

**NATIONAL ACADEMY OF SCIENCES  
NATIONAL RESEARCH COUNCIL  
DIVISION ON ENGINEERING AND PHYSICAL SCIENCES**

**Evaluating NASA's Strategic Direction**

**SUMMARY**

This proposal requests funding for the NRC's Division on Engineering and Physical Sciences to organize an ad-hoc study to determine whether the strategic direction of NASA remains viable and if the agency's activities and organization efficiently and effectively support that direction in light of the potential for constrained budgets in the foreseeable future. The study will be carried out by staff from the division's Aeronautics and Space Engineering Board and Space Studies Board. The amount requested is \$834,104 for the period January 15, 2012 to January 14, 2013.

**BACKGROUND AND SCOPE**

NASA has a broad mandate to execute a balanced program that drives advances in science, space and aeronautics technology, and exploration to enhance knowledge, education, innovation, economic vitality, and stewardship of Earth. NASA regularly receives management and programmatic recommendations from GAO, the NASA Office of Inspector General (OIG) and various commissions and other entities, as well as outside advice on scientific and technical priorities from the National Academies.

However, the U.S. Congress has commented in the conference committee language associated with the FY2012 appropriation for the agency, that while each of these reviews is useful on its own, they are "generally targeted to a specific issue or program and therefore do not provide a comprehensive assessment of NASA's activities". In response the Congress has requested that an agency-wide assessment be commissioned to "evaluate whether NASA's overall strategic direction remains viable and whether agency management is optimized to support that direction."

In response to this request to the OIG has asked the National Research Council (NRC) to conduct a high-level independent assessment of NASA's strategic direction and organization.

**STATEMENT OF TASK**

The National Research Council will appoint an ad-hoc committee to assess whether the strategic direction of the National Aeronautics and Space Administration, as defined by the 2011 NASA strategic plan, remains viable and whether the agency's activities and organization efficiently and effectively support that direction in light of the potential for constrained budgets for the foreseeable future. In particular the committee will:

1. Consider the strategic direction of the agency as set forth most recently in *2011 NASA Strategic Plan* and other relevant statements of space policy issued by the President of the United States.
2. Consider the goals for the agency set forth in the National Aeronautics and Space Act of 1958 (as amended) and the National Aeronautics and Space Administration Authorization Acts of 2005, 2008 and 2010.
3. Consider previous studies and reports relevant to this task.
4. Assess the relevance of NASA's strategic direction and goals to achieving national priorities.
5. Assess the viability of NASA's strategic direction and goals in the context of current budget expectations and stated programmatic priorities for the agency.
6. Discuss the appropriateness of the budgetary balance between NASA's various programs;

7. Examine NASA's organizational structure and identify changes that could improve the efficiency and effectiveness of the Agency's mission activities; and
8. Recommend how NASA could establish and effectively communicate a common, unifying vision for NASA's strategic direction that encompasses NASA's varied missions.

Any recommendations made by the committee will be predicated on the assumption that NASA's out year budget profile will be constrained due to continuing deficit reduction.

### **PLAN OF ACTION**

The committee's analysis and evaluation efforts will be based on their collective expertise derived from information and data gathered independently during the course of this study, and supported by the findings and recommendations of relevant reports released by the NRC, the Government Accountability Office, and the Office of the Inspector General, as well as the 2009 report of the "Review of the U.S. Human Space Flight Plans Committee ("the Augustine Committee"), and reports from other relevant independent organizations as identified during the course of the study.

In considering issues related to assessing the viability of NASA's strategic direction and goals, the committee may consider such questions as whether NASA will be able to effectively pursue specified strategic goals given current and likely future budgets and the current state of the applicable science and technology; lines of authority and responsibility are clear; particular goals are too optimistic and therefore should be revised; or the complete set of goals is too optimistic requiring a downselect?

In considering the relevance of NASA's strategic direction and goals, the committee may assess relevance in terms of achieving national priorities in areas such as, but not limited to, space and earth science, human exploration, aeronautics research, technology development, preserving the leadership of the United States in space and aeronautics, national security, international cooperation, and any other criteria the committee may choose.

In considering the budgetary balance, the committee is expected to look at the adequacy of the budgets primarily at the mission directorate level, although the committee may choose to comment on the adequacy of the budgets for major individual programs where they are of particular strategic importance. The committee will not make specific dollar amount budget recommendations but may offer guidance on where budgets across the agency appear to be adequate, excessive, or deficient.

The study period will be 12 months with the committee meeting and completing its task over the course of 7 to 9 months (from appointment to release of the report in pre-publication format). The timeline below lays out a notional set of milestones:

- January 15, 2012: Study funds received by NRC and committee recruitment begins.
- February/March: Committee appointment is finalized by the NRC and first meeting is scheduled and announced. First 3-day meeting for data gathering is held in Washington DC.
- April: Second 3-day meeting for data gathering is held at a venue TBD.
- May/June: Third and fourth 3-day meetings are held at a venue TBD: Committee meets to finalize its report at a venue TBD. Report enters NRC review phase in June.
- July 31 2012: Review is completed and prepublication report is released.
- August - December: Report goes through final editing and publication and the committee leadership is engaged in disseminating the report's content.

