

Decisions on the Future Direction and Funding for NASA: What Will they
Mean for the U.S. Aerospace Workforce and Industrial Base?
House Committee on Science and Technology
December 10, 2009

Chair: [Bart Gordon](#) (D-TN)

Ranking Member: [Ralph Hall](#) (R-TX)

Witnesses:

- David Thompson, President, American Institute of Aeronautics and Astronautics ([prepared statement](#))
- Marion C. Blakey, President and Chief Executive Officer, Aerospace Industries Association ([prepared statement](#))
- A. Thomas Young, Executive Vice President (ret.), Lockheed Martin Corporation ([prepared statement](#))
- Richard Aubrecht, Vice Chairman, Vice President, Strategy and Technology, Moog Inc. ([prepared statement](#))

Background

This hearing continued the work of the committee in looking at key issues in the U.S. civil space program of particular concern in the context of the Obama Administration's review of human spaceflight plans by a committee led by Norman Augustine. The purpose was to assess the health of the U.S. aerospace workforce and industrial base and to discuss the potential impacts that decisions on NASA's future would have on them. Two main issues of concern are the protection and the rate of growth of the skilled workforce in science, technology, engineering and mathematics (STEM) fields. In 2007, a [study](#) by the National Research Council, *Rising Above the Gathering Storm*, painted a grim picture of the U.S. ability to compete internationally in the education and support of the STEM labor base. In the case of the aerospace sector, workforce concerns have been at the forefront of debates over U.S. human spaceflight capabilities ever since President George W. Bush's 2004 announcement of the Vision for Space Exploration that mandated retirement of the Space Shuttle in 2010 and initiation of a new program to return humans to the Moon and eventually go to Mars — Project Constellation. To address these issues, Congress directed NASA to develop a [Workforce Transition Strategy](#) that would bridge between the Space Shuttle program and Constellation. As the Obama Administration considers whether to continue with Constellation or opt for one of the other alternatives suggested in the Augustine

Committee report, concerns over what the future holds for the critically important aerospace workforce and industrial base have resurfaced. For more information, see the hearing [charter](#) and [webcast](#).

Nuggets

“...just like Humpty-Dumpty: if we lost NASA’s workforce it would be very difficult to put back together.”

Chairman Bart Gordon

“Lack of job security in aerospace will dim the light of attraction.”

Ms. Marion Blakey

“The Constellation program is clearly the next chapter in our history in space.”

Dr. Richard Aubrecht

Hearing Highlights

Chairman Gordon opened the hearing by welcoming Representative John Garamendi (D-CA), the newest member of the Committee.¹ This was quickly followed by Space and Aeronautics Subcommittee Chairwoman Gabrielle Gifford’s (D-AZ) [opening statement](#) where she underscored the importance of supporting the highly skilled aerospace workforce, the backbone of U.S. efforts in space. “Because it’s not just a question of the number of jobs...it’s also the quality of the jobs that should be a significant consideration,” she said, a sentiment that was echoed repeatedly during the hearing. Chairman Gordon commented that “just like Humpty Dumpty: if we lost NASA’s workforce it would be very difficult to put back together.”

In his [opening statement](#), Ranking Member of the Space and Aeronautics Subcommittee, Representative Pete Olson (R-TX), said that one of the issues facing the aerospace industry is “a workforce approaching retirement without the opportunity to teach the next [generation].” Mr. Thompson, President of the American Institute of Aeronautics and Astronautics (AIAA), who is also President of Orbital Sciences Corp., added that “50% of the current workforce is eligible for retirement” and that the current rate of entry into the workforce is insufficient because only about 15% of students are earning their first degree in engineering or science fields. But this is clearly not just an issue of numbers; there is also the critical learning component of the specific culture of the aerospace workforce. Mr. Young, Executive Vice President (ret.) of the Lockheed Martin Corporation, described the “unforgiving nature of spaceflight” as a “one strike, you’re out enterprise,” conditions that have created a special kind of skill set and culture. Dr. Aubrecht, Vice Chairman and Vice President of Moog Inc., explained that the true knowledge is in the people; “it’s not in the drawings.” In his assessment, the

¹ Representative Garamendi was elected on November 3, 2009 to fill the seat vacated by Representative Ellen Tauscher, who resigned from Congress to serve as Assistant Secretary of State for Arms Control and International Security. He was sworn into office on November 5, 2009 to represent the 10th congressional district of California.

Constellation program is “the next chapter in our history in space” and will provide the mentoring opportunity to bridge the Shuttle generation with the next one. “I think that is the critical issue: direct transition from one generation to the next.”

Both Mr. Thompson and Dr. Aubrecht advocated the reexamination of immigration and visa laws which are currently making it difficult for U.S. companies to attract professionals from abroad. Representative Marcia Fudge (D-OH) offered a countervailing view, saying that the focus should be on educating young students and not on attracting workers from abroad, which she views as a short term solution. In a related issue, Representative Olson asked the panel how the right balance can be struck between greater engagement with foreign countries and the need to save and create jobs nationally. Ms. Blakey, President and CEO of the Aerospace Industries Association, replied that “this is a question of growing our activities; in the long run the pie becomes bigger not smaller.” She talked about research that is being done onboard the International Space Station which has resulted from international investment and which may see more growth in that direction, creating more opportunities. “Additional jobs in multi-levels” can grow from international cooperation she added.

Another major theme of the hearing was the importance of human spaceflight for the attraction and inspiration of young people to STEM fields and their integration into the aerospace workforce. Mr. Thompson, who spoke of the “catalytic role of human spaceflight,” presented a short video with testimonies from AIAA professionals who had been inspired by key events in the history of human spaceflight. Ms. Blakey agreed about NASA’s ability to attract young students, but warned that “uncertainty over NASA’s funding” could have the opposite effect: “lack of job security in aerospace will dim the light of attraction” to work in this field. The other panel members made the same criticism, arguing that maintaining the health of the workforce depends on stability of funding.

Human spaceflight has also been instrumental in the development of the industrial base. As an example, Dr. Aubrecht described the success of his company, Moog Inc., now the premier supplier of precision motion control services, as an activity that began with NASA programs. “Our experience is not a singularity,” he said. But this close link also highlights the vulnerability of the industrial aerospace sector. Mr. Thompson warned that a major cutback in human spaceflight programs would have “a ripple effect,” causing extensive “collateral damage” not only on the supply side, but also in commercial, defense, and scientific space programs.

At the end of the hearing, panel members painted a picture of interdependence between Washington policymaking and workforce issues, making it clear that the decisions facing the Administration and Congress on the direction and funding of NASA will be critical in determining the future of the aerospace workforce and industrial base.