

U.S. HOUSE OF REPRESENTATIVES  
COMMITTEE ON SCIENCE AND TECHNOLOGY

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September 3, 2010

**Prof. Scott Hubbard**  
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Dear Prof. Hubbard:

Thank you for the letter delivered to me earlier this week that you added your name to regarding the future of NASA. I read this letter closely, and I appreciate your time and interest. I agree with you that NASA is a critical component of American economic competitiveness. The Committee on Science and Technology has championed many of the themes that were brought forward in this letter, namely a sustained investment in federal research, a commitment to technology development, improving education for our children, and most notably ensuring America's long-term economic competitiveness. We will maintain that commitment as we work toward a final bill for House consideration and with our colleagues in the Senate on a final compromise.

For far too long, I have been concerned that NASA has been given too many missions and too few dollars to fulfill them. The result has either been too much money wasted on either unfocused, unexecutable programs or funding shortages for critical missions. NASA is at a crossroads. To ensure the continued success of the world's most accomplished space program, we must develop a path forward that is balanced, sustainable, mission-driven and executable. At a time of very difficult budgetary realities, we must now connect all the dots within our NASA programs. In short, we must develop a NASA budget that is honest. That point is further emphasized as we look ahead to tight budgetary realities for the foreseeable future. Accordingly, tough decisions and choices are necessary. Despite that, I believe the bipartisan bill developed by our Committee is a common-sense and balanced solution to a complicated situation that will help avoid future instability for the agency.

In February, the president's budget request proposed several initiatives for NASA in the coming years, many of which the Committee fully supports. At the same time, we had questions and concerns about the human space flight proposals, specifically the structure of program and the full costs of the program. After months of requesting further clarification it became clear that no such explanations would be available. Reluctantly, the Committee came to the conclusion that the president's new human space flight program, much like the current Constellation

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program, was unexecutable under the current budget projections and the other NASA priorities we all agree must be addressed. This conclusion was not reached in haste and was based upon several months of hearings from expert witnesses. Moreover, the Committee received a letter (attached) earlier this year by the Aerospace Corporation in response to questions submitted by Subcommittee Chairwoman Gabrielle Giffords that raised concerns about the assumptions made to justify the president's budget request.

Unfortunately, this situation was made more complicated by the president's announcement in April to add a multi-billion dollar crew rescue vehicle program into NASA's budget request without providing any additional funding to NASA. This additional programmatic cost would require offsets of \$1-2 billion per year over the next five years from other NASA accounts. It is still unclear what the implications of that budgetary shortfall would be. But to fund such a new and expensive item would require cutting programs in the original budget request submitted in February in order to provide the necessary offsets in the absence of any additional funding, which the Administration has refused to ask for. The hard reality is that the Administration has sent an unexecutable budget request to Congress, and we now have to make tough choices so that the nation can have a sustainable and balanced NASA program.

In making those tough choices, I firmly believe that the Committee has acted in a manner consistent with the goals articulated in your letter. Specifically, I would like to address the areas brought forward in the letter:

**1. Reinvigorating technology development**—The Committee's bill provides more than *\$2.6 billion* for Space Technology development over the three year life of the bill. That total includes funding previously included in the Exploration program's Exploration Technology Development account. It was moved into the new Space Technology account in the Committee's bill to help prevent exploration technology development funding from being "raided" to pay for other Exploration-related activities, as has happened in the past. As a point of comparison, that amount represents roughly a 50 percent increase in funding provided for technology development relative to that provided in the Administration's Fiscal Year 2010 budget request for the years FY 2011-2013. That is a significant commitment to reinvigorating NASA's technology development programs in the face of a very constrained overall budget.

**2. Supporting commercial spaceflight**—in addition to the supportive policy provisions, the bill provides more than *\$2.5 billion* for U.S. commercial cargo and crew activities over the three year life of the bill. Contrary to the suggestion in your letter, the Committee's bill "invests" no more in the Russian launch industry than the president's budget request. Regarding commercial cargo, there seems to be a misunderstanding about the commercial cargo funding augmentation included in the president's budget request. The funding included in our bill is consistent with the funding levels included in the agreements with the commercial cargo companies under the Commercial Orbital Transportation Services (COTS) program. Neither NASA nor the companies involved have stated that the commercial cargo funding augmentation is needed to meet the commercial cargo demonstration commitments laid out in the COTS demonstration

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program, which argues for reallocating the funds to higher priority NASA activities. Some NASA officials have indicated that the challenges confronted in developing commercial cargo transportation systems argue for the additional funding to reduce the risk of the vital International Space Station cargo deliveries being delayed. This raises a number of questions about the status of the commercial development and whether the commercial providers will meet their contractual milestones under the follow-on commercial resupply services contracts. Additional funding would require further adequate justification which to date has not been provided.