This timeline is predicated on receiving funds by January 15, 2012. The timeline will shift accordingly should funds be received after that date.

The committee will hold up to 4 meetings. Two or three of the meetings will be data gathering meetings held in Washington D.C. and other appropriate venues. The data gathering sessions will be open to the public (subject to the space limitations of the venues used). The committee may also consider soliciting the accumulated knowledge of former NASA employees and other experts in industry, government, and academia through targeted workshops or other meetings, or the issuing of a request for information.

The first meeting will focus on discussions with current NASA leadership (including the Administrator, Deputy Administrator, and Associate Administrators across the agency), representatives of the Executive Office of the President, members and/or staff of the U.S. Congress, and other government or non-government stakeholders. The first meeting will also provide an opportunity for the committee to hear directly from the chairs and other committee members of relevant NRC studies. The second and third meetings will focus on gathering data and information identified by the committee as necessary for completion of this task. The fourth meeting will focus on the committee reaching a final consensus on its findings, conclusions, and recommendations.

The committee will be assisted by a team of NRC staff with experience on studies that cover the breadth of NASA's activities. To ensure that no current NASA employees or current employees of major aerospace industrial contractors for NASA will be members of the committee, NRC conflict of interest and FACA policies will apply. The NRC may hire an outside consultant or organization to supplement the available expertise to the committee and to ensure the task can be completed in the expedited manner envisioned.

## **PROJECT OVERSIGHT**

The proposed contractor is the National Research Council, the operating arm of the National Academy of Sciences (NAS). The NAS was created by the federal government to be an adviser on scientific and technological matters.

The long established status of the National Academy of Sciences (NAS) as a noncompetitive source of scientific research and policy advice to the Government derives from its creation by Congress in 1863 (36 U.S.C. Sec. 253). This special status and relationship with the Government was reconfirmed by E.O. 2859, May 11, 1918, as amended by E.O. 10668, May 10, 1956. The noncompetitive status of the NAS was most recently formally recommended in E.O. 12832 on January 19, 1993. This order cites the special relationship of the Academy to Government and its unique capacity to marshal scientific expertise of the highest caliber in order to provide independent and objective science policy advice.

The Division on Engineering and Physical Sciences (DEPS) is concerned with expanding basic knowledge in the physical sciences and engineering and applying these disciplines in the service of humankind. In support of these goals the Division Committee will articulate intellectual and strategic goals for the Division, with particular attention to the promotion of intra- and inter-division collaborations to capture interdisciplinary opportunities that are emerging or likely to emerge; ensure the quality of the Division's work, perform strategic reviews of the Division's boards, and approve board members; and provide direction on emerging issues, and review the Division's structure and operational ability to pursue these issues. The Committee will also annually review the Division's activities, reports, successes, and challenges, and articulate its vision of how the Division must evolve in the future.

The Space Studies Board (SSB) was established in 1958 to serve as the focus of the interests and responsibilities in space research for the National Academies. The SSB provides an independent, authoritative forum for information and advice on all aspects of space science and applications. It oversees advisory studies and program assessments, facilitates international research coordination, and promotes communications on space science and science policy between the research community, the federal government, and the interested public. The SSB also serves as the U.S. National Committee for the International Council for Science (ICSU) Committee on Space Research (COSPAR).

The Aeronautics and Space Engineering Board (ASEB) was established in 1967 "to focus talents and energies of the engineering community on significant aerospace policies and programs." In undertaking its responsibility, the ASEB oversees ad hoc committees that recommend priorities and procedures for achieving aerospace engineering objectives and offers a way to bring engineering and other related expertise to bear on aerospace issues of national importance.

Appendix A includes the DEPS, SSB, and ASEB membership rosters.

### **FEDERAL ADVISORY COMMITTEE ACT**

The Academy has developed policies and procedures to implement Section 15 of the Federal Advisory Committee Act, 5 U.S.C. App., Section 15. Section 15 includes certain requirements Regarding public access and conflicts of interest that are applicable to agreements under which the Academy, using a committee, provides advice or recommendations to a Federal agency. In accordance with its Congressional Charter and the requirements of Section 15, the Academy must provide independent, unbiased advice without actual or perceived interference or management of the outcome (findings and recommendations). Therefore, the Academy requires the right to publish all unclassified materials without any restriction over content and release, including any restriction that may require prior approval from the sponsoring agency.

In accordance with Section 15 of FACA, the Academy shall submit to the government sponsor(s) following delivery of each applicable report a certification that the policies and procedures of the Academy that implement Section 15 of FACA have been substantially complied with in the performance of the contract/grant/cooperative agreement with respect to the applicable report.

### **PUBLIC INFORMATION ABOUT THE PROJECT**

In order to afford the public greater knowledge of Academy activities and an opportunity to provide comments on those activities, the Academy may post on its website (<http://www.national-academies.org>) the following information as appropriate under its procedures: (1) notices of meetings open to the public; (2) brief descriptions of projects; (3) committee appointments, if any (including biographies of committee members); (4) report information; and (5) any other pertinent information.

### **ESTIMATE OF COSTS**

The estimated cost for these activities for the period January 15, 2012 – January 14, 2013 is \$834,104.