referred to as *the NASA*

Guidebook for Proposers), which is located at:

<http://www.hq.nasa.gov/office/procurement/nraguidebook/proposer2011.pdf>. Offerors shall prepare proposals in accordance with the “Instructions for Responding to NASA Research Announcements,” NASA Federal Acquisition Regulations (FAR) Supplement (NFS), Part 1852.235-72 (November 2004) as supplemented by Paragraph (n) (January 2006) as contained in *the NASA Guidebook for Proposers*, Appendix B. NFS Clause 1852.235-72 is hereby incorporated by reference.

4.2.1.2 Academic Offerors should be familiar with the *NASA Grant and Cooperative Agreement Handbook*. There are no standard NASA proposal instructions for announcements of grants other than NRAs; however, the standard certifications and assurances that are required for every grant announcement may be found on the Sponsored Research Business Activity (SRBA) Web page at: http://prod.nais.nasa.gov/pub/pub_library/srba/.

4.2.1.3 With respect to document precedence, in case of any conflict, the order of precedence to be followed is first, provisions of law; second, the *NASA FAR Supplement*; third, the specific requirements noted in this NRA; fourth the direction provided in *the NASA Guidebook for Proposers*; and finally, *the NASA Grant and Cooperative Agreement Handbook*.

4.2.1.4 Proposals received in response to this NRA will be used only for evaluation purposes. NASA does not allow a proposal, the contents of which are not available without restriction from another source, or any unique ideas submitted in response to an NRA, to be used as the basis of a solicitation or in negotiation with other organizations. In addition, pre-award synopses are not published for individual proposals.

4.2.1.5 A solicited proposal that results in a NASA award becomes part of the record of that transaction and may be available to the public on specific request; however, information or material that NASA and the awardee mutually agree to be of a privileged nature will be held in confidence to the extent permitted by law, including the Freedom of Information Act. The Offeror’s submitted Statement of Work (SOW), inclusive of revisions made through negotiations, will become the NASA SOW as an attachment to any resultant contract.

4.2.1.6 NASA does not have mandatory forms or formats for responses to NRAs; however, proposals shall conform to the guidelines in these instructions. NASA may reject without review proposals that are not consistent with these NRA instructions. NASA may accept proposals without discussion; hence, proposals shall initially be as complete as possible and be submitted on the Offeror’s most favorable terms.

4.2.1.7 To be considered for award, a submission shall, at a minimum, present a specific effort within the scope identified by the NRA; contain sufficient technical and price information to permit a meaningful evaluation; be signed by an official authorized to legally bind the submitting organization; not merely offer to perform standard services or to just provide computer facilities or services; and not significantly duplicate a currently funded Government solicitation.

4.2.1.8 Offerors are required to submit a completed and signed Representations and Certifications document which is available at <https://orca.bpn.gov/>. The Representation and Certifications and Other Statements of Offerors shall be included as part of the Model Contract, Attachment K or Model Grant, Exhibit I (as applicable). The Representations and Certifications as completed by the successful Offeror will be incorporated in their entirety by reference, into any resulting contract, with the same force and effect as if they were given in full text. If there are any significant changes to the representations and certifications, the successful Offeror shall notify the Contracting Officer in writing as soon as the changes are known.

4.2.2 NRA-Specific Items. Several proposal submission items appear in the NRA itself: e.g., the unique NRA identifier; when to submit proposals; where to send proposals; number of copies required; and sources for more information. Items included in NRA preparation instructions (*the NASA Guidebook for Proposers*) are superseded by this NRA.

4.2.3 The following information is needed to permit evaluation in an objective manner. NRAs will generally specify topics for which additional information or greater detail is desirable. Each proposal copy shall contain all submitted material, including a cover page that contains the following substantive information.

4.2.3.1 The legal name and address of the organization and specific division if part of a larger organization;

4.2.3.2 A brief title suitable for use in the public press;

4.2.3.3 Type of organization: e.g., small business, minority, women-owned;

4.2.3.4 Name and telephone number of the key personnel and business personnel who may be contacted during evaluation or negotiation;

4.2.3.5 Identification of other organizations and agencies that are currently evaluating a proposal for the same efforts;

4.2.3.6 Identification of the NRA, by number and title, to which the proposal is responding;

4.2.3.7 Dollar amount proposed, desired starting date, and duration of effort;

4.2.3.8 Date of submission;

4.2.3.9 Data Universal Numbering System (DUNS) number and Contractor and Government Entity (CAGE) Code; and

4.2.3.10 Signature of a responsible official or authorized representative of the organization, or any other person authorized to legally bind the organization (unless the signature appears on the proposal itself).

4.2.4 Restriction on Use and Disclosure of Proposal Information. Information contained in proposals is used for evaluation purposes only. Offerors shall, in order to maximize protection of trade secrets or other information that is confidential or privileged, place the following notice on the cover page of the proposal and specify the information subject to the notice by inserting an appropriate identification in the notice. In any event, information contained in proposals will be protected to the extent permitted by law, but NASA assumes no liability for use and disclosure of information not made subject to the notice.

Notice

Restriction on Use and Disclosure of Proposal Information

The information (data) contained in [insert page numbers or other identification] of this proposal constitutes a trade secret and/or information that is commercial or financial and confidential or privileged. It is furnished to the Government in confidence with the understanding that it will not, without permission of the Offeror, be used or disclosed other than for evaluation purposes; provided, however, that in the event a contract (or other agreement) is awarded on the basis of this proposal the Government shall have the right to use and disclose this information (data) to the extent provided in the contract (or other agreement). This restriction does not limit the Government's right to use or disclose this information (data) if obtained from another source without restriction.

4.2.5 Export Control. Offerors shall, if it is essential to include export-controlled information, prominently display the following notice on the cover page of the proposal.

The information (data) contained in [insert page numbers or other identification] of this proposal is (are) subject to US export control laws and regulations. It is furnished to the Government with the understanding that it will not be exported without the prior approval of the Proposer under the terms of an applicable export license or technical assistance agreement.

Guidance on NASA's Export Control Program and NASA Center Points of Contact can be found at the following location: <http://www.hq.nasa.gov/office/oer/nasaecp/contacts.html>.

4.2.6 Purpose and Scope

NASA Marshall Space Flight Center (MSFC) is issuing this NRA in support of the Space Launch System (SLS) Program, Advanced Development Office (ADO). The ADO is responsible for advanced development planning and implementation of evolutionary upgrades to the SLS Program. Advanced Development work is defined as work that occurs in parallel with the SLS Program, and when the product has reached acceptable maturity, can be integrated into the next planned block upgrade.

The technical scope of this NRA is defined by the SLS descriptions provided in Appendices A, B, and C. Additionally, to be considered within the technical scope of this NRA, proposed work efforts should be at a maturity level capable of supporting timely implementation into the Block 1A vehicle configuration.

This NRA solicits work efforts that are within the technical scope described above that are either upgrades to the vehicle; or studies, analytical tools, or databases that support development of the vehicle.

4.2.7 Additional Proposal Guidance

4.2.7.1 Offerors are encouraged to submit only one proposal, which shall describe only one standalone work effort. A "standalone work effort" describes an effort that includes a cohesive set of technical objectives, which as a whole, works toward a common concept or upgrade. Proposed programmatic or business (i.e. non-technical) work efforts to support the SLS, ADO are not within the technical scope of this NRA.

4.2.7.2 Industry Offerors should use the Broad Advanced Development Topics presented in Appendix A, Section 5.0 as guidance for focusing the proposed work into areas of interest that have been identified by the ADO.

4.2.7.3 Academic Offerors should use the Focused Advanced Development Topics presented in Appendix A, Section 5.0 as guidance for focusing the proposed work into areas of interest that have been identified by the ADO.

4.2.8 Proposal Content. Proposal submissions are to be clearly separated into four sections: Relevance to NASA's Objectives, Intrinsic Merit, Price, and Model Contract (or Model Grant). Relevant technical or management information and data shall only be included within the Relevance to NASA's Objectives and Intrinsic Merit Sections unless otherwise noted. The proposal shall be assembled with the items given in the following section in the order shown, using the page limits provided herein. All proposal material that exceeds the specified page limits will not be reviewed and evaluated. The page limits provided in this section hold precedence over the page limits supplied in 2.3.1(a) of *the NASA Guidebook for Proposers*. All page numbers shall be clearly displayed in the footer portion of each page. See Table 1 for formatting of page numbers. The proposals shall include the following content and associated information:

- Cover Page
- Abstract
- Table of Contents

Section 1 – Relevance to NASA's Objectives

- Technical Scope
- Improves or Influences Affordability, Reliability, and Performance

Section 2 – Intrinsic Merit

- Management Approach
 - Distribution and Management of Responsibilities and Work
 - Teaming, Partnering, and Subcontracting Arrangements
 - Key Capabilities, Facilities, and Equipment
 - Ground Rules and Assumptions
 - Deviations and Exceptions
- Technical Approach
 - Technical Objectives, Methodology, and Innovation
 - Upgrade Implementation Approach
 - Related Work Experience
 - Current and Pending Support

- Bibliography
- Appendix E, Subcontractor Information

Section 3 – Price

- Introduction
- General Instructions
- Specific Price Detail
- Deviations from Price Section Requirements
- Additional Price Requirements if Selected for Award

Section 4 – Model Contract (if applicable)*

- Contract Terms and Conditions
- Statement of Work
- Data Procurement Document
- Work Breakdown Structure

Section 4 – Model Grant (if applicable)*

- Grant Provisions, Special Conditions, Additional Terms, and Required Publications and Reports
- Statement of Work

(* While Model Contract/Model Grant is a separate section, it will be evaluated under the Intrinsic Merit evaluation factor as described in 5.0 of this NRA)

4.2.8.1 Cover Page. See 4.2.3 through 4.2.5 of this NRA for details.

4.2.8.2 Abstract. Offerors shall include a concise (200-300 words) and complete summary overview of the proposed work effort.

4.2.8.3 Table of Contents. Offerors shall include a table of contents that provides a guide to the organization and contents of the proposal. This item may also incorporate customized formats of the Offeror's own choosing.

4.2.8.4 Section 1 – Relevance to NASA's Objectives

4.2.8.4.1 The objectives of NASA are outlined in the *2011 NASA Strategic Plan*. In this plan the specific objectives of NASA are presented in the context of the overall objectives of the nation relative to aerospace and defined further in the National Space Policy. Each program within NASA maintains alignment with the overarching objectives of the Agency by way of specific objectives of that program and its included elements. The objectives

of SLS are to improve affordability, reliability, or performance through evolutionary upgrades of the baseline SLS vehicle. Proposed work efforts should advance one or more of the stated objectives while maintaining (or minimizing negative impacts to) the other objectives within a constrained fiscal schedule.

4.2.8.4.2 Offerors shall include a description of how the work effort is within the technical scope of this NRA, and when applicable include a discussion of technical maturity relative to the SLS vehicle. Additionally, Offerors shall describe how the resulting work effort improves or influences the SLS objectives: affordability, reliability, and performance.

4.2.8.5 Section 2 – Intrinsic Merit

4.2.8.5.1 Management Approach

4.2.8.5.1.1 Distribution and Management of Responsibilities and Work. For large or complex efforts involving interactions among numerous individuals or organizations, Offerors shall describe plans and processes for distribution and management of responsibilities and work for ensuring a coordinated effort.

4.2.8.5.1.2 Teaming, Partnering, and Subcontracting Arrangements. Offerors shall describe in detail teaming arrangements (including collaborations) employed to complete the work effort. Offerors shall also submit information on all significant subcontracts over 10 percent of the total amount proposed per Appendix E, Subcontractor Information. This 10 percent calculation shall take into account any reductions or additions the Offeror implements to the subcontractor's proposed price. For joint proposals, where multiple organizations are involved, the proposal shall be submitted by only one of the organizations and shall describe the legal and managerial arrangements contemplated. If the proposal includes any partnering arrangements, then letters of intent shall be included. Any special industry-university cooperative arrangements shall be described. The cost, and assumptions of cost, associated with the use of teaming, partnering, and subcontracting arrangements shall be identified within the Price Section of the proposal.

4.2.8.5.1.3 Key Capabilities, Facilities, and Equipment. Offerors shall identify key capabilities, facilities, and any major equipment that will be required. Offerors shall identify any Government-owned facilities or equipment that is proposed for use and shall provide evidence of availability along with the cognizant Government points of contact. The cost, and assumptions of cost, associated with the use of facilities and equipment shall be identified within the Price Section of the proposal.

Before requesting a major item of capital equipment (over \$100,000), Offerors shall determine if sharing or loan of equipment is a feasible alternative. Where such arrangements cannot be made, the proposal shall so state.

4.2.8.5.1.4 No past performance information is required, and no past performance information will be evaluated if submitted (see 5.1.1.2.1 of this NRA for additional information and details).

4.2.8.5.1.5 Ground Rules and Assumptions. Offerors shall describe all ground rules and assumptions.

4.2.8.5.1.6 Deviations and Exceptions. Offerors shall identify any deviations or exceptions relevant to this NRA and Model Contract/Model Grant, including the Data Procurement Document (DPD). Rationale for these deviations shall be included.

4.2.8.5.1.7 Offerors shall attach their Work Breakdown Structure (WBS) (not applicable to grants), SOW, schedule with technical milestones, and a detailed description of deliverables to the Model Contract/Model Grant (see 4.2.8.7/4.2.8.10 of this NRA for additional information and details).

4.2.8.5.2 Technical Approach

4.2.8.5.2.1 Technical Objectives, Methodology, and Innovation. Offerors shall provide a description of the technical objectives and methodology proposed to accomplish the work effort to include any significant subcontractor efforts. Offerors shall explain how the work effort utilizes innovation to accomplish the proposed objectives and measures against the present state of knowledge.

4.2.8.5.2.2 Upgrade Implementation Approach. Offerors shall, if an upgrade to the vehicle is proposed, discuss the impact of implementation on other systems, subsystems, interfaces, or operations in support of the Block 1A vehicle configuration. See Appendix A, Section 4.0 for the anticipated ADO implementation philosophy. If the proposed work effort is not an upgrade to the vehicle (i.e. studies, analytical tools, databases), then an implementation approach is not required.

4.2.8.5.2.3 Related Work Experience. Offerors shall describe related work experience and how that experience will be utilized in the proposed work effort.

4.2.8.5.2.4 Current and Pending Support. Offerors shall indicate if the same, or similar, work effort is currently funded or being submitted to any other ongoing Federal Government solicitation. If a similar work effort is awarded prior to the completion of this NRA, then the Offeror shall notify the relevant point of contact under this NRA.

Offerors shall not submit a work effort that is significantly similar to a previously awarded or currently funded NASA, or other Federal Governmental agency, solicitation which has been submitted by the Offeror. However, holders of previous awards selected through any of the programs offered through earlier solicitations, including Non-NASA awards, are welcome to submit “successor” proposals that seek to continue a previously funded line of research (see 1.5 of *the NASA Guidebook for Proposers*). In order to ensure equitable treatment of all submitted proposals, NASA does not extend any special consideration to such successor proposals in terms of preferential handling, review, or priority for selection. Therefore, all proposals in response to an NRA are considered new regardless of their previous history with NASA, or Non-NASA, funding and will be reviewed on an equal basis with other proposals submitted for this NRA.

Offerors shall provide information for all ongoing and pending projects and proposals that involve (commitments greater than 10 percent) the proposing Principal Investigator (PI) or key personnel (as identified in Model Contract Clause H.5 or Model Grant Provision 3, Key Personnel).

4.2.8.5.2.5 Bibliography. All references and citations given in any previous sections of the proposal shall be provided using easily understood, standard abbreviations for journals and complete names for books.

4.2.8.6 Section 3 – Price

4.2.8.6.1 Introduction

4.2.8.6.1.1 Offerors shall submit Price as described herein. Offerors shall provide only the information requested. Proper presentation, organization, and clarity, as well as adequate supporting documentation, shall be provided to facilitate Government evaluation of the proposal.

4.2.8.6.1.2 The uniform policy concerning the review of proposals submitted in response to this NRA against the price evaluation criterion is described in Appendix C of *the NASA Guidebook for Proposers*. NASA program personnel will conduct the complete evaluation of the Offeror’s proposal, including the Price Section and all relevant factors such as those required in Appendix F (or Appendix G, as applicable), Element of Price Detail for

Contracts (or Budget Summary for Grants, as applicable) and comparison of the proposed price to available funds.

4.2.8.6.1.3 All cost and workforce summary information shall be complete (including but not limited to all in-house, subcontracted efforts, and other costs, as appropriate) and be consistent with, and traceable to, lower levels of cost and labor hour detail contained within the proposal. Narratives shall be provided for each type of summary, indicating which detailed cost or labor hour data supports the given summary. The specific location(s) of the supporting data (section numbers) within the price proposal shall be identified.

4.2.8.6.2 General Instructions. The Offeror's Price Section shall be organized as described below.

4.2.8.6.2.1 The Price Section shall include page numbering (see Table 1 for page numbering conventions) and a table of contents. Offerors shall provide the following information on the first page:

- Solicitation number
- Name and address of Offeror
- Name and telephone number of point of contact for clarification or questions regarding this proposal
- Type of contract
- Proposed cost, profit, and total price
- Any Government property required for use in performance of the contract
- Whether the Offeror (a) is subject to the Cost Accounting Standards (CAS); (b) has submitted a Cost Accounting Standards Board (CASB) Disclosure Statement, and if it has been determined adequate; (c) has been notified of possible/actual noncompliance with their Disclosure Statement or CAS, and, if yes, an explanation; (d) whether any aspect of this proposal is inconsistent with disclosed practices or applicable CAS, and, if so, an explanation; and (e) whether the proposal is consistent with established estimation and accounting principles and procedures and FAR Part 31, Cost principles, and, if not, an explanation.
- Date of submission

4.2.8.6.2.2 Offerors are cautioned that unreasonably low estimates may be grounds for eliminating a proposal from competition on the basis that the Offeror does not understand the requirement. To avoid confusion in this regard, Offerors shall provide substantiation of any proposed corporate resources (to include whether the proposed funding is already secured or is conditional) or reliance on past or ongoing efforts. The burden

of demonstrating price credibility lies with the Offeror. Information in the Price Section that pertains to other sections will not be evaluated.

4.2.8.6.2.3 Explanatory notes shall accompany the Price Section to provide identification and estimated cost of major capital equipment (over \$100,000) items to be acquired and clarification of other items that are not self-evident.

4.2.8.6.2.4 Offeror's price proposal, subcontractor's price proposal, or team member's price proposal, shall adhere to the provisions of this Price Section. Subcontractors or team members may submit their price proposals directly to the Government (no later than the date and time specified in this NRA) to avoid providing proprietary pricing information to the prime contractor. Subcontractor price proposals submitted directly to the Government shall adhere to the same submission and formatting standards described in 4.2.8.11 and 4.3 of this NRA.

4.2.8.6.2.5 Offerors shall submit a schedule of all work items to be undertaken. This schedule shall outline the dependencies of work items to the extent it demonstrates an understanding of the research. All long lead items and facility schedule conflicts shall be identified.

4.2.8.6.2.6 NASA funding may not be used for foreign research efforts at any level, whether as a collaborator or a subcontractor. The direct purchase of supplies or services, which do not constitute research, from non-U.S. sources by U.S. award recipients is permitted.

4.2.8.6.2.7 The Government will use Microsoft Office Excel 2007 for evaluation and analysis of the Price Section. Offerors shall not remove the functionality of the Excel spreadsheets that are submitted in the electronic copy of the Price Section. Spreadsheets shall be true self-calculating files. Any "hard values" shall be explained and supported. The formats for pictures, drawings, figures, etc., shall be Bit-Mapped Picture (.bmp) or JPEG Picture (.jpg).

4.2.8.6.3 Specific Price Detail. The Price Section shall contain a summary of labor hours and other information supporting the proposed price. The following types of information are specifically required in this summary:

- Proposed costs and profit expenditures in accordance with Appendix F (or Appendix G, as applicable), Element of Price Detail for Contracts (or Budget Summary for Grants, as applicable) in total and for each target area in real year thousands of dollars, by Government fiscal year (October through September) over the period of performance.

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Additional cost elements shall be included if necessary to reflect the Offeror's cost accounting structure. Assume the following dates for purposes of cost phasing:

- Authority to Proceed (ATP) October 1, 2012
 - End of Base Period September 31,2013
 - Option 1 October 1, 2013 – September 31, 2014
 - Option 2 October 1, 2014 – September 31, 2015
-
- A listing of all key ground rules and assumptions having significant impact on proposed price. This listing includes resources required of the Government (e.g., Government-furnished equipment and property, including estimated costs if required for Offeror's technical approach) and key technical and management requirements driving cost.
 - Summary table converting labor hours to equivalent people (EP) for the prime and subcontractors. The Government's definition of an EP is: One EP equals 2,000 available work hours per year

4.2.8.6.4 Deviations from Price Section Requirements. Any deviations from the requirements in this Price Section shall be fully explained and supported. Any accounting changes, management challenges, corporate resource arrangements, or other competitive features without detailed explanation and proposed language to be incorporated into any resultant contract will not be considered. This requirement also applies to any subcontractor.

4.2.8.6.5 Additional Price Requirements if Selected for Award.

The following types of information are specifically required in this summary:

- A summary table listing all labor categories used in the proposal and their associated direct labor rates, along with escalation factors used for each year of the acquisition.
- A summary table listing all indirect rates used in the proposal for each year of the acquisition and the calendar month in which the rates change annually.
- A detailed WBS (not applicable for grants) at a sufficient level to reflect a complete evaluation and understanding of the work awarded.
- Detailed Basis of Estimates (BOEs) to support cost and labor hour data for work awarded.

4.2.8.7 Section 4 – Model Contract (if applicable). A firm fixed price Model Contract, which includes all applicable terms and conditions, is provided as Attachment 1 to this NRA. Offerors shall address the highlighted sections, Clauses B.3 Consideration and Payment and H.16 Advanced Agreements in Rights in Data, of the Model Contract. In addition, Offerors shall designate their deviations and exceptions using the track changes feature with their proposal. Offerors shall also provide a WBS, SOW, and DPD (if modifications are proposed).

An Offeror selected for award shall provide an Organizational Conflict of Interest Avoidance Plan, an Information Technology (IT) Security Management Plan, and Small Business Subcontracting Plan. Offerors shall provide an Alternate Safety, Health, and Environmental (SHE) Plan per Data Requirement Document (DRD) XXXXSA-ASHE.

4.2.8.7.1 Statement of Work. The SOW shall be attached to and made a part of the Model Contract.

4.2.8.7.1.1 Offerors shall submit a detailed SOW that includes a schedule with technical milestones, and a detailed description of deliverables (other than those in the DPD).

4.2.8.7.1.2 Offerors shall submit a detailed schedule of all work items to be undertaken. This schedule shall outline the dependencies of work items and critical path. All long lead items and facility schedule conflicts shall be identified.

4.2.8.7.2 Data Procurement Document. Any effort awarded as a result of this NRA shall include a DPD. A model DPD has been provided as Attachment 3 within this NRA. Offeror's shall provide rationale for any addition or deletion taken to the model DPD and show all exceptions in a redline version as part of the proposal submittal. An Offeror selected for award shall be required to update their final DPD with the appropriate contract number prior to award.

4.2.8.7.3 Work Breakdown Structure. The WBS shall be attached to and made a part of the Model Contract. Offerors shall submit a WBS at a sufficient level to facilitate a complete evaluation and understanding of the work responsibilities and distribution.

4.2.8.8 Security. Proposals shall not contain security classified material.

4.2.8.9 Special Matters. Offerors shall identify the cognizant Government audit agency, inspection agency, and administrative contracting officer, when applicable.

4.2.8.10 Section 4 – Model Grant (if applicable). A Model Grant, which includes all applicable provisions, special conditions, additional terms, and required publications and reports, is provided as Attachment 2 to this NRA. Offerors proposal shall address Key Personnel and the highlighted items within Additional Terms of the grant. In addition, Offerors shall designate their deviations and exceptions using the track changes feature with their proposal. Offerors shall also provide a SOW.

4.2.8.10.1 Statement of Work. The SOW shall be attached to and made a part of the Model Grant.

4.2.8.10.1.1 Offerors shall submit a detailed SOW that includes a schedule with technical milestones, and a detailed description of deliverables.

4.2.8.10.1.2 Offerors shall submit a detailed schedule of all work items to be undertaken. This schedule shall outline the dependencies of work items and critical path. All long lead items and facility schedule conflicts shall be identified.

4.2.8.11 Proposal Format and Length

4.2.8.11.1 Effort should be made to keep proposals as brief as possible, concentrating on substantive material. Necessary detailed information shall be included as attachments (but remain part of the page count). A complete set of attachments is necessary for each copy of the proposal. Since proposals are not returned, Offerors shall avoid use of “one-of-a-kind” attachments.

4.2.8.11.2 Offerors shall clearly mark and identify each of the pages subject to the page limitations (see Table 1 for numbering conventions). Proposals submitted in response to this announcement shall be written in English and contain the following information in the format shown below:

Table 1. Summary of Proposal Parts, Page Limits, and Numbering Format

REQUIRED CONSTITUENT PARTS OF PROPOSAL (in order of assembly)	PAGE LIMIT	PAGE NUMBERING FORMAT
Cover Page	1	None
Abstract	1 (200-300 words)	None
Table of Contents	1	None
Relevance to NASA’s Objectives and Intrinsic Merit	15	1 – 15
Appendix E, Subcontractor Information	As needed	E-1 (for all pages needed)
Price	10	P1 – P10
Model Contract/Model Grant: Statement of Work	5	See J of Model Contract or H of Model Grant
Model Contract: Data Procurement Document	As needed	See J of Model Contract
Model Contract: Work Breakdown Structure	1	See J of Model Contract

4.2.8.11.3 A page is defined as one side of a sheet, 8.5 inches x 11 inches, with a minimum of one (1) inch margins on all sides using not less than twelve (12)-point type Times New Roman font for standard text with normal kerning (spacing between individual characters). The text shall be printed on non-glossy white paper and single-sided. Non-standard text, including graphics, charts, tables, and callouts, shall use no smaller than eight (8)-point type Times New Roman font. Foldouts are allowed. Each foldout shall be single-sided, no larger than 11 inches x 17 inches, and shall count as two pages. The front of the foldout shall have 2 page numbers and the backs shall be blank and not be numbered. Use of non-standard text should be used only where appropriate. Non-standard text shall not be used to avoid the page limitations (e.g. providing all information in table format using eight (8)-point font).

4.2.8.11.4 Each part of the proposal shall contain a page numbering convention (as defined in Table 1). Offerors shall consecutively number the pages subject to the limit. A partially filled page shall count as one (1) page. Items addressed under Special Matters are not excluded from the page limitation.

4.2.8.11.5 Headers and footers are allowed as long as they do not contain proposal material. Only non-proposal material (e.g. page numbers, section titles, disclaimers, etc.) is permitted in headers and footers.

4.2.8.11.6 Pages submitted in excess of the limitations specified will not be evaluated by the Government and will be returned to the Offeror.

4.2.8.11.7 No exclusions are provided from proposal page limitations including, but not limited to, Cover Page, Table of Contents, illustrations, charts, blank pages, tab/divider pages, loose pages, pocket inserts, and acronym lists. All pages, including partial pages, shall be consecutively numbered and included in the limitation total.

4.2.8.11.8 Binder covers are excluded from the proposal page limit; however, the information included will not be evaluated.

4.2.8.11.9 All proposals shall be bound only with loose leaf three-ring binders.

4.3 Proposal Submission Dates, Time, and Location

4.3.1 Proposal Submissions. Proposal submissions must be received by 1:00 p.m. Central Standard Time on May 15, 2012. Proposals submitted via email will not be accepted. One original proposal package, plus ten paper copies, and two digital copies shall be submitted to:

NASA Marshall Space Flight Center
Attn: Monica D. Heidelberg, PS42
Marshall Space Flight Center, AL 35812

4.3.2 Digital copies shall be provided on a virus free compact disk read only memory (CD ROM) in personal computer (PC) format and shall be readable by Microsoft Office Word 2007 edition and Microsoft Office Excel 2007 edition. Digital copies shall be labeled externally with the NRA Number, Company Name, and Date Prepared and annotated “Source Selection Information - see FAR 3.104” shall be provided. Offerors shall not remove the functionality of any Excel spreadsheets that are submitted. Spreadsheets shall be true self-calculating files. Any “hard values” shall be explained and supported. The formats for pictures, drawings, figures, etc., shall be Bit-Mapped Picture (.bmp) or JPEG Picture (.jpg). Proposals shall not be accepted through NSPIRES or Grants.gov.

4.3.3 Notice of Intent. A Notice of Intent (NOI) to Propose shall not be required as stated in 3.1 of *the NASA Guidebook for Proposers*.

4.3.4 Late Proposals. Proposals or proposal modifications received after the latest date specified for receipt may be considered if a significant reduction in cost to the Government is probable or if there are significant technical advantages.

4.3.5 Withdrawal. Proposals may be withdrawn by the Offeror at any time before award. Offerors shall notify NASA if the proposal is funded by another organization or of other changed circumstances which dictate termination of evaluation.

4.3.6 Cancellation of NRA. NASA reserves the right to make no awards under this NRA and to cancel this NRA. NASA assumes no liability for canceling the NRA or for an interested party’s failure to receive actual notice of cancellation.

5.0 PROPOSAL REVIEW INFORMATION

5.1 Evaluation Factors and Basis for Award. The evaluation of this NRA will be conducted in strict accordance with the section titled “Evaluation Factors and Proposal Evaluation,” FAR 35.016, and NFS 1835.0160-71 for this NRA. The evaluation factors and basis for award to be used for this NASA Research Announcement (NRA) have been tailored from policies and provisions provided in: 1) “Instructions for Responding to NASA Research Announcements,” NASA Federal Acquisition Regulations (FAR) Supplement (NFS), Part 1852.235-72 (November 2004) (hereafter referred to as the *NASA FAR Supplement*) paragraph (i) and Appendix B, part (i) and 2) “Guidebook for Proposers Responding to a NASA Research

Announcement (NRA)” (January 2011 edition) (hereafter referred to as *the NASA Guidebook for Proposers*), Appendix C, paragraph C.2, which is located at:

<http://www.hq.nasa.gov/office/procurement/nraguidebook/proposer2011.pdf>. With respect to document precedence, in case of any conflict, the order of precedence to be followed is first, provisions of law; second, the *NASA FAR Supplement*; third, the specific requirements noted in this NRA; and lastly the direction provided in *the NASA Guidebook for Proposers*.

The evaluation factors to be used are as follows:

- (1) Relevance to NASA's Objectives
- (2) Intrinsic Merit
- (3) Price

These evaluation factors will be considered approximately of equal importance.

Information addressing Relevance to NASA’s Objectives and Intrinsic Merit that is included in the Price Section of the proposal will not be used for evaluation purposes.

5.1.1 Evaluation Factors

5.1.1.1 Factor 1: Relevance to NASA’s Objectives

The Government will evaluate how the proposed work effort meets the technical scope of this NRA, including the technical maturity relative to the Space Launch System (SLS) vehicle when applicable. Additionally, the Government will evaluate how the work effort improves or influences the SLS objectives: affordability, reliability, and performance.

5.1.1.2 Factor 2: Intrinsic Merit

Intrinsic Merit includes consideration of the following:

5.1.1.2.1 Management Approach

The Government will evaluate plans and processes for distribution and management of responsibilities and work.

The Government will evaluate the effectiveness of teaming, partnering, and subcontracting arrangements.

The Government will evaluate the Offeror's key capabilities, facilities, equipment, or unique combinations of those that are integral factors for achieving the proposed objectives and delivering the proposed products.

The Government's Past Performance Information Retrieval System (PPIRS) database for both the Offeror and Offeror's subcontractor(s) will be used to evaluate proposals. The Government will evaluate the Offeror's relevant past performance (previous 5 years), including the record of any significant proposed subcontractors (over 10 percent of the total amount proposed) or teaming partners. The Government will evaluate the relevancy and quality of past performance in advanced development of aerospace systems, launch systems, or their subsystems. The Government will notify Offerors of any past performance information reviewed in PPIRS determined as a weakness. After notification, the Offeror may provide to the Government supplemental information on the performance and the Offeror's corrective actions and the Government will consider this information in relationship to the weakness identified through PPIRS. Lack of relevant past performance will not be evaluated favorably or unfavorably. Past performance information submitted in the proposal will not be evaluated.

The Government will evaluate the Offeror's proposed ground rules and assumptions.

The Government will evaluate any deviations or exceptions to this NRA and the Model Contract/Model Grant, including the Data Procurement Document (DPD). The Government reserves the right to disqualify a proposal based on significant deviations or exceptions to this NRA and Model Contract/Model Grant.

The Government will evaluate Model Contract Clause B.3 Consideration and Payment, H.16 Advanced Agreements in Rights, as well as the Work Breakdown Structure (WBS). Additionally, as attached to the Model Contract or Model Grant, the Government will evaluate the Statement of Work (SOW). The Government will also evaluate the work effort schedule with technical milestones and the detailed description of deliverables (other than those in the DPD for a Model Contract).

5.1.1.2.2 Technical Approach

The Government will evaluate the technical objectives, methodology, and innovation used to accomplish the work effort. The Government will evaluate the extent to which the work effort utilizes innovation to accomplish the proposed objectives and how it measures against the present state of knowledge.

If the work effort includes an upgrade to the vehicle, the Government will evaluate the impact of implementation on other systems, subsystems, interfaces, or operations. If the proposed work

effort is not an upgrade to the vehicle (i.e. studies, analytical tools, databases), then an implementation approach is not required. For these cases where an implementation approach is not required, the lack of this information will not be evaluated favorably or unfavorably.

The Government will evaluate how related work experience is utilized in the proposed work effort.

The Government will evaluate the relationship of current and pending support to the proposed work effort.

5.1.1.3 Factor 3: Price

The Government will evaluate the overall price reasonableness, completeness, and extent to which the Offeror complied with the expected funding allocations in this NRA. Any contribution of corporate resources will be a consideration in determining reasonableness. No advantage will accrue to an Offeror who proposes to perform work for an unreasonably low price. The Government will evaluate the price proposed per information submitted in Appendix F (or Appendix G, as applicable), Element of Price Detail for Contracts (or Budget Summary for Grants, as applicable). The proposed firm fixed price contract or grant value, and its confidence level with the associated findings, will be presented to the Selection Official.

5.1.2 Basis of Award

The selection for award shall be based upon the evaluation of the Offeror's proposal and the Selection Official's decision as described in 5.2 of this NRA.

5.2 Evaluation and Selection Processes

5.2.1 General

Evaluation and selection of proposals submitted in response to this NRA will be consistent with the general policies and provisions given in C.3 through C.5 of Appendix C of *the NASA Guidebook for Proposers*. With respect to document precedence, in case of any conflict, the order of precedence to be followed is first, provisions of law; second, the NASA FAR Supplement; third, the specific requirements noted in this NRA; and lastly the direction provided in *the NASA Guidebook for Proposers*.

Every proposal will be evaluated on its own merits and not compared with other proposals. Evaluation of the proposals received in response to this NRA shall be accomplished by Government personnel only.

All Government personnel participating in the evaluation shall be bound to protect proprietary and source selection information.

5.2.2 Evaluation Process

5.2.2.1 Relevance to NASA’s Objectives Evaluation Process

Relevance to NASA’s Objectives will be given strengths and weaknesses for each proposal by the evaluation team. These strengths and weaknesses will be consolidated and assigned with significance as appropriate by the evaluation board. Significance of strengths and weaknesses are listed and defined in Table 2.