In addition, the concerns raised by the request for commercial cargo funding augmentation reinforces the view of many in Congress that it is premature to make NASA's human space flight plans dependent on the achievement of the significantly more difficult objective of developing commercial crew systems by a date-certain and for an assumed cost. With these concerns and a tight budget, it became difficult to provide additional funds for commercial crew development. Nonetheless, the Committee did recognize the need to explore creative mechanisms for providing financial assistance for commercial crew. The bill as reported by the Committee included a loan guarantee program for commercial crew development that offered the potential of leveraging significant additional private-sector funding for these activities. Unfortunately, the financial risk that the Congressional Budget Office assumes would be incurred by the federal government for these loan guarantees is so high that it makes the program unviable, since the assumed non-government market is extremely uncertain. As a result, we will need to remove the loan guarantee provisions from the bill. Moving forward, we will continue to look for ways to cost effectively fund commercial crew-related activities that can benefit the whole industry while ensuring that other critical missions are supported and within the overall budgetary constraints.

**3. Restoring Robotic Precursors**—While the bill encourages NASA's exploration program to seek synergies with NASA's science program in exploring activities that can provide both exploration and scientific benefits and provides for the start of a robotic precursor program in FY 2013, the Committee believes that it is premature to make significant investments in exploration-focused precursor missions before the human exploration program has been clarified. One only has to look at the Administration's robotic precursor budget request to see that it is ill-defined, e.g., a lunar lander/in-situ resource extraction demonstration mission being proposed at the same time the president is stating that he has no intention of pursuing a human lunar mission; and a proposed mission to visit a Lagrangian point, despite the fact that NASA has had Lagrangian point spacecraft operating in that environment for the past several decades.

**4. Revitalizing University and Student Research**—In addition to the technology development funding discussed earlier, the Committee's bill funds NASA's science program at a level *higher* than was proposed in the president's budget request. That augmented funding is provided for activities identified by the National Academies and STEM advocates as important for the development of the next generation of space scientists and engineers—namely NASA's suborbital program and NASA's Explorer program. Funding above the president's request is also provided to start to rebuild the nation's life science and physical sciences microgravity

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research program, which suffered significant reductions in recent years to the detriment of the university research community. In addition, the bill fully funds NASA's Education program, including funds requested for the Space Grant program. The bill also includes STEM-related policy provisions analogous to those in the America COMPETES legislation. In contrast to the August 12<sup>th</sup> letter of support sent to me and to the Ranking Member of the Committee from the Association of American Universities, an organization that I think you will agree has a profound commitment to the advancement of science and technology in America and the maintenance of a vibrant university research community, your letter fails to recognize any of the above initiatives.

Finally, your letter makes no mention of the fact that the bill fully funds the president's budget request for Earth science and aeronautics research. You may be under the mistaken impression that such support can be taken for granted in Congress, but I can assure you that there are no "givens" in the highly constrained budgetary environment we are facing at present. The Committee's decision to support the significant augmentation in Earth science and aeronautics funding requested by the president imposed constraints on funding available for the programs you mentioned in your letter. I believe the Committee's judgment was the correct one, but it had clear budgetary consequences for NASA's other accounts. If you believe that additional funding for the programs you mentioned in your letter should take precedence over these science and aeronautics funding increases provided by the Committee, please inform me of that fact so that we can take your views into account in our deliberations on the final form of the NASA Authorization bill.

In summary, I believe that the Committee's NASA Authorization bill is consistent with the technology and innovation and education goals you describe in your letter. We all recognize this is not a perfect bill and understand that there are several "nice-to-haves" that have been deferred while other worthy activities have been funded at a lower level. At the same time, this is just one step in the process. I have always believed that this must be a collaborative and inclusive process, which is clear from the overwhelming bipartisan support this bill has received. As we move forward, it is my hope that you will continue to share your thoughts and comments with me and the other members of the Committee to help better guide our effort. But again, it is important to keep in mind that increasing funding in one program will require a funding reduction in another program.

In the end, we all believe it is critical to have a fiscally responsible, sustainable, and executable program for NASA. We don't want to find ourselves in a few years in the same situation where we need a lengthy review and a commission to help rectify the fact that we've been giving NASA more mission than money.

Sincerely,



BART GORDON  
Chairman