Table 2. Definitions of Types of Findings

Significant Strength	An aspect of the proposal that greatly enhances the potential for successful contract performance.
Strength	An aspect of the proposal that will have some positive impact on the successful performance of the contract.
Weakness	A flaw in the proposal that increases the risk of unsuccessful contract performance.
Significant Weakness	A flaw that appreciably increases the risk of unsuccessful contract performance.

After consolidating the strengths and weaknesses and assigning significance by the evaluation board, a consensus adjectival rating will be assigned to Relevance to NASA’s Objectives. These adjectival ratings are listed and defined in Table 3.

Table 3. Definitions of Adjectival Ratings based on Findings

Excellent	A thorough, and compelling proposal of exceptional merit that fully responds to the objectives of the NRA as documented by numerous or significant strengths and no significant weaknesses.
Very Good	A competent proposal of high merit that fully responds to the objectives of the NRA, whose strengths fully out-balance any weaknesses and none of those weaknesses constitute fatal flaws.
Good	A competent proposal that represents a credible response to the NRA, whose strengths and weaknesses essentially balance each other.
Fair	A proposal that provides a nominal response to the NRA but whose weaknesses outweigh any strengths.
Poor	A seriously flawed proposal having one or more major weaknesses that constitute fatal flaws.

5.2.2.2 Intrinsic Merit Evaluation Process

Intrinsic Merit will be given strengths and weaknesses for each proposal by the evaluation team, in accordance with the definitions listed in Table 2 above. These strengths and weaknesses will be consolidated and assigned with significance as appropriate, and a consensus adjectival rating will be assigned to Intrinsic Merit by the evaluation board. These adjectival ratings are based on the definitions in Table 3 above.

5.2.2.3 Price Evaluation Process

Findings will be given for Price for each proposal by the evaluation team. A consensus level of confidence in the Offeror's ability to successfully perform the work effort per the price proposal will be assigned by the evaluation board. These confidence levels are listed and defined in Table 4.

Table 4. Definitions of Confidence Levels for Price Proposal

High	The Government has a very high level of confidence that the Offeror can perform successfully at or below the proposed price.
Medium	The Government has a reasonable level of confidence that the Offeror can perform successfully at or below the proposed price.
Low	The Government has a marginal level of confidence that the Offeror can perform successfully at or below the proposed price.

5.2.2.4 Proposal Grouping

After adjectival ratings have been assigned to Relevance to NASA's Objectives and Intrinsic Merit Factors and confidence assigned to the Price Factor for each proposal, industry and academic proposals are separated into two distinct groups. Industry proposals will then be grouped by similarity of ratings by the evaluation board, and academic proposals will be grouped by similarity of ratings by the evaluation board.

5.2.3 Selection Process

Once the evaluations are finalized, the evaluation board Chairperson will present the findings and recommendations to the Selection Official for decision. The final selection decision will consider the evaluation board's ratings as well as program priorities, project balance, and available funding that represents the best value to the Government. The Selection Official is the Director of the Marshall Space Flight Center (MSFC).

When a proposal is not selected for award, the Offeror will be notified in writing. An Offeror desiring additional information may contact the Contracting Officer who will arrange a debriefing. Debriefings will be conducted in accordance with FAR/NFS Subpart 15.5, entitled *Pre-award, Award, and Post Award Notifications, Protests, and Mistakes*.

When a proposal is selected for award, negotiation and award will be handled by the MSFC Procurement Office. The proposal is used as the basis for negotiation. The Offeror shall provide a copy of their Organizational Conflict of Interest Avoidance Plan and IT Security Management Plan, and identify additional information with their updated Model Contract as directed by the Contracting Officer.

5.3 Partial Awards and Participation with Others

NASA may elect to offer selection of only a portion of a proposed work effort, usually at a level of support reduced from that requested in the original proposal or may also offer tentative selections in which NASA requests Offerors to team in a joint proposal. In such a case, the Offerors will be given the opportunity to accept or decline such selection. If the Offeror accepts such an offer, a revised budget and statement of work may be required before funding action on the proposal can be initiated. If the Offeror declines the offer of a partial selection or participation in a joint proposal, the offer of selection may be withdrawn in its entirety by NASA. Additionally, NASA may decide to award an effort for less than the full period of the proposal.

5.4 Selection Announcement and Award Dates

NASA's stated goal is to announce selections as soon as possible. However, NASA does not usually announce new selections until the funds needed for those awards are approved through the Federal budget process. Therefore, a delay in the budget process for NASA usually results in a delay of the selection date(s). After 150 days past the proposal due date for which a proposal was submitted, Offerors may contact, in writing, the responsible Contracting Officer listed in the NRA for the status of the selection activity.

Those Offerors not selected will be notified by electronic mail, and they may request a debriefing consistent with the policy in C.6 of *the NASA Guidebook for Proposers*.

NASA reserves the right to subsequently negotiate and make award to Offeror(s) not initially selected should funding become available. Proposals shall be valid for 12 months to allow for a later award should the opportunity become available, unless withdrawn by the Offeror prior to award.

5.5 Process for Appeals

5.5.1 Ombudsman Program. The NASA Procurement Ombudsman Program is available under this NRA as a procedure for addressing concerns and disagreements. The clause at NFS 1852.215-84 (“Ombudsman”) is incorporated into this NRA. The cognizant Marshall Space Flight Center (MSFC) Installation ombudsman is posted at http://prod.nais.nasa.gov/pub/pub_library/Omb.html.

5.5.2 Protests. Offerors may submit a protest under 48 Code of Federal Regulations (CFR) Part 33 (FAR Part 33) directly to the Contracting Officer. As an alternative to the Contracting Officer’s consideration of a protest, a potential Offeror may submit the protest to the Assistant Administrator for Procurement, who will serve as or designate the official responsible for conducting an independent review. Protests requesting an independent review shall be addressed to Assistant Administrator for Procurement, NASA Office of Procurement, Washington, D.C. 20546-0001. Protests, as defined in Section 31.101 of the FAR, that are filed directly with an agency, and copies of any protests that are filed with the General Accounting Office (GAO), shall be served to the Contracting Officer by obtaining written and dated acknowledgement of receipt from: Monica Heidelberg, Contracting Officer, PS42, George C. Marshall Space Flight Center, MSFC, AL 35812. The copy of any protest shall be received in the office designated above within one day of filing a protest with the GAO.

6.0 AWARD ADMINISTRATION INFORMATION

6.1 Award Notices

6.1.1 Notification of both the selected, as well as the non-selected Offerors, will be consistent with the policy given in C.5.3 of *the NASA Guidebook for Proposers*. For selected Offerors, the Offeror’s business office will be contacted by a NASA Contracting Officer, who is the only official authorized to obligate the Government.

6.1.2 A NASA Contracting Officer will determine the appropriate award instrument for the selections resulting from this solicitation and will be based on the size and scope of the awards. It is anticipated that firm-fixed-price contracts and grants will be the appropriate type of award instruments resulting from this NASA Research Announcement (NRA). Contract awards will be subject to the provisions of the Federal Acquisition Regulations (FAR) <https://www.acquisition.gov/far/> and the NASA FAR Supplement (NFS) <http://www.hq.nasa.gov/office/procurement/regs/nfstoc.htm>. Grants will be subject to the *NASA Grant and Cooperative Agreement Handbook* http://prod.nais.nasa.gov/pub/pub_library/grcover.htm.

6.2 Administrative and National Policy Requirements. This solicitation does not invoke any special administrative or national policy requirements, nor do the awards that will be made involve any special terms and conditions that differ from NASA's general terms and conditions as given in *the NASA Guidebook for Proposers*. Please note that Offerors shall comply with Homeland Security Presidential Directive / HSPD-12. HSPD-12 applicability will be determined during negotiation for award for selected proposals.

6.3 Reporting Requirements. Required reports for contract awards will be negotiated with the Offeror, subject to the terms and conditions of the FAR and NASA FAR Supplement, located at <https://www.acquisition.gov/far/> and <http://www.hq.nasa.gov/office/procurement/regs/nfstoc.htm>, respectively. Required reports for grants are covered in Exhibit G, Required Reports and Publications, of the *NASA Grant and Cooperative Agreement Handbook* http://prod.nais.nasa.gov/pub/pub_library/grcover.htm.

7.0 NASA CONTACT

Questions related to the preparation and submission of proposals shall be submitted to the point of contact shown below. All questions shall be submitted in writing by 1:00 p.m. Central Standard Time on April 10, 2012. Questions received after the specified date will not be addressed. Questions regarding this NRA will not be answered individually but will be addressed within the issuance of an amendment to this NRA. Inquiries by telephone or in person will not be accepted.

Point of Contact:

NASA Marshall Space Flight Center
Attn: Monica Heidelberg, PS42
Marshall Space Flight Center, AL 35812
monica.d.heidelberg@nasa.gov

Note: Proposals shall not be submitted to this email address. Proposals shall be submitted as described in 4.3 of this NRA, Proposal Submission Dates, Time, and Location.

No communication concerning this NRA may be made to any other NASA official other than those specifically listed in this NRA.

8.0 OTHER INFORMATION.

8.1 Announcement of Updates/Amendments to Solicitation. It is possible that additional programmatic information may develop before the proposal due date. If so, such

information will be added as a formal amendment to this NASA Research Announcement (NRA). Such additional information may be, but not limited to, clarifications or questions and answers. It is the responsibility of the prospective Offeror to check for updates concerning the Space Launch System (SLS) Advanced Development acquisition.

8.2 NASA Partnership Offices. Each NASA Center has a partnership office that can help coordinate and collaborate with industry and academia to support government agreements or partnerships. For Marshall Space Flight Center (MSFC), detailed requirements should be provided to the Partnership Office by 4:00 pm Central Standard Time on April 16, 2012. MSFC Letters of Intent are anticipated to be issued on May 1, 2012. The proposed Statement of Work (SOW) provided should be prepared in as much detail to permit a meaningful evaluation. Industry and academia should request from the Partnership Office the specific MSFC format for cost estimates to be delivered, such that the costs can be easily integrated into each partner's proposal. Offerors should contact each respective NASA Center for their corresponding formats and due dates. The following is contact information for each NASA Center:

- a. Johnson Space Center (JSC) – JSC Strategic Opportunities and Partnership Development Office, 281-483-3000, JSC-Partnerships@mail.nasa.gov
- b. Dryden Flight Research Center (DFRC) – John Del Frate, 661-276-3704, john.h.delfrate@nasa.gov
- c. John C. Stennis Space Center (SSC) – Anne Peek, Assistant Director, Project Directorate, Stennis Space Center, 228-688-1148, Anne.H.PEEK@nasa.gov
- d. Goddard Space Flight Center (GSFC) – Nona Cheeks, Chief Innovative Partnership Program Office, 301-286-5810, nona.k.cheeks@nasa.gov
- e. Langley Research Center (LRC) – Michele Ferebee, 757-864-5617, michele.t.ferebee@nasa.gov
- f. Kennedy Space Center (KSC) – KSC Center Planning & Development Office, Tom Engler, 321-861-3127, tom.engler@nasa.gov
- g. Glenn Research Center (GRC) – Office of Technology Partnerships and Planning, Joe Shaw, 216-977-7135, robert.j.shaw@nasa.gov
- h. Jet Propulsion Laboratory (JPL) – Commercial Program Office, Indrani Graczyk, 818-354-2241, Indrani.Graczyk@jpl.nasa.gov
- i. Marshall Space Flight Center (MSFC) – MSFC Partnerships Office, Stacy Counts, 256-544-6004, stacy.m.counts@nasa.gov
- j. Ames Research Center (ARC) – Technology Partnerships Division, David Morse, 650-604-4724, david.r.morse@nasa.gov

8.3 NASA Engine Test Stands. The following point of contact is provided to assist the Offeror in determining suitable NASA locations for engine testing:

Rocket Propulsion Test Program Manager, Roger Simpson, 228-688-1874,
Roger.D.Simpson@nasa.gov

9.0 CONCLUDING STATEMENT

Through this NASA Research Announcement (NRA), NASA encourages the participation of industry and academia in its Space Launch System (SLS) Advanced Development acquisition